

MagicQ Manual

support@chamsys.co.uk

Latest Update, 2026-11-03

Contents

Introduction . . . 3
MagicQ Software and Consoles . . . 4
MagicQ MQ500M+ Stadium Console . . . 4
MagicQ Compact Series . . . 6
MagicQ Rack & DIN . . . 6
MagicQ Wings for use with PC/Mac . . . 8
Plugging Up . . . 9
DMX Connections . . . 9
Powering Up . . . 9
Powering Down . . . 9
Resetting the Console . . . 10
Hard Reset . . . 10
Power Supply Protection . . . 10
Care of Your MagicQ Console . . . 11
Safety Information . . . 11
Security Information . . . 11
Maximum Ambient Operating Temperature . . . 12
Disposal Information . . . 12
FCC Part 15 Notice . . . 12
RoHS Compliance . . . 13
Safety Notice – Pyrotechnics and Special Effects . . . 13
Installing MagicQ Software & Drivers . . . 14
MagicQ Software . . . 14
MagicDMX . . . 14
MagicQ Wings & Interfaces . . . 14
MagicQ on Windows . . . 15
MagicQ on Mac . . . 21
MagicQ on Linux . . . 24
Using MagicQ on PCs and Macs . . . 26
Simple Generic Console . . . 26
Technician Test Head . . . 27
Demo Shows . . . 28
Touch View . . . 29
Playback Mode . . . 29
Saving Shows to USB Drives from PC Systems . . . 29
Copy and Paste to External Applications via the Clipboard . . . 30
MagicQ PC / Mac Restrictions (Demo Mode and Core Mode) . . . 30
MagicQ Concepts . . . 34

Show Storage . . . 34
Output Channels . . . 34
Cues . . . 36
Cue Stacks . . . 36
Playbacks . . . 37
Pages . . . 37
FX . . . 37
Window Layouts . . . 37
Shift Functions . . . 38
The Programmer . . . 38
Help . . . 39
MagicQ Layout . . . 40
Physical Layout . . . 40
Keyboard, Keypad, Select & Confirm Windows . . . 48
Common Actions . . . 48
Icons . . . 51
Quick Start . . . 53
Starting Up MagicQ . . . 53
Calibrating the Touch Screen . . . 53
Starting a New Show . . . 53
Enabling Outputs . . . 54
Connecting a MagicQ Playback Wing . . . 56
Connecting External Monitors . . . 57
Patching . . . 57
Controlling Heads . . . 60
Naming a Group . . . 61
Recalling a Group . . . 61
Setting Levels for Dimmers . . . 61
Locating Heads . . . 62
Modifying Attributes . . . 62
Recording a Palette . . . 64
Adding in FX . . . 65
Recording a Cue . . . 65
Recording a Cue Stack (Chase or Theatre Stack) . . . 65
Selecting and Recording Complete Window Layouts . . . 66
Saving the Show . . . 67
Playback . . . 67
Patching . . . 68
Patching on MagicQ . . . 68
Getting Started with Patching . . . 68
Patching a Head or Dimmer . . . 68

Head Names and Head Numbers . . . 70
Gel Name and Number . . . 72
Col Tags . . . 72
Generating Auto Groups . . . 72
Auto Palettes . . . 73
Heads with Multiple Elements . . . 73
Inverting . . . 75
Swapping . . . 75
Pan and Tilt Offsets . . . 75
Applying Offsets Using Update . . . 75
Minimum and Maximum Levels . . . 76
Limits and Offset . . . 76
Dimmer Curves . . . 76
Channel Damping . . . 77
Testing Channels . . . 77
Changing the DMX Address of Heads . . . 78
Changing the mode of a Head . . . 78
Patching a Head to Multiple DMX Addresses . . . 79
Unpatching a Head from a DMX address . . . 79
Patching Scrollers . . . 79
Editing Heads . . . 80
Cloning (Adding Extra Heads / Dimmers to a Programmed Show) . . . 80
Morphing Heads (Changing Head type) . . . 81
Importing Heads . . . 83
Exporting Heads . . . 88
VL5 Type Channels (Split Personalities) . . . 88
QR code patch export . . . 89
Merging with DMX Input . . . 89
Customising Locate, Default, Highlight and Lowlight values . . . 90
Theatre Patch Syntax . . . 90
Virtual Dimmers . . . 91
Patch Head Filtering . . . 92
Selecting Heads . . . 94
Group Window . . . 94
Using Groups . . . 94
Heads View . . . 101
Selecting Heads Using the Keypad . . . 101
Selecting Heads using the Rig Plan View . . . 103
Changing Overall Selection Order . . . 103
Sub Selecting Individual Heads . . . 103
Selection of Elements . . . 106

And Only . . . 110
Reselecting heads using Palettes and Intensities (Active Palette and Intensity) . . . 110
Setting Intensity Levels . . . 112
Using the on Screen Faders . . . 112
Using the Encoders . . . 112
Using the Keypad . . . 113
Setting Intensity FX from the Keypad . . . 114
Multi Element Heads . . . 115
Setting intensity levels for DMX channels . . . 115
Using Selected Heads . . . 115
Using gel colours in the Intensity Window . . . 116
Setting levels whilst running a show . . . 117
Inbuilt Intensity Masters . . . 117
Viewing Intensities in the Outputs Window . . . 118
Controlling Attributes . . . 119
Head Macros . . . 119
Locating Heads . . . 119
Modifying Attributes . . . 120
Colour Attributes . . . 121
Flip / Mirror . . . 121
Setting Attribute Values Using the Keypad . . . 122
Reversing Rotations . . . 122
Snap Colour . . . 122
Default Colour . . . 122
Highlight Mode . . . 122
Fan Mode . . . 124
Applying Palettes from the keypad . . . 125
Palettes . . . 126
Using Palettes . . . 126
Recording Palettes . . . 127
Intensity Palettes . . . 128
Duplicate Elements in Palettes . . . 129
Naming Palettes . . . 129
Updating Palettes . . . 130
Copying and Moving Palettes . . . 130
Removing Attributes from Palettes . . . 130
Viewing / Editing Palette Contents . . . 131
Linked Palettes . . . 131
Using Palettes with Times . . . 132
Making Palettes into Cue Stacks . . . 133
Selecting Palettes from the keypad . . . 134

Merging of Palettes from Another Show . . . 134
Modifying Palettes in the personality . . . 135
Capturing Palettes from DMX input . . . 136
Expanding Palettes . . . 137
Replacing Palettes in Cues . . . 137
Tracker Palettes . . . 138
XYZ Palettes . . . 138
Default Palettes . . . 139
FX Engine . . . 142
Adding in FX . . . 142
Generating User FX . . . 157
Editing User FX . . . 158
Palette FX . . . 158
FX Colour Flicks . . . 159
FX Using Base Colour . . . 160
Group Based FX . . . 160
FX on Heads with Duplicated Elements . . . 162
Simple Pixel Map FX . . . 163
FX Window . . . 165
Importing and Exporting the FX Library . . . 167
Programmer . . . 168
What Is in the Programmer? . . . 168
Clearing the Programmer . . . 168
Activation by Channel or by Head? . . . 169
Recording a Cue . . . 169
Split Cue Times . . . 171
Recording to a specific Cue Id . . . 173
Snapshot Icons . . . 173
Record Options . . . 173
Active . . . 176
Removing Channels from the Programmer . . . 176
Making Channels Hard Values . . . 177
Copy between Heads . . . 178
Blind Programming . . . 179
Parking (Freezing) Channels . . . 179
Outputs Windows . . . 180
Heads View . . . 180
Intensity View . . . 181
DMX Channels View . . . 182
Movement View . . . 182
Chart View . . . 183

Scope View . . . 183
Plan View . . . 183
Editing Cues . . . 191
Including Cues into the Programmer . . . 191
Editing Using Include and Update Method . . . 192
Record Merge (Updating a Cue with the contents of the programmer) . . . 193
Making Changes to Multiple Cues . . . 193
Editing Using Update . . . 194
Direct Modification of Intensities in Cues . . . 194
Copy Heads in Cues . . . 195
Cue Stacks . . . 196
Cue Stack Window . . . 196
Chase Timing . . . 197
Cue Timing . . . 197
Tracking . . . 199
Cue Only . . . 203
Mark Cues . . . 203
The Cue Store and Cue Stack Store . . . 204
Assigning Cues and Cue Stacks . . . 205
Copying and Moving Cues . . . 206
Linked Cues . . . 207
Copying Cue Stacks . . . 207
Removing Cues and Cue Stacks . . . 208
Cue Stack Defaults . . . 208
Col Tags . . . 208
Cue Stack Favourites . . . 209
Audio in Cue Stacks . . . 209
Cue Stack Variables . . . 212
Cue Stack Macros . . . 213
Timecode Cue Stacks . . . 220
Cue Stack Timecode Tracks . . . 223
Importing Timecode Timings . . . 224
Playback . . . 227
Playback Display . . . 227
Activating and Releasing Playbacks . . . 227
Fader Control . . . 228
Playback Buttons . . . 228
Playbacks Window . . . 235
Bank Pages . . . 239
Default Cue Stacks . . . 239
Synchronising Playbacks . . . 239

Set Lists . . . 240
Cue Stack Options . . . 241
Faders . . . 241
Buttons . . . 245
Function . . . 248
Activate/Release . . . 251
Advanced . . . 253
Chase Options . . . 258
Audio . . . 260
Step (View Defaults Only) . . . 262
Step Times (View Defaults only) . . . 264
FX (View Defaults Only) . . . 265
Advanced Playback / Cue Stack Options . . . 266
Interaction of HTP and LTP channels between Playbacks . . . 266
HTP Handling . . . 266
LTP Handling . . . 266
All Chans Controlled LTP . . . 267
HTP Always Active (Use HTP) Option . . . 267
Interaction of FX between Playbacks . . . 268
Playback Priority . . . 268
Playbacks Ignore Masters Levels . . . 269
Playback Stomping . . . 269
Group Masters (Inhibit Masters) . . . 269
Speed Masters . . . 271
Advanced Activate and Release Options . . . 271
Live Programming (Busking) . . . 272
Adding Individual Channels Using Preset Faders . . . 272
Over-Ride / Takeover . . . 272
Viewing Cues and Cue Stacks . . . 272
Modifying Chase Speed / Crossfade . . . 272
Modifying FX Parameters . . . 273
Stop / Starting Cue Stacks . . . 273
Jumping to a Cue in a Cue Stack . . . 273
Overriding Using the Programmer . . . 274
Adding in New FX . . . 274
Applying Palettes with Time . . . 275
Releasing / Clearing with Time . . . 275
Speed Control . . . 275
Busking Master . . . 279
Programmer Master . . . 279
Live Macro . . . 280

Prog Store . . . 281
Group Cues . . . 283
Group Levels . . . 284
Fanning . . . 285
Group Elements . . . 285
Fade Times . . . 286
Recording . . . 286
Including / Update . . . 287
Active / Snapshot . . . 287
Copying Head Values . . . 287
File Saving / Exporting / Merging . . . 287
Updating Groups . . . 288
Updating Cues . . . 288
Removing Unused Group Cues . . . 289
Temporary Recording of a Group Cue Instead of a Head Cue . . . 289
Converting Group Cues to Head Cues . . . 289
Execute Window . . . 290
Design View . . . 290
Full Screen View . . . 291
Password Protection . . . 291
Automated Start . . . 292
Sizing of Items . . . 292
Faders . . . 292
Buttons . . . 293
Regions . . . 293
Sharing Regions . . . 294
Timing . . . 295
Rate and Parameters . . . 295
Execute Window FX . . . 296
Execute Window Soft Palettes . . . 296
Execute Window Sequencing . . . 296
Execute Window Group . . . 297
Button Appearance . . . 297
Speed Encoders . . . 298
Attribute Encoders . . . 298
Preload . . . 298
Background . . . 299
Special Options . . . 299
Execute Window on iOS/Android Remote . . . 305
Execute Buttons on Go/Pause buttons . . . 306
Multiple Execute Windows . . . 306

Automation . . . 307
MagicQ Automation Window . . . 307
Scheduled Events . . . 315
Support for Lyntec Products . . . 317
Automated Start of Playbacks / Executes . . . 318
Keyboard Macros . . . 318
Motorisation and Customisation . . . 322
Stadium Playback Banking . . . 322
Fader Modes . . . 322
Playback Encoders . . . 327
LED & Pixel Mapping . . . 329
Patching LED on MagicQ . . . 330
Using the Grid view in the Outputs Window . . . 331
Pixel Mapper . . . 333
3D Pixel Mapping . . . 349
Multi Element Heads . . . 354
Making Grids of Groups . . . 354
Programming LED Using Standard FX . . . 354
Making Groups Out of LED Pixels . . . 356
Making New LED Personalities on MagicQ . . . 356
Colour Picker . . . 358
Concepts . . . 358
Views . . . 362
Selection Modes . . . 364
Framing Blades . . . 366
User Interface . . . 366
Head Editor . . . 368
Visualiser . . . 370
Troubleshooting and Measuring Parameters . . . 370
Controlling Media Servers . . . 372
Patching Media Servers on MagicQ . . . 373
Connecting via Network . . . 373
Configuring the Media Window . . . 374
Thumbnail View . . . 378
Live Previews . . . 378
NDI® . . . 379
Monitoring Live Feeds in the Execute Window . . . 380
Media Window View . . . 380
Using MagicQ and Media Server software on the same PC . . . 380
CITP (MSEX) Live Feeds . . . 381
Troubleshooting . . . 381

Head Editor . . . 382
How Heads Are Stored in MagicQ . . . 382
Expanding Library Head Files . . . 383
Loading New Heads into MagicQ . . . 383
Copying Head Files Created on PC/Macs to MagicQ Consoles . . . 384
Modifying Existing Heads . . . 384
Removing Old Heads . . . 384
View Head Modes . . . 385
General View . . . 385
Channels View . . . 388
Ranges View . . . 394
Palettes View . . . 396
Macros View . . . 397
User Icons . . . 397
Heads with Multiple Elements . . . 398
Replacing Heads . . . 402
Custom Gel Libraries . . . 403
Importing GDTF Files . . . 403
Curve Editor . . . 405
Creating a Curve . . . 405
Editing a Curve . . . 405
Removing Curves . . . 406
Setting a Dimmer Curve . . . 406
Importing/Exporting Curves . . . 406
FX Editor . . . 408
View General . . . 408
View Chans . . . 409
Palette FX . . . 409
Network Manager . . . 410
VIEW CHAMNET . . . 410
VIEW ART-NET . . . 414
VIEW SIG-NET . . . 415
VIEW RDM . . . 418
VIEW RDMNET . . . 428
VIEW LYNTEC . . . 429
VIEW NET PORTS . . . 430
Remote Device Management (RDM) . . . 432
Introduction . . . 432
Networking of MagicQ Systems . . . 433
Network Addresses and Host Names . . . 433
Checking IP addresses - Ping Test . . . 436

Checking Consoles on the Network . . . 436
Grabbing Shows from Other Consoles . . . 436
Setting Up Network Sessions . . . 437
Multi Console Programming . . . 440
Selective Channel Control . . . 441
Restricted Features on Slave consoles . . . 443
Playback Sync Modes . . . 444
Programmer Sync Modes . . . 444
Universe Zoning . . . 447
Inter Console Messaging . . . 447
Control Network . . . 448
Manual Configuration of Multi Console Operation . . . 450
Manual Configuration of Hot Takeover . . . 450
Manual Configuration of Multi Console options . . . 454
Automatic Backing Up of Shows from Other Consoles . . . 454
Remote Control of MagicQ . . . 456
Remote Control Full . . . 456
MagicQ Remote Control (Windows/Mac/Linux) . . . 456
Remote Control from MagicQ . . . 457
iOS / Android Remote App . . . 458
Remote Control via Web Server . . . 466
Remote Control Using Magic Wand Simulator . . . 470
ChamSys Remote Protocol Commands . . . 471
Remote Playback Commands . . . 471
Remote Programming Commands . . . 472
Controlling MagicQ Using UDP/IP . . . 475
ChamSys Remote Ethernet Protocol . . . 475
Writing to the Network Port . . . 476
Reading from the Network . . . 476
Sample Code Fragments . . . 477
Q-Sys Plugins . . . 480
Controlling MagicQ Using the Serial Port . . . 481
Connecting the Serial Port . . . 481
Enabling the Serial Port . . . 481
Writing to the Serial Port . . . 482
Reading from the Serial Port . . . 482
Testing Receiving Serial Commands . . . 482
Audio . . . 484
Audio Input . . . 484
Audio Playback . . . 487
USB Sound Cards . . . 487

Control of Winamp . . . 488
DJ . . . 489
Supported Systems . . . 489
Deck Configuration . . . 491
Audio Window . . . 491
Timecode and Level Synchronisation . . . 492
Beat Tracking . . . 493
Diagnostics . . . 493
Mixer Channel Configuration . . . 493
MIDI . . . 494
MIDI Notes and CC Receive . . . 495
MIDI Notes and CC Transmit . . . 498
MIDI Problems . . . 500
MIDI Show Control (MSC) . . . 500
MIDI Beat Clock . . . 502
MagicQ USB MIDI/Timecode Box Firmware Versions . . . 502
Timecode Support . . . 503
Timecode Decode . . . 503
Timecode from Winamp . . . 504
Timecode from Stand Alone MagicHD . . . 505
Timecode Simulator . . . 505
Timecode Generation . . . 505
Timecode Re-Transmit . . . 506
Multiple Timecode Sources . . . 507
Timeline . . . 508
View Editor . . . 508
View Sheet . . . 514
View Cueline . . . 514
Remote Input Port . . . 516
Connection (MagicQ Consoles, MagicQ PC Wing Compact and MagicQ MaxiWing) . . . 516
Connection (Original PC Wing) . . . 516
Enabling the Remote Input in MagicQ . . . 517
10Scene . . . 519
10Scene Ports . . . 519
10Scene Gateways . . . 520
10Scene Wall Plates . . . 520
10Scene Enable . . . 521
10Scene Action . . . 522
Manual Zone Configuration . . . 524
Passwords . . . 525
Passcodes . . . 525

Joining Zones . . . 526
10Scene Remote Triggers . . . 526
10Scene Remote App . . . 527
Testing an Installation . . . 527
10Scene Contact . . . 527
TouchScene . . . 528
Scene Setter . . . 530
Powering the Scene Setter . . . 530
Configuration . . . 531
Using the Scene Setter . . . 531
Changing the IP Address . . . 532
Setting up the Serial Port . . . 532
Open Sound Control (OSC) . . . 533
Setup . . . 533
Receiving Messages . . . 534
Sending Messages . . . 536
TouchOSC . . . 537
Troubleshooting . . . 537
Notes . . . 538
MagicQ Visualiser . . . 539
MagicVis . . . 539
Using MagicVis . . . 541
Plot Window . . . 552
Fixture Position Calibration . . . 556
Blind Visualisation . . . 559
Split Visualisation in MagicVis . . . 559
Automatic Source Selection . . . 560
Using MagicQ with other Visualisers . . . 561
Connecting to a Visualiser . . . 561
Capture . . . 562
WYSIWYG . . . 562
Vision, Depence, L8 . . . 565
Trackers . . . 567
MQ Track Protocol . . . 567
Object Transform Protocol . . . 567
PSN/SpotMe . . . 568
Scaling, Offsets and Swaps . . . 569
Tracker Palettes . . . 569
Using Automations with Trackers . . . 570
Tracking a Fixed XYZ when Lighting Trusses Moving . . . 571
Tracking a Moving MagicVis Object . . . 571

Tracker Simulator . . . 572
Generic Tracker Personality . . . 572
Moving Vis Objects . . . 573
Transmit Tracker 1 / Tracker 2 from Focus Hold . . . 574
DMX Input Tracking . . . 574
Tracker Demo Show . . . 574
Settings . . . 576
Programming Mode . . . 576
Playback Mode . . . 579
Output Settings . . . 579
Wing Settings . . . 588
Monitor Settings . . . 591
Touch Screen Settings . . . 594
Mode & Security Settings . . . 596
Programming Settings . . . 601
Keypad / Encoder Settings . . . 605
Windows Settings . . . 611
Cue Storage Settings . . . 617
Playback Settings . . . 620
Crossfade Button Function . . . 621
Network Settings . . . 627
WIFI Settings . . . 638
Port Settings . . . 639
MIDI / Timecode Settings . . . 645
Multiple Console Settings . . . 649
Hardware Settings . . . 653
General Settings . . . 657
Individual Playback Settings . . . 657
Calibrating the Touch Screen . . . 657
Displays Brightness and Contrast . . . 658
Console Lamp Brightness . . . 658
Button LED Brightness . . . 658
Controlling Console Lamp from the Programmed Show . . . 658
Locking the Console . . . 659
Button Test Mode . . . 659
Factory Reset . . . 660
System Management . . . 661
Starting Up . . . 661
Shutting Down . . . 661
Saving Shows . . . 661
Backing Up to an External System . . . 662

Loading Shows . . . 663
Erasing . . . 664
Show Extras File . . . 664
Import and Export of Show Data and Show Merging . . . 665
Saving and Loading Settings . . . 668
File Manager . . . 668
Transferring Files over Network . . . 669
Storage of MagicQ User Files on PC/Mac . . . 669
Reports . . . 669
Status Window . . . 670
Backup Archives . . . 670
Using Shows on Different MagicQ Products and Show Versions . . . 670
MagicQ Profiles . . . 672
User Management . . . 672
Restricting Remote App Access . . . 675
Security . . . 676
Saving Support Files . . . 679
Commands and Logs . . . 680
Software & Firmware Upgrade . . . 681
Changing MagicQ Console Software . . . 681
Console Kernel Update . . . 682
MQ80 Kernel V2 Upgrade . . . 682
Resetting a MagicQ Console to Factory Defaults . . . 682
Firmware . . . 683
MQ50, MQ70 and MQ80 Front Panel Firmware . . . 683
MQ250M and Stadium Connect firmware . . . 684
MQ500 Stadium Firmware . . . 685
MQ500M Stadium Firmware . . . 686
MQ500M Wing Firmware . . . 687
Compact & Mini Connect Firmware . . . 688
Compact Wing . . . 688
Firmware Change Log . . . 688
Updating Firmware . . . 693
Upgrading Legacy Product Firmware . . . 694
Handy Hints . . . 697
MagicQ Shortcuts . . . 698
Button Functions . . . 711
Troubleshooting . . . 726
No Outputs . . . 726
MagicQ Not Responding . . . 726
MagicQ Responding Slowly . . . 726

Strange Key Presses, Unexpected Window Changes . . . 727
MagicQ Console Not Booting . . . 727
MagicQ Console Blank Screen . . . 729
MagicQ Console White Screen . . . 730
MagicQ Console Distorted Screen . . . 730
MagicQ Console Internal Touch Screen Not Working . . . 730
All 10 S Buttons Flashing Blue . . . 730
Fader, Encoder or Buttons Not Working Correctly . . . 731
Linux: MagicQ Fails to Start / LibGL Error . . . 732
MagicQ Status Box Errors . . . 732
Licensing . . . 736
Qt . . . 736
LibPNG . . . 746
LibJPEG . . . 749
LibJPEG-Turbo . . . 750
LibICU . . . 751
FFmpeg Binary . . . 759
FFmpeg Library . . . 766
LibArchive . . . 776
Zlib . . . 776
PortAudio . . . 777
Glossary . . . 778

This manual is designed for operators of the MagicQ to help them quickly and effectively learn how to use the system. It has been written by lighting designers for lighting designers. The reader is assumed to have a basic familiarity with the concepts of lights and lighting control systems.

The manual starts with an introduction to the MagicQ lighting console its features, functions and concepts. It then moves into detailed descriptions of patching, programming and playback.

Readers who are tight for time and just want to find out how to quickly program a working show should read the Quick Start guide.

ChamSys Ltd

The features and functions of the MagicQ software and consoles and the ideas contained therein are the property of ChamSys Ltd. The console is intended for the control of lighting systems. No warranties are expressed or implied regarding the use of the MagicQ software of lighting consoles. No liabilities are accepted for the accuracy of the information contained within this manual.

MagicQ software and MagicQ lighting console products are supplied, designed and manufactured by ChamSys Ltd.

Products containing ChamSys Ltd software and firmware embody proprietary information and are licensed not sold and may not be duplicated in any way.

ChamSys Ltd does not guarantee the accuracy, adequacy, suitability or completeness of any information or products and is not responsible for any errors or omissions or the results obtained from use of such information or products.

ChamSys Ltd does not accept responsibility for the consequences of misuse or abuse of its equipment. The equipment is designed to meet all current regulation requirements in the UK for electrical products.

None of the equipment or software supplied by ChamSys Ltd may be used in any life-critical or potentially life-endangering situations or in situations where personal injury may result.

ChamSys Ltd reserves the right to make any changes and/or improvements or to discontinue any and all of their product's or service's without prior notice, and advises customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability. Some of the available functions of products may be altered over the life of the product.

The ChamSys Ltd range of products meet EU directives where applicable, for example the EMC and LVD directives, as laid down by the European Community and ChamSys Ltd has a policy of regularly testing samples to ensure that production units continue to meet these specifications.

ChamSys Ltd will not accept goods back for repair if the serial number sticker is removed or defaced so that it is illegible. This also applies to warranty repairs. See terms and conditions of sale for full details.

All other product names are trademarks or registered trademarks of their respective owners.

No part of this publication may be reproduced or distributed, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form by any means without the prior written permission of ChamSys Ltd.

Copyright 2025 by ChamSys Ltd. All rights reserved.

www.chamsys.co.uk

Introduction

MagicQ supports an extensive array of features to enable lighting designers to quickly and easily realise their innovative and imaginative designs.

- Four hundred universes (204,800 channels) direct
- Up to 202 playbacks
- DMX512, Art-Net I, II, III and IV, sACN, Pathport and Shownet.
- Extensive personality library
- In-built personality editor
- In-built Pixel Mapping
- Advanced Media Server control
- Colour mixing library including Lee and Rosco colours
- Flexible control of both heads and generic lighting
- Cloning and Morphing of heads
- Thousands of cues and cue stacks
- Naming of all items
- Virtually unlimited internal show storage & show merging
- FX generator with extensive FX library
- Immediate control of any chase / FX parameter
- Fully featured and enabled PC/Mac version
- 3D palettes and Tracker support
- Comprehensive multi console networking
- Remote control via consoles, tablets, and phone applications
- Export and import of patch data to spreadsheets / databases
- DMX input, over-riding, merging and testing option

MagicQ has been designed to be as flexible as possible so that it can be used equally well for live music, club, theatre, film, and studio broadcasting. It can be used just as well for pre-programmed shows / tours as for busking festivals. All parameters can be changed during run at the touch of a button.

Ease of use and speed of programming have been at the forefront of the design process ensuring patching and programming a show in the minimum amount of time without complex button sequences and multi level menus.

The first few chapters of this guide describe an overview of MagicQ including scenes, chases, fx and playbacks. If you wish to go straight into programming a show then turn to the Quick Start section.

MagicQ Software and Consoles

MagicQ software runs on PCs, Macs and MagicQ consoles and has the same features and user interface on all systems.

MagicQ software enables shows to be pre-programmed on a PC (Windows, Mac or Linux) enabling Lighting Designers to design and program their shows in advance. Shows can be transferred between PC, Mac and MagicQ consoles using USB memory sticks, or via direct network connection.

MagicQ PC / Mac supports the same functionality and user interface as the physical consoles making it easy to move between the two products. MagicQ PC / Mac can also be used to run complete shows, either as a back-up to the main console or as console in its own right.

MagicQ consoles are available in several different models all using the powerful MagicQ software on a Linux operating system giving a reliable operating environment for programming and playback of shows. A show can be programmed on one model and then played back on a different model.

MagicQ supports 202 playbacks in total – which can be accessed through physical playbacks or through the touch screen. The different models in the MagicQ console series have different numbers of physical playbacks and buttons, enabling the size of console to be matched to the show.

Connecting MagicQ USB Connect products to MagicQ PC / Mac gives the playback and programming control of the MagicQ consoles (faders, encoders and buttons) but with a small low cost lightweight solution.

DMX512 serial outputs are available from MagicQ software on PC/Mac using the MagicDMX interface, directly from all MagicQ consoles and from the Stadium Connect, Compact Connect, Mini Connect, and older MagicQ wings.

MagicQ supports Art-Net I,II,III and IV, Pathport and streaming ACN network outputs from PC, Mac or MagicQ consoles. MagicQ consoles have multiple network ports for connecting to Art-Net, Pathport and sACN installations, any of these ports can be connected to for output of these protocols.

MagicQ MQ500M+ Stadium Console



The MagicQ MQ500M+ Stadium is the latest control console from ChamSys designed to operate at the highest level of show control. MagicQ MQ500M+ Stadium enables shows to be designed from concept to reality including lighting, media, LED and scenic design. The MQ500M+ builds on the success of the MQ500 and MQ500M consoles.

MQ500M+ Key Features:

- 400 universes onboard direct from the console without the need for external processing.
- Gigabit Networking
- 2 Display Port ++ External Touch screen Monitor Support
- Motorised playback faders and playback encoders
- Backlit keys, illuminated faders and encoders
- Dual multi touch displays in full HD with adjustable viewing angle and gesture support.
- Inbuilt MagicVis 3D visualiser with high quality beam and gobo rendering.
- Intensity wheel and 100mm split crossfaders for theatre control

The MQ500M+ Predecessor the MQ500M console key features are:

- 256 universes onboard direct from the console without the need for external processing.
- Motorised playback faders and playback encoders
- Backlit keys, illuminated faders and encoders
- Dual multi touch displays in full HD with adjustable viewing angle and gesture support.
- Inbuilt MagicVis 3D visualiser with high quality beam and gobo rendering.
- Intensity wheel and 100mm split crossfaders for theatre control

The picture below shows the connections on the MagicQ MQ500 Stadium console.

The MQ500M+ rear panel has:

- 4 port Gigabit Network switch

- 4 Direct DMX ports
- LTC In and Out
- MIDI In and Out
- Remote input
- RS232 Port
- 2 x Display Port ++ monitor output
- Audio Input and Output Ports
- 4 x USB ports

The MQ500M rear panel has:

- 4 port Network switch
- 4 Direct DMX ports
- LTC In and Out
- MIDI In and Out
- Remote input
- RS232 Port
- DVI-D monitor output
- Audio Input
- 3 x USB ports



MagicQ Compact Series

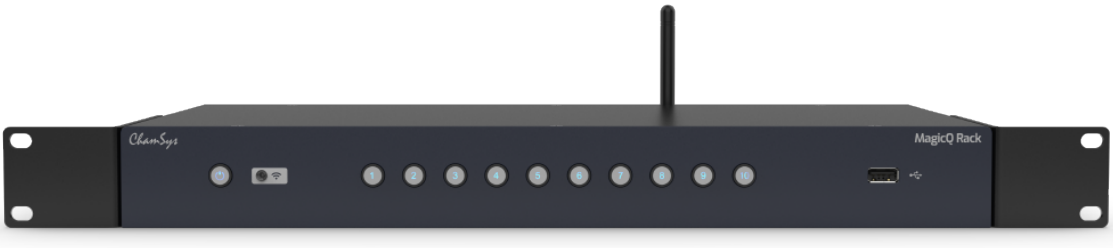
In 2024 the MagicQ Compact series comprises the MagicQ MQ50, MagicQ MQ70, and MagicQ MQ80 consoles together with the MagicQ Extra Wing and the MagicQ Compact Wing for more faders and buttons.

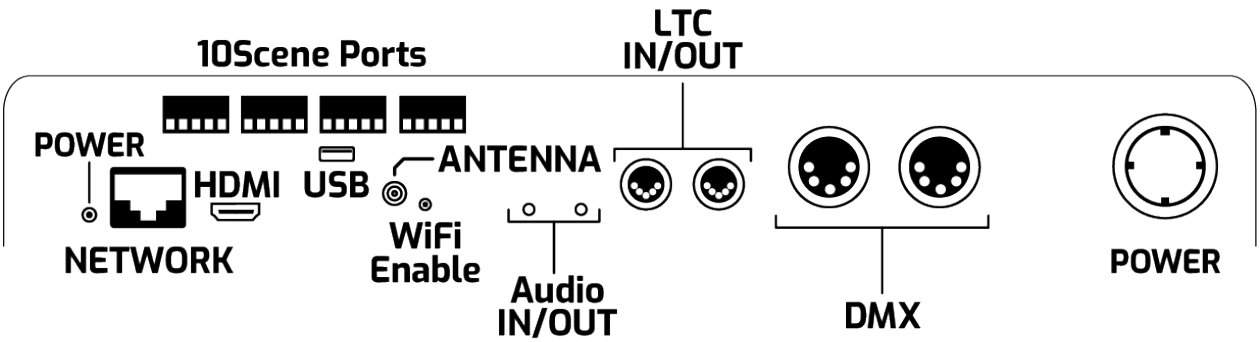
Previous models included the MQ40N, MQ60 and the original MQ70.

MagicQ Rack & DIN

In 2024 the MagicQ series was expanded to include the MagicQ Rack a fully-featured rack mountable version of the MagicQ console designed for installations. It features the same operating system as MagicQ series consoles, but is designed to operate without physical user control, and supports all MagicQ features including scheduled events, OSC, UDP, and MIDI

control.

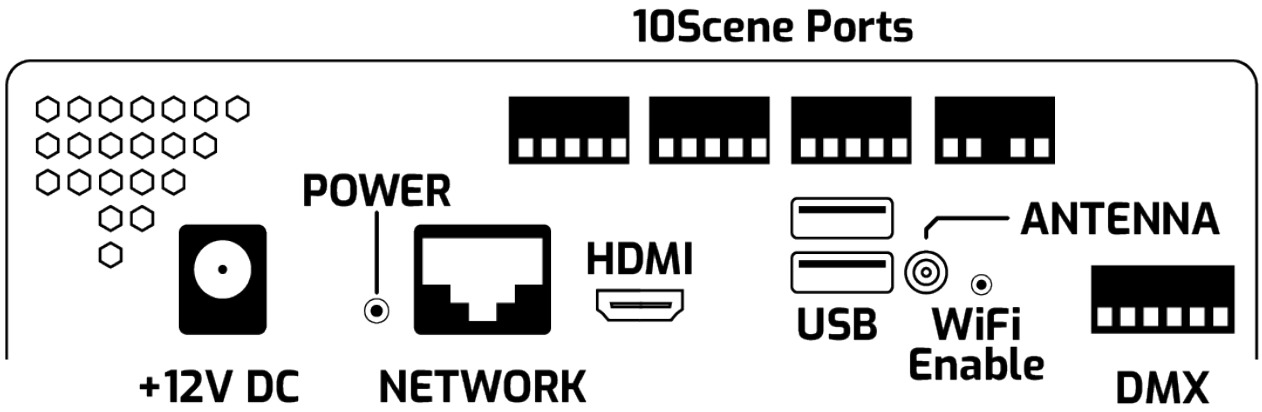




Alongside this is the MagicQ DIN which provides the full power of the MagicQ software in a DIN rail mount.

The MagicQ DIN supports all MagicQ features, including scheduled events, UDP, OSC and other remote protocols, making it ideal for cabinet installation in control rooms and suitable for theatres, houses of worship, and any venue requiring powerful control that would benefit from the advanced capabilities of MagicQ such as pixel mapping and multi-element fixture control.





Note the MagicQ Rack and MagicQ DIN both have a single network port on them, they support use of USB-Network adapters for use as a secondary 'control net' network. The Internal Network port on the Rack and DIN products runs directly from the units processor.

MagicQ Wings for use with PC/Mac

The MagicQ Mini Connect, MagicQ Compact Connect, MagicQ Stadium Connect and Compact Wing products connect directly to a PC or Mac. The PC or Mac runs the MagicQ software and processes the Cues whilst the wing acts as a physical surface with faders, buttons and encoders and outputs DMX.

The MagicQ Compact Connect, Stadium Connect and Compact Wing are feature in-built power supplies running at 110-240vAC

The Mini Connect is USB Powered and must be connected to a USB 3.0 port, the Mini Connect requires 5v, 0.8A, 4W from the port.

Previous models included the MagicQ Mini Wing, MagicQ PC Wing and MagicQ Maxi Wing.

Plugging Up

All MagicQ consoles and SnakeSys interfaces have auto ranging power supplies and can accept 110V to 240V AC on the powercon socket.

- Connect the power lead to the power socket labelled LINE INPUT.
- Put the console lamp(s) into the console lamp socket(s)

MagicQ consoles support USB keyboards and mice. It is not necessary to connect the mouse. The mouse is only required if the touch screen becomes damaged.

Note that the power cable lead should be connected before other connectors and should remain connected at all time that other connections such as DMX, network, serial, USB or video are connected to the console. This ensures that the console is correctly grounded.

DMX Connections

MagicQ consoles have 4 direct DMX outputs on the rear of the panel so you can connect your DMX cables direct to the console.

Alternatively you can connect to an Ethernet network using the Art-Net, Pathport or ACN Streaming DMX protocols and use external Ethernet to DMX converters to output the DMX.

The network ports on MagicQ consoles all have auto MDI/MDIX detection so a normal or inverted network cable can be used to connect to other network devices. Most modern laptops and computers also have auto MDI/MDIX detection.

ChamSys offer a range of Ethernet to DMX convertors branded SnakeSys. These can be used to convert any of the 200 Art-Net or ACN Streaming DMX universes to be output on DMX512 serial. For systems requiring all 200 universes on DMX512, multiple interfaces may be used connected via network switches.

Powering Up

To power up the console press the power switch on the rear panel. The blue LEDs on the ten S buttons will light up in turn. After a few seconds the screen will come to life and you will see the operating system quickly performing self tests. Once the self tests are completed the MagicQ application is started.

Note: Equipment shall be connected to branch circuit by means of power cable connected to a outlet with earthing connection or equivalent.

Powering Down

To power down the console it is necessary to quit the MagicQ application. The console operating system then performs an automatic shutdown and turns itself off when complete. To quit the MagicQ application, press the SETUP button and then the QUIT soft button. When asked for confirmation, press YES.



Note that just removing the power cord to the console will not have the desired effect since the internal UPS continues to provide power.

If for some reason you are unable to power off the console then you may need to reset it as below.

Note that the power cable should remain connected at all time that other connections such as DMX, network, serial, USB or video are connected to the console. This ensures that the console is correctly grounded. The power cable should be the last connection removed.

On MQ500 it is possible to press the rear power button to power off the console.

Resetting the Console

Under rare circumstance it may be necessary to reset the console.

To reset the console, press SETUP to go to the Setup Window and press SHIFT and QUIT. This performs an immediate soft reset of the console - the MagicQ application will be running the show again within about 2-3 seconds.

If for some reason the console does not respond to button presses then try pressing CTRL BREAK on the external keyboard (hold CTRL whilst pressing BREAK).

Hard Reset

If s software reset has no effect then a hard reset may be required. Hard resets should be avoided as they bypass the operating system shutdown procedures and may cause problems with the file system.

To perform a hard reset, press and hold the reset button on the back panel for 5 seconds. On Compact consoles the reset button is inset, so a thin object like a pen is needed to operate the button.

To force the console to power off completely, press and hold the reset button on the back panel until it powers off (approximately 10 seconds.)

To force a MQ80 to power off, remove all the cables from the rear panel except the powercon connector. Then remove the powercon connector and then hold the reset button for 10 seconds. For safety reasons the powercon cable should be the last cable removed.

Power Supply Protection

MagicQ MQ60, MQ70, MQ80, MQ250M, MQ500 and MQ500M consoles have an internal battery designed to protect the system against short term power losses on troublesome power supplies. The internal battery is not designed to support the running of the console for long periods of time. If the power is lost then the console will prompt the user to fix the problem or to shut down the console. The battery when fully charged will support the console for

between 5 and 15 minutes.

To maintain the life of the UPS battery, the console should be run for a period of at least 12 hours constantly every 2 months to ensure the battery remains fully charged at all. Note that the console needs to be powered on and running MagicQ for the battery to charge.

If your version of the console does not have an internal battery then we recommend the use of a UPS (Un-interruptible Power Supply).

Care of Your MagicQ Console

- To keep your MagicQ console in best condition please observe the following recommendations:
- Keep liquids away from the MagicQ. Drinks split over your console may cause irreparable damage.
- Keep the console out of direct sunlight – place the console in the shade.
- Do not use the console outside its operating temperature range. The maximum operating temperature for all ChamSys products is 40°C unless stated otherwise on the product specification label.
- Handle the console with care when moving or transporting it. The console contains components that may be damaged by shock. Always use a padded flight case or padded bag wherever possible.
- Do not use solvents or cleansers to clean the console. Do not rub firmly on the metal or plastic surfaces – this may cause the paint or lettering to be removed. Gently use a damp cloth to clean the panels.
- On consoles with motorised faders avoid creating macros or automatation that causes excessive or repeated movement of faders - this can cause reduced life of the faders.

Safety Information

- Do not open the front, rear or lower panels of the console unless you have electrical expertise. The console contains components with voltages that may shock.
- Always disconnect the power cable before opening any panels.
- Do not use the console if the power cables are damaged in any way.
- Repairs should only be undertaken by authorised service representatives.
- If liquids are spilt over the console then remove power immediately, and seek advice from your authorised service representative.
- On motorised consoles be aware that faders may move in response to macros/timed events or other networked consoles.

Security Information

Lighting consoles are designed to be used on private networks which are assumed to be

secured. Where consoles are used remotely over the internet we recommend the use of secure network tunnels to protect the lighting network from access from the internet.

ChamSys explicitly denies any responsibility for security of MagicQ consoles or their use in safety critical roles. Users must assure themselves of the security of their networks - if in doubt ensure the WIFI options are disabled and do not connect to the console network ports.

In situations where the network is not secure then we recommend ensuring that only the required network protocols are enabled in order to reduce the likelihood of unauthorised access. See the **System Management** → **Security** section in the MagicQ manual for full details.

Maximum Ambient Operating Temperature

All MagicQ Consoles, Connects and Wing will products will operate in a Maximum Ambient Operating Temperature of 40 Degrees Celsius (Ta)

Disposal Information

Please be aware that ChamSys products must be disposed of in accordance with the WEEE disposal and recycling regulations. ChamSys products must not be disposed of through normal household waste. For non UK customers please contact your local distributor. For UK customers, please contact us on +44 (0)23 8023 8666, or email support@chamsys.co.uk.

WEEE Producer registration number WEE/FF5605UX.

FCC Part 15 Notice

Where applicable MagicQ consoles comply with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference; and

(2) this device must accept any interference received, including interference that may cause undesired operation.

MagicQ consoles have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference with radio and television reception.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the

interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

You may also consult your local ChamSys Ltd dealer or an experienced radio/TV technician for assistance.

NOTICE: The FCC regulations provide that any changes or modifications not expressly approved by ChamSys Ltd could void the user's authority to operate the equipment.



RoHS Compliance

ChamSys declares, to the best of their knowledge, any product certified as "RoHS" compliant is done so based on data from our suppliers and/or the testing of our product to the RoHS directive by an external laboratory. ChamSys have obtained and will continue to obtain "Certificates of Compliance" from suppliers where necessary.

Safety Notice – Pyrotechnics and Special Effects

ChamSys strongly recommends the use of a secondary, independent safety system if controlling pyrotechnic devices or special effects systems from this DMX lighting controller. The controller alone is not a certified safety device for pyrotechnics or FX and ChamSys Ltd accepts no responsibility or liability for any incident, injury or damage to property or people resulting from the use of this product to control pyrotechnic or special effects systems. Always comply with local laws, regulations, and industry-standard safety practices when operating pyrotechnics or special effects.

Installing MagicQ Software & Drivers

MagicQ Software

MagicQ software runs on PCs and Macs and can be downloaded free from the ChamSys web site www.chamsys.co.uk/download.

MagicDMX

MagicDMX devices do NOT need any additional drivers – they use HID drivers within the operating system. Simply plug in the device and start MagicQ.

To confirm that the MagicDMX is operating correctly go to Setup, View Status, Interfaces. The MagicDMX Status should say "Connected" and "DMX out".

MagicDMX is enabled as DMX output by default. It can be disable/enabled from Setup, View Settings, Ports, MagicDMX.

There are two versions of MagicDMX interfaces with either a USB-A or USB-C connector, with the version with USB-C version being the newer version.

MagicDMX USB-C version: When first plugged in the MagicDMX alternates its LED between White and Red. When MagicQ is started and connects to the device then the LED flashes in Red only. When receiving DMX the LED flashes in White. It is possible to patch the LED of the MagicDMX if a Generic 3ch RGB head is patched to address 510 on Universe 1.

MagicDMX USB-A version: When first plugged in the MagicDMX alternates green and orange LEDs every second. When MagicQ is started and connects to the device then the green LED is on permanently and the orange flashes faster as it receives data from MagicQ.

When using MagicDMX Basic and MagicDMX Full interfaces 'demo mode' will continue to be shown at the top of the MagicQ window. This does not affect the programming of MagicQ or restrict the output if you have a MagicDMX Full interface. 'Demo mode' does restrict some advanced MagicQ functions which are unlocked with MagicQ hardware (Not MagicDMX).

MagicQ Wings & Interfaces

Current MagicQ Wings & Interfaces including Stadium Connect, Compact Wing, Compact Connect and Mini Connect and the older PC Wing Compact and Extra Wing Compact do not require special driver installation.

Ensure the setting "Setup, View Settings, Ports, MagicQ Wings & Interfaces" is set to "Yes (auto DMX)"

Older MagicQ Wings (Mini wing, PC Wing, Maxi Wing, Extra Wing, Playback Wing, Execute Wing) and MagicQ DMX interfaces (Dual DMX, Audio, MIDI/SMPTE) use a USB chipset made by FTDI. PC Wing Compact & Extra Wing Compact should not require any manual drive For other MagicQ Wings & Interfaces or if for any reason MagicQ does not detect Compact wings,

drivers can be manually updated using the steps below.

Note that the drivers for MagicQ Wings and MagicQ DMX interfaces are not applicable to MagicDMX Basic or MagicDMX Full. Do not attempt to install drivers for MagicDMX.

GeNetix Nodes

The GeNetix GN2, GN5 and GN10 have optional USB connection, enabling them either to be used in USB or Network mode.

When a GeNetix node is connected via USB to a PC (Windows, Mac or Linux) with MagicQ running then the GeNetix node runs in USB mode as a MagicQ interface connected directly to the MagicQ application.

In USB mode it is treated just like a MagicQ Wing or Interface with the configuration being controlled from within MagicQ rather than from within the GeNetix node. In this mode the node configuration is unused, although it is retained for when the node is used again in Network mode.

When in USB mode, the DMX outputs are configured in MagicQ from the Setup Window, VIEW DMX I/O. For GN5 and GN10 the MIDI, Timecode and 10Scene port are configured in MagicQ from the Setup Window, VIEW SETTINGS. The configuration is stored in the MagicQ show file as normal.

The node indicates USB mode on its front panel when in USB mode.

The node continues in USB mode even if the USB link is lost or MagicQ is stopped. To restart the node in Network mode, disconnect the USB or shut down the MagicQ and then power the GeNetix node on and off.

Note that the GN2 can run in network mode but still be powered from USB - provided that it is not connected to a PC running MagicQ – if MagicQ is detected it will be switched to USB mode.

MagicQ on Windows

MagicQ supports Windows 8, Windows 10 and Windows 11.

MagicQ Connect products do not need any drivers installed.

MagicDMX devices do not need any drivers - see [manual:installing_drivers:::_magicdmx].

MagicQ runs on all types of Windows PC including both Intel and ARM based Microsoft Surface.

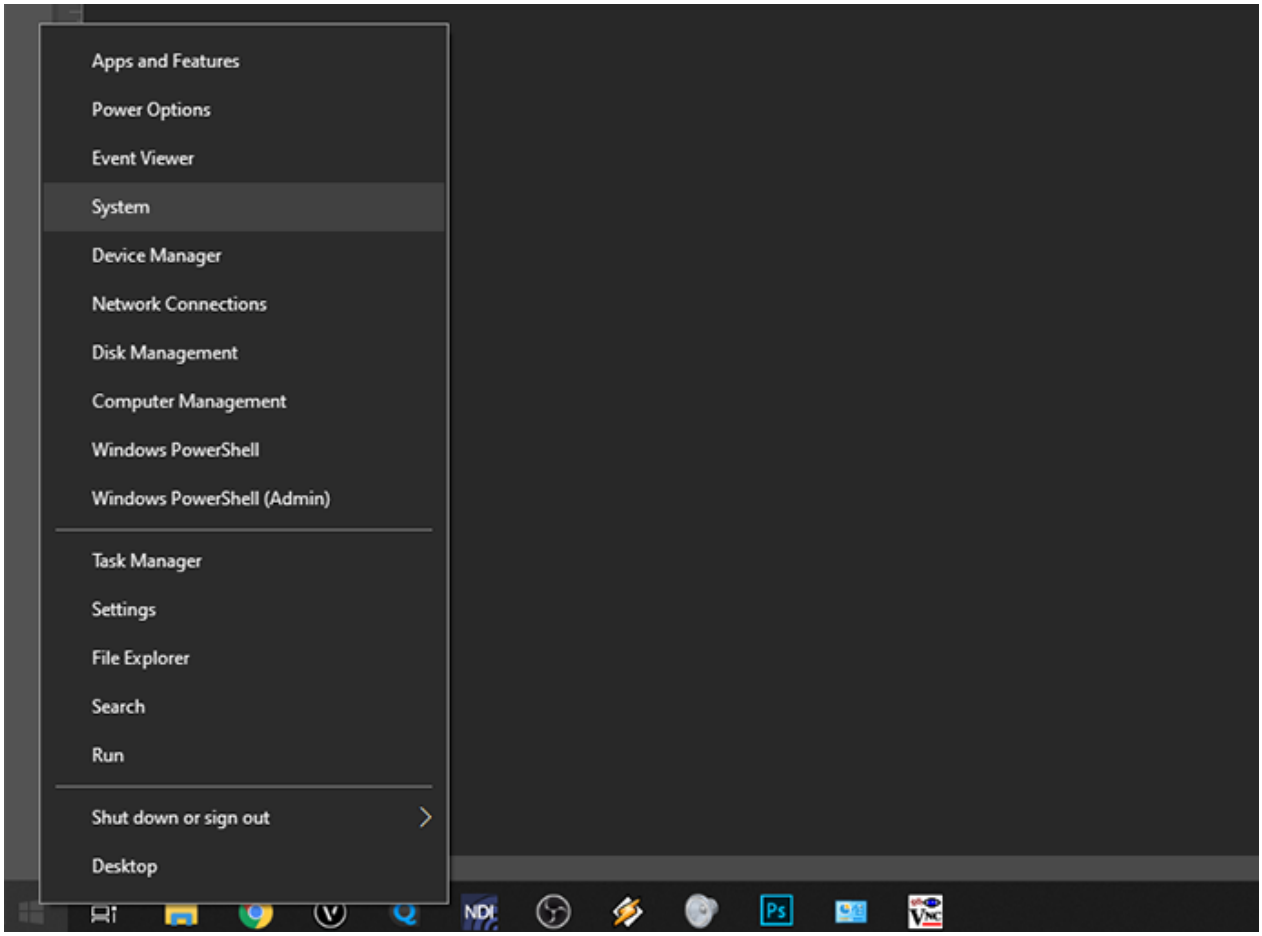
Drivers for Older MagicQ Products

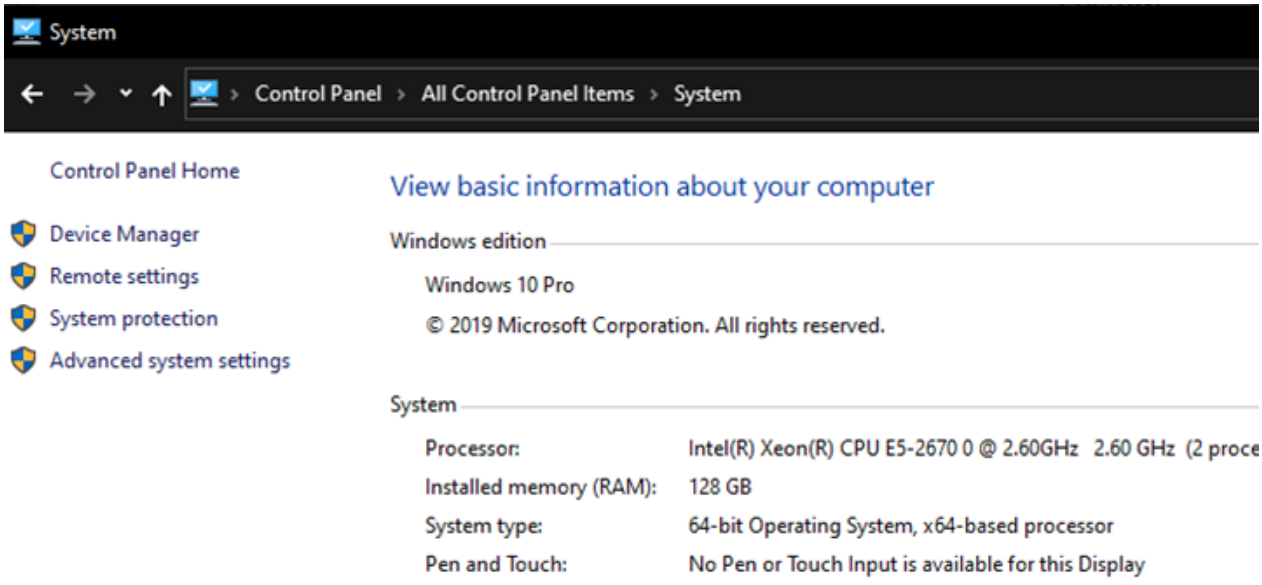
The drivers for older MagicQ products are included in the MagicQ download.

C:\Program Files (x86)\ChamSys Ltd\MagicQ\MagicQ Wing Drivers

Disconnect all MagicQ Wings and Interfaces except the one you are trying to install the driver for.

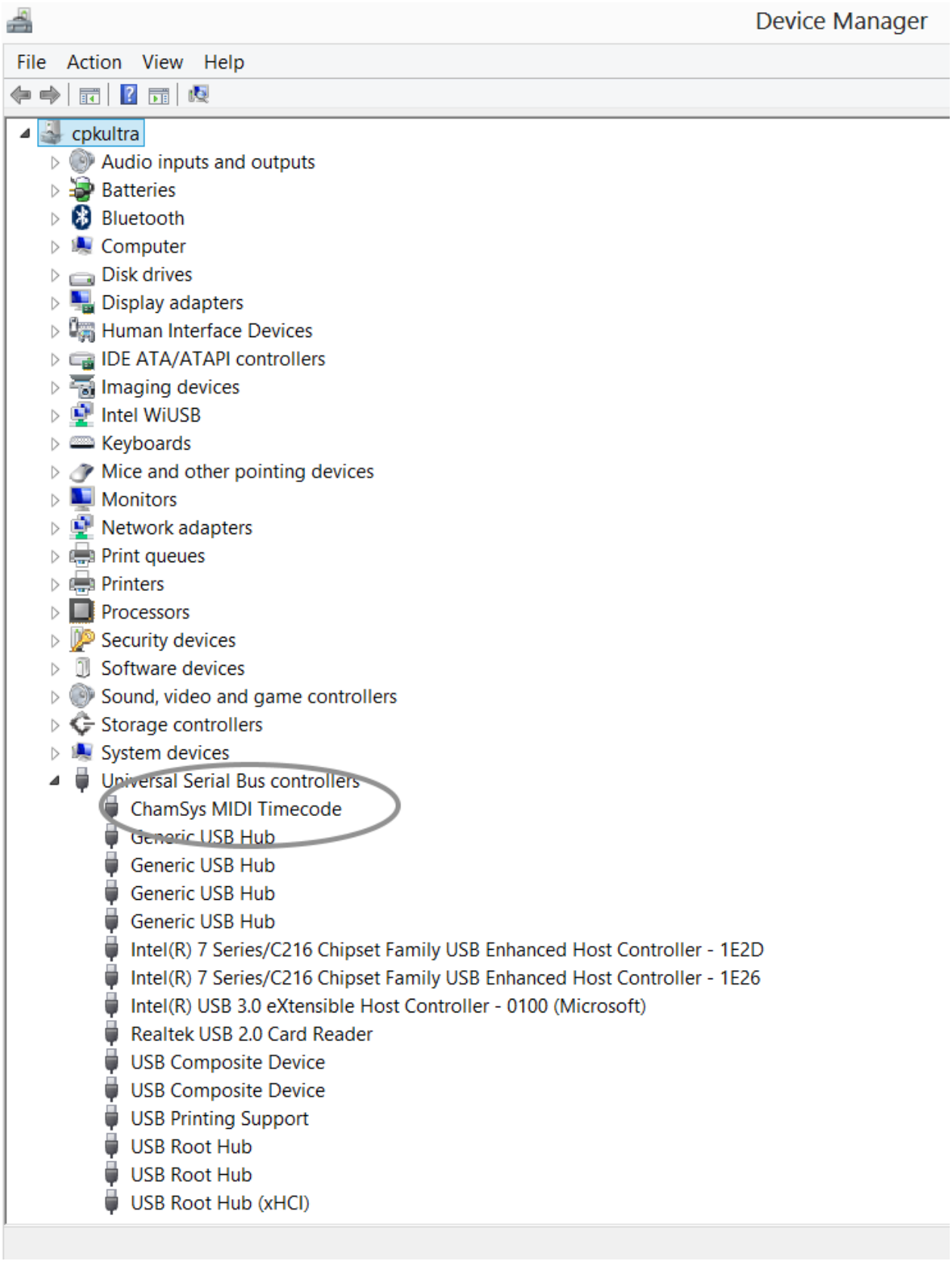
Open Device Manager. This is found in different places depending on the version of Windows, but it can normally be accessed by opening Control Panel and then selecting System, and then selecting Device Manager.



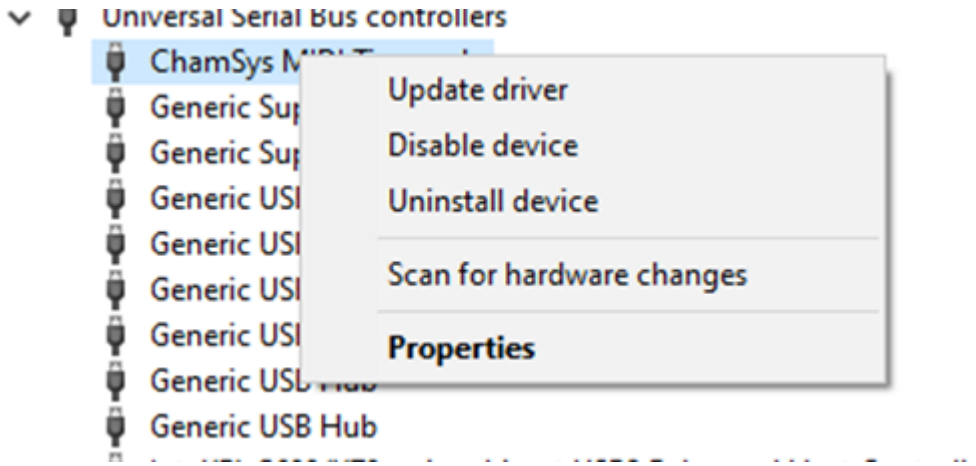


Device Manager lists all the devices on your system. The MagicQ device is normally listed at the bottom under Universal Serial Bus Controllers but it may be under any other section. It may be listed as a ChamSys or MagicQ device or just as a FTDI device. If you can not find it

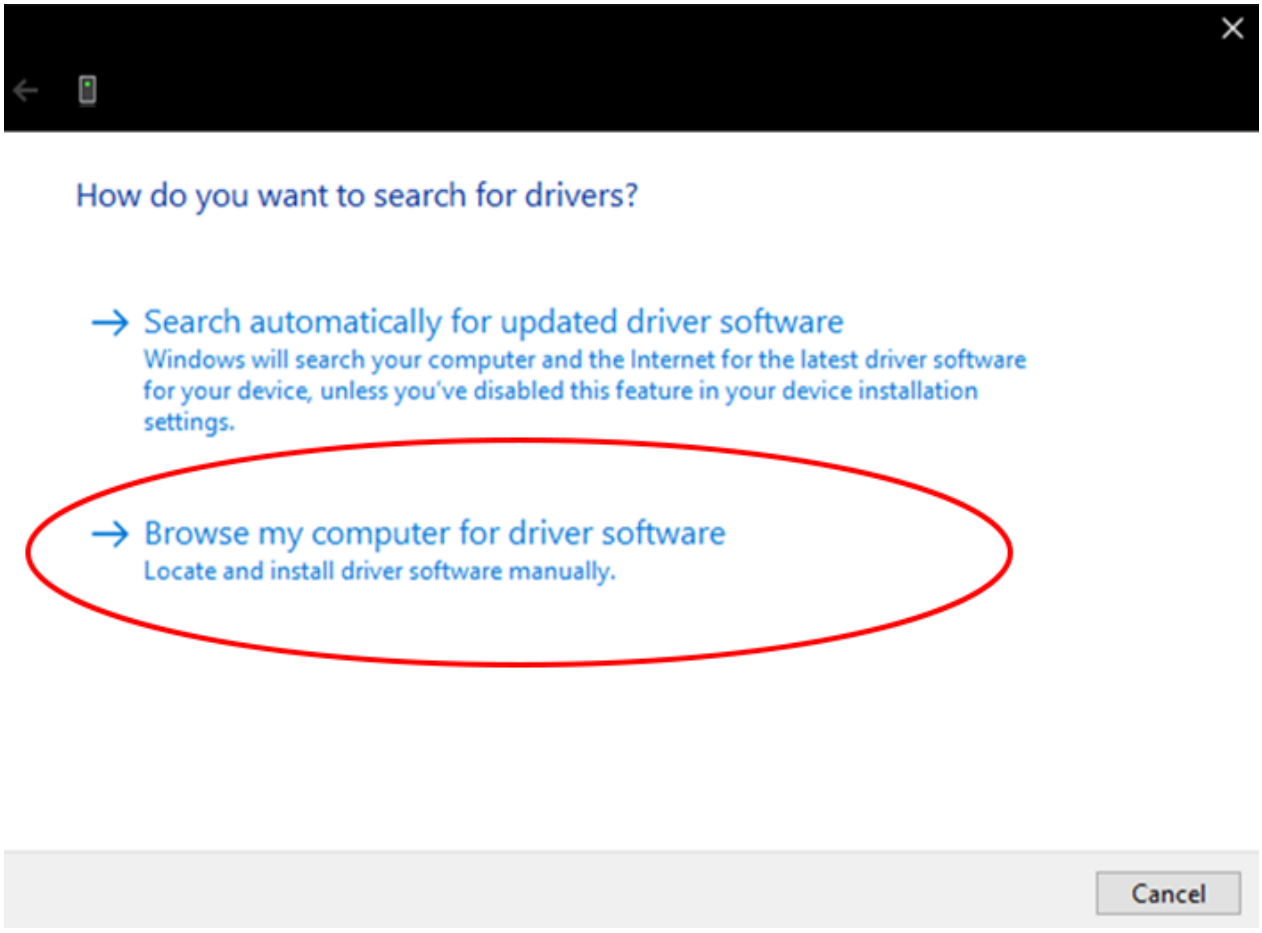
then try disconnecting and reconnecting the USB cable to the device - the listing should update and indicate to you which device is being plugged/unplugged.



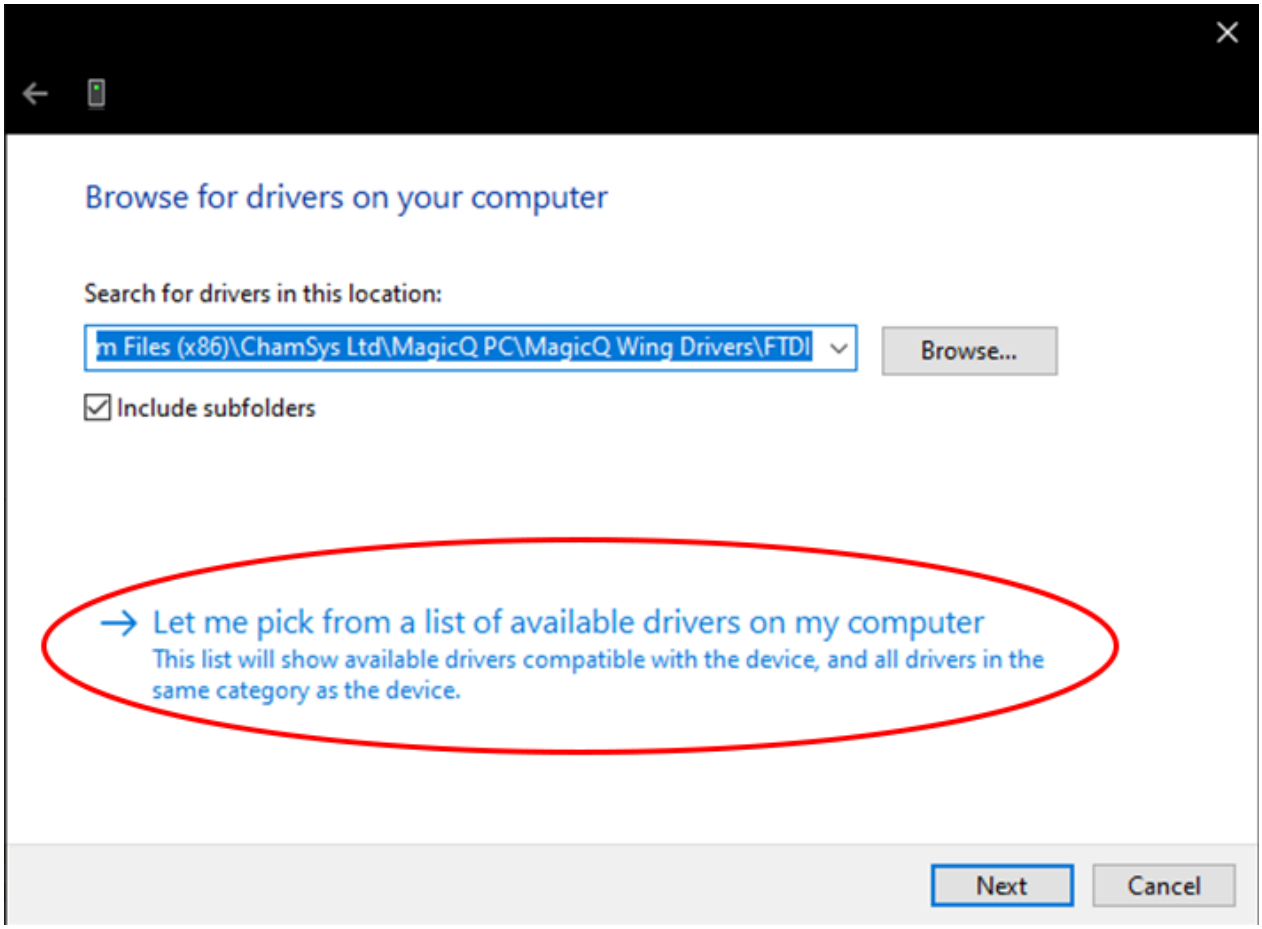
When you have identified the device then right click and press Update Driver.



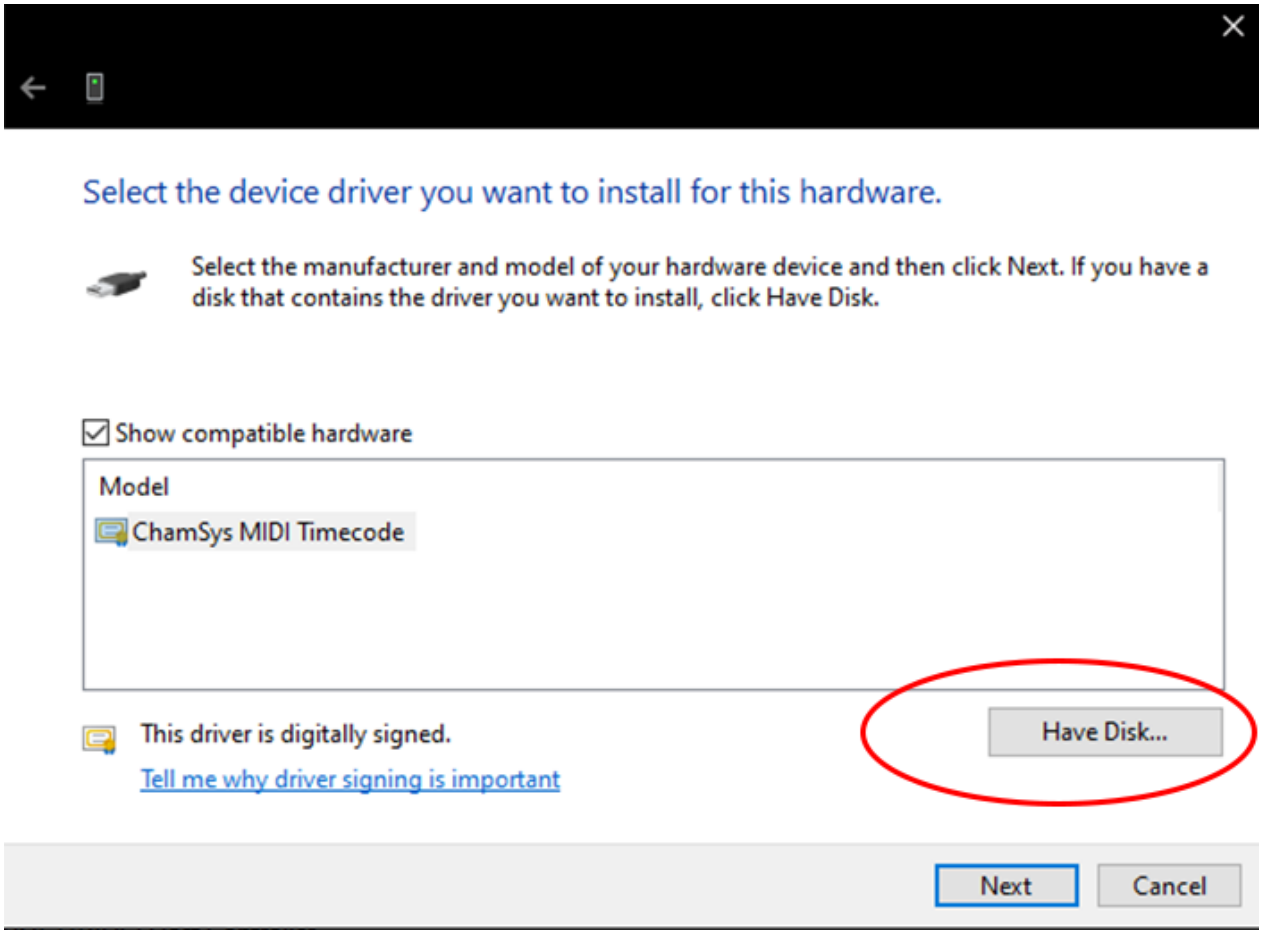
Select "Browse My Computer for Driver Software (Locate and Install Driver Software Manually)". Do not let Windows search for a driver.



Select the option "Let me pick from a list of device drivers on my computer".

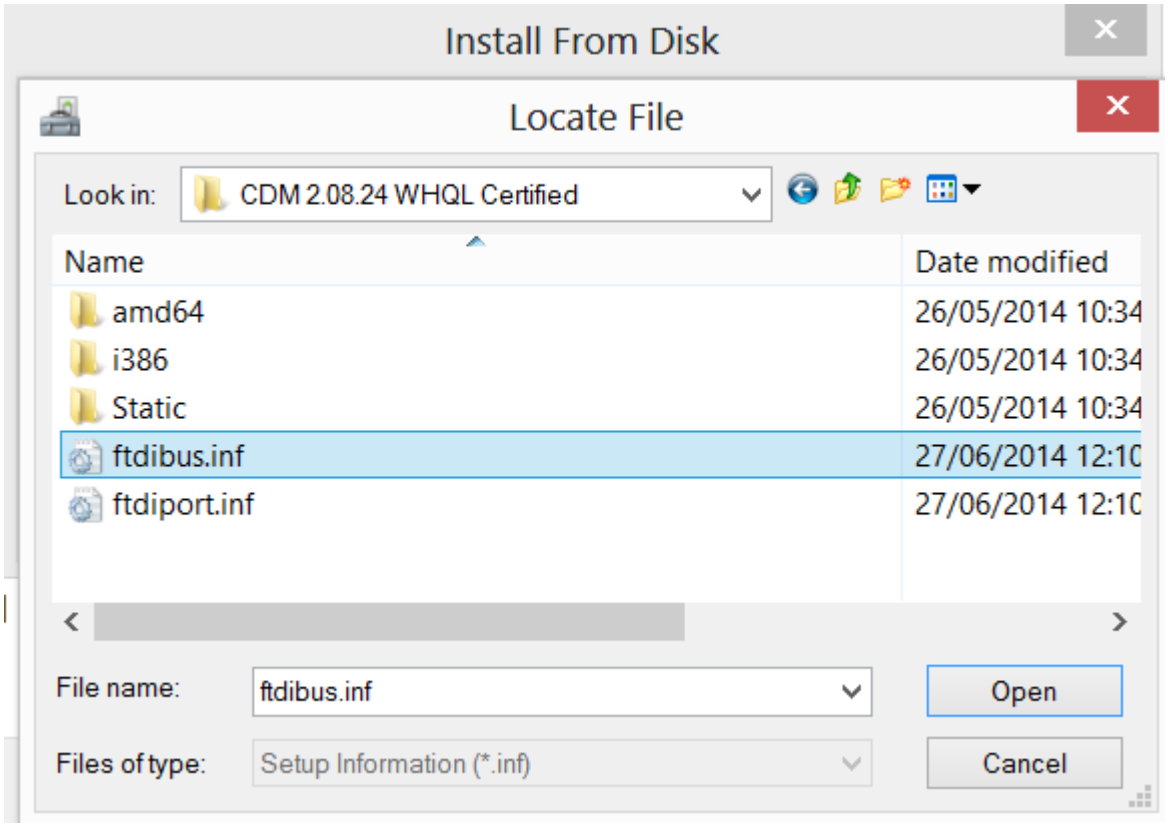


Select "Have Disk". If you cannot find "Have Disk" then click on items in the list until you get it.

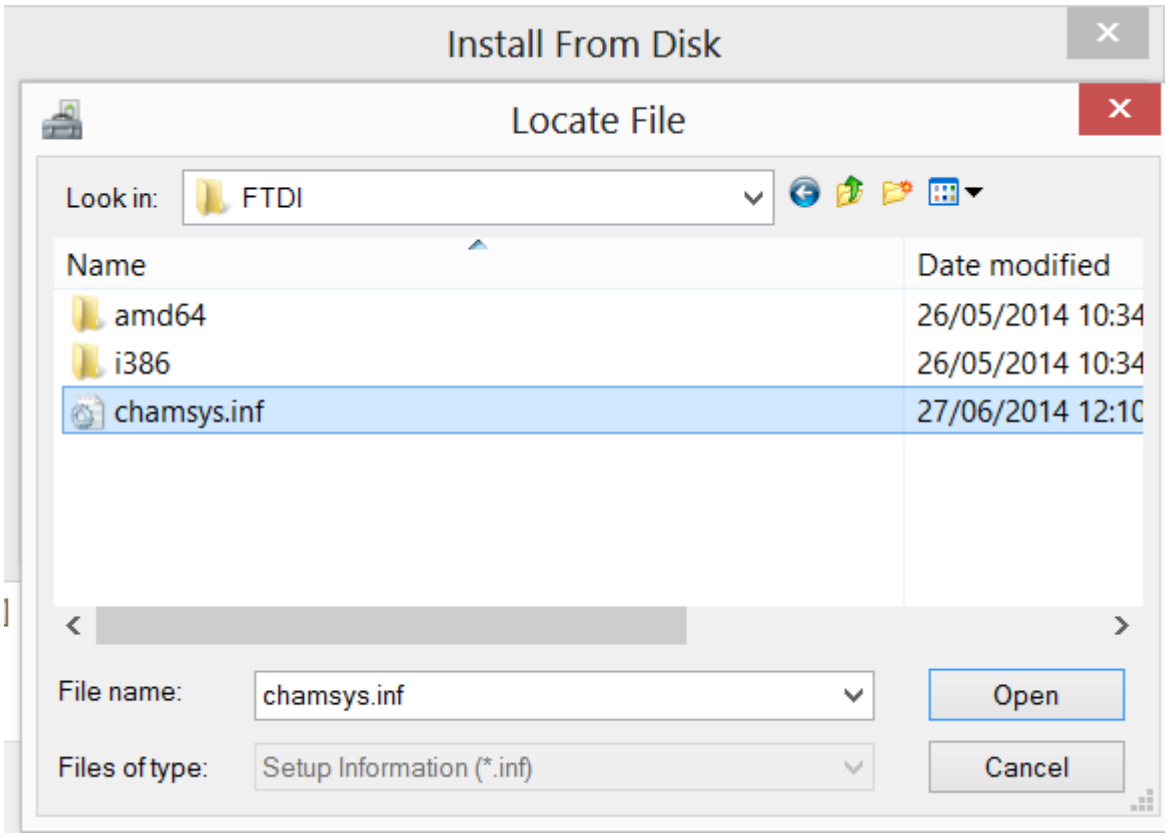


For PC Wing Compacts the drivers are in C:\Program Files (x86)\ChamSys Ltd\MagicQ\MagicQ Wing Drivers\PC Wing Compact\CDM 2.08.24 WHQL Certified\ftdibus.inf

PC Wing Compacts require MagicQ software version 1.5.8.0 or above.



For all other products the drivers are in C:\Program Files (x86) \ChamSys Ltd\MagicQ\MagicQ Wing Drivers\FTDI\chamsys.inf



If the MagicQ USB wing periodically disconnects and restarts then check the Windows settings for your USB ports - Windows may be shutting down the USB ports when it incorrectly thinks they are idle. Click on Control Panel, System, Device Manager and scroll to the bottom to get a list of the USB devices. For each USB Root Hub click on Properties, Power Management and make sure that the option "Allow the computer to turn off this device to save power" is NOT selected.

On some Windows systems the Update Drivers dialog will not show the driver files even though they are correctly in the MagicQ Wing Drivers folder. In this case try copying the whole MagicQ Wing Drivers folder to the desktop (using Windows Explorer) and then try to update the drivers again.

User Permissions on Windows

On new installs of MagicQ, show files are stored in **Documents/MagicQ/show/** in your home folder.

If you have upgraded MagicQ from an old version, then your show files may instead be stored in one of the following locations:

- C:\Users\username\AppData\Local\VirtualStore\Program Files\ChamSys Ltd\MagicQ PC\show
- C:\Program Files (x86)\ChamSys Ltd\MagicQ PC\show

If MagicQ does not store settings after a restart - it forgets the number of universes, IP address or DMX I/O settings - then this is likely caused by Windows restricting write access to the folders where MagicQ stores this data. Check permissions.

To check if permission settings are causing issues, try to run MagicQ as administrator. Right click on the MagicQ desktop icon and select 'run as administrator' from the options menu.



MagicQ should not be run as an administrator in normal operation - this is only recommended as a troubleshooting step. Complete functionality is available as a normal user.

Windows controls the level of access to system folders through the User Account Control Settings. This can be found in Control Panel, User Accounts, Change User Account Control settings. Setting this to "Never Notify" will make Windows less restrictive. Note that for security reasons this is only recommended for stand alone systems dedicated to MagicQ which are not connected to the internet - please make sure you understand the implications for your computer, before changing this setting.

MagicQ on Mac

MagicQ Supports macOS 12 up to 26.

From v1.9.9.0 MagicQ supports MagicQ natively on Apple M Series. When using Apple M Series hardware on older sofwtare version, ensure that MagicQ is installed via Rosetta.

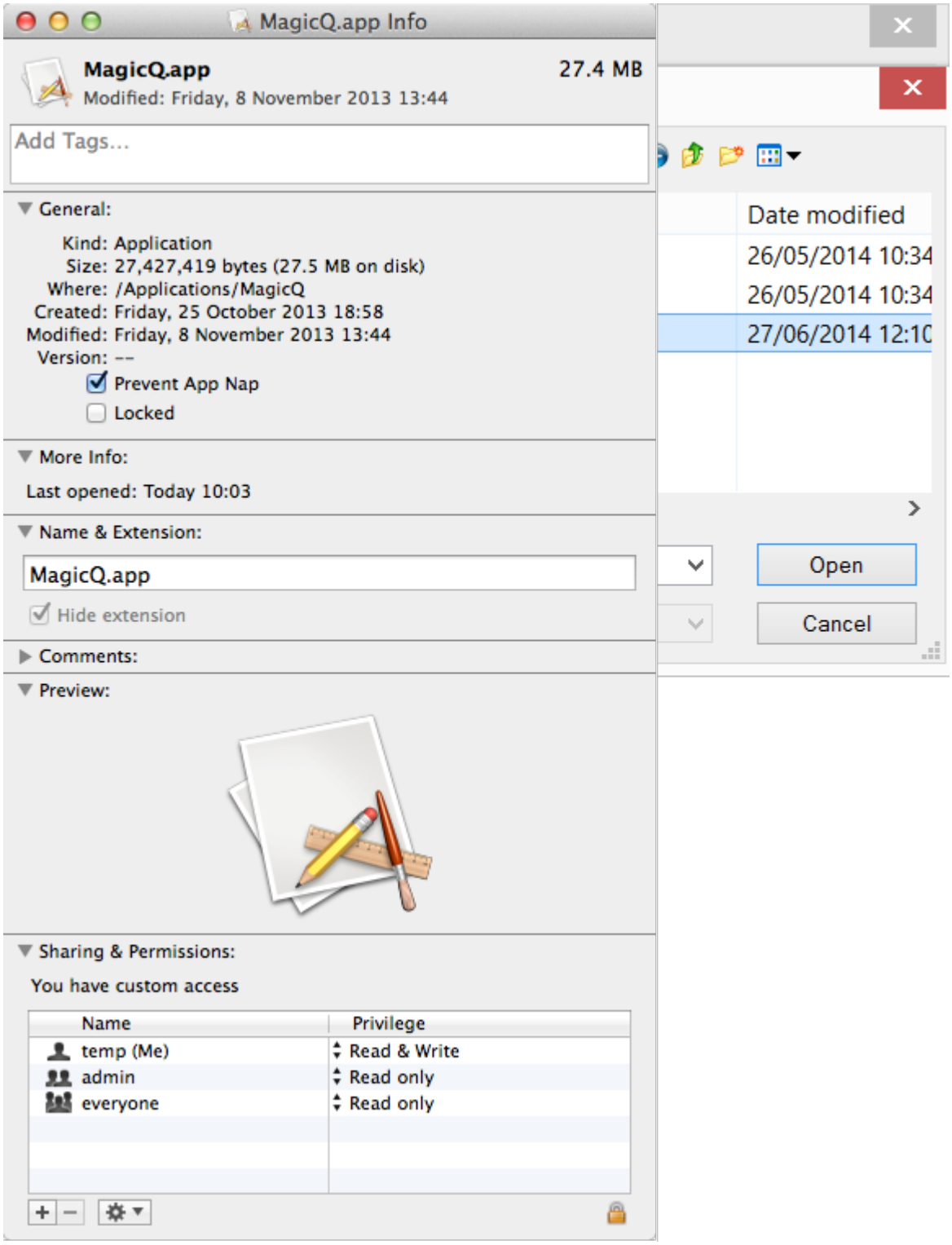
No driver installation is required for MagicQ wings and interfaces.

MagicQ downloads for unsupported versions of macOS are available from the Legacy Downloads page.

Turning Off App Nap

On all versions we recommend you disable Computer sleep and turn off App Nap to avoid MagicQ being shut down inadvertently.

- Quit MagicQ
- From the macOS Finder, navigate to the /Applications/MagicQ/ folder
- Select MagicQ.app, then go to the "File" menu and select "Get Info" (or select the app and hit Command+i)
- Check the box for "Prevent App Nap", found under the General section of Get Info



Making the MagicQ Folder Writeable

If you get the message "Cannot write file" when trying to save a show file, or your settings changes are not saved then check that the MagicQ folder and all its sub folders have both read and write permission.

If you get a message starting with "MagicQ needs to write to the install folder...", you will need to check the permissions of the "MagicQ" folder. There are detailed steps in the troubleshooting chapter.

MagicQ on Linux

MagicQ can be installed on current Ubuntu LTS releases (20.04, 22.04 and 24.04) 64 bit.

You can download MagicQ for Linux from the bugtracker.

Using older MagicQ wings and interfaces requires the ftdi_sio kernel driver which is included as standard on most Linux distributions.

We cannot provide support for Linux specific issues; the best place to ask questions is on community forums and social media websites.



MagicQ for Linux is only available for 64 bit AMD/Intel systems. MagicQLinux will not run on other architectures (e.g. ARM).

Installing

To install the downloaded .deb file, run the following command in a terminal:

```
sudo dpkg -i magicq_ubuntu_vx_x_x_x.deb
```

Replacing the filename above the name of the downloaded file.

High DPI Screens

Automatic scaling for high resolution screens is disabled by default as with some screens it made the MagicQ user interface too big.

To use high resolution screens, create a file called .magicq_init.sh in your home directory (/home/USERNAME/.magicq_init.sh) and make sure it has executable permissions.

```
# ~/.magicq_init.sh
```

```
# Uncomment the following line if you want MagicQ to try to scale automatically
#export QT_AUTO_SCREEN_SCALE_FACTOR=1
```

```
# Uncomment and adjust the following line if you want to manually decide how to
scale MagicQ
# You can specify a fractional number (e.g. specify 1.5 to make it 50% bigger)
#export QT_SCALE_FACTOR=1.0
```

```
# If you have multiple screens that need different scaling, uncomment and set the
following
# line to a semicolon-separated list of scale factors
```

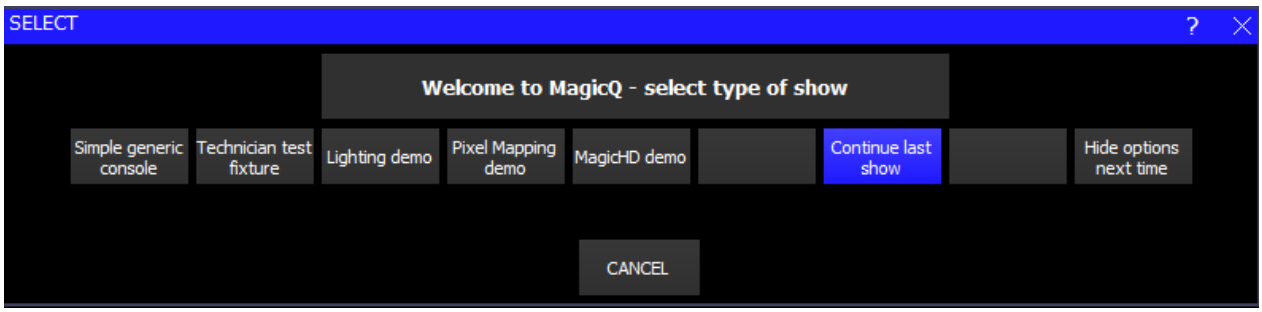
```
#export QT_SCREEN_SCALE_FACTORS=1.5;1.0
```

See https://doc.qt.io/qt-5/highdpi.html#high-dpi-support-in-qt for more information on the environment variables in this file.

Using MagicQ on PCs and Macs

The MagicQ software for PCs and Macs has the same features as the MagicQ console software with support for previsualisation of up to 400 universes, and full output of 64 Universes. MagicQ PC also supports ChamSys low cost MagicDMX interface, for simple USB-DMX output.

When MagicQ PC or Mac is installed for the first time, it will show a window with choices of demo shows.



This window can be hidden on subsequent starts by pressing the "Hide Options Next Time" button. It can be reactivated by setting the Setup, View Settings, Windows, Start Mode option to "Choose Demo show".

Simple Generic Console

Choosing Simple Generic Console opens MagicQ in Simple View and loads a Simple 48 Channel Generic Console show file.



In this mode the console simply operates as a 48 channel traditional theatre console with 48 dimmers patched on Universe 1 at channels 1 through 48.

If a MagicQ Wing, MagicQ Dual DMX Interface or MagicDMX interface is connected to MagicQ then the 48 channels will be automatically output on the first output.

There are 10 Playback Faders labelled PB1 to PB10. Depending on your screen resolution you may have a S, > and || button for each fader. Pressing in the box labelled PB1 to PB10 is the same as pressing the appropriate S button.

To record a Cue set the faders as required. Then press REC and press the S button of the Playback fader you wish to record it to.

Press CLEAR to clear the Programmer and return the faders to their defaults.

To record a chase, record multiple Cues to a Playback fader simply record more than one cue to a Playback fader.

To remove the Cues from a fader press REM and press the S button of the Playback fader you wish to remove Cues from.

To name a fader press SET and press the S button of the Playback fader you wish to name. You will be shown a text entry box. Type the name followed by RETURN.

Multiple pages of faders are supported through the Next Page / Previous Page buttons.

It is possible to interchange between the Normal and Simple views of the console by pressing the Norm and Simple buttons in the top right corner of the Application.

Technician Test Head

The Technician Test Head mode enables technicians to test a moving light or other head in a very simple way. Simply press the TEST SHOW soft button and select a head and a mode.

A new show will be created using that head patched at DMX address 1 on the first Universe. The 48 faders show up to 48 channels of the head. Each fader is named with the attribute name and the values are set to their default values.

The picture below shows a Clay Paky Alpha Spot HPE 1200 in Standard mode.



The Playback faders are automatically set up with some useful functions including Macros for Lamp On, Reset and Lamp Off, Locate and Movement, Colour, Gobo and Strobe tests.

If a MagicQ Wing, MagicQ Twin DMX Interface or MagicDMX interface is connected to MagicQ then the head will be controlled on the first output.

The preset faders can be used to change the values of individual attributes. Use SHIFT and the faders to make a fine adjustment.

Demo Shows

The start up Window gives also gives a choice of a standard Lighting demo show or a PixelMapping demo show.

Additional demo shows for other head types, media servers and visualisers can be found by going to Setup, View Settings, Load Show and selecting the demo show folder.



Touch View

The Touch View is designed for use with touch screens with buttons that are sized bigger so that it is easier to select functions. Select Touch View by pressing Touch or Touch2 in the top right corner of the Application.

Playback Mode

MagicQ PC supports a Playback Mode which enables MagicQ to be run in a pure "Playback" mode. This mode is selected by clicking on the new Playback mode Icon on the desktop or in the Programs, ChamSys MagicQ PC menu.

Playback mode is only supported when connected to a MagicQ Wing or MagicQ USB interface. The MagicQ interface must be connected and powered on before MagicQ is started in Playback mode. Note Playback mode is not supported with MagicDMX or 3rd Party interfaces.

In Playback mode MagicQ it is not possible to record or make changes to the show data. MagicQ will not save the show files / status files. Changes (e.g. change of chase speed) will be lost when the application is stopped and restarted.

Playback Mode shows a much reduced set of buttons on the screen – only buttons required for show playback are shown.

In Playback Mode only pages of playbacks that have been programmed are shown – pressing NEXT PAGE will automatically change to the next programmed page and will cycle around all programmed pages.

Saving Shows to USB Drives from PC Systems

MagicQ show files and show data are stored in the Documents folder on PC Based systems.

These can be accessed via a file explorer window outside of MagicQ from the MagicQ folder found within the documents folder on the PC system.

MagicQ also has the option to back up show files directly to USB Thumb Drives. On Windows based systems MagicQ will try to automatically mount the USB Drive, it may be necessary to manually set the USB Drive if this does not work.

The USB drive can be set under, Setup, File Manager, Set USB Drive. The USB Drive letter should be set here (Windows file explorer can be used to identify the drive letter if not known).

On Mac based systems, the 'Set USB Drive' option must be used /Volumes should be entered. After ending this, toggle to USB drive and Select the USB drive.

Copy and Paste to External Applications via the Clipboard

MagicQ supports copying and pasting to external applications such as Word, Excel and text editors.

On the toolbar select Edit, Copy or press the short cut key CTRL C. The item at the cursor position in the focused window, or multiple items if cursor selection is active, will be copied to the Clipboard. In the external application CTRL V (or Paste) can be used to paste the information.

It is possible to quickly select all items in a window on the toolbar by selecting Edit, Select All or using the short cut CTRL A.

It is also possible to copy and paste into MagicQ from external applications. In the external application use CTRL C or Copy to copy the required data to the Clipboard. In MagicQ change to the Window that you wish to paste to, cursor select the required cells and on the toolbar select Edit, Paste or press CTRL V. The data will be pasted into the MagicQ window. MagicQ only supports pasting of text data - typically names of items. When pasting to multiple selected cells MagicQ verifies that the quantity of data on the Clipboard matches the number of selected cells.

Extreme care should be used when pasting into MagicQ.

MagicQ PC / Mac Restrictions (Demo Mode and Core Mode)

A small number of remote and automation features are restricted when MagicQ PC is used without connected ChamSys hardware products and "Demo Mode" is shown in the title bar. This does not affect show programming or playback.

There are three categories of unlock, depending on which hardware is connected to the PC or Mac - DEMO MODE, CORE MODE and UNLOCKED MODE.

DEMO MODE

- DEMO MODE shown in title bar

- MagicQ programming and playback of shows
- 64 universes Art-Net/sACN in and out
- MagicDMX
- RDM

Demo mode is in operation when no ChamSys devices are connected to MagicQ.

MagicDMX (Basic & Full), 10Scene Gateway, 10Scene Wall Plates, 10Scene Contact, GeNetix Switches (GS5, GS5D, GS8), DMX Splitters (GD4IP, GD4D, GD8), GA10D and TouchScenes do not unlock MagicQ. MagicQ will remain in Demo Mode when these devices are connected.

CORE MODE

- CORE MODE shown in title bar
- All demo mode features
- Startup in full screen / saved window positioning
- Auto starting Playbacks
- Execute Window full screen
- Scheduled Events and Automations
- iOS / Android Remote app
- Web Server editing
- 10Scene Gateway and 10Scene remote app
- TouchScenes

Core mode is in operation when Dual DMX, Audio Interface, SnakeSys B4, T2, R4, R8 and GeNetix GN2, GN4IP are connected.

GeNetix GN2 also unlocks into Core mode when connected via network (subject to number of MagicQ restriction below).

UNLOCKED MODE

- All demo and core mode features
- Multi Programming including Net Sessions
- Playback Synchronisation
- Remote Control from other MagicQ systems
- Audio control and playback synchronisation with Winamp *
- Audio input from PC/Mac sound card
- Timecode send and receive from Art-Net
- Timecode (MIDI/LTC) from 3rd Party USB/Virtual interfaces.
- Triggering events / Cues / Timecode from DJ systems

- MIDI notes, CC, Show control from 3rd Party USB/Virtual interfaces
- ChamSys Remote Control Protocol (serial, or network)
- Open Sound Control (OSC)
- External Tracker send/receive (PSN, OTP, MQ Track)
- Mouse control of pan/tilt
- PB1 to PB10 controlled by DMX input
- Encoder control from MIDI CC / OSC

Unlocked mode is in operation when Mini Connect, Compact Connect, Stadium Connect, Compact Wing and Rack Mount Dongle are connected. GeNetix GN5 and GN10 also fully unlock when connected via network (subject to a number of MagicQ restriction below).

Unlocked mode is also in operation with the following legacy products - PC Wing, PC Wing Compact, Extra Wing, Extra Wing Compact, Playback Wing, Execute Wing, Stadium Wing, MIDI/SMPTE.

*Note that the MagicDMX interface (Basic or Full) do not lift these restrictions, as these are low cost interfaces intended for learning how to program the system.

MagicQ PC/Mac running with the restricted features unlocked, supports control of the first 10 playbacks (PB1 to PB10) via ChamSys remote control protocol, MIDI and automations. This enables synchronisation with show control systems. Playbacks 11 to 202 can only be controlled by MagicQ Playback/Execute/Extra Wings. On MagicQ consoles all 202 playbacks can be controlled by these protocols.

MagicQ PC/Mac supports 400 universes for Previsualisation and 64 universes for full output.

In the MQ250M, MQ500 and MQ500M Pre-Vis panel modes in order to protect our customers investment in full MQ500 and MQ500M consoles, the normal outputs are disabled and only visualisation is supported. Visualisation can be internal MagicVis or direct network links to external 3rd part visualisers. When universes 65 to 400 are used with external visualisers there will be occasional breaks in the DMX to prevent usage to control real lighting rigs. MagicQ warns if universes are enabled when entering the MQ500 and MQ500M Pre-Vis panels.

GeNetix / SnakeSys DMX Node Unlocking

GeNetix GN2 and GN4IP unlock into Core mode, whilst GeNetix GN5 and GN10 unlock fully.

GeNetix GN8 does not unlock MagicQ.

Network Unlocking

GeNetix and SnakeSys nodes connected to MagicQ PC Systems over the network will only unlock MagicQ systems in certain conditions. This enables pairing GeNetix/SnakeSys to unlock MagicQ PC systems, but prevent installations where a single GeNetix or SnakeSys device unlocks many MagicQ PC systems.

From v1.9.5.0 MagicQ PC is unlocked by a GeNetix or SnakeSys device when there are 2 or less MagicQ systems (MagicQ PC or MagicQ consoles) on the network

From v1.9.7.1 MagicQ PC is also unlocked when all enabled network universes on the MagicQ PC are set to unicast to a GeNetix/SnakeSys device that is present on the network. There must also be no MagicDMX connected to the PC, and no universes sending to Visualisers over Art-Net/sACN. Note that the GeNetix/SnakeSys Device present on the network will unlock PC System to the level specified in the tables below.

In versions prior to v1.9.5.0 SnakeSys devices would unlock all MagicQ PC Systems connected to the network.

Note that GeNetix GN8 does not unlock MagicQ over the network.

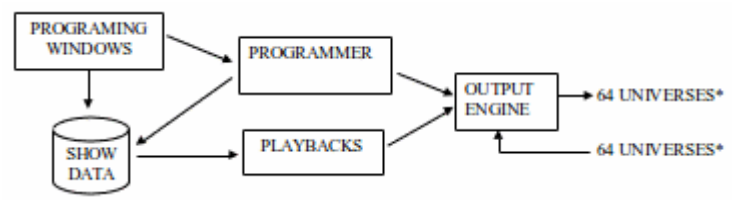
Product	Via USB	Via Network
MagicDMX	None	
10Scene Gateway, GW2O, GW2I		None
GN2	Core	Core
GN5, GN10	Unlocked	Unlocked
Mini Connect, Compact Connect, Stadium Connect, Compact Wing	Unlocked	

Legacy products

Product	Via USB	Via Network
Audio i/f	Core	
B4,T2,R4,R8		Core
Mini Wing, PC Wing, Extra Wing, Stadium Wing, Playback Wing, Execute Wing, MIDI/SMPTE	Unlocked	

MagicQ Concepts

A system diagram of the console is shown in the diagram below



- Universe count ranges from 4 to 400 depending on console.

Show Storage

MagicQ stores show data in a single show file stored on the hard drive of the MagicQ console, PC or Mac. The show file contains all the show settings, patch, palettes, cues and cue stack data. It also stores copies of all the personalities that are used within the show.

A MagicQ show can be transferred between MagicQ consoles and MagicQ PC or Mac systems simply by copying the show file. MagicQ show files are compatible across all MagicQ products. MagicQ maintains forward and backward compatibility for show files - enabling users to load shows created on any version of MagicQ software into any other version of MagicQ software.

Favourite shows, personalities, palettes and FX patterns can be imported into new shows to simplify and speed up show programming.

Show files can be copied using USB memory sticks or the network can be used to access the file system of MagicQ consoles.

When the user saves the show using the SAVE SHOW menu item or soft button MagicQ stores the show file with a .shw file extension. At all other times MagicQ automatically backs up the show data whenever changes are made to a (.sbk) file.

Output Channels

Depending on the console, MagicQ software supports up to 400 universes output over Ethernet.

This allows up to 131,072 channels of lighting to be controlled. Ethernet to DMX Interfaces are used to convert from Ethernet to DMX512 as required.

Lighting consoles are often limited in the number of DMX channels or the number of intelligent heads they can control independently. MagicQ allows control of all DMX channels individually, whilst utilising grouping and programming functions to enable control of multiple heads or dimmers together.

MagicQ provides a library of over 35,000 personalities – data for each of the different types of intelligent head available. This data determines how the different attributes of an intelligent head are controlled by the console.

ChamSys adds new personalities for heads as the information becomes available. If a personality is not available then it can be requested from ChamSys. Users also have the ability to create the personality themselves in the inbuilt Head Editor.

HTP / LTP Channels

The console supports two types of channels, highest takes precedence (HTP) and latest takes precedence (LTP). Generally HTP channels are used for channels controlling dimmers and for the dimmer channel of intelligent heads. LTP channels are used for the attributes of intelligent heads such as pan, tilt, colour, gobo etc...

For HTP channels the value that is output is the highest value of that channel on all of the active playbacks and the programmer. The console can be configured so that if a HTP channel is in the programmer it always overrides any active playbacks.

For LTP channels the value output is the value from the last active playback unless that channel is active in the programmer in which case the value output is the value stored in the programmer.

The last active playback is the last playback to be raised above zero, which is still above zero. Playbacks that are bumped in using ADD or SWAP buttons automatically become the last active playback until the button is released.

The type of channel used by the console is determined by the personality used to patch the dimmer or intelligent head.

Intensity channels should always be patched as HTP. In addition Red, Green, Blue channels in fixtures that do not have an Intensity channel are patched as HTP. All other channels are patched as LTP.

Playbacks can be set so that all channels controlled by the Playback act in a LTP way, thus allowing Intensity channels to be overridden by a single Playback.

The Patch HTP also affects the operation of channel releasing, Grand Master and DBO as in the table below:

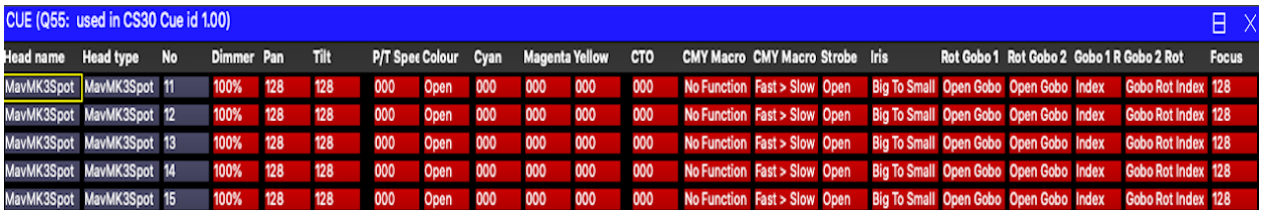
Feature	Patch HTP	Patch HTP (Cue Stack All Chans Controlled LTP)	Patch LTP
Channel mixing	HTP	LTP	LTP
Channels release to 0	Yes	Yes	No
Fader controls level	Yes	Yes	No
GM/DBO controls level	Yes	Yes	No

Cues

The console stores lighting states as Cues – each Cue stores

- Level information
- Timing information
- FX information

The Cue stores level information for each of the channels recorded into it. If the channel level was set using a Palette, then a reference to the Palette is also stored so that the Cue can keep track of changes to the Palette.


CUE (Q55: used in CS30 Cue id 1.00)

Head name	Head type	No	Dimmer	Pan	Tilt	P/T Spee	Colour	Cyan	Magenta	Yellow	CTO	CMY Macro	CMY Macro	Strobe	Iris	Rot Gobo 1	Rot Gobo 2	Gobo 1 R	Gobo 2 Rot	Focus
MavMK3Spot	MavMK3Spot	11	100%	128	128	000	Open	000	000	000	000	No Function	Fast > Slow	Open	Big To Small	Open Gobo	Open Gobo	Index	Gobo Rot Index	128
MavMK3Spot	MavMK3Spot	12	100%	128	128	000	Open	000	000	000	000	No Function	Fast > Slow	Open	Big To Small	Open Gobo	Open Gobo	Index	Gobo Rot Index	128
MavMK3Spot	MavMK3Spot	13	100%	128	128	000	Open	000	000	000	000	No Function	Fast > Slow	Open	Big To Small	Open Gobo	Open Gobo	Index	Gobo Rot Index	128
MavMK3Spot	MavMK3Spot	14	100%	128	128	000	Open	000	000	000	000	No Function	Fast > Slow	Open	Big To Small	Open Gobo	Open Gobo	Index	Gobo Rot Index	128
MavMK3Spot	MavMK3Spot	15	100%	128	128	000	Open	000	000	000	000	No Function	Fast > Slow	Open	Big To Small	Open Gobo	Open Gobo	Index	Gobo Rot Index	128

The Cue stores timing information for the channels that have been recorded into it. Two types of timing information are stored:

General Times: Stored for each type of attribute (Int In, Int Out, Position, Colour, Beam)

Individual Times: Stored on an individual channel basis

The Cue stores FX information for each of the FX that has been recorded into the Cue. The FX information includes the type of FX, the heads that the FX is applied to, and the FX parameters for each head.

Each Cue has a number (e.g. Q1) and an optional name.

Cue Stacks

Cue Stacks are used to manage sequences of Cues. Cue Stacks keep track of the order of the Cues and the options for how they are played back. A Cue Stack can have a single Cue associated with it or may have a whole list of Cues.

The Cue Stack stores a Cue Id and a text field for each Cue so that the different steps in the stack can be labelled. The Cue Id and text field are shown on the playback display when the Cue Stack is played back which enables operators to keep track of the current position in the show.

Cue Stacks can be configured to run as a chase rather than as a simple list of Cues. The difference is that as a chase the timing of all Cues is determined by the chase speed and chase contrast rather than by the individual delay and fade times for each Cue.

Each Cue Stack has a number (e.g. CS1) and an optional name.

Playbacks

The console enables playing of recorded show data through Playbacks. Playbacks are associated with physical faders and buttons – each Playback can have one Cue Stack assigned to it.

The console supports 202 Playbacks; 10 main Playbacks situated below the touch screen and up to 8 extension wings each with 24 Playbacks.

On models where less than 8 wings are fitted, the not fitted playbacks can be utilised through the touch screen and associated buttons.

Pages

The console supports multiple pages of Playbacks enabling Playback faders to have different functions depending on the current page. Typically one page is used for each song in a show.

The current page is selected through the NEXT PAGE and PREV PAGE buttons on the main playback section or by selecting a page in the Page Window.

The 24 Playbacks on each wing are divided up into two rows of 12 Playbacks. Each of the rows has separate NEXT PAGE and PREV PAGE buttons. This enables the Page used by these Playbacks to be set differently to the main Playbacks.

This provides significant flexibility to how shows are played back – for example one section of a wing can be used to control front lighting whilst another could be used to control the main show FX lighting. Changing the Page of the front lighting would not change the Page of the FX lighting.

FX

The console contains a powerful engine for creating special effects (FX). FX can be applied to a group of heads at the touch of a button; there is no need to program lots of different Cues to create the effect. Special effects can be easily modified live, enabling, for example, the speed and size of the FX to be modified to match the mood of the show.

The console supports an extensive library of standard Position FX such as circles, squares, pan and tilt saws, lifts, zig zags, etc. In addition the console supports FX on Colour, Beam and Intensity attributes. The console supports programming and storing of new custom FX, which can then be re-used in shows as required. The FX engine enables complete shows to be programmed within a matter of minutes.

Window Layouts

The console provides a means of storing the positions and sizes of Windows as a Window layout to enable easy recall of useful Windows. This enables, for example, a Window configuration consisting of the Group, Position, Colour and Beam Windows to be stored and recalled at a button press.

The system supports several standard Layouts, including a standard Group, Position, Colour, Beam programming layout.



On Stadium consoles there are 12 Layouts on the left side of the right hand display. Further layouts can be accessed by pressing CTRL.

On Compact consoles Window layouts are recalled by pressing CTRL and selecting one of the top soft buttons. There are also three physical Layout buttons, which together with SHIFT can select Layouts 1 to Layout 6.

Shift Functions

The MagicQ lighting console uses SHIFT and CTRL buttons to enable access to advanced features. There is a SHIFT button and a CTRL button adjacent to the top corners of the touch screen in addition to the keys on the keyboard.

The SHIFT button is used with the cursor keys to enable selection of multiple items in Windows.

The ALT button is used to access functions which are supported by physical buttons on some consoles but not on others. For example, ALT is used to access PAGE UP and PAGE DOWN on Compact and Stadium consoles.

The Programmer

All recording of show data is carried out using the Programmer. The Programmer takes priority over all playbacks, and channels. It can also be used during live running to override the outputs – for example, for changing the colour or gobo of intelligent heads.

The Programmer can be considered to be a table of channel level and active flags for each of the channels patched onto the console. Initially all channels are set to their default values. When a channel is changed, the channel level for that entry in the table is set to the new level and the channel is flagged as active.

The console outputs any channels that are marked as active in the Programmer at highest priority – i.e. they over-ride all other playbacks.

To clear the Programmer press CLEAR. All channels will be deactivated and all HTP channels will be set to zero. Depending on the "unused Channels return to defaults" setting, LTP channels will either stay at their current values or return to their defaults. It is possible to force all LTP channels to zero by using CTRL CLEAR.

The programmer can be set into a Blind mode using the BLIND button so that the contents of the programmer do not affect the output of the console. This allows programming adjustments to be made during a live show and special effects to be "busked" in.

Help

The Help Window enables the operating manual to be viewed on-line. Press the HELP button at any time to open the Help Window. To close the window, press the CLOSE button.

Use the scroll encoder, the cursor keys, and the hyperlinks to navigate through the manual. You can go directly to a particular section using the top soft buttons, e.g. CONTENTS, QUICK START or SHORT CUTS.

You can search through the manual by typing some text and pressing SEARCH. To search for the same words again, press SEARCH AGAIN.

The Help window also contains a VIEW COMMANDS view which logs all of the commands and console responses. It also has a VIEW LOGS which logs all the buttons, fader moves and events including MIDI, LTC and network events.

MagicQ Layout

Physical Layout

All MagicQ consoles are very similar - they differ mainly in the number of playback faders. The programming interface is consistent across the entire range of consoles. MagicQ software on PC and Mac mimics the layout of the physical buttons on the MagicQ Consoles - a choice of different Panels is available from the Panel Menu. The Full Panel mode mimics Compact consoles whilst the Stadium Panel modes mimic the Stadium consoles. It is possible to change between different panel views at any time - it does not affect the programmed show - it just determines what buttons, faders and encoders are available for programming and playback.

Note, when using any of the 'pre vis' panels on MagicQ PC systems then a DMX Spoiler is then active on all universes. On non 'pre vis' Panels 64 universes can be output without any restriction, enabling more than 64 univeres in these panels will also enable the DMX Spoiler.



Touch Screen, Encoders & Soft Buttons

There are 8 rotary encoders placed around the main touch screen.

The buttons around the top and sides of the display referred to as soft buttons since their function changes according to the active window on the touch screen. The current function of a soft button is displayed on the touch screen. To select the function you can either press the screen or the soft button itself next to the screen, depending on the console model



The function of the rotary encoders changes according to the active window with the current function being displayed adjacent to the encoder.

There are ALT, SHIFT and CTRL buttons.

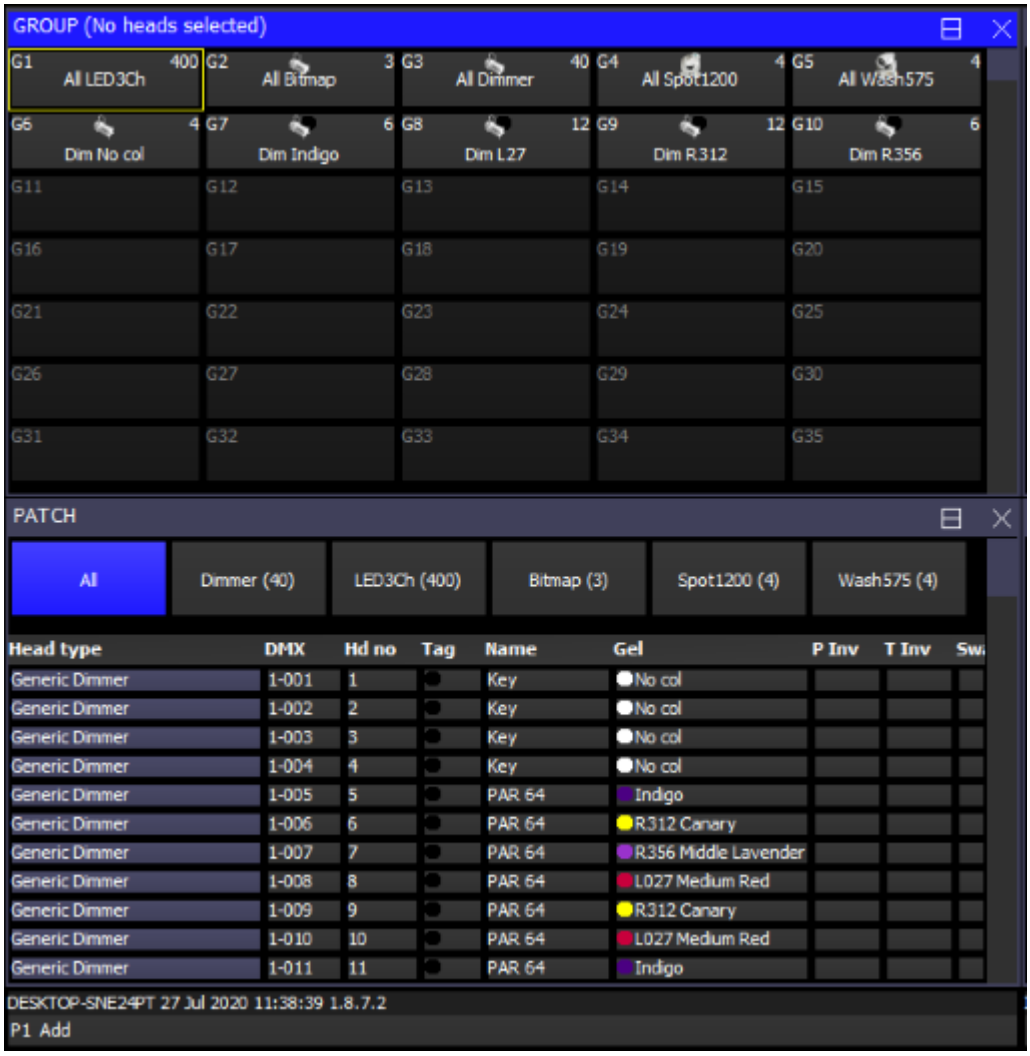
SHIFT is used for extra MagicQ programming functions.

CTRL is used for console settings such as setting screen brightness, console lamp brightness.

ALT is used to select alternative functions on MagicQ consoles that do not have a physical button for the particular function - the ALT function of a button is normally labelled on the panel.

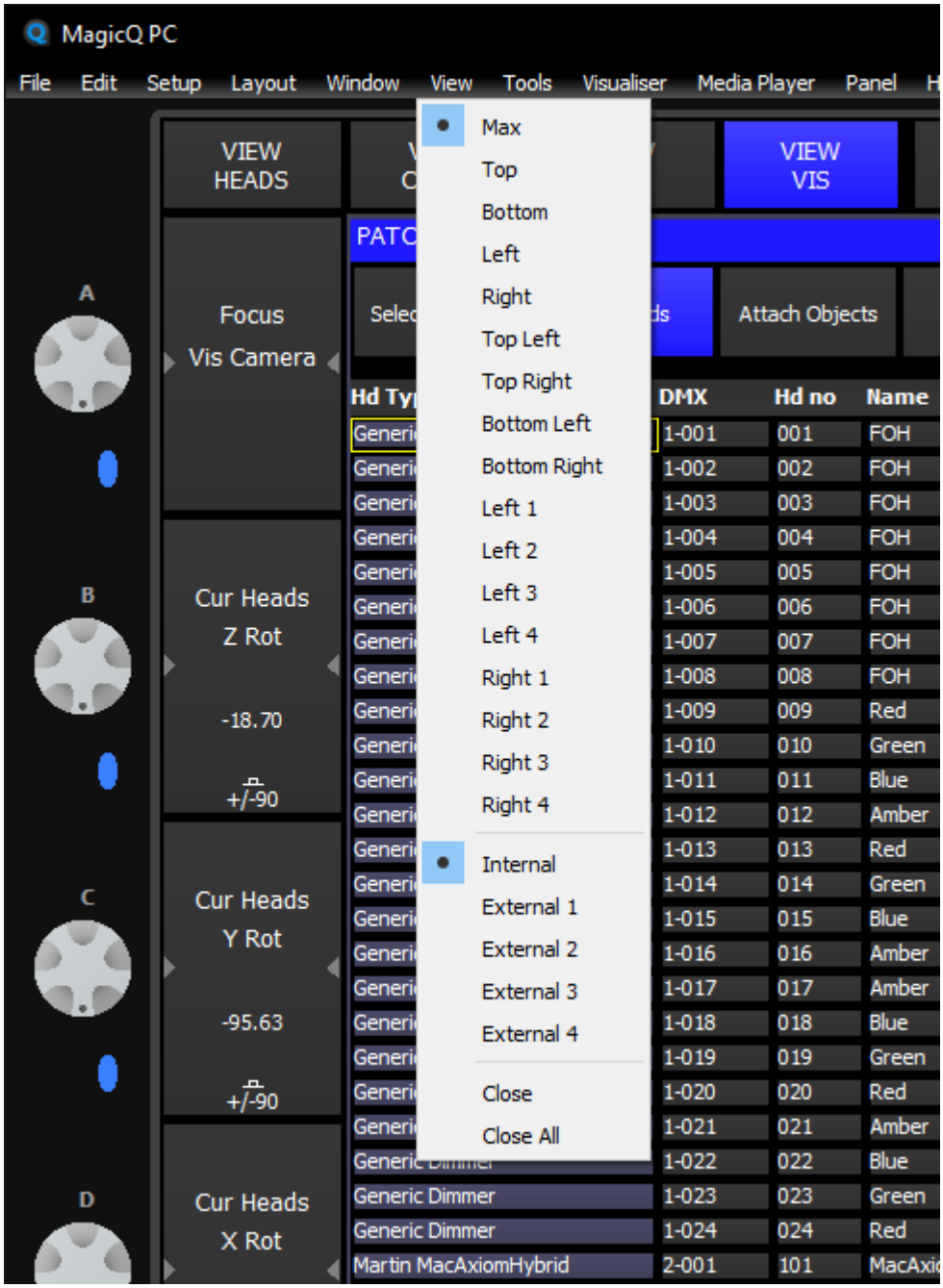
Main Windows

The area in the centre of the screen is the windows section in which the various control windows are displayed. There are three main types of windows – boxes style windows which have large boxes such as the Group Window, spreadsheet style editing windows such as the Patch Window, and free form windows such as the Plot, Colour Picker, and Timeline windows.



A window is displayed by pressing the appropriate window button. On MagicQ PC/Mac the window can be selected from the Window Menu from the toolbar. Changing window does not affect programming or playback.

Multiple windows can be displayed at one time by sizing and positioning the windows appropriately by clicking on the window title bar or using the SIZE button. On MagicQ PC/Mac the size and position can also be selected from the View Menu from the toolbar.



Layouts

Layouts specify a complete configuration of windows across one or more monitors.

Layouts can be selected using the Layout buttons - to select the Palettes layout (Groups, Positions, Colours and Beams) press the Layout 1 button.

On Stadium consoles the layout buttons are on the left side of the main touch screen. Use CTRL + the layout buttons to access more pages of Layouts.

On Compact consoles there are physical Layout 1, Layout 2 and Layout 3 buttons by the keypad. On these consoles SHIFT + Layout 1 gets Layout 4, SHIFT + Layout 2 gets Layout 5 and SHIFT + Layout 3 gets Layout 6. Press CTRL to access more layout buttons on the top soft buttons.



For more Layouts press ALT + CUE STACK to open the Layout Window. Layouts can be recorded to the Layout Window, named, moved and removed. When recording, the monitor mask can be chosen.

If the Layout Window is open full size on the first monitor then the Layout Window is not included in the Layout. In all other cases the Layout Window is included in the Layout.

Active Window

When a window button is pressed, that window becomes the active window. The active window is on the top of the screen and is easily identified as the window with the highlighted title bar at the top. It is also the window with the cursor in it.

An item in a window can be selected either

1. By pressing the touch screen over the appropriate part of the window
2. By moving the cursor to the appropriate position and pressing the ENTER button.
3. By moving the mouse to the position and pressing the left mouse button.

The cursor can be moved around the active window using the cursor keys in the Editor area of the console or via the cursor keys on the keyboard.

PG UP, PG DN, PG LEFT and PG RIGHT can be used to scroll the window in the appropriate direction. HOME and END can be used to get to the start and end of the window respectively.

On Stadium and Compact consoles the PG UP, PG DN, PG LEFT and PG RIGHT use ALT and the cursor keys.

On Stadium consoles HOME and END use ALT and HEAD and TIME respectively. On Compact consoles user ALT and LAYOUT 1 and LAYOUT 3.

On PC/Mac the contents of a Window can be printed to a printer or PDF file by selecting File, Print Window from the toolbar.

Window Sizing

MagicQ supports a Window Size dialogue box to enable the window position and window size to be selected directly with one press directly rather than stepping through all the possible window sizes and positions.

The window size dialog box can also be opened by double clicking on the title bar of the window that you wish to size. On MagicQ consoles the window size button SIZE opens the Window Size dialog box (ALT EXEC on Compact consoles, and ALT PATCH on Stadium consoles).

MagicQ allows sizing of windows to 1,2 or 3 rows when using the LEFT (1..4) and RIGHT (1..4) window sizes. By default they fill the left or right side automatically, but you can specify for

each window whether they should be restricted to 1,2 or 3 rows.

If you only have LEFT (1..4) windows opened then they will automatically spread across the whole width - this allows the choice of the left column, right column or whole width.

The windows sizes are positions are stored/recalled in Layouts and also in the show file.

Support for Find in MagicQ windows

MagicQ supports a Find function which searches the text fields in the current focused Window.

On the toolbar select Edit, Find or press the short cut key CTRL F. Alternatively on consoles press CTRL and CURSOR RIGHT. Then enter the text to search for. The find can also be invoked by entering text on the command line and then using any of the previous methods to start the Find operation.

To search again forwards press CTRL and CURSOR RIGHT. To search again backwards press CTRL and CURSOR LEFT.

The CTRL F shortcut only works on PC/Macs when MagicQ Keyboard Mode is set to Normal. In all other MagicQ Keyboard Modes the CTRL and keyboard keys open MagicQ windows.

Support for Cut and Paste in MagicQ windows

Cut and paste is supported within MagicQ windows and between different MagicQ windows. It can also be used on PC and Macs to copy between MagicQ and other applications, making an easy way to transfer data in and out of MagicQ.

The keyboard shortcuts CTRL C and CTRL V can be used to cut and paste within MagicQ PC.

On consoles hold CTRL and press COPY for copy. Hold CTRL and press UPDATE to paste.

Multiple cells can be cut and pasted at a time.

Status and Display Windows



Towards the bottom of the touch screen are two small windows, the Status Display and the Input Display. The Status Display shows the current date and time, the ADD / SWAP status of the console and other relevant status information.

The status window also shows warnings - for example if 'INVALID NET' is seen here this indicates MagicQ has been setup to output via Network e.g. Art-Net and that MagicQ's IP address has been set differently to the PC's network adapter.



The Input Display shows the data that has been currently entered through the keypad and the keyboard. Note that text is not entered into the main Windows until ENTER is pressed. This allows the user to choose whether the keyboard data is SET into fields in the windows or onto Playbacks.



After a command has been entered it also confirms that the command has been accepted and shows any error messages when a command is not possible.

Head Control

The area around the two large rotary encoders is referred to as the head control area. It is used to alter the parameters of individual heads and apply effects such as fans over groups of heads.



The NEXT HEAD and PREV HEAD buttons are used to select an individual head to modify.

The other buttons control the selection mode; LOCATE, HIGHLIGHT, FAN, SINGLE, ODD/EVEN, and ALL.

Editor Buttons



The Editor buttons are used to modify program data. The 8 buttons on the right hand side are the action buttons which are used to modify show data. The action buttons are UNDO, REMOVE, MOVE, COPY, SET, INCLUDE, UPDATE, and RECORD.

The buttons on the left:

BLIND and CLEAR affect the programmer

REL and SELECT affect playbacks

SHIFT selects alternate functions

←- undoes keyboard input and clears actions

Playback

The Playback area is situated directly below the touch screen and consists of 10 playbacks each with a fader and four buttons (FLASH, GO, STOP, SELECT). The area above each of the playbacks on the touch screen is used to provide information about the status of the playback.



The playback area also contains a Grand Master, a Sub Master, Page Select buttons and a Manual Playback for taking control of Cue Stacks.

The cross fade section contains a GO, STOP. FWD, BCK buttons, a cross fader and a master GO button. The cross fade section controls the current playback selected with the S button.

On the MQ500 there are 15 fader playbacks and 15 execute playbacks above them.

Note that on MQ50 / MQ70 consoles there are no physical 's' button keys in the playback section, pressing on the touch screen in the playback legend above the fader has the same function as pressing a physical 's' button would.

Keyboard, Keypad, Select & Confirm Windows

MagicQ has a set of additional on-screen Windows that can be used to enter text, select items and confirm actions. You can choose whether you use the physical keyboard/keypad to navigate around these items or whether you use the mouse/touch.

To open the Keyboard Window at any time press SET SET. To open the icon selector press SHIFT + SET.

Confirm Windows are shown when you carry out important actions that may overwrite or delete show data. You can confirm an action by pressing 1 on the keypad. To cancel the action press 0 on the keypad.

Common Actions

MagicQ utilises many common actions for carrying out programming functions. All the actions use similar button presses. Once you understand the action in one Window, you will understand how it is done in another Window.

We strongly recommend you make yourself familiar with these actions – they will save you valuable programming time.

Items

Actions in a Window can be carried out on individual items or on multiple items. For actions on a single item, use the cursor keys to move around the Window so that the cursor is over the required item.

For multiple items in a Window, move the cursor to the first item. Then press and hold the SHIFT button whilst moving the cursor to the last item. All the items will be highlighted.

Alternatively hold the CTRL button and select multiple individual items.

In spreadsheet style Windows (e.g. Patch) pressing the touch screen or left clicking on the item with the mouse moves the cursor to the item. You can highlight multiple Window items by pressing the touch screen and moving the touch across multiple items.

In boxes style Windows (e.g. Group), pressing the touch screen or left clicking performs the function associated with the item (e.g. recalls that Group). In these Windows use SHIFT or CTRL and the cursor keys to highlight multiple boxes.

When a cursor multiple selection is active there is an indicator of the number of items cursor selected in the focused Window shown on the right hand side of the Status window.

Setting the Value of Items

To set the value of one or more items in a spreadsheet style window:

- Move the cursor over the item (s)
- Enter a value on the keypad and press ENTER.

OR

- Type in the value on the keypad
- Press the touch screen / click / ENTER over the item.

For items that have a simple value of yes or no if you do not enter a value on the keypad then the value will toggle. For items that have multiple values double click on the field for a list of values. On the touch screen select the field and then press anywhere in the Input Display (right side area underneath the main window) to bring up the list of values.

Items that are coloured darker are read only and therefore cannot be set.

Naming Items

- Press the SET button
- Press the touch screen / click / ENTER over the item to name.
- Enter the name on the external or on screen keyboards

When working in spreadsheets style windows with an external keyboard it is not necessary to press the SET button in the above sequence - you can edit the spreadsheet like any other, just

by moving to the appropriate box and entering text on the keyboard.

To name multiple items it is often easier to highlight the items before pressing SET. If you press SET immediately after highlighting multiple items then the console will assume that these are the items you wish to set.

You can also press SET instead of pressing ENTER in the above sequences.

Moving Items

- Press the MOVE button.
- Press the touch screen / click / ENTER over the source item.
- Press the touch screen / click / ENTER over the destination item.

You can also press MOVE instead of pressing ENTER in the above sequences.

To move multiple items it is often easier to highlight the items before pressing MOVE. If you press MOVE immediately after highlighting multiple items then the console will assume that these are the source items and will only prompt for the destination. You can hold SHIFT or CTRL to highlight multiple items.

MagicQ supports dragging to move items within Windows. Press SHIFT + MOVE to enter Drag Move mode. Items can then be dragged and dropped within windows. Drag Move mode will continue until MOVE is pressed again, or BACKSPACE is pressed.

The MOVE button flashes when in Drag Move mode.

Copying Items

- Press the COPY button.
- Press the touch screen / click / ENTER over the source item.
- Press the touch screen / click / ENTER over the destination item.

You can also press COPY instead of pressing ENTER in the above sequence.

To copy multiple items highlight it is often easier to highlight the items before pressing COPY. If you press COPY immediately after highlighting multiple items then the console will assume that these are the source items and will only prompt for the destination. You can hold SHIFT or CTRL to highlight multiple items.

When copying Cues, Cue Stacks or Pages the console by default does not make individual copies of the Cues - the Cue Stacks link to the same Cues. To copy unlinked (i.e. to create new Cues) then press SHIFT and COPY in the above sequence and select Unlinked.

Removing Items

- Press the REMOVE button.
- Press the touch screen / click / ENTER over the item to remove.

To remove multiple items highlight it is often easier to highlight the items before pressing REMOVE. If you press REMOVE immediately after highlighting multiple items then the console will assume that you wish to remove the highlighted items.

You can also press REMOVE instead of pressing ENTER in the above sequence.

Recording Items

In boxes style windows it is possible to record an item (e.g. in the Group Window, to record a group):

- Press the RECORD button.
- Press the touch screen / click / ENTER over the item to record.

You can also press RECORD instead of pressing ENTER in the above sequence.

Icons

MagicQ supports icons for all programmed items. The size of the icons can be set in the Window Settings in the Setup Window.

Icons can be used on Groups, Colours, Beams, Positions, Cues, Cue Stacks and in the Execute Window.

To set an icon for a Window item (e.g. a Palette Entry) press SHIFT SET. Press the touch screen / click / ENTER over the item to set an icon for. This will open the Icon library. The Icon library is split into different types of Icons for colours, positions and different types of gobos.

Select the icon from the icon library.

Custom Photo Icons

Custom photo icons can be created via the MagicQ Remote mobile app. To take a photo to use as an icon for a Window item select the item in the app and tap the Camera icon in the Window sub view selection bar. Position the desired image in the centre of the camera viewer and tap Capture. A square icon will be created from the photo and set to the item.

These Custom Photo Icons are stored in the icon library and can be set to further items by using the SHIFT SET method described above and selecting *UP FOLDER*, then *user snapshots*.

Actions on Playbacks

Actions on playbacks are similar to window items except that the S buttons are used instead of window items.

To select a Playback, press the S button for the appropriate Playback.

To record a Playback, press RECORD, then press the S button for the appropriate Playback.

To name a Playback press SET, then press the S button for the Playback. Enter the name using

the on screen keyboard or the external keyboard.

To move a Playback, press MOVE, then press the S button for the source Playback and then press the S button for the destination Playback.

To copy a Playback, press COPY, then press the S button for the source Playback and then press the S button for the destination Playback.

To include the contents of a Playback into the Programmer, press INCLUDE, then press the S button for the destination Playback.

To remove a Playback, press REMOVE, then press the S button for the Playback. Press the S button again to confirm the remove.

Quick Start

Starting Up MagicQ

On MagicQ consoles hold the power button on the rear panel. On MagicQ PC and Mac click on the MagicQ application icon.

On start up you are presented with an option to load demo shows or to continue the last show. Selecting last show will load and run the last show used on the system. This option can be hidden for subsequent start ups.

The console remembers all windows that were open when the console was last used. To close all windows press SHIFT and CLOSE.

Press SETUP to open the Setup Window.



Calibrating the Touch Screen

On MagicQ consoles if the touch screen does not seem to be responding to your touch correctly then you may need to calibrate the touch screen.

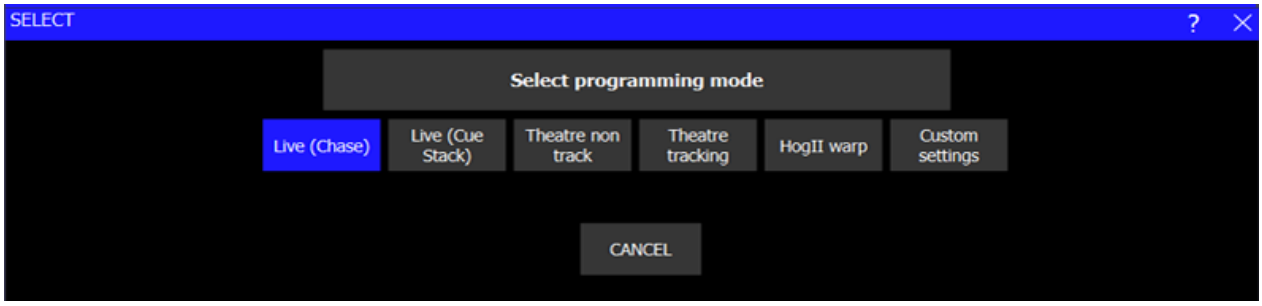
Press the SETUP button to open the Setup Window. Press the CAL TOUCH soft button. When asked for confirmation press 1 on the keypad or press the CAL TOUCH soft button again.

Calibration works by finding the bottom left and top right corners of the screen. First press the bottom left of the touch screen and then the top right. You may wish to use a fine but blunt object.

The shortcut CTRL + SET can be used to open the Calibrate window at any time.

Note that touch screens on MQ50 / MQ70 / MQ250M / MQ500M consoles do not require calibration.

Starting a New Show



To start a new show, go to the Setup Window and press the NEW SHOW soft button. This will clear the current show from memory – shows that have been previously saved to disc will not be affected. You will be asked to confirm by selecting YES.

There is a choice of six modes.

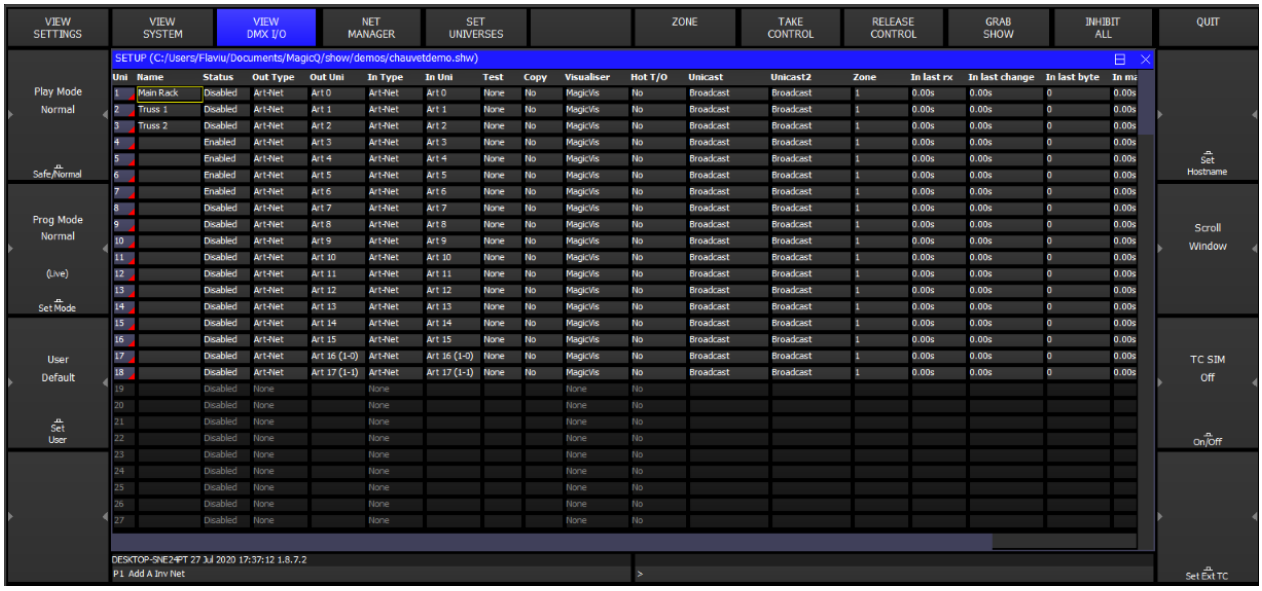
- Live (Chase) - Faders activate Cue Stacks. When recording, all data in the programmer is stored in recorded cues. When recording multiple cues on playbacks – defaults to Chase timing.
- Live (Cue Stack)- Faders activate Cue Stacks. When recording only data in the programmer that has changed since the last record is stored in recorded cues. When recording multiple cues on playbacks – defaults to Cue timing.
- Theatre non- track- Faders operate levels only. When recording, all data in the programmer is stored in recorded cues. When recording multiple cues on playbacks – defaults to Cue timing
- Theatre tracking - faders operate levels only. When recording only data in the programmer that has changed since the last record is stored in recorded cues.
- Hog II warp – Like Theatre Tracking but with some extra features to make the programming more familiar to Hog II users. When recording multiple cues on playbacks – defaults to cue timing
- Custom Settings- Allows the user to select settings saved on another show file. In Theatre and Hog II modes, heads return to their default values when not under control of a playback or the programmer. The keypad is set up to enable selection of Palettes using Palette numbers, and Cue Stack timing defaults to being stepped timing rather than chase timing.

The mode can be changed at any time by using the Programming Mode soft button in the Setup Window. In addition each individual option / default value can be customised by the user and saved as their personal settings file.

Starting a show clears all patching, all programming and all palettes. It does not clear console specific options such as the configuration of the DMX outputs or the calibration of the touch screen.

See <_programming_mode,Programming Mode> for more details.

Enabling Outputs



To enable output of channel data select the DMX IO VIEW in the Setup Window. This window enables modification of the inputs and outputs for all the universes. MagicQ consoles support DMX directly from the console or via an external Ethernet to DMX convertor. On MagicQ PC or Mac you can output via USB to DMX interfaces (such as MagicDMX) or via DMX outputs from the Wings.

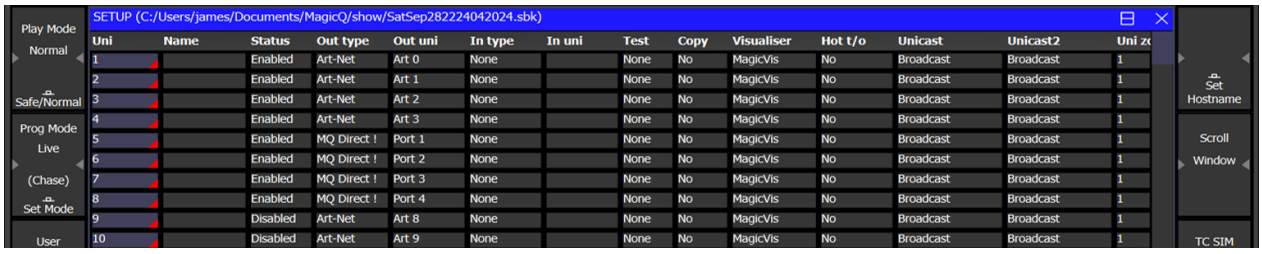
Using Direct DMX Outputs

All current MagicQ consoles have DMX output ports directly on the rear panel.

The four DMX outputs on the rear panel automatically output universes 1 to 4 unless they are configured otherwise. The DMX will be output regardless of the "Status" enabled or disabled in the Setup DMX I/O window. On Pro consoles there is a green LED on the rear panel that indicates when DMX is being output.

If you wish to choose alternative universes to be output to the four DMX outputs on the rear panel then you will need to configure the outputs manually. For each of the Universes you wish to output on the rear panel, select Out Type as "MagicQ Direct" and Port 1, Port 2, Port 3 and Port 4 and enable the universes.

The picture below shows the direct ports to output Universes 5 to 8.



Uni	Name	Status	Out type	Out uni	In type	In uni	Test	Copy	Visualiser	Hot t/o	Unicast	Unicast2	Uni z
1		Enabled	Art-Net	Art 0	None		None	No	MagicVis	No	Broadcast	Broadcast	1
2		Enabled	Art-Net	Art 1	None		None	No	MagicVis	No	Broadcast	Broadcast	1
3		Enabled	Art-Net	Art 2	None		None	No	MagicVis	No	Broadcast	Broadcast	1
4		Enabled	Art-Net	Art 3	None		None	No	MagicVis	No	Broadcast	Broadcast	1
5		Enabled	MQ Direct !	Port 1	None		None	No	MagicVis	No	Broadcast	Broadcast	1
6		Enabled	MQ Direct !	Port 2	None		None	No	MagicVis	No	Broadcast	Broadcast	1
7		Enabled	MQ Direct !	Port 3	None		None	No	MagicVis	No	Broadcast	Broadcast	1
8		Enabled	MQ Direct !	Port 4	None		None	No	MagicVis	No	Broadcast	Broadcast	1
9		Disabled	Art-Net	Art 8	None		None	No	MagicVis	No	Broadcast	Broadcast	1
10		Disabled	Art-Net	Art 9	None		None	No	MagicVis	No	Broadcast	Broadcast	1

Using Outputs via Network

MagicQ supports output via the network ports using Art-Net, Pathport or ACN Streaming DMX.

To output Art-Net on a Universe enable it and ensure that the output type is set to Art-Net.

Choose which Art-Net Universe you wish to Output the MagicQ Universe on. MagicQ defaults to outputting MagicQ universe 1 on the first Art-Net Universe (Art 0-0).

If you are using Ethernet to DMX512 conversion boxes then you will need to configure the boxes to respond to the correct Art-Net sub-net and Art-Net universe.

With ChamSys SnakeSys B4 or R4 you need to set up the two rotary switches to the correct values – the left one for Art-Net sub-net and the right one for Art-Net universe. The interface will then decode the four Art-Net universes starting from that Art-Net subnet and universe.

In most networks the Art-Net sub-net is set to 0. If you are using only one Ethernet to DMX512 interface then you can normally use subnet 0 universe 0.

If you are using multiple Ethernet Interfaces then you will need to set each Ethernet Interface to a different Art-Net Universe – for example when using two ChamSys SnakeSys B4 Interfaces set the first Interface to Art-Net Universe 0 and the second one to Art-Net Universe 4.

MagicQ includes a DMX viewer for monitoring Art-Net on the Network – select Tools, DMX View.

Connecting a MagicQ Playback Wing

To connect a MagicQ Playback, Extra Wing or Compact Wing, simply connect the Wing to the MagicQ console via USB. In the Setup Window, View System, Wings set the first Wing to be type USB Wing or type Compact for the Compact Wing.

By default the Playback Wings are set so that the Wings change page when the Next Page / Previous Page button are pressed on the MagicQ console. It is possible to make the Wings operate completely independently of the main MagicQ console by changing the "Lower Bank Tie" and "Upper Bank Tie".

To use multiple Playback Wings simply connect them and change the type to USB wing / Compact Wing. Note not all Wings connect to all MagicQ consoles. The Stadium Connect can only connect to a computer, and the MQ500M Stadium Wing, only connects to the MQ500M.

Setting Playback Wing IDs

When using MagicQ consoles with multiple Playback / Extra Wings (or multiple Execute Wings) a Wing ID can be set for each Wing. The required wing ID can then be set in Setup, View Wings to ensure that the Wings are identified correctly and control the correct Playbacks.

Hold down the lower NEXT PAGE and PREV PAGE buttons when powering on the Wing to get into the Wing configuration mode. From the menus you can then set a Wing ID.

All Extra Wing Compacts, and Extra Wings and Playback Wings manufactured since 2012 support setting of Wing ID. Older Extra Wings including those with yellow displays do not support Wing ID.

The Compact Wing comes pre-configured with a Wing ID based on the serial number of the Compact Wing, this can be found in Setup, View System, Wings under the Serial num column. Unlike the Extra Wing the Compact Wing's ID cannot be changed.

When using multiple Wings, the Wing ID is used to determine which Wing is assigned to which Playback. The Wing ID can be set in the Setup, View Wings window.

Connecting External Monitors

MagicQ consoles have DVI, HDMI or DP connectors for connecting external monitors. The monitor should be plugged in before starting the console.



Patching

Open the Patch Window by pressing the PATCH button. The Patch Window has four views, VIEW HEADS, VIEW CHANS, VIEW DMX and VIEW VIS. In this section we describe patching in VIEW HEADS.

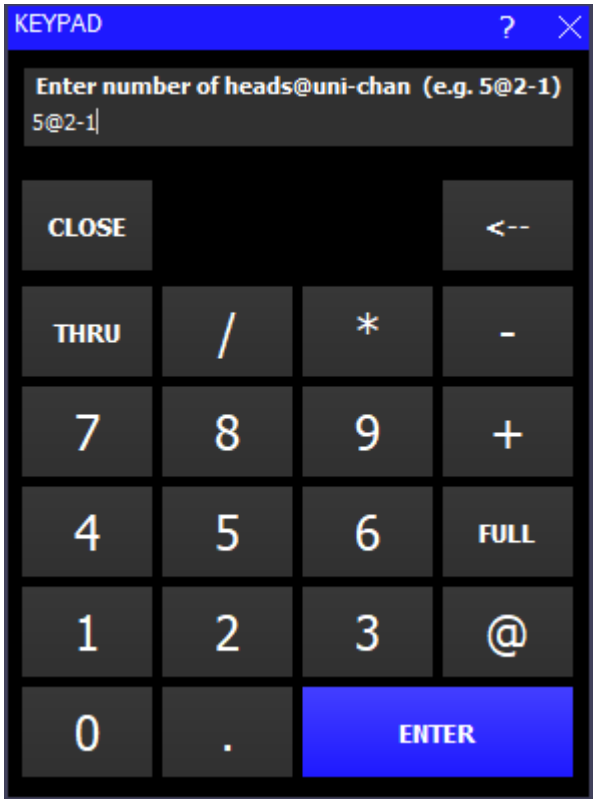


Choose the fixture you wish to patch by pressing the CHOOSE HEAD soft button. The Window will change to give you a list of manufacturers and fixtures. Select a fixture by pressing the touch screen. Alternatively scroll around the Window using the cursor keys, and press ENTER when the cursor is over the correct fixture.

Once you have chosen the fixture, a window will view different mode options. Select the correct mode the fixture is being used in.



You will then be returned to the Patch Window. Press the PATCH IT soft button to patch the fixture. You will be prompted for the number of fixtures you wish to patch and the universe and address where you wish to patch them to. Use @ to patch at a specific universe and address.



For example to patch 12 Chauvet Professional Maverick Force X Spots in 29 channels mode, at universe 1 start address 1:

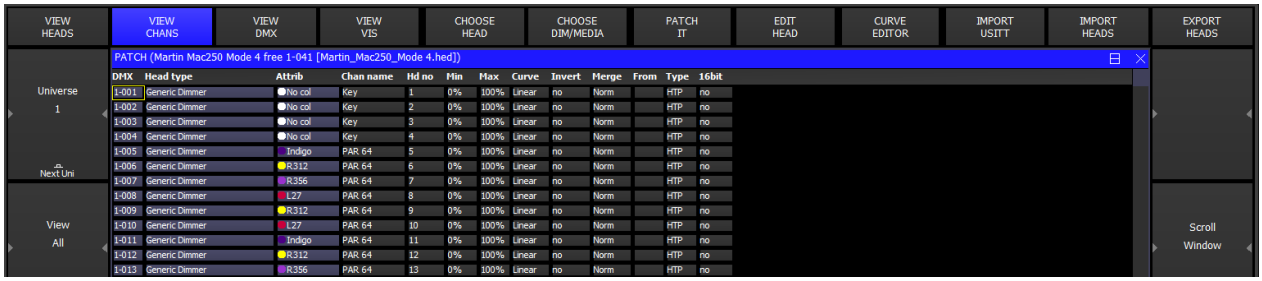
12 @ 1 - 1

If you wish to patch multiple channels at fixed offsets for example 3 Chauvet Professional Maverick Force X Spots on universe 2, with an offset of 35 channels between each fixture:

3 @ 2 – 1 / 35

The offset entered must be higher than the number of channel of the mode selected of the head. For example if the mode of the head being patched is 29 channels, an offset of 28 would not work.

Patching multiple fixtures in any of the theatre modes is slightly different. When starting a new show, if you choose ‘Theatre Track’ or ‘Theatre non track’ some of the programming settings will change. patching requires the fixture (or head) number @ universe number – channel number. For example if you wanted to patch in 3 standard dimmers, on universe 1 and start channel 1 you would use the THRU button and type in the following: 3 > 1@1-1



To patch a dimmer, simply press CHOOSE DIM/MEDIA, select Generic Dimmer and then patch one or more dimmers as above.

In the Patch Window there are columns that can be configured, such as the DMX address, head name and head number. To modify, select the data in one of the columns, then input the new value using the keypad, and press ENTER.

Naming and Numbering Fixtures

Once you have patched all the Fixtures you can then name and number them as you wish. It is recommended that you name the dimmer or the fixture based on its location (for example front wash / back truss SL). For dimmers you may wish to configure the gel. This makes programming easier – enabling the console to auto program cues for you.



The gel field uses gel numbers. For Lee colours enter the gel number directly (for example 181 for Lee 181). For Rosco colours enter the gel number preceded by a dot (for example .14 for Rosco 14). For no colour enter 0. If you would prefer to use colour names rather than gel numbers then simply enter the colour name.

To test a patched head or dimmer, simply press the TEST MODE soft button (soft button encode C) and the head which the cursor is over will be tested. For heads it locates the whole head; for dimmers it sets the dimmer to 100%. Press the TEST MODE soft button again to turn test mode off.

Controlling Heads

Selecting Heads

In order to control intelligent heads it is necessary to be able to select which heads to use. The MagicQ console keeps track of the currently selected heads to enable it to determine which heads to apply changes to. The operator can select head individually or can use groups to recall configurations of heads that are used frequently.

In "Hog Warp" mode or when the Setup option "Keypad always selects head is set" you can select heads from the keypad – for instance to select heads 1 through 4.

1 THRU 4 ENTER

In other modes, you can select the heads using

1 THRU 4 @@

Selecting heads from the Group/Heads Window

The console automatically generates a group for all the heads of a particular head type. In addition new groups can easily be recorded.

The Group Window has three views. VIEW GROUPS enables selection of heads using groups whilst VIEW HEADS enables individual selection of heads.

In VIEW GROUPS, pressing the touch screen for a particular group selects all the heads associated with that group. All other heads are deselected. To select multiple groups, press SHIFT and a group to toggle the group in and out of selection.

In VIEW HEADS, individual heads are selected / deselected by pressing the touch screen. Use PG UP and PG DN to scroll through the heads.

in VIEW ELEMENTS, elements of Multi-Element head can be selected in a visual way. This view shows the elements of the currently selected head(s). When multiple heads are selected the Elements view selects elements for all of the selected heads together.

Recording a Group

Select the heads you want in a group using keypad selection or in the VIEW HEADS view of the Group Window.

Change to the VIEW GROUPS view.

Press RECORD and then select the group you wish to record either by pressing the touch screen or by using the cursor keys and then pressing ENTER.

Naming a Group

When recording a group, if you key in a name before pressing the touch screen (or pressing ENTER) then the group will be named at the same time as it is recorded.

You can name a group at any time by keying in the name, pressing SET, and pressing the touch screen.

If you do not have a keyboard then press SET and select the group to name by pressing the touch screen (or using cursor keys and ENTER). A keyboard window will be displayed for you to enter the name on screen.

Recalling a Group

Once a group has been recorded then pressing the touch screen for the group will make all the heads in the group selected. All other heads will be deselected. Use SHIFT to select multiple groups. There is a Setup option to allow the user to default to selecting multiple groups.

Setting Levels for Dimmers

From the keypad you can enter commands such as

1 @ 50 ENTER

1 THRU 4 @ FULL ENTER

It is also possible to use the Intensity Window by pressing the INT button. This window displays a fader for each dimmer and head patched onto the console. Pressing the slider part of the fader sets the appropriate level. When a fader is moved from 0 the channel in the programmer is activated – and the fader will turn red.

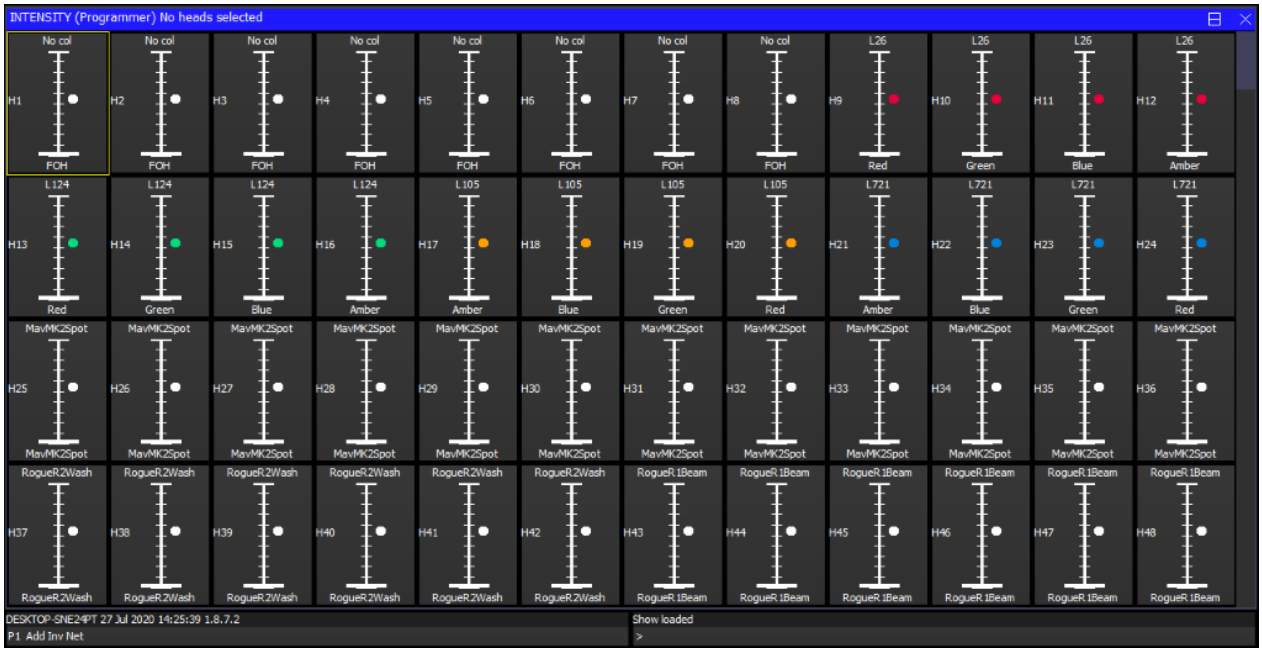
The Window has four views, View Palettes, View Prog, View Preset and View Masters – faders changed in the Prog View affect the intensity levels in the programmer and are recorded into Cues. Faders changed in the Preset View are like traditional "one per channel" preset faders on older lighting consoles – this enables levels on channels to be set without affecting programming. This is equivalent to "Parking" on other consoles.

The SQUARE OFF soft button enables fast programming of intensities. Using the touch panel

select the channels you wish to have at full and at zero – but don't bother being exactly accurate with the level of the selection. Pressing SQUARE OFF finishes the job by setting all channels that are less than 50% to 0 whilst setting channels above 50% to full.

Use the ALL TO FULL and ALL TO ZERO buttons to change the level of all the channels (Hold SHIFT to access the ALL TO ZERO button).

Press the CLEAR soft button to clear the programmer.



Locating Heads

The first action you are likely to want to do is to locate the heads – to put them into a starting position. Select the required heads and then press the LOCATE button. Locating a head brings all the attributes for that head into the programmer.

If the heads enable DMX control of the striking of the lamp then you may need to "Lamp On" the head in order to see the beam. Select the heads and then press SHIFT LOCATE. This runs the "Lamp On" macro.

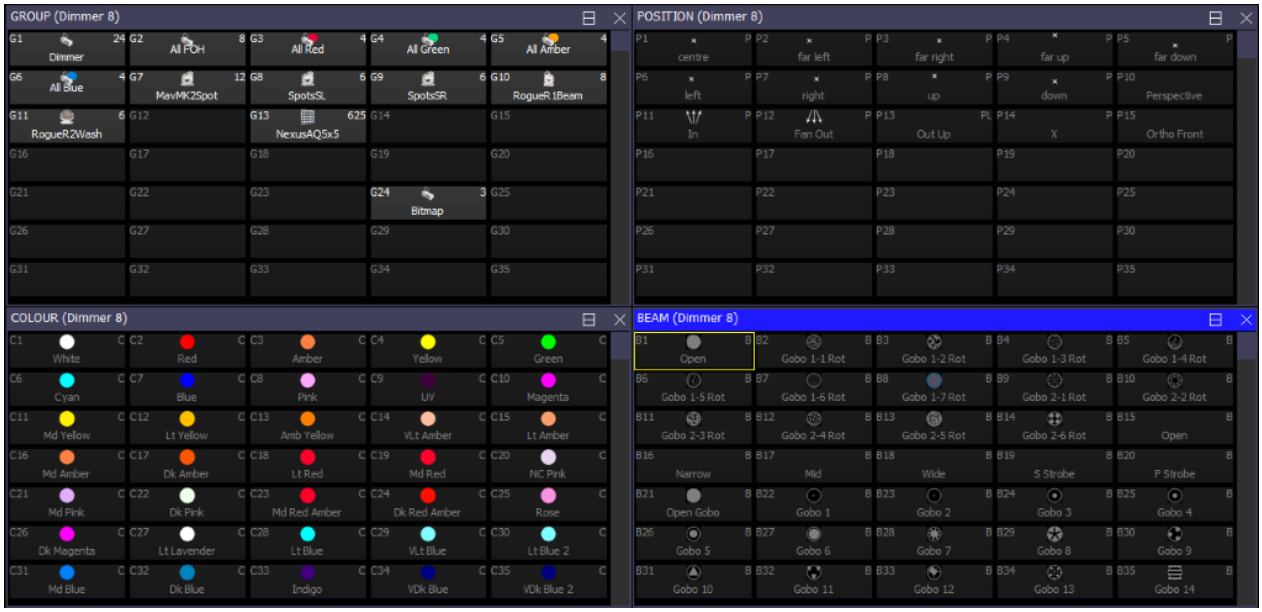
Modifying Attributes

Intelligent heads have several different attributes typically including pan and tilt, colour, gobo and iris. When the MagicQ lighting console patches an intelligent head it maps the head parameters to standard attributes to enable easy access of the features of the head.

Attributes are categorised into four types – Intensity, Position, Colour and Beam. On MagicQ there is a window for each of these attribute types. Select the required heads, then open the required window.



You can quickly open all the Palette Windows by pressing Layout 1 or holding CTRL and pressing the top soft button marked Palettes – this opens the windows in the layout below.

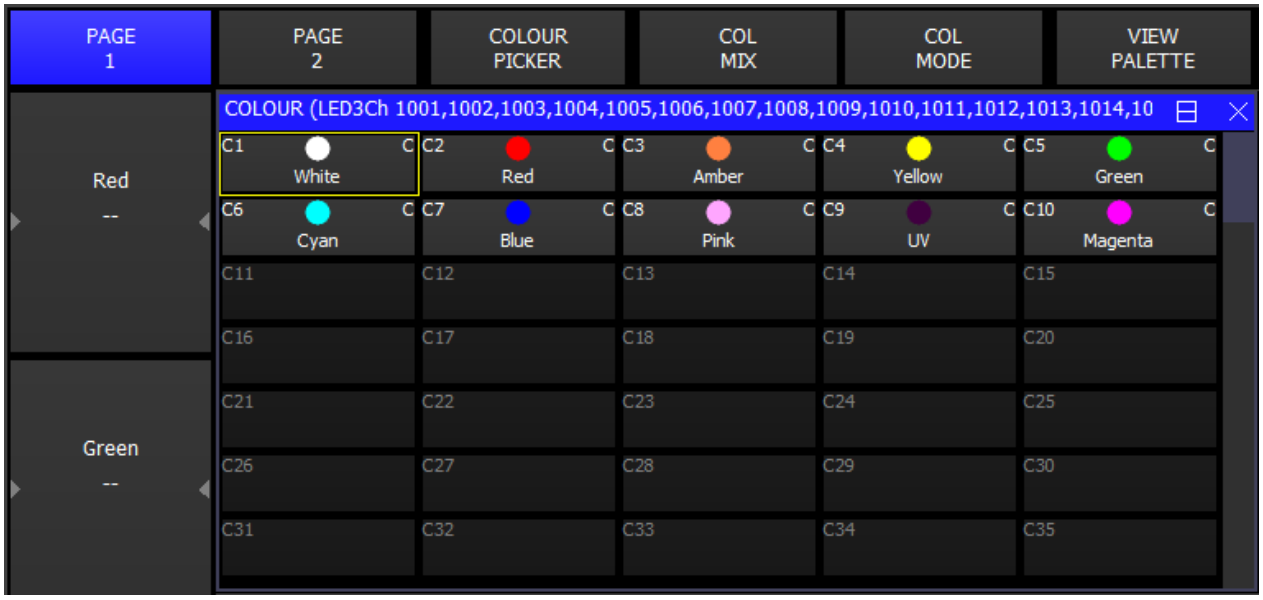


The highlighted window enables controls the soft buttons and rotary encoders. In each of the Windows the X and Y encoders control the most important attributes – Pan and Tilt in Position Window, Col Wheel 1 and Col Wheel 2 in the Colour Window and Gobo Wheel 1 and Gobo Wheel 2 in the Beam Window. In the Beam Window there are more than eight attributes to be controlled – these are accessed using multiple pages of encoders – by selecting the page at the Top left of the window.

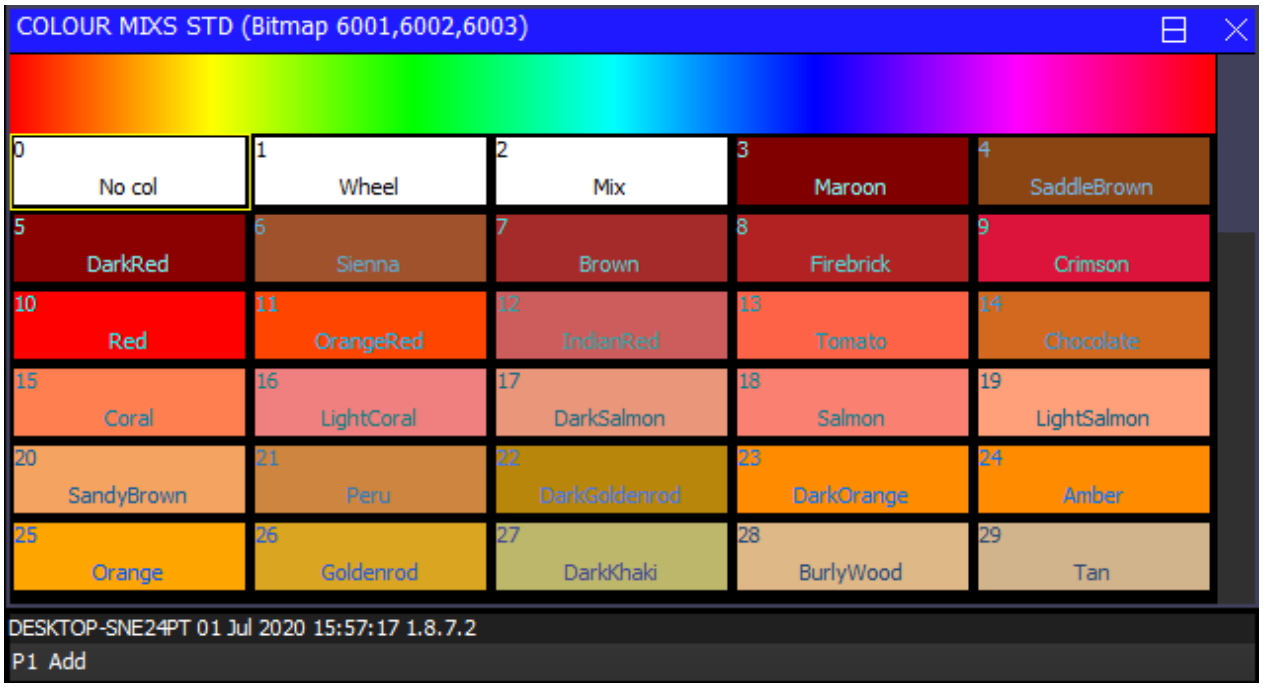


For indexed attributes such as colour wheels and gobo wheels, the button associated with each encoder can be used to bump the attribute value to the next range. Pressing SHIFT and the button bumps back to the previous range.

In addition the window enables selection of palette values for the attribute type using the touch screen. When heads are recorded the system automatically generates palettes for each attribute type. You can record new palette entries, or modify existing ones as you see fit.

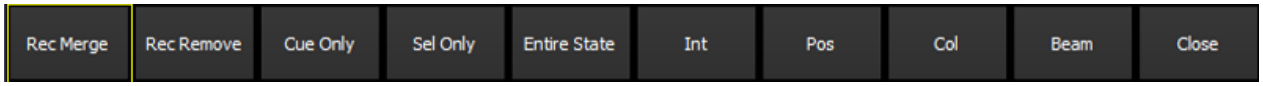


In the Colour Window pressing the COLOUR PICKER button changes to the colour picker. Much like the Beam window, the colour window also has two pages of colour attributes for the encoders. These are selected at the top left of the window.



Recording a Palette

To record a favourite combination of attributes into a palette (for example a rotating triangle with a prism on a Maverick Force X Spot), first modify the attributes to the values you wish to record. Then press RECORD and select the palette entry you wish to record. By default only selected heads get recorded into a palette (this can be changed by pressing SHIFT + RECORD and choosing Record options).



To name the palette, key in the name on the external keyboard, then press SET and select the

palette entry you wish to name. To use the on screen keyboard, first move the cursor over the palette entry, then press SET and key in the name followed by ENTER.

Adding in FX

To add a FX to some heads, select the heads then from the Group Window or the Prog Window press the ADD FX soft button. Choose the FX to add.

Once you have chosen a FX you are returned to the Prog Window. Use the encoders to modify the parameters of the FX such as the speed, size and spread between heads.

You can add multiple FX to a head, provided that the FX uses different attributes - for example you can mix a Pan Sine with a Tilt Sine.

Recording a Cue

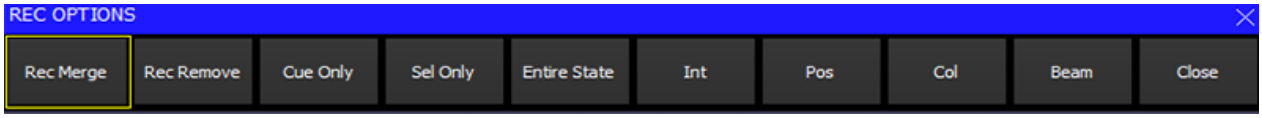
To record a look onto a Cue, first set up the look, then press RECORD and press the S button of the Playback to record the Cue onto.

To test the Cue, first clear the programmer by pressing CLEAR then raise the Playback fader or press the Playback flash button.

Note that recording a Cue onto a Playback, generates a Cue Stack with a single Cue. However, as there is only one step, it behaves as though it is just the Cue on the Playback.

To view a recorded Cue, press the S button for the Playback, and then press CUE to open the Cue Window.

To configure options when recording, press SHIFT + RECORD and a toolbar of record options will be displayed. Choose the options you require then press the S button of the Playback as above.



Recording a Cue Stack (Chase or Theatre Stack)

Recording a Cue Stack is the same as recording a Cue - you simply record multiple Cues onto a Playback and you end up with a Cue Stack.

To record a stack of two looks, the first yellow dots, the second blue triangles:

- Generate the yellow dots look.
- Press RECORD and press the S button of the playback.
- Generate the blue triangles look.
- Press RECORD and press the S button of the playback.

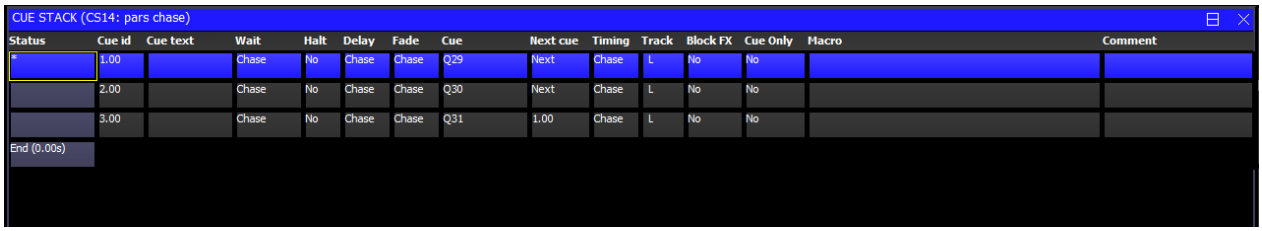
To test the Cue, clear the programmer by pressing CLEAR then raise the Playback fader or press the Playback flash button.

View the Cue Stack by selecting the Playback and pressing CUE STACK to open the Cue Stack Window or by double pressing the S-button for the playback.

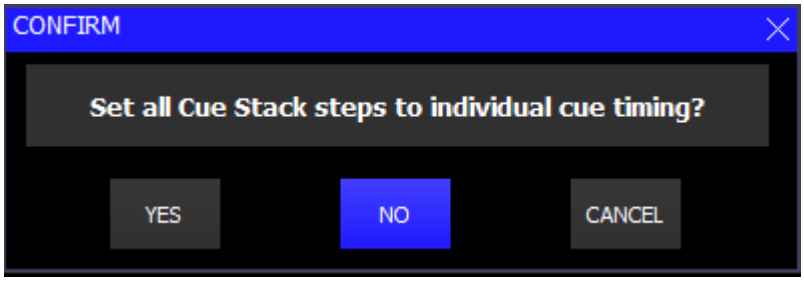
When you record more than one Cue onto a Playback the Cue Stack controls the transition from one Cue to another. In Normal mode by default the Cue Stack operates like a chase where each Cue is executed in turn, with timing being handled by a Chase Speed for the whole Cue Stack.



In Theatre Modes the default timing is Cue Timing – individual Fade times on each step with GO stepping from one step to the next.



The timing mode can be changed, so that the Cues play back in a theatre style using the GO / STOP buttons. Select the VIEW OPTIONS view and press the CUE TIMING and CHASE TIMING soft buttons to modify the timing mode.



Selecting and Recording Complete Window Layouts

The console enables complete window layouts to be recorded and selected. The console incorporates several standard window layouts including Palettes and Cue Stacks.

There are physical buttons for Layout 1, 2 and 3. Layouts 1 to 12 can also be accessed by holding CTRL and selecting one of the top soft buttons.

To select a Window layout press one of the Layout buttons, or hold down CTRL and select one of the top soft buttons.

To record a Window layout first close all windows (SHIFT + CLOSE). Then open the required

Windows and size them appropriately. Press RECORD and then press a Layout button or hold down CTRL and select one of the top soft buttons.

To name the Window layout, press SET and then press a Layout button or hold down CTRL and select one of the top soft buttons. Enter a name for the layout.

Saving the Show

When programming a show the show is stored in memory. In order to store your show on the disk you need to press the SAVE SHOW soft button in the Setup Window.

Whilst programming, you should regularly save your show, so that if the power fails your show data is not lost. You can chose any filename - MagicQ will automatically set the file extension to .shw.

By default, MagicQ periodically saves a backup of your show to disk. It uses the same show name but with the file extension .sbk.

It is a good idea to save your show to different file names so that you have various points you can back-track to if things go wrong. For example, save the show as myshow-patch.shw after you have patched and then as myshow-final.shw after you have finished programming.

When you shut down MagicQ through the QUIT soft button in the Setup Window, MagicQ automatically saves a backup copy of your show with a .sbk extension. When you subsequently restart MagicQ this file will be re-loaded. This ensures that MagicQ starts up as it was when the QUIT soft button was pressed.

MagicQ show files are typically only a few megabytes in size so many different shows or versions of a show can be saved without problem.

Playback

Now you have Cues and Cue Stacks recorded you can play back your show using the Playback faders and buttons. You can control how each Cue Stack is played back using the Cue Stack options – for example you can set the fader to control LTP fades or FX size and speed.

Make sure the master faders are raised!

Note that if you have a large show file you may wish to turn auto backups off during playback. Remember to turn them back on when you are programming.

If you get stuck at any point, just press the HELP button!

Patching

Patching on MagicQ

MagicQ considers DMX and console channels to be the same and therefore there is no need for complex patching to be carried out before the console can be used. MagicQ allows access to all DMX channels on all DMX universes supported on the console. Each channel can be controlled and programmed independently.

Each head can be allocated a head number for recall using the keypad and a name for identification. However to save time, MagicQ will automatically allocate numbers and names according to head types.

Getting Started with Patching

MagicQ supports comprehensive patching facilities for allocating dimmers and intelligent heads to DMX channels. Patching can be carried out at any time and has an immediate effect.

Press the PATCH button to open the Patch Window. The Patch Window has four views, VIEW HEADS, VIEW CHANS, VIEW DMX and VIEW VIS.

VIEW HEADS is used to patch heads, name and number then and set and gel colour.

VIEW CHANS is used to carry out operations on individual DMX channels, such as testing the channel and setting inverts.

VIEW DMX is used when patching more than one DMX channel to a MagicQ Head.

VIEW VIS is used for setting up and modifying visualiser heads in the MagicVis visualiser.

Patching a Head or Dimmer

MagicQ supports a large library of heads. MagicQ treats dimmers just like any other head - they just happen to have a single channel. Dimmers use the "Generic Dimmer" personality.

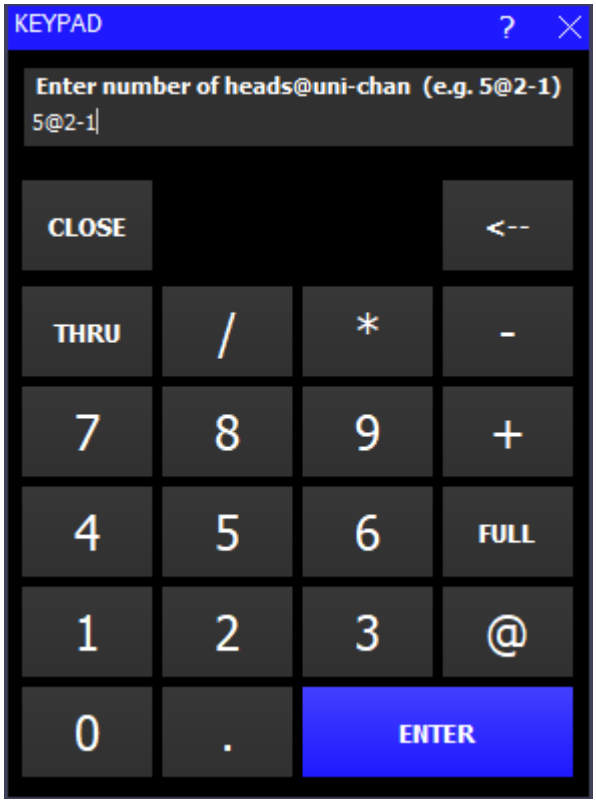


Choose the head you wish to patch by pressing the CHOOSE HEAD soft button. The Window will change to give you a list of heads. Select a head by pressing the touch screen. Alternatively scroll around the Window using the cursor keys, and press ENTER when the cursor is over the correct head.

MagicQ shows a dialog box with all the different modes for the chosen head. When choosing a mode it is possible to see a more detailed channel list by pressing The VIEW MODES soft button.

Once you have chosen a head you will be returned to the Patch Window. Press the PATCH IT soft button to patch the head, and you will be prompted for an address to patch the head to.

Press ENTER to patch to the next free address – the title bar shows the next free address that a head of the chosen type can be patched. If you wish to patch multiple heads at fixed offsets e.g. four Chauvet Pro Maverick Force X Spots at DMX channels 1,41,81,121 then enter 4/40.



To patch a head at a specific address use @. For example to patch 10 dimmers at DMX address 20 key in 10@20. To patch to the 2nd universe use 10@2-20. To patch at the first free address on a universe other than the first universe use +, e.g. for the second universe use 10@+2-1.

If this is the first patch you have patched then MagicQ will prompt you whether to add the head into the visualiser. Pressing yes will create a visualiser head within the show file, so that you can see the head in the MagicQ visualiser.

To patch more heads, just repeat the above process.

To patch a dimmer, simply press CHOOSE DIM/MEDIA, select Generic Dimmer, and then patch one or more dimmers as above.

To patch a fixture without an address (i.e. patch it unpatched) patch @ 0.

In the Patch Window all the fields coloured yellow can be configured. To modify a field, first move the cursor to the field, then input the new value using the keypad and keyboard, and finally press ENTER.

In this way you can modify DMX address, head number, head name and gel for each of your patched heads.

Head Names and Head Numbers

Press the VIEW HEADS soft button to check the heads you have patched, and to name and number them as you wish. In the Patch Window all the light coloured fields can be configured. To modify a field, first move the cursor to the field, then input the new value using the keypad and keyboard, and finally press ENTER.

Multiple head names and numbers can be set at the same time by using SHIFT and the cursor keys to select multiple items. Turning on test mode using the TEST HEAD soft button makes it easy to view each head / dimmer in turn.

By default the VIEW HEADS view is sorted by head number. If you are setting head numbers by entering each head number individually then you may find it easier if the view is sorted by DMX. Press the SORT soft button and select BY DMX. Note that the sort also affects the order in the Intensities Window, the Programmer Window and the Group Window.

Head Names

Head names are used to identify the Dimmer or Head. We recommend that you set the head name based on its location (e.g. front wash / back truss SL). It is not necessary to name intelligent heads according to their product name (e.g. Maverick Force X Spot) as this is already stored in the head.



Head type	DMX	Hd no	Tag	Name	Gel	P Inv	T Inv	Swap	Merge	From	P Off	T Off	(256-------1)	Shape	Angle	Hang type	Ind Ele
Generic Dimmer	1-001	1		FOH	No col				Norm				000000001	Profile	20 deg	Normal	
Generic Dimmer	1-002	2		FOH	No col				Norm				000000010	Profile	20 deg	Normal	
Generic Dimmer	1-003	3		FOH	No col				Norm				000000011	Profile	20 deg	Normal	
Generic Dimmer	1-004	4		FOH	No col				Norm				000000100	Profile	20 deg	Normal	
Generic Dimmer	1-005	5		FOH	No col				Norm				000000101	Profile	20 deg	Normal	
Generic Dimmer	1-006	6		FOH	No col				Norm				000000110	Profile	20 deg	Normal	
Generic Dimmer	1-007	7		FOH	No col				Norm				000000111	Profile	20 deg	Normal	
Generic Dimmer	1-008	8		FOH	No col				Norm				000001000	Profile	20 deg	Normal	
Generic Dimmer	1-009	9		Red	L026 Bright Red				Norm				000001001	None	Default	Normal	
Generic Dimmer	1-010	10		Green	L026 Bright Red				Norm				000001010	None	Default	Normal	
Generic Dimmer	1-011	11		Blue	L026 Bright Red				Norm				000001011	None	Default	Normal	
Generic Dimmer	1-012	12		Amber	L026 Bright Red				Norm				000001100	None	Default	Normal	
Generic Dimmer	1-013	13		Red	L124 Dark Green				Norm				000001101	None	Default	Normal	
Generic Dimmer	1-014	14		Green	L124 Dark Green				Norm				000001110	None	Default	Normal	
Generic Dimmer	1-015	15		Blue	L124 Dark Green				Norm				000001111	None	Default	Normal	
Generic Dimmer	1-016	16		Amber	L124 Dark Green				Norm				000010000	None	Default	Normal	
Generic Dimmer	1-017	17		Amber	L105 Orange				Norm				000010001	None	Default	Normal	
Generic Dimmer	1-018	18		Blue	L105 Orange				Norm				000010010	None	Default	Normal	
Generic Dimmer	1-019	19		Green	L105 Orange				Norm				000010011	None	Default	Normal	
Generic Dimmer	1-020	20		Red	L105 Orange				Norm				000010100	None	Default	Normal	
Generic Dimmer	1-021	21		Amber	L721 Berry Blue				Norm				000010101	None	Default	Normal	
Generic Dimmer	1-022	22		Blue	L721 Berry Blue				Norm				000010110	None	Default	Normal	
Generic Dimmer	1-023	23		Green	L721 Berry Blue				Norm				000010111	None	Default	Normal	
Generic Dimmer	1-024	24		Red	L721 Berry Blue				Norm				000011000	None	Default	Normal	
Chauvet MavMK2Spot Advanced	2-001	25		MavMK2Spot	Mix	no	no	no	Norm				000000001	None	Default	Normal	
Chauvet MavMK2Spot Advanced	2-033	26		MavMK2Spot	Mix	no	no	no	Norm				000100001	None	Default	Normal	
Chauvet MavMK2Spot Advanced	2-065	27		MavMK2Spot	Mix	no	no	no	Norm				001000001	None	Default	Normal	
Chauvet MavMK2Spot Advanced	2-097	28		MavMK2Spot	Mix	no	no	no	Norm				001100001	None	Default	Normal	

Head Numbers

Head numbers are used in various displays to indicate which heads are being operated on. Head numbers can also be used for selecting heads and setting intensities directly from the keypad.

By default MagicQ numbers in the order that they are patched starting from 1.

If you expect to be selecting heads using the keypad then we recommend you use unique head numbers for each head. MagicQ uses unique numbers by default. You can modify head numbers manually so that they are more meaningful to your rig. Alternatively you can use one of the in-built renumber algorithms.

MagicQ supports the multiple elements of a multi element head all having the same head number and then use of the dot (.) operator to select individual heads.

Renumbering Head Numbers

Pressing RENUM HEAD NOS and selecting BEST FIT causes MagicQ to use an intelligent algorithm to allocate heads starting with numbers that you can easily recall. For example, if you patch 4 Maverick Force X Spots and 4 Maverick Force 2 Beam Washes then when you renumber using BEST FIT it will number the Force X Spots from 1 to 4 and the Beam Washes from 11 to 14.

If you would rather work with DMX channel numbers, then press the RENUM HEAD NOS soft button and select BY DMX. This will configure the head number for all patched heads to be the DMX channel address of the head. You can then select heads and set intensities using the DMX channel numbers.

Selecting HEADS (ALL START 1) sets the head numbers so that for each head the numbers start from 1 - this is the default option. Selecting BY NAME sets the head numbers so that they use head name, gel and type to order the heads.

Patching to Specific Head Numbers

It is possible to patch direct to a specific head number using the * operator.

For example:

10 @ 7 – 2 * 201

This will patch 10 heads at channel 2 on Universe 7 starting at head number 201.

Gel Name and Number

For dimmers you may wish to configure the gel name or number. This makes programming easier – enabling MagicQ to auto program cues for you.

The gel field uses gel numbers. For Lee colours enter the gel number directly (e.g. 181 for Lee 181). For Rosco colours enter the gel number preceded by dot (e.g. .14 for Rosco 14). For no colour enter 0. If you would prefer to use colour names rather than gel numbers then simply enter the colour name. MagicQ knows standard colour names.

Col Tags

It is possible to assign a Col Tag to each head. Col Tags from the Patch are used in other windows if Setup, View Settings, Windows, Col tags is set to "Patch".

Generating Auto Groups

MagicQ automatically generates groups for each of the different heads patched – e.g. "All Dimmers", "All Force X Spots".

MagicQ is also capable of generating groups based on gel colours and head names. Press the AUTO GROUPS soft button in the VIEW HEADS view of the Patch Window and then select

Dimmers and/or Heads.

When Dimmers are selected MagicQ will examine all dimmers patched and generate a group for each different gel colour and a group for each different head name.

When Heads is selected MagicQ will generate a group for each different head type that has heads with a distinct head name. Thus if you have named some of your Force X Spots "front" and some of them "back" it will generate a "Force X Spots front" group and a "Force X Spots back" group.

Auto Palettes

When patching heads, MagicQ creates Palettes based on the Palettes stored in the Personality - typically the 10 basic colours. MagicQ also creates Palettes based on the main Gobo ranges for any Ranges in the Personality that have Auto Pal set. If the personality does not have any gobo ranges with the Auto Pal option set, then MagicQ now generates gobo palettes based on all the gobos set with Range Type of Fixed, Index or Rotate.

MagicQ automatically generates beam palettes for shutter, gobo rotation, iris and zoom attributes. Beam palettes for gobo rotation contain both Rotate 1 and Rotate 2 attributes if present in the head.

Auto palette generation can be turned on and off and customised in the Patch Window, View Heads, soft button X. When set to All, all auto groups and auto palettes are generated. It is possible to individually select generation of groups, intensity, position, colour, gobos, rotate, iris, shutter, and zoom.

Heads with Multiple Elements

MagicQ supports heads that have multiple attributes of one type – e.g. more than one dimmer or more than one red, green or blue channel.

The dot (.) syntax is used to access the sub elements. Individual elements can be selected using the dot (.) operator. For example to select the 1st element only, enter .1 NEXT HEAD or .1 @@. This sub selects only the 1st element. Pressing ALL returns the selection to all elements.

MagicQ personalities with multiple elements now always use "Duplicated Heads". In older versions of MagicQ they used "Multi Elements Heads".

Duplicated Heads

Duplicated Heads treats the head as a single head but with attributes that appear multiple times in the personality.

When using the head, the duplicated elements by default are treated as one element - the 2nd, 3rd and 4th elements just copy the programming from the 1st element. This ensures that the Head is simple to use and appears to act as if it only had a single element.

When locating, selecting palettes and using soft buttons or encoders on attribute parameters

only the first element is made active in the programmer and therefore only the first element is recorded into Cues. When the Cues are played back then MagicQ copies the calculated values from the 1st element to the other elements.

When a sub selection is active on a Duplicated Head then the specific elements will be made active in the Programmer and subsequently recorded into Cues. When the Cues are played back MagicQ uses the programming from the Cue for elements that have been recorded in to the Cue, only copying for elements that have not been recorded.

All elements can be selected if you wish to apply split times across all elements or to include all elements in a FX. Select all elements using the syntax .> @@

Palettes values are by default created for the first element. When a sub selection is in operation MagicQ will use the value in the Palette for the first element if there is no specific palette entry for the element selected - this avoids the need for creating separate palette information for each element. When a Palette is updated it will update Cues that use that Palette from the sub element if it exists in the Palette - otherwise it will use the data from the 1st element - ensuring that the Cue gets updated as expected.

Note that Duplicated heads operate slightly differently to normal heads when splitting elements between different playbacks or the programmer. The playback that has the first element active controls all the other elements. If that playback has only the 1st element active in it then all elements will output the same regardless of whether other elements are active on other playbacks. Similarly if the programmer only has the 1st element active in it then all elements will output the same regardless of whether other elements are active on any playbacks.

Multi Element Heads

MagicQ no longer users Multi Elements Heads in its personality library - Duplicated Heads are used instead. It is no longer recommended to use Multi Element Heads as they will be dropped in a future version.

Multi Element Heads treats the head as multiple different heads each patched automatically to adjacent addresses.

Multi element heads are patched in exactly the same way as normal heads, but MagicQ shows a * next to the DMX address to indicate that it is a multi element head.

MagicQ recognises three kinds of multi element heads – those which simply have a repeated element, those that have a main element followed by a repeated element and those that have repeated elements followed by a main element.

When multi element heads are patched MagicQ generates the "All" group which contains both the main and repeated elements. MagicQ will also generate separate groups for the main "Mn" part and the repeated "Ele" part.

Multi element heads can have a separate head number for each element in the head – so that when patching several of these heads, the head numbers will increase by more than one per head. Alternatively all the elements can be set to the same head number.

When all the elements are set to the same head number the separate elements of the head can also be sub selected using the dot operator from the keypad – for example for head 2 you can select 2.4 to sub select the 4th element.

Inverting

In VIEW HEADS you can invert the pan and tilt channels of moving heads. Pressing ENTER in the appropriate field changes the field value.

Individual channels can also be inverted in VIEW CHANS if required.

Swapping

In VIEW HEADS you can swap the pan and tilt channels of moving heads, and also swap the elements end to end of multi element fixtures.

Swapping of elements end to end is useful if a fixture with multiple elements has been rigged in the wrong direction.

From v1.9.7.0 the swapping of elements takes precedence over the swapping of pan/tilt. In previous versions swapping of elements was only possible on fixtures that did not have both pan and tilt attributes.

Pan and Tilt Offsets

To add a Pan or Tilt offset then enter the offset in degrees in the Pan offset or Tilt offset in the Patch Window. The offset affects all programmed values.

Applying Offsets Using Update

MagicQ supports a quick method of applying an offset to channels such as a pan or tilt offset, or an offset on a colour scroll.

To apply an offset, playback the Cues and then override only the parameters you wish to offset in the programmer. Then press the Update button. The Update options have been modified to include an extra option "Patch Offset". Selecting this option applies a permanent offset to the channel in the Patch rather than modifying the individual Palettes and Cues.

To remove the offset go to Patch, View Chans and remove the offset from the appropriate channels.

Offsets apply only to LTP channels, not to HTP (Intensity) channels.

The Outputs window shows channels with offsets in green colour.

The Patch window shows offsets applied to Pan and Tilt in the Pan Offset and Tilt Offset field.

Minimum and Maximum Levels

You can set minimum and maximum levels for each patched channel from the VIEW CHANS view. This is useful for setting pre-heat on dimmers or for limiting output values of certain lamps where power is tight.

The minimum and maximum levels have absolute over-ride over all other playback and programming. Master faders and the DBO button do not affect the minimum and maximum levels.

Minimum levels can be useful to force a minimum light level on a stage, for example during a changeover.

Limits and Offset

It is possible to set limits and offsets on channels using the Limit and Offset dimmer curves.

Limit enables a minimum and a maximum level to be set for the channel whilst retaining the normal linear dimming curve. When dimmer curve is set to "Limit" the channel has a linear curve from the minimum value up to the maximum value. This is different to the just setting the minimum or maximum values which causes the values to clip at the minimum or maximum values.

Offset enables an offset value to be applied to a channel – this can be useful if a moving light is not calibrated correctly or it has been moved. When dimmer curve is set to "Offset" then the minimum value specifies the offset to be applied. When a channel value exceed 255 then it wraps back to 0.

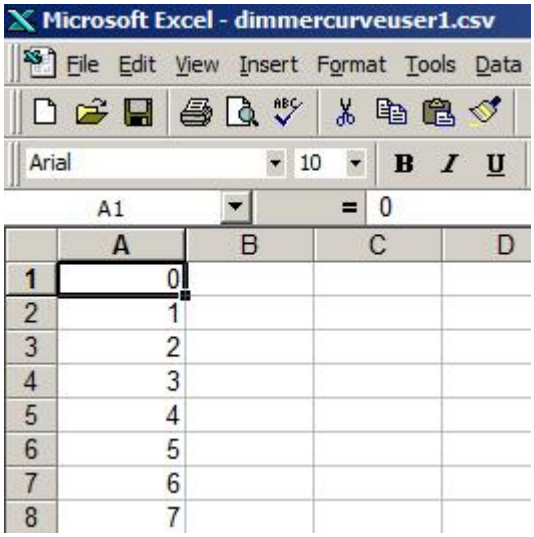
Offsets can be applied to 16bit channels by setting both the high and low channels to Offset or Offset No Wrap and setting minimum values for both channels - MagicQ combines the two values as the complete offset value.

Dimmer Curves

MagicQ supports 10 user dimmer curves that can be selected in the Patch Window, View Chans view.

User dimmer curves are specified in files of format csv (comma separated variable) with filename dimmercurveuser1.csv, dimercurveuser2.csv etc... stored in the show/heads folder.

The files consist of 256 lines each with a value between 0 and 255. These files can be generated in a spreadsheet (e.g. Microsoft Excel) and saved as csv format.



Dimmer curves can have 16bit values (0..66535) instead of just (0..255). If any value in the user dimmer curve file is over 255 then 16bit is assumed.

User dimmer curves are not stored into the show or settings files. Each MagicQ system that uses user dimmer curves must have the curves stored in the show/heads folder.

In the CSV file the line after the last line of data (the 257th line) can hold a name for the curve which is then displayed in MagicQ. The name has a maximum of 15 characters.

Dimmer curve files are read on startup of MagicQ – so you will need to reset MagicQ for new curves to be loaded.

Channel Damping

Each channel in the Patch can have up to 5 seconds of damping. This can be useful when controlling large loads such as 20K tungsten TV/Film fixtures.

In Patch, View Chans set the damping between 0 and 5 seconds in 0.33 second intervals. Damping can be applied to any channel - this can be used for Intensity or any other attribute.

The damping is applied at the Patch level so will not be visible in the Outputs, View Heads or View Chans view. It can be viewed in Outputs, View Chans, View DMX. It can also be viewed in the Output field in Patch, View Chans.

Testing Channels

To test channels in VIEW CHANS press the TEST CHANS soft button to enter test mode. In this mode the channel which the cursor is on is set to the level configured on the TEST CHANS encoder. Use the cursor keys to move through different channels. Test mode remains active until the TEST CHANS soft button is pressed again.

Channel testing works for both patched and unpatched channels. Note that for channels patched as LTP, the level of the Grand Master does not affect the channel level and after test is turned off the channel remains at the test level. LTP channels can be set to zero by pressing CTRL CLEAR.



You can also test channels by moving to the appropriate channel and pressing the TEST SELECT CHANS soft button. The channel will be set to the level of the Grand Master fader. Pressing TEST SELECT CHANS soft button again returns the channel to zero. You can test multiple channels by using SHIFT and the cursor keys to select multiple channels and then pressing the TEST SELECT CHANS soft button. Channels that are in test mode are highlighted in red.

Pressing Soft Button A (NEXT UNI or PREV UNI) soft button moves you up or down the window to the first channel of the next or previous universe.

Changing the DMX Address of Heads

Heads (including Dimmers) can be moved to different DMX addresses as required. When they are moved all the programming and palettes associated with them also moves to the new channels. In Patch, VIEW HEADS simply edit the DMX field with a new address.

If you try and move to a location where there are already channels patched then MagicQ will prompt whether you wish to continue and move the already patched channels aside. If you confirm YES the already patched channels will be moved to the next free locations. If you confirm NO then no move will be performed.

Multiple heads can be moved at a time using SHIFT and the cursor keys. When making a change to multiple heads the change defaults to an absolute change – the first head will be moved to the specified address and the next heads to the addresses immediately following. To make a relative change enter a / after the new address - i.e. to move 4 heads from 1-1 to 2-1, but keeping the relative DMX offsets between the heads, enter 2-1/. You can also specify an explicit offset to use, just like when patching e.g. 2-1/20.

Changing the mode of a Head

In the Patch Window, VIEW HEADS, press the CHANGE MODE soft button. MagicQ gives a list

of the possible modes.

Patching a Head to Multiple DMX Addresses

The View DMX view in the Patch Window enables multiple DMX channels to be easily assigned to one head. Up to 5 additional DMX channels can be set up for each Head in addition to the main DMX address. Remove additional channels by pressing REMOVE and selecting the additional channel fields or by typing "u" (unpatch) instead of a DMX address.



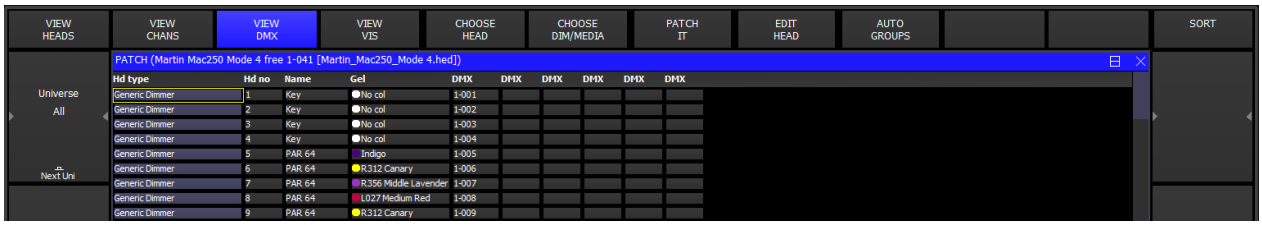
Unpatching a Head from a DMX address

It is possible to "unpatch" a head – i.e. to remove the association between the programmed data and a DMX address. The programmed data for the head is maintained and the head can subsequently be patched to a new DMX address. To unpatch a head move the cursor to the first DMX field in View DMX view and press REMOVE, or type "u".

Patching Scrollers

There are two ways to patch scrollers – the first method is to patch the dimmer and scroller separately – then the dimmer and scroller will operate independently. Use the "generic dimmer" personality for the dimmer and the "generic scroller" personality for the scroller.

MagicQ has enhanced support for scrollers, so that the colour scroll channel can be tied up with the dimmer channel in one head.



To use this support, patch a Generic Scroller With Dim. This will appear in the View Heads with the DMX address marked as "virtual" and any DMX address you specified when you patched it will be ignored. Change to the View DMX view and specify in the appropriate DMX columns the DMX address of the dimmer and the scroller.

The Generic Scroller With Dim is set up as a "Virtual" personality – i.e. the channels in the personality can be patched to any location on MagicQ – unlike normal personalities where the channels are sequential from the DMX start address. In the View DMX view, the DMX address fields are used to specify the addresses for each channel in the virtual personality – up to a maximum of 5 channels. (For normal personalities these fields are used to specify multiple

heads patched to one head.)

Editing Heads

You can modify the Head or create a new head in the Head Editor. Choose the head you wish to edit and then press the EDIT HEAD soft button.

To quickly choose a head that you have already patched move the cursor to the head in the Patch Window, hold SHIFT and press CHOOSE HEAD.

To quickly edit a head that you have already patched move the cursor to the head in the Patch Window, hold SHIFT and press EDIT HEAD.

Cloning (Adding Extra Heads / Dimmers to a Programmed Show)

Cloning enables a show programmed with a certain number of heads to be expanded to use more of the same head type without having to reprogram all of the show.

For example, if you have a show programmed with 4 Maverick Spots` and you want to add 4 more Maverick Spots, then you can clone the 4 programmed Maverick Spots. All the Cues, Cue Stacks, Groups and Palettes that have the original 4 Maverick Spots will now have the additional 4 Maverick Spots as well.

By cloning heads in this way you have a quick and easy approach to expanding your show. You can then programme some new Cues and Cue Stacks that use the new and old heads individually.

To Clone heads

Enter the Patch Window and choose VIEW HEADS. Select the heads you wish to clone using SHIFT and the cursor keys. Note a new cloned head is created for each of the selected heads. e.g. selecting 4 heads when cloning will patch 4 more heads each cloned to one of the 4 selected heads.

Then press the CLONE HEAD soft button.

Cloned heads are patched on the next free universe/channel in MagicQ, these can then be re addressed as needed.

There are several options when cloning heads. It is possible to choose whether both Palettes and Cues are cloned or just Palettes.

It is also possible to specify that FX are split when the heads are cloned, so that the new heads are part of a different FX from the original FX. This function should be used with care when cloning multiple heads in order to avoid fragmenting the F X too much.

Copy Head Programming

If you patch new heads into a show, without cloning it is still possible to then copy programming from other heads to the new heads. To copy programmed data from one head to another press the SHIFT + COPY HEAD PRG soft button in the HEAD VIEW, then select the source head followed by the destination head.

Any programming for the destination Heads is first removed, before the new data from the source Heads is coped to the destination Heads.

All the Cues, Cue Stacks, Groups and Palettes that contain the source head will be updated to include the destination head.

From v1.9.1.0 it is possible to copy between different Head types. It is also possible to copy head programming using keypad syntax with Head nos or Groups to make it easier to copy entire programming from several Heads to several other Heads. To copy both from and to multiple heads use the same method as for copying heads in the Programmer or in Cues, but in the Copy Options select COPY HEAD PROG.

To copy all programming from Heads 1 to 4 to Heads 10 to 20 use

1 THRU 4 SHIFT COPY <CHOOSE COPY HEADS and COPY HEAD PROG> 10 THRU 20 ENTER

To copy all programming from Group 1 to Group 2 use

GROUP 1 SHIFT COPY <CHOOSE COPY HEADS and COPY HEAD PROG> GROUP 2 ENTER

Alternatively select Groups from within the Group window.

Patch Channel Copy

Another way to expand existing shows is to patch the new heads and dimmers but then in the Patch window to set a real time channel copy from another already programmed channel. The value of the channel will always be that of the already programmed channel. Any programming of the newly patched channel will be ignored. To set up real time copies, edit the Merge and From Chan columns in the View Chans view of the Patch Window. Press ENTER in the Merge column to change it to "Copy" and then set the From Chan column.

Morphing Heads (Changing Head type)

It is possible to morph one head type into another head type. The system will copy the programming from the old head type to the new head type. The system takes into account the different pan and tilt ranges of the heads when copying pan and tilt data.

As no two heads are exactly the same, the programming will not create exactly the same looks as with the original heads. A closer representation will be obtained by morphing a spot into a spot compared to a spot into a wash light.

If the new head types have more channels than the original head types then MagicQ morphs the heads but leaves them unpatched – the user must then repatch the heads at a suitable

location.

In the Patch Window, choose the new head type, then move the cursor to the head to change or select a block of heads using SHIFT and the cursor keys. Press the MORPH HEAD soft button and confirm that the action is what is required.



After morphing heads your groups, palettes, and cues will be updated to reflect the new head types.

Morphing Multi Element Heads

MagicQ supports full morphing between multi element heads to single element heads and from single element heads to multi element heads.

From 1.9.7.0 MagicQ uses the Function Type within the personalities to better morph elements between Heads.

This enables much more accurate morphing of Heads that have multiple functions - such as complex Strobe fixtures - Chauvet Col Strike M, GLP JDC1, etc... If both the source and destination Head have Function Types set then MagicQ automatically morphs only between the elements of the compatible Function Types. The morph will expand to all the elements of the Function Type of the destination Head even if the source Head has less elements.

When morphing between multi element heads without Function Types, if the new head has less elements than the original head then the excess elements in the original heads will be ignored. If the new head has more elements than the original head then the excess elements in the new head will be a repeat of the elements from the original head.

It is possible to morph from a Duplicated element head that is entirely made up of duplicated elements (no channels that are not multi element) to multiple non duplicated heads - e.g. to split a Duplicated 10 channel LED head into 10 separate RGB heads.

Morphing Heads with Virtual Dimmers

It is possible to morph between heads with inbuilt dimmers and heads with virtual dimmers. For example it is possible to morph a RGB head with an inbuilt dimmer to a RGB head with a virtual dimmer. It is also possible to morph back from a head with a virtual dimmer to one that has an inbuilt dimmer.

Morphing between CMY and Colour Wheel Heads

When morphing between heads with CMY/RGB and Colour Wheel to heads with only Colour

Wheels, MagicQ now converts the CMY/RGB data to Col Wheel rather than trying to map between the Colour Wheels. This ensures that shows programmed with Cues using RGB palettes morph to Col Wheel palettes.

When morphing to heads with greater number of colour wheels or greater number of gobo wheels MagicQ now includes the extra colour or gobo wheels channels in Palettes and Cues where the colour wheels or gobo wheels were previously used. This enables easy updating of shows, for example when changing from heads with only 1 gobo wheel to heads with 2 gobo wheels.

Importing Heads

A quick way of patching heads is to import the heads from a file. MagicQ supports comma separated variable files (.csv) which can be from Visualisers like WYSIWYG and Vectorworks or generated manually from spread sheets and text editors.

In Patch, View Chans press the IMPORT HEADS soft button and select a file in .csv format. MagicQ auto detects the contents of the file recognising formats from Capture, WYSIWYG, Vectorworks, L8 and Depence.

MagicQ provides several import options:

Add	Adds the heads to the patch. If DMX address is specified then will only add if that address is free - otherwise adds to next free address
Readdress	Readdress the head with the specified head number to the specified DMX address
Morph, Readdress	First morphs the head with the specified head number to the new Head type and then readdresses to specified DMX address
Clone, Morph, Readdress	First clones the head with the specified head number, then morphs to the new Head type and then readdresses to specified DMX address
Vis only	Imports only the Vis data (XYZ position and rotation) for the head at the specified DMX address. If no DMX address is specified then it uses the head number to match

When patching heads if there is no DMX address specified MagicQ may not be able to patch them. If no DMX address is provided then MagicQ will check the head number to see whether there is a head already patched with that head number that matches the requested number of channels. If no match is found MagicQ will choose a spare DMX address to patch the head.

If a head is already allocated at the required DMX address then MagicQ will not patch a new head - however it will import Visualiser XYZ data if available.

If no head at the DMX address or head number is found then MagicQ will attempt to match the Head type provided.

In WYSIWYG the heads need to have an Address and Universe in the Fixture Properties dialog but there does not need to be any devices mapped in the device manager.

Supported Column Headings

MagicQ supports a large number of column headings and will attempt to detect the contents of the file - e.g. whether it has come from a specific Visualiser such as Capture, WYSIWYG, Vectorworks, or whether it is just a head list.

The column heading is the first row in the file, except in the case of Capture where the first rows are "Channel Report" - MagicQ skips these and expects the next row to be the column headings.

Column headings are case insensitive.

The file can be delimited by semicolons (;) instead of commas (,). MagicQ detects the first occurrence of either to choose which is the delimiter.

The column headings supported are:

Column Heading	MagicQ Function	Comment
Head no,Headno,Hdno,Headnum,Channel,Spot,Fixture ID	Head No	
Head name,Hd name,Headname,Hdname,Purpose,Short Name	Name	
Universe,DMX Line	Universe	
DMX,DMX no,DMXno,DMX num,DMX Address,DMX Channel,DMX Patch,Patch,Patch Address	DMX	Patch Address (may contain universe and channel)
Manufacturer,Man	Manufacturer	Tries to match MagicQ manufacturer
Type,Head type,Headtype,Hd type,Hdtype,Fixture,Instrument Type	Head Type	Tries to match standard MagicQ names, Capture, WYSIWYG names
gel,colour,filter	Gel	Gel number - starting with L for Lee, R for Rosco. Otherwise MagicQ colour numbers
Pinv,P inv,Pan inv,Paninv,Pani,Pan i	P Inv	

Column Heading	MagicQ Function	Comment
Tinv,T inv,Tilt inv,Tiltinv,Tilti,Tilt i	T Inv	
Swap,Flip	Swap	
Chans,Num chans,Numchans,# of Data Channels,Num channels,Channel Count	Num Of Chans	Used for checking type/mode
X,X Location,X Pos,X Position,Position X	X Pos	
Y,Y Location,Y Pos,Y Position,Position Y	Y Pos	Note for Wyg/Vectorworks Y is treated as MagicQ Z Pos
Z,Z Location,Y Pos,Z Position,Position Z	Z Pos	Note for Wyg/Vectorworks Z is treated as MagicQ Y Pos
RotX,X Rotation,X Rot,Rotation X	X Rot	
RotY,Y Rotation,Y Rot,Rotation Y	Y Rot	Note for Wyg/Vectorworks RotY is treated as MagicQ Z Rot
RotZ,Z Rotation,Z Rot,Rotation Z	Z Rot	Note for Wyg/Vectorworks RotZ is treated as MagicQ Y Rot

X, Y and Z position in MagicQ default to metres - this is the recommended values for import. When MagicQ imports from CSV it checks the range of X,Y and Z position values and then auto detects the scale. For example, if the positions where in millimetres - e.g. 7000,1000 - MagicQ would divide by 1000.

WYSIWYG

WYSIWYG R38 can export the positions and rotations of fixtures so that they can be viewed in MagicVis.

The columns "# of Data Channels" and "Fixture Options" or the columns "Hookup" and "Circuit Name" must be present for MagicQ to detect it as a WYSIWYG file and import the patch correctly.

To get the rotation correct go to the Data→Spreadsheet view in WYSIWYG, then click on OPTIONS → View. In the 'View Options' dialog select the 'Data Options' tab and ensure that the 'RotX', 'RotY', and 'RotZ' columns are checked. Click 'OK' then select FILE → Export and select '.CSV' to export the data. The data can then be imported into MagicQ.

If the DMX Universes are named numerically (for example '1' or '21') then they will be assigned to that MagicQ universe.

MagicQ will automatically swap Y/Z positions and rotations when importing WYSIWYG files.

Vectorworks

Vectorworks can output csv files with all the fixture parameters.

The columns "Channel" and "Symbol Name" or "Vertical Focus Angle" must be present for MagicQ to detect it as a Vectorworks file and import the patch correctly.

The below table shows the exported column heads from Vectorworks required and their function within MagicQ

Vector works Column Heading	**Comment**
Instrument Type	this should be fixture manufacturer followed by _name separated with an underscore e.g. "Clay Paky_GoldenScan3"
Num channels	the number of channels in the fixture
Universe	should be a number starting at 1 for the first universe
Address	should be a number between 1 and 512 to indicate the DMX address within the universe
Channel	should be a number between 1 and 65356 to indicate head number
Purpose	a text field that if present will be used as the Head Name in MagicQ
X Position	should be in metres - e.g. 1.1 represents 1.1 metres. MagicQ will attempt to scale if it detects large values - e.g. if the positions are in millimetres
Y Position	should be in metres - e.g. 1.1 represents 1.1 metres. MagicQ will attempt to scale if it detects large values - e.g. if the positions are in millimetres
Z Position	should be in metres - e.g. 1.1 represents 1.1 metres. MagicQ will attempt to scale if it detects large values - e.g. if the positions are in millimetres
X Rotation	should be in degrees
Y Rotation	should be in degrees
Z Rotation	should be in degrees

Where possible X,Y,Z position should be in metres - e.g. 1.1 represents 1.1 metres. MagicQ will attempt to scale if it detects large values - e.g. if the positions are in millimetres.

MagicQ will automatically swap Y/Z positions and rotations when importing Vectorworks files.

To export from Vectorworks Vectorworks 2018 or later

1. Set up Vectorworks Instruments: Check you have the "Number of Channels" field set to the mode you wish to use the fixture in (this can be done manually or for newer instruments via the "Mode" drop down menu)
2. Set document preferences: to meters for shows under 100 meters wide, or centimetres for shows over 100 meters wide, MQ will automatically move the decimal when it detects shows over 100 meters making it 1.00 meters (if this step is skipped, patch and heads will still import but Vis positions will not be accurate)
3. Assign individual Channel Numbers, universe, and address fields in Vectorworks: in the object info panel for each fixture. Channel number dictates the Head number when imported into MQ. if you use unit number for your head numbers in VW it's best to use the find and modify tool to copy the unit number field to the channel field before exporting the instrument data (this can also be done after export in Excel)
4. Export from Vectorworks: File>Export>Export Instrument Data, Select the "ALL" box in the top right to add all fields to the exported file, then choose Export and save the file.
5. Import that file into excel: follow the import window that pops up to be sure the imported document is formatted correctly
6. Edit Data if needed: in some cases, depending on instrument name, you may need to use the "Find/Replace" tool to edit the instrument type to correspond with the head file name in MQ , Example: if your VW file has Martin Axiom's in it, listed as an Axiom, you will need to change the Instrument type in the spreadsheet to be "Martin_MacAxiomHybrid" or the console will not be able to match the fixture in the spreadsheet to the proper fixture in the library (Tip: for large rigs with a lot of fixture types, to save time, make all fixtures "Generic_Dimmer" then once you import the into MQ you can morph those dimmers to the proper fixture types)
7. For countries that use comma as the decimal separator ensure Excel is set to use decimal places as "." not ",". Click File > Options, then in the Excel Options dialog, click Advanced from left pane, then in the right section, the Editing options group, uncheck Use system separator, then type decimal point into the Decimal separator box to instead of the decimal point, and type nothing for the Thousand separator box.
8. Export from Excel; as a .CSV file, save to your show file or to a USB drive and copy it to your show folder on your console
9. Import into MagicQ: in Patch, select "View Channels" and then "Import Heads" there will be some feedback in the CMD line to show it's importing the heads,

Depence

It is possible to export fixture patch and XYZ from Depence and import them into MagicQ via csv format file.

The columns "Position on Stage" and "Fixture Library Revision" must be present for MagicQ to

detect it as a Depence file and import the patch correctly. Depence XYZ positions are in centimetres so MagicQ scales to metres. Depence uses XYZ co-ordinates the same as MagicQ with Y vertical and Z front to back.

Creating a Head List

To create a CSV file from Excel use Save As,Other Format, Comma Separated Variable (.csv).

The first row of the file indicates which columns are present in the file. The next rows of the file contain the data for each head.

Headno,Headname,Dmxno,Headtype,Gel,Pinv,Tinv,Swap 0001,Spots,1-001,Generic_Dimmer,No col,no,no,no 0002,Spots,1-002,Generic_Dimmer,No col,no,no,no 0003,Spots,1-003,Generic_Dimmer,No col,no,no,no 0004,Spots,1-004,Generic_Dimmer,No col,no,no,no 0005,Finger L,1-005,Generic_Dimmer,R59 Indigo,no,no,no 0006,Finger L,1-006,Generic_Dimmer,R312 Canary,no,no,no 0007,Finger L,1-007,Generic_Dimmer,R356 Middle Lavender,no,no,no 0008,Finger L,1-008,Generic_Dimmer,R27 Medium Red,no,no,no

Exporting Heads

MagicQ can export the contents of any window to CSV format and includes options to select which fields are exported. To export the Patch this way open the Patch Window, View Heads and from the toolbar select File and Print Window, select the required fields and then press Create CSV.

In older versions of MagicQ there was only the option to export with fixed column headings of Headno, Headname, Dmxno, Headtype, Gel, Pinv, Tinv, Swap. In Patch, View Chans press the EXPORT HEADS soft button. MagicQ asks for a file name and will save the file in the show folder.

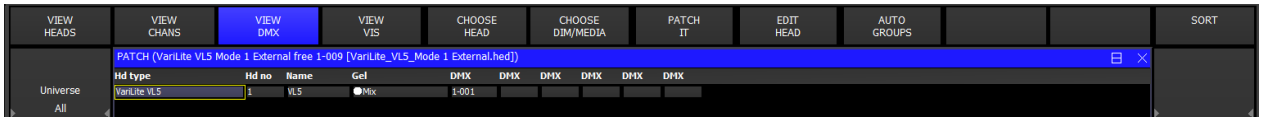
VL5 Type Channels (Split Personalities)

MagicQ supports heads such as the Vari-lite VL5™ where the head functionality is split between different non-contiguous DMX addresses. For example when the fixture features an external dimmer that's DMX address can be set independently.

The personality for the main channels in the head includes the extra channels. The extra channels are then patched separately and set to have their levels copied from the main channels.

When creating a VL5 type fixture in the Head editor, VIEW CHANS set the name of the dummy channel to 'Dimmer dummy'. Then when patching set the 2nd DMX field in the VIEW DMX view of the Patch; this 2nd address will be controlled by the main fixture dimmer.

For example for a VL5, patch the VL5 to the required DMX address for the main head. Then in Patch, View DMX set the address of the real dimmer channel in the second DMX field.



QR code patch export

The patch can be exported via QR code into the Chauvet unrival NFC App to enable easy configuration of DMX addresses and modes of Chauvet fixtures from the lighting plot.

In Patch, View Chans press the VIEW QR CODE soft button. A QR code containing the patch will be displayed in the window. If the patch is large then multiple QR codes will be shown in turn.

Merging with DMX Input

MagicQ supports comprehensive merging of data from each of the input and output universes. Any output channel can be set to output data from any received input channel, or to merge the two.

In addition channels can be configured so that they are passed through transparently unless MagicQ is controlling the channel from the programmer or a playback. This provides a powerful over-ride mode.

To set a channel to output data received as input from another channel set the Merge field to "Input" and the From field to the channel number you wish to get the data from.

You can easily set up a large number of channels by using SHIFT and the cursor keys to select multiple channels.

You can also set up a channel so that it outputs data from an input channel except when that channel is being controlled by a playback or the programmer. Set the Merge field to "Over".

To HTP merge the output with the received input use the "Merge" option.

The "Mult" option enables another channel on the console to control the level of the output of the channel- this is useful with RGB LED heads where you wish to make another channel control the overall level of the RGB.

The "Mul-In" option multiplies the received input with the calculated value for the channel. MagicQ can therefore be used as a DMX modifier to modify the level of individual or groups of channels.

It is possible to set multiple channels all to copy or multiply by one channel. Use SHIFT and the cursor keys to select all the required channels and enter <chan> / 0.

Customising Locate, Default, Highlight and Lowlight values

MagicQ allows the user to define the Locate, Default, Highlight and Lowlight values for each attribute of each patched heads.

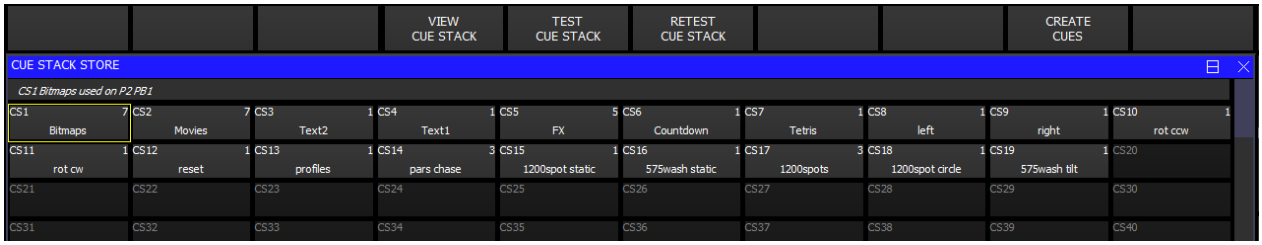
The Locate values are the values that are used when the Locate button is pressed. The Default values are the values that are output when a channel is not in the programmer and no playback is controlling a channel. Note that the Setup Window option "Unused chans return to defaults" must be enabled for this mode of operation.

The Highlight and Lowlight values are used when Highlight Mode is set to one of the Advanced modes.

By default, the Locate values and Default values are taken from the personality of the patched head – these typically put the position to centre, beam open, colour white and intensity at full.

These values can be re-programmed by creating a Cue that represents the desired Locate Values and/or a Cue that represents the desired Default Values. For Highlight and Lowlight create a Cue that represents the desired Highlight or Lowlight values.

Simply record a Cue into the Cue Store and then press the SET LOC CUE, SET DEF CUE, SET HIGHL CUE, SET LOWL CUE soft buttons. The Cue is indicated as Default, Locate, Highlight or Lowlight by a D, L,H or Lo after the Q number.



Only one Cue can be set for each type - however one cue can be set for more than one type – e.g. one Cue can be set for both the Default Cue and the Locate Cue.

It is not necessary to program all the different attributes into the Locate, Default, Highlight or Lowlight Cues. Simply program the values that you want to be different from normal operation. For instance to record a default position with all heads positioned towards FOH position, simply record a Cue with the FOH position data and press the SET DEF CUE soft button.

If you wish to change the Locate, Default, Highlight or Lowlight Cue then simply re-record the Cue. If you update Palettes used in the Cue, or modify the Cue directly from the Cue Window then you may need to reset the Cue in the Cue Store before the change takes place. Press the CLEAR DEF CUE and SET DEF CUE for the desired Cue.

Theatre Patch Syntax

MagicQ supports a Theatre Patch option which changes the syntax used for patching to simplify patching (and re-patching) of large numbers of dimmers.

The option is enabled in Setup,View Settings, Keypad, Keypad Syntax Theatre Patch. When this option is set to "yes" the keypad can be used to patch a dimmer or moving light directly to a DMX address and head number – e.g.

10 @ 2 – 5 will patch head number 10 to Universe 2 channel 5.

Virtual Dimmers

MagicQ enables LED and other heads with colour mixing but no dimmer channel to have an associated virtual dimmer. This allows the LED heads to be used as simple RGB heads with a dimmer. This development does not affect the internal pixel mapping (Bitmap FX) which already has a virtual dimmer.

To add a virtual dimmer channel for a LED head (i.e. a head without a dimmer) simply patch a generic dimmer and set the head number to the same head number as the LED head. The generic dimmer will then be shown with a ‘v’ after the head number to indicate the association with the LED head. The LED head will then appear with a dimmer in the Intensity, Group, Outputs and Programmer windows.

Note that virtual dimmers will only work if there are only 2 heads with the same head number – if there are more than 2 heads with the same head number then each head will be treated as a separate head.

When MagicQ assigns a virtual dimmer in this way, in the Cue Engine it takes the value of the RGB (CMY) attributes from the playbacks and programmer and then scales these values according to the value of the virtual dimmer channel.

Virtual Dimmers take effect at the Patch level rather than at the Programmer level. This means that the Output Window, View Heads will show the virtual levels on the RGB channels (i.e. the RGB levels before the virtual dimmer is applied).

The Outputs Window, View Chans, View DMX will show the actual levels output to the RGB channels (i.e. the level after the virtual dimmer is applied).

The full head can be selected using the head number. The title bar of the Group, Pos, Colour, Beam windows will show +v for each head with a virtual dimmer.

To always add virtual dimmers when patching set Auto VDIMs to on using Patch soft button E.

Quickly Adding Virtual Dimmers to Patched Heads

It is possible to add virtual dimmers to a head in the Patch, View Heads view using a single action. Place the cursor on the head you wish to add a virtual dimmer for and then press SHIFT and ADD VDIM. You can use SHIFT or CTRL + the cursor keys to select multiple heads.

Virtual dimmers can only be added to heads that do not have an intensity channel. For heads with multiple RGB elements, a virtual dimmer will be made for each RGB element.

Virtual dimmers added in this way will appear unpatched. Note that virtual dimmers take up channels from the total channel count.

It is possible to hide the virtual dimmers from the Patch View using Setup, View Settings, Cue Storage, Hide Vdims. In this case the virtual dimmers are not shown as separate heads in the Patch View. Instead the head with the virtual dimmer shows a +v in the Head No field.

Virtual dimmers can be removed from a head by pressing SHIFT and REMOVE VDIM.

Heads Always with Virtual Dimmers

It is possible to make heads that automatically patch a virtual dimmer. In the Head Editor, View General, Options there is an option "Virtual Dim". If this is set to "yes" and the head has no dimmer then a virtual dimmer is automatically patched for this head.

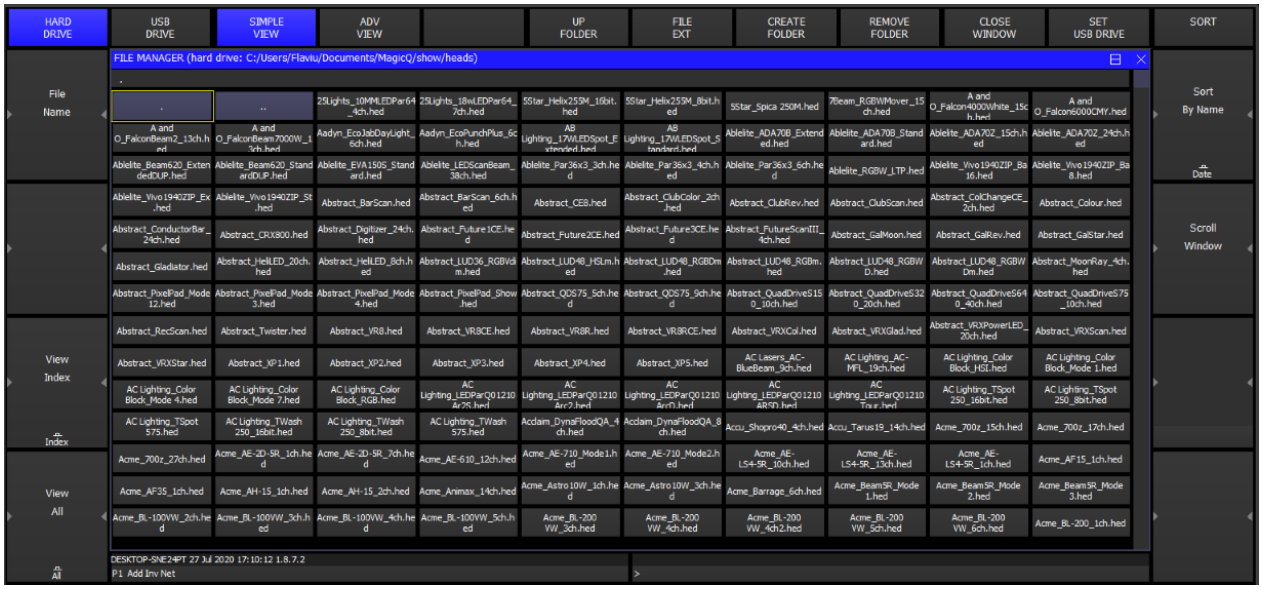
The MagicQ head library includes a mode of LED3chan with a virtual dimmer.

Note that Virtual Dimmer is distinct from Virtual Channels where all the channels of the head have separate DMX addresses.

Patch Head Filtering

In Patch, Choose Head it is possible to filter personalities by type, making it easier to find the personalities required. Filter options include All, Patched, Live, Club, Film/TV and User.

Patched enables users to see which heads are patched in the current show and to re choose them easily.



Users can tag heads that they use frequently so that they appear in the User filter. This could be used for example to include all heads in the stock of a rental company.

Heads can be tagged and untagged in both Choose Head, Simple View and Choose Head, Adv View. In Simple View you can tag all heads from a particular manufacturer, or all modes of a specific head. In Adv View you can tag individual modes of a head.

In Adv View the Tag column shows a "U" for all heads tagged as user.

MagicQ stores a file of all tagged heads in the heads folder called userheads.csv. It is possible

to create or edit this file with a text editor/spreadsheet. The format is:

<manufacturer> , <short name> , <mode>

Duplicated Elements Operating Independently

Duplicated heads can operate in a Duplicated or Independent Mode in the Patch, View Heads view - scroll to the right to find the "Independent" column. This is useful when you wish to record different elements into different playbacks and mix them together - the elements will operate as if they were separate heads.

When set to "Ind", all elements act independently. When selecting a complete head all elements are made active in the programmer and programmed into Cues. When selecting elements of a head using the dot (.) syntax only the selected elements are made active in the programmer and programmed into Cues. FX can operate across all elements either in sync or offset across the elements.

When set to "Dup", elements 2 and above are duplicated from element 1 when they are not explicitly in the programmer or active on a playback. This provides a simple programming mode where the head generally operates as a single element. FX can operate across all elements either in sync or offset across the elements. Using the dot (.) syntax different levels can be programmed for the different element into a single Cue.

The default for this field comes from the Head Editor where it is possible to set the "Independent" field per channel. When a head is patched, then MagicQ will use the defaults from the Head Editor for each channel - if one or more duplicated elements 2 or above is set as Independent in the personality then the head will show as Independent in the Patch View.

The setting in the Patch window overrides the setting in the Head Editor, enabling the option to be set differently per head. Users should change the option in the Patch not in the Head Editor.

Selecting Heads

MagicQ supports many different ways to select Heads, elements of Heads and functions of Heads. Groups enable easy control of multiple Heads.

MagicQ automatically generates a group for all the heads of a particular head type. In addition new groups can easily be recorded.

Group Window

Press the Group button to open the Group Window.

The Group Window has three views. VIEW GROUPS enables selection of heads using groups, VIEW HEADS enables individual selection of heads and VIEW ELEMENTS enables selection of the elements of the selected Heads.

In VIEW GROUPS, pressing the touch screen for a particular group selects all the heads associated with that group. All other heads are deselected.

In VIEW HEADS, individual heads are selected by pressing the touch screen. All other heads are deselected. Use PG UP and PG DN to scroll through the heads. To select multiple heads hold SHIFT and press a head. The head will be toggled in and out of selection.

In VIEW ELEMENTS, pressing the touch screen for a particular element selects and deselects that element.

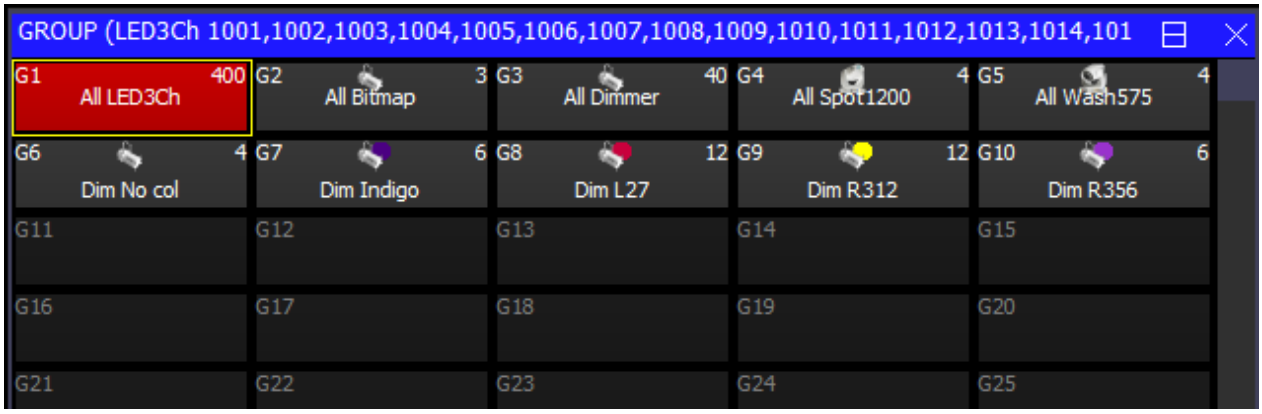
MagicQ supports three Group windows; enter 2 Group and 3 Group to open the second and third Group windows respectively. It is possible for one Group Window to show Groups, one to show Heads and one to show Elements.

MagicQ automatically creates an All Group for each different type of fixture patched in the show. For fixtures that have multiple functions (i.e. they have multiple elements with different functions such as some main RGB elements and some Eye Candy RGB elements) MagicQ also creates a Group for each function.

Using Groups

Once a Group has been recorded, then pressing the touch screen for the Group will make all the heads in the Group selected. All other heads will be deselected. To select multiple Groups press SHIFT and a Group to toggle the Group in and out of selection.

Set the Select Multiple Groups option in Setup, View Settings, Prog to enable multiple Groups to be selected without pressing SHIFT.



When in the VIEW GROUPS view you can also use the keypad to select a Group - simply enter the Group number. You can use + and - to select multiple Groups.

Pressing + before a Group is selected adds the Group to previously selected heads, i.e. the Heads in the Group are all selected as before, but other Heads are not deselected.

For example, to select Groups 1 and 3 press

1 + 3 ENTER

To deselect Group 4 from the selection press

- 4 ENTER

MagicQ generates Groups for each head as they are patched. In addition, MagicQ can generate auto groups based on gel colour and head name.

Recording a Group

Select the heads you want in a Group in the VIEW HEADS view of the Group Window.

Change to the VIEW GROUPS view.

Press RECORD and then select the Group you wish to record either by pressing the touch screen or by using the cursor keys and then pressing ENTER.

Naming a Group

When recording a Group, if you key in a name before pressing the touch screen (or pressing ENTER) then the Group will be named at the same time as it is recorded.

You can name a Group at any time by keying in the name, pressing SET, and pressing the touch screen.

If you do not have a keyboard then press SET and select the group to name by pressing the touch screen (or using cursor keys and ENTER). A keyboard window will be displayed for you to enter the name on screen.

Setting Group Icon or Col Tag

Set a Icon for a Group by pressing SHIFT and SET and then selecting the Group item to set an icon to. The File Manager will be opened with a list of icons.

It is possible to show Col Tags associated with each Group. In Setup, View Settings, Windows set the Col Tag to Head Type - this will automatically show a different colour tag for each type of head. Alternatively set the Col to Patch. This will then use the Col Tag assigned in the Patch to the first head in the Group.

Group Grids

Every Group has a Group Grid associated with it which is automatically generated when the Group is recorded. Group Grids are used for performing fades and FX in 2D instead of linear fades to match the spatial positioning of the Heads on the real lighting rig.

In the Group Window press VIEW GRID to view the Grid for the Group at the cursor.

MagicQ sets the size of the Group Grid sufficient to fit all the Heads from the Group and automatically inserts into the Group Grid using the order of the Heads in the Group.

The Heads in the Group Grid can be easily moved around to match the real lighting rig.

Group Grids can be set to multi element to include all the elements from the Heads.

Group Grids for Heads with multiple Functions only include the elements used by the particular Group. For example, considering a strobe fixture with Beam and Plate functions, the Group Grid for the Group with just the Beam Function would only have the Beam elements in it. This enables Pixel Map FX to be run nicely over just the BEAM pixels without any gaps.

When inserting into User Grids if elements are selected in the Programmer then only those elements of the Heads will be inserted into the User Grid. This enables creation of User Grids using only particular functions of Heads.

When a Group is removed, the associated Group Grid is also removed.

When removing Heads from a Group the Heads are removed from the associated Group Grid also.

When adding Heads to a Group then the Heads are added into the Group Grid. The Grid is expanded and the new Heads are added below any existing Heads. Existing Heads are not moved.

Selecting Groups from the keypad

When the Select Heads and Palettes from keypad option in Setup, View Settings, Keypad & Encoders is set, Groups can be selected directly from the keypad.

GROUP 1 ENTER	Selects Group 1

GROUP 1 + 2 ENTER	Selects Groups 1 and 2
GROUP 1 THRU 4 ENTER	Selects Groups 1 ,2,3 and 4
GROUP 1 THRU 4 - 3 ENTER	Selects Groups 1 ,2 and 4

Groups can also be selected by name. Type the group name followed by **. The group name entered must be two or more characters but does not have to be the complete Group name. Spaces in names are ignored and the input is case insensitive - i.e. you do not have to use the same capitalisation as the Group name.

Elements

The VIEW ELEMENTS view can be used to select the elements to be used for programming. VIEW ELEMENTS shows the elements of the currently selected head and allows the user to chose different elements.

Choosing elements in VIEW ELEMENTS affects the Global Elements so will affect all selected Heads.

Elements are selected in order which enables fades and FX to be applied across the elements in a specific order. The order of selection is shown in the top right of the item in VIEW ELEMENTS.

Using the cursor keys and ENTER, multiple elements can be selected at the same time to give them the same order.

The keypad can also be used to select elements.

If a Global Element selection is active when a Group is recorded then that Group will store the Global Element selection as part of the Group. The top right of the Group item in the Group Window shows a dot followed by the number of elements.

When that Group is recalled it will set the Global Element selection as stored in the Group.

Group Cues and Group FX use the Element selection stored in the Group to determine the elements to apply the Cue to and the order for any fades / FX.

When Groups are set with a Group Type of Elements Only then they do not contain any Heads, just a Global Element selection. When recalled they only affect the Global Element selection - they do not change the Heads selected. These can be useful for quickly applying different Global Elements.

Function

In the Group Window use the SELECT FN soft button to select the function. This sets the Global Elements to be the elements of the chosen function for the currently selected Head. This enables easy selection of the elements without having to explicitly select the elements using the keypad. Programming will only use those elements.

Note that recording a Group after selecting a Function is exactly the same as recoding a Group

after selecting the elements individually - it stores a Global Element selection into the Group.

For more advanced programming using the Function Type see below.

Function Type

Heads support a Function Type for each Function of the Head within the personality, which enables MagicQ to determine the actual function of a particular function of a multi function Head. The inbuilt function types of RGB MAIN, STROBE, RGB CANDY and UNDEFINED are supported.

In the Group Window use the SELECT FN TYPE soft button to select the function type. When a function type is selected the selection works on function type rather Global Elements or Head Elements - MagicQ applies activations and changes to the appropriate elements of the Head that match the Function Type without those elements being explicitly selected. This enables values to be set to elements of Heads of different types that have different configurations of elements.

When Function Type selection is active the selected text shows a .FMainRGB, .FStrobe, .FCandy or .FUndef at the end instead of the elements.

To reset to no Function Type selection press, in the Group Window press SHIFT and ALL FN TYPE soft button.

Note this is different to the SELECT FN soft button which selects Global Elements using the function number. e.g. FN1, FN2 etc... The function FN1, FN2, FN3 differ on different Heads so selection by Function may result in different behaviours on different Heads - e.g. control of Strobe on one, control of Pixels on another.

Groups can be recorded with a Function Type. This enables Group Cues and Group FX to apply to a specific Function Type.

When a Group has a Function Type the Group is marked as FR, FS, FC or FU. This corresponds to RGB MAIN, STROBE, RGB CANDY and UNDEFINED.

Note that when using Group Cues and creating Cues and FX that use Function Types, it is important to select Groups that have the Function Type set within the Group. If a Group without a Function Type is selected and then a Function Type is selected manually, then this will not reference the selected Group any more, and the Cue will end up with Individual Head Levels and FX.

For example, a Group could be created with a Function Type of Strobe, and then Cues programmed using this Group. Then, whatever Heads are put into that Group, the Group Cues will perform on the elements with Function Type of Strobe.

If a Group with a Function Type is set to Group Type of Elements Only then when that Group is selected it will set the Function Type rather than the specific Elements. This enables an easy way within the Group, Execute or Output windows to select Function Type.

Group Type

The Group Type can be set using soft Button E.

Normal	Operates normally - selects the Group and all the Heads within the Group
Sub Groups	Group always recalls sub groups rather than the Group
Elements Only	Sets the Element selection only. No Heads or Groups are selected
Sub Select Only	Sets the Sub Selection only. No Heads or Groups are selected
No Group	Selects the Heads within the Group, but not the Group
Linked	The Group is linked to another Group

Sub Groups

Sub Groups provide a quick way to recall multiple Groups without manually selecting them.

MagicQ stores sub group information in groups. If multiple groups are selected and then recorded into a new Group, the new Group will store the selected heads and also store the groups that are active.

The original Groups that were active when a group was recorded can be recalled by using INCLUDE and selecting the Group.

If the Group is always to be used for recalling sub groups then the Group type should be set to Sub Groups.

If the Group Type is set to Sub Groups, then recalling that Group causes all of the original Groups to be recalled rather than the Group itself. Any Group Cue or Group FX programming will use those original Groups rather than the Group itself.

Groups set to Sub Groups indicate SG in the top right of the item in the Group Window. When recalled, they show in Orange rather than in Red.

From v1.9.8.0 any updates to the Sub Groups will be updated in the Group set to Sub Groups.

Elements Only Groups

Groups can be set as Elements Only Groups. They are indicated with E in the top right of the item in the Group Window.

When Groups are set with a Group Type of Elements Only then they do not contain any Heads, just a Global Element selection.

When recalled they only affect the Global Element selection - they do not change the Heads

selected. These can be useful for quickly applying different Global Element

Sub Select Only Groups

Groups can be set as Sub Select Only Groups in a similar way to Element Only Groups. They are indicated with SS in the top right of the item in the Group Window.

Sub Select Only Groups do not contain any Heads, Elements, or Head Elements.

When selected, Sub Select Only Groups only change the Sub Select and Order settings in the Programmer. They do not change the selection of Heads. This enables storing of Odd/Even, Segments, Chunks, Pair into Groups for easy selection.

Sub Select Only Groups can be copied into the Execute Window like any other Groups. Note that like Element Only Groups they are not used for the purposes of Regions as they do not contain any Heads.

No Group

Groups can be set as No Group. They are indicated with NG in the top right of the item in the Group Window.

When recalled the Head selection within the Group is set, but the Group does not become active. This enables forcing of Heads programming on the Heads rather than Group Cue / Group FX programming.

Linked Groups

MagicQ supports Linked Groups to make it easier to update Groups that have a different selection order or have a sub selection of the members of a Group.

When recording a Group, if the Selection Order has been changed or an Odd/Even, Segments, Chunks, Pair or Col Tag sub selection is active then MagicQ creates a Linked Group which will be linked to the originally selected Group.

The Group itself stores information regarding the chosen Selection Order, Odd/Even, Segments, Chunks, Pair or Col Tag. Sub selections apply to the Heads in the Group, not to the elements.

If Grid H or Grid V sub selection is applied to the Odd/Even, Segments, Chunks or Pair then this is also stored in the Group.

When the Group that it is linked to is updated with different Heads then the Linked Group will be recreated using the new Heads, using the Selection Order and sub selection in the Linked Group. The Group Grid for the Linked Group will also be updated any time that the Group Grid it is linked to is updated.

Linked Groups indicate a L in the top right corner of the item in the Group Window. When the cursor is on a Linked Group, then Soft Button E indicates the Group it is linked to and the method of linking - i.e. the sub selection.

The Linked Group can be moved in the Group window and the Links will be automatically updated.

A Linked Group can be unlinked by changing the Group Type from Linked to Normal on Soft Button E.

One or more Groups can be linked to another Group after they have been created. Cursor select one or more Group then set the Group Type to Linked and enter the Group number to link to. The Linked Groups will automatically be regenerated.

Multiple layers of Linked Groups are allowed. For example a top Group could contain all Heads - then Linked Groups for each Col Tag such as Spots, Washes and Beams, and then further Linked Groups to these such as Odd/Even or Segments. When a top layer Group is updated all the associated Linked Groups at all layers are updated. Note this is different to Palettes that only support one layer of Linked Palette.

Function Types can be set on Linked Groups in the same way as on other Groups - multiple Groups could be created with different Function Types but all linked to the same Group. When a Group has a Function Type set then only the elements of that Function Type are supported. This avoids the need to store specific element numbers into the Group. The Group dynamically changes to always use the elements of the specified Function Type if different Heads are stored into the Linked Group.

A Group can not be linked to itself or Groups set to Sub Groups.

Heads View

Group, VIEW HEADS shows all the Heads patched in the show. Heads can be selected from this view.

Use the filter on Soft Button A to filter to Heads of the currently selected Group, the currently selected Heads, Unused Heads or Used Heads.

When filtering to Sel Heads, the Heads can be moved around to change the current selection Head selection order. Heads can be deselected by using REMOVE.

When filtering to Sel Group Heads can be moved around in the Group changing their selection order. Heads can be removed from the Group using REMOVE. Changes take immediate effect - there is no need to Update or Record.

Selecting Heads Using the Keypad

Heads can be selected based on the head numbers set in the Patch. See the section on patching.

On MagicQ the keypad is used for many functions including selecting heads, settings times, editing fields in spreadsheets.

Heads can always be selected directly from the keypad regardless of setup options by entering

the head number followed by @@

101 @@

Or by entering the head number followed by @ ENTER or on Stadium consoles by using the HEAD key followed by the head number, for example:

101 @ ENTER

HEAD 101 ENTER

For users that wish to use the keypad regularly for selecting heads, MagicQ provides the Keypad always selects heads option in Setup, View Settings, Keypad & Encoders.

When set to Yes (Priority to selected Heads) or Yes (Strict) the head number can be simply entered on the keypad.

101 ENTER

In these modes, to perform other operations like editing fields in the spreadsheet views, you need to press the SET button first.

Selecting Multiple Heads from the Keypad

To select heads 1 to 4 key in

1 THRU 4 ENTER

To select heads 1 to 4 and heads 8 to 11 key in

1 THRU 4 + 8 THRU 11 ENTER

To select heads 1 through 12 but not head 7 key in

1 THRU 12 - 7 ENTER

To select all heads of a certain type without specifying the entire range use

1 THRU ENTER

This selects all heads of the same type as head 1 starting at head no 1 in ascending head order until it reaches a head that is not of the same type.

At any time you can select all of the heads of a particular type (regardless of head no) by selecting one of the heads and then using ALT ALL

1 ENTER

ALT ALL

Note that on MagicQ PC you can use > to indicate THRU.

0 ENTER deselects all heads.

Selecting Heads using the Rig Plan View

Heads can be selected from a plan of the rig in the View Plan view of the Outputs window. See Plan View.

Heads can also be selected from the Plot View.

Changing Overall Selection Order

The order of the overall selection can be changed using the Soft Button C in the Group Window – the options are "Normal", "Reverse", "Into Centre" and "Centre Out".

To randomise the overall selection order by holding SHIFT and pressing "RANDOM SELECT". The overall selection order can be randomised multiple times to get different random orders.

Hold the ALL button to bring up a toolbar showing the above options.

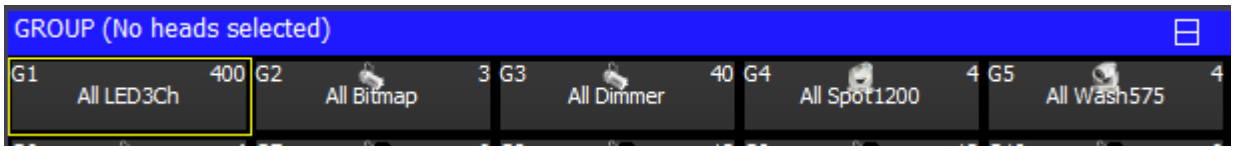
Sub Selecting Individual Heads

When programming it is often useful to be able to control one head out of a group of heads - for instance, in order to set up it's position on the stage. Alternatively you may wish to apply an effect to all the heads, such as fanning the position.

The head control buttons enable the individual head to be selected quickly. Once a number of heads have been selected for programming, the head control buttons controls how changes are applied to those heads. By default, changes are applied to all the selected heads.

On MagicQ you first select the overall selection of heads you want to control using Groups or keypad selection, then you use the head control buttons to sub-select within that overall selection.

The title bar of the Group, Position, Colour and Beam Windows show the currently selected heads.



Single Mode

Pressing NEXT HEAD, PREV HEAD or SINGLE enters Single mode whereby only one head from the selected heads is sub selected for operation on at a time.

When Single mode is first entered control is given to the first head within the selection – i.e. the first head within the group or the first head the user selected after no heads were selected.

Single mode is indicated by a LED lit on the SINGLE button.

In Single mode changes made by the encoders or through selecting Palettes only affect the one sub selected head. The head is indicated by a * by the head number.

Once in Single mode, the NEXT HEAD and PREV HEAD buttons are used to transfer control between the selected heads. Pressing the ALL button returns the head control area to the default mode whereby all selected heads are controlled.

In Single mode, Locate only affects the sub selected head.

Pair

Pair mode is similar to Single mode except that instead of only a single head being sub selected, a symmetrical pair within the selected heads is sub selected.

Pair mode is indicated by a LED flashing on the SINGLE button.

Pressing NEXT HEAD or PREV HEAD selects the next pair for sub selection. Pressing the ALL button returns the head control area to the default mode whereby all selected heads are controlled.

The MQ500 includes a dedicated PAIR button. On Compact consoles (MQ40/60/70) press ALT + SINGLE to get Pair. On all systems SHIFT + SINGLE will also select PAIR.

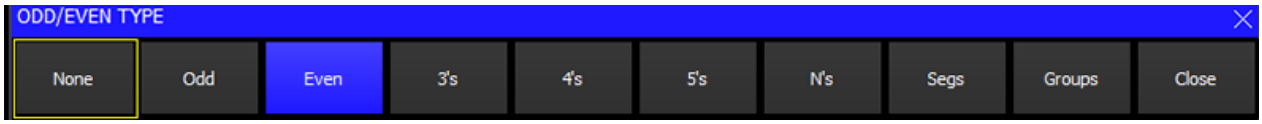
From v1.9.7.0 Pair can be used in combination with Parts, Segments or Chunks to give a symmetrical look.

Odd/Even

Odd/Even mode is similar to Single mode except that instead of only a single head, half of the heads are sub selected. Odd/Even mode is indicated by a LED lit on the ODD/EVEN button.

Pressing ODD/EVEN selects the odd heads. Pressing NEXT HEAD or PREV HEAD toggles between the odd and even heads. Pressing the ALL button returns to all selected heads being controlled.

Holding the ODD/EVEN button brings up the Odd/Even toolbar for quick selection of odd/even or 3s, 4s, 5s. On MagicQ PC/Mac pressing SHIFT and ODD/EVEN opens the toolbar and keeps it open.



Press SHIFT + ODD/EVEN to increase the mode to 3s or more.

Segments

Segments is similar to Odd/Even except that the sub selection is a segment of heads - for example if you have selected 10 heads and then select Seg 3's will sub select the first three heads in the selection. Pressing Next Head will select the next three, then pressing NEXT HEAD again will get the next three, and then pressing NEXT HEAD again will get the tenth

head. Pressing NEXT HEAD again goes back to the start with the first three. PREV HEAD works in a similar way but in the opposite direction.

Segments is selected by holding ODD/EVEN to show the ODD/EVEN toolbar and then selecting SEGMENTS.

Chunks

Segments have been improved to enable splitting of the entire number of Heads into a specified number of Chunks. This is different to Segments which split into Segments of a specific number of adjacent Heads.

Chunks can be used for both sub selecting Heads and for setting FX.

Group Sub Selecting

It is also possible to sub select groups. When making a head selection you can choose multiple groups using SHIFT and pressing group items or using the keypad.

To sub select groups, Hold Odd/Even and then select Groups. MagicQ will now sub select heads from the first group. Pressing Next Head moves the sub selection to the next group of heads. Pressing Prev Head moves the sub selection to the previous group of heads.

Sub Selecting Heads Using Specific Palettes

It is possible to sub select heads from the current selection, sub selecting only the heads using a particular palette and that have intensity greater than 0%.

Hold NEXT HEAD and then select a palette in the Position, Colour, or Beam windows.

Col Tag Sub Selection

Col Tag sub selection enables sub selection using the Col Tag in the Patch instead of using a formula such as Odd/Even or Segments. This enables sub selecting particular Heads based on how Col tags have been assigned to them. This could be used to differentiate between Spots, Washes, Beams or between Front Truss, Mid Truss, Back Truss.

Open the Odd/Even toolbar by holding ODD/EVEN. On a PC press SHIFT and ODD/EVEN to open the toolbar.

Select Col Tag. By default the first Col Tag in the Patch is used.

Press NEXT HEAD or PREV HEAD to move onto the next or previous Col Tag used in the Patch.

Sub Selection of Heads from Overall Selection

It is possible to sub select heads from within the main selection using the keypad and referring to heads using the index of that head within the overall selection order – for instance, selecting the 1st and 3rd head within the selection, or selecting heads 1 THRU 4 in that selection. The numbers used are the index into the selection order, not the head numbers.

To use this method, select a group of heads, then type the index number followed by NEXT HEAD or PREV HEAD. To select the 1st and 2nd heads in the current selection:

1+2 NEXT HEAD

Or to the 3rd, 4th and 5th

3 THRU 5 NEXT HEAD

You can select multiple groups as your main selection – so if you have a line of 4 spots and 4 washes you can make a group with of all 8 heads and then access them using the numbers 1 to 8 regardless of their head number.

It is possible to invert the current sub selection - press 0 NEXT HEAD.

Using NEXT HEAD and PREV HEAD without entering a number, operates as normal, selecting the next or previous head within the overall selection.

All

The ALL button is used to return the head control area to the default mode whereby all heads in the current selection are controlled.

Pressing ALL when there are no heads selected causes the selected heads that were active when CLEAR was last pressed, to be reselected.

Pressing SHIFT and ALL selects all the heads of the type last selected.

Pressing CTRL + ALL, or FAN + ALL selects all the heads active in the programmer.

Pressing Next Head and Prev Head reselects all heads in the current selection (like pressing ALL).

Holding ALL opens the selection order dialog box.

Selection of Elements

In normal operation, all the elements of heads with duplicated elements are treated as if there is only one element of each attribute. MagicQ automatically copies the output from the 1st element to the duplicated elements. This enables the head to be treated in a simple way like any other head.

Sub selection of elements to enable individual element control can be done using the "." operator. MagicQ keeps a global element mask in the programmer to determine which elements are being controlled for the selected heads.

The first element in the head is ".1" and the duplicated elements are ".2", ".3" and so on. For heads that have both a main section and duplicate elements (e.g. master colour channels and individual colour pixels) the main element is ".0".

For example, to select the second element of a duplicated head

1. 2 ENTER

To select all elements of duplicated heads.

1. > ENTER

To go back to normal selection (i.e. no duplicated elements selected)

1. ENTER

When all elements are selected the head selection text in the Window title bars will show ".all".

1 . 2 ENTER // Select Head 1 element 2 . 3 ENTER // Select 3rd element of currently selected heads . 1 > 3 ENTER // Select 1st, 2nd and 3rd elements of currently selected heads . 1 + 4 ENTER // Select 1st and 4th elements of currently selected heads .> ENTER // Select all duplicated elements of currently selected heads . ENTER // Cancel selection of duplicated elements - revert to normal head selection

Note that the ENTER must be replaced with @ @ when the option to select heads from keypad is not set. @ @ can also be replaced by NEXT HEAD.

Head Element Selection

MagicQ supports the ability to select different elements from different heads using both the keypad and the Output window View Grid view. This is referred to as Head Element Selection.

This operates in addition to the existing global programmer elements selection which affects all selected heads. When using the keypad the element selection is global unless multiple dot operators are specified in the syntax or until elements are added to an existing selection.

.2 ENTER	Select global element 2
.2 THRU 4 ENTER	Select global elements 2,3,4
101.2 ENTER	Select head 101 and global element 2
101.2 THRU 4 ENTER	Select head 101 and global element 2,3,4
101 THRU 104 . 2 THRU 4 ENTER	Select head 101 to 104 and global element 2,3,4
+105 . 4 ENTER	Add Head 105 head element 4 to the existing selection
101 . 1 + 102 . 2 ENTER	Select Head 101 head element 1 and Head 102 head element 2
101 . 1 + . 2 + 102 . 3 ENTER	Select Head 101 head elements 1 and 2 and Head 102 head element 3
101 . 3 THRU 102 . 6 ENTER	Select Head elements form element 3 of Head 101 to element 6 of Head 102

When head element selection is in operation the title bar of the Outputs, Group and Palette

windows shows the elements in the order selected, prefixed by "HE".

In the Output View when a Grid is set to Multi Head then selection of elements will always select individual head elements rather than global elements.

In the Output View multiple head elements can be selected by dragging over the required elements.

The selection of head elements is ordered, in the order that they are selected. When dragging over multiple elements, the initial drag direction determines the order - as per dragging over single element heads.

Operations such as changing attributes, selecting palettes, and applying times will only affect the selected head elements, not the full heads.

Normal head FX can be applied and will affect only the selected head elements and will respect the head element selection order.

The head element selection can be recorded into a Group - the Group will show HE followed by the number of heads in the top right corner - e.g. HE2 indicates that 2 heads have some head elements selected. When the groups are selected the head elements will be added or removed from the current selection in a similar way to direct selection from the Output Window.

Any Head that has a head element selected, or has had a head element selected since the last clear / deselect of heads will show in the Outputs, View Heads and Programmer windows as selected, but operations that support head elements will only affect the current head elements selected.

Pressing CLEAR, DESELECT HEADS, NEXT HEAD, PREV HEAD, ALL or SINGLE will revert MagicQ to the normal head selection. Entering a global element number (e.g. . 2 ENTER) on the keypad will also revert to normal head selection.

Keypad selection and setting intensities of elements using the dot syntax operates as before, except that when using the + operator at the start of a selection it enables per head element selection.

Palettes can be applied with times using the standard timed shortcuts (*, *+, *- , */ and *.) and will respect the head element selection order.

Group FX on Groups with head element selection will operate on the head element selection (v1.9.1.1 and above).

The existing programmer elements can also now be used to apply timed palettes with element section order / priorities as shown in the Group, View Elements window.

Note that when setting intensities using the keypad using the @ syntax it is not possible to set heads with multiple head elements, only one dot is allowed in the command syntax.

Element Selection in the Group Window

The View Elements view shows the current global element selection and enables one or more global elements to be selected or deselected.

Each element has a newly supported priority which is shown in the top right corner of the element. Elements can have the same or different priorities enabling either sequential element usage or simultaneous element usage.

When an element selection is active, FX are now only applied to those elements. If the option "Inc Element (synced)" is chosen then the element priorities will be used in playing back the FX. Both Group FX and Normal FX take the element selection and priority into account.

For example, if half of the elements have priority 1 and the others have priority 2 then the FX offset is split into two - all the elements with priority 1 will have the same FX offset, whilst all the elements with priority 2 have the same (opposite) FX offset.

When elements are selected from the keypad then they automatically get increasing priorities - e.g. if you enter . 6 THRU 10 then elements 6 to 10 will be selected with increasing priorities 1 to 5. If you enter . 10 THRU 6 then elements 6 to 10 will be selected with decreasing priorities 5 to 1.

When individual elements are selected in the View Element window then they get increasing priorities. When the programmer is cleared or all elements are deselected the priorities are reset.

It is possible to set priorities directly to one of more elements using SET.

Element priorities are stored when Groups are recorded and are recalled when groups are selected - therefore it is possible to create groups with the same heads but different element priorities.

Selection functions

For fixtures that support multiple functions, the elements from a particular function can be selected using the double dot operator.

<head no> . <function> . <element>

The element is the element number within the function starting at 1 regardless of the element number where that function starts in the functionality. The element can include + and THRU to select multiple elements. The function must be a single function number.

Note if the Keypad Always Selects Heads option is set to No then replace the ENTER with @ @ in the examples below.

. 1 . ENTER	Select all elements of function 1 for selected heads
10 . 1 . ENTER	Select all elements of function 1 for head 10

10 . 1 . 2 + 4 ENTER	Select elements 2 and 4 of function 1 for head 10
10 . 1 . 2 THRU 5 ENTER	Select elements 2 through 5 of function 1 for head 10

And Only

The AND ONLY (*) function enables selecting of the common heads between groups. It can be used on pairs of groups or on ranges of groups. When selecting a number of groups then the * operator can be used to specify that only the heads that are in both groups are selected.

GROUP 1 * 2 ENTER

This selects heads which are in both groups 1 and 2

And Only can be used with the THRU, + and – operators.

GROUP 1 THRU 4 * 5 THRU 8 ENTER

This select heads which are in one of the groups 1 to 4 and also in one of the groups 5 to 8.

It is possible to use And Only together with the @ operator to set levels directly.

GROUP 1 * 3 @ FULL ENTER

Note that if the option "Select heads and palettes from keypad" is set to "No" – then the * * operator must be used to select groups from the keypad:

1 * 2 * *

1 THRU 4 * 5 THRU 8 * *

1 * 3 * * @ FULL ENTER

Reselecting heads using Palettes and Intensities (Active Palette and Intensity)

To reselect all heads using a particular palette, hold ALL and press the palette entry.

<Hold ALL> <Green>

Or use the keypad

<Hold ALL> <COL 5 ENTER>

To reselect all heads at or above an intensity level hold ALL and type the level. Then release ALL or press ENTER.

<Hold ALL> <50 ENTER>

To reselect all heads at a specific intensity level hold ALL and type @ followed by the level. Then release ALL or press ENTER.

<Hold ALL> <@ 60 ENTER>

To reselect all heads active in the programmer

<CTRL> + <ALL>

To select all heads in the current step of a playback

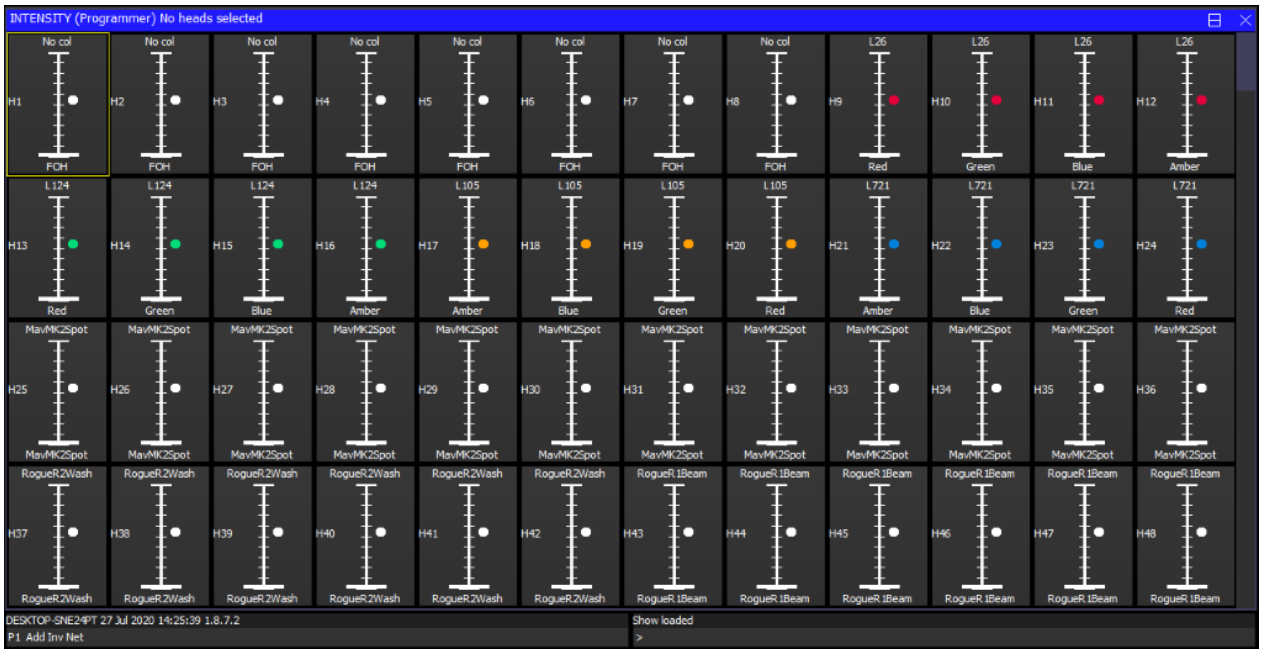
<Hold ALL> <S>

Setting Intensity Levels

The intensity level of heads (including dimmers) are controlled from the Intensity Window. Press the INT button to open the window.

Using the on Screen Faders

This window displays a fader for each head (including dimmers) patched onto the console. Pressing the slider part of the fader sets the appropriate level. When a fader is moved from 0 the channel in the programmer is activated – and the fader will turn red.



The SQUARE OFF soft button enables fast programming of intensities. Using the touch screen select the channels you wish to have at full and at zero – but don't bother being exactly accurate with the level of the selection. Pressing SQUARE OFF finishes the job by setting all channels that are less than 50% to 0 whilst setting channels above 50% to full.

Use the ALL TO FULL and ALL TO ZERO buttons to change the level of all the channels.

Press SHIFT and SQUARE OFF to invert the faders - all channels less than 50% go to 100% whilst all channels above 50% go to 0%.

Press the CLEAR soft button to clear the programmer.

Using the Encoders

A single fader or multiple faders can be controlled using the top right rotary encoder in the Intensity Window. The encoder controls the fader, which the cursor is over. Selecting a block of faders by pressing the cursor keys whilst holding the SHIFT button down enables multiple faders to be selected.

Using the Keypad

The level of the intensity channel of heads can be set from the keypad. Head numbers are used to reference the required heads.

If you intend to use this method for setting intensities then you should set up the head numbers when patching. It is easy to do - the console can automatically renumber them, or they can be set to be the same as the DMX start address of the dimmer / head. See the section on patching.

Keypad setting of intensities is supported regardless of which Window is currently active.

To set heads 1 to 4 to 40% key in

1 THRU 4 @ 40

To set heads 1 to 4 and heads 8 to 11 to 100% key in

1 THRU 4 + 8 THRU 11 @ FULL

To set heads 1 through 12 but not head 7 to 10% more than their current value key in

1 THRU 12 - 7 @ +10

The console supports theatre style key entry – so you can set head 1 to 40% by typing

1 @ 4 ENTER

and you can set head 1 to 4% by typing

1 @ .4 ENTER or 1 @ 04

Note that if the Setup option "Auto enter on keypad intensity set" option is set, you do not need to press ENTER after you have entered a 2 digit level. The console knows that you are setting an intensity due to the @ key. Valid levels are 0% to 100%.

On MagicQ PC / Mac you can use > to indicate THRU and # to indicate FULL.

Setting Fade Times from the Keypad

Fade times for intensity channels can be entered from the keypad. Ensure that "Auto Enter on Keypad Intensity Set" is set to "No" for this to function correctly.

This can be done when setting levels, e.g. to set heads 1 to 4 at 80% with fade time of 5 seconds:

1 > 4 @ 80 / 5

Or without changing the level

1 > 4 @ / 5

To set a delay time and a fade time (e.g. delay 2 seconds, fade 5 seconds)

1 > 4 @ / 2 / 5

Split fade times can be set from the keypad:

1 > 10 @ FULL / 3 * // Heads 1 to 10 at 100% split times over 3s

1 > 10 @ FULL / 0 > 5 // Heads 1 to 10 at 100% split fades 0s to 5s

1 > 10 @ FULL / 0 > 4 / 1 // Heads 1 to 10 at 100% split delays 0s to 4s, 1s fade

1 > 10 @ FULL / 0 > 5 / 0 > 4 // Heads 1 to 10 at 100% split delays and fades

When using split fade times it is possible to enter max > min as well as min > max.

1 > 10 @ FULL / 4 > 0 / 1 // Heads 1 to 10 at 100% split delays 4s to 1s, 1s fade

Setting Intensity FX from the Keypad

It is possible to set intensity FX "Dimmer chase" directly using the keypad. When setting an intensity level it is now possible to specify a range - for example, to set some channels to run an intensity FX between 10% and 20% this can be set from the keypad:

@ 10 THRU 20 ENTER

GROUP 2 @ 10 THRU 20 // Set Group 2 with an Intensity FX between 10% and 20%

5 @ 70 THRU 90 // Set Head 5 with an Intensity FX between 70% and 90%

Note that for this syntax to be accepted the Setup, View Setting, Keypad & Encoders, "Auto enter on intensity set" must be set to "No".

When setting intensity FX between two levels MagicQ respects the add mode of any existing FX. If no FX exists then a Dimmer Chase is added using the "Plus" add mode.

If the channels already are part of an intensity FX in the programmer then the size of the channel within that FX will be modified and an according change to the base level of that channel in the programmer. If the channel is not part of an intensity FX then if there is already a "Dim chase" FX in the programmer the channel will be added to that FX. If there is no "Dim chase" FX in the programmer then one will be added with this channel.

Once a channel has a FX in the programmer it can not be removed using the keypad syntax - however it can be set to a zero FX (i.e. has no effect) by setting the channel using a fixed range - for example @ 20 THRU 20 will set it to 20% with a zero size FX.

It is also possible to directly add the FX by entering this syntax directly into the Intensity value fields in the Programmer, View Levels view. This view will also show the min and max levels when a FX with a size greater than 0 is in the programmer. This only affects Intensity attributes - it is currently not possible for any other attributes.

The Cue Window also supports viewing and setting of Intensity FX directly into the View Levels view. Unlike in the Programmer Window, Cues must already contain an Intensity FX for the required Group or Channels.

Multi Element Heads

The intensity for elements of a Head can be set directly from the keypad.

1 > 10 . 1 @ FULL // Set element 1 of heads 1 to 10 at FULL 1 > 10 . 1 > 3 @ 50 // Set elements 1,2,3 of heads 1 to 10 at 50%

The intensity for elements of a particular function of a Head can be set directly from the keypad.

10 . 2 . 1 > @ FULL // Set all elements of head 10, function 2 to FULL

1 > 10 . 2 . 3 @ FULL // Set element 3 of heads 1 to 10, function 2 to FULL

Setting intensity levels for DMX channels

To set a DMX channel intensity rather than a head number intensity precede the DMX number with a *. For example to set DMX channel 1-50 to FULL, type * 1 . 50 @ FULL

Using Selected Heads

When you use the keypad to modify heads, by default this does not modify which heads are selected. This ensures that you can be busking moving heads whilst modifying individual dimmer levels at the same time.

However, at any time you can set the levels of the intensities of the currently selected heads using the keypad. To set the selected heads to 70% key in:

@ 70

This method also supports standard key entry syntax such as + and – for relative changes.

You can change which heads are selected at any time through the Group Window – see Selecting Heads.

In the Intensities Window you can change which heads are selected by moving the cursor to a fader and pressing ENTER. You can also select/deselect heads by holding down SHIFT and selecting faders. When faders are shown with a thick stem they are selected. Holding SHIFT and pressing the fader toggles the selection of the fader.

In the Intensities Window press SELECT ACTIVE or SHIFT and SELECT NON ZERO to select the heads you have modified – this can be useful for creating groups.

Using gel colours in the Intensity Window

Programming time is significantly improved by making use of the gel colour facility built into the console. Assigning a colour to each dimmer is quick and easy and then enables the programming of scenes based on colours. In the Intensity Window the dimmers can be selected on a per colour basis, thus easily enabling the operator to identify the colour and position of the lamps to program into each scene.

First ensure that each Dimmer has been given a name and a gel colour. This can be carried out either from the Patch Window or from the Intensity Window.

To name a Dimmer in the Intensity Window, either:

- Type in the name on the external keyboard and then press the SET NAME soft button.
- Press SET, then type in the name on the screen keyboard. Then press the SET NAME soft button.

To set a Gel Colour in the Intensity Window, either:

- Type in the colour number on the keypad. Press the SET GEL soft button. Note that colour numbers are assumed to be Lee – proceed the colour with a dot for Rosco colours.
- Type in the colour name (or part of it) on the external keyboard and then press the SET NAME soft button.
- Press SET, then type in the colour name (or part of it) on the screen keyboard. Then press the SET NAME soft button.

Note, you should not press ENTER in any of the above operations as this will try and use the text or number you have entered to set the level for the fader which the cursor is over.

Programming of Dimmers Using Gel Colours

In the Intensity Window you can filter out faders based on gel colour, head type and head name thus providing a view of only the data you are interested in at the time.

Use the top three left rotary encoders / soft buttons to page through head types and gel types. The display will show only the heads and colours that match the selection.

At any time press the VIEW ALL soft button to revert to viewing all faders regardless of head type, head name and gel colour.

Pressing the ALL TO ZERO and ALL TO FULL soft buttons only affects the faders that match the selected filter. For example in order to set all the red lamps to full, page through the gel type till you reach RED and then press ALL TO FULL.

Remember that although you only view the gel type that you have requested there may be other gel types that have been previously activated in the programmer. Press CLEAR before starting programming a new look.

Setting levels whilst running a show

The Intensities Window supports two fader views - Programmer View and Presets View. The faders in each of these views behave differently. In the Programmer View the faders control values within the programmer whilst in the Presets View the faders act like individual preset faders. Intensity channels are generally configured to be HTP so the level of a particular channel will be a combination of the faders in the two views - the highest of the two faders.

It is important to understand the distinction - preset faders do not affect the contents of the programmer and therefore can not be used for programming Cues.

When programming a show you should always use the Programmer View. When playing back a show you may wish to use the Presets View - this has the advantage that since it is not part of the programmer, fader values are not affected by actions on the Programmer such as CLEAR. You could, for example, add in some face lighting from some profiles using faders in the Presets View which would not be affected by effects that you are busking on some moving heads.

Faders in both the Programmer and Presets Views are affected by the level of the Grand Master. They are also affected when a SWAP button is pressed - any HTP channels in the Programmer or the Presets View will be reduced to zero.

Inbuilt Intensity Masters

MagicQ supports an inbuilt Intensity Master for every head and for every group. Master levels default to 100% for all channels and groups.

On Stadium consoles these can be accessed from the Intensity Master bank and the Group Intensity Master motorised fader banks.

On all consoles the Intensity Masters can be accessed from VIEW MASTERS in the Intensity Window. Group Int Masters are only accessible on Stadium consoles.

Individual head intensity levels can be set using the faders in the VIEW MASTERS. To reset a head to 100% (i.e. no master in operation for this head) press the RESET MASTER soft button.

Press SHIFT and RESET ALL MSTRS to reset all inbuilt Intensity Masters and inbuilt Group Intensity Masters. MagicQ requests confirmation before resetting.

Heads that have a Intensity master or Group Intensity Master active are shown in the Output window with (IM).

The state of Intensity masters is stored in the show file.

Note that on loading a show from a Stadium console onto a non Stadium console, the state of the Intensity masters will be retained - but they will not be changeable via playback Banks as these are only supported on Stadium consoles. The RESET ALL MSTRS soft button in the Intensity window, VIEW MASTERS view can be used to reset (deactivate) all the Intensity masters.

Viewing Intensities in the Outputs Window

The Outputs Window includes a View for showing the intensities of all patched channels in a theatrical manner with channels and percentages. Open the Outputs Window by pressing the Out button and select the View Chans soft button.

Controlling Attributes

MagicQ supports many different ways of modifying the values of attributes for moving heads - using encoders, using buttons, and using the touch screen.

In order to control intelligent heads it is necessary to be able to select which heads to use. MagicQ keeps track of the currently selected heads to enable it to determine which heads to apply changes to. You can select heads individually or can use groups to recall configurations of heads that are used frequently.

Head Macros

MagicQ loads macros for the head from the personality file. Typical macros are "Lamp On", "Lamp Off" and "Reset" - however they are very head dependent.

The "Lamp On", "Lamp Off" and "Reset" macros can be run at any time by using the following short-cuts:

SHIFT + LOCATE Lamp on selected heads

CTRL + LOCATE Reset selected heads

CTRL + SHIFT + LOCATE Lamp off selected heads

Other head macros can be accessed in the Macro Window - press the HEAD MACRO soft button. A list of the available macros is displayed. Select the macro you wish to run. Progress of the macro is shown in the Input Display.

It is also possible to lamp on or off all heads from the MACRO window.



Locating Heads

The first action you are likely to want to do is to locate the heads – i.e. to put them into a starting position. Select the required heads and then press the LOCATE button.

Pressing LOCATE, locates all the selected heads. LOCATE places all the attributes of the selected head(s) into the Programmer at their Locate values.

Every Head in the MagicQ library has a set of Locate values and a set of Default values. The DMX values for Locate are part of a heads profile. The Locate Values and Default Values are often the same however there may be some slight differences in the two. These values are set by each manufacturer and outlined in the DMX chart provided by that manufacturer. A good example of this is often the Dimmer channel. The Locate value may bring the dimmer into the programmer at full intensity or DMX value of 255 while the Default value will tell the fixture to default to no intensity or a DMX value of 0

When using Locate typically the shutter is opened, the dimmer is set to 100% (DMX value of

255) and pan and tilt are set to the centre position, (DMX value of 128) You can Locate attributes individually by holding down one of the Pos, Col, Beam, or Intensity buttons and pressing Locate. Only attributes of that type are Located and placed into the programmer.

Locate values are ‘active’ in the sense that the operator has to activate or hit the Locate button to bring the Locate values in to the programmer. Default values are ‘passive’ in the sense these values tell the fixture what DMX values to default back to when no information is in the programmer.

Modifying Attributes

Intelligent heads have several different attributes typically including pan and tilt, colour, gobo and iris. When MagicQ patches an intelligent head it maps the head parameters to standard attributes to enable easy access of the features of the head.

Attributes are categorised into four types – Intensity, Position, Colour and Beam. On MagicQ there is a window for each of these attribute types. Select the required heads, then open the required window.

The window enables the control of all the attributes of that attribute type using the eight rotary encoders. In the Beam Window there are more than eight attributes to be controlled – these are accessed using multiple pages of encoders – by pressing the PAGE 1, PAGE 2, PAGE 3, PAGE 4 or PAGE 5 soft buttons or pressing the BEAM button again.

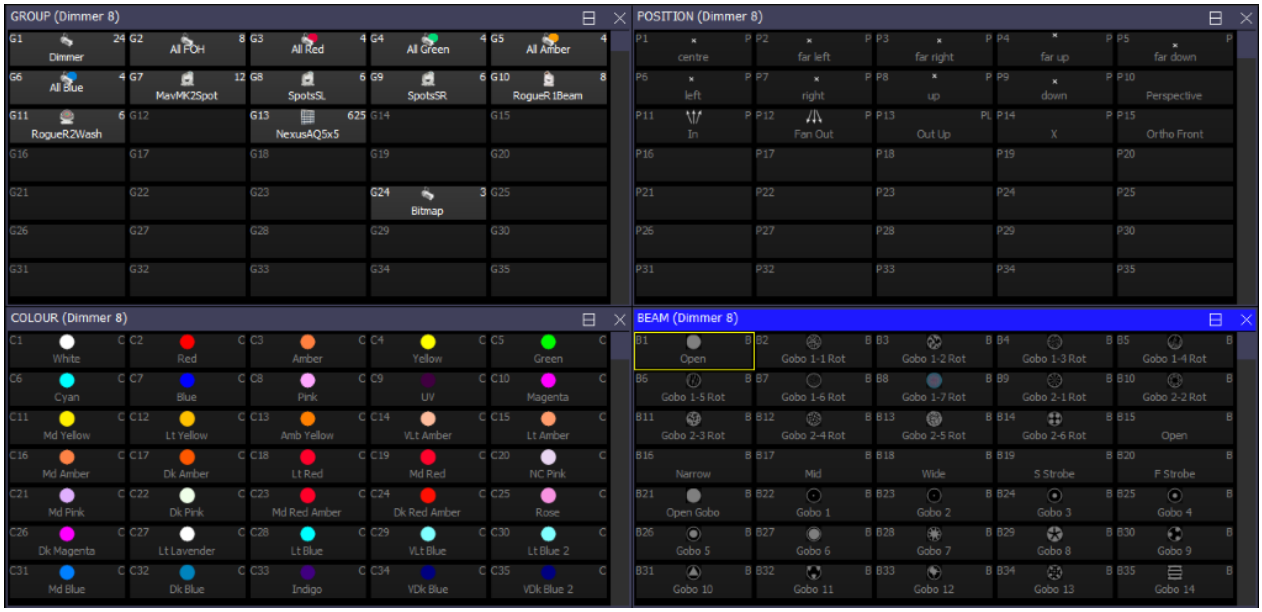
For indexed attributes such as colour wheels and gobo wheels, the button associated with each encoder can be used to bump the attribute value to the next range. Pressing SHIFT and the button bumps back to the previous range.

In addition the window enables selection of palette values for the attribute type using the touch screen. When heads are recorded the system automatically generates palettes for each attribute type. You can record new palette entries, or modify existing ones as you see fit.

In the Colour Window there is a COL MIX soft button which gives access to libraries of pre-programmed colours. Pressing the COL MIX soft button toggles between the normal palette view and the colour mixing view. In the colour mixing view you can select a colour using the touch screen. The COL TYPE soft button enables the user to choose between the default colour library, the Lee colour library or the Rosco colour library.

To modify a 16bit parameter in high (i.e. 16 bit resolution), hold SHIFT and turn the appropriate encoder.

Layout 1 opens the Group, Position, Colour and Beam windows together.



Colour Attributes

There are 13 colour attributes. The core colour mixing attributes are Cyan (Red), Magenta (Green), Yellow (Red), Amber, White and UVLime.

The colour wheels are Col1 and Col2. In addition there is CTC, CTO, Col5, Col6, and Col Speed.

The Colour Window now supports two pages of colour attributes. Page 1 is for the core colour mixing - Red, Green, Blue, Amber, White, UV Lime and the main 2 colour wheels Col1 and Col2. CTC and CTO default to encoders A and B on Colour Page 2.

The Col Mix option in the personalities (Head Editor, View General, Options tab) specifies which attributes are being used for colour mixing.

For heads with HSI or HSV models, Hue is always on the Cyan/Red attribute and Saturation is on the Magenta/Green attribute. The Col Mix option is set to HSI to enable MagicQ to recognise these heads.

Colour temperature can be set onto CTC, CTO, Col1 and Col2 colour attributes in the Colour Window, and the current colour temperature will be show shown based on the range name info in the Head personality. For example, typing SET 3500 and pressing the soft button for CTC will attempt to set the CTC attribute to be 3500K. Turning the encoder will show the colour temperature as per the range names, interpolating between the different ranges.

Flip / Mirror

Flip modifies the pan and tilt parameters of a moving head so that the beam is positioned in the same place but from the other end of its movement ranges. Select the heads and then press the FLIP soft button in the Position Window.

Use the MIRROR soft button in the Position Window to only invert the Pan attribute and not the tilt attribute. On older software versions press SHIFT + FLIP.

Stadium consoles include a dedicated MIRROR button. On Compact consoles press ALT + FAN.

Setting Attribute Values Using the Keypad

You can set attribute values directly by pressing SET, entering the value on the keypad and then pressing the soft button for attribute in the Intensity, Position, Colour and Beam windows.

Reversing Rotations

To reverse the rotation direction of gobos in the selected heads, hold the MIR button and press the soft button for the rotate attribute (e.g. soft button E and F in beam Page 1).

On MagicQ PC or on systems without a MIR button, press SET and type "-" before pressing the soft button.

Each of the heads will be reversed individually - if heads have a mixture of clockwise and counter clock wise rotation, then each head will be reversed so that you then have a mixture of counter clockwise and clockwise.

Snap Colour

Snap colour sets all selected Heads to the same colour values as the first selected Head. Snap Colour is available via ALT + ALL.

Default Colour

Default colour sets all selected Heads to the default colour of those Heads. If the colour is already the default colour then sets them to red. Default Colour is available via ALT + LOCATE.

Highlight Mode

Highlight mode is used in conjunction with Single mode and Odd/Even mode. There are four possible modes of operation depending on the setting in the Setup Window of the Highlight Mode - "Normal", "Advanced (highlights/lowlight)", "Advanced Highlight only" and "Advanced, no reset".

In "Normal" mode, the intensities of the selected heads are reduced except for the one (or ones in Odd/Even mode) that are being controlled. Highlighting of the controlled head(s) makes programming of positions much easier.

In "Advanced (highlight/lowlight)" mode, the selected heads are highlighted using the highlight values from the personality. If heads from the current selection are sub selected (e.g. through Single or Odd/Even) then the sub selected heads are highlighted and the remaining heads in the selection are lowlighted.

"Advanced Highlight Only" is the same as above, but no lowlighting occurs. If heads from the

current selection are sub selected (e.g. through Single or Odd/Even) then only the sub selected heads are highlighted - all other heads remain at their playback state.

"Advanced no reset" is the same as "Advanced (highlight/lowlight)" but is not cleared when you press CLEAR. Press Highlight again to reset it.

When in Highlight mode the LED on the HIGHLIGHT button is lit - pressing the HIGHLIGHT button again or the ALL button returns the head control area back to the default mode.

Lowlight Function

A lowlight function is accessed by pressing SHIFT and HIGHLIGHT. When active the selected head is lowlighted to the value in the personality. This allows each head in the current selection to be temporarily lowlighted to try to find a particular head – without making a massive change to the current lighting state.

Highlight mode must be set to Advanced highlight/lowlight.

Solo Function

A Solo function is accessed by pressing CTRL and HIGHLIGHT. When active the selected heads are soloed with all other heads at 0% intensity.

Sub Selection and Highlight

Support is provided for stepping through elements of a Head using NEXT HEAD and PREV HEAD. Highlight and Lowlight are now supported when Global Elements, Head Elements and Function Types are active. Previously Highlight and Lowlight always operated on the entire Head.

Press SHIFT + NEXT HEAD or SHIFT + PREV HEAD to step through elements. Press SHIFT + NEXT HEAD, PREV + NEXT HEAD or ALL to revert to stepping through Heads again. It is possible to directly start stepping through Head Elements without first pressing NEXT HEAD or PREV HEAD.

If Global Elements, Head Elements or Function Types are active then only those elements that are part of the Global Elements, Head Elements or Function Types are stepped through. Reverting to stepping through Heads will revert to the previous Global Elements, Head Elements or Function Types. This, for example, enables the Tornado LEDs to be stepped through in turn, setting the required Tilt.

Similar to when sub selecting Heads, when sub selecting Head Elements the Status line indicates the sub selected Head Element and its current intensity.

Note that from 1.9.8.2, when Element selection is in operation and NEXT HEAD is pressed MagicQ will step through entire Heads one by one. In previous versions MagicQ would step through Global Elements - i.e. it would do element 1 in all Heads followed by element 2 in all Heads etc...

As in previous software, pressing . followed by NEXT HEAD or PREV HEAD steps through

Global Elements.

Remove Dimmer (Rem Dim) Function

The keypad now supports functionality to enable selecting of individual selections of heads and automatically setting all other heads to zero intensity – this is similar to the "Rem Dim" function found in some other theatre consoles. After selecting heads or setting intensities for heads, type - -.

For example, 1 THRU 4 @ FULL - - will set heads 1 to 4 at full intensity and all other heads in the programmer will have their intensity set to zero.

4 THRU 8 - - will bring heads 4 to 8 at full intensity into the programmer, whilst all other heads in the programmer will be set to zero intensity.

Fan Mode

The FAN button enables a different mode of operation of the encoders whereby instead of encoder changes being applied to each selected head in a linear fashion, changes are applied in a fan. Positive changes fan the heads apart whilst negative changes fan the heads together. Fan mode cannot be used when Single mode is are active since fanning only makes sense when more than one head is under control.

Pressing and holding the FAN button enters FAN mode temporarily. Releasing the FAN button returns to the normal mode.

When you press and hold FAN you get a toolbar on the screen that gives you direct access to fanning options. On MagicQ PC you can press SHIFT + FAN to bring up the FAN toolbar.



There are 3 types of FAN

Asymmetric (default, as in previous s/w) – fans from centre asymmetric

Symmetric – fans from the centre symmetric

End – fans from the end

It is possible to use "Parts" for fanning parts so that the fan is replicated across the selected heads. For 2's, 3's select the 2 Parts or 3 parts. For higher number of parts, use the N parts option and entering a number on the keypad. In FAN mode the current FAN type and parts is shown in the status display window (Fan-A, Fan-S, Fan-E).

It is possible to use "Segments" for fanning segments – adjacent heads do the same fanning.

It is possible to use "Groups" for fanning. When fanning by groups, the fan is performed on each group in turn as if the group contained the only selected heads. This enables a fan to be

simultaneously applied to groups of different sizes.

It is possible to use "Chunks" for fanning chunks. Fan Chunks are particularly useful in Group Cues - they enable Groups always to be split into set number of chunks for fans and fade times regardless of the number of Heads in the Group.

Fanning by segments overrides fanning by parts. Fanning by groups or chunks overrides fanning by parts or segments.

The following short-cuts also work:

Hold FAN + press LOCATE. Returns to default FAN type – asymmetric.

Hold FAN + press NEXT HEAD. Chooses next FAN type.

Hold FAN + press PREV HEAD. Chooses previous FAN type.

Applying Palettes from the keypad

When the Select Heads and Palettes from keypad option in Setup, View Settings, Keypad & Encoders is set, Palettes can be selected directly from the keypad.

COL 4 ENTER	Sets selected heads to Colour palette 4
GROUP 8 COL 4 ENTER	Sets Group 8 heads to Colour palette 4
GROUP 8 COL 4 BEAM 5 ENTER	Sets Group 8 heads to Colour palette 4 Beam palette 5
101 COL 4 BEAM 5 ENTER	Sets Head 101 to Colour palette 4 Beam palette 5
GROUP 8 @ FULL FX 3 ENTER	Sets Group 8 to 100% with FX 3

Palettes

MagicQ supports a comprehensive palette system for easy access to your favourite looks. When heads are patched, the console automatically generates palettes for the patched heads.

There are four types of palettes corresponding to Intensity, Colour, Beam and Position. Each palette supports up to 1000 different entries.

Using Palettes

There are four types of palettes corresponding to Intensity, Colour, Beam and Position. Each palette supports up to 1000 different entries.

To use a palette, select the heads you wish to apply the change to. Then open the required palette by selecting one of the Intensity, Colour, Beam or Position Windows.

From within the window select a palette entry. That palette entry will be applied to all the selected heads.

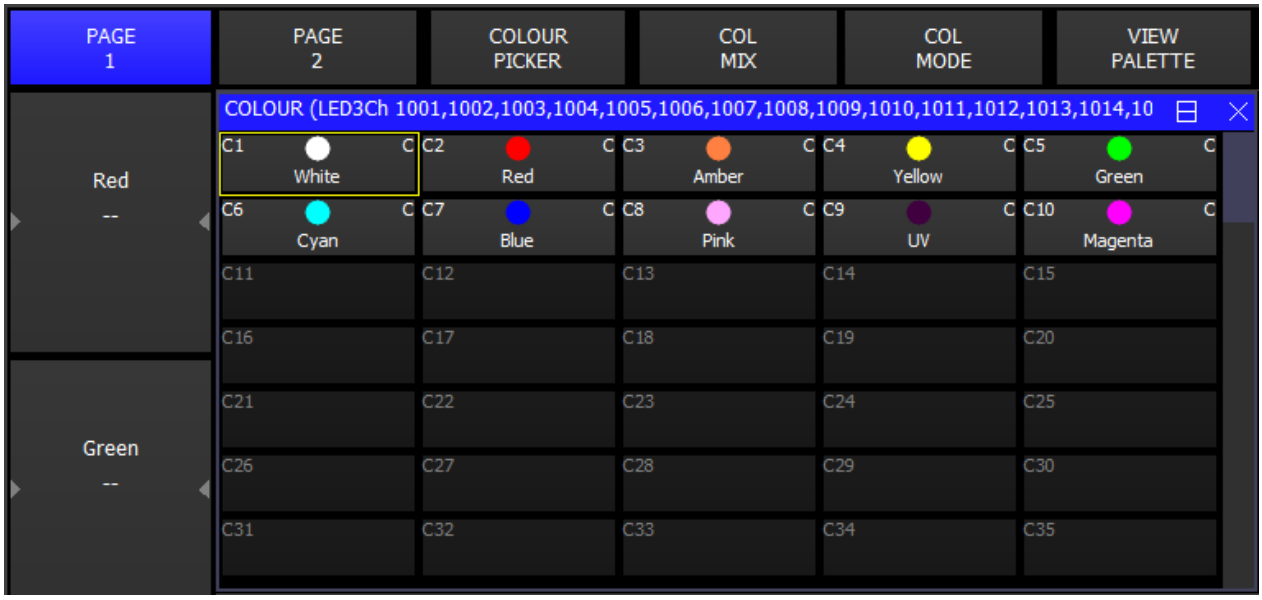
In the Beam Window the first 5 soft buttons above the touch screen are used for selecting the Beam Page 1 to 5 – the rest of the soft buttons are used for selecting the palette entries.



Palette entries that contain data for the currently selected heads are shown in white. Palette entries that do not have any data for the currently selected heads are shown in grey.

In the Colour Window the top soft buttons Col Norm, Col CMY, Col RGB and Col HSI determine how the colour mix encoder wheels are used to modify the colour.

Col Mix is used to select between Palettes and the Lee, Rosco and Generic colour charts and also to select the colour mixing rainbows.



Recording Palettes

To record a palette entry, select the heads you wish to apply the change to. Then open the required palette by selecting one of the Intensity, Colour, Beam or Position Windows.

Modify the attributes of the heads until you are happy with them. Then record the palette entry by pressing RECORD and then selecting the palette entry in the window.

When you record a palette entry that has already been used in programming of Cues and Cue Stacks then the Cues and Cue Stacks will be updated to reflect the changes. This is useful, for example, for touring shows that play many different venues. If the Cues use positions from the Position palette, then each day it is only necessary to change the palette entries, rather than having to re-record all the Cues.

When palettes are recorded, only the attributes appropriate to the palette are recorded. For example when recording to a colour palette, only colour attributes are stored. By default, the console records all the attributes appropriate to the palette, regardless of whether you have adjusted them in the programmer.

Palette values are shown in the Output, Programmer and Cue windows by a small black rectangle in the bottom left corner.



Recording Individual Attributes into a Palette

You may wish only to record only certain attributes into a palette entry – e.g. only the shutter attribute into the beam palette. You can modify the way the console records palettes using masking in the Record Options window. Open the Record Options Window when recording by

holding SHIFT and pressing RECORD. Alternatively press the REC OPTIONS soft button in the Programmer Window.

Press the REC INT, REC POS, REC COL, REC BEAM soft buttons to apply masking based on attribute type. Select attributes in the window to apply masking based on individual attributes. For instance to store only the shutter attribute, press the SHUTTER attribute.

In some circumstances you may wish to record other attributes into a palette – e.g. intensity into a beam palette. Simply press the appropriate buttons in the Record Options Window. The Palette entry shows I, P, C, B to indicate which attributes are stored in the Palette.

Once the Palette entry is recorded the masking options are returned to their defaults. You can lock the mask so that it is not returned to the defaults by pressing the LOCK MASK soft button in the Record Options Window.

Recording Only the Selected Heads

By default when recording palette entries, changes are only made for selected heads. The modifications are merged with the existing palette entries.

To ensure that all heads that have been changed are updated, press CTRL + ALL to select all heads in the programmer before re-recording the palette entry.

It is possible to set the "Recording to Palettes" option to "All Heads in Programmer" to force all heads that are active in the programmer to be updated in the palette rather than just the selected heads.

Recording a Palette for all Heads of a Head Type

The Record Type "All active head type" will record to all Heads of that type regardless of the number of active Heads. This enables using a single Head to adjust the Palette, but immediately recording it to all Heads of that type.

Only attributes for Heads that are active in the programmer will be updated.

Attributes for Heads that are in the Programmer will be recorded into the Palette as normal. Heads that are not active in the Programmer, but where at least one Head of that type is active in the Programmer, will be added or modified in the Palette using the first active Head of that type from the Programmer.

Intensity Palettes

The Intensity window has a View Palettes view similar to the Position, Colour and Beam windows. Palettes can be recorded, moved, copied and removed and used within Cues just as with Position, Colour and Beam palettes.

By default only Intensity parameters are recorded into the Intensity Palettes regardless of whether other attributes are in the programmer. A record mask (SHIFT + RECORD) can be used to override which attributes are recorded.

The only difference with Intensity Palettes compared to Position, Colour and Beam palettes is that by default the record type is set to all heads that have intensity in the Programmer being recorded into the Palette not just the selected heads. This avoids the need to always select heads (e.g. by selecting the All Dimmers group) before recording an Intensity Palette. The record type can be changed by pressing SHIFT RECORD and selecting RECORD TYPE.

To record intensity into a Colour, Beam or Position Palette hold SHIFT and press RECORD to open the Record Options Window (as above) and select the REC INT soft button.

Duplicate Elements in Palettes

In normal operation heads with duplicated elements are treated as if there is only one element of each attribute. MagicQ automatically copies the output from the 1st element to the duplicated elements. This enables the head to be treated in a simple way like any other head.

If you have element specific data in the Programmer then it will be recorded into a Palette during the normal Palette record operation.

If you recall the palette without a duplicated element selection active, it will only recall for the 1st element, so the duplicated elements will be the same as the main element. If you sub select all duplicated elements before applying the palette then you can recall the element specific data.

You can sub select all duplicated elements by doing e.g. .1 THRU 3 to sub select the 3 elements.

You can store the duplicated element selection in Groups, so you could make a group with no duplicated element selection and one with all duplicated elements selected.

To select all elements of duplicated heads.

1. > NEXT HEAD

OR

1. > @@

To go back to normal selection (i.e. no duplicated elements selected)

1. NEXT HEAD

OR

1. @@

Naming Palettes

A palette can be named when it is recorded by keying in the name before selecting the palette entry to record.

A palette can be named at any time by keying in the name, pressing SET and selecting the

palette entry. If you are not using an external keyboard the select the palette entry, press SET and enter the name on the on screen keyboard.

Updating Palettes

A palette can be updated simply be selecting some heads, applying the palette and then re-recording the palette. MagicQ automatically merges into the changes from the Programmer into the existing Palette.

Only the heads that are selected when you re-record the palette will be modified in the palette - other heads recorded in the palette will not be changed.

The attributes active in the Programmer for that attribute type (Intensity, Pos, Colour, Beam) are added to the palette regardless of whether they were in the Palette before. From v1.9.2.0 it is possible to specify a RECORD UPDATE whereby only attributes that are already in the Palette are updated. Hold UPDATE and press RECORD or press SHIFT and RECORD to select REC UPDATE.

A complete palette can be edited using Include and Update. Press Include and then select the Palette entry to include the entire palette into the programmer. The console automatically selects all the heads that are in the Palette entry. Modifications can then be made in the programmer, and when complete pressing Update stores the changes back to the Palette.

Copying and Moving Palettes

Palette entries can be moved and copied just like any other window item.

When a palette entry is moved, programming follows the palette entry - i.e. if you have a Cue which uses a Colour palette entry, then moving that Colour palette entry, will cause the Cue to be updated to continue to reference the palette entry.

Removing Attributes from Palettes

You can delete an entire palette entry by using REMOVE as with any window item.

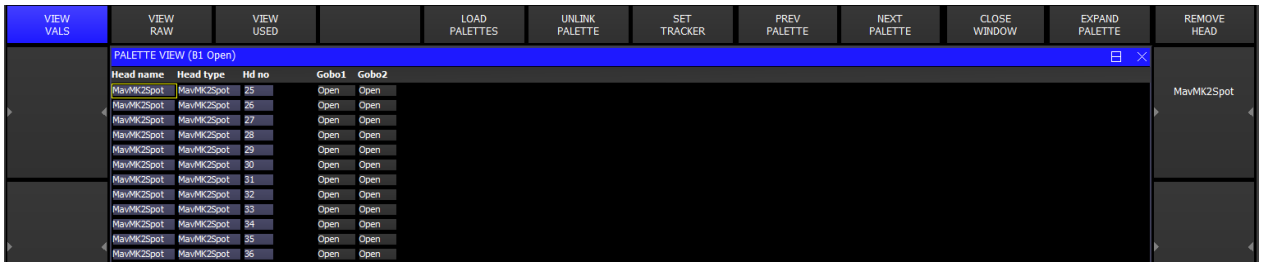
To remove specific attributes from a palette entry you can use the REC REMOVE record option. This works in a similar way to the normal record mode – except that where items in the programmer are normally merged into the palette entry, they are now removed.

The MASK IPCB and MASK ATTRIB record options enable selection of which options are deleted as for normal recording of palette entries.

For example, to remove the shutter attribute from a previously recorded beam palette entry; clear the programmer, select the heads, and modify the shutter attribute only. Then press SHIFT and RECORD, and select the REC REMOVE and MASK ATTRIB, Shutter record options. Then select the palette entry.

Viewing / Editing Palette Contents

You can view the contents of a palette entry at any time by pressing the VIEW PALETTE soft button in the Intensity, Pos, Colour, and Beam windows. This opens the Palette View window and shows the contents of the palette entry that the cursor was on.



Note that the View Palette window shows the entire contents of the palette entry regardless of which heads are currently selected. You can modify the contents of the palette entry by editing the values in the spread-sheet. You can remove values, entire heads, or entire attributes from the palette entry using the REMOVE button.

The View Palette, View Used window can be used to determine how many times Palettes have been used within a show.

The View Palettes window shows whether Palettes are linked to other Palettes (highlighted in Red). There is a button to unlink the specific Palettes or using SHIFT, to unlink all the Palettes of that type (Position, Colour or Beam). Unlinking removes links within the Palettes to other Palettes – it does not affect the links within Cues.

It is possible to step through the different Palettes using the Next Palette and Previous Palette buttons.

Linked Palettes

If you select a Palette and then record it as another Palette without changing any of the attributes then all the values in the new Palette will be linked to the first Palette. Changing any of the attributes in the first Palette will change the attributes in the new Palette. This is a linked Palette. MagicQ shows a L in the Palette entry to indicate a linked Palette.

When you change attributes using the encoder wheels or soft buttons then the Palette will contain hard values instead of links.

Only one level of linking is allowed – a Palette can link to another Palette, but it is not possible to link to further Palettes.

It is possible to unlink a Palette from the Intensity, Pos, Colour and Beam Window and also from the View Palette Window.

Put the cursor on the palette to unlink, or cursor select multiple palettes. Then press UNLINK PALETTE.

To unlink all palettes of that type (Intensity, Position, Colour or Beam) press SHIFT + UNLINK

ALL PALETTE.

Using Palettes with Times

Palettes can be applied with a time by simply typing in a number of seconds before selecting the Palette - this is very useful for quickly setting fade times when recording Cues or for busking in effects. In addition you can use FAN mode to quickly spread different times across a number of heads.

For example, typing in 3 before selecting a position will cause a fade to the position over 3 seconds.

Typing 0 THRU 3 before selecting a position causes the heads to move to the position with a spread of 3 seconds - i.e. the first head moves immediately whilst the last head takes 3 seconds.

To fan delays, rather than fade times, type delay / fade – e.g. for 1 second fade but delayed from 0 to 3 seconds type 0 THRU 3 / 1 before selecting the palette.

A short-cut can be used to perform fanned delay/fades – type a time followed by * before selecting the Palette to fan the fade across the currently selected heads.

<time> *	Fan times across selected heads
<time> * /	Reverse fan
<time> * +	Into centre fan
<time> * -	Centre out fan
<time> *.	Random
*	Use last fan time

The above shortcuts fade each of the selected Heads in turn - thus the fade time of each Head is the total time divided by the number of Heads. To specify a fade time for each of the Heads the shortcuts can be extended with a Head fade time, for example:

<time> / <head time> *

Applying Palettes with times and fanned times can be applied to all Palette types including Beam and Colour. For example to perform a gradual fade from one colour to the next over all your colour mixing heads, select the heads, 0 THRU 5 before selecting a colour palette entry.

You can modify the order that a fan is applied to heads by selecting the heads in the appropriate order - at any time you can invert the order using the Selection soft button in the Group Window.

Whenever a Palette is selected with a time the times are stored in the programmer. This makes it very easy to build up Cues with times. Simply select the Palettes you want with the required times and Record the Cue. The Cue will playback with the required times.

Fading over Group Grids

The following short cuts are supported when applying Palettes for normal Cues and when using Group Cues:

*..	Fade left to right across Group Grid
*//	Fade right to left across Group Grid
*++	Fade out to in on Group Grid
*--	Fade in to out on Group Grid
*+-	Fade centre out to in on Group Grid
*-+	Fade centre in to out on Group Grid
*...	Fade top to bottom across Group Grid
*///	Fade bottom to top across Group Grid
* + +	Fade top out to in on Group Grid
*---	Fade top in to out on Group Grid

For example to fade Colour palette 2 left to right across the Group Grid over 3 seconds enter

COL 2 / 3 * +

As with the existing shortcuts the fade time can be controlled by entering <total time> / <fade time> before the short cut, e.g. perform an inter centre fade to Colour 2 with each pixel fading for 3 seconds with total 10 second fade enter:

COL 2 / 10 / 3 * + -

When using Group Cues these timing short cuts are stored in the Cues so changing the Group (and Group Grid) will automatically update the Cues.

Using FAN

You can set both delay and fade times in FAN mode by entering delay / fade. For example to move all your heads onto a position in turn, type 2 / 2 before selecting the position.

Minimum fade times can be applied using the + operator, for example to perform a fade of between 2 and 6 seconds to a new position on a group of heads enter FAN mode, type 2+4 and select the new position. The first head will fade over 2 seconds whilst the last will fade over 6 seconds.

To use both minimum delay and fade times type, for example, 2+4/3+5. This gives delay times of between 2 and 6, and fade times of between 3 and 8 seconds.

Making Palettes into Cue Stacks

You can copy one or more palettes from the Position, Colour or Beam windows to a Playback (use SHIFT + cursor keys to select multiple items). This enables quick generation of Cue Stacks

based on your palettes.

The Cue Stack will include one Cue for every Palette selected. The Cues will contain values from the Palette for the currently selected heads. Other attributes can be added using Record Merge.

If a Cue Stack already exists on the Playback, then the extra Cues are appended to the end of the Cue Stack.

Copying a Group to a Playback makes a Cue with Intensity at 100% for all the channels in the Group. Selecting multiple groups using the cursor (SHIFT + cursor keys) and then copying to a Playback creates a multi step Cue Stack of intensities – one Cue step for each group. This is an easy way to create, for example an intensity chase of your different moving light groups or your different par can colour groups.

Selecting Palettes from the keypad

You can select palettes from the keypad. Enable the Setup Option, "Select channels in Beam, Col, Pos". To select a palette use:

COL 5 ENTER

BEAM 3 ENTER

Timed fades can be entered at the same time – e.g. to apply colour palette 5 with a time of 4 seconds spread across all the selected heads:

COL 5 / 4 * ENTER

It is possible to record, include and remove Palettes from the keypad:

RECORD GROUP <group number> ENTER

RECORD POS <palette entry> ENTER

RECORD COL<palette entry> ENTER

RECORD BEAM <palette entry> ENTER

Merging of Palettes from Another Show

It is possible to merge Palettes from any previous show that uses the same type of heads - you can select the palettes from a specific head or all the heads that match with your current show.

It is possible to select Intensity, Position, Beam or Colour palettes, or combinations of the three attribute types.

To import the Palettes, press the LOAD PALETTES soft button in the View Palette window.

Select Add to only add the Palettes as new Palettes, or select Merge to merge those that match

existing Palettes names and icons and add the unmatched ones as new Palettes.

Select All to load Palettes for all Heads in the show file, or Choose to select which Heads from the show file to use. Select Default Pal to only load Default Palette info from the show file.

When MagicQ merges Palettes with existing Palettes it ignores any default Palette information in the loaded Palettes, retaining default Palette information from the existing Palette. When adding Palettes any default Palette information is loaded into the new Palette.

Select Match DMX to only import Palettes that match the DMX address of those in the show. Select Match Head No to only import Palettes that match the head number of those in the show. Select Expand Head Type to import the Palettes for all heads of that head type in the show.

Alternatively from the Setup Window press the SHIFT + IMPORT SHOW soft button and select Palettes.

From v1.9.8.0 when Importing Palettes from another Show it is possible to load Palettes even if the Fixture was in a different mode - MagicQ will match attributes.

Modifying Palettes in the personality

When palettes are recorded they become part of the show data and can be used during programming of the show. Recording palettes does not affect the personality file. This ensures that changes you make for the purposes of the show do not affect future shows.

It is sometimes necessary to update the personality file - either because the data in the personality file is incorrect, or to add extra palettes entries to the personality.

Pressing SHIFT when you select the palette entry to record, causes the changes to be copied through into the personality.

Note that if you have confirmations turned on then press SHIFT when you click on Yes in the confirm box rather than when you select the item.

When recording through into the personality file, the console takes the first selected head and copies the data associated with the palette entry you selected into the personality file. If the palette entry is already in the personality file (i.e. there is a palette entry with the same name as the one you selected) then that palette entry is replaced. Otherwise a new palette entry is created in the file.

You can examine the personality file, by going into the Patch Window and pressing the Edit Head soft button. Then press the Select Head button to choose the personality to examine.

Note that we recommend Importing Palettes rather than modifying the Personalities wherever possible. This ensures that you benefit from any updates ChamSys make to the personality.

Capturing Palettes from DMX input

You can program palettes by capturing real DMX data from another consoles. This provides a handy way of converting show data from one console type to another, or to back up data from one console on another.

In order to use DMX Capture the Input Universes in Setup, View DMX I/O must be set up to correctly receive data from the network or from MagicDMX.

First select the heads you are interested in. If no heads are selected then data will be captured for all heads.

Manual Palette Capture

In View Palette window use the PREV or NEXT buttons to move to an empty palette. Then use the CAPTURE PALETTE soft button to capture the values of this palette type (Intensity, Pos, Colour, Beam) and record them into the Palette.

If no heads are currently selected then capture is for all heads, otherwise only data for heads that are currently selected will be captured.

Auto Palette Capture

For auto capture, press SHIFT + AUTO CAPTURE. MagicQ will now automatically capture a palette of this palette type and save it to a free palette entry every time the DMX input changes. Press STOP capture to stop auto capturing palettes.

To use this function with another console first set up the DMX input then press AUTO CAPTURE and on the other console select all the different palettes for capture in turn. MagicQ will detect when it is receiving different data and will record a new palette for each one.

Manual Capture from Palette Windows

Change to the appropriate Palette Window - Intensity, Position, Colour or Beam.

Press CTRL and RECORD then select a Palette entry – this will load the DMX input data for the selected heads into the programmer and record it into the specified Palette entry.

Manual Including into the Programmer

Alternatively use Include to get the data into the programmer and record the Palette entry in the normal way for recording palette entries.

Press CTRL and INCLUDE and then ENTER. This will include the DMX input data for the selected heads into the programmer. The data can then be stored into a Palette in the usual way using RECORD.

You can grab all attributes of a moving head by changing to the Group window, pressing CTRL and INCLUDE, then ENTER.

Expanding Palettes

The Expand Palette function allows data in Cues to be expanded to use all attributes from a Palette. For example, consider a show that is using heads with RGB colour mixing but now has been morphed to heads with extra colour wheels. The Cues programmed into the show do not have the extra colour wheel info - they just have RGB attributes. With Expand Palette it is possible to program the extra colour wheel attributes into the Palette and then expand the Palettes into all the Cues that use the Palette.

In the Intensity, Position, Colour or Beam Window press EXPAND PALETTE.

All programmed Cues that contain heads that use the Palette are expanded. Only heads that are already in the Cue, and that have at least one attribute using the Palette are expanded - it does not affect heads that are not in the Cue or heads that have no attributes from the Palette in the Cue.

To expand a range of palettes, open the Intensity, Position, Colour or Beam window, cursor select the required palettes and then press EXPAND PALETTE.

Heads that have some attributes in the Cue referencing the Palette but others using hard values, will convert the hard values to use the values from the Palette.

Heads that have some attributes in the Cue referencing the Palette but others using other Palettes, will not change the attributes that are using other Palettes.

To expand all the Palettes of a particular type press SHIFT + EXPAND ALL PALETTE. This will expand all of the Palettes in that Window.

Expanding Palettes is also supported in the View Palettes window.

Replacing Palettes in Cues

To replace Palettes in one or more Cues in a Cue Stack with different Palettes, for example to change all the channels using the Green palette to use the Red palette.

In the Intensity, Position, Colour or Beam windows press REPLACE PALETTE. Then select the palette to replace, the new palette, and then the Playback to replace in.

If heads are selected in the programmer then the change will only affect the selected heads. If no heads are selected then all heads that use the palette are affected.

It is possible to select a specific Cue or a range of Cues by entering the Cue numbers before selecting the Cue Stack. If no Cues are specified then MagicQ will prompt whether to use the current Cue or all Cues in the Cue Stack.

Only channels that were already in the Cue will be changed - no new channels will be added. Channels that are using the original Palette but which are not in the new Palettes are unchanged.

Both levels using Palettes and FX using Palettes are changed.

To replace in multiple Cue Stacks or Cues then follow the steps above but instead of selecting a Playback, open the Stack Store or the Cue Store, cursor select the required Cue Stacks or Cues and the press ENTER.

Tracker Palettes

Tracker Palettes are special palettes that use a remote tracker device rather than absolute values stored in the palette. MagicQ supports several different remote tracker protocols and can receive information for up to 100 Trackers. See Setup, View Settings, Network, Tracker rx.

By setting a Palette to be a Tracker Palette then wherever the Palette is used the channels follow the tracker device with an optional offset. Tracker palettes recorded with values of 128 for the pan and tilt attributes (0 degrees pan and tilt) will have no offset. Any other values will function as an offset to the tracker device.

To set a Palette as a Tracker Palette go to View Palette and press the SET TRACKER soft button. Then select Tracker and enter a tracker ID.

To unset a Palette as a Tracker Palette press SHIFT UNSET TRACKER or press SET TRACKER and select none.

The Tracker controls the base position. It is therefore possible to add a FX on top of the tracker position - for example spots could be set to run a circle around the Tracker position of a moving car.

When a channel changes from control by an absolute value or normal Palette to a Tracker Palette then it uses the fade times to crossfade between the original position and the tracker position.

When a channel changes from control by a Tracker Palette to a absolute value or normal Palette then MagicQ used the fade times to crossfade from the tracker position to the new position.

XYZ Palettes

XYZ Palettes are a specific kind of Tracker Palette that uses a fixed XYZ position instead of fixed pan and tilt positions.

XYZ Palettes store a single global XYZ reference position in the Palette. All Heads in the Palette can also have an X and Z offset from the global XYZ reference position.

In a XYZ palette the "pan" value refers to an X offset and the "tilt" value refers to Z offset. The values are in meters, and range from -127m to +127m from the global XYZ position.

X offset and Z offset values of a XYZ Palette can be edited directly in the View Palettes window.

When a XYZ Palette is created from a single Focus Hold position then the Global XYZ Palette is used by all Heads. The specific X and Z offsets for all Heads are set to 0. When created from a

Focus Line position the Global XYZ Palette is the starting XYZ position of the line and each Head has X and Z offsets along the line so that the last Head has an offset for the end of the line.

From 1.9.6.0 it is possible to merge / record into a XYZ Palette. The positions of Heads can be updated in the Palette and new Heads can be added in. If Focus Hold or Focus Line is active then the XYZ positions in use for the Focus Hold / Focus Line for the selected Heads are used, otherwise MagicQ converts the pan and tilt values from the Programmer for the selected heads into XYZ values.

You can rezero a XYZ palette around x=0, z=0. Use the "REZERO XYZ PALETTE" soft button in the Palette View window. This resets the XYZ position of the Palette to 0/Y/0, adjusting the X and Z offsets of each Head accordingly to keep the same actual XYZ position of each Head. This makes it easier to understand the offsets in the Palette View as they are all based around 0/0/0. It does not make any difference to the Output.

Palettes can be converted from Normal to XYZ Palettes and also from XYZ to Normal Palettes through the SET TRACKER soft button in the VIEW PALETTE window. There may be a small percentage change when converting.

Note that Setup, View Settings, Network, Tracker rx must be set to Internal or one of the external tracking protocols for tracking of fixed XYZ positions and objects. If it is set to None then no tracking will take place. Whenever this Palette is used, each Head will be positioned according to the specific Head XZ position. The Y (height) is common to all Heads in the Palette.

Crossfading between two different XYZ Palettes is supported, but note that it is handled completely separately to normal pan and tilt channels - therefore transitions between different XYZ Palettes and between XYZ Palettes and normal pan/tilt values may work differently.

As this is a new feature, users are recommended to keep any programming using XYZ Palettes as simple as possible and to prove the programming works as expected with a Visualiser prior to rehearsals / show.

Default Palettes

Palettes can now have default values. Default Palette values are not specific to a particular head and can exist in a Palette even when there are no channels from Heads in the Palette. This is particularly useful for Group Cues where Heads may be removed from a show and new Heads added.

Default Palettes are automatically created whenever a Palette is recorded or updated according to the Auto Create Default Palettes setting. Prior to v1.9.4.2, default palettes were only created if Group Cues was enabled. Default Palette generation can be controlled by the Auto create Default Palettes option in Setup, View Settings, Cue Storage.

The Palette defaults are shown on the top row of the Palette View window. Default Palette values can be created using the DEFAULT PALETTE soft button in the Palette View window.

MagicQ uses the existing channel data in the palette to create the values for the default attributes. Where attributes have range with range types - e.g. narrow iris, then the attribute will be stored as a range type rather than a hard channel value. This enables the default to be correctly applied to new Heads added to the Palette.

Colour Palettes have additional information - they store a CIE X/Y value for the colour from the palette. Creating a Default Palette for a Colour Palette automatically creates a CIE X/Y value for the Palette. MagicQ uses the existing channel data to calculate the CIE value.

Press SHIFT + DEFAULT ALL PALETTE to add default values to all Palettes.

Press REMOVE on the Default Palette row to remove the Default Palette. To remove the Default Palette (including CIE X/Y values) from all Palettes press SHIFT + REMOVE DEF ALL PALETTES.

If required, the CIE value can be set on a Colour Palette without creating a Default Palette - press the SET CIE soft button to set a CIE value for the Palette. Press SHIFT + UNSET CIE to remove the CIE value.

The Palette default value is automatically used in Palette FX and Group Cues where there is no explicit channel data stored for selected heads in the Palette. This avoids the need for having explicit Palette data for all heads which reduces the show file size.

The Palette Default values are not currently used by Cues using individual Head data Palettes - this requires explicit channel data in the Palette.

To expand a Palette to all patched Heads press the EXPAND HEADS soft button. This adds attributes for all patched heads to the Palette using the default values. If no default values exists then it automatically creates default values first using the existing channel values in the Palette. Channels that already have explicit values in the Palette are not affected by EXPAND HEADS. If you wish to fully recreate a Palette from the Default Values then first remove the channel data (but not the Default Palette).

Default Palettes can be imported from any previous show file which used Default Palettes. In the Int, Pos, Col or Beam Windows press VIEW PALETTE to open the Palette View window, and then press LOAD PALETTES and select DEFAULT PAL.

MagicQ has a setting to automatically expand Palettes in Setup, View Settings, Cue Storage. This has been renamed to "Expand Heads in Palette". Previously this only expanded Heads of the same type. Now there are additional options to expand to all Heads.

Soft Palettes

Palettes in the Intensity, Position, Colour and Beam windows can be set and unset as Soft Palettes.

Soft Palettes are identical to normal Palettes and can be used just like any other Palette on MagicQ.

When copied into the Exec windows, since they are marked as Soft Palettes, they will

automatically be set with Exec Button Type of Soft. The Execute window can then automatically change the content of the Soft Palette.

Select some Heads and then press SET SOFT.

If the Palette exists already then MagicQ sets it as a Soft Palette.

If the Palette does not exists then MagicQ creates a Palette based on the current contents of the Programmer. If the Programmer is empty then MagicQ creates a Palette with the Locate values for the currently selected heads, appropriate to the particular Palette window - Intensity, Position, Colour or Beam.

MagicQ names the Palettes appropriate to the window - for example in the Colour Window it will name the first soft Palette "Soft C1" and the second one "Soft C2". MagicQ gives them a RGB icon.

Soft Palettes are marked with a "S" in the top right of the item.

Press SHIFT + UNSET SOFT to clear the Soft Palette attribute of the Palette. Note MagicQ will retain the name and icon.

Steal Palettes

The Steal Palettes function enables automatic updating of Palettes in a Palette window from other Palettes in the Window with the same name or icon.

This enables Groups and Palettes imported from another show file to be updated from the Groups and Palettes in the house show file.

MagicQ searches for a Palette first with the exact name, then with the icon, and finally that have a sub string of the Palette name.

In the Int, Pos, Col or Beam Windows press SHIFT and STEAL PALETTE.

FX Engine

Adding in FX

To apply a FX to some heads, select the heads then from the FX Window, Group Window, or Prog Window and press the ADD FX soft button.

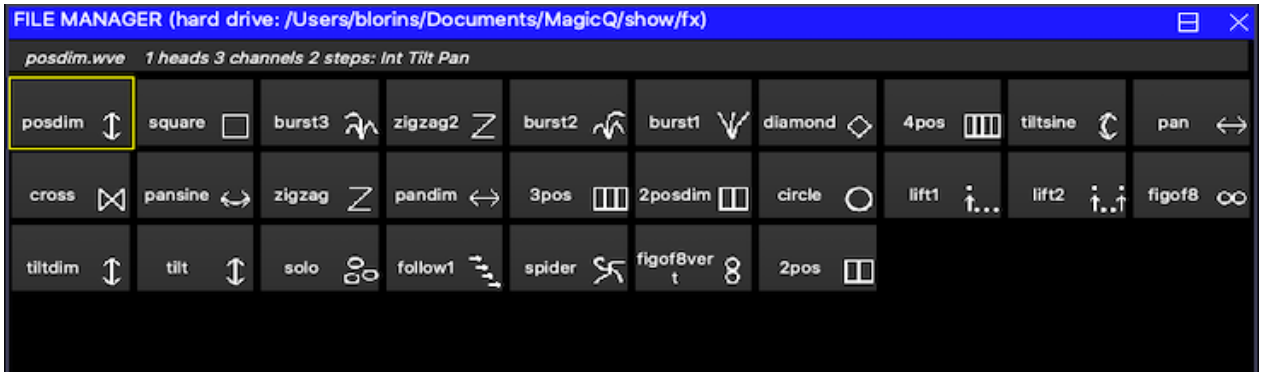
MagicQ divides FX into the categories:

- Intensity
- Position
- Colour
- Beam
- Any Attrib
- Pix Map
- User
- Old

Choose the Category and then the FX to apply.



The Position category includes FX using the pan and tilt attributes. There are some Position FX that also control Intensity such as TiltDim.

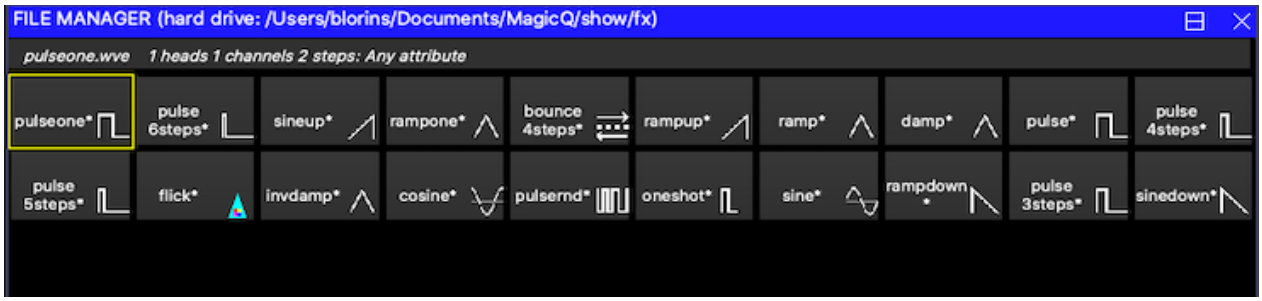


The Colour category includes FX using the CMY/RGB and other colour attributes:



The Any Attribute category contains FX that are not specific to particular attributes of the head – these are marked with a * – e.g. Ramp, Sine and Cosine.

When one of these is selected, MagicQ prompts for which attribute to apply the FX to. For instance, you could program a circle using a Sine on the Pan attribute and a Cosine on the Tilt attribute. Alternatively you could just use the circle FX!



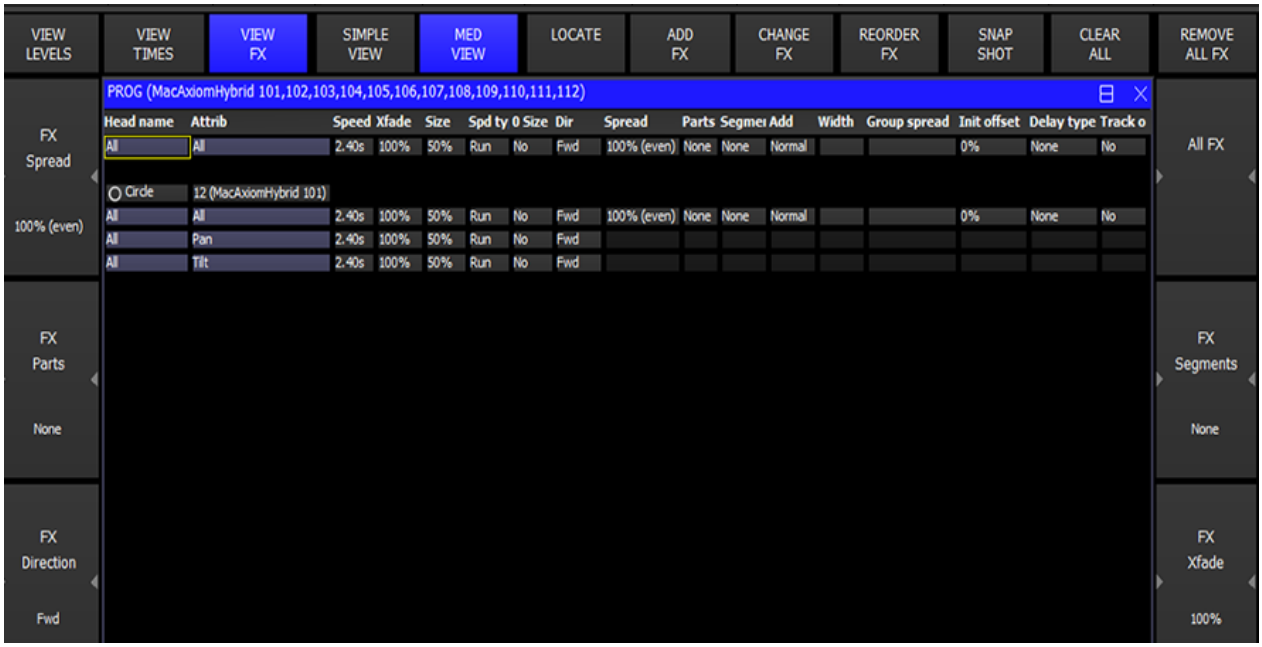
User FX can be added using the FX Editor.

The Pix Map category contains Pixel based FX that use the Grid associated with the selected Group to create a 2D FX. They can be applied to any attribute or to Palettes. See Adding Simple Pixel Map FX.

Applying the FX

Once you have chosen a FX you are returned to the Prog Window. Use the encoders to modify the parameters of the FX such as the speed, size and spread between heads. By default FX size goes up to 255. Hold SHIFT and use the encoder to get sizes above 255.

The Prog Window provides a Simple and an Advanced View. The Simple View enables modifications of the FX as applied to all heads. The Advanced View enables the parameters of the FX to be modified for each different head – this, for example, enables different sizes to be set for different heads.



FX can be added and removed from the Programmer window.

Multiple FX can be applied to a head, provided that the FX uses different attributes - e.g. you can mix a Pan Sine with a Tilt Sine.

FX Speed & Size

The FX Speed can be modified on encoder X. The soft button stops/starts the FX allowing it to be temporarily stopped.

The FX Crossfade can be set on encoder Y – 0% is snap whilst 100% is complete crossfade. The soft button can be used to tap to time the speed of the FX.

The FX Size can be modified on the encoder wheel D from 0% to 100%. Pressing SHIFT and turning the encoder wheel allows the size to be oversized up to 800%. Pressing the soft button swaps between the chosen size and zero size. This allows an FX to be temporarily taken out.

The default for the Speed can be set in the Cue Stack window in View Options, View Defaults, FX. The default for Size comes from the FX File.

FX Attack and Decay

The Attack and Decay of the FX Crossfade can be changed by using SHIFT and encoder Y. It can also be set directly into a field in the spreadsheet in View FX (page right).

The attack defaults to "Even" - equal ramp up and ramp down. The FX must support Width and the Width must be less than 50% for the attack to take effect.

Changing the value of Attack from 0% to 100% changes the slope of the attack. 0% is snap in, fade out. 100% is fade in, snap out.

FX Base Values

By default FX are added to the current channel values - therefore it is important to ensure that the channel values are set correctly. For example, to run a circle in the centre of the pan and tilt range of a Moving Head, it is necessary to set both pan and tilt to the centre position (128) before adding the FX. Changing the channel values changes the point around which the FX is centred.

Channel values and FX values do not have to be recorded onto the same playback. One playback can be used to set the centre position of the FX and another to control the FX itself. The centre position can itself be part of a multi Cue Cue-Stack or a chase thus a particular FX can itself be moved around.

If you wish to have a playback move heads to a position without a FX then record both the position and a zero size FX on the playback. Recording a zero FX ensures any other playback running an FX for those heads is over-ridden. You can add a zero size FX using SHIFT + ADD FX 0 SIZE soft button in the Group or FX windows.

FX Add Modes

In the FX View of the Prog Window and Cue Window there is an "add mode" field. Page right to see this option. This determines how the FX in a Cue is added to the base values. There are four choices; Normal, Plus, Minus and Abs.

- Normal is as default – i.e. a FX will apply both plus and minus of the base.
- Plus adds the FX onto the top of the current base – i.e. the level will never be less than the base.
- Minus subtracts the FX from the current base – i.e. the level will never be greater than the base.
- Abs (absolute). MagicQ ignores the base value for the FX and simply outputs the FX value. This is useful for absolute position FX and for colour change FX.

FX Spread (Offsets Over Heads)

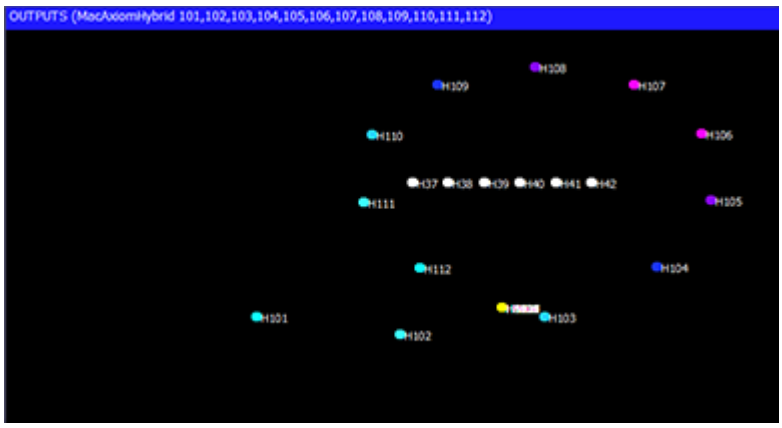
When a FX is applied to a group of heads, the spread determines how the FX is played back over all the heads. By default the spread is even (100%) – i.e. the same FX is applied to each head but offset so that each of the heads is at a different point in the FX cycle. With even spread the heads are spread evenly round the cycle.

Setting the Spread to None (0) causes all of the heads to start at the same point in the cycle – i.e. they all do exactly the same thing. Choosing values between 0% and 100% enables different looks to be generated.

The FX Spread is the maximum offset between heads within the FX. FX Spread values greater than 100% are allowed.

The offsetting of the FX over heads can be further enhanced using FX Parts and FX Segments. FX parts and FX Segments have no effect if FX Spread is 0.

The spread can be viewed in the Outputs Window, View Chans, View DMX, View Move window. This shows a 2D representation of the pan and tilt values of each of the heads.



The default Spread comes from the FX File.

FX Parts

This enables the FX cycle to be repeated across a number of heads. When FX parts is 0 the FX is offset across the total umber of heads selected in the FX. Using Parts the FX can be offset so that, for example the FX can be offset (with FX parts = 3) such that the FX is offset other the first 3 heads, and then the next 3 heads, the next 3 heads, and so on...

The FX part can have the values "none", "2s", "3s" etc. For example when set to "3s" the FX will be played back spread over the first 3 heads and then this will repeat over the remaining selected heads – i.e. heads 1,4,7,10 will do the same thing, heads 2,5,8,11 will do the same thing. When a "FX part" is selected, the "spread" determines how the FX is spread across the 3 heads.

The default for FX parts can be set in the Cue Stack window in View Options, View Defaults, FX.

FX Segments

FX segments work together with FX Parts to enable easy control of the relative offsets of different heads within a FX. FX Segments are the number of adjacent heads that have the same offset.

For example, consider 12 heads.

Table 1. 100% FX spread (no FX Parts or FX Segments)

1	0%
2	8%
3	16%
4	25%
5	33%
6	41%

7	50%
8	58%
9	66%
10	75%
11	83%
12	91%

Table 2. With FX Segments = 2's

1	0%
2	0%
3	16%
4	16%
5	33%
6	33%
7	50%
8	50%
9	66%
10	66%
11	83%
12	83%

Table 3. With FX Segments = 3's

1	0%
2	0%
3	0%
4	25%
5	25%
6	25%
7	50%
8	50%
9	50%
10	75%
11	75%
12	75%

Table 4. With FX Parts = 2's

1	0%
2	50%
3	0%
4	50%
5	0%
6	50%
7	0%
8	50%
9	0%
10	50%
11	0%
12	50%

Table 5. With FX Parts = 2's, Segments = 3's

1	0%
2	0%
3	0%
4	50%
5	50%
6	50%
7	0%
8	0%
9	0%
10	50%
11	50%
12	50%

The default for FX segments can be set in the Cue Stack window in View Options, View Defaults, FX.

FX Chunks

FX Chunks work for both Normal FX and Group FX. For Group FX MagicQ will ensure that the same number of Chunks are used if the Group is expanded to more Heads.

FX Chunks can be used with Direction to use e.g. Centre In, Centre Out.

Chunks can be controlled by the F Encoder (Segments). Use SHIFT + encoder F to select Chunks rather than Segments.

Chunks can be set directly into the spreadsheet view by entering a number of chunks preceded by a dot in the Segments field. For example to set 2 chunks enter .2 in the field. Once Chunks have been set in the field then changes to the number of Chunks can be made purely by entering the number. To revert to Segments enter 0 and then enter the required number of Segments.

Chunks can also be set directly on Soft button F by pressing SET and entering a number preceded by dot.

Note that shows programmed using Chunks on FX on previous versions (1.9.7.0 to 1.9.7.2) used Chunks on the Parts. These will be converted when they are loaded so that the FX use the Chunks from the Segments rather than the Parts.

FX Direction & Inversion

The FX direction can be set to the following options:

- Forward
- Backward
- Centre In
- Centre Out
- Rnd
- Odd/Even
- Even/Odd
- Left/Right
- Right/Left
- Segments
- Invert
- Invert Odd/Even
- Invert Even/Odd
- Invert Left/Right
- Invert Right/Left
- Invert Segments

Forward and Backward affect the direction of the FX.

Odd/Even automatically makes the odd heads go forward and the even heads go backwards. Left/Right splits the heads in two, with the first half going forward and the second half going backwards. Segments alternates forward / backward for each segment.

Centre In and Centre Out split the heads, pairing the outside ones, and so on to the centre.

Rnd uses a random order for the FX. Note that for Group FX the random order will change each time the Cue is loaded into the Cue Engine - for example when reloading the show file /

restarting the console.

Inverts change the polarity of the FX waveform rather than reversing the direction. For simple FX Waveforms of 1 or 2 steps the resulting FX will be identical. For FX waveforms with more than 2 steps, they will be different.

Consider a pulse 2 steps on 4 heads, spread 0%

Forward

```
----
####
```

Invert

```
####
----
```

Invert Odd Even

```
-#-#
#-#-
```

Invert Even/Odd

```
#-#-
-#-#
```

Invert Left Right

```
--##
##--
```

Invert Right/Left

```
^^__
__^^
```

Consider a pulse 4 step FX Waveform on 4 heads:

Forward

```
___^
___^
```

```
_^__
^___
```

Backward

```
^___
_^__
__^_
___^
```

```
Invert
```

```
^^^_
^^_^
__^^
_^__
___^^^
```

For FX waveforms that have more than one attribute, the invert is applied only to first attribute of the FX waveform. This ensures a simple mirror of movement FX such as circles etc...

The default for FX direction can be set in the Cue Stack window in View Options, View Defaults, FX.

Width

Waveform FX with one or two steps can have a Width parameter on Encoder C. The pulse, ramp, rampup, rampdown, sineup, sinedown, dimmer chase and iris chase all have Width.

This enables the width of the FX to be altered without having to select different FX (e.g. pulse 2 step, pulse 3 step etc...) When set to 50% it is equivalent to a pulse 2 step. When set to close to 0% the pulse or ramp is very narrow, whilst at close to 100% the pulse or ramp is very wide.

For example, consider a head with a ramp on Intensity with crossfade 100% and width set to 50%. The head will ramp up and down between 0% and 100%. Changing to 25% will cause the head to stay at 0% for half the period and then ramp up to 100% and back down to 0% for the other half of the period. Changing to 75% will cause the head to stay at 100% for half the period and then ramp down to 0% and back up to 100% for the other half period.

The default Width comes from the FX File.

Xfade Delay

FX Xfade Delay has been added to the FX engine from 1.9.8.0. This is useful to set an offset between attributes such as Position and Colour. It is set in a new FX Fade Delay field in the

Prog, View FX and Cue, View FX windows.

The XFade Delay takes effect when Xfade is set to less than 100% to determine when the Xfade starts. Previously the Xfade would always occur at the end of the step - a delay was inserted before the Xfade.

If the Xfade Delay field is set to 0% then the Xfade starts immediately at the start of the step. If it is set to 100% then it occurs at the latest possible time in the step - this will depend upon the Xfade field itself. For example if Xfade is set to 20% then the maximum Xfade Delay is 80%. The XFade Delay affects all channels that have a Xfade of less than 100%.

Elements

When applying a FX to Heads with multiple elements, MagicQ prompts to choose the FX elements:

Dup Elements	The elements in each Head are treated as one, with the same offset on all elements in the Head
Include Elements	The elements are treated separately with the FX spread across all elements of all selected Heads
Inc Elements (synced)	The elements in all selected Heads have the same offset - i.e. the FX runs within the Head synchronised with all other Heads.

From v1.9.6.0 the FX elements can be edited in VIEW FX of the Prog Window And Cue Window after applying the FX.

Note that if a normal (non Group) FX is added using Duplicate elements for fixtures set to have Duplicated elements in the Patch it is not possible to subsequently change the FX element type as only the first element is stored in the FX.

For fixtures with Independent elements, and for Group FX the FX elements can be changed at any time.

Speed Type

Speed Type can be set to Run, Stop and Double there are now the options Div 2, Div 3, Div 4, Div 5, Div 6, Div 7, Div 8. The default is Run.

The Div options enable FX to built up with different attributes at multiples of one rate but still synced.

The divisors / doubler is applied after all other rate controls regardless of whether the FX is using its own timing or is being controlled by a Speed Master.

Rnd

FX can be set to use Random from the Rnd field. The Rnd Step option causes the Heads to execute the FX in a constantly changing random order.

This works particularly well for FX that use a Width such as Dim Chase, Ramp, 2 Col. This enables more of a random strobe type effect. To get the best result use width < 30% or greater than 70%. Using parts (e.g. parts = 3) will ensure the randomness kicks in quicker when first activated.

Random FX can be used together with Parts and Segments.

One Shot

MagicQ has support for one shot FX – i.e. FX that play back only one cycle and then stop. FX can be set to One Shot from the One Shot field. The FX will cycle through all heads one time and then the FX will be removed. The FX will restart if a new Cue with the same FX is executed.

There are also some FX that are always one shot in the FX library - PulseOne and RampOne. Custom waveform FX can be created and set as one shot in the FX parameters.

When in the Programmer, pressing BLIND BLIND will restart the FX.

Form v1.9.8.0 the options Two Shot, Three Shot and Four Shot are supported in addition to One Shot.

Bounce

Form v1.9.8.0 is supported on Normal FX. Previously it was only supported on Pixel Map FX.

The Direction of Normal FX has been improved to support the following new Directions: #0023714

- Fwd Bounce
- Bkwd Bounce
- In Bounce
- Out Bounce

The Direction indicates where the FX starts from.

The Bounce FX can be used together with One Shot. A One Shot will execute the whole of the FX cycle including the Bounce part and then stop.

Bounce FX operate by playing a complete cycle of each FX in each direction in turn. When using FX with large Widths since the FX cycle completes before starting the reverse cycle the look of the FX will be different at each of the ends of the cycle to that in the middle of the cycle.

Timing

The Timing field on the right side of VIEW FX in the Prog and Cue windows can be set to Per Head or Per Step.

When set to Per Head, the FX bases its timing on the number of heads in the FX, or if Parts are selected the number of Parts. Segments are also taken into account.

When set to Per Step, the FX timing is for each step in the Waveform FX.

Note that if the FX is under control of a Speed Master set to Per Head timing, then this will override the Per Step timing in the FX. If either the FX or the Speed Master is set to Per Head timing then PEr Head timing is used.

The default for the Timing can be set in the Cue Stack window in View Options, View Defaults, FX. In new and old shows this is set to Per Step by default. Changing it to Per Head will affect any new FX created.

There is a oft button in the Cue Store window to convert all FX in Cues between Per Cycle and Per Head timing. This can also be used with the filtering to select a sub set of the Cues to change.

FX Fade Times

FX can be configured to fade in and out rather than snapping in and out.

The fade times are configured in the View Times view of the Programmer Window and the Cue Window. In older versions of software they were available in the View FX view of these windows (use the PAGE RIGHT button to move to the appropriate columns).

FX Delay Times

MagicQ supports a FX Delay Type option for applying individual delay times to FX as well as base levels. When enabled, the individual delay times for the base level of an attribute in a head will also apply to any incoming FX on that attribute. This allows sweeping effects across large numbers of moving heads.

The delay FX option is configured in the Cue Window, View FX, Delay Type. Note you need to cursor right to see it. There is a similar option in the Programmer Window if you want to set it before you record a Cue.

When set to "None" there is no delay - all the FX start to fade in at the start of the Cue.

When set to "Delay start" the FX will delay by the amount set for the individual attribute in View Times. If there are no delay times for the individual attributes then there is no delay on the FX. After the delay for a particular head the FX will start as if it was the start of the Cue - i.e. the offset will start from the position it would normally start from at the beginning of the Cue. The final offset between the heads will be dependent on the delay time. Note that if you include a Cue with FX set to "Delay start" into the programmer then it will look different as when Cues are included the delay times are ignored.

When set to "Delay size" this is like "Delay start" except that after the delay the FX is not restarted. Instead the size is faded in and the offset is therefore exactly as it would have been if there was no delay. This means after all heads have delayed then the final offsets between heads will be as if there had been no delay.

If you don't want to change the base level, then you just set it at the same levels as the previous Cue - but you add individual delay times so that MagicQ delays both the start of the level change (could be no change) and the start of the FX.

MagicQ does not currently support FX Out Delay times.

Note that the FX In Delay and FX Out Delay times in the Cue Window and Programmer Window, View Times, Simple View are not currently supported. To add FX delay times set Individual Delay times and configure the FX Delay Type in View FX to "Delay Start" or "Delay Size" as above.

Initial Spreads

If you are running multiple FX from within a Cue then you may wish to select an initial spread between the different FX. Configure this from the Programmer Window and the Cue Window (use the PAGE RIGHT button to move to the appropriate columns). Both a coarse and a fine spread can be configured.

FX on CMY and RGB heads

The inbuilt colour FX are designed to work on both CMY and RGB heads - these FX are set with the "Auto Invert RGB" option set in the Waveform FX. This means that, for example, adding the RGB FX to a group of CMY and RGB heads will cause all heads to change colour red, green, blue.

Intensity FX

Intensity FX between two levels can be set from the keypad and viewed and edited in the Programmer Window, View Levels.

Examples of syntax supported on the keypad are:

GROUP 2 @ 10 THRU 20 Set Group 2 with an Intensity FX between 10% and 20%

5 @ 70 THRU 90 Set Head 5 with an Intensity FX between 70% and 90%

When setting intensity FX between two levels MagicQ respects the add mode of any existing FX. If no FX exists then a Dimmer Chase is added using the "Plus" add mode.

The Programmer and Cue Window support viewing and setting of Intensity FX directly into the VIEW LEVELS view. In the Cue Window, the Cues must already contain an Intensity FX for the required Group or Channels.

Flicker FX

MagicQ includes a number of FX designed to simulate flickers – these can be used to simulate fires, candles and lightning. FX speed, size and spread can be used to generate different effects. The flicker FX available are:

Flicker Random flicker above and below base level

Flicker up Random flicker above the base level

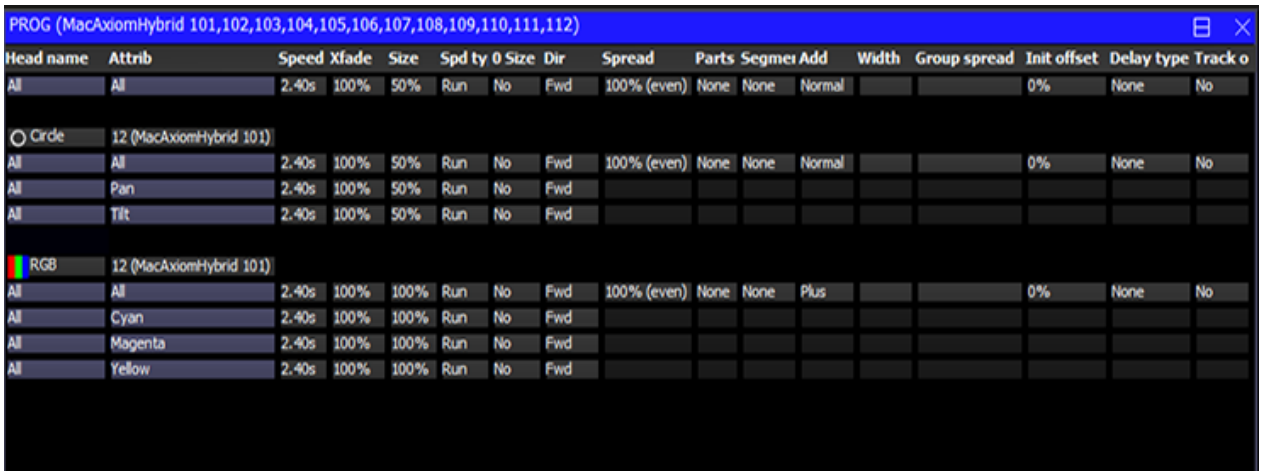
Flicker down Random flicker below the base level

Flicker sync Random flicker – all heads in the FX synchronised together

Flicker crossfade Random flicker with random levels and random crossfades

Multiple FX

It is possible to have multiple different FX on a head – e.g. a circle on pan and tilt and a red green blue colour mix on the colour mix attributes.



When viewing and editing multiple FX in the Programmer Window or Cue Window the encoders A,B,C,D,X and Y affect only the FX that the cursor is placed over. When a new FX is added the encoders automatically default to controlling the parameters of the new FX.

If the cursor is placed in the All FX row at the top of the Window then these encoders affect all FX as per previous behaviour. The E encoder can still be used to modify the individual parameter at the cursor location.

Joining / Splitting Multiple FX

There is a function to split some heads out of a FX or to join similar FX together in the Programmer – use SHIFT and the JOIN FX and SPLIT FX soft buttons.

When Split FX is pressed the currently selected heads are moved out of the FX that they are in, into a separate FX. If the selected heads are the only heads in the FX then no change is made to the FX.

When Join FX is pressed MagicQ analyses all the FX in the programmer and joins any similar FX of the same type together. The speeds/sizes/offsets are retained until the enlarged FX are modified.

Modifying FX for selected Heads

It is possible to change FX for a specific set of heads by first selecting the heads and then modifying the parameters in the FX Window instead of in the Programmer Window. In the FX Window there are FX speed, size, crossfade and offset encoders. These encoders apply changes to the FX of the currently selected heads. Note they affect all FX running on those heads so if the head has a circle and a CMY colour FX then both will be changed. To change FX individually use the encoders in the Programmer Window, FX View.

Changing FX

It is possible to change the type of FX running on a selection of heads from within the Programmer Window using the CHANGE FX soft button. This enables a different FX to be selected, but with the speed, size and offsets remaining the same. The FX can only be changed into compatible FX – i.e. a circle can be changed into a square or diamond, but not into a RGB effect.

FX Reordering

It is possible to reorder the heads in a FX without having to recreate the FX. Press the REORDER FX button in the Programmer, View FX View. MagicQ prompts for the order, Normal, Reverse, Into Centre, Centre Out, Random. Normal will always return them to head number order.

Note that if the current selection order is different to the one in the Cue then it will automatically use this as the new order rather than prompting for an order.

For Group FX it reorders the Groups within the FX, not the Heads within the Groups. For reordering of heads within a Group FX use the Direction field in the FX.

Blocking FX

When the Setup option "Programmer overrides FX" is set then the Programmer automatically includes a "Block FX" option – this means that whenever a channel is in the programmer it has an implicit zero FX – so that any FX running on the channel on Playbacks is ignored. If the channel has a FX in the programmer then the FX will run as expected. This, for example, enables the user to take control of a moving light and place it in a fixed position.

Generating User FX

It is possible to generate user FX by programming a chase and then converting it into a FX. The FX can then be applied to any head with the required attributes.

For example, to create a new movement FX, create a position chase by recording the pan and tilt values for one or more heads. Set the chase speed to the speed that you wish the FX to

default to. If you wish the FX to snap (not fade) then set the chase contrast to 0%.

Convert the chase into a FX by opening the Cue Stack window and pressing SHIFT and MAKE FX. If the chase only contains 1 attribute then you will be asked whether you wish the FX to always apply to the specified attribute, or to allow it to be applied to any attribute. If the Cue Stack has more than 1 attribute in it, then the user is prompted to choose which attributes to use in the Waveform FX.

If multiple heads are used in the chase then multiple heads will be generated in the FX – this enables different heads in the FX to do completely different FX. (For example, you could record a FX where 2 heads do a tilt and 2 heads do a pan)

To record a FX that can be applied to any attribute, choose 1 attribute only (e.g. dimmer) and create the chase using this attribute. When you press MAKE FX, then select the "Make FX apply to any attribute" option.

Waveform FX support any number of attributes but it is recommended that only a small number of attributes are stored in Waveform FX – e.g. just position, colour mix or intensity. For more complex FX store the FX in the FX Window and save to a FX Library.

Use Record Remove to remove unwanted attributes from the entire Cue Stack.

Editing User FX

MagicQ includes a FX Editor which can be used to edit the Waveform FX. Note that changing the Waveform FX makes a permanent change to the FX on the MagicQ system including all FX of that type used in the current show and on any new shows made on that console. If users wish to edit the inbuilt Waveform FX then they should use "Save As" to save the FX as a different FX name before editing.

All User FX are shown in the User category - only inbuilt FX are shown in the Intensity, Position, Colour, Beam and Pix Map categories.

All FX are stored in the FX folder as .wve files - MagicQ intelligently filters them into categories.

Palette FX

Some of the inbuilt FX use Palette values rather than absolute values. This enables FX to be built up quickly from existing Palettes. The FX are updated each time the Palette is changed.

Palettes can be chosen when the FX is applied rather than having to create new Waveform FX. Palette selection can be changed directly in the Programmer, View FX and Cue , View FX windows. Changes of Palette selection are immediately updated in the Output.

The inbuilt library of FX contains several Waveform FX that allow selection of Palettes - including 2col, 3col, 4col, 2pos, 3pos, 4pos, 2iris and 2focus. There are also intensity FX 2int, 2flicker and 2flickersync.

For example, to make a FX that colour changes between yellow and magenta simply choose the 2col FX - then select the "Yellow" palette, followed by the "Magenta" palette. Change the width parameter to vary the proportion of time spent on yellow and magenta.

Note that MagicQ maps Red to Cyan, Green to Magenta and Blue to Yellow, so the 2col, 3col and 4col will work equally as well for CMY heads as for RGB LED heads.

If palettes are moved in the Position, Colour or Beam windows then the reference in the FX will be modified to be the new ID, so that the FX stays the same.

FX can be set to use either Intensity, Position, Colour or Beam palettes. The FX only uses one type of Palette, but attributes from different attribute types can be included in any Palette - for example, a Position Palette could include Position and Intensity.

Palette FX on Heads with Different Attributes

Palette FX can be applied to heads even if the heads do not have all the attributes in the Palette FX.

The 2col, 3col and 4col inbuilt FX include all colour attributes including Cyan, Magenta, Yellow, White, Amber, Lime/UVCol, Col1, Col2, Col5 and Col6 so that when these FX are chosen they will run on all the colour attributes that are stored in the chosen Palette. This enables colour palette FX to be run over multi heads with different attributes - CMY, RGB, RGBA, RGBW etc...

The 2cmy, 3cmy and 4cmy only can be used to limit FX to CMY attributes only - no FX on colour wheel, colour correction, White or Amber.

User Created Palette FX

Users can create their own waveform FX using the FX Editor. To make a waveform FX that has selected palettes, set both the "Use Palettes" and "Use FX Palettes" in the Edit FX, View General. The palettes in Edit FX, View Chans are then Palette indices rather than Palette numbers - e.g. Col 1 refers to the first selected Palette when you apply the FX, Col 2 the second selected Palette.

If a FX uses Palettes and the selected Palettes do not have the attribute then MagicQ will use the default value for those attributes. For example, 2col includes all the colour attributes - for example if the Palette only has Cyan, Magenta and Yellow in it, then Colour Wheel would be set to its default value in each FX step.

The Intensity attribute is a special case. If this attribute is included in the Palette FX but is not in the Palette then the MagicQ will change the Intensity between 0% and 100% in each FX step. This enables generation of e.g. TiltDim type effects very easily where the heads move in the dark.

FX Colour Flicks

MagicQ supports colour flicks - i.e. FX that apply a different colour over the base colour

without mixing the colours - for example running a red flick over a green base without mixing the red and green to get yellow.

The inbuilt FX library now includes Red, Green, Blue and White colour flicks. In addition there is a colflick FX where you select the colour you want from a colour palette. The width parameter can be modified to change the width of the flick.

Users can create their own Waveform FX to perform complex colour flicks. In Edit FX, View General set the Default Add Type to "Abs". In the Edit FX, View Chans set the curve to "Abs" for steps that you want to be absolute and to "Trans" for steps that you want to be transparent (i.e. not affected by the FX - just the base level). The levels for steps set to "Trans" should be 0, or if using Palette based FX then just set them to the first Palette selection (P1,C1,B1).

FX Using Base Colour

This option was used in older versions of MagicQ but is now superseded by Colour FX based on Palettes such as 2Col and Col Flick.

When the FX is created, the base level of the colour channel will be used to determine the colour that the FX will use. When the FX is played back the base level is used in the FX itself rather than the FX adding to the base.

To create a new FX based on base colour, in the FX Edit Window, View General, set Use Col Base = Yes.

Group Based FX

MagicQ supports FX based on groups. Multiple groups can be selected and then an FX applied to each of those groups rather than to individual heads.

This enables advanced FX over groups of heads. This has the advantage over parts and segments that the groups can split the FX over different numbers of heads - e.g. 6 sports on the front truss, 4 on each of the sides, and 8 on the rear, The FX will be played evenly across each Group as though it were 3 individual FX

It also has the advantage that if you add a head to the group then that head automatically becomes part of the FX in all the Cues that use that FX. This makes managing FX and changing the size of your rig easier from show to show.

If multiple groups are selected then when adding FX, MagicQ automatically requests whether the FX should be applied to the Groups or to the Heads.

FX can be added as a Group FX even if only one group is selected by using the ADD GROUP FX soft buttons in the Group and FX windows. This has the benefit that if the heads of the Group are changed then programmed Cues using the FX automatically change to use the new heads of the group.

Group FX and Palette FX can be used together to create FX that can be easily changed between different size rigs with only minor changes to Groups and Palettes.

If groups are moved in the Group Window then the reference in the FX will be modified to be the new ID, so that the FX stays the same.

As Group based FX contain channels not groups, it is not possible to carry out channel based edits on the FX such as merging changes from the programmer or reordering the channels in the Group based FX.

The groups used within a Group FX can be changed by clicking on the groups in the Programmer and Cue windows.

In the Advanced View, REMOVE can be used to remove a Group from the FX. Pressing COPY COPY (or COPY followed by ENTER) inserts a new Group to the FX - after inserting change it to the required Group.

It is possible to convert Group based FX into channel based FX. In the Programmer Window, View FX press SHIFT and CONV GROUP FX. If the cursor is on the top row all FX will be converted, otherwise the FX at the cursor position will be converted.

Group FX Spread

The Spread of Group FX can be modified in the Prog Window, View FX and also once recorded in a Cue, in the Cue, View FX Window using the "Group Spread" column. The options are:

Group	Spreads according to the group (all members of group have same spread) - as per previous software
All chans	Spreads across all chans in all selected groups as if it was a standard (non Group) FX
Within groups	Spreads within each group as if each group was selected in turn and a FX added to that group
Grid H	Spreads within each group according to the position of each Head in the rows of the Group Grid
Grid V	Spreads within each group according to the position of each Head in the columns of the Group Grid
Grid All	Spreads within each group according to the position of each Head in the Group Grid starting top left to bottom right.

Parts, Segments and Direction can be used in all "Group Spread" modes. When set to "Group" these will have limited effect unless lots of groups are selected.

The "Within Groups" is particularly useful when running FX on Groups each with different numbers of heads - for example consider a three truss system with 6 heads on the front truss, 5 on the mid and 4 on the rear with corresponding Groups - Front, Mid and Back with 4,5 and

6 heads in each. Using "Within Groups" will run the FX synchronously across each truss.

Direction, including Centre In, Centre Out will work across / down the grid as expected.

There is a Group Offset field in the Prog, View FX and Cue, View FX windows. The Group Offset is applied between the different Groups in a Group FX when the Group Spread is set to "Within Groups". It is also used as an offset between the rows when using a Group Spread of "Grid H" and between the columns when using a Group Spread of "Grid V". It has no effect for FX on individual Heads.

By default the Grids will use the Grid for the Group specified, but if a Grid ID is specified then it will use that Grid ID instead, resizing the grid to only encompass the Heads that are in that Group.

Group Offset

The Group Offset is applied between the different Groups in a Group FX when the Group Spread is set to "Within Groups".

It is also used as an offset between the rows when using a Group Spread of "Grid H" and between the columns when using a Group Spread of "Grid V".

It has no effect for FX on individual Heads.

FX on Heads with Duplicated Elements

When selecting FX for channels on Heads with duplicated elements MagicQ prompts three options for applying the FX:

- Dup Elements
- Include Elements
- Use Elements

Dup Elements treats the elements as duplicated - i.e. all elements in the Head do exactly the same thing. This is the default operation which treats all the elements in a head as one.

Include Elements includes all the elements in the FX enabling separate control of each of the elements as if they were separate heads. For example if you apply a FX to 4 heads each with 3 elements then the FX would be spread over the 12 elements.

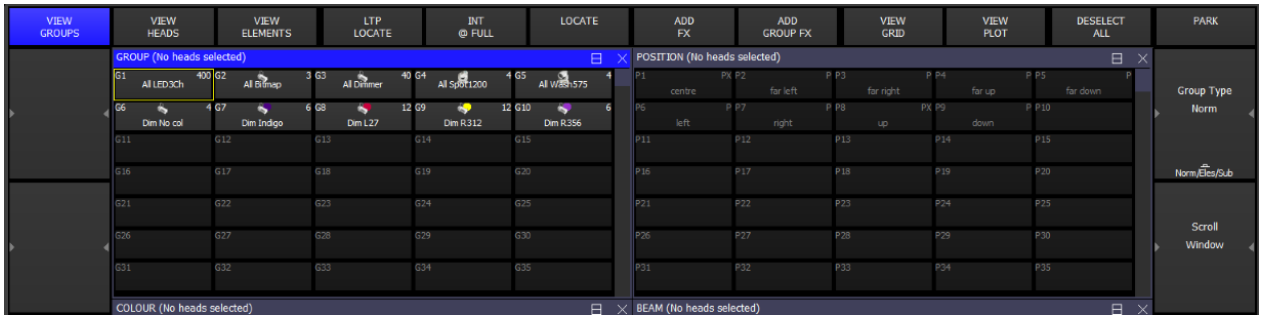
Use Elements runs the FX within the Heads, with all Heads performing the same FX synchronously across their elements. This is the same as Include Elements except that MagicQ automatically sets Parts to the number of elements within the heads causing all Heads to have the same offset.

When Group FX are applied to Heads with Duplicated Elements MagicQ will request how to apply to the duplicated elements. If Include Elements is selected then the Group based FX will operate across all the elements of the heads in the group according to the selected Group Spread - Group, All Chans, or Within Chans.

Simple Pixel Map FX

MagicQ has the ability to run Pixel Map FX over a Group of heads, based on the grid associated with that Group without the need to patch a more advanced pixel map.

Each group has a grid associated with it by default. To edit the layout of the heads within the Group Grid select the "View Grid" soft button at the top of the Group window.

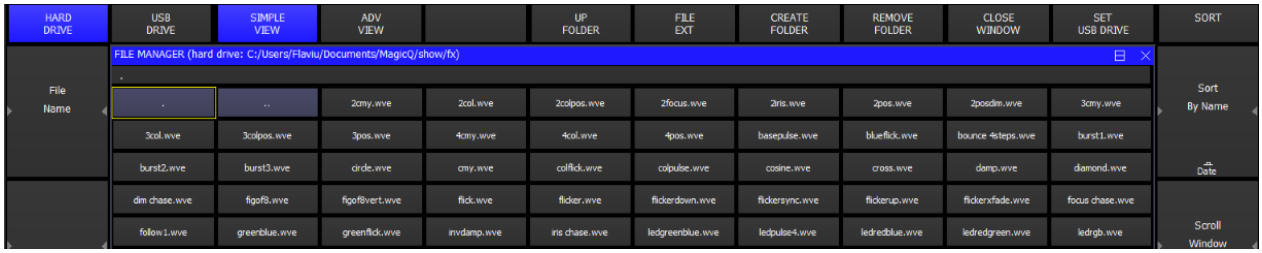


Within the Output Plan window the heads for the previously selected group can be arranged to use with Simple Pixel Map FX.

Group grids can only contain heads that are within the Group.

To apply a Simple Pixel Map FX simply select a group, press the ADD FX soft button and select from the Pixel map category.

Pixel Map FX can be run over any attributes of the heads within the Group.



Pixel Map FX honour the grid arrangement of the group and apply the FX across the grid the same way as the more advanced pixel mapper would. Updates to the grid arrangement will in turn update any Cues using a Pixel Map FX.

Palette based Simple Pixel Map FX

The PixMap FX in the standard FX generator can be applied to Palettes. In addition to RGB and individual attribute, it is now possible to select Pos Palette, Col Palette and Beam Palette.

When a Palette apply type is used then the pixelmap FX pattern is applied using the palettes rather than using hard values.

For example, if you choose a Vert Line FX then applied to Intensity then line would be applied to the Intensity. If, instead you chose Colour Palette and then select Palettes Red and Green then the FX would apply the Red and Green palettes - the first Palette Red would be used for all cases where the FX level is 0, whilst the Palette Green would be applied where the level was 100% - i.e. the vertical line. Pixels where the FX is fading in between 0% and 100% would

interpolate between the Red and Green palette.

Any attributes can be put into the palettes, so a Position Palette could include Position and Zoom - enabling an effect with one Palette up and tight zoom and another Palette down with wide zoom.

The Palettes can be changed in the Prog, FX and Cue FX window as for normal FX Palettes.

In versions prior to v1.9.3.0 MagicQ had one inbuilt PixelFX that used Palettes - Pix2Col. This performed a vertical line or horizontal line on 2 Palettes depending on the size of the Group Grid. This is still supported - but a wider range of effects can be used using this new Palette selection - for example, a PixCircle can be applied to two palettes.

Using Simple Pixel Map FX on User Grids

The PixMap FX in the standard FX generator can be applied to any Grid, not just to the Grid for the selected Group.

This enables PixMap FX to be applied to multiple Groups. It also avoids the need to create multiple different Group Grids - a single User grid can be configured for the whole lighting rig and then Pixel FX can be run over the required groups within that Grid.

The Grid can be changed live in the Prog, View FX and Cue, View FX windows from the Grid ID field.

FX on Multiple Attribute Types

MagicQ supports inbuilt FX for use on multiple attribute types including TiltDim and PosDim.

PosDimCol FX

In v1.9.8.0 a new Posdimcol FX has been added in the Pos category. This FX uses two Position palettes and two Colour Palettes.

The intensity will go to 100% in the first Position and Colour Palette selected and then crossfade to the second Position and Colour Palette before going to 0% intensity.

The timing of the Colour palette change can be modified by setting the Xfade for the colour channels to a value less than 100%, and then adjusting the Xfade Delay value for the FX. Note that the Xfade for the Intensity and Position should remain at 100%.

For example, setting the Colour channels to 20% Xfade and setting a Xfade Delay of 0% will show the first colour briefly at the start of the FX. Setting the Colour channels to 20% Xfade and setting the Xfade Delay to 80% will show the first colour for most of the time and only change to the second colour for the last 20%.

Fizzle and Sparkle FX

These FX are designed to work together with other Pixel Map FX - they modify the other Pixel Map FX with random fade outs (Fizzles) and coloured random fade ins (Sparkles). They

enable a 2nd level of FX at the ends (front and back) of the existing FX.

Fizzle and Sparkle work together with Vert & Horiz Lines, Vert & Horiz Random, Snakes, Vert & Horiz Ramp, Vert & Horiz Build, Vert & Horiz Offset, Rot Line, Half Line, Square, Circle.

The following parameters are supported for Fizzle:

- Dir - Front, Back, Front Back, or Centre
- Width - how much of the other FX has the Fizzle applied to it
- Size - the level of the fizzle (from none to full fade out)
- Xfade - the base level of the Fizzle - if set to 100% then fizzle goes down to 0. Set to 0 for no fizzle.

The following parameters are supported for Sparkle:

- Dir - Front, Back, Front Back, or Centre
- Width - how much of the other FX has the Sparkle applied to it
- Size - the level of the Sparkle (from none to full)
- Xfade - how solid the Sparkle is - 0% will cause a full block colour at the front and/or back. 100% is full range 0 to 100%.
- Palette - the colour palette to use. If none is selected/invalid Palette then white is used.

As the Fizzle / Sparkle modifies the existing effect, the Width of the existing FX must be sufficient to show the Fizzle / Sparkle - Typically 25% to 90%.

Note that the speed parameter of the Fizzle and Sparkle is not currently used. The speed of the FX is determined by the speed of the existing FX it is applying to.

If there is no other PixelMap FX running on the Grid then Fizzle will have no effect.

For Sparkle, if there is no other PixelMap FX running then it performs a simple stand alone Sparkle on all Pixels in the Grid.

FX Window

FX can be recorded for re-use in multiple Cues when programming, or when busking live to quickly apply a complete FX over multiple heads.

The FX Window enables the storage of FX and combinations of FX that are used regularly. The FX Window is opened by pressing the FX button.



Record FX into the FX Window in the normal way – set up the FX in the programmer and then press RECORD. All of the different FX currently in the programmer are stored including all of the size, speed and offset information. In addition, any base levels for the channels that are controlled by the FX are also stored.

To recall the FX simply select some heads, and then select the FX from the FX Window. FX can be named, moved and copied just like any windows items. FX can be played back on any head that supports the programmed attributes – not just the heads the FX was recorded with.

Use the VIEW DATA view, to make changes to the core parameters of the FX.

Alternatively, edit FX by including an FX into the programmer and then using Update.

When FX are imported, exported or the heads that the FX reference are removed, the FX are converted into generic FX enabling them to continue to be used. Generic FX are not stored in the Cue Store.

When you program new Cues using a FX selected from the FX window, a copy of the FX is made so that you can make individual changes in the programmed Cue.

FX Palettes

From v1.9.5.0 FX in the FX Window behave like Palettes.

Updating the FX in the FX window will update instances where the FX has been used in Cues. The overall FX speed, size, crossfade, width, direction, spread, parts and segments, add mode, initial offset and rnd type can be changed and will be updated to the Cues. Note that changes to individual channel parameters within the FX are not updated, only the overall parameters.

The top text in the window shows which Cue the FX is used in, or if used in multiple Cues the number of times it is used. Filtering by FX in the Cue Store and Stack Store provides further information on which Cues and Cue Stacks are using the FX.

The FX can also be edited by including the FX from the FX Window, edit in the programmer and then update. Note that when updating, any changes to the type of FX, or individual channels will not be updated to the Cues - only overall parameters will be updated.

If users do not edit the FX in the FX Window and do not include and update FX in the FX Window then MagicQ will operate as in previous versions - the FX in Cues will never be updated from the FX.

Cues that are linked to FX in the FX Window are shown in the Cue Window with FX X preceding the name where X is the FX number in the FX Window. For example, a Cue that is linked to a circle FX in FX 2 in the FX Window will show as FX 2 Circle.

Moving FX items in the FX Window will update the Cues to maintain the link to the moved FX item.

Removing a FX from the FX Window will remove any links to that FX from all Cues - this is similar to when removing Int, Pos, Col, Beam palettes items, which also remove links from all Cues.

Note that FX will only be linked to Cues that have been recorded in v1.9.5.0 or above.

Cues created in older versions of software will not have a link to the FX Window. Prior to v1.9.5.0 editing the FX in the FX did not affect the programmed Cues – only new Cues

programmed using the FX.

Use SHIFT + EXTRACT FX soft button in the FX Window to extract FX from the Cues in an older show. The FX are extracted from the Cues and created in the FX Window, with the Cues linking to the FX. Where identical FX have been used in multiple Cues only one FX will be created in the FX Window.

Cues can also be linked to FX already in the FX Window using the CHECK FX LINKS and CHECK ALL LINKS soft buttons. The CHECK FX LINKS soft button checks for identical FX to the cursor item FX that in all Cues, creating a link if the FX match. The CHECK ALL LINKS checks for all FX. No new FX are created in the FX window - it only creates links where FX are identical between the Cues and the FX Window.

The REPLACE FX soft button can be used to replace a FX with another FX in specific Cues, or all Cues on the system. This works in the same way as REPLACE GROUP in the Group Window and REPLACE PALETTE in the Pos, Col and Beam windows.

Importing and Exporting the FX Library

The FX in the FX Window can be stored to a FX library file so that the FX can be reloaded and reused in any MagicQ show. Use the SAVE FX LIB to make a FX library file – all the FX in the FX window are stored to the file. The FX are saved as generic FX – i.e. they can be played back on any type of head as long as it has the same attributes. Reload a FX library using the LOAD FX LIB.

Programmer

The programmer is the function of MagicQ where show data is configured for recording. The programmer takes priority over all playbacks. It can also be used during live running to override the outputs – for example, for changing the colour or gobo of intelligent heads.

MagicQ outputs any channels that are active in the programmer at highest priority – i.e. they over-ride all other playbacks.

What Is in the Programmer?

The Prog Window enables you to determine exactly what is in the programmer and how it is configured. Press PROG to open the window. The programmer stores three types of data

- Levels
- Times
- FX

In the Prog Window there are three views, corresponding to the three types of data – View Levels, View Times and View FX. Use the three top left soft buttons to select the view.



In the Channel Times and Channel View windows you have a choice of a Simple View or an Advanced View. The Simple View is sufficient for most programming – it enables modifications of fade times on a per attribute type basis and modifications of each programmed FX. The Advanced View enables fade times and FX parameters to be set up on a per channel basis.

In Levels View select Advanced View to view the raw values rather than the palette/range names.

The LED on the CLEAR button is illuminated when there is data in the programmer.

A second copy of the Programmer Window, the Programmer Info Window can be opened for displaying on an external monitor. Press CTRL + Prog to open the Programmer Info Window.

Clearing the Programmer



To clear the Programmer press CLEAR. All channels will be deactivated and all HTP channels

will be set to zero.

Pressing SHIFT CLEAR clears the heads that you have currently selected. Use this to clear one or more heads without clearing all heads from the programmer.

To clear the programmer over a period of time, type a number before pressing CLEAR, for example Press 5 CLEAR to clear the programmer over 5 seconds.

To set all channels to default values use CTRL + CLEAR.

It is possible to force all LTP channels to zero by using SHIFT + CTRL + CLEAR.

Activation by Channel or by Head?

After CLEAR has been pressed, the programmer is empty - i.e. there are no channels active in the programmer. When the level of a dimmer channel or an attribute of an intelligent head is changed for the first time then it becomes active in the programmer.

For heads with multiple channels, there is a choice here as to how the other attributes of a head are affected by the activation of one of the head attributes.

By default, if one attribute of a head is changed then only that attribute is activated - this is referred to as "Activation by Chan". This can be modified in the Setup Window in the "Activate chans/head" option. When set to "head" then when one attribute of a head is changed, all the attributes of the head are activated. For LTP channels the values of the attributes in the programmer are set to the current output value. HTP channels will remain at zero.

MagicQ also supports "IPCB", "IPC" and "Col". These group similar parameters together, so for example if you touch a colour attribute or the colour attributes are loaded into the programmer. "IPCB" means all Intensity, Position, Colour and Beam attributes work in this way, whereas "IPC" only works on Intensity, Position and Colour attributes, not Beam attributes.

Performing a LOCATE activates all parameters. At any time all of the attributes of the selected heads can be forced into the programmer by opening the Programmer Window, holding SHIFT and pressing ACTIVE.

Recording a Cue

The basic unit of storage on the console is the Cue, which stores

- Level information
- Timing information
- FX information

This corresponds to the information in the programmer - recording a Cue is simply a matter of transferring what is in the programmer into the Cue.

To record a Cue, first set up the look, then press RECORD and press the SELECT button of the

Playback to record the Cue onto.

To name the Cue, key in the name before pressing RECORD. You can name a Cue that has already been recorded by keying in the name, pressing SET and pressing the Select button for the Playback that the Cue was recorded onto.

To test the Cue, first clear the programmer by pressing CLEAR then raise the Playback fader or press the Playback FLASH button.

When a Cue is recorded it is automatically added to the Cue Store - a list of all Cues stored in the show. The Cue will be given a unique Cue Number (e.g. Q1). This enables the Cue to be re-used in future programming.

To view a recorded Cue, press the SELECT button for the Playback, and then press CUE to open the Cue Window.

The Cue Window is very similar to the Programmer Window - it has the same views for Levels, Timing and FX.

Levels

All active channels in the programmer are transferred into the Cue. Thus if "Activation by Head" is in use then all the attributes of activated heads will be stored.

If the channel level was set using a Palette, then that is also recorded so that the Cue can keep track of changes to the Palette. When you subsequently change the Palette the changes will be reflected in the Cue.

Timing

The timing information in the programmer is copied into the Cue. Cue timing can be set up before or after the Cue is recorded.

Timing information for channels consists of two types:

General Times: stored for each type of attribute (Int In, Int Out, Position, Colour, Beam)

Individual Times: stored on an individual channel basis

All Cues have General Times whereas Individual Times are optional. When a Cue has Individual Times then these override the General Times. Cues can have Individual Times set for only certain heads or attributes – in this case Individual Times will be used for those heads and attributes, whilst the General Times will be used for all other heads and attributes.

FX

The Cue stores FX information for each of the FX that is in the programmer.

Split Cue Times

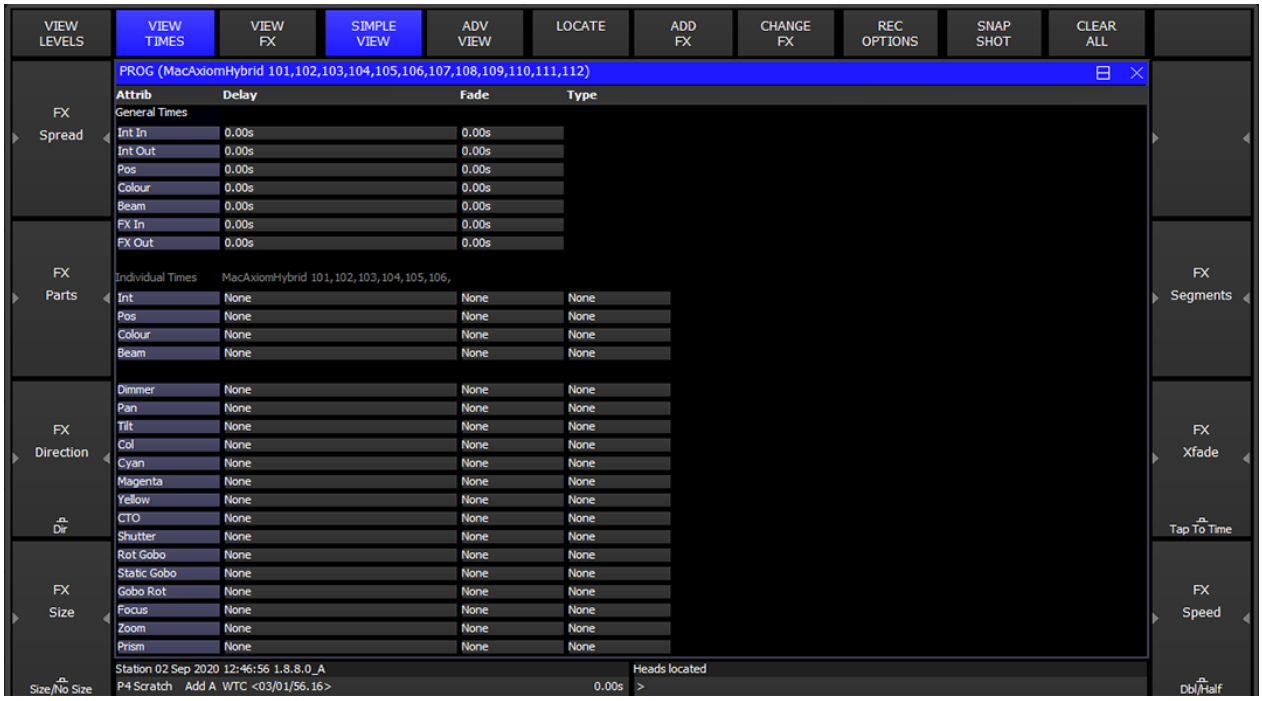
It is possible to add Split Cue times (different times for different heads) both before a Cue is programmed in the Programmer Window and afterwards in the Cue Window.

Split times can be added by playing back Palettes with time or by directly editing the Times in the Programmer or Cue Windows.

In both the Programmer and the Cue Window the View Times has two views – View Simple and View Advanced. View Simple is used for simple changes to times including entering split times across the selected heads. View Advanced is used for editing attribute times for a particular head one by one.

View Simple

The View Simple shows both General Times and Individual Times. The General Times are the times that are applied by default to attributes in the Cue – i.e. if you do not specify any Individual Time for an attribute on a head then the General Times will be used. The Individual Times lets you enter times for specific heads and for specific attributes.



If you select some heads selected then the Individual Times will show you the times for those heads otherwise it will show times for all heads in the Cue. If heads have different then the lowest and highest times are shown.

You can set split times in the Individual Times by selecting some heads and entering the shortest time followed by THRU and then the longest time. For instance, if you enter 4 THRU 8 in the fade field then it will set a fade times from 4 seconds to 8 seconds across the selected heads. The order is determined by the current order within the selected heads – you can change the selection order from the Group Window.

To specify more complex fades use the * shortcuts the same way as when selecting Palettes

with times. using-palettes-with-times

Using the NEXT HEAD, PREV HEAD displays the times for individual heads so you can step through each of the heads in turn to see their times. Use All to get back to the summary for all selected heads.

It is possible to set individual times on a per attribute view – but you must have some heads selected for this to work.

Use REMOVE to remove delay and fade times from heads – the times will be removed and MagicQ will use the General Times for these heads.

Symmetric Fade Times

Support is provided for applying symmetrical fades in Cues without using the * shortcuts. This provides simple symmetric fades without the need to remember the * shortcuts. Fade time is determined by the selection of the Heads. Delay time is 0 for all Heads.

To do a symmetrical fade enter the syntax in the Prog Window, VIEW TIMES or Cue Window, VIEW TIMES:

<time1> THRU <time2> THRU

or

<time1> THRU <time2> THRU <time1>

For example, to do a 1 to 5 second fade into centre of the Head selection

1 THRU 5 THRU

Or to do 1 to 5 second fade centre out of the Head selection

5 THRU 1 THRU

The * shortcuts continue to be supported.

Fade Type

It is possible to specify the fade type in both the Programmer Window, View Times and Cue Window, View Times.

- Default – fades according to Instant attribute in Personality
- Fade – always fades
- Snap at start – always snaps at beginning of fade
- Snap at end – always snaps at end of fade
- Damped - fades using a damped fade curve - starts slowly, speeds up, slows down
- Slow start - starts slowly, finishes fast
- Slow end - starts fast, finishes slowly

- User Curves 1 to 20

User Curves are edited in the normal way using the Curve Editor or imported from CSV file.

If a User Curve is referenced, but not programmed then a standard ramp will be executed.

View Advanced

In the View Advanced you can set delay and fade times on a per head and per attribute basis one at a time. It is also possible to set multiple heads and multiple attributes by highlighting multiple items using SHIFT and the cursor keys. To fan times across heads use Simple View.

Recording to a specific Cue Id

To Record to a specific Cue Id in a Cue Stack, enter the Cue Id number on the keypad before you press RECORD and select the Playback S button.

It is also possible when the Setup option "Select Heads and Palettes from keypad" is set to record Cues using only the keypad.

Press RECORD + ENTER to record directly to the currently selected Playback. You can record to a specific Cue Id on the currently selected playback by entering a number and pressing RECORD + ENTER.

You can record to a specific Cue Id and Playback by entering the Playback number followed by /, followed by the Cue Id and pressing RECORD + ENTER.

For example 6/2.0 ENTER records to Playback 6, Cue Id 2.0.

Snapshot Icons

MagicQ stores Snapshot images of the Visualisation, Media or Pixel Mapping output when recording Cues and Palettes enabling easy identification of the contents of Cues and Palettes. MagicQ grabs Snapshots directly from MagicVis and MediaMaster. MagicQ can also grab Snapshots from Capture using CITP and from MSEX compliant Media Servers.

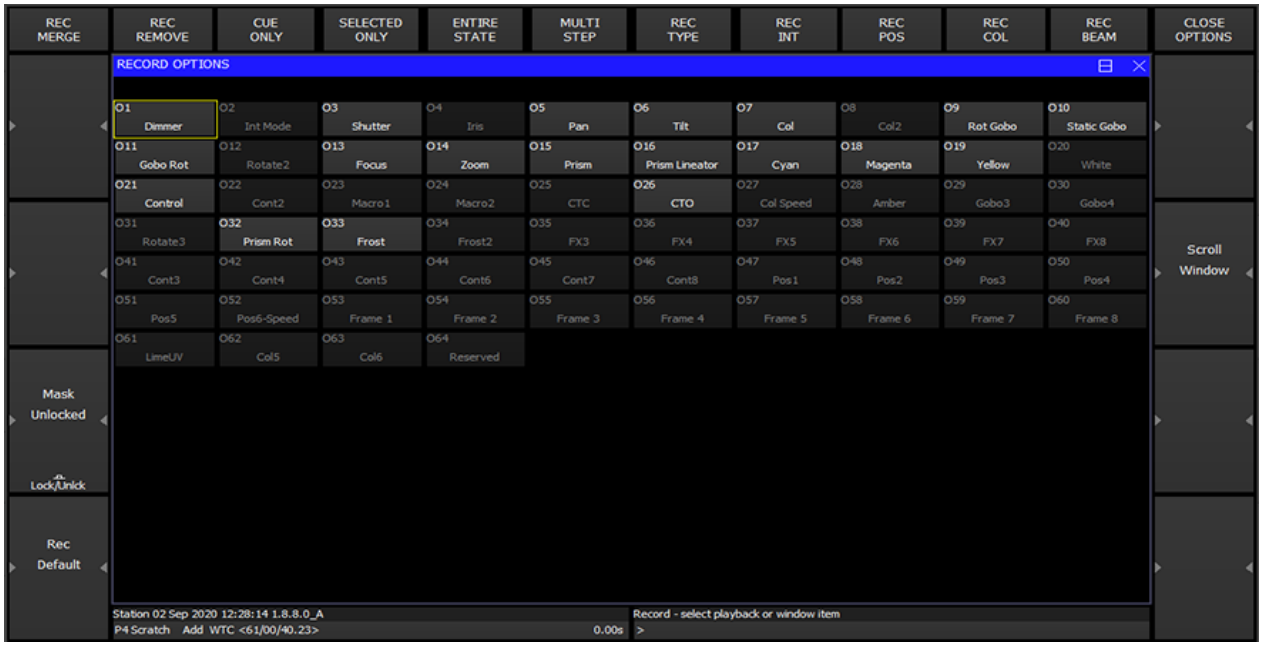
Icon snapshots are stored on the MagicQ system/console rather than in the show file to avoid the show file getting too large. In normal operation MagicQ will save the icon snapshots to the icon folder on the MagicQ system and retrieve them when needed for display. To copy icon snapshots along with your show file to a different MagicQ system, then the show extras file (.xhw) needs to be copied along with the show file of the same name. These icon snapshots will then be loaded alongside the show file when opened.

MagicQ will only store snapshot icons when the relevant Visualiser / Media Server is active and connected.

Record Options

Record options can be accessed when recording by pressing SHIFT and RECORD or at any

time using the REC OPTIONS soft button in the Programmer Window.



Record Short Cuts

There are many short-cuts keys for recording

Record Merge

Hold S and press REC	Record Merge into Current Cue on Playback
REC 0 ENTER	Record Merge into Current Cue on Playback
REC UPDATE	Record Merge into Current Cue on Playback
Hold + and press REC	Record Merge (then choose where to merge)
Hold – and press REC	Record Remove (then choose where to record)
Hold UPDATE and press REC	Record Update (then choose where to record)

Record Cue Only

Hold / and press REC	Record cue only (then choose where to record)

Record selected heads only

Hold * and press REC	Record selected heads only
Hold * and + and press REC	Record merge selected heads only
Hold * and - and press REC	Record remove selected heads only

Masking

The console supports comprehensive masking facilities to enable the operator to select which attributes are recorded from the programmer into Cues.

By default there is no masking applied - all channels in the programmer are recorded into Cues. Two types of masking can be applied - masking by attribute type and masking by attribute.

Masking by attribute type enables the operator to select which of the intensity, position, colour and beam attribute types is recorded. Press the REC INT, REC POS, REC COL and REC BEAM soft buttons to select the attribute types to be recorded.

Select attributes in the Record Options Window to select to record individual attributes into the Cue.

Select Entire State to record all the values in the Programmer regardless of whether they have been changed since the last Cue was record – this forces a blocking Cue to be recorded with hard values. Use ALL + RECORD as a shortcut to select Entire State.

The Status Display indicates when any masking is active. Masking is cleared once a Cue is recorded - this can be prevented by pressing the LOCK MASK soft button in the Record Options Window.

The Record Option Window displays individual attribute names based on the currently selected head so that it is easy to recognise the attributes to select. If no heads are currently selected then it uses the first active head in the programmer.

Masking can be selected quickly by holding Intensity, Position, Beam or Colour and pressing RECORD for recording only the selected attributes.

Record Type

MagicQ supports several options for recording Cues.

- Default
- Active
- All of Head
- Selected Head
- Snapshot
- All Active Head Type

Press the REC TYPE soft button and select a type.

Record Type returns to the defaults once a Cue is recorded.

The All Active Head Type is only used when recording Palettes.

Active

MagicQ has an Active function for loading attributes into the programmer at their current value. This can be used to ensure that the programmer contains all the attributes of the selected heads, or to add in individual attributes to the programmer.

To make individual attributes active in the programmer, hold SET and press the soft button associated with the attribute in the Intensity, Position, Colour, Beam windows.

It is also possible to make active entire Intensity, Position, Colour or Beam attributes by holding Position, Colour or Beam or Intensity and pressing SET.

To make all the attributes of a group of heads active, first select the heads you want to control, then hold * and press SET. Alternatively in the Programmer Window press SHIFT and select ACTIVE.

Removing Channels from the Programmer

Removing Channels Using the REMOVE Button

To remove (knock out) items from the programmer.

- Select the heads you wish to remove attributes from. If no heads are selected then all active heads in the programmer are affected.

Then choose one of the following methods

- Hold REMOVE and press All, Position, Colour, Beam. This removes all attributes of these of Intensity, Position, Colour or Beam.
- Hold REMOVE and turn an encoder wheel or press the soft button in the Beam, Colour, Position or Group windows – the specified attribute will be removed.
- Hold All, Position, Colour or Beam and press REMOVE. This removes all attributes of these of Intensity, Position, Colour or Beam.
- Hold a soft button in the Beam, Colour, Position or Group windows and press REMOVE. The specified attribute will be removed.
- Hold * and press REMOVE to remove all attributes of the selected heads.

Removing Channels Using the Programmer Window

It is also possible to remove attributes from the programmer by editing the spread sheet view in the Programmer Window.

Select the item (s) with the cursor that you wish to remove from the programmer and then press the REMOVE soft button.

For example, to remove the iris attributes for all heads in the programmer:

- Select VIEW LEVELS in the Prog View.

- Select the entire Iris column (move to the top, hold SHIFT and press END)
- Press the REMOVE ATTR soft button.

To remove, all of the attributes of Maverick Force X Spot head numbers 2 and 3 from the programmer:

- Select VIEW LEVELS in the Prog View.
- Move the cursor to the Head Name column.
- Select Maverick Force X Spots 2 and 3 (move to the row for number 2, hold SHIFT, move to row for number 3)
- Press the REMOVE HEAD soft button.

To remove, the FX for head number 2:

- Select VIEW LEVELS in the Prog View.
- Select ADV VIEW.
- Move the cursor to the Head Name column for Spot number 2.
- Press the REMOVE HEAD FX soft button.

Making Channels Hard Values

Channels in the programmer can be set to have hard values instead of palette values. This function can be accessed in the Programmer Window, View Levels with SHIFT + MAKE HARD. All attributes of the currently selected heads that are active in the programmer are made hard (non palette) values. If no heads are selected then all heads in the programmer are affected.

Keyboard shortcuts are also available by holding POS, COL, BEAM, * or one of the attribute soft buttons and pressing INC. This operates in a similar way to making channels active using SET, knocking out channels using REMOVE or partial locating channels with LOCATE.

To make channels hard in the programmer.

- Select the heads you wish to make hard attributes from. If no heads are selected then all active heads in the programmer are affected.

Then choose one of the following methods

- Hold INCLUDE and press All, Position, Colour, Beam. This makes the Intensity, Position, Colour or Beam attributes hard.
- Hold INCLUDE and turn an encoder wheel or press the soft button in the Beam, Colour, Position or Group windows – the specified attribute will be made a hard value.
- Hold All, Position, Colour or Beam and press INCLUDE. This makes all of the Intensity, Position, Colour or Beam attributes hard values.
- Hold a soft button in the Beam, Colour, Position or Group windows and press INCLUDE. Channels of the specified attribute will be made hard.

- Hold * and press INCLUDE to set all attributes of the selected heads to hard values.

Copy between Heads

You can copy between heads using the keypad. To copy the head data, select some heads from the keypad, press COPY and then enter the destination heads. For example, to copy from heads 1 to 2 to heads 5 to 8

1 THRU 2 COPY 5 THRU 8 ENTER

MagicQ also supports the @ Syntax.

COPY 1 THRU 2 @ 5 THRU 8 ENTER

It is not necessary to have the same number of source heads as destination heads. Each of the source heads is used in turn to copy data to the destination heads.

If the source head is using a palette for an attribute then the destination head automatically also uses the palette - but uses its value from the palette, not the value from the source head.

Head data can be copied between different types of heads. If the source head is not using a palette then MagicQ will try to match range information - for example if the source head has a random strobe in the shutter channel then MagicQ will try to find a random strobe in the shutter channel of the destination head. If no range match can be found then MagicQ simply uses the hard value from the source head.

The Copy heads setting in Setup, View Settings, Cue Storage specifies whether copying of heads in the programmer is limited to the attributes that are in the programmer or whether it includes attributes that are active on playbacks.

Fade times will only be copied if the source head has level data in the programmer. FX data will only be copied between heads where the source head has FX data in the programmer.

Selected attributes can be copied rather than the entire head. In software v1.9.1.0 and above this can be done directly from the keypad.

1 THRU 2 COPY POS COL 5 THRU 8 ENTER

To specify individual attribute masks use SHIFT + COPY and set the required attribute mask. A shortcut to copy just one attribute type is to hold the attribute type button and press COPY - for example to copy just colour, hold COLOUR and press COPY.

COPY GROUP 1 @ GROUP 2 ENTER will copy head data from heads in Group 1 to heads in Group 2.

You can copy from the current selection to other heads by using the COPY @ syntax, for example to copy from currently selected heads to heads 1 and 2:

COPY @ 1 THRU 2 ENTER.

COPY @ GROUP 2 ENTER.

Copying head data in this way respects sub selection on the source, so when sub selection is active then it will only copy from heads that are sub selected not from all heads that are selected.

Blind Programming

A show can be programmed without affecting the state of the outputs using blind programming mode. In this mode the programmer will operate as normal (with the current levels being displayed in the Prog Window) but the contents of the programmer will not be output.

Enter and exit blind mode by pressing the BLIND button. The button illuminates to indicate blind mode is active and BLIND is indicated in the status display.

Blind mode is also useful during playback for busking in FX. For example you might wish to set up a FX on some moving heads using blind mode – configuring the speed and size before you make it live.

You can enter and exit blind mode with times. For example, press 10 BLIND to enter blind mode over 10 seconds.

Parking (Freezing) Channels

It is possible to park (freeze) channels using the PARK soft button in the Group Window. Press SHIFT + PARK to unpark channels.

All attributes of selected heads that are in the programmer are parked. To make all the attributes of the selected heads active, go to the Programmer Window and press SHIFT and ACTIVE.

When parking, if no attributes are in the programmer then the whole head is parked.

When unparking, all attributes of the head are unparked regardless of those that are in the programmer - this avoids the need to work out which attributes were parked.

Parking persists over shutdowns and resets. Parking information is stored in the show file.

Parking forces HTP values to the parked value regardless of other playbacks (In Group window, SHIFT + ACTIVE).

Outputs Windows

On MagicQ you can view the Outputs in many different ways. MagicQ supports up to 4 different Output Windows. This allows four different output views to be viewed simultaneously.

Press the OUT button to open the main Output Window. Press 2 and then OUT to open the second Output Window, 3 + OUT for Output Window 3 and 4 + OUT for Output Window 4. The 2nd Output Window – the Output Info Window can also be opened by pressing CTRL + OUT.

In the Outputs Window, just as in the Programmer Window and Palette View Window there is auto ordering of heads. MagicQ orders the heads according to the selection order. When no heads are selected the order is the normal head order. Auto ordering can be turned off in the Setup Window under Windows, "Auto Row ordering".

The Outputs Window has many different views – press the soft buttons on the top left hand side to change the views.

Heads View

The Heads View shows information for all of the heads patched in the show - press the VIEW HEADS soft button.

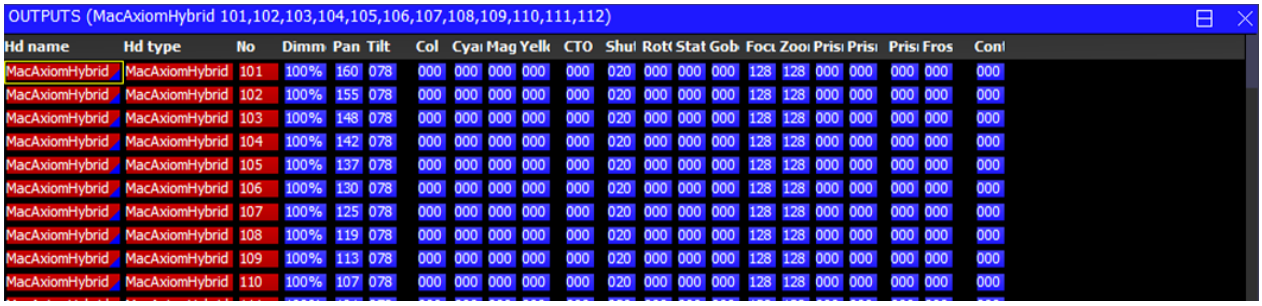
The sort order of the heads is as chosen in the Patch Window, Sort Head. If the Setup option, View Settings, Windows, Auto Row Ordering is set to "yes" then the sort order is modified to show the currently selected heads at the top.

The Output values shown are the values calculated internally in MagicQ BEFORE any patch adjustments are made such as dimmer curves, offsets, inverts, merges, min and max and vdims.

Press CTRL and SHIFT to see the 16bit raw DMX output values.

You can request only information for certain heads to be shown by using the PROG ONLY, SEL ONLY and SEL PB soft buttons. These show respectively, heads that are active in the programmer, selected heads, and heads in the current cue on the selected playback.

You can choose what information is shown for the heads using the VIEW VALS, VIEW RAW and VIEW PLAYBACK and VIEW CUE IDS soft buttons. VIEW VALS shows the values including range and palette names. VIEW RAW shows the numeric values. VIEW PLAYBACKS shows which Playback is controlling the attribute and VIEW CUE IDS shows which Cue ID in a Playback is controlling the attribute.



The following colours are used:

Red: Attributes that are in the Programmer

White: Attributes under control of a Playback.

Blue: Attributes controlled by the currently selected Playback

Grey: Attributes not under control of Playbacks or Programmer

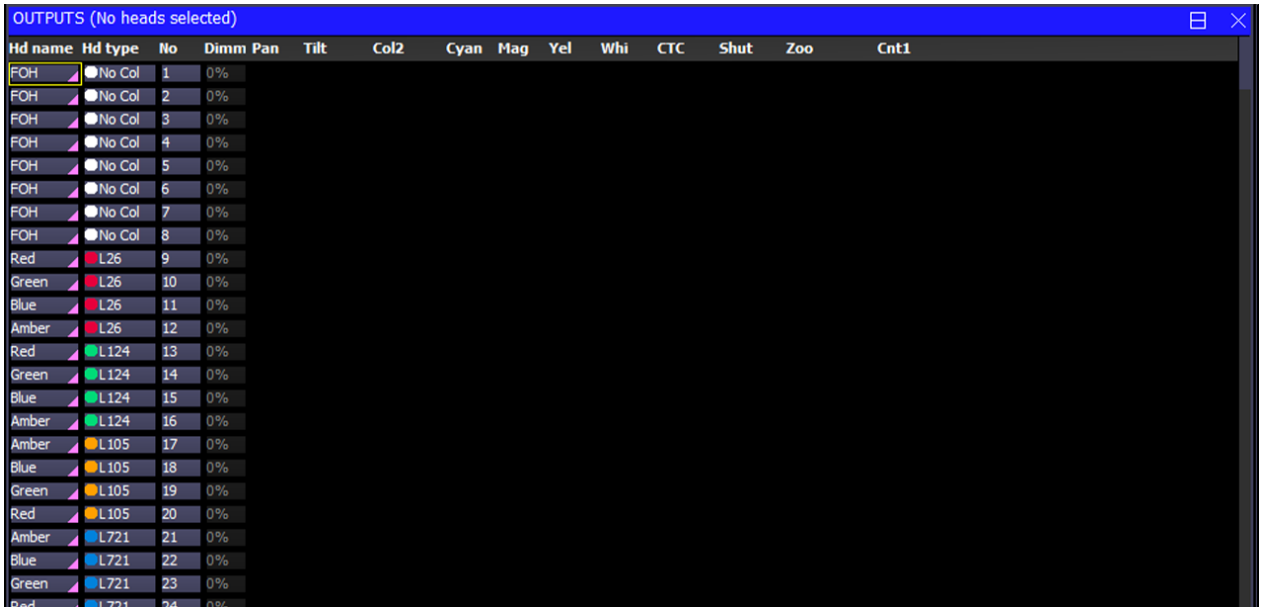
Intensity View

The Intensity View shows just intensity information for the patched heads enabling a large number of heads to be shown within the window. Press the VIEW CHANS and VIEW INT soft buttons. Intensity level is shown as a percentage (%).

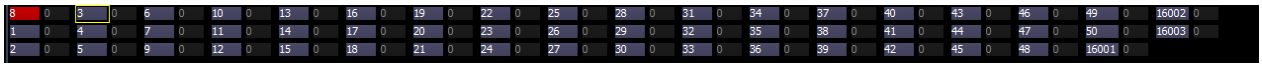
The sort order of the heads is as chosen in the Patch Window, Sort Head. If the Setup option, View Settings, Windows, Auto Row Ordering is set to "yes" then the sort order is modified to show the currently selected heads at the top.

The Output values shown are the values calculated internally in MagicQ BEFORE any patch adjustments are made such as dimmer curves, offsets, inverts, merges, min and max and vdims.

Use the VIEW HORIZ soft button to change whether heads are shown horizontally or vertically.



The VIEW NAMES soft button allows names to be shown. Deselect this option if you wish to maximise the number of heads shown in this window or you wish to have a more traditional theatre channel list view.



The VIEW COLS soft buttons allows colours to show the state of the channel.

Red	In programmer
Cyan	Increasing value
Green	Decreasing value
White	Static value controlled by Playback/Cue
Magenta	Tracked value

DMX Channels View

The DMX Channels View shows the actual values that are being output on the DMX or on the network. Press the VIEW CHANS, VIEW DMX and VIEW VALS soft buttons. Note that these values are the real output values – if the output is enabled then these values will be the values transmitted in the DMX packets on the wire. Inversions, merging, and all other modifications are made to the values before they are displayed in this Window.

Intensity channels are shown in red, position in green, colour in purple and beam in yellow. Channels that are not patched are shown in grey.

Use the View Names option on soft button B to make it easier to find specific DMX channel outputs.

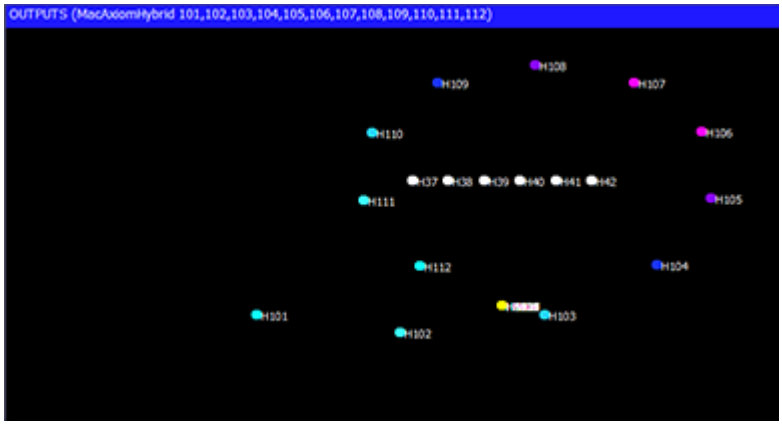
Use the VIEW INPUTS / VIEW OUTPUTS soft buttons to view the DMX / network values that are being received rather than the ones being transmitted.

When viewing the Inputs it is possible to select the VIEW MIN MAX soft button to show the maximum values received. Deselecting the VIEW MIN MAX resets the view.

VIEW ART-NET changes to a view of the first 256 Art-Net universes with a count of the number of Art-Net packets being received on each universe per second. Counts in red show an Art-Net universe where there is a conflict from 2 or more consoles.

Movement View

Press the VIEW CHANS, VIEW DMX and VIEW MOVE soft buttons for movement view.



The movement view shows the relative positions of heads in terms of pan and tilt range on a 2D map. It also shows the current colour of the heads. This enables previewing of FX and relative positions without the lighting rig. Press the VIEW CHANS, VIEW DMX, VIEW MOVE soft buttons.

Chart View

Press the VIEW CHANS, VIEW DMX and VIEW CHART soft buttons for chart view.

In this view whole universes of DMX are shown in a graphical format. Use Encoder A to change the starting universe.

Press VIEW INPUTS to view the DMX inputs to the console instead of the outputs.

Scope View

Press the VIEW CHANS, VIEW DMX and VIEW SCOPE soft buttons for chart view.

The Scope View enables monitoring of a single channel of DMX either output from the console or input to the console.

Set the DMX channel to be monitored on soft button / encoder A. Press VIEW INPUTS to monitor inputs.

SCOPE FREEZE Can be used to freeze the capture.

SCOPE 16 BIT monitors a 16 bit channel, showing the combined hi and low bytes of the channel.

The Zoom and Offset encoders can be used to view 16 bit values in more detail.

From the Patch Window, VIEW CHANS press SCOPE CHAN to view the DMX Scope of the cursor channel.

Plan View

Plan View enables 2D plans of the stage rig to be constructed and viewed. It also enables grids of LED or dimmers to be created for use with the in-built pixel mapping (Bitmap FX) engine.

Press the VIEW PLAN soft button.

Creating Rig Plans

It is possible to create a rig plan in the Outputs window, so that you can easily identify the levels and colours of your moving lights based on their position in the lighting rig. The model of the rig in MagicQ consists of a grid - each cell can be assigned to a particular head number.



In the Outputs Window, select View Plan. Then select View Grid and View Head Nos. Press Grid Size and enter a matrix size for your lighting rig – e.g. 30/20 gives a 30 column by 20 row grid.

If grid width is specified then MagicQ will choose a height to keep the aspect ratio for the background bitmap, or if none to match the width.

A grid is now displayed. In each of the boxes enter the head number of the head that you wish to be represented in this box. In order to make best use of this feature all heads should have unique numbers.

The grid can be zoomed on encoder E. Hold ALT to zoom horizontal only.

Soft button E can be used to zoom into the current cursor position and to reset back out to 100%.

Background images can be added via the Grid Action soft button.

Inserting Heads Using Heads Numbers

You can use SHIFT or CTRL and the cursor keys to cursor select a number of items and set a sequence of head numbers starting from the entered head number. The order of the cursor

selection determines how the items are ordered - for example, cursor selecting an area from bottom right to bottom left and then to top left will cause the heads to be number from bottom right to top left starting horizontally.

Note that it is not necessary to have a head number assigned to every cell in the grid – cells can be blank. This enables the lights to be positioned in the grid in a corresponding way to how the heads are positioned on the rig.

To remove a head number from a cell, press REMOVE and select the cell. Move and Copy can also be used to quickly move or copy one or more cells.

To enter an element of a Head enter <Head No> . <Element>

When setting Head Nos into a Grid with Grid Options Multi Element MagicQ now sets Head Nos according to whether an element is specified or not. Head Nos without elements are set as single Heads in the grid whilst Head Nos with elements are set as multi element Heads in the Grid. For example, setting Head No 10 will insert just the Head 10 in a single cell, whilst setting Head 10.1 will insert all the Head Elements into cells as per the element layout of the Head.

The Grid Option "All Multi" forces Heads with multiple elements that are entered as a Head No without an element specified to be inserted as all elements in a Multi Element grid.

Inserting Heads using Insert Heads

You can use the INSERT HEADS button to insert the currently selected heads into the grid. The heads are placed in order of head number. If no heads are selected then all heads from the patch are inserted.

The Insert Heads soft button has the options Horiz, Vert, Dup Ele (Horiz), Dup Ele (Vert), 3D and Col Web.

Horiz, Vert insert into the Grid in the horizontal or vertical direction. Multi element heads will be inserted into separate grid cells according to the width and height specifiers in the personality and using the shape from the personality to determine the orientation of the multiple elements. Duplicate element heads will be inserted as a single cell.

Dup Ele (Horiz) and Dup Ele (Vert) are used to insert all the elements of a Duplicated Element head into the grid as separate cells. The duplicated elements will be inserted into separate grid cells according to the width and height specifiers in the personality and using the shape from the personality to determine the orientation of the duplicated elements.

Note that Horiz and Vert refer to the relationship between separate heads, not the orientation of the multi elements or duplicated elements within a head. To rotate a multi element or a duplicated element head to an orientation that is different to that specified in the personality, use the Output Multi Head Support below.

3D is used for inserting for 3D pixel mapping in the 3rd dimension - only multi element heads can be inserted in 3D.

Col Web is for inserted Colour Web only.

Output Grid Multi Head Support

The Output Grids supports manipulation of multi element heads and duplicated heads as complete objects. When setting a grid size for the first time MagicQ prompts whether to use multi heads or not. The option can be changed at any time by pressing the GRID OPTIONS soft button and selecting Set Multihead or Clear Multihead.

In Multi Head mode, MagicQ automatically keeps tracks of the elements of the multi element or duplicated heads, adjusting them each time the head is inserted, moved or rotated in the Grid.

Setting Multi Head to "No" will change back to each element operating with each cell for multi head fixtures being placed manually by the user. When pixel mapping on multi element Heads we recommend to set Multi Head to "Yes".

Output Grid Display Types

Press VIEW TYPE to select the information that is displayed in each cell. The options are:

- Head Names
- Head Nos
- Intensity
- Head Nos + Int
- Head Nos + Int + Names
- Colours
- Patch
- Current Cue
- Pixel

Select Colours to view the outputs of your rig. When a head has a level greater than 0% the box starts to get filled until at 100% it is completely filled. The colour of the lamp is also indicated.

When set to Patch, the head number and DMX address of each Head is shown.

Selecting Current Cue shows the contents of the current Cue instead of the Output. The current Cue is the Cue that is showing in the Cue Window - which normally is the active Cue on the currently selected Playback - unless the Cue Window has been locked to a specific Cue in a Cue Stack.

When set to Pixel, the output is a pixel array the size of the grid. It can be zoomed to fill the window if required with each pixel being expanded up to more pixels. Head nos, head names or intensities are not shown.

Output Grid Repatching

It is possible to repatch Heads from within the Output window, making it easier to modify a show to a festival or house rig.

Open the Output Window in View Plan and View Grid. Choose Output Type of Patch.

The REPATCH soft button can be used to repatch Heads.

Click on a cell to select a Head. Then press REPATCH and enter the new DMX address.

Multiple cells can be selected before pressing REPATCH, using SHIFT, CTRL or by dragging over cells.

When Head Test is on (Soft button C) then repatching a Head will cause the test to follow the changed DMX, making it easy to prove that the new address is correct.

Output Grid Options

The options of the grid can be configured:

Multi Ele	In multi element mode MagicQ handles the head as one head, automatically inserting the elements.
All Multi	In multi element mode, any Head Nos manually set without an element number specified, cause all Elements to be inserted.
Grid on Groups	Grid operates on Groups (a Group per cell) rather than heads
Show Symbols	Heads in the Grid are shown as symbols based on the Shape specified in the Patch for the Head, or the default from the Head Personality
Keep Aspect Ratio	The aspect ratio of the background image is maintained. If not background image is specified then the Grid cells are kept square.
True Colour	The grid shows colours based on fixture emitter data (if supported on that fixture)
Select Lines	Selection of whole rows or columns is supported by clicking on empty cells adjacent to items in the grid
Int None	Colours are shown according to their colour or gel regardless of intensity level
Int Colour Grade	Colours are graded according to the current intensity - if fixture is at 0% intensity then no colour will be shown

Int Glass Fill	Colours use the full colour but the cell is filled according to the intensity, like filling a glass.
Inv Background	Inverts the background colour - i.e. white to black, black to white
Rot 0 Background	Background is displayed as per the image
Rot 90 Background	Background is rotated 90 degrees
Rot 180 Background	Background is rotated 180 degrees
Rot 270 Background	Background is rotated 270 degrees

Background images are selected from the show\bitmaps folder. Bitmaps that are used within a MagicQ show are saved into the .xhw show file.

Output Grid Actions

In View Grid mode, actions can be performed on the grid

Patch Pixmap	Patch a Pix map personality on the grid
Arrange Vis	Sets the XYZ location of the head in the Visualiser based on its grid position
Set Background	Sets a background image to the grid
Clear Background	Clears the background image
Gen XY	Generates XY data for the Grid - reserved function - for Support use only
Reorder XY	Reorders according to XY data - reserved - for Support use only
Import Grid	Imports a Grid from CSV file
Export Grid	Exports the current Grid to CSV file

Importing and Exporting Grids

There is a facility to Import and Export Grid data to CSV files for editing in Excel or other systems. In Output, View Plan choose View Grid and Grid Action.

The Export Grid exports the current Grid to a file in the show folder named gridX.csv where X is the Grid ID. Group Grids have the Group number plus 100, so Group Grid for Group 1 is grid101.csv.

The Import Grid imports from a file of the same name. When Importing if a Grid already exists then all cell data from that Grid is first removed and the size is set to the size of data in the .csv file.

The format of the file is simply head numbers or head number.element number. Each head number in a row is separated by a comma or a semi colon and the line is terminated by a newline or carriage return.

A typical Grid CSV file for a Grid of width 4, height 3 would be:

1,2,3,4 5,6,7,8 9,10,11,12

For a Grid with multi head elements with a 10x1 LED pixel bar it would be:

1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10

Selection of heads in Outputs Plan View

Heads can be selected from the plan view and then their parameters changed by pressing and holding the Group, Position, Colour or Beam buttons. When the programmer setting "Highlight defaults beam and colour" is enabled, any heads selected will have their dimmer set to 100% in open white.

When the Outputs Plan view is used as a stage plan it is possible to select multiple heads in a row or column by clicking on blank spaces in the grid. Ensure the Grid Option, Set Lines is enabled.

Clicking on a blank space at the top edge of the grid will select/deselect heads in the whole column depending on the current selection state of the heads.

Clicking on a blank space on the left edge of the grid will select/deselect heads in the whole row depending on the current selection state of the heads.

Clicking on a blank space at the bottom edge of the grid will select the whole column regardless of the current state of selection of the heads.

Clicking on a blank space at the right edge of the grid will deselect the whole row regardless of the current state of selection of the heads.

Clicking within the grid on a blank space that is adjacent to a head will have the same effect as above – but only for all the heads directly adjacent to each other. As it is possible that the blank space that is clicked on may have more than one adjacent head, the priority is left, top, right, bottom.

For other plans where head numbers are packed into the grid with no blank spaces – e.g. LED arrays, it is still possible to use this method but the grid must have blank spaces around the edges of the grid.

Groups within Grids

It is possible to mix both individual heads and groups within a Grid.

Create a Grid as normal and then copy any required Groups from the Group Window into the Grid.

Groups in Grids can be used to select heads and are also used by the Pixel Mapper to output for all heads in the group instead of just for one head.

Note that if you wish to make an entire Grid work on Groups then this continues to be

supported using Set Grid On Groups in Grid Options - all boxes in the Grid will then refer to Groups instead of Heads.

Key Macros in Grids

Key Macros can be set in the Output Grid. For example, this could be used to put CLEAR, LOCATE or changes to intensity into the Grid.

To place a key macro in a grid, simply copy the Key Macro from the Macro Window into the Grid when in View Grid. If the Macro has an icon assigned then that icon will be shown in the Grid.

Exec Items and Text in Grids

Exec Grid items can now be copied to the Output Grids. This enables Palettes, Cues, Cue Stacks and Assign Special items to be shown and selected in the Output Grids.

Text can now be stored directly on the Output Grids. Press SET and store alphanumeric text. Note that if the entered text is purely a number, or a number including "." or "-" then the text will be treated as a head/element number and used to insert heads in the grid. For convenience, the text strings are the same as are used in the Pixel Mapper.

Editing Cues

Including Cues into the Programmer

A programmed Cue can be included back into the Programmer so that the information can be used to program further Cues. When a Cue is included all the level, timing and FX information is loaded.

Cues can be included directly from Playbacks - the current Cue in the Cue Stack is included. Cues can also be included from the Cue Stack, Cue and Cue Store Windows. Including of Cues is an easy way to edit Cues.

To include a Cue press INC and the S button of the Playback. The current Cue on that playback will be included.

INC S

To include a specific Cue on the Cue Stack enter the Cue ID - for example to include Cue 2.00 use

INC 2 S

You can also use keypad syntax or the Record Options to specify that only part of the Cue should be included into the programmer – for example only certain attributes or only selected heads.

INC POS COL S

GROUP 1 INC S

101 INC POS S

To specify a Group or Head and a Cue ID use / to separate the Head No or Group ID and the Cue ID.

GROUP 1 INC / 2 S

101 INC / 2 S

The alternative order keypad syntax is also supported, but HEAD must be used to specify HEAD numbers to distinguish from Cue IDs.

INC HEAD 101 S

INC HEAD 101 / 2 S

INC GROUP 1 S

INC GROUP 1 / 2 S

Masking can be selected quickly by holding Intensity, Position, Beam or Colour and pressing

INCLUDE for including only the selected attributes.

Press SHIFT and INCLUDE to get the full include options.

By default only the data recorded into the specified Cue is included into the programmer. Use the Entire State option when including Cues into the programmer to include the whole tracking state of a Cue. The shortcut cue ALL + INCLUDE can be used to select Entire State.

When Cues are included into the Programmer then the channels from the Cue are automatically selected if the Setup option "Select Heads on Include" is set. At any time, CTRL + ALL selects all heads in the programmer.

Include from a playback uses the current Cue unless a Cue ID is specified.

Including Cues at a Specified Level

By default Include loads the Cue into the programmer at 100%. It is possible to modify this action using the keypad to use selected levels.

To include a Playback or Cue at a particular level (e.g. 40%), press INCLUDE, type @ 40 and select the Playback or Cue to include.

To include a playback at its current level press INCLUDE, type @ and press the Select button of the playback.

Snapshot

The Snapshot function enables the complete current output to be loaded into the programmer and hence recorded into a Cue. This function takes the Cues running on all active playbacks and includes them into the programmer based on the level of the fader. Both channel information and FX information is included into the programmer.

To snapshot the current output, open the Programmer Window and press the Snapshot soft button.

There is a shortcut for recording a complete snapshot - hold THRU and press REC.

Editing Using Include and Update Method

Cues can be edited using INCLUDE and UPDATE. This includes the Cue data into the programmer where it can then be changed, before it is saved back to the Cue using Update.

First, clear the Programmer, then include the required Cue back into the Programmer. Modify the required values in the Programmer and then use Update to re-record the Cue.

You can include multiple Cues into the programmer. When you press UPDATE, the last Cue that you included will be modified. The Status Display shows which Cue was the last one to be Included.

Record Merge (Updating a Cue with the contents of the programmer)

You can quickly and easily merge the contents of the programmer into the current Cue on a Playback by holding the S button for the playback and pressing REC. The programmer is merged into the current Cue on the Playback.

To merge into a specific Cue on a Playback, hold + and REC to select Record Merge and then type the Cue ID on the keypad before pressing the S button for the Playback.

Making Changes to Multiple Cues

Changes can be made to multiple Cues using the REC MERGE and REC REMOVE record options to specify a change in the programmer which is then merged with or removed from a number of Cues.

There are some short-cuts for selecting RECORD MERGE and RECORD REMOVE

Hold '+' and press REC for REC MERGE

Hold '-' and press REC for REC REMOVE

Then press a S button and MagicQ will ask whether to merge into the current Cue on the Cue Stack or the Entire Cue Stack.

Changes to Multiple Cues Using Keypad

MagicQ supports record merging / record removing to a range of cues using the keypad – for example, to merge into Cue ids 2 through 4:

RECORD MERGE 2 THRU 4 S

This function also works for the shortcuts – e.g. holding S and then typing a range of Cue Ids before pressing RECORD.

Both the THRU and the + and – operators are supported.

Changes to Multiple Cues using Cue Stack Window

To remove all the pan and tilt information for a group of heads from all the Cues in a Cue Stack on a particular playback.

Clear the programmer.

Select the heads and modify the pan and tilt attributes.

Open the Cue Stack Window and select the playback with the Cue Stack to modify.

In the Cue Window, use cursor keys to select all the Cues (PG LEFT, HOME, SHIFT+END).

Press SHIFT + RECORD and select REC REMOVE record option.

Press ENTER.

Editing Using Update

MagicQ supports a function for easy updating of Cues and Palettes without first Including the Cues and Palettes. This is useful when making modifications to a pre-programmed show.

When you press Update (when not in Include Mode) a list of all the Palettes and Cues that have been overridden is shown. You can then choose which of the Palettes and Cues to update by selecting from the select box. One you have finished your selection press the "Done" button. You can press "Cancel" at any point to cancel the Update.

When using a tracking Cue Stack, MagicQ will show all the Cues that have been overridden in the Stack – hence you can make an update even if the attributes were used in a previous Cue on that Cue Stack.

Pressing SHIFT + UPDATE forces an update using the above method even if a Cue was previously included.

Direct Modification of Intensities in Cues

To add or change the intensity of heads (or dimmer channels) recorded into a Cue on a Playback without using the programmer, press and hold the SELECT button of the Playback with the Cue to be modified. Then use the keypad to adjust the intensity channels – e.g. typing 1 THRU 4 @ FULL will add channels 1 to 4 at FULL into the current Cue on the Playback. The change is immediate and permanent. The programmer is not affected.

Setting intensities in a Cue can be absolute - e.g. setting some heads to 50% - or relative, e.g. setting some heads +10% where they are already used.

To remove a level from the current Cue on a Cue Stack – hold the S button and set the channel at the special level . .

```
For example, whilst holding S type
```

- 1 @ FULL Sets head 1 to FULL in current cue on Playback with S held
- 1 @ +10 Adjusts head 1 intensity +10% in current cue on Playback with S held
- 1 @ FULL THRU Sets head 1 to FULL in all cues on Playback with S held
- 1 @ +10 THRU Adjusts head 1 intensity +10% in all cues on Playback with S held
- 1 @ .. THRU Removes head 1 intensity in all cues on Playback with S held

Note that in order to use THRU at the end of the syntax line to select all Cues in the Playback the Setup option, View Setup, View Settings, Keypad, Auto Enter on Intensity Set, must be set to No.

Copy Heads in Cues

Head information can be copied from heads within a Cue/Cue Stack to other heads within the Cue Stack. The destination heads do not have to have been in the Cue/Cue Stack prior to the copy.

From v1.9.1.0 use the following

GROUP 1 COPY GROUP 2 S

101 COPY 102 S

To copy individual attribute types only

GROUP 1 COPY POS GROUP 2 S

The @ syntax is also supported

COPY GROUP 1 @ GROUP 2 S

COPY 101 @ 102 S

COPY POS GROUP 1 @ GROUP 2 S

If a Playback has more than one step then MagicQ will offer the choice of copying heads in the Entire Cue Stack or in a specific Cue. It is also possible to manually enter the steps to copy heads in before pressing the S button.

The process of a selecting a Cue Stack and Cues is similar to the process when record merging or record removing in Cues/Cue Stacks - just in this case a copy head data operation is carried out instead of a merge/remove from the Cue/Cues.

Prior to v1.9.1.0 or to use specific attribute masking use one of the following:

- Hold + and COPY
- Press SHIFT + COPY and select the COPY HEADS option
- Press COPY HEADS option from the Copy toolbar (when Always Show Record Options = Yes)

Once in COPY HEADS mode choose the heads to copy by either selecting from the keypad

2 @ 3 ENTER

Or from the Group Window by selecting a source and destination Group.

Finally select an item to copy heads in - for example press the S button of a Playback.

Cue Stacks

MagicQ stores sequence of Cues as Cue Stacks. Cue Stacks keep track of the order of the cues and the options for how they are played back. A Cue Stack may have only one Cue associated with it or may have a whole list of Cues.

When you record a Cue onto a Playback, MagicQ automatically generates a Cue Stack. MagicQ adds the Cue Stack to the Stack Store. The Stack Store is a list of all Cue Stacks stored in the show. The Cue Stack will be given a unique Cue Stack Number (e.g. CS1). This enables the Cue Stack to be re-used in future programming.

If a Playback already has a Cue Stack stored on it, then by default the new Cue will be added to the end of the Cue Stack. However if you key in a Cue Id before pressing RECORD then the Cue will be inserted into the Cue Stack in the appropriate place.

To view a Cue Stack, press the SELECT button of the Playback and then CUE STACK to open the Cue Stack Window. Alternatively double click the SELECT button of the Playback.

Cue Stack Window

The Cue Stack Window shows details of all the Cues in the Cue Stack including their names, numbers and timing information. The fields can be edited in a similar way to the Prog Window and Patch Windows.



The status field indicates the current status of the Cue in the Cue Stack. If the Cue is active (i.e. it is in the process of execution) then the field indicates a % complete and the entire cue is coloured red.

Each Cue within a Cue Stack has a Cue Id (e.g. 1.0). This value is specific to the Cue Stack and is used for tying up Cues with a script in theatre style playback. It is distinct from the Cue Number (e.g. Q1) used to identify the Cue in the Cue Store.

Each Cue also has some text associated with it. This text enables easy recognition of the contents of the Cue when the Cue Stack is played back. This text is displayed above the main Playbacks. It can also be displayed on the displays above the Wing Playbacks.

Soft button A can be used to select different views. The different view modes show the columns in different orders. View modes include Default, Info, Macro and Tracking and Media.

It is possible to open two cue stack windows on MagicQ systems. To open a second cue stack window using CTRL + Cue Stack window button.

The Choose Cue Stack soft button inside the window can be used to lock a Cue Stack window to a particular Cue Stack. Saving into a Layout will make that Layout always open that Cue Stack.

PRess UNLOCK WINDOW to return the window to displaying the Cue Stack on the currently selected Playback.

Chase Timing

When you record more than one Cue onto a Cue Stack, the Cue Stack behaviour kicks in to control the transition from one Cue to another. By default the Cue Stack operates like a chase - i.e. each Cue is executed in turn, with timing being handled by a Chase Speed for the whole Cue Stack.

The timing mode can be changed, so that the Cues play back in a theatre style using the GO / STOP buttons, by pressing the CUE TIMING and CHASE TIMING soft buttons in the Cue Stack View Options Window to modify the timing mode.

In Chase Timing mode it is possible to manually change the Fade and Delay times by pressing Cue Stack, View Options, Chase Times. The delay/crossfade is determined by whichever was set last - the specific delay times or the crossfade.

Cue Timing

When using Cue Timing, the timing of each cue is determined by individual Wait, Delay and Fade times for each Cue in the Cue Stack. The MagicQ can execute multiple Cues at one time - for example a Cue Stack could have one Cue that fades in Spots in green whilst another Cue fades in Washes in red.

The Wait time affects when execution of the Cue is started. The Delay and Fade times affect how each individual Cue is executed. The Wait time can be set to "Follow" - in this case the Cue is executed when the last Cue finishes - i.e. Cues are executed sequentially.

Each Cue has a Next Cue - by default this is set up to be the following Cue in the Cue Stack. You can change the Next Cue to be any of the Cues in the Cue Stack. This enables loops and sequences to be set up.

The Next Cue for the last Cue in the Cue Stack defaults to being the first Cue in the Cue Stack.

Cue Timing fields can be changed using Shortcuts.

Cue Timing Example

To illustrate the above Cue Timing consider a Cue Stack with three Cues. When the Cue Stack starts executing it executes the first Cue using its Delay and Fade times.

As soon as the first Cue has been started (regardless of whether the first Cue is in a Delay, Fade or Complete stage) the next Cue in the Cue Stack will be examined to determined its Wait time.

If the Halt field on the next Cue is set, then the Cue Stack waits for Go to be pressed before starting the next Cue – otherwise it executes the next Cue using its Fade and Delay time. The picture below shows 3 Cues each set to follow the previous Cue but with "Halt" set to "Yes".



If the Wait time on the next Cue is set to a time then the Cue Stack waits that time before executing the next Cue. This time is completely independent of the first cue – the first cue may still be in Delay or Fade and will continue until the Fade completes.

If you enter a wait time in the Wait field MagicQ automatically changes the Halt field to No so that the Cue executes after the specified Wait time. The picture below shows Cues 2.00 and 3.00 automatically running 1 second and 2 seconds after Cue 1.00.



If the Wait time on the next Cue is set to "Follow" then the Cue Stack will wait until the first Cue has completely finished fading (i.e. all channels have reached their final values) before starting the next Cue.

If the first Cue includes a One Shot FX then they it will continue "fading" until the one shot is complete, enabling Cue Stacks to follow once the One Shot is done.

The Halt Field

This field determines whether MagicQ waits for the user to press GO before executing the next Cue. It can also be use to setup Cue triggers from the remote interface, Scheduled events or timecode.

Pressing ENTER only toggles between Yes and No. To get the advanced options, such as Timecode, Scheduled or Remote either double click the field or press SHIFT + ENTER.

The options "Yes (Ignore TC)" and "No (Ignore TC)" are the same as "Yes" and "No" except that when these Cues execute the incoming timecode will be ignored.

Cue Delay and Fade times

The Delay and Fade times shown in the Cue Stack Window are properties of the Cue whilst the Wait time is a property of the Cue Stack. Modifying the Delay and Fade times of the Cue may affect other Cue Stacks that use the Cue.

The Delay and Fade time fields show the maximum delay and fade times used by any channel within the Cue – so giving a summary of the maximum delay and fade of the Cue. To view the actual times of the Cue move the cursor to the Delay or Fade field and press the View Cue soft button. This opens the Cue Window for the selected Cue, automatically showing the Cue Times.

Delay and fade times can be entered directly in the Cue Stack Window – note however that this will set the times for all attributes. If you wish to change just the times for Position, Beam or Colour then these should be set up in the Cue Window, Simple View for general times or Cue Window, Advanced View for channel specific times.

Split intensity in/out times can be entered into the Cue Stack Window in the Delay and Fade fields using /. For example, 2/3 entered in the Fade field will fade the *current* cue in over 2 seconds, and will fade the *previous* cue out over 3 seconds. Only intensities times are affected – Beam, Colour and Position times remain at their current values.

When executing Cues, MagicQ will primarily use the specific delay and fade times entered in the Advanced View, of the Cue Window. If no times are specified, then the general times used in the Simple View will be used.

Times can be added in the Advanced View using the keypad and can be removed using the REMOVE button. In the Advanced View, the times shown are fade times, except where delay times have been set up, then times are shown as delay/fade.

Times can also be set up for the selected heads in the Simple View.

In the Cue Stack and Cue Windows delay and fade times with a '>' symbol at the end indicate when there are advanced times set for the Cue.

Tracking

By default, MagicQ works in a similar way to traditional lighting consoles, in that what is in the programmer is recorded into the Cue. This is a "no nonsense" mode where you get what you expect recorded into your Cues.

If you program just a FX chase on pan and tilt into a Cue, then that is what you get. If you program a complete look for a head including all the attributes, then that is what you get. Looking at a Cue in the Cue Window gives you the full picture.

In a Cue Stack, you can choose for each Cue whether the Playback continues to control HTP and LTP channels used earlier in the Cue Stack but not stored in the current Cue. In "Live (Chase)" the LTP channels are tracked, but HTP channels (Intensities) are not.

Traditionally lighting consoles used tracking mode to reduce show storage by only recording changes into each Cue. This can be confusing as when you jump around in Cue Stacks they may not play back as they were programmed. Busking live shows can be particularly difficult, as it can be more difficult to predict what is going to happen.

MagicQ show files do not require a significant amount of space compared to the storage space available so show size is not a major concern. MagicQ has powerful editing modes that enable

changes to be made to multiple Cues simultaneously – overcoming any benefits tracking mode might have for storing Cues in separate parts.

MagicQ supports a tracking mode, which can be turned on through View Settings in the Setup Window. We recommend that users unfamiliar with tracking use MagicQ in its default, "non tracking" mode.

Tracking on MagicQ

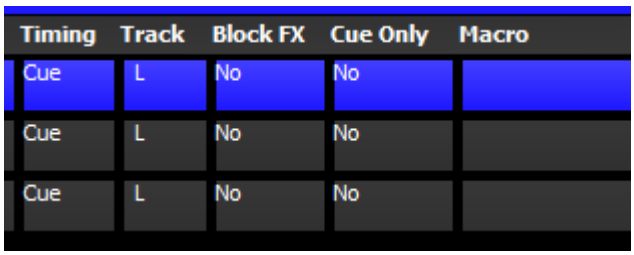
The easiest way to change between tracking and non tracking is to change the "Programming Mode" by pressing soft button B in the Setup Window and choosing one of the modes. For non tracking select Live (Chase) or Theatre Non Tracking. All other modes are tracking.

Changing the "Programming Mode" affects the "Programmer Tracking" option in the Setup Window and also the defaults for tracking ("Track","Zero old HTP" , "Zero old FX", "Rel old chans") on the Cues Stack options. The "Programmer Tracking" option by itself determines how Cues are recorded - it does not affect how they are played back.

When programmer tracking mode is off, then the entire contents of the programmer is recorded into Cues regardless of whether attributes have been change since the last Cue was recorded.

When programmer tracking mode is on, then only attributes that have been modified since the Cue was recorded are stored into the new Cue. Attributes are determined as modified if their value had been changed using an encoder, using keypad entry, using a range button, using a palette or by a locate head. Note that modifying an attribute to a new value and then returning it to its old value counts as modified.

Whilst in programmer tracking mode it is possible to force a record of the whole of the programmer by selecting the ENTIRE STATE record option. Record options are configured by pressing SHIFT and RECORD; whereupon the Record Options window is opened. Pressing any Window select button hides the display option and returns to the appropriate Window.



As a Cue Stack is executed, it keeps track of channels that have been used in previous Cues but are not used in the current Cue. How these channels are handled depends on the following settings on each Cue in the Cue Stack – there are three options which are shown in the Track field.

H Track HTP (Defaults Yes in tracking mode)

L Track LTP (Defaults Yes in all modes)

F Track FX (Defaults Yes in tracking mode)

To get a Cue Stack recorded in tracking mode to track all channel state during playback, ensure that all the Cue Stack steps have HLF set in the Track field.

If Track LTP is not set then LTP channels that were used in previous steps in the Cue Stack but not in the current step are released with the release time of the Cue Stack. If Track HTP is not set then HTP channels that were used in previous steps in the Cue Stack but not in the current step are faded out using the Intensity fade out time of that Cue step.

In addition there is an option on the Cue Stack that affects how tracking works for jumps and going backwards up the Cue Stack. If "recalculate state on jumps" is set, then MagicQ recalculates the entire state of the Cue Stack when you jump to a new Cue using "Goto Cue" or if you press the Pause button to go backwards up the Cue Stack.

When tracking Duplicated Elements, if a Cue has Duplicated element 1 but not other elements, then any other elements that were tracking are removed. This ensures it is possible to go from reduced elements back to control of all Duplicted elements.

Viewing Cue Data and Tracking Data

The Cue Window shows the Cue data for the current Cue on the selected Playback. The Cue Window, has three views, View Levels, View Times and View FX just like the Programmer Window.

When looking at a Cue Stack in the Cue Stack Window it is possible to go directly to the Cue Window by placing the cursor on the required Cue and pressing the View Cue soft button. If the field the cursor is on is a timing field then the Cue Window will open to show View Times, otherwise it will open to show View Levels.

It is possible to view Cue data for different Cues in a Cue Stack by pressing the PREV CUE and NEXT CUE soft buttons. When a Cue is examined that is not the current Cue on the selected Playback, the Cue Window becomes locked to that Cue. Press the UNLOCK WINDOW soft button to return to viewing the current Cue.

The Cue Window can also be used to preview Cues when in tracking modes – there is a View Tracking soft button. When this option is on the Window shows all of the values that are tracking from previous Cues as well as the data in the selected Cue. The tracked data is shown in dark colour whereas the data from the selected Cue is shown in active colours.

When running a Cue Stack it is possible to determine which values have been tracked through the Cue Stack by selecting "View Cue Ids" in the Outputs Window. This shows which playback and which Cue on that playback is controlling the outputs. Thus, when values are tracking through a Cue Stack the Outputs Window will show the Cue that originated that value.

Tracking Out FX

All FX can be tracked out using the Cue Track field in the Cue Stack - remove the "F" from the Cue Track field.

FX in Cues can be tracked out by setting them as "Track Out" - page right to the "Track Out"

field in the Cue, View FX and Programmer, View FX views.

When a Cue executes a FX with "Track Out" set it removes the FX for all the channels in this FX from the playback. The parameters of a "Track Out" FX are ignored - except for fade out times - the FX will continue to run using the parameters it was using before until the fade out completes. The FX will fade out using the FX Out time in the View Times view unless the "Fade Out" field in the FX is changed from "Default" to a specific time.

The "Track Out" FX do not need to exactly match the original FX - but it would be normal to copy the original FX and set it to "Track Out" to ensure that all the channels from the original FX are tracked out.

It is possible to have both "Track Out" FX for an old FX and at the same time new FX for the same channel in a Cue provided there some of the heads from the old FX are not used in the new FX. Channels from the new FX will ignore the "Track Out" for the old FX and will crossfade from the old FX as per previous software.

Track Out will work for both normal FX and Group FX.

Copying Cues in Tracking Mode

When in tracking mode, performing an unlinked copy of a Cue in a Cue Stack now copies the entire state of the Cue, not just the specific cue values. When copying multiple Cues from one Cue Stack to another Cue Stack, the first Cue will be copied entire state with the following cues being just the changes.

If Cues are copied linked in tracking mode then they will always be just the change values not the entire state.

When using Theatre Tracking mode and Hog II Warp mode, MagicQ defaults the Cue Storage option "Copy mode (unlinked/linked) to "unlinked".

Blocking / Unblocking Cues

It is possible to block and unblock Cues from the Cue Stack Window and from the Cue Window through soft buttons.

Blocking a Cue has the effect of adding to that Cue all the state information that would track through into that Cue if the Cue Stack was executed up to and including that Cue. When a Cue is blocked it becomes a hard Cue – i.e. if edits are made to previous Cues then the edits will not affect the blocked Cue.

Unblocking a Cue has the effect of removing from the Cue all the state information that would track through into that Cue if the Cue Stack was executed up to and including that Cue. When a Cue is unblocked it removes hard values in the Cue from the Cue that duplicate tracked values – therefore it enables values to track through from where they were first used.

Unblocking and blocking Cues in a Cue Stack does not affect the appearance of the Cues and Cues Stacks when the Cue Stack is played back – it simply affects where the data is stored and what effect an edit will have on a Cue.

Multiple Cues can be blocked / unblocked in the Cue Stack Window by selecting a range using SHIFT and the cursor keys.

Cue Only

The "Cue Only" function in the Cue Stack Window can be used to mark a Cue as a temporary change to the lighting state before continuing the tracked state from the following Cue. The Cue Only field is on the right hand side of the Cue Stack Window (page right) and is only relevant when using tracking mode.

MagicQ enables one or more Cues to be marked as Cue Only – when MagicQ moves on to the next Cue which is not set to "Cue Only" then it reverts to tracking the Cue Stack from before the "Cue Only" cues.

Note that sequential Cues marked "Cue Only" will each be based on the state previous to the first "Cue Only" Cue with the additions of the specific Cue. To track changes through a sequence of "Cue Only" Cues, record each Cue using "Entire State" to capture the entire programmer contents in to each "Cue Only" Cue.

Mark Cues

Mark Cues are special cues that are used to pre-load LTP values before the following Cue is executed thus ensuring that, for instance, moving heads are in the correct position before the Cue executes. Note that Mark Cues only take effect if the corresponding head has intensity set to 0 – otherwise the change would be noticeable.

The Mark Cue only affects LTP values for heads controlled by the Cue Stack which are currently at zero intensity. If these heads are used in the next Cue then their value will be faded to the value of the next Cue. By default the fade is set to 3 seconds but this can be modified as required. Note that attributes that are specified as Instant in the personality file will snap to the new value.

The Mark Cue executes as soon as the previous Cue has completed execution.

In the Cue Stack Window press the Mark Cue soft button insert a Mark Cue before the Cue which the cursor is currently on. Alternatively enter a Cue Id and press Mark Cue to insert a mark before the specified Cue Id.

An entire Cue Stack can be configured to automatically perform the function of marking all Cues - set the Move When Dark option in View Options in the Cue Stack Options.

The time taken for the Move When Dark is specified in Setup, View Settings, Cue Storage, Default mark/move when dark time.

When using Marking and Move When Dark attributes of moving lights will be marked even if they have not been previously used in the Cue Stack. This result is that when a Mark Cue is executed in a Cue Stack, MagicQ will take control of the parameters used in the Marked Cue from other Cue Stacks even though the Cue is not yet executed.

The Cue Store and Cue Stack Store

MagicQ stores Cues and Cue Stacks in the Cue Store and Cue Stack Store respectively. Since you can program Cues and Cue Stacks directly onto playbacks, it is possible to program complete shows without referring to the Cue Store or the Cue Stack Store.

However, sometimes you may wish to build up a library of Cues or Cue Stacks that are not assigned to playbacks. You might then assign them to playbacks later, e.g. during a technical rehearsal.

Note that the Cue Id used as a sequence number in the Cue Stack (e.g. 1.00) is different to the Id used in the Cue Store (e.g. Q5). The Cue Id is the sequence number within the Cue Stack whereas the QId is the reference number in the Cue Store.

Some users prefer to hide the QId and only use and view Cue Ids – use the Setup, Cue Storage Settings – "Hide Cue Store Ids (Qxxx). When this option is set the Cue Stack window and Cue Window only either show the Cue Ids from within the Cue Stack – they do not show the Q ids from the Cue Store.

Cue Store

To record a Cue into the Cue Store simply set up the required look in the programmer, open the Cue Store Window, press RECORD and press an empty Cue in the Cue Store Window.

You can test programmed Cues in the Cue Store by pressing the appropriate Cue. MagicQ searches for an unused playback (from the last playback down) to test the Cue on. Pressing the Cue again removes the Cue from the playback.

You can restart a Cue that is being tested by pressing the "Retest" soft button. Holding CTRL and selecting a Cue also restarts the Cue.

You can view the contents of a programmed Cue by moving the cursor to the required Cue in the Cue Store Window and pressing the View Cue soft button. This opens the Cue Window locked to the specified Cue. Pressing the Unlock Cue button returns the Cue Window to monitoring the current Cue on the currently selected playback.

Use the REMOVE UNUSED soft button to remove Cues from the show that are not being used. Cues that are assigned to Cue Stacks or used in the Execute window or Automation will not be removed.

In the top right corner of each Cue in the Cue Store there is information about the Cue. Where there are two numbers this is the number of channels and the number of FX in the Cue. Where there are three numbers it is the number of channels, the number of FX, and the number of Group Cues.

Stack Store

To record a Cue into a Cue Stack in the Cue Stack Store Window set up the look as above, open the Cue Store Window, press RECORD and press the Cue Stack you wish to record the Cue into. If the Cue stack is empty then a new Cue Stack will be generated. Otherwise the Cue will be

added to the existing Cue Stack, either at the specified Cue Id, or at the end of the Cue Stack.

You can test programmed Cue Stacks in the Cue Stack Store by pressing the appropriate Cue Stack. MagicQ searches for an unused playback (from the last playback down) to test the Cue on. Pressing the Cue Stack again removes the Cue or Cue Stack from the playback.

You can restart a Cue Stack that is being tested by pressing the "Retest" soft button. Holding CTRL and selecting a Cue Stack also restarts the Cue Stack.

You can view the contents of a programmed Cue Stack by moving the cursor to the required Cue Stack in the Cue Stack Store Window and pressing the View Stack soft button. This opens the Cue Stack Window locked to the specified Cue Stack. Pressing the Unlock Stack button returns the Cue Stack Window to monitoring the Cue Stack on the currently selected playback.

Normally each step in a Cue Stack has a Cue assigned to it. When importing or exporting shows sometimes Cue Stacks will have steps that do not have a Cue assigned to them. The CREATE CUES soft button forces MagicQ to create Cues (with no channels) for any steps in Cue Stacks that have no Cue assigned to them.

Use the REMOVE UNUSED soft button to remove Cues Stacks from the show that are not being used. Cue Stacks that are assigned to Playbacks or used in the Execute window or on Master faders will not be removed. From 1.9.2.2 MagicQ also checks for usage in Automations, Cue Stack macros and TC Tracks.

In the top right corner of each Cue Stack in the Stack Store there is information about the number of Cues in the Cue Stack.

Cue Stacks that are activated on Playbacks show in the Stack Store window as active (in Orange) with an indication of the Playback that they are active on. They can be released from the Stack Store by pressing on the item. Cue Stacks activated from within the Stack Store or from Macros, Executes or Automations continue to show in Red.

When moving Cue Stacks in the Stack Store, any Cue Stack macros that reference the Cue Stacks have their reference updated. Also any Automations that reference the Cue Stack are updated.

Assigning Cues and Cue Stacks

Cues and Cue Stacks can be assigned to Playbacks at any time.

To assign a Cue, open the Cue Store Window, press the MOVE button, select a Cue, and then select a playback to assign the Cue to. You can assign to real playbacks or to playbacks in the Playbacks Window. You can assign to a specific Cue Id in a Cue Stack on a playback, by keying in a Cue Id before you select the playback.

To assign a Cue Stack, open the Cue Stack Store Window, press the MOVE button, select a Cue Stack, and then select an empty playback to assign the Cue to. You can assign to real playbacks or to playbacks in the Playbacks Window.

Multiple Cues and Cue Stacks can be assigned at a time, by using SHIFT or CTRL and the cursor keys to select multiple Cues and Cue Stacks in the appropriate window.

Copying and Moving Cues

Cues can be copied and moved within a Cue Stack using the standard move and copy procedures. For example, to move a cue, press COPY, select the source, then select the destination. To copy multiple cues, press and hold COPY, select multiple entries, release COPY and select the destination.

When copying or moving within a Cue Stack, Cues the Cues are moved or copied before the destination Cue that you select. To copy or move onto the end of the Stack select "End" as the destination.

Cues can be copied onto other Cue Stacks that are assigned to playbacks. Select the Cues in the Cue Stack window and then select a playback fader as the destination.

Cues can also be copied using the keypad syntax COPY CUE. For example, to copy Cues 1 and 2 to Cue 5.

COPY CUE 1 THRU 2 @ 5 ENTER

Or to copy Cues 3 to 5 at the end of the Cue Stack:

COPY CUE 3 THRU 5 @ ENTER

By default when copying Cues MagicQ does not create new Cues - it simply makes another link to the existing Cue. The default can be changed in Setup, View Settings, Cue Storage, Copy mode to Linked, Unlinked, or Unlinked Entire State.

To force MagicQ to create a new Cue press SHIFT and COPY and select Unlinked. To force record of entire state, press SHIFT COPY and select ENTIRE STATE.

A copy options toolbar can be enabled from Setup, View Settings, Windows, Always Show Record Options = Yes.

Cues can be moved in a Cue Stack using the keypad syntax MOVE CUE. For example, to move Cues 1 and 2 to Cue 5.

MOVE CUE 1 THRU 2 @ 5 ENTER

To remove Cues in a Cue Stack use the keypad syntax REMOVE CUE. For example, to remove Cues 1 and 2.

REMOVE CUE 1 THRU 2 ENTER

To include a Cue from a Cue Stack use INCLUDE CUE. For Example, to include Cue 2.

INCLUDE CUE 2 ENTER

Linked Cues

Cues that are used more than once in a Cue Stack or that are used in more than one Cue Stack are called Linked Cues. If you edit a linked cue it will affect all places where the Cue is used. The Cue Store Window shows where each cue is used.

In Cue Stacks linked Cues are shown with a "L" in the Cue field. It is possible to unlink a Cue by moving to the Cue in the Cue Stack and pressing SHIFT and UNLINK CUE.

If you wish to avoid creating linked Cues, then when copying Cues and Cue Stacks use SHIFT + COPY (copy unlinked) rather than COPY and select COPY UNLINKED.

It is possible to link Cues in a Cue Stack to other Cues in the Cue Stack or to a Cue in the Cue Store. When the Cue at the cursor is not linked to any other Cues then SHIFT + LINK can be used to link the Cue.

To link a Cue you put the cursor on the Cue(s) that you want replaced then press SHIFT LINK. Then press ENTER on the Cue that you want those Cues linked to.

Alternatively type the ID of the Cue in the Cue Store on the command line of the Cue you want to link to then press SHIFT LINK. For example to link to Q2550 type 2550 and press SHIFT LINK. That step will then be linked to Q2250. It is possible to cursor select multiple Cues in the Cue Stack and then link them all to the same Cue.

Copying Cue Stacks

When Copying Cue Stacks MagicQ will create a new Cue Stack, but will only create new Cues when COPY UNLINKED is used.

When copying Cue Stacks unlinked MagicQ takes into account linked Cues in the source Cue Stack.

Any Linked Cues that are linked to other Cues outside of the source Cue Stack remain as Linked Cues. Any linked Cues that were only linked within the Source Cue Stack are copied to a new Cue, but all of these Cues in the new Cue Stack are Linked together.

Selective copying of Cue Stacks

MagicQ supports the SELECTED ONLY option when copying Cues and Cue Stacks. Only the selected heads from the source Cues and Cue Stacks will be copied. If none of the selected heads are in a source Cue then an empty Cue will be generated.

The Cues in Cue Stacks created using copying SELECTED ONLY will always be unlinked.

Creating a New Cue Stack for Different Heads

MagicQ can create a Cue Stack based on an old Cue Stack but using different heads.

Press SHIFT + COPY and select the COPY TO SEL option. This creates a new Cue Stack with identical Cues to the original Cue Stack except that it uses the selected heads instead of the

heads in the original Cue Stack. The new Cue Stack will not contain the heads from the old Cue Stack, unless they are part of the new selection.

MagicQ will rotate around the heads from the existing Cue to provide data for the new heads - for example if the old Cue Stack had 4 heads and 8 heads are selected then heads 1 and 5 from the selection will both use data from the first head in the old Cue Stack.

This option will work on Cue Stacks containing multiple head types, but the best conversion will occur when copying from one set of heads to another set of heads. In some situations it may be preferable to do a selective copy of the original Cue Stack to heads of only one type and then to use the COPY TO SEL option on that new Cue Stack.

The Cues in Cue Stacks created using COPY TO SEL will always be unlinked.

Removing Cues and Cue Stacks

Cues can be removed from a Cue Stack by opening the Cue Stack window, then pressing REMOVE and selecting the Cue you wish to remove by pressing in the "Status or Cue Id" field.

It is also possible to remove a specific Cue from a Cue Stack using the keypad. Type a Cue Id on the keypad then press REMOVE and select the S button of the Playback you wish to remove the Cue from.

To remove an entire Cue Stack from a Playback press REMOVE and hit the S button of the Playback. Press S button again to confirm.

Note that the Cue Storage Setting in the Setup options determine whether the Cue and Cue Stack are removed from the Cue Store and Cue Stack Store as well.

Cue Stack Defaults

The default operation of Cue Stacks can be modified in the Defaults view of the Cue Stack Window.

Defaults can be configured for all of the Cue Stack options including operation of the faders and buttons, chase defaults and the defaults for each Cue Stack step.

Changing the Defaults does not change Cue Stacks and Cues which have already been recorded – it only changes the options for when new Cue Stacks and Cues are recorded.

When inserting and adding Cues to a Cue Stack MagicQ by default derives the settings from the previous Cue in the Cue Stack. If the setting Setup, Cue Storage Settings, "Derive settings from previous Cue" is set to "No" then all new recorded Cues will use the default step settings.

Col Tags

MagicQ supports Col Tags on each of the Cue Stacks. Set Col Tags in the Cue Stack, Options, Function. When a Col Tag is set for a Cue Stack then that Col Tag is shown in the Playback legend above the Playback faders and buttons.

The RGB LEDs on the MQ500 and Stadium Wing playbacks can be set to show the colour of the Col Tags - in Setup, View Settings, View Windows set Playback Col Tags Playback to Cue Stack.

Cue Stack Favourites

Cue Stack Favourites provide a way to quickly apply favourite settings to different types of Cue Stacks.

Cue Stack Favourites include:

- Button, Fader, Encoder options
- Activate / Release options
- Cue Stack function
- Advanced function (but not timecode or DJ)
- Intensity, Pos, Col, Beam, FX Fade in times for single step Cue Stacks
- Chase Timing/Cue Timing/Timecode (multi step Cue Stacks only)
- Cue Stack Release time
- Colour tag
- Icon

In the Cue Stack window there is a new view with 100 favourites. Press VIEW OPTIONS (or click 3 times on the S button) and then press VIEW FAVOURITES.

The settings of the current Cue Stack can be recorded onto a selected Favourite. The Favourite can then be applied to any Cue Stack.

Favourites can be named, moved, copied and removed in a similar way to all other MagicQ items.

Note that when applying to a Cue Stack with multiple steps fade times are not applied. Release times are applied in all cases.

Icons are only applied if the Favourite has an Icon in it - otherwise the icon on the current Cue Stack is retained.

Cue Stack Favourites are stored in the show file. They are also stored in the settings file when using SAVE SETTINGS and IMPORT SETTINGS.

Audio in Cue Stacks

MagicQ supports two methods of playing back audio files from a Cue Stack. The first is allocating a single audio file to a Cue Stack, which is started when the Cue Stack is activated and stops when the Cue Stack is released. This is good for if you have a particular song for a timecode Cue Stack and need to synchronise Cue playback to the audio file. The second method is to specify an audio file as part of a given Cue in a Cue Stack. This will play the audio file when the Cue is activated.

Audio output is available direct from the jack port on the front of the MQ500 consoles, from rear of the MagicQ Pro 2014, and from the audio port when using MagicQ PC on Windows, Mac and Linux. MagicQ older Compact consoles and Pro2010 consoles do not have audio output ports.

MagicQ will search for audio files in the show\audio folder.

The View Editor gives a visual timeline of the audio file and Cue Stack information to allow Cue Stacks to be programmed along a visual timeline.

Audio Cue Stack

To specify an audio file to play when a Cue Stack is activated, goto the Cue Stack options, select the Audio tab, and then select your track in the "Audio file" setting.

The "Audio Play Mode" setting can be used to associate an audio file with a Cue Stack for use in the Timeline Editor, but to not actively play back from MagicQ. This is useful in the situation where an external system is playing back audio and providing a timecode input to MagicQ, but where the waveform is still visualised in the Timeline Editor window.

If a Cue Stack has an audio file as well as timecode Cues, then MagicQ will make sure that the audio follows the timecode value for the Playback. Scrubbing the timecode value from an external source will make the audio file jump to the given time. Using the "Set Timecode" feature in MagicQ will similarly jump to the corresponding point in the audio file.

Audio Cues

MagicQ supports playback of audio files triggered from Cues within Cue Stacks.

Use the "Audio" column in the Cue Stack window to specify the audio file to play when the corresponding Cue is triggered.

Each playback supports play of one Cue audio file at a time. If a Cue is triggered with an audio file configured, then any audio playing from a previous Cue in the same Cue Stack will be stopped. Audio files playing from the Cue Stack setting will continue. Multiple playbacks can be used to play multiple sounds simultaneously.

The Macro and Audio fields support some special commands to stop, close, jump and set the gain level. ChamSys recommend using the Macro field for these commands.

In the Macro field:

D <Gain>	Set gain of current playback
D <Playback No> / <Gain>	Set gain of specified playback
D <Audio command>	Audio Command, supported commands are stop, close, jump, dev, Param1,g (gain)
Dstop	Stops playing the file

Dclose	Stops playing the file and closes the audio port
Djump	Jumps within the current audio file to the calculated position (timecode only)
Ddev	Changes to use output device d
Dgain <gain>	Changes audio gain on current playback
Dgain <playback> , <gain>	Changes audio gain on specified playback 1 to 202
Dparam 1,<g>	Changes gain level (volume) where g is value 0 to 100

For example:

D 90 // Set gain of current playback to 90% D 2 / 90 // Set gain of playback 2 to 90% D 1 + 2 / 90 // Set gain of playbacks 1 and 2 to 90% D 1 > 3 / 90 // Set gain of playbacks 1 through 3 to 90%

In the Audio field:

filename.wav	Plays filename.wav (also supports other file types)
stop	Stops playing the file
close	Stops playing the file and closes the audio port
jump	Jumps within the current audio file to the calculated position (timecode only)
dev	Changes to use output device d
gain <gain>	Changes audio gain on current playback
'param 1,g'	'Changes gain level (volume) where g is value 0 to 100'

Audio Formats

MagicQ will decode a variety of both lossy and lossless audio file formats. This includes .wav, .ogg, .flac, .alac, .mp3 and .aac. When using .wav files, only 8 and 16 bit formats are supported. It will accept both mono and stereo formats and sample rates up to 96kHz and will internally resample the audio files configured in the show to 44.1kHz stereo when playing back.

Audio Volume

Audio files will initially play back at 100% volume from their files unless overridden by the audio field above. The master output volume from MagicQ can be configured in Setup, View Settings, Ports, Audio output volume.

Cue Stack audio and Cue Audio will fade out when a Playback is released with a Release time

configured.

If a Playback is configured with the "Fader controls audio volume" setting, then the audio volume will also be multiplied by the fader level.

Cue Stack Variables

MagicQ supports Cue Stack variables including Cue Stack total activation count, Cue Stack total activated time (through multiple activates) and user variables.

These can be useful for creating Cue Stacks with a limited total activation time for controlling smoke/CO2/fire effects and for creating game show logic.

Each Cue Stack has:

Total Activate Count	Number of activates of this Cue Stack
Total Active Timer	Total time Cue Stack has been active (including over multiple activates)
Var1	User variable range 0..4,294,967,295
Var2	User variable range 0..4,294,967,295

These values are stored when a show file is saved, so persist over shut downs and restarts. They can be viewed and edited in the Activate/Release tab in the Cue Stack window, VIEW OPTIONS.

The Total Activate Count, Total Active Timer, Var1 and Var2 can only be changed in the Cue Stack options by Super Users. They can be changed by Cue Stack macros and by automations regardless of the current User, enabling automated logic to be created.

Each Cue Stack can now be disabled and enabled from the Stack Store. Cue Stacks are enabled by default and require confirmation before being disabled. When disabled, Cue Stacks will not active, and are shown as disabled in the Cue Stack window, the Stack Store Window and when assigned to Playbacks. If an Active Cue Stack is disabled then the Cue Stack will be released.

In the Stack Store press SHIFT + ENABLE ALL to enable all Cue Stacks.

Cue Stacks can only be enabled and disabled in the Stack Store by Super Users.

Cue Stacks can be enabled and disabled by Cue Stack macros and by automations regardless of the current User.

Displaying Cue Stack Variables

The status of Cue Stack Variables can be viewed in the Execute Window using the ASSIGN SPECIAL, Playback + Stack.

*Playback Tot Activate Count *Playback Tot Active Time *Playback Var1 *Playback Var2 *Playback Var2 minus Tot Activate Count *Playback Var2 minus Tot Active Time *Playback

Var2 minus Var1 *Cue Stack Tot Activate Count *Cue Stack Tot Active Time *Cue Stack Var1 *Cue Stack Var2 *Cue Stack Var2 minus Tot Activate Count *Cue Stack Var2 minus Tot Active Time *Cue Stack Var2 minus Var1

Cue Stack Variable Example

This example shows how to create a Cue Stack which can only fire CO2 for a total time of 30 seconds:

Create the Cue Stack with the required programmed output as normal on PB1, noting the Cue Stack ID.

In Cue Stack, Options, Activate/Release set Var2 to 30.

In an Execute Window ASSIGN SPECIAL, Playback + Stack, select Playback Var2 minus Tot Active Time, and select PB1. Set the Button Type for that Exec Item to Pie Chart.

In Macro, VIEW AUTOM insert an automation with type of Variable, the Cue Stack on PB1. Set P2 to Active Time, Var2, and set to GREATER. Set the Function to Stack Disable and select the Cue Stack on PB1.

The Playback can now be used for a maximum of 30 seconds before it will be disabled by the automation. The Execute window will show the number of seconds remaining.

Once disabled, it can be reset by setting the Total Active Timer to 0 in the Cue Stack, VIEW OPTIONS and re-enabling the Cue Stack in the Stack Store. This could also be automated onto a Cue Stack Macro or automation.

To change the amount of CO2 time allowed just change Var2 for the Cue Stack to another value.

Cue Stack Macros

Cue Stack macros enable control over other Cue Stacks from within Cue Stacks such as activation, release, go, stop, and setting level of other Cue Stacks. Macros are typed into the Macro field in the Cue Stack window (scroll to the right). Macros can affect multiple Cue Stacks on different Playbacks enabling complete shows to be driven from one master Cue Stack.

Cue Stack macros take the following format:

`A <Playback no>`	Activate playback
`A <Playback no> / <Level>`	Activate playback at level
`A <Playback no> / <Level> / <Fade time>`	Activate playback at level with time
`B <Macro no>`	Run macro (0 = stop all macros)
`R <Playback no>`	Release playback (0 = release this playback)
`R <Playback no> / <Fade time>`	Release playback with time

R1000	Release All Holdover Playbacks
R999	Release Holdover Cue Stack on this Playback
R998	Release all Playbacks except for this Playback
T <Playback no>	Test playback (activate with level 100%)
T <Playback no> / <Fade time>	Test playback with time (activate with level 100%)
U <Playback no>	Un-test playback (release with level 0%)
G <Playback no>	Go on playback.
G <Playback no> / <Cue id> / <Preload flag> / <Fade time>	Go to Cue id on playback with time. <Preload Flag> and <Fade time> are optional
G 0 / 2 / <Frames> / <Layer>	Go on current playback when the Pixelmapper layer is the given number of frames from the end (for server 2 and above add 16 to the layer for each server)
H <Type>	1 – Lamp on all heads, 2 reset all heads, 3 lamp off all heads, 4 cancel screen save
H <Type> / <Uni zone>	Type is 5 for enable Uni zone, 6 for disable Uni zone
H 7 / <Uni> / <Copy Uni>	Set a Copy Universe in DMX I/O. 0 for no copy
H 10 / <Speed Master> / <Command> / <Parameter>	Control Speed Masters
H 11 / <Device ID> / <Zone> / <Status>	Lyntec Zone. Status = 1 for On, 0 for Off
H 12 / <Device ID> / <Chan> / <Status>	Lyntec Channel. Status = 1 for On, 0 for Off
H 112 / <state>	Emergency Hot Takeover, <state> is 1 for On, 0 for Off. Also works for H 911 and H 999.
S <Playback no>	Stop playback
C <Playback no>	Choose playback
K <level> / <Fade time>	Set level of last Cue Stack to be activated (e.g. with an A command) / fade time
L <level> / <Fade time>	Set level of current playback / fade time
M <level> / <Fade time>	Set level of the playback that is running the macro / fade time
J <Cue Id>	Jump to Cue Id on current playback
J <Cue Id>/<variable>/<comparison>/<value>	Conditional jump to Cue Id on current playback
E <Cue Stack id>	Activates Cue Stack (in Stack Store).
E <Cue Stack id>/<Level>/<Cue Id>	Activate Cue Stack at level. Cue Id is optional.
E 0/<Exec Page>/<Item>	Activate Exec Grid item

F <Cue Stack id>	Releases Cue Stack (in Stack Store)
F 0/<Exec Page>/<Item>	Release Exec Grid item
I <Timecode>	Set internal timecode (1000 to pause, 1001 to play, 1002 to reset to 0. All other values to set specific timecode)
O <Timecode>	Set current received timecode
P <Page no>	Change page (page no of 0 means next page)
V <View no>	Open Layout (window layout)
W <Enable>	Enable/disable timecode generation (1 for enable, 0 for disable, 2 for use internal timecode from this Playback)
W <Autom ID> / <Enable>	Enable/disable Automation (1 for enable, 0 for disable)
Q <Timecode>	Enable timecode gen from timecode e.g Q100
T0 / <Zone id> / <Button id> / <State>	Trigger 10Scene - Zone id 1 to 20, Button id 1 to 10, State is 0 for button released 1 for button pressed 2 for activate and 3 for release
VA <command>	Set a Cue Stack variable and enable/disable Cue Stack
X <Data>	Transmit data on the serial port
Y <Data>	Transmit data on the network port over ChamSys Remote Ethernet Protocol
N <Data>	Transmit data over MIDI
K/ <Data>	Transmit data over OSC.
D <Audio command>	Audio Command, supported commands are stop, close, jump, dev, Param1,g (gain)
D <Gain>	Set Gain of current playback. Gain is 0 to 100.
D <Playback no> / <Gain>	Set Gain of current playback. Gain is 0 to 100.
Z<DDMMYYYY>Z	Scheduled Events Date

Note that either / or , can be used as the separator between parameters in commands that have more than one parameter. It is not necessary to add a / or , after a command between the next command - MagicQ will detect A to Z as a command. MIDI, Serial, Audio & Ethernet cue stack macro commands cannot be mixed with other cue stack macros within the same cue.

The playback number can either be the playback number 1 to 202. Alternatively Playbacks for wing playbacks can be entered as 1-1 to 1-24, 2-1 to 2-24 etc... Playbacks can be playbacks with faders or virtual playbacks (playbacks on non fitted wings).

Multiple Playbacks and multiple Cue Stacks in the Stack Store can be selected using + and

THRU (>) in the first parameter.

For example, to activate playback 8

A8

To press GO on playbacks 3 to 5,

G3>5

To activate Cue Stacks 30 and 32 in the Cue Stack Store at 100% on step 2.00.

E30+32/100/2.00

Multiple commands can be put in a Cue Stack macro, e.g. to activate PB1 and then release PB2

A1R2

The G macro optionally supports more than one parameter. The first parameter is the playback, the second is the Cue ID to GO, the third is the Preload Flag and the fourth is the fade time. When there are two or more parameters the Preload Flag and Fade time are optional.

When Preload Flag is set to 1, the Cue is preloaded in a similar way to the Preload in the Cue Stack Window. The next press of GO will execute the chosen Cue.

When Preload Flag is set to 2, the Cue Stack is immediately jumped to the Cue without activating the Cue Stack.

For example, G5/6 will GO Cue Id 6 on Playback 5.

The A macro optionally supports two parameters. The first parameter is the playback, the second is the level in %. For example, A5/60 will activate Playback 5 at 60%. To activate at 100% we suggest using the T macro rather than A - i.e. T5 instead of A5/100.

The R macro supports the parameter 0 to release itself – i.e. R0 releases the playback that is running the macro.

Where using the E and F Macros to control Execute grid item the item starts from the top of the grid left to right.

The commands X, Y, N and K/ take a list of byte values (0 to 255) or strings in between "" separated by \ or ,

To send the bytes 10 followed by 20 followed by 30 on the serial port use the command

X10,20,30

From v1.9.0.4 the Cue Stack macro commands X,Y,N, K/ and D (Serial, Ethernet, MIDI, OSC and Audio commands) can be placed after other macro commands in the Macro field. They must be the last command in the Macro field. Previously they had to be the one and only macro command. As before, only one macro command X,Y,N,K,D can be in a Macro field. For

example it is now possible to do:

A1 R2 Y"G2"

G2 K/pb/1/go

Executing the Q Macro turns off timecode receive on the ChamSys MIDI/Timecode USB interface and on some consoles.

Timecode for the I and O commands can be specified using the / separator. If no / is specified then the time is in seconds. If a separator is present then it should be of the form HH/MM/SS/FF or HH/MM/SS. The '.' is not supported in this Macro command.

Cue Stack macros can be tested from the command line on MagicQ consoles and unlocked MagicQ systems using the command testmac followed by the macro. Note that the D, I, M macros normally run on the playback that is executing the macro so will always apply to the current selected playback when executed from the command line.

Controlling Speed Masters

Use the H10 Cue Stack macro to control the Speed Master.

H10,<Speed Master ID>,<Command>,<Parameter>

Command	Parameter	Description
1	BPM	Set the BPM
2		Activate
3		Deactivate
4		Run
5		Halt
6	Divisor	Set Divisor (2 to 32. 0 for no divisor)
7	Multiplier	Set Multiplier (2 to 32. 0 for no multiplier)
8		Step
9		Source is DJ Beat
10		Source is Audio Beat
11		Source is DJ BPM
12		Source is Audio BPM
13		Source is Tap
14		Resync
15		Resync beat
16	BPM increment	Increase the BPM

17	BPM decrement	Decrease the BPM

Cue Stack Variables in Cue Stack Macros

The following Cue Stack macros are available for controlling Cue Stack variables

VA 0 / <Variable> / <Value>	Set Cue Stack Variable to Value
VA 1 / <Variable>	Reset Cue Stack Variable to 0
VA 2 / <Variable>	Increment Cue Stack Variable
VA 3 / <Variable>	Decrement Cue Stack Variable
VA 4 / <Variable> / <Value to add>	Add Value to Cue Stack Variable
VA 5 / <Variable> / <Value to subtract>	Subtract Value from Cue Stack Variable
VA 10 / <Playback No> / <Variable> / <Value>	Set Cue Stack Variable on Playback to Value
VA 11 / <Playback No> / <Variable>	Reset Cue Stack Variable on Playback to 0
VA 12 / <Playback No> / <Variable>	Increment Cue Stack Variable on Playback
VA 13 / <Playback No> / <Variable>	Decrement Cue Stack Variable on Playback
VA 14 / <Playback No> /<Variable> / <Value to add>	Add Value to Cue Stack Variable on Playback
VA 15 / <Playback No> /<Variable> / <Value to subtract>	Subtract Value from Cue Stack Variable on Playback
VA 18 / <Playback No>	Enable Cue Stack on Playback
VA 19 / <Playback No>	Disable Cue Stack on Playback
VA 20 / <Cue Stack id> / <Variable> / <Value>	Set Cue Stack Variable to Value
VA 21 / <Cue Stack id> / <Variable>	Reset Cue Stack Variable to 0
VA 22 / <Cue Stack id> / <Variable>	Increment Cue Stack Variable
VA 23 / <Cue Stack id> / <Variable>	Decrement Cue Stack Variable
VA 24 / <Cue Stack id> /<Variable> / <Value to add>	Add Value to Cue Stack Variable
VA 25 / <Cue Stack id> /<Variable> / <Value to subtract>	Subtract Value from Cue Stack Variable
VA 28 / <Cue Stack id>	Enable Cue Stack
VA 29 / <Cue Stack id>	Disable Cue Stack

Where Variable is:

1	Var1
2	Var2
1001	Total Active Count

1002	Total Active Timer
1003	Exec Grid ID that activated the Cue Stack

When incrementing Variables the maximum value is 4,294,967,295. When decrementing Variables the minimum value is 0. Total Active Count and Total Active Timer can only be reset to 0. They can not be set to values, incremented or decremented.

Cue Stack variables can be used in Cue Stack macros in place of specific values by using the $ symbol followed by the Variable number above. For example, to activate playback number based on the Cue Stack Var1 type:

A $1

The variable can also be used in Serial, Ethernet and MIDI messages by using the $ symbol for a binary value or $t for a text value. For example, if Var1 is 10 then the Cue Stack macro Y $t1,"A" will send "10A" on the Ethernet.

The variable can be used in the parameters of OSC messages - to send a play a video message with four parameters, Var1, 100, 200 and Total Active Count use:

K/play/video/$1,100,200,$1001

Conditional Jumps

The Cue Stack macro J can now be used as a conditional jump.

J <step> / <variable> / <comparison> / <value>

Where the <variable> is

1	Var1	
2	Var2	Compares Var2 against Value
1001	Total Activate Count	Compares Total Activate Count against Value
1002	Total Active Time	Compares Total Active Timer against Value
1003	Exec Grid ID	Compares Exec Grid ID against Value

The <comparison> is

0	Equal
1	Not Equal
2	Greater Than
3	Greater Than Equal
4	Less

5	Less Equal
6	Non Zero
7	Zero

Value is not required for the Comparison Non Zero and Zero

For example to jump to Step 10 if Var 2 is greater than or equal to 20

J 10 , 2 , 3 , 20

Conditional Jumps are always supported - MagicQ PC does not have to be unlocked.

If there are less than 3 parameters to the J command then it always jumps.

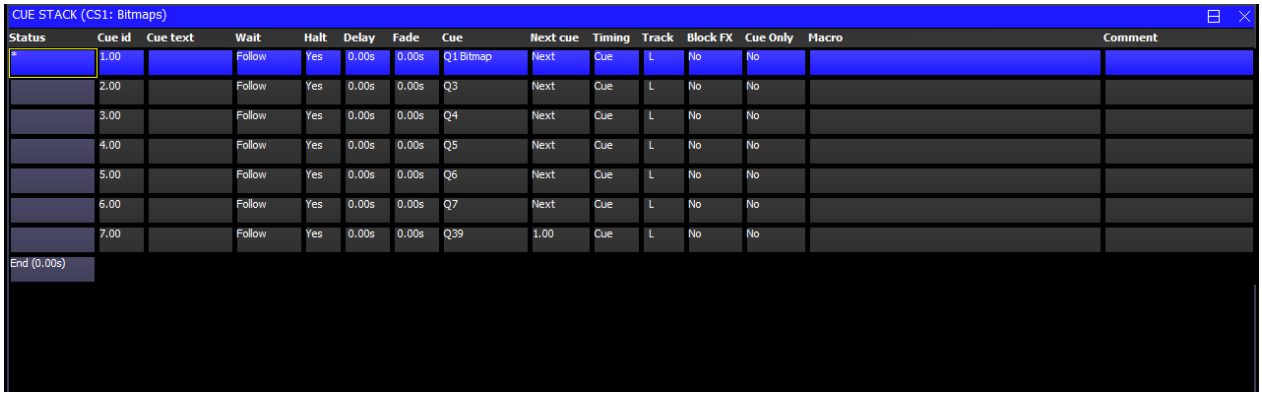
Timecode Cue Stacks

MagicQ supports execution of the Cues in a Cue Stack according to timecode - either generated internally, or received externally from other devices.

To use timecode in a Cue Stack set the Halt field of one or more steps to timecode. Note you will need to double click the Halt field or put the cursor on the Halt field and press in the Input Window to open the Halt options. Pressing SHIFT and ENTER will toggle through the options.

When setting Cues to timecode for the first time, the initial timecode value is set to previous timecode value in the Cue Stack + 1 second.

Timecode values in a Cue Stack must be in increasing order otherwise the Cue Stack may not play back at all. Timecode values that are out of sequence are shown with a !.



MagicQ supports both external and internal timecode - choose using soft button C. External timecode is received from LTC, MIDI, Art-Net, Winamp or from the MagicQ timecode simulator.

Internal timecode is run on a per Cue Stack basis, starting from 00/00/00.00 when the Cue Stack is activated.

When the Cue Stack is active and a timecode value reaches a value in one of the steps then that step is executed.

When a timecode Cue Stack is on a playback, the GO and PAUSE buttons will now allow control of the timecode playback status when using internal timecode or the external timecode simulator. If the timecode is paused, then the GO button will start the timecode from where it was paused. Similarly if the timecode is running, then the PAUSE button will stop the timecode where it is.

Pressing GO when the timecode is already running will progress the Cue Stack to the next cue in the same way as a non timecode enabled Cue Stack works and the timecode will continue to run as before. This is useful in the case where there are some Cues which don't have a timecode and need to be manually triggered during the stack.

The Fast Forward and Fast Back buttons as part of the crossfade section will jump back and forward between the Cues, and will also update the current timecode. This allows for fast navigation around timecode enabled Cue Stacks.

If the Cue Stack has an audio file associated with it, then the audio playback will follow the timecode value for the Cue Stack.

See Timecode Support for how to set up external timecode on the console.

Editing Timecode

Timecode values can be edited individually and can be set in the format 0/0/0.00. The + and – operators can be used to add or subtract times to the timecode times for one or more cues. This is useful for changing the absolute times of a Cue Stack whilst maintaining the relative times between Cues. Use SHIFT or CTRL and the cursor keys to select multiple times and offset their values using + or -.

To set a Cue Step to use the current timecode being received enter / in the Wait field. If multiple Cues are cursor selected then the first Cue will take the current timecode and the following Cues will all be modified, but keeping the same offsets between Cues as they previously had. This enables a whole section of Cues to be moved to a new timecode.

To adjust all timecode values in a Cue Stack including the TC Tracks use the Adjust TC soft button and enter a +/- value to adjust by. Alternatively, press SHIFT + Encoder Y to nudge all timecode values up or down.

Learn Timing

It is possible for the console to learn the timing live. Set the steps in the Cue Stack to timecode. Then release the Cue Stack, and in the Cue Stack window, press SHIFT and RECORD TC.

Now press the GO button for the Cue Stack. MagicQ starts the timecode running at 00/00/00.00 and each time you press GO it moves to the next Cue whilst recording the current timecode into the Wait fields. At the end of the Cue Stack, press RELEASE to end the timecode record mode.

Testing Timecode

When a Cue Stack has some steps set to timecode the Cue Stack Window shows the timecode

simulator / internal timecode on soft buttons X and Y.

When a Cue Stack is set to External Timecode then the timecode simulator is available - this is the same simulator that is available in the Setup window, but is easier to access when working on a timecode Cue Stack. Use soft button Y to turn the timecode simulator on and off. The display for soft button X shows the current timecode value (either received from external timecode or set by the simulator). Use soft button X to start and stop the timecode, or enter a value on the keyboard/keypad and press the soft button to jump to a new timecode value.

When a Cue Stack is set to Internal Timecode then soft button X shows the current internal timecode value of the playback. Use soft button X to start and stop the timecode, or enter a value on the keyboard/keypad and press the soft button to jump to new timecode value. Soft button Y can be used to restart the internal timecode at 0.

When using the TC simulator or internal timecode, manually jumping to a Cue that is set to timecode timing will cause the timecode to be set to that timecode value. Jumping to a Cue can be done by pressing GOTO CUE or putting the cursor on the Cue Status field of a Cue and pressing ENTER.

External Timecode

A Cue Stack on a Playback will only run external timecode steps when it is active - it will not activate by itself. Either manually activate the playback before the external timecode is started or use an Autom event to set a Playback to activate when a particular external timecode range is detected.

In some cases it may be useful to have a master Cue Stack controlled by timecode that is always active which then activates other Cue Stacks for each song.

When timecode values jump (for example when changing tracks), MagicQ checks for each active Cue Stack, whether the external timecode received is within the range of the first timecode value in the Cue Stack and the last timecode value in the Cue Stack. MagicQ will only execute a change of Cue if the new value is within the range controlled by that Cue Stack. This helps to avoid the erroneous execution of an entire Cue Stack.

When timecode values jump forward, MagicQ will jump to the Cue that corresponds to the new timecode. If the Cue Stack, Options, Advanced, Recalculate State on Jumps is set to "Yes" then MagicQ will execute all of the Cues from the current Cue to the new Cue including any macros, media and audio clips. If Recalculate on Jumps is set to "No" then only the new Cue will be executed.

Timecode Offset

MagicQ supports a timecode offset field for each Cue Stack. This can be used to add a positive or negative timecode offset to all timecode values within a Cue Stack including all TC Tracks associated with that Cue Stack. For example if the Cues in the Cue Stack have been set to respond to timecode starting at 0/0/0 and the timecode received actually starts at 2/0/0 then setting the timecode offset to 2/0/0 will make the Cue Stack correctly respond to the received times. Similarly if the Cue Stack has been set to respond to timecode starting at 5/0/0 then and

timecode is actually received starting at 0/0/0 then setting a timecode offset of -5/0/0 will have the desired effect.

The timecode offset can be adjusted in the Cue Stack Window by holding SHIFT and turning encoder D.

The timecode offset is set in Cue Stack options, Advanced. Note that all the Cues will still show their programmed timecode values but an offset will be applied when playing back or recording timecode. The title bar in the Cue Stack window shows the offset.

Automatic Activation and Release of Playbacks

MagicQ supports an option to automatically activate and release Playbacks according to the current received timecode. To use this feature set Setup, View Settings, MIDI & Timecode, Timecode activate/release to either Act/Rel TC Playbacks or Act/Rel TC playbacks at full. MagicQ will activate and release all playbacks on the current playback page that contain timecode depending on the received timecode.

Note that when this option is enabled, Playbacks that are in the range of the incoming timecode can not be released.

Internal Timecode

Cue Stacks set to Internal timecode start the internal timecode from 0 when the Cue Stack is activated.

There is support for setting the internal timecode from within a Cue Stack using the macro command 'I'. To reset the internal timecode for a Cue Stack to 00/00/00.00 use the macro I0. To set a specific time, e.g. 10 seconds use the macro I10.

Note when using internal timecode MagicQ uses hundredths of seconds as the unit of measure rather than timecode frames.

Enabling / Disabling Timecode

It is possible to turn timecode decode on and off for a Cue Stack using soft button A in the Cue Stack Window. When timecode is turned off the Cue Stack will not execute timecode Cues.

Press SHIFT + soft button on encoder D to avoid the confirmation request.

Cue Stack Timecode Tracks

MagicQ supports up to 10 timecode tracks (TC Tracks) linked to each Cue Stack. A timecode track allows a sequence of button presses/fader movement events to be associated with the playback of a Cue Stack. This is useful where a main Cue Stack is used to program the overall look, but additional effects and bumps need to be added in time to the music. The timecode tracks are independent of the Cues in the Cue Stack, so it is therefore not necessary to generate a Cue for each of these effects/bumps.

All recorded timecode tracks are started when the Cue Stack is activated and are released when the Cue Stack is released.

Timecode tracks are visible in the Cue Stack, View TC view.

Tracks 1 to 10 are selected by soft button A. Tracks can be recorded, removed and unassigned using the RECORD TRACK, REMOVE TRACK and UNASSIGN TRACK soft buttons.

The RECORD TRACK function is used to record the tracks - in this mode MagicQ records all button presses and fader movements as they occur with the appropriate times. The events and times can be modified afterwards. Each event can be edited individually, or whole sections can be cursor selected and moved in time.

When recording a Track it is not recommended to record button or fader movements from the Cue Stacks itself as this may cause unexpected results when played back.

Timecode tracks can be edited and steps can be manually added to them and removed from them.

Steps in a timecode track must have increasing Time field otherwise they will not play correctly. To reorder the steps so that they are correctly in time order use the REORDER TRACK soft button.

Each timecode track can be turned on and off individually using soft button D.

Each timecode track is stored in MagicQ as a keyboard macro and if required can also be viewed and played back in the Macro Window. When a Track is created MagicQ generates a keyboard macro with the name CSx TrY where X is the Cue Stack ID and Y is the track number.

When the track is unassigned using the UNASSIGN TRACK soft button the keyboard macro is removed from the Cue Stack. The macro can still be viewed in the Macro Window and assigned to other Cue Stacks.

When the track is removed using the REMOVE TRACK soft button the keyboard macro is also removed from the Macro window.

Timecode tracks can be managed completely from the Cue Stack window, so it is not necessary to use the Macro window. If required the ASSIGN TC MACRO soft button in the Cue Stack window can be used to manually assign a keyboard macro to a Track.

Importing Timecode Timings

MagicQ supports importing timecode values from .CSV files which can be exported from software such as InqScribe, Reaper and Audacity. In Cue Stack, View TC View select the IMPORT TC TIMINGS soft button.

MagicQ normally looks for a .csv in the format:

<timecode>,<short name>,<long name>,<options>

Where the <short name> is used as the cue name and <long name> the comment field within MagicQ.

For example:

Header line 10:02:36.09,all on,Guests enter the room

10:02:36.13,OPP 2 ON CHASE,Start the event

10:02:36.23,ALL ON,Interval

MagicQ can detect fields separated by either commas or semi colons.

When importing from InqScribe, first export as .XML, open using a spreadsheet editor (for example Excel), reorder the columns to be as above and then save out as a .csv file.

Reaper

MagicQ auto detects input from Reaper (first line starts with a #) - the format for Reaper is

<short name>,<long name>,<start tc>,<end tc>,<length tc>,<colour>

For example:

#,Name,Start,End,Length,Colour R1,Intro,0:00:00:00,0:00:02:00,0:00:02:00, M1,Accent,0:00:00:11,,,FFF80A

Audacity

MagicQ auto detects input from Audacity. Audacity uses a tab delimited file without a header.

If the filename contains "Label Track" then MagicQ treats it as an Audacity file. MagicQ will also detect Audacity if the file has tabs instead of commas.

<start timecode> tab <end timecode> tab <name>

For example:

0.000000 0.000000 Intro Cue 25.497099 25.497099 Dance

Making Cues

Once the times have been imported MagicQ gives the option to Make Cues, Make TC Stack or Load Markers.

When Make Cues is selected, Cues will be generated for each timecode value and appended to the Cue Stack on the current playback for each of the timecode values in the file.

If there is no Cue Stack on the current playback than a Cue Stack will be generated on the currently selected playback with a Cue for each timecode timing point. Each Cue can be programmed by merging into it. Remove any unwanted Cues. If the playback is empty then a new Cue Stack will be created.

When Make TC Track is selected, TC Track items will be added to the current selected Track of the Cue Stack on the current playback for each of the timecode values in the file.

If there is no Cue Stack on the current playback than a Cue Stack will be generated on the currently selected playback with a TC Track 1 with a TC Track item for each of the timecode values in the file.

When Load Markers is selected, Markers will be loaded into the Cue Stack in the current playback. If there is no Cue Stack on the current playback than a Cue Stack will be generated on the currently selected playback with the Markers loaded into it.

Playback

MagicQ consoles support 10 main playbacks situated immediately below the touch screen. Up to 192 additional playbacks are available on up to 8 expansion wings.

All playbacks have a fader, a FLASH button and a SELECT button.

The 10 main playbacks also have GO and PAUSE buttons for control of Cue Stacks.

Cue Stacks on wings have GO buttons. SHIFT + GO gives PAUSE function.

Playback Display

The area above each of the main playbacks on the display is used to provide information about the status of the playback. This includes the name of the Cue Stack that is loaded on the playback, the current Cue and the next Cue. The status of the Cue is shown as a percentage along with an indication of whether the Cue is running or paused.

The LCD screen above each of the Playbacks on the Extra Wing displays the name of the Cue Stack. The name can be up to 12 characters. When a Cue Stack is assigned to Wing Playbacks that has multiple steps then the name of the Cue Stack is displayed on the first line of the Wing Playback and the second line shows the current step. If no name is set for the Cue Stack then the first line shows the current step and the second line shows the next step.

Activating and Releasing Playbacks

Playbacks are activated and released by pressing the associated buttons and raising the associated faders depending on the options of the Cue Stack. Once a playback is activated it affects the output of the console until it is released.

By default the Cue Stack on a playback is activated when the fader is raised above zero and released when it is returned to zero. Similarly it is activated when a flash button is pressed and then deactivated when the button is released.

The Cue Stack options can be configured so that the flash buttons/faders do not affect activation or deactivation. In this case the playback can be activated by pressing the GO button. It can be released by pressing the S button to make the playback the current playback and then pressing the RELEASE button.

The Cue Stack can also be configured so that it does not reset to the first step when it is released.

A Cue Stack can be set so that pressing the FLASH button, activates and releases the playback on alternate presses. Set the "Flash Button toggles" option.

A release time can be set for the Cue Stack in the Cue Stack options, so that when released the levels fade out over a specified time.

At any time a playback can be released with time by pressing the SELECT button of the

playback, typing a time and pressing the RELEASE button.

Pressing SHIFT + RELEASE releases all playbacks simultaneously. It is also possible to enter a time before doing SHIFT + RELEASE. Holding a single SELECT button and pressing SHIFT + RELEASE releases all the playbacks except the one for which the SELECT is held.

Holding multiple Select buttons and pressing RELEASE releases all the selected playbacks.

Cue Stacks can be set to automatically activate or release on page change. When a Cue Stack is set to release on page change then holding the S button of the Playback when changing page avoids the release of the Cue Stack.

Fader Control

By default the playback fader controls the level of any HTP channels recorded into the current Cue on the Cue Stack. If the "Fader controls HTP chans" option is set to "No" then the fader will no longer control the HTP channels – the Playback will automatically be always set to 100% level.

The Cue Stack options can be configured so that the fader also controls LTP channels using the Fader controls LTP (IPCB) option. This is useful for example, to set up a fader to perform a "fly away" at the end of a song. As the fader is moved up the LTP channels are changed from their current values to the values recorded in the Cue.

MagicQ supports an additional option "All chans controlled LTP". This options allows the Playback when it is the last activated, to consider all channels to be LTP. The value of HTP channels controlled by the Playback is the value output, regardless of the HTP level of other Playbacks. This allows soloing of Intensities.

The Cue Stack can also be configured so that the fader controls the size and/or speed of any FX recorded in the current Cue. For example, you can set up one fader to control a pan swing and another to control a tilt swing. Moving the faders to half gets a small circle whilst moving to full gets a big circle. Varying the faders enables generation of ellipses.

Playback Buttons

In a Cue Stack set to Chase timing, GO runs the chase whilst PAUSE stops it.

In a Cue Stack set to Theatre timing, GO steps to the next step in the Cue Stack. When a Cue Stack is fading, pressing PAUSE stops the fade mid step. When a Cue Stack is paused, pressing PAUSE fades backwards through the stack.

Pressing S + GO steps to the next step without fading. Pressing S + PAUSE steps back to the previous step without fading.

Pressing S + FLASH reasserts the Cue Stack to be the latest touched - this has the effect of reasserting channels that have been overridden by other Playbacks.

Double clicking the S button opens the Cue Stack Window, View Cue Stack for that playback.

Triple clicking the S button opens the Cue Stack options for that playback (i.e. the Cue Stack Window, View Options). Holding SHIFT and double clicking the S button opens the Cue Window for that playback to show the contents of the current Cue on that playback.

Each of the buttons illuminates to indicate its current state:

FLASH	Green	Add
	Red	Swap
	Green flash	Add - playback held over
	Red flash	Swap - playback held over
GO	Green	Cue Stack is running
PAUSE	Red	Cue Stack is paused
SELECT	Blue	Playback is selected

Playbacks without Faders

MagicQ Extra Wings and Execute Wings have some playbacks without faders and without GO or PAUSE buttons.

On these playbacks the FLASH buttons can be set to toggle on/off in the Cue Stack Options, Buttons, Flash toggles.

There is support for toggling on/off these playbacks without permanently setting the FLASH buttons to toggle. Hold SHIFT and press the FLASH or press S + FLASH to toggle.

Grand Master & Sub Master

On stadium range users have access to two master faders: the Grand Master, which controls the overall HTP output level of the console, and the Sub Master, which controls the HTP output level of the playbacks.

Both the Grand Master and Sub Master can be configured for finer control and alternative functions.

LTP channels are not affected by the master faders.

Dead Black Out (DBO)

Above the Grand Master there is a DBO button. Pressing this button causes all HTP values to be set to zero, thus generating a black out. Releasing the button causes the original HTP levels to be restored. LTP channels are not affected by the DBO button.

Add / Swap

Above the Grand Master there is an ADD / SWAP button which controls the function of the playback FLASH buttons. When set to ADD, pressing a FLASH button causes the playback to be added to the output. When set to SWAP, pressing a FLASH button again causes the playback

to be added to the output, but all other playbacks are removed from the output.

Each FLASH button has an LED which is lit green for ADD and red for SWAP.

The ADD / SWAP functionality only affects HTP channels on the playbacks - LTP channels are not affected by the FLASH buttons. The level of the playback is determined by the master faders – see configuring the masters.

Cue Stacks can be set to always swap. Open the Cue Stack window and press the SELECT button with the playback. In the VIEW OPTIONS view set the "Flash Button Swaps" option to YES.

The "Flash acts like fader" option enables the FLASH button to act as if the fader was raised to full. This is useful if the fader controls LTP (IPCB) channels, FX size or FX speed, or if the Fader is a master for intensity, size or speed.

Page Select

MagicQ supports 500 pages of playbacks for recoding different Cue Stacks for different songs.

The NEXT PAGE and a PREV PAGE buttons control which playback page is active, and hence which Cue Stacks the physical playback faders and buttons control.

The current page number and name is displayed in the Status Display under the clock. The current page can also be changed from the Page Window by selecting a new page, or by pressing PAGE and entering the page number on the keypad.

Changing the current page whilst playbacks are active does not affect the output of these playbacks - the playbacks are "held over" until the playback is released.

It is possible to set up Cue Stacks to be activated and released on a page change in the Cue Stack options. When a Cue Stack is set to release on page change then holding the S button of the Playback when changing page avoids the release of the Cue Stack.

The next Page can be preloaded in the Page Window by moving the cursor to the required item in the Page Window and pressing the PRELOAD PAGE soft button. The preloaded page will be indicated in the Status Display above PB1 to PB5. Pressing NEXT PAGE goes to the preloaded page.

The preloaded page can also be loaded using the keypad syntax <Page> <number> *. PAGE 34 * preloads page 34. Pressing NEXT PAGE goes to page 34.

Page Levels

It is now possible to save levels associated with the main playbacks and additional wing playbacks that are tied to the main playbacks. Whenever the main page is changed to a new page it will set the levels for the playbacks according to the saved state - this means that a "Song" will always start with the same playback levels. If the physical fader is not at the required level then the level must be matched before the fader will control the playback.

To save levels for a page go to the Page Window and use the SAVE LEVELS and CLEAR LEVELS

soft buttons. The levels are stored in the show file and can be updated at any time using SAVE LEVELS again.

To set ties between playbacks on wings and the main playbacks go to Setup, View System, Wings and set the required "Tie" fields to "Main".

Cue Stacks can be set to Activate and Release on page change so that when a new page is selected one or more Cue Stacks activated at a required level.

Current Playback

The current playback is the one that has its SELECT button illuminated. The current playback is used by the Cue and Cue Stack windows to determine the Cue and Cue Stack to view / modify.

You can change the current playback at any time by pressing the SELECT button for the playback you want to make the current playback

Press the SELECT button of a Playback twice in quick succession to select the Playback and automatically open the Cue Stack Window so that you can view / change the contents of the Cue Stack.

Press the SELECT button of a Playback three times in quick succession to select the Playback and automatically open the Cue Stack Window in the Options View.

Sometimes you may wish that the currently selected fader changes to follow the last fader that was raised. This behaviour can be enables from the Setup Window by setting the "Current Playback follows last touched" option to YES.

Playbacks across Multiple Pages

Multiple Playbacks can be active at one time from different pages. By default a particular Playback can only be active on one Page – it is not possible to activate Playback 1 on Page 1 and Playback 1 on Page 2 at the same time. To activate two Cue Stacks on one Playback see Page Holdover below.

It is possible to temporarily transfer a Playback that is active to a different Playback in order to unblock a Playback. Press SHIFT + SEL to action the transfer, and then select the S button of the Playback to transfer followed by the S button of the destination.

Transfer is only possible when a Playback is active. Once a transfer has occurred the original Playback can be used to run a Playback from a different page. When the transferred Playback is released then it returns to its original Playback.

Page Holdover

MagicQ supports "Two Page Holdover" whereby it is possible for two Cue Stacks from different pages on a single Playback to be active simultaneously.

In Setup, View Settings, Playback set "Page Holdover" to "Two Page Holdover".

When an active Cue Stack holds over the Playback legend area is split with a small area at the bottom showing the page and name of the Cue Stack holding over. Full access is then available to start another Cue Stack from a different page. The fader and buttons control the new Cue Stack.

When two Cue Stacks are active on the same playback then when changing pages between their two respective pages, the legends will swap around. The Cue Stack from the current page is always shown above, whilst the Cue Stack holding over is always shown below.

To make changes to a Cue Stack that is holding over, first change back to the page it was activated on and then use the buttons and faders.

Page Holdover is best used on the main playbacks where there is full legending of the playback state. On MagicQ Extra Wings, MagicQ Playback Wings and MagicQ Execute Wings the top line of the display shows the name of the Cue Stack from the current page and the bottom line flashes the name of the over Cue Stack holding over.

Page Holdover can be used with Playbacks set with Default Cue Stacks in the same was as with normal Cue Stacks. The Cue Stack from Page 1 of the default Cue Stack can be released from Page 1 or any page where there is no other specific Cue Stack recorded.

It is possible to release all playbacks that are holding over by pressing ALT + RELEASE. There is also an inbuilt macro for RELEASE ALL HOLDOVER which can be assigned to a button. The Cue Stack Macro R1000 also releases all held over Cue Stacks similar to ALT RELEASE. Releasing all playbacks does not affect Cue Stacks which are set with "Masters affect level" to "No".

When Cue Stacks are holding over they use up free playbacks in a similar way to the Execute Window - there is an overall limit of 202 active playbacks/executes.

In Two Page Holdover mode, Cue Stacks set to Activate on Page Change will now activate regardless of whether other Cue Stacks are active on that Playback. If there are already two Cue Stacks active then the oldest running one will be automatically released.

The Cue Stack Macro R999 can also be used to release held over Cue Stacks for this playback.

Playback Banking

MagicQ supports playback banking to access the different playbacks. On Compact consoles the main bank consists of 10 fader playbacks PB1 to PB10. On MQ500 it consists of fader playbacks PB1 to PB15 and button playbacks PB16 to PB30. Additional playbacks banks can be accessed through the Extra Wing and Stadium Wing respectively.

On MQ500M the motorised faders enable access to six different playback banks. The first playback bank consists of PB1 to PB15 on fader playbacks and PB16 to PB30 on encoder playbacks. The second playback bank consists of PB31 to PB45 on fader playbacks and PB46 to PB60 on encoder playbacks

Playback banks are distinct from Playback Pages. Playback pages are typically used for songs, whilst Playback banks enable access to different playbacks within the page.

See MQ500M Playback banking.

Manual Control

To the right of the 10 playbacks is the manual control section, consisting of a Manual Fader, four buttons (GO, PAUSE, FWD, BKWD) and an extra large GO button below the fader. This section controls the current playback – that is the playback whose SELECT button is illuminated.

Pressing the SELECT button associated with a playback causes that playback to become the current playback and hence to be controlled by the manual section.

When a playback is controlled by the manual section, the playbacks fader and buttons continue to function as normal so that the HTP level can be set using the fader and the playback can be bumped using the FLASH button. The manual section simply provides extra control features above those available on each of the playbacks.

The GO and PAUSE buttons in the manual section have the same function as the GO and PAUSE buttons on each playback. The FWD and BKWD buttons move through the Cue stack without fading. The extra large GO button below the Manual Fader is designed for theatre style playback and has the same function as the GO button on each playback.

If multiple SELECT buttons are held down then the Go, Pause, Fast Forward and Fast Back buttons in the manual control section can be used to control multiple Playbacks simultaneously.

The Manual Fader is unlike all the other faders in that it controls the progress of the current CUE rather than the HTP level of the Cue Stack. This enables a Cue to be manually faded, the level of the Manual Fader representing the % of the fade that is complete - from 0% to 100%.

The Manual Fader enables you to fade in a Cue Stack. To start a manual crossfade, hold the SELECT button for the playback and move the crossfader. The display window will show "pickup" until the crossfader level matches the current position in the fade - it will then change to "manual". You can also start a manual crossfade on the currently selected playback by holding SHIFT and moving the crossfader.

As the fader reaches the limits of the Cue Stack it moves to the next Cue.

Goto

The GO buttons in the manual section can also be used to jump to a different Cue id in a Cue Stack – enter the Cue ID in the Cue Stack and press the Go button in the manual section.

It is also possible to perform a Goto and a Preload of the next step to go to in the Cue Stack Window.

Manual Split Crossfade

Two faders may be assigned as theatre style split crossfade masters.

When enabled from the Setup Window, playbacks faders 9 and 10 become Crossfade Masters for manual Fade In and Fade Out. Pressing the Pause button on either playback 9 or 10 brings the current playback under manual control.

The two faders can then be used to fade in each new Cue with separate control for fade in and fade out.

Pressing the Go button on either Playback 9 or 10 returns the current playback to normal Cue execution.

When enabled, playbacks faders 9 and 10 can not be used as normal playbacks.

Rate Sub Master

It is possible in the Setup Window to set the function of manual crossfade fader to be a rate sub-master to control the execution rate of the current playback, or the global execution rate of all playbacks. The rate is shown in the bottom right of the Status Display from 0% to infinity. The fader should be set to 50% for normal execution rate.

The options are:

- Rate Master
- Global Rate Master
- Cue Stack Rate Master
- Cue Stack Global Rate Master
- Club Master
- Tested Stacks Rate Master

The Rate Master and Global Master affect both the Cue Stack times, FX times and Pixel FX times. The Cue Stack Rate Master and Cue Stack Global Rate Master control just the rate of the Cue Stack (not the FX in it).

The Club Master affects both Cue Stack times, FX Times, Pixel FX Times and Cue Stack from the Execute window.

Tested Stacks Rate Master – only tested Cue Stacks from the Execute Window or externally triggered are affected by rate changes.

Tap to Time

It is possible to change the chase speed or FX speed using Tap to Time. Holding the S button of the playback and then pressing soft button Y (2nd soft button up on right side of touch screen).

If the current step in the Cue Stack is set to Chase Timing then the Chase speed will be modified. If the step is set to Cue Timing then the FX speed of any FX in the current Cue will be modified.

If a Cue Stack is set to Chase Timing then the GO button can also be used to tap the time. Note that this only works on chases when the option "Go Jumps Out of Loop" is set to "No".

It is also possible to configure the S buttons or the GO buttons to perform Tap to Time – Setup, View Settings, Playbacks, Tap to time buttons.

Tap to Time can also be triggered from Autom events.

The remote input can also be set to always tap to time the currently selected playback.

It is possible to set the GO button in the Master Crossfade Section to a Selected Playback or Global Tap to Time button. In the Setup Window, View Settings, Playback, set Crossfade button function to "Tap To Time Selected" or "Global Tap to Time". "Tap to Time Selected" affects the absolute rate of the currently selected Playback. "Global Tap to Time" affects the absolute rate of all active playbacks.

Global Tap to Time

When the Crossfade button function is set to "Global Tap to Time" then the absolute rate of all active playbacks can be controlled. This is also possible through a Global Tap button in the Execute Window.

Cue Stacks can be set to use a divisor of the tapped time - in Cue Stack Options, Audio set the rate of the Rate Divisor - by default it is set to "Normal" and takes the tapped time. Options include "Div by 2" to "Div by 8" and "Mult by 2". The divisor affects setting of the rate by tap to time either as the selected playback, as part of global tap to time, or as part of audio BPM rate setting.

Cue Stacks can also have the Rate Divisor can be set to "Inhibit" - in this case the rate of the Cue Stack is never affected by global tap to time options. This allows Global Tap to Time to be used without affecting particular Cue Stacks.

Tap to time affects the absolute rate of the Cue Stack - if it is a Chase, then the Chase Speed, or if it is a Cue Stack Step with FX then the FX rate - the programmed rate of the Cue Stack or Cue is changed. The programmed rate is then modified by the relative speed controllers - it can be reduced by speed masters and fader controls FX speed options before being potentially increased or decreased by the playback rate/global rate masters.

Playbacks Window

The Playbacks Window enables management of all 202 playbacks regardless of how many physical wings are attached. This ensures that shows that will be run on consoles with wings can be programmed on a MagicQ system without wings. It also provides an ideal way of expanding your show control by using virtual playbacks.

The Playbacks Window displays a button for each of the 202 playbacks. On Compact console this starts with the 10 main playbacks and then with 8 wings each with 24 playbacks.

On MQ500 there are 15 main fader playbacks, with the 15 button playbacks below and then wings each with 24 playbacks.

On MQ500M there are 15 main fader playbacks, with the 15 encoder playbacks below, repeated six times for six playback banks of 30 playbacks. Following this is a bank of 12 that is used for the 4x3 Execute buttons when they are set to Playbacks.

The top right encoder is used to select which Page of playbacks is displayed. This is completely separate from the Page used for the physical playbacks - you can have the physical playbacks set to one page whilst you view and modify playbacks on a different page.

Cues can be recorded onto any of the playbacks in the same way as they are recorded onto a real playback. After pressing RECORD, instead of selecting a playback SELECT button, just press the appropriate button in the Playbacks Window.

Testing Playbacks

Any playback can be tested, by pressing the button in the Playbacks Window. This has the same effect as raising the physical fader from zero to full. Pressing the button again sets the fader back to zero. We will refer to this as a virtual playback.

You can use physical playbacks and virtual playbacks simultaneously - however if you activate a virtual playback for an active physical playback then the result will depend on whether the physical playback and the virtual playback are on the same page. If they are, then the effect will be that the playback will be activated and set to the highest level of the physical playback and the virtual playback. If not, then the physical playback will not be affected and the virtual playback will be ignored. This is because only one Cue Stack can be run on a playback.

Use the View Faders soft button to change the view in the Playbacks Window into faders rather than buttons. Faders can then be moved up and down using the touch screen / mouse. This enables full control of virtual playbacks. The GO, PAUSE and RELEASE soft buttons enable immediate control of virtual playbacks.

You can select a virtual playback as the currently selected playback by pressing the SELECT button and then pressing the required virtual playback in the Playbacks Window. This enables the Cue Stack from the virtual playback to be controlled, including the modification of Cues and Cue Stack parameters.

In the Playback Window there is a soft button to release all test Cues, Cue Stacks and Playbacks. This does not release Playbacks that have been activated on real faders or buttons. This function is also available on the short cut CTRL + RELEASE.

Naming Playbacks

Playbacks can be named in the Playbacks Window as per naming of any Windows item.

Copying and Moving Playbacks

Playbacks can be moved and copied in the Playbacks Window just like any Window item. You can also change the Playback Window page between selecting the source and destination, so that you can copy or move between pages.

When a Playback is moved, any Cue Stacks from Playbacks on the same page that have Cue Stack macros that reference that playback will be updated to reference the destination Playback. This only affects Playbacks on the same page - Cue Stack macros from Cue Stacks on different pages or in the Execute window will not be updated.

When a Playback is copied to another Playback, the Cue Stack on the source playback is copied (i.e. a new Cue Stack is generated) to the destination Playback. By default, the Cues that make up the Cue Stack are not copied - both Cue Stacks reference the same Cues. This means, for example, that you can generate several copies of a chase, each with the same Cues but with different chase speeds.

You can force an unlinked copy of Cue Stacks by holding SHIFT down when you press the COPY button and electing Unlinked. This forces both the Cue Stack and its Cues to be copied.

Removing Playbacks

Playbacks can be removed in the Playbacks Window as per removing of any Windows item.

Playback Rate

It is possible to set the playback rate of a Playback using Encoder X in the Playback Window. Press the S button of the required playback to choose which playback to change.

By default the playback rate is locked to 100%. Press the X soft button to enable changes to playback rates. The playback rate % is shown for each of the main playbacks when the % is other than 100%.

The playback rate is stored in the show file, so that the rate will persist over resets and power downs.

Global playback rate can be set using the Y soft button in a similar way.

If you have accidentally set playback rates then you can reset all playback rates to 100% using the top soft button RESET ALL RATE.

Checking Active Playbacks

Playbacks can only be active on one page at a time. To view which page a playback is active on press the VIEW ACTIVE soft button.

In this view, the active playbacks are shown together with the page that they are active on. The top soft buttons, GO, PAUSE and RELEASE can be used on the active playbacks. Playbacks that are not active show the Cues Stack that would be activated if that playback was activated.

Moving Playbacks for All Pages

It is possible to move playbacks on all pages to a new playback number. This is particularly useful when converting a show from Compact console (10 main faders) to MQ500 (15 main faders).

Select the top soft button VIEW ALL. In previous version this was on soft button B.

It is possible to move multiple playbacks (and pages) at one time.

Moving will now move the Cue Stacks on all pages to the new playback. It is also possible to copy and remove - but use these with care!

Speed Masters

Press VIEW SPD MASTERS to view and change Speed Masters. The following fields are supported:

ID	The ID of the Speed Master
Status	When set to enabled the Speed Master is active.
Running	When a Speed Master is active this affects whether all the controlled FX and chases are running or halted
Divisor	The Divisor can be set to values between /32 to *32.
Previous BPM	Shows the previous tapped BPM
Attributes	Determines which attribute types are affected by the Speed Master
Fader 200%	When the Speed Master is on a fader then fader at full is 200%, fader at half is 100%.
Tap syncs beat	When Tapping speed, MagicQ will phase sync FX to the beat
Timing	Timing type of Per Head or FX Timing
Link	Link this Speed Master to the previous one
Source	Enable the BPM to be sourced from audio input or DJ system instead of the Tapped BPM

When a Speed Master is set to timing type of Per Head this overrides the Timing field in the FX. When timing is set to FX Timing, the timing type will be taken from the FX timing field.

When a Speed Master is disabled it has no effect at all on FX or chases assigned to that Speed Master.

When Speed Masters are linked they take their BPM and BPM source from lowest numbered Speed Master linked. The divisor, active state and running/halt continue to operate independently for each Speed Master.

Source can be Tap, Audio BPM, Audio Beat, DJM BPM and DJ Beat.

To remove a Speed Master use the REMOVE button.

There is more info on Speed Masters in the Busking section.

Bank Pages

Banks of playbacks can operate on different pages. This is a very powerful feature as it allows the playbacks to be split into separate sections without forcing all the playbacks to be on the same page.

This provides significant flexibility to how shows are played back – for example one bank can be used to control traditional lamps whilst another could be used to control intelligent heads. Changing the Page of the par lamps would not change the Page of the heads.

By default the page buttons on the main section affect all playbacks whilst the buttons on all other banks only affect that bank. If you plan to operate a bank section separately then you can avoid the main page buttons affecting that bank section. In the Setup Window, select VIEW SYSTEM, VIEW WINGS.

Playback wings support 24 playbacks divided into two banks (rows) of 12 playbacks referred to as the upper and lower banks. Each bank of playbacks has separate NEXT PAGE and PREV PAGE buttons.

For each bank you can specify which page buttons the bank is tied to. To operate a section independently of any other page buttons set the tie to be itself. For example, to operate the upper bank of Wing 1 independently set the upper bank tie to Wing 1 upper.

You can also tie multiple wing banks together to use one set of page buttons. Thus if you want both banks of a wing to operate off 1 set of buttons, then you can configure the ties to do this.

When any NEXT PAGE or PREV PAGE buttons are pressed the LCD displays temporarily change to indicate the current page number.

You can jump to a Wing Playback Page by entering a page number, then holding the Wing NEXT PAGE button and pressing the Wing PREV PAGE button.

Default Cue Stacks

Cue Stacks can be made to appear on all pages of a Playback. To use this feature, record a Cue Stack on Page 1 and then in the Playbacks Window set "Default Cue Stack" to "On" for the selected Playback.

The Cue Stack on Page 1 then appears on any Pages which do not have a Cue Stack assigned.

Synchronising Playbacks

It is possible to synchronise the Cue Stacks on two or more Playbacks. Set the "Sync next playback to this one" option. MagicQ matches the Cue Ids in the Cue Stack so it is possible to have different numbers of Cues in the Stacks. If there is no Cue Id matching in the next Cue Stack then it will remain at the current Cue.

It is possible to have several Playbacks synced to one master Playback by setting the option "Sync next playback to this one" on the master and each adjacent Cue Stack, except for the last one in the chain. MagicQ tries to match the Cue Id within each Cue Stack to the master Cue Stack.

Set Lists

It is possible to save and load set lists in the Page Window. Set lists are simply text files with a list of page names. When the set list is loaded, MagicQ rearranges the pages so that they are in the order specified in the set list. Pages that are not specified in the set list (for example songs not being used today) are moved after all the pages specified in the set list file.

To use set lists, first name all the pages in the Page Window according to the song name or section name. You can then save this as a set list by pressing the Save Set List soft button – the file is saved into the show folder with a .txt file extension. You can edit this file with a text editor (e.g. Windows Notepad) to rearrange the songs. Load the set list back into MagicQ using the Load Set List soft button.

Cue Stack Options

The Cue Stack Window has three Views – View Cue Stack, View Options and View Defaults.

The View Options view shows the settings for the Cue Stack on the current Playback. Changing these settings immediately affects the currently selected Cue Stack.

The View Defaults view shows the settings that will be used when new Cues and Cue Stacks are recorded. Changing the settings in View Defaults does not affect Cues and Cues Stacks that have already been recorded.

The View Defaults view contains two columns – one for single step Cue Stacks and one for multiple step Cue Stacks. When the first Cue is first recorded on a Cue Stack the single step defaults are used. When a second Cue is recorded on the Cue Stack the Cue Stack settings are modified to use the multiple step defaults.

Faders

Fader Activates Stack

When set to Yes raising the fader from 0 to above the activation threshold activates the Cue Stack. When set to No the fader does not activate the Cue Stack.

The activation threshold defaults to 0. It is a global setting which is set in Setup, View Settings, Hardware.

Fader Releases Stack

When set to Yes lowering the fader to the activation threshold releases the Cue Stack. When set to No the fader does Not release the Cue Stack.

The activation threshold defaults to 0. It is a global setting which is set in Setup, View Settings, Hardware.

Fader Controls HTP Chans

When set to Yes the fader will control the level of all channels from the Playback that are patched as HTP channels.

When set to No then all HTP channels will be activated at 100% of the their level within the Playback, ignoring the level of the fader.

MagicQ personalities normally only have Intensity set as HTP channel - but it is sometimes useful to patch heads without Intensity as HTP – e.g. the Red, Green, Blue channels of LED heads.

The fader controls the levels proportionately from 0% to 100% through the length of the fader.

If the Cue includes FX on HTP channels then the size of the FX is also reduced proportionately according to the fader level.

When this setting is set to Yes then the other "Fader controls" settings should generally be set to No.

The overall intensity level of HTP channels is also affected by the Grand Master and the Sub Master and any active Group Masters.

Fader Controls LTP (IPCB) Chans

When set to Yes the fader will crossfade all channels that are operating as LTP channels (generally this is everything apart from Intensity).

When the fader is at 0% the LTP channels are not controlled by this Cue Stack. When the fader is raised above 0% then MagicQ crossfades the LTP channels to the values stored in the Cue under control of the fader.

When the fader is at 100% then the LTP channels are exactly as stored in the Cue.

MagicQ crossfades the LTP channels from the values that they were at before the fader was raised above 0 – i.e. the current value of these channels. This will either be the values from other Cue Stacks, or if no other Cue Stacks are controlling these channels the LTP or default values.

When set to Yes then the other "Fader controls" settings should generally be set to No.

If the setting Advanced, All Channels Controlled LTP is set to Yes, and the setting Fader controls HTP is set to No, then MagicQ will perform Soft LTP - crossfading HTP channels (such as Intensity).

Fader Blocks FX on LTP Chans

When set to Yes any LTP channels that are under control of the fader also block FX from other playbacks according to the level of the fader - at 100% they completely block FX

When set to No any FX on the channels from other playbacks keep running without change.

Fader Controls Absolute Chans

When set to Yes the fader will control the value of all LTP chans in an absolute way - when the fader is at 0% then the channels are at 0% - when at 100% the channels are at the programmed value. This allows direct control of the attributes from the fader.

This is similar to Fader Controls LTP (IPCB) chans except that the crossfade always starts from 0% rather than the value from other Playbacks.

Fader Controls FX Size

When this setting is set to Yes the fader controls the size of any FX that are running in the Cue

Stack – this includes FX from the current Cue and also any FX that are tracking from previous Cues in the Cue Stack.

When the fader is at 100% then the FX is the size that was recorded in the Cue - lowering the fader reduces the size until there is No size (No FX) at 0%.

Fader controls FX size affects FX on any attribute.

When set to Yes then the other "Fader controls" settings other than "Fader controls speed" settings should generally be set to No.

Fader Controls FX Speed

When this setting is set to Yes the fader controls the speed of any FX that are running in the Cue Stack – this includes FX from the current Cue and also any FX that are tracking from previous Cues in the Cue Stack.

When the fader is at 100% then the FX runs at the speed that was recorded in the Cue - lowering the fader reduces the speed until it stops at 0%.

Fader controls FX speed affects FX on any attribute.

When set to Yes then the other "Fader controls" settings other than "Fader controls size" settings should generally be set to No.

Fader Controls Manual Crossfades

When set to Yes then the fader performs a manual crossfade on the Cue Stack in a similar way to the dedicated manual crossfader. This enables multiple Cue Stacks to be manually crossfaded.

All other "Fader controls" settings, especially "Fader controls HTP" should be set to No, otherwise there will be unpredictable results.

Fader Controls Timing

This setting controls timing of Cue Stack steps.

When the fader is at 0 the Cue Stack snaps with 0 time, when at full it fades with 10 seconds.

If the Cue has split timing then the split timing is respected within the overall fade time set by the fader.

Fader Controls Audio Volume

When set to Yes, the level of the fader will affect the volume of any audio played from both the "Audio File" Cue Stack option and "Audio" fields on the Cues within the given Cue Stack.

Fader jumps to Cue Step

When set to Yes and the Cue Stack has multiple steps then raising the fader will step through the Cue Stack - at 0% it will be on step 1 and at 100% it will be on the last step.

Encoder Mode

On Stadium consoles the playback encoders can be used for many different functions including:

- Intensity (HTP channel control)
- LTP channel control
- FX Size
- FX Speed
- FX Speed and FX Size
- Rate (not implemented yet)
- Time (not implemented yet)

When Cues are recorded to an Execute Playbacks (e.g. PB16 to PB30) by default the encoders will control the function of the Cue Stack on that Playback. The user can choose the Encoder mode to determine which function the encoder has. The current state of the encoder is shown in the playback legend.

When Cues are recorded to a Fader Playback, if there is no Cue Stack assigned to the Execute Playback above then the encoder from the Execute Playback will automatically take any encoder function that is set on the Fader Playback. This means that it is easy, for example, to record a FX Cue onto a fader playback and use the encoder above it to control the speed.

Control Type

On Stadium consoles it is possible to chose to control one or more different Playbacks or even a separate Cue Stack to control in which case the encoder is not related to the specific Playback. The following options are available from Cue Stack options, Fader tab, Encoder Mode:

- This Playback
- Other Playback
- All Playback on this Bank
- All Playback on this Page
- Other Cue Stack

When set to Other Payback the Playback ID is specified in the Control Item option.

When set to Other Cue Stack then the Cue Stack ID is specified in the Control Item option. If the Encoder Mode is LTP or HTP and the Cue Stack is assigned to a Playback on the current Playback Page then it will activate from the Playback, otherwise it will activate from the Stack

Store. As per the usual Cue Stack options in will only activate if Fader Activates is set to yes. For FX Size and FX Speed this will only take effect if the Cue Stack is already active on a Playback or within an Execute Grid or the Stack Store.

Control Item

On Stadium consoles specifies the Playback ID or Cue Stack ID when Control type is set to Other Playback or Other Cue Stack.

Buttons

Flash Activates Stack

When set to Yes pressing the Flash button activates the Cue Stack and sets the level of the Playback to 100%.

When set to No pressing the Flash button sets the level of the Playback to 100% but does not activate the Cue Stack.

The overall level of HTP channels is also affected by the Grand Master and Sub Master and any active Group Masters. The Sub Master can be configured in Setup to be an Add Swap Master.

Flash Releases Stack

When set to Yes releasing the Flash button releases the Cue Stack and sets the level of the Playback to 0%.

When set to No pressing the Flash button sets the level of the Playback to 0% but does not release the Cue Stack.

Note that if the option Fader Activates Stack is set to Yes then releasing of the Playback is also dependent on the fader.

If the Playback was activated by raising the fader then pressing the Flash button will not release the Playback.

In this case the Playback will only be released by lowering the fader to 0% or by pressing the Rel button. This allows the Flash button to be used both to bump in a Cue which was not activated by fader, and to also bump a Cue to 100% which was activated by the fader at a lower level.

Flash Always Swaps

When set to Yes, pressing the Flash button will always act as a Swap rather than an Add, regardless of the state of the Add/Swap button.

When the button is pressed the Intensity of all other active Playbacks will be set to 0%. When the button is released the other Playbacks will be restored to their previous level.

When this option is set Yes then the LED in the Flash button will always be red.

Flash Acts as Go/Pause

When set to Yes, pressing the Flash button acts as if the Go button had been pressed and pressing Shift + the Flash button acts as if the Pause button had been pressed. When set this way the button does not act as a bump button.

When set to No the Flash button acts as a bump button in the normal way.

Holding Shift and pressing Flash will perform Pause instead of Go.

When set to Yes the settings "Flash activates Stack", "Flash releases Stack" and "Flash toggles" are ignored.

Flash acts as Flash + Go

When set to Yes the Flash button acts as both a Flash button and a Go button.

Pressing the Flash button performs the Go function – this will active the Cue Stack, or if the Cue Stack is already active, it will Go to the next step. At the same time the Flash button will operate in the Normal way, setting the Playback level to 100%.

Releasing the Flash button will set the Playback level back to 0% or if the fader is raised to the level of the fader.

Holding SHIFT and pressing the Flash button will perform Flash + Pause.

Normally when "Flash acts as Flash + Go" is set Yes then the setting "Flash Releases Stack" should be set to No. If the option "Flash Releases Stack" is set to Yes then releasing the Flash button will also release the Playback unless the fader is raised.

When set to Yes, the setting "Flash acts as Go/Pause" is ignored.

Flash Toggles

When set to Yes the Flash button acts as a toggle rather than a bump. Pressing the button the first time activates the Playback. Pressing the button again releases the Playback.

When this option is set and the playback is active the LED in the Flash button flashes to indicate the toggle mode is latched.

When set to Yes, the settings "Flash activates Stack" and "Flash releases Stack" are ignored.

Flash Acts Like Fader

When set to Yes the Flash button has the same effect as if the fader has temporarily been raised to 100%. This is useful for enabling the Flash button to control attributes other than Intensity.

For example, if the fader is set to control FX size then pressing the Flash button would act like

the fader being fully raised – so 100% FX size.

Go Activates Stack

When set to Yes the GO button activates the Cue Stack if it is not already active.

When set to No the Go and the Cue Stack is inactive, then the GO button steps the Cue Stack without activating it - as per the FFWD button.

The default is Yes.

Go Jumps Out of Loop

This setting affects Cues that are set to Chase Timing which are in a loop.

When set to Yes, pressing Go will exit the loop – jumping to the step after the Cue that loops back to an earlier Cue.

When set to No, pressing Go will step one step within the chase.

Go Stop/Starts

When set to Yes then pressing GO stops a Cue that is already running or starts a Cue that is stopped.

When set to No then pressing GO starts the next Cue.

Go uses Exec Grid 1

This enables the GO button on Playbacks 1 to 10 to control the first ten items in Exec Grid 1.

When set to Yes then pressing the GO button toggles the Exec Grid item corresponding to this Playback - for example GO on Playback 2 will toggle item 2 in Execute Grid 1.

When set to No the GO button acts normally.

Pause Swaps

When set to Yes the Pause button acts as a Flash button in Swap mode.

Pressing the Pause button the Playback will be set to 100% and the Intensity of all other active Playbacks will be set to 0%. When the button is released the other Playbacks will be restored to their previous level.

This setting enables a Playback to have both an Add button and a Swap button.

Pause Releases

When set to Yes the Pause button releases the Cue Stack.

Pause uses Exec Grid 1

This enables the Pause button on Playbacks 1 to 10 to control items 11 to 20 in Exec Grid 1.

When set to Yes then pressing the Pause button toggles the Exec Grid item corresponding to this Playback - for example Pause on Playback 2 will toggle item 12 in Execute Grid 1.

When set to No the Pause button acts normally.

Function

Cue Stack is an Intensity Master

When this setting is set to Yes then the Cue Stack behaves as an Intensity Master. The Cue Stack normal Cue execution behaviour is disabled.

The Group Id settings specifies the group of channels that are under control of the Intensity Master. Updating the channels stored within the specified group updates the channels under control of the FX Intensity Master.

If the Group ID is 0 or refers to an invalid group, then the channels stored in the first Cue are used to determine which channels are under control of the Intensity Master. The levels of the channels in the first Cue are not important – only that the channels are present at some level in the Cue.

In order for the Intensity Master to be activated the Go button must be pressed. To release the Intensity Master the Playback must be selected and the REL button pressed. The Button settings "Flash activates Stack" and "Flash releases Stack" are ignored. In order to avoid sudden changes in output level the fader should be raised to 100% before activating or releasing.

When the fader is at 100% then the Intensity Master has no effect. As the fader is lowered then all the channels under control have their intensity reduced.

It is possible to have multiple Intensity Masters that control the same channel which work proportionately.

Normally when this setting is set to Yes, the settings Cue Stack is a FX Size Master and Cue Stack is a FX Speed Master should be set to No.

When this setting is set to No then the Cue Stack behaves normally.

Cue Stack is a FX Size Master

When this setting is set to Yes then the Cue Stack behaves as an FX Size Master. The Cue Stack normal Cue execution behaviour is disabled.

The Group Id settings specifies the group of channels that are under control of the FX Size Master. Updating the channels stored within the specified group updates the channels under control of the FX Size Master.

If the Group ID is 0 or refers to an invalid group, then the channels stored in the first Cue are used to determine which channels are under control of the FX Size Master. The levels of the channels in the first Cue are not important – only that the channels are present at some level in the Cue.

In order for the FX Size Master to be activated the Go button must be pressed. To release the FX Size Master the Playback must be selected and the REL button pressed. The Button settings "Flash activates Stack" and "Flash releases Stack" are ignored. In order to avoid sudden changes in output level the fader should be raised to 100% before activating or releasing.

When the fader is at 100% then FX size is as programmed. As the fader is lowered then the FX size is reduced until it reaches zero size at 0%.

A particular channel can only be controlled from one FX Size Master.

Normally when this setting is set to Yes, the setting Cue Stack is an Intensity Master should be set to No. It is possible to have a Cue Stack set to both a FX Size Master and a FX Speed Master.

When this setting is set to No then the Cue Stack behaves normally.

Cue Stack is a FX Speed Master

When this setting is set to Yes then the Cue Stack behaves as an FX Speed Master. The Cue Stack normal Cue execution behaviour is disabled.

The Group Id settings specifies the group of channels that are under control of the FX Speed Master. Updating the channels stored within the specified group updates the channels under control of the FX Speed Master.

If the Group ID is 0 or refers to an invalid group, then the channels stored in the first Cue are used to determine which channels are under control of the FX Speed Master. The levels of the channels in the first Cue are not important – only that the channels are present at some level in the Cue.

In order for the FX Speed Master to be activated the Go button must be pressed. To release the FX Speed Master the Playback must be selected and the REL button pressed. The Button settings "Flash activates Stack" and "Flash releases Stack" are ignored. In order to avoid sudden changes in output level the fader should be raised to 100% before activating or releasing.

When the fader is at 100% then FX size is as programmed. As the fader is lowered then the FX speed is reduced until it stops at 0%.

A particular channel can only be controlled from one FX Speed Master.

Normally when this setting is set to Yes, the setting Cue Stack is an Intensity Master should be set to No. It is possible to have a Cue Stack set to both a FX Size Master and a FX Speed Master.

When this setting is set to No then the Cue Stack behaves normally.

Group ID (0 Is Not used)

This setting is used when the Cue Stack is an Intensity Master, FX Size Master or FX Speed Master. It specifies the group to use for the Master.

When set to zero the Master will use the data in the first Cue of the Cue Stack to determine which heads are controlled by the master.

Group Attributes

This setting is used when the Cue Stack is an FX Size Master or FX Speed Master and the Group ID is non zero. It specifies which attributes the FX Speed or FX Size master should control for the heads in the Group.

The Group Attributes defaults to all attributes. The options are All, Pos, Pan, Tilt, Col, Int, Zoom, Int+Pos, Int+Col, Int+Beam, and Int+Pos+Col.

If the Group ID is zero or invalid then this setting is not used and MagicQ uses the data in the first Cue of the Cue Stack to determine which heads and attributes are controlled by the master.

Intensity Master to 200%

When Cue Stack is an Intensity Master is set to yes, then the fader will operate from 0% to 200% intensity. Above 100% the level recorded in the Cue will be boosted - although the maximum output level will always be 100%.

Cue Stack is a Prog Master

The Playback with this Cue Stack operates as a Programmer Master. The Programmer master enables level control of the contents of the Programmer on the fader and stepping between different Programmer states.

See Programmer Master.

The Cue Stack normal Cue execution behaviour is disabled.

Cue Stack is a Speed Master

When this setting is set to a Speed Master SPx then the Cue Stack behaves as a Speed Master. The flash button is a tap to time, the fader controls the speed relative to the tap to time. GO halts the speed master whilst PAUSE resumes.

The Cue Stack normal Cue execution behaviour is disabled.

Cue Stack is a Live Copy Master

When this setting is set to yes, the Cue Stack behaves as a Live Copy Master.

The Group Id settings specifies the group of channels that are copied to - i.e. that are

controlled by this Master. Updating the channels stored within the specified group updates the channels under control of the Live Copy Master.

If the Group ID is 0 or refers to an invalid group, then the channels stored in the first Cue are used to determine which channels are under control of the Live Copy Master. The levels of the channels in the first Cue are not important – only that the channels are present at some level in the Cue.

The Live Copy Group ID determines the channels that the Live Copy Master copies from.

The Cue Stack normal Cue execution behaviour is disabled.

Live Copy Group ID

This setting is used when the Cue Stack is an Live Copy Master. It specifies the group to use for copying channels from.

Col Tag

When a Col Tag is set for a Cue Stack then that Col Tag is shown in the Playback legend above the Playback faders and buttons.

The RGB LEDs on the MQ500 and Stadium Wing playbacks can be set to show the colour of the Col Tags in Setup, View Setting, Windows, Playback Col Tags.

Activate/Release

Halt at Last Step

When set to Yes the Cue Stack halts at the last step in the Cue Stack.

When set to No then the Cue Stack will return to the first step after the last step.

Release after Last Step

When set to Yes the Cue Stack automatically releases after the last step in the Cue Stack has completed fading.

When set to No the Cue Stack must be released manually.

If the last step in the Cue Stack includes a One Shot FX then the release will occur after the One Shot has completed.

Release Resets to First Step

When set to Yes the Cue Stack always starts from the first step when the Cue Stack is activated. The setting "Release steps 1 step" is ignored.

When set to No the Cue Stack activates at the step it was on when it was last released.

Release Steps 1 Step

When set to Yes the Cue Stack activates at the step following the step the Cue Stack was on when it was last released.

When the setting "Release resets to first step" is set to Yes, this setting has no effect.

Release Time

This is the time for channels to release when the Cue Stack is released (using the REL button or via fader/flash button). The exact behaviour depends upon whether channels are active on other Playbacks. Intensity channels not used by other channels will fade out using the release time.

The release time also affects channels that are released from Cue steps within a Cue Stack step – i.e. when the Cue Stack step Tracking option is not set to LTP ("Rel old chans" = yes)

This setting can also be set in the End field in View Cue in the Cue Stack Window.

Release Attributes

This setting determines which attributes are released with time when a Cue Stack is released with time.

Individual attribute types - "Int", "Pos", "Col", "Beam" can be selected together with combinations.

The default is "All" which will fade out all attribute types except for attributes that are set to Instant.

Release Uses Last Step Times

When set to Yes the step times of the last step in the Cue Stack are used when releasing. This enables releasing using complex fan times and different fade / delay times on different attributes and heads.

The last step times will apply when the whole Cue Stack is released and also when individual channels are released from the Cue Stack (e.g. when Tracking is set without L or H).

The channels must be programmed in the last step for times to take effect. The values in the last step are ignored - only the times are used. If channels are not in the last step then they use the general times from the last step.

When this option is set it is not required to set the overall Cue Stack release time - this is overridden by the chan and general times in the last step.

Release Fades Audio

By default, when the Cue Stack has audio playback enabled, if the Cue Stack has a release time configured, the audio will fade out over the same time.

When set to No, the audio will snap to silent at the end of the release time. When set to Yes, the audio will fade in time with the release time.

The default is "Yes"

Release Executes Last Step

When the Playback is released then MagicQ executes the last step of the Cue Stack before releasing. Any macros in the last step of the Cue Stack are also executed.

It affects all releases including releasing by flash button, fader to 0% or RELEASE button.

This can be used with a Release Time on the Cue Stack to perform a fade out of a different look when the Cue Stack is released.

Activate on Page Change

When set to Yes, then this Cue Stack is activated when the page is changed to the page that this Cue Stack is assigned to.

If there is an active Cue Stack on this Playback then the new Cue Stack will only be activated if the old Cue Stack is set to release on page change.

Release on Page Change

When set to Yes, then this Cue Stack is released when the page is changed to any page other than the page that this Cue Stack is assigned to.

HTP Always Active (Use HTP)

When set to Yes then the fader always controls the Intensity (HTP) channels from the Cue Stack regardless of whether the Cue Stack is activated. Whenever the fader is raised above zero the Intensity channels will affect the Output. The highest level from this Cue Stack and any other Playbacks will determine the Output level for each channel.

This setting overrides the Advanced Setting "All Channels controlled LTP".

This setting is similar to the Use HTP setting on some other consoles.

Activate and Release on DJ System

When set to Yes, this Cue Stack will automatically activate and release when a DJ deck is playing the corresponding track configured in the "DJ Track" setting. If the Cue Stack is only in the Stack Store, then the stack will activate form the Stack Store instead of from a Playback.

Advanced

All Chans Controlled LTP

When set to Yes all HTP channels under control of the Playback act as if they were LTP channels. When the Playback with this Cue Stack is the latest activated and highest priority Playback then the Playback has complete control of all HTP channels regardless of whether they are active on other faders.

HTP channels that are active on higher priority Playbacks will be under control of the higher priority Playback and will ignore this setting.

HTP channels that are active on other Playbacks with the same priority, but which were activated/reasserted more recently than this Playback, will be under control of the other Playbacks.

Block FX From Other Playbacks

When set to Yes then any channels controlled by this Playback block FX on those channels from other Playbacks.

Channels controlled by this Playback that have levels but no FX are not affected by FX on other Playbacks. In effect an implicit zero FX is added to these channels to block the other Playbacks.

When set to No then channels controlled by this Playback that have levels but no FX are affected by FX on those channels from other Playbacks.

Playback Priority

The Playback priority can be set to Normal, Mid, High, Programmer and Above Programmer.

When all Playbacks are set to priority Normal then the latest Playback to be activated/reasserted will control the channels.

Playbacks set to Mid priority always have higher priority than Playbacks set to Normal priority.

Playbacks set to High priority always have higher priority than Playbacks set to Normal or Mid priority.

Playbacks set to Programmer priority have the same priority as the programmer but always have higher priority than Playbacks set to Normal, Mid or High priority.

Playbacks set to Above Programmer have higher priority than the Programmer. Note that the Programmer overrides HTP setting in Setup, View Settings, Prog must be set to "Playbacks except Above Programmer" for this setting to take effect. In order to edit the Cues in the Programmer and see the changes on the Output it is best to release the Cue Stack. Above Programmer also takes priority above any Preset or Parked channels.

Ignore Masters (Int + Size)

When set to Yes, then the levels of HTP channels ignore Grand Master and Sub Master faders and FX Size Masters. They also ignore DBO. They will not be swapped out by other Playbacks.

From 1.9.8.2 the levels of the HTP channels also ignore global Group Masters and Intensity Masters.

When set to No, the levels and FX are affected by Masters, Group Masters and Intensity Masters, FX Size Masters and other Playback swapping as normal.

Ignore Masters (Speed)

When set to Yes, FX from the Cue Stack are not affected by FX Speed Masters, Global Tap to Time or Global Playback rates. (v1.9.4.1 and above)

From 1.9.8.2 the Cue Stack and FX in the Cues on the Cue Stack are not affected by the Speed Masters.

When set to No, the levels and FX are affected by FX Speed Masters, Global Tap to Time and Global Playback rates as normal.

Ignore Masters (Act Rel)

When set to Yes, the Playback will ignore SHIFT RELEASE and will not be automatically activated and released by timecode.

When set to No, the Playback will activate and release as normal.

Move When Dark

When set to Yes, then MagicQ checks after each Cue is executed whether it should perform a move when dark.

Any heads that are used in the next Cue but which have 0% intensity in the current Cue are checked to see whether the Position, Beam and Colour attributes should be preloaded before the next Cue is executed. If the Position, Beam or Colour values are different from the current values then the new values are crossfaded with a time of 3 seconds.

This option is similar to putting a Mark Cue before every Cue in a Cue Stack.

The time taken for the Move when dark is specified in Setup, View Settings, Cue Storage, Default mark/move when dark time.

Recalculate State on Jumps

This option specifies how MagicQ calculates the Cue State when playing back a Cue Stack.

When set to Yes, MagicQ recalculates the Cue State whenever a jump is made in the Cue Stack. The Output of a particular Cue always appears the same regardless of which Cue was executed previously. MagicQ recalculates the Output as if the Cue Stack had been played back

from the first Cue to this Cue by pressing the GO button.

When set to No, MagicQ calculates the Cue State based on the Cues that it has actually executed – when jumping to a new Cue only the Cues that have been previously executed will make up the Output.

In tracking modes this setting defaults to Yes. In non-tracking modes this setting defaults to No.

Stomp Other Playbacks

Stomping enables Playbacks that have been completely overridden by other Playbacks to be automatically released.

This option only has an effect when the Setup, Playback setting "Stomp Playbacks" is set. When "Stomp Playbacks" is set to No then this setting is ignored.

When this setting is set to Yes then this Playback is allowed to stomp other Playbacks.

When this setting is set to No then this Playback will not stomp other Playbacks - this can be useful when bumping in stabs and temporary FX.

Sync Next Playback to This One

This setting enables one or more playbacks to be synchronised together so that they step the same Cue Ids at the same time.

Setting this option to Yes forces the next Playback (higher number) to synchronise to this Playback.

If enabled for playback PB10 then Wing 1 PB1 will be synced to it.

If you Go on this playback to a Cue Id that is not implemented on the next playback then the next playback will not change step. It will only sync to steps where the Cue Ids match.

It is possible to synchronise multiple playbacks by enabling this setting on several adjacent playbacks. In this case all the adjacent playbacks are synced to the first playback in the adjacent playbacks.

It is not necessary for each of the adjacent playbacks to have all the Cues - each adjacent playback syncs independently to the first adjacent playback ignoring the Cues of any intermediate adjacent playbacks.

Send Playback State to Other Consoles

When set to Yes then the state of this Playback is sent to other MagicQ consoles on the network.

If Net Sessions, Playback sync is set then the state of all Playbacks is sent to other consoles regardless of this Cue Stack setting, so this setting should be set to No.

This setting requires Setup, Network, Ethernet Remote Protocol to be set to "ChamSys TX" or "ChamSys TX and RX".

Rate Divisor

Cue Stacks can be set to use a divisor of the tapped time - by default it is set to "Normal" and takes the tapped time. Options include "Div by 2" to "Div by 8" and "Mult by 2".

The divisor affects setting of the rate by tap to time either as the selected playback, as part of global tap to time, or as part of audio BPM rate setting.

If set to "Ignore" the rate of the Cue Stack is never affected by global tap to time or FX Speed Masters. This allows Global Tap to Time and Speed Masters to be used without affecting particular Cue Stacks.

Note this setting affects tapped time of the cue stack and does NOT apply to 'speed masters'

Speed Master

Selects which Speed Master this Cue Stack uses to control Chase and FX Speed - from SP1 to SP100.

If set to "Ignore" it ignores Speed Masters.

External Timecode

This setting affects any steps in this Cue Stack that have their Halt field set to "Timecode".

When set to Yes this Cue Stack is controlled by external timecode. When set to No then this Cue Stack is controlled by internal timecode – activating the Playback starts the timecode from 0.

This setting can also be changed from an encoder soft button.

Timecode Offset

This can be used to add a positive or negative timecode offset to all timecode values within a Cue Stack including all TC Tracks associated with that Cue Stack.

For example if the Cues in the Cue Stack have been set to respond to timecode starting at 0/0/0 and the timecode received actually starts at 2/0/0 then setting the timecode offset to 2/0/0 will make the Cue stack correctly respond to the received times.

Similarly if the CueStack has been set to respond to timecode starting at 5/0/0 and timecode is actually received starting at 0/0/0 then setting a timecode offset of -5/0/0 will have the desired effect.

Note that all the Cues will still show their programmed timecode values but an offset will be applied when playing back or recording timecode. The titlebar of the Cue Stack Window shows the offset.

The timecode offset can be modified using an encoder in the Cue Stack window by holding SHIFT and turning encoder D.

Enable Timecode Loop

When set to Yes this will enable the internal timecode of the playback to loop between the "Timecode loop in" and "Timecode loop out" points. This only works with the internal timecode function and cannot control external timecode sources. Manually setting the timecode to a value greater than the "Timecode loop out" value will cause the timecode to be set to the value in "Timecode loop in"

Timecode Loop In

This is the start timecode of the section of timecode which will be looped when "Enable timecode loop" is set to Yes.

Timecode Loop Out

This is the end timecode of the section of timecode which will be looped when "Enable timecode loop" is set to Yes. When the timecode reaches this value or higher, the internal timecode will be set to the value of the 'Timecode loop in' setting.

DJ Track

This will show the title and artist of an associated DJ System track when configured. To set this, make sure the relevant track you wish to associate is currently playing on a connected DJ system, then use the "Copy" function to copy the cue stack onto the relevant deck in the Audio window.

Track DJ Deck Timecode

When set to yes, and when the DJ Track is configured above, the timecode for this cue stack will be taken from the relevant DJ deck on which the configured track is playing. This is automatically set to Yes when associating a DJ Track above.

Chase Options

Skip First Times

When this setting is set to Yes, then when the Cue Stack is activated the fade times for the first step are ignored and the levels bumped straight in.

This only affects Cue steps set to "Chase Timing".

Speed

This controls the speed of any Cue Steps in the Cue Stack set to "Chase Timing". This setting can also be controlled via encoder X in the Cue Stack view.

Xfade

This controls the crossfade of any Cue Steps in the Cue Stack set to "Chase Timing". This setting can also be controlled via the Y encoder in the Cue Stack view.

Direction

This controls the direction (forward or backward) of any Cue Steps in the Cue Stack set to "Chase Timing". This setting can also be controlled via encoder C in the Cue Stack view.

Repeat Type

The options are Normal, Bounce and Random. Bounce executes the Chase alternating backward and forward direction. This setting can also be controlled via encoder D in the Cue Stack view.

Number of Repeats

This setting specifies how many repeats of the Chase should take place.

When set to 0 then the Chase will continue until the chase is exited manually.

Running

This setting specifies whether Chases start running or halted.

HTP in fade, HTP out Fade, Position Fade, Colour Fade, Beam Fade

The fade times for any Cue Steps in the Cue Stack set to "Chase Timing". These times generally match the Chase speed. These times can also be controlled via encoder C in the Cue Stack view.

Setting one or more attribute group fade times to 0 causes that attribute group to snap rather than fade.

The overall Chase speed corresponds to attribute group with the biggest combined delay and fade time.

HTP in Delay, HTP out Delay, Position Delay, Colour Delay, Beam Delay

The delay times for any Cue Steps in the Cue Stack set to "Chase Timing".

These times can be used to make one or more attribute groups snap at end.

The overall Chase speed corresponds to attribute group with the biggest combined delay and fade time.

Audio

Audio Controls Fader Level

When set to Yes, the level of the playback is controlled by the received audio level on the chosen. The level of the real fader is ignored. The effect on the Playback is determined by the Cue Stack, Fader settings.

The Cue Stack must be active for the audio to take effect.

The setting can be used in conjunction with the setting "Audio jumps to Cue Step".

The audio level, audio parameter 1, and audio parameter 2 settings can be used to fine tune how the received audio affects the fader level.

Audio Level Jumps to Cue Step

"Audio level jumps to Cue Step" enables the level of the specified audio channel to determine which step in the Cue Stack is executed – for example if you have a Cue Stack with 10 steps, then a level of 0% will execute step 1, 10% will execute step 2 whilst a level of 100% will execute step 10. This is very useful if you wish to program different Cues onto LED or media servers.

The Cue Stack must be active for the audio to take effect.

When this setting is set to Yes, the settings "Audio bumps Go" and "Audio beat step" should be set to No.

If the setting "Audio controls fader level" is set to YES then audio level, audio parameter 1, and audio parameter 2 will affect the level of the Playback and hence the Cue step chosen.

Audio Bumps GO/FX

When set to Yes, the Cue Stack bumps to the next step every time a peak in the audio is detected on the specified channel. This enables a Cue Stack to follow the beat of the music.

This is best used with the Cue Stack set to Cue Timing instead of Chase Timing.

The Cue Stack must be active for the audio to take effect.

When this setting is set to Yes, the settings "Audio controls fader level", "Audio sets BPM" and "Audio level jumps to Cue Step" should be set to No.

Audio parameter 1 is used as a divider – set it between 2 and 16 to divide the received beat frequency by a value between 2 and 16 times.

Audio parameter 2 should be set to 0.

Audio Beat Step

When set to yes, the Cue Stack will use the currently detected beat number (whether from the Audio Input BPM beat tracker, or from an external DJ system), to jump to the Cue with the corresponding Cue ID for the beat number.

When this setting is set to Yes, the settings "Audio sets BPM" and "Audio level jumps to Cue Step" should be set to No.

Audio Beat Step Length

In conjunction with the "Audio beat step" setting, this value specifies after how many beats the Cue Stack should loop. By default this value is 4, but can be overridden to any value required. Cue IDs which are outside of this range will never be triggered. E.g. with this setting set to 6, then only Cue IDs 1 through 6 will be checked.

Audio Sets BPM

When set to Yes, then the chase speed of the Cue Stack is set to the timing of the peaks on the specified audio channel. The Cue Stack should be set to Chase Timing.

The Cue Stack must be active for the audio to take effect.

When this setting is set to Yes, the settings "Audio controls fader level", "Audio bumps GO/FX" and "Audio level jumps to Cue Step" should be set to No.

Audio level, audio parameter 1, and audio parameter 2 should be set to 0.

Audio Channel

This setting specifies the audio channel that the Playback will respond to.

The ChamSys audio interface supports 7 different frequency bands on two audio inputs (left and right).

Selecting the option "Energy" uses all frequency bands mixed together.

Audio Level

When "Audio controls fader level" is set to Yes then the settings Audio parameter 1 and Audio Parameter 2 can be set to control the response:

Audio P1 = 0 Normal (direct trigger from level)

Audio P1 = 1 Decayed (decays by Audio P2 each sample)

Audio P1 = 2 Pulse (triggers at Audio Level, Audio P2 is duration of pulse)

Audio P1 = 3 Pulse decay (triggers at Audio Level, decays by Audio P2 each sample)

Audio P1 = 4 Switch (triggers to on/off at Audio Level)

Audio P1 = 5 Slow (increases/decreases by Audio P2 each sample)

These parameters are ignored for the settings "Audio Bumps Go" and "Audio sets BPM", and "Audio jumps to Cue Step"

When the setting "Audio Bumps Go" is set to Yes, then Audio P1 acts as a divider - from 2 to 64 so that the Cue Stack is bumped at a slower rate than the audio input.

Audio Parameter 1

Audio P1 = 0 Normal (direct trigger from level)

Audio P1 = 1 Decayed (decays by Audio P2 each sample)

Audio P1 = 2 Pulse (triggers at Audio Level, Audio P2 is duration of pulse)

Audio P1 = 3 Pulse decay (triggers at Audio Level, decays by Audio P2 each sample)

Audio P1 = 4 Switch (triggers to on/off at Audio Level)

Audio P1 = 5 Slow (increases/decreases by Audio P2 each sample)

Audio Parameter 2

Audio P2 is dependent on Audio P1

Audio P1 = 1 Decayed (decays by Audio P2 each sample)

Audio P1 = 2 Pulse (triggers at Audio Level, Audio P2 is duration of pulse)

Audio P1 = 3 Pulse decay (triggers at Audio Level, decays by Audio P2 each sample)

Audio P1 = 5 Slow (increases/decreases by Audio P2 each sample)

Audio File

This specifies an audio file to be associated with the Cue Stack.

Audio Play Mode

In "Normal" mode, the audio file specified will play upon the playback being activated, and stops when deactivated.

In "Stack Audio Muted" mode, the audio file will be shown in the Audio Timeline window to allow timecode based Cue Stacks to be modified visually, but MagicQ won’t play back the audio itself. This mode is used when you are receiving timecode from an external system which is playing the same audio file and providing a timecode source to MagicQ.

Step (View Defaults Only)

Step Controlled as a Chase

When set to Yes, the step defaults to Chase timing. When set to No the step defaults to Cue timing.

Step Follows Last

When set to Yes, the step executes after the completion of the previous step. When set to No the step executes after the wait time specified in the Cue step.

Step Halts before Executing

When set to Yes, the step halts and waits for the user to pres GO before executing the Cue step.

When set to No the step executes immediately after the previous step has completed – this is either after it has completed fading (when "Step follows last" is set to YES) or immediately after the wait time has expired.

When "Step Controlled as Chase" is Yes then this setting is normally set to No so that the chase runs step to step without user interaction.

When "Step Controlled as Chase" is No then this setting is normally set to Yes so that the Cue Stack is executed step by step under user control.

Zero old HTP (From Previous Steps)

When set to Yes, any HTP channels from previous Cues that are not in this Cue step are faded out.

In tracking modes this setting defaults to No. In non-tracking mode this setting defaults to Yes.

The Tracking flag "H" corresponds to the inverse of this setting.

Zero old FX (From Previous Steps)

When set to Yes, any FX on channels from previous Cues that are not controlled by a FX in this Cue step have the FX faded out.

In tracking modes this setting defaults to No. In non-tracking mode this setting defaults to Yes.

The Tracking flag "F" corresponds to the inverse of this setting.

Release Old Chans

When set to Yes, any channels used in previous Cues but not used in this Cue step are released.

This setting defaults to No in all modes.

The Tracking flag "L" corresponds to the inverse of this setting.

Step Times (View Defaults only)

HTP in Fade

The default fade times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

HTP Out Fade

The default fade times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Position Fade

The default fade times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Colour Fade

The default fade times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Beam Fade

The default fade times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

HTP in Delay

The default delay times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

HTP Out Delay

The default delay times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Position Delay

The default delay times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Colour Delay

The default delay times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

Beam Delay

The default delay times used when new Cues are recorded in a Cue Stack. Used by Cues in the Cue Stack set to "Cue Timing".

Once Cues have been recorded then the times for Specific Cues are edited in the Cue Window, View Times.

FX (View Defaults Only)

Default speed

This is the default FX speed used when creating new Waveform FX in the FX Editor Window.

Default in Fade

This is the default FX fade in used when setting a specific FX fade in time. Note that by default FX are faded in using the fade times of the Cue step.

Default Out Fade

This is the default FX fade in used when setting a specific FX fade out time. Note that by default FX are faded out using the fade times of the Cue step.

Advanced Playback / Cue Stack Options

Interaction of HTP and LTP channels between Playbacks

Channels are set as either HTP (Highest Takes Priority) or LTP (Latest Takes Priority) in their personality file – the property can be edited in the Head Editor.

By default, Playbacks use the HTP / LTP property to determine how channels are controlled from multiple playbacks simultaneously. For HTP channels the highest level will be output, for LTP channels the highest priority or latest touched playback will control the channel.

This operation can be modified on a per Cue Stack basis.

HTP Handling

MagicQ handles HTP (Highest Takes Precedence) channels in a very simple way - the highest value from all the playbacks, the programmer and the preset faders is the value that is output.

If the "Programmer overrides HTP chans" option is enabled then any HTP channels in the programmer will override channels on the playbacks. Channels on preset faders still affect the output.

MagicQ supports a powerful swap mode selected through the ADD/SWAP button. In SWAP mode when a FLASH button for a playback is pressed then the HTP channels from all other playbacks are disregarded. Only playbacks with a FLASH button pressed affect the HTP output. Similarly, the programmer and preset faders have no effect on HTP output.

FX and channel values are handled independently enabling operators to program one playback with channel values and one with FX. For example one playback could have an ambient level whilst another has a dimmer chase. The FX is added to the highest channel value.

LTP Handling

MagicQ provides powerful handling of LTP (Latest Takes Precedence) channels enabling new effects to be "bumped" onto intelligent heads for a period of time before reverting to the previous effect.

Note that several other consoles handle LTP channels in a less intuitive way - when the last active playback is returned to zero then the values on that playback still control the channel rather than reverting to the previous raised playback that is still active.

The programmer always over-rides playbacks. If a LTP channel is active in the programmer then playbacks will be disregarded for this channel.

FX and channel values are handled independently enabling operators to program one playback with channel values and one with FX. For example one playback could have Maverick Force X Spot positions (channels) whilst another has Maverick Force X Spot

movements (FX).

All Chans Controlled LTP

If a Cue Stack on a Playback is set to "All chans controlled LTP" then when that Playback is activated as the last touched playback then all channels controlled by that Playback are considered to be LTP.

The Playback will exclusively control the levels of all channels used by the Cue Stack including Intensity.

Where fade times are in use the HTP channels will fade between the values on the different playbacks. Where fade times are not set, then the HTP channels will snap between the values in the different playbacks.

Soft LTP enables cross fading of HTP channels (including Intensities) between Cue Stacks set as All Chans Controlled LTP. On other Cue Stacks it is not needed - the Cue Stacks will mix HTP channels as HTP.

To set Soft LTP set the following Cue Stack Settings:

Advanced, All Chans Controlled LTP = Yes Faders, Fader Controls HTP = No Faders, Fader Controls LTP = Yes

HTP Always Active (Use HTP) Option

By default HTP channels programmed in a Playback only affect output when the Playback is active. It is possible to make a Playback so that the activation of the Playback is separated from the operation of the HTP channels using the "HTP always active (Use HTP)" in Cue Stack options, Activate/Release.

When this option is set, then HTP channels on the playback will be output whenever the fader is above the activation point (defaults 0) regardless of the other activate options on the Cue Stack. They will only be released when the fader is taken back down to 0. They are not affected by pressing the RELEASE or the SHIFT RELEASE buttons.

If a Playback is set to "HTP Always Active" then raising the fader or pressing the FLASH button will not use any specified Intensity delay or fade times. If the Cue Stack has multiple steps then delay and fade times will still be used when changing steps – i.e. pressing the GO or PAUSE buttons.

The "HTP always active (Use HTP)" has priority over the "All chans controlled LTP" option – therefore HTP channels on playbacks will be output regardless of any other higher priority faders with "All chans controlled LTP".

LTP channels will be activated in the normal way – i.e. by pressing GO, or if the "Fader activates" option is set by moving the fader upwards. If the "Flash activates" option is set then pressing the FLASH button will also activate the channels.

When one of the main faders has HTP levels active then it is coloured orange. Only once the playback is activated fully will it be coloured red.

Note that this option affects all channels that are patched as HTP channels (normally only Intensity – but potentially other attributes if desired).

Interaction of FX between Playbacks

By default, the FX and levels on MagicQ operate independently so it is possible to have a FX running on one Playback and the level (base values that the FX is applying to) coming from a separate Playback.

Only one FX is ever active on a particular channel, so the FX from the last touched playback will over-ride any FX for that channel from other playbacks.

If a Playback has a Cue with both a FX and a level for a channel then that Playback controls both the level plus the FX from that Playback.

If a Playback has a Cue with only a level for a channel (i.e. no FX), then a FX may be added to that level from another active Playback.

It is possible to set the Cue Stack option "Ignore FX from other Playbacks" so that when the Playback is the last touched Playback, any FX from other Playbacks are ignored, regardless of whether this Playback has FX for these channels.

It is also possible to set the Cue Option "Block FX" to block other Playbacks with FX from affecting the levels in a particular Cue. Note that when the option "Programmer overrides FX" is active (e.g. in Hog II Warp mode) then Cues are automatically recorded with the "Block FX" option set. The Cue option "Block FX" can be viewed and changed in the Cue Stack Window (page right).

An alternative way to block FX from other Playbacks is to use "Add FX Zero Size" in Cues where you wish to block other Playbacks.

Playback Priority

By default all playbacks have the same priority. It is possible to set a playback to maximum priority using the Cue Stack option "Highest Playback priority". The options are:

- Normal – same priority as other playbacks – last activated has control
- Mid – above Normal but lower than programmer
- High – highest priority of all playbacks but lower priority than the programmer
- Above Programmer – higher than playbacks and the programmer

When the Cue Stack has highest priority, LTP channels under control of the playback are not affected by other playbacks. HTP channels continue to operate as normal.

Playbacks Ignore Masters Levels

Sometimes it is necessary to program playbacks that are not affected by the Grand Master or Sub Master. Use the "Ignore Masters" option to prevent the Cue Stack being affected by the master faders – this is useful for controlling channels that must stay up – e.g. house lights, smoke machines etc... Cue Stacks set with this option are not affected by grand master, sub master, DBO button.

Cue Stacks with this option set are not released by pressing SHIFT RELEASE to release all playbacks.

From 1.9.4.1 this option also causes Playbacks to ignore FX Speed Masters and FX Size Masters.

Playback Stomping

There is a Playback Stomping option in the Setup Window, View Settings, Playback. With this option enabled playbacks that have been fully overridden by other playbacks will be automatically released (stomped).

This is useful in some environments such as night-clubs where the operator wishes to continually play back new functions without having to turn off the older functions.

There is a choice of Stomping - LTP or both LTP and HTP.

When set to just LTP then playbacks that contain HTP channels are never released (stomped) as they may still be affecting the output. When set to LTP and HTP then playbacks are stomped if all of the LTP channels have been overridden by another playback and the HTP channels are at the same or higher level in another playback.

When using the Playback Stomping option it is possible to allow some playbacks to be marked as "non stomping". This enables certain playbacks to be bumped in without stomping over the original playback.

Group Masters (Inhibit Masters)

Playbacks can be used to control groups of channels – you can assign a playback to be a master for Intensities, FX size or FX speed for a specified set of heads. Using Intensity Masters you can make an "Inhibit Master" to give overall control for the levels of a group of channels.

Group masters can be based either on a particular group in the Group Window, or based on the channels recorded into a Cue. Masters based on groups are updated whenever a group is changed.

Group Masters are activated and released in the same way as normal Cue Stacks. When you set Cue Stacks to be Intensity Masters, FX Speed or FX Size Masters it is not necessary to set Fader Activates Stack to No and Fader Releases Stack to No. MagicQ will ignore these settings and always activate only using the GO button and release using the RELEASE button.

When editing the channels in a Group Master you should ensure that the fader is released before you make the edit.

Note that the channel levels, times, and FX information in the Cue that is used as the Group Master are ignored and hence do not affect the output in any way.

Group Masters can be used on Groups with Elements, Head Elements or Function Types.

Intensity Masters

You can have multiple Intensity Masters that control one channel – they will work together.

Group Based Intensity Masters

To make an Intensity Master based on a Group simply clear the programmer, then select the Group and record to a Playback. Make sure that there are no active channels in the programmer. MagicQ will automatically create a Group Master, setting the Cue Stack Options, Function, Intensity Master = Yes and setting the Cue Stack Options, Function, Group Id to the selected Group.

The group associated with an Intensity Master can be changed in Cue Stack Options, Function. When a group number other than 0 is set in the Cue Stack Options, Function menu then MagicQ automatically edits and generates the Cue assigned to the first step in that Cue Stack. Ensure you set the group id on the correct Cue Stack.

Channel Based Intensity Masters

It is possible to record an Intensity Master without a link to a particular group.

Record a cue with the channels that you wish to control - the level of the channels can be any level as long as the channel is in the programmer. Then set the Cue Stack option "Fader is an Intensity Master".

Activate the playback (press GO or raise the fader) and now it acts as an Intensity Master. Press RELEASE to stop the master having any effect.

FX Size and FX Speed Master

FX Size and FX Speed masters allow control of the FX size and speed on multiple heads, either based on a group or based on the channels recorded into a Cue.

You can set-up multiple FX Size and FX Speed Masters – however you should only have one Master of each type to control each head – otherwise there is a conflict.

To make a FX Size or FX Speed Master you record a single Cue onto a Playback. Then in Cue Stack Settings, Function set the FX Size Master or FX Speed Master to Yes.

Group based FX Size and FX Speed Masters

For group based FX Size and FX Speed masters simply set the Group ID in Cue Stack Settings, Function.

To choose which attributes to control set the Group Attribs.

Channel based FX Size and FX Speed Masters

For channel based FX Size and FX Speed masters, record a Cue that contains the attributes that you wish to control.

To make a FX size master for pan movement, record a cue with only the pan attribute in the programmer for the heads you wish to control. Then set the Cue Stack option "Fader is a Size Master". Activate the playback and now it acts as a FX Size Master for pan movement.

Speed Masters

Playbacks can be set with Cue Stacks that have their function set as a Speed Master. These Cue Stacks do not execute normal Cues - instead the control they global Speed Masters using the Playback buttons and fader.

For more details see the Busking) section.

Advanced Activate and Release Options

The FLASH button can be set to release the Cue Stack using the "Flash releases stack" option. This option works in a slightly different way depending on the "Fader releases stack".

When "Fader releases stack" = "no" (Theatre, Hog II Warp modes), pressing and then releasing the FLASH button will always release the stack regardless of the fader level. When "Fader releases stack" = "yes" (Normal mode), pressing and releasing the FLASH button will only release the Cue Stack if the fader is at 0.

The Cue Stack can be configured in different ways to affect whether the Cue Stack resets to the first step on release, whether it stays at the current step, or whether it moves on one step.

Live Programming (Busking)

Adding Individual Channels Using Preset Faders

Individual channels can be added into the show as required using the Intensities Windows. Channels can be added using the faders in either the Programmer View or the Presets View.

Channels added in the Programmer View are added into the programmer in the usual way. If the programmer is cleared then they are cleared. Channels added using the Presets View are not affected by operations on the programmer - they act like preset faders.

Channels added in both views are affected by the Grand Master and by the pressing of SWAP buttons.

Over-Ride / Takeover

The MagicQ architecture supports the combined use of the programmer, playbacks and preset faders so that there is no need to constantly swap between modes, losing your overridden effects. This makes the console ideal for busking shows.

ADD and SWAP buttons work regardless of whether you are programming or playing back. Similarly the programmer works as an over-ride, regardless of what you are doing.

By default, the console makes no distinction between programming and run modes. Some operators may wish to restrict what is allowed in run mode – this can be configured in the Setup Window. You can choose to disable programming or to disable modification of programmed Cues / Cue Stacks.

Viewing Cues and Cue Stacks

The Cue and Cue Stack Windows are used to monitor and adjust the execution of Cues and Cue Stacks respectively. Both windows monitor the currently selected playback.

For a Cue Stack with a single Cue recorded on it, then the Cue Stack window will not be of much interest. In this case the Cue can be monitored and adjusted using the Cue Window.

For a Cue Stack with multiple Cues, the Cue Stack window can be used to watch the progress of the Cue Stack. The position within the Cue Stack can be changed along with the timing information. You can make the Cue Stack window follow the Cue currently executing on the selected playback - set the Display Current Cue option to YES in the Cue Stack Window.

Modifying Chase Speed / Crossfade

To modify the speed or crossfade of a Cue Stack that is running with Chase Timing, press the SELECT button for the playback, and then adjust the encoders in the Cue Stack Window. The chase direction and chase type (Normal, Bounce, Random) can also be selected. Pressing and holding the SELECT button of a Playback with a chase on it automatically opens the Cue Stack

Window.

Use the top right encoder to modify individual attributes - Position, Beam, Colour, Intensity In and Intensity Out (soft button selects the different attributes). Once the speed of an attribute is changed it is no longer controlled by the master chase speed. Modifying the attribute so that it is the same as the master chase speed brings it back under control of the master chase speed.

Use soft button Y to Tap to Time the speed.

Modifications are retained even after the playback is released.

Modifying FX Parameters

To modify the parameters of a FX that is programmed in a Cue, press the SELECT button for the playback, and then adjust the encoders in the Cue Window.

FX size, shape, spread and speed are all adjustable.

Use soft button Y to Tap to Time the speed.

Modifications are retained even after the playback is released.

Stop / Starting Cue Stacks

Cue Stacks can be started and stopped using the GO and STOP buttons associated with the playback.

For wing playbacks, make the playback the current playback and then press the GO / STOP buttons in the manual control section.

Jumping to a Cue in a Cue Stack

There are several ways to jump to a specific Cue in a Cue Stack.

Press the S button of the Playback, enter a Cue Id on the keypad and press the manual GO button.

In the Cue Stack window, use the cursor keys or press the touch screen to move the cursor to the required Cue. Press the GOTO CUE soft button to jump directly to the Cue. Alternatively key in the Cue ID within the Cue Stack of the Cue you wish to jump to and press GOTO CUE.

Pressing the PRELOAD CUE button rather than the GOTO CUE button selects the Cue that will be executed when the GO button for the Cue Stack is next pressed. This enables the next Cue to be selected in advance of the Cue being required.

Pressing ENTER in the first column of the Cue Stack also jumps to the specified Cue.

Overriding Using the Programmer

When playing back a show, you can over-ride the programmed effect in the playbacks by using the programmer. For instance, assume that you are running a yellow circle on your Maverick Force X Spots. You wish to change the colour to Red.

Select the Force X Spots from the Group Window.

In the Colour Window select the Red palette entry.

If you wish to remove the over-ride then you can either clear all off the programmer by pressing CLEAR. Alternatively you can remove only certain attributes or certain heads by selecting the items with the cursor in the Prog Window and pressing the REMOVE soft button.

When you press CLEAR or remove selected heads from the programmer, the programming will be immediately removed and the heads will be controlled by the playbacks as if the programming had not been applied. This is different to some other consoles where clearing the programmer has non deterministic effects.

Note that in order to over-ride individual attributes of an intelligent head you need to be in SELECT BY CHAN rather than SELECT BY HEAD mode. If you are in SELECT BY HEAD mode then all of the head attributes will be set to what is in the programmer.

Adding in New FX

MagicQ does not make a distinction between programming and run modes so it is always possible to busk new FX. For instance, assume that you have an active playback which has the Maverick Force X Spots statically focused on the centre vocals position. You now wish to temporarily add in a tilt saw.

Select the Force X Spots from the Group Window.

In the Prog Window, select the ADD FX soft button.

Select the TILT FX.

Adjust the encoder wheels as appropriate.

If you wish to set the speed / size of the FX before you make it live on stage, then go into BLIND mode before you ADD in the FX. Then you can adjust the chase without affecting the stage output. Use the Move View in the Outputs Window to get a 2D picture of how your FX will look. Then when you are happy, go out of BLIND mode and the FX will appear on stage.

Alternatively use the ADD FX ZERO SIZE soft button – this adds an FX into the programmer exactly as when using the ADD FX soft button except that the Zero Size option is set. You can then select the size you want using the SIZE encoder before pressing the ZERO SIZE soft button to clear the Zero Size option.

Use the CHANGE FX soft button to change the waveform of the FX live.

Pressing and releasing BLIND will enable you to busk the FX in and out – e.g. in the chorus / verse transitions.

Applying Palettes with Time

Palettes can be applied with a time by simple entering a time in seconds before selecting the palette entry to apply.

For example, to apply a 4.5 second movement from the current position to your programmed centre vocals position, simply type 4.5 and select the vocals position in the Position Window.

The fades are carried out in the programmer (you don't need any playbacks free). All attributes in the palette are faded regardless of whether they are marked as instant or fading in the personality file.

If you apply a palette with time whilst in FAN mode then the times will be fanned across the different heads in the order that the heads have been selected. See Using Palettes with time.

Releasing / Clearing with Time

Release times can be set on a per Cue Stack basis, in the Cue Stack Options. Default release times can be set up in the Cue Stack, Defaults view including times for Cue Stacks with single Cues and Cue Stacks with multiple Cues.

It is also possible to release a Playback with time by typing a number and then pressing REL. For example, 3 REL releases the currently selected playback over 3 seconds.

In addition it is possible to clear the programmer and to enter and exit blind mode with times. Press 5 CLEAR to clear the programmer over 5 seconds. Press 10 BLIND to enter blind mode over 10 seconds.

Speed Control

MagicQ provides multiple ways to control the speed of chases and FX.

Changing the Chase or FX data

The most direct approach is to change the chase speed directly in the Cue Stack window or the FX speed directly in the Cue Window as described in the sections above.

This is a permanent change to the stored chase / FX on the selected playback.

Global Rate or Playback Rate

An increase or decrease in speed can be applied to a Cue Stack on a Playback or to active Cue Stacks using the Global Rate and Playback Rate in the Playback window. This affects both Chase speed and FX Speed. The manual fader can also be set to control the Global Rate or Playback Rate.

The Global Rate and Playback Rate are a percentage applied respectively to all and specified Cue Stacks when they are active. The default (unchanged) rate is 100%. 0% is stopped whilst greater than 100% is faster than programmed. The change is permanent, but does not change the actual speeds recorded in the Chase or FX - it purely applies a percentage change on those speeds.

Both rates are permanently applied until changed back to 100%. All Playback rates can be reset to 100% via the RESET ALL RATE soft button in the Playback Window.

The Global Rate applies to all playbacks and can not be inhibited.

FX Speed on Playback Fader

Individual control of speed of FX in a Cue Stack on a Playback can be put under the control of the playback fader using the Fader controls FX Size option.

This is a temporary change that follows the fader level - the FX is stopped when the fader is at 0%, and runs the programmed speed when the fader is at 100%.

FX Speed Masters

A dedicated FX Speed Master can be set up to control the speed of a number of channels or a group of channels. When activated the FX Speed Master is always applied to those channels regardless on which Playback they are running and also affects those channels if they are in a FX in the Programmer.

This is a temporary change that follows the fader level - the FX is stopped when the fader is at 0%, and runs the programmed speed when the fader is at 100%.

FX Speed Masters can not be inhibited - they are a per channel setting that will always control the affected channels regardless of the Cue Stack settings on the Cue Stack where they are applied.

Speed Masters

A Speed Master is a generic speed that when activated is applied to multiple Cue Stacks overriding the programmed speed. It is an absolute speed which is normally set by Tap to Time. Each Cue Stack specifies which Speed Master it responds to - the default being Speed Master 1 (SP1).

Speed Masters can also be configured to get their BPM from external DJ systems, from audio input sources and from other 3rd party sources. It is possible to switch instantaneously between different sources.

MagicQ supports 100 Speed Masters which can be used to Tap to Time speed and apply the speeds to chosen Cue Stacks. Some users may wish to use just one global Speed Master whilst others may wish to use a Speed Master per song page.

Each Speed Master can be set to either control all attribute types, or can be selected individually for Intensity, Position, Colour and Beam.

Speed Masters can be enabled and disabled. When disabled the Speed Master no longer applies to the Cue Stacks and they run at their programmed speeds. When a new show is started all Speed Masters are reset to a disabled state.

Speed Masters contain a speed and a rate divisor. The rate divisor applies to the programmed speed, enabling half, and further fractions of the speed, or doubling of the speed or further multiplications. Maximum range is divide by 32 to multiply by 32. By default it has no effect on the programmed speed.

All Cue Stacks by default are controlled by Speed Master 1 (SP1). In the Cue Stack, Advanced options, the Speed Master option can be set to choose any of the 100 Speed Masters, or to Ignore - in which case the Cue Stack ignores all Speed Masters.

Each FX in a Cue Stack can also be assigned to a different Speed Master - in this case it takes precedence over the Speed Master for the entire Cue Stack. If the FX is set to "Cue Stack" then the Speed Master setting for the entire Cue Stack is used.

Cue Stacks are affected regardless of whether they are executed from a Playback, from an Execute Window or from the Stack Store.

By default FX that are in the Programmer are not affected by any enabled Speed Masters - this ensures that during programming default speeds can be programmed into Cues. For playback (busking) the Programmer can be controlled by a Speed Master - in Setup, View Settings, Prog set the Programmer Speed Master to the required Speed Master. Set it to Ignore to make it ignore all Speed Masters.

When enabled, the Speed Master will control the speed of chases in the Cue Stack and all the FX in the Cue Stack, including any Pixel Map FX. The programmed chase time and programmed FX time are ignored. When a Speed Master is deactivated all chases and FX under control of that Speed Master revert to their programmed speeds.

When Tap to Time is used to set the speed of a Speed Master, all controlled chases and FX will be phase synced to the Taps as well as setting the speed. This means that after a Tap to Time on a Speed Master all chases and FX will be in sync.

A "No Tap Sync" can be set for each Speed Master, so that Tap to Time on that Speed Master will only set the tempo, it will not phase sync the FX and chases.

"Fader 200%" can be set for each Speed Master, so when the fader is at half the temp is the tapped tempo and when at full it is 200% of the tapped tempo.

Each Speed Master can be given a name which is then used wherever it is referenced.

Speed Masters can be accessed as options through the following features:

- The physical TAP button
- The DBO button
- The Master crossfade GO button
- From the remote trigger input

- From automations
- Through Cue Stacks set with the Cue Stack, Function option "Cue Stack is a Speed Master"
- Through a new Speed Master motorised bank Fader Mode on the Stadium consoles
- Through the Execute Windows using ASSIGN SPECIAL (see Execute Speed Masters)
- Through the Playbacks, VIEW SPD MASTER view (see Playback Speed Masters)

The current status of the Speed Masters can be viewed in the Playback Window, VIEW SPD MASTERS view. In this view it is also possible to activate/deactivate the Speed Master, to set the Speed Master running or halted and to set the Speed Master BPM and Rate Divisor.

Speed Masters are set to Per Head Timing by default. They can be set between Per Step and Per Head timing in the Playback Window. If either the FX or the Speed Master is set to Per Head timing then Per Head timing is used.

Using Speed Masters it is now possible to resync FX back to the start of the FX. Press CTRL and any of the TAP shortcut buttons above.

Speed Masters can be linked together so that adjacent Speed Masters are linked to the previous Speed Masters. This enables, for example, a single Tap To Time button for multiple Speed Masters. In Playback, VIEW SPD MASTER, set the Linked field to link to the previous Speed Master.

Cue Stack is a Speed Master

In the Cue Stack window, View Options in the Function tab a Cue Stack can be set to be a Speed Master. This has a similar effect to the other Master options in this tab - they completely override the normal operation of the Cue Stack.

The FLASH button is used to Tap to Time.

The GO button activates the Speed Master and sets it running so it takes speed control of all Cue Stacks set to use that Speed Master.

The PAUSE button halts the Speed Master. The PAUSE button can then be used to manually bump the chases and FX controlled by the Speed Master.

RELEASE disables the Speed Master so it no longer controls any Cue Stacks. SHIFT + FLASH also disables the Speed Master.

SHIFT + FLASH disables the Speed Master.

SHIFT + GO doubles the rate divisor.

SHIFT + PAUSE halves the rate divisor.

CTRL + FLASH resyncs all the FX controlled by the Speed Master.

Lowering the fader slows the speed from the tapped speed down to halted. Raising the fader to full returns to the last tapped speed.

Normally only one Cue Stack per Speed Master is required, but it is permitted to have more than one Cue Stack set to the same Speed Master - for example on different Pages - they will just duplicate each other.

When changing pages the Speed Master will never hold over - if you need the Speed Master on multiple pages then either make it a Default Playback or program a Cue Stack on each page.

If the Cue Stack option Activate on Page Change is set then the Speed Master will enable when changing to that page. If the Cue Stack option Release on Page Change is set then the Speed master will disable when changing from that page.

Speed Master Fader Mode

On Stadium motorised consoles there is a Speed Master fader mode. Select the fader mode in the normal way using SHIFT + NEXT PAGE, and then select Speed Masters.

The FLASH button is used to Tap to Time.

The GO button enables the Speed Master and sets it running so it takes speed control of all Cue Stacks set to use that Speed Master. If the Speed Master is already enabled then pressing GO returns to the previous time set by Tap to Time.

The PAUSE button halts the Speed Master. The PAUSE button can then be used to manually bump the chases and FX controlled by the Speed Master.

SHIFT + FLASH disables the Speed Master so it no longer controls any Cue Stacks.

SHIFT + GO doubles the rate divisor.

SHIFT + PAUSE halves the rate divisor.

CTRL + FLASH resyncs all the FX controlled by the Speed Master.

Lowering the fader slows the speed from the tapped speed down to halted. Raising the fader to full returns to the last tapped speed.

Busking Master

It is possible in the Setup Window to set the manual crossfade fader to be a "busking rate" sub-master from 0 seconds to 10 seconds. The rate is shown in the bottom right of the Status Display. The time is applied to selection of palettes and intensities. When FAN mode is selected the change is applied in turn across each of the selected heads.

Programmer Master

It is possible to make a Playback into a Programmer Master. Record an empty Cue onto a Playback and then set the Cue Stack option, Function, Programmer Master.

When the Playback is activated by pressing the GO button then the fader level becomes the

Programmer level. Releasing the fader level causes the Programmer level to go back to 100%.

When the fader is less set to less than 100%, the FLASH button can be used to bump in the Programmer at 100%.

The GO button and PAUSE buttons are used to swap Palette values in the Programmer when the Programmer has mixed palette values.

For instance if some heads are set to use the RED palette in the programmer and others using the GREEN palette then pressing GO will swap all the heads using RED palette to use GREEN and all the heads using GREEN palette to use RED.

If there are more than 2 colour Palettes in use in the Programmer, then the colours rotate around all the different Palettes.

Odd/Even can be used to easily set up an initial look of 2 or more colour palettes.

Currently only one Programmer Master can be active at a time.

Live Macro

From v1.9.2.3 MagicQ supports a feature to enable a "Live Macro" which can be used to preload playback changes before executing them all at once with the BIG GO button.

Press CTRL + BIG GO to start recording the Live Macro. The status bar will show light blue and indicate REC LIVE whilst recording the Live Macro. When all the required buttons have been pressed and faders moved then press CTRL + BIG GO again to stop recording the Live Macro.

When a Live Macro has been recorded then the status bar indicates LIVE MACRO and the BIG GO button flashes fast to indicate it is armed, ready to go. When armed, pressing the BIG GO button will execute the Live Macro, regardless of any other button function set for the BIG GO button.

The Live Macro is always replayed with immediate timing regardless of the timing used to record the macro - this enables simultaneous playback of multiple items which would not be possible through manual operation.

A Live Macro can be re-recorded before it has been executed. Simply press CTRL + BIG GO to re-record the Live Macro and follow the steps above.

When armed, pressing BACKSPACE will cancel the Live Macro and the BIG GO button returns to its normal function.

The BIG GO can be set to always be a LIVE MACRO button, avoiding the need to use CTRL when recording the Live Macro. In Setup, View Settings, Playback, set Crossfade Button function to Live Macro. Note that even when this function is set, CTRL + BIG GO can be used to re-record the Live Macro.

The Live Macro is recorded into the Macro Window at the highest free macro and is named Live Macro. It can be viewed and steps can be edited as for normal key macros. It is

automatically deleted when the Live Macro has been executed. Since it is a live function, it is not saved to show files and hence is not preserved over a reset or shut down.

The Live Macro is primarily intended for recording playback buttons. It is possible to record programmer buttons and even presses in Windows, but the scope is limited since the playback/programmer buttons are not executed as they are being recorded (unlike normal key macros) and hence there is no feedback of the pressed items.

Prog Store

The MagicQ Programmer supports a Prog Store for live operation (busking). This is a store of 12 Programmer states that can be quickly stored and recalled with single button presses. The levels, times and FX in the Programmer are all stored. The stores can be included (without times) or activated (with times), enabling the operator to adjust between snapping and fading effects in real time.

Hidden from the user, MagicQ uses the Cue Store to store the Prog States as Cues - starting from the last Cue in the Cue Store, and naming them as Prog Store1 to Prog Store10. The Prog Store is saved into the show file, so the Prog Store survives a rest or power down.

The Prog Store can be accessed through SPECIAL buttons in the Exec Window. In the Exec Window, press ASSIGN SPECIAL and select PROG STORE. For each Prog Store item there are three possible actions - Record, Include and Activate. Each action is available for each of the 10 Prog Stores.

Pressing a REC PS button (e.g. REC PS1) records the current programmer state to that Prog Store. The button is shown active when programmed.

Pressing an INC PS button (e.g. INC PS1) includes the specified Prog Store back into the Programmer immediately without times. The Programmer is automatically cleared before including - the Programmer will contain only the contents of the specified Prog Store. Pressing a Inc PS button on a Prog Store that has not been recorded has no effect.

Pressing a REC PS button on an already recorded Prog Store overwrites the existing Prog Store. To modify an existing Prog Store, press the INC PS button, modify it, then press the REC PS button.

Pressing a REC PS button when the programmer is empty (cleared) causes the specified Prog Store to be removed.

Pressing an ACT PS button activates and releases that Prog Store as a Cue with any times that were originally used in the programmer. If this Prog Store was the one active in the Programmer than the Programmer is cleared so that the Prog Store is now running as a Cue without the Programmer. The Prog Store can be activated and releases as a Cue any time until the Prog Store item is removed (by recording it again with the Programmer empty).

When pressing an ACT PS button, if there are any overlapping Prog Stores active then they are released. Overlapping means that the two Prog Stores control one or more of the same channels.

Pressing an INC PS button for a Prog Store that is active as a Cue also release the Cue so that control of that Prog Store will now be entirely from the Programmer. MagicQ will also release any other overlapping Prog Stores that are currently active.

A Prog Store mode is supported on the 4x3 Execute Buttons on Stadium consoles - this enables easy access to the Prog Store function without needing to assign the Special buttons in the Exec window. The Prog Store mode shows 4 Prog Store items at a time each with a REC, INC and ACT button. Paging can be used to access all 12 Prog Stores.

Note that when using the Prog Store and recalling Prog Store into the Programmer, pressing the Update button will perform the Update Only edit method rather than updating the Prog Store. This allows temporary saving/recalling of Programmer to the Prog Store and then using to Update other Cues.

Group Cues

Group Cues enables shows to be built up based on group programming rather than individual head programming. FX, fans and split times are programmed within the group rather than on an individual basis.

Group Cues provide a very powerful and simple way of changing a show to use new fixtures types without having to reprogram Cues. If the group is changed to have different or additional heads then the programming is automatically recalculated over the new Heads within the group.

It has the advantage over morphing that information is retained in the Group based Cues even if very different fixtures are used, and even allows the entire Patch to be deleted and new different heads patched in their place. It can even be used mid show to repurpose a head if one fails.

MagicQ has previously supported Group based FX since 2015. Group Cues extends Group based FX so that the entire Cue, including the levels and times is now based on Groups attributes rather than on individual heads.

Group Cues is enabled via the Group Cues setting in Setup, View Settings, Cue Storage. The options are:

Disabled	MagicQ activates levels, times and FX by Head. MagicQ does not store levels or times as Group Cues. Group FX can continue to be stored in Cues.
Prefer Group Cues	MagicQ activates attributes and FX by Group. MagicQ stores Cues with Groups and Heads.
Prefer Group Cues (Safe)	MagicQ activate`s attributes and FX by Group. When turning an encoder that would cause Heads to jump, MagicQ converts the Cue into a Head Cue to avoid the jump.
Prefer Group Cues (Warn)	MagicQ activate`s attributes and FX by Group. MagicQ warns if Cues are recorded with individual head levels or FX
Group Cues Only	MagicQ activates attributes and FX by Group. Cues can only be recorded if Programmer does not have individual head levels or FX

MagicQ continues to support selection of heads using Groups or Heads. Groups are selected either directly from the Group Window or using keypad shortcuts. When Groups are selected they show red in the Group Window. Heads can be selected directly from Group, View Heads or from keypad shortcuts and automatically deselect any selected Groups.

When Group Cues is in operation then whenever Groups are selected then MagicQ will activate attributes and FX by Group rather than by Head. For each selected Group the level

and fade time of each attribute used by Heads in the Group can be specified.

Operation and programming occurs exactly the same as normal programming - Locating, using palettes, using attribute encoders, and using keypad shortcuts.

If individual Heads are selected from the Group, View Heads Window or from the keypad then the Groups will not be selected (no Groups coloured red in Group Window) and MagicQ activates by Head rather than by Group.

If Heads are sub selected - for example by pressing NEXT HEAD, SINGLE or ODD/EVEN then whilst the sub selection is in operation then MagicQ activates by Head. If ALL is then pressed then MagicQ will revert to activating by Group.

At any time you can deselect the Groups by pressing the DESELECT GROUPS soft button in the Group Window. This button is only shown when Group Cues is enabled - when Group Cues is disabled this is the ADD GROUP FX button.

When recording to Cues, the Cues can contain Group based attribute levels and Head based levels. The Head based levels take priority over the Group based levels.

Heads can be in multiple Groups so it is possible to create Cues with multiple Groups referencing the same Head. The latest Group added (lowest down the list in Prog and Cue windows) takes priority. Use MOVE to change the priority of Groups within a Group Cue. In Prog, View Levels and Cue, View Levels use MOVE to move Groups around. Press MOVE followed by the source Group to move and the destination to move it to. Group Cues adds Groups in the order that the Groups and attributes are activate in the programmer, with the latest activated Group/attributes having the highest priority and being shown lower down the Prog/Cue window. Moving a Group lower down increases the priority whilst moving up decreases the priority. Note that individual Head values always have higher priority than the Group Cues above them.

When "Prefer Group Cues (Safe)" is set, then when activating attributes in the Programmer using the encoder wheels or using the ACTIVE button uses a safe algorithm to ensure that none of the attributes jump values. If it is not possible to activate a Group Cue safely then instead the individual Heads are activated. For example, if a Group of Spots are active in a Cue all with different hard values or different Palettes, then it is not possible to activate a single Group Cue for that Group - instead MagicQ will activate the individual Heads in the programmer. It also helps in the case where a Group of fixtures is selected which is different to the Group of fixtures in the active Cue.

Group Levels

When a Group of heads is first activated they start from the current value of the first head in the Group.

If the Heads are Located then MagicQ marks those attributes as Located in the Group Cue. MagicQ will always use the current Locate value for the Heads, not the value when the Group Cue was created - this enables Heads in the Group to be changed and the Locate Value of the new Heads to be used. The Prog and Cue Windows show L when using a Located attribute.

When a Palette is selected then MagicQ stores the Palette. The Prog and Cue Windows will just show the Palette. Any changes using the encoder wheels will be applied as an offset to the Palette - the Prog and Cue windows show as the Palette + or - the offset.

When hard values are selected (using encoder wheels, soft buttons, or keypad) then MagicQ will store the range information wherever possible, as well as the hard value. This helps when selecting Groups with heads of different types and when changing the Heads within a Group.

Group levels are always stored as 16bit, regardless of the Heads that are currently in the Group - thus making enabling easy change between Heads with 16bit and 8bit attributes.

If Heads in the Group have virtual dimmers then any Intensity in the Group Levels will be applied to the virtual dimmers.

Wherever possible it is recommended to use Palettes rather than hard values in Group levels. This is particularly important when using Groups with mixed Head types, where hard values on some attributes (e.g. Strobe channel) may result in different operation on the different Head Types. By using Palettes, the correct values are used for each Head Type.

Whenever Heads are added, removed or reordered from the Group the levels will be recalculated according to the new Head types.

Fanning

Group Cues support fanning - simply select the Group and fan the heads as normal. The fan will be stored as part of the Cue including the fan type, fan parts and fan segments. The fan will be recalculated over all the Heads in the Group whenever the Group is changed.

The fan is shown in the Prog and Cue window with the start and end range of the fan separated by a > (Fan from End) or a <> (Fan Symmetric) or a >> (Fan Asymmetric).

Whenever Heads are added, removed or reordered from the Group the fanning will be recalculated.

Group Cues can be fanned between two palettes - when in Fan mode choosing two Palettes in turn will fan between the two Palettes. Note that the two Palettes must be chosen within 5 seconds of each other.

Group Elements

For Groups without Elements set, the levels will be set for all Elements of a Head.

For Groups with Elements set, the levels will be set for the Elements from that Group on each Head in the Group.

For Groups with Head Elements set, the levels will be set for the Head Elements from that Group.

Groups that are only Element Groups (i.e. have Type set to Elements) are not used in Group

Cues.

Fade Times

Group levels use the same fade times as Head levels by default - i.e. the Int, Pos, Col, Beam times from Prog, View Times, Simple View and Cue, View Times, Simple View.

In addition a fade time, delay time and fade type can be set as required for each Group attribute, in the same way that individual times can be set for individual Heads.

When set, the fade time, delay time and fade type apply to that attribute for all Heads within the Group.

The fade times can be fanned using the standard automatic fan times syntax - for example 3* will offset the fade times across the Group over 3 seconds, whilst 3*+ will offset into centre of the Group.

Fanned fade times are shown in the Prog, View Times, Adv View and Cue, View Times, Adv View and can be entered directly in the attribute field.

Fanned fade times can also be viewed and set in the Prog, View Times, Simple View and Cue, View Times, Simple View. Select the required Group (s) in order to view/change just those Groups in the Individual Times rows.

Manual fanned delay and fade times can be set in the attribute fields using the standard individual head syntax and are shown with a >> for asymmetrical, a <> for symmetrical and a > for from the end.

Whenever Heads are added, removed or reordered from the Group the times will be recalculated.

Recording

Cues are recorded in the normal way. It is possible to merge and to remove Group data from Cues just like for individual Head data. Recording of selected heads and record masking is supported.

In the Prefer Group Cues (Warn) mode, then when recording to a Cue if the Programmer contains individual head data (levels or FX) then MagicQ displays a warning box, to help prevent accidental recording of non Group based Cues.

In the Group Cues Only mode, when recording to a Cue if the Programmer contains individual head data (levels or FX) then the record is totally blocked.

Palettes always get recorded by Head regardless of whether the information is in the Programmer as Group attributes or Head levels and regardless of the Group Cues mode. This enables, for example, positions or gobo focus to be set up for each individual Head.

When RECORD is pressed and Group Cues are active MagicQ indicates Record GC in the Status window to reinforce that a Group Cue is being recorded.

Including / Update

Cues can be included in the normal way and both the Group and Head data from the Cue will be loaded into the programmer. Including of selected heads and masking is supported. When using selected heads only the Groups that are selected will be loaded into the programmer, along with any individual data for those selected heads.

Update works in the normal way and both the Group and Head data will be updated into the Cue.

The Update only method of updating is supported for Group Cues like with Head Cues.

Patch Offset can be applied using Group Cues just like for individual Head Cues.

Active / Snapshot

Attributes can be made active in the normal way. Attributes for the selected Groups that are active on Playbacks will be brought into the programmer, along with any individual head data for those selected heads.

Snapshot will always snapshot Head values rather than Group values, so this is not recommended if you wish to keep your show using Group Cues.

Copying Head Values

Attribute data can be copied between Groups of Heads using the normal copy head syntax. If a Group is specified then Group attributes will be copied rather than individual Head attributes.

When copying heads Group FX can now copied from one Group to another. It is also possible to Split FX and Join FX for Group FX in the Prog window.

File Saving / Exporting / Merging

Group Cues are saved in show files in the normal way. As with all new MagicQ features, shows saved with Group Cues will load into previous versions of MagicQ, but any Group levels will be ignored by the old software. If you have a show file with Group Cues which you wish to load into an earlier version of software, then first use MagicQ PC (or a console with Group Cue support) to convert the show to use Head programming.

In the Cue Store window Cues can be converted between Head Cues and Group Cues using the SET GROUP CUE and SET HEAD CUE soft buttons.

When converting to Group Cues, MagicQ attempts to match the Head values to Groups by analysing the values in the Cue. If there is no matching Group with the required heads then those attributes will remain as individual Heads and not be converted to Group levels. Note that fanned attributes and fanned times will not be converted as the Head Cues do not hold any of the fan information. MagicQ also converts normal FX to Group FX.

Before converting an existing show to Group Cues it is recommended to create groups for all the heads that have been programmed together in the existing show - e.g. if many of the Cues contain 4 particular Spots then create a group with just those particular spots.

When converting to Head Cues, MagicQ applies fanned attributes and times from the Group Cue - but the fan information is not stored with the Head information, so the details of the fan are then lost. MagicQ does not convert Group FX back into normal FX since MagicQ has supported Group FX since 2015 and therefore the Group FX will run on all recent MagicQ systems.

Press SHIFT + SET ALL GROUP CUE and SET ALL HEAD CUE to convert the entire show.

MagicQ shows can be exported in the normal way. All data for selected Heads will be exported. In addition all Group levels/FX for Selected Groups will be exported.

Updating Groups

Groups can be updated at any time. Removing Heads from a Group will stop them from being part of Group Cues that use that Group. Adding Heads to a Group will put them into any Group Cues that use that Group.

When using Group Cues we recommend to create your own groups with their own names before starting programming and to use these for programming Group Cues. If the auto generated Groups are used then when adding Heads of the same type to a show they will end up in the auto generated groups which may not be desired.

Updating Cues

Groups can be replaced, cloned or removed from one or more of the programmed Cues.

Replacing Groups in Cues, enables modifying the programmed Cues to use a different Group.

Cloning Groups in Cues enables expanding a show to use more Groups than originally programmmed.

Removing Groups in Cues enables Groups to be taken back out of the programming.

The advantage of cloning / removing Groups in Cues rather than simply adding removing from the Groups is that split times and FX will be run separately for each Group rather than as a single Group.

Groups can be replaced, cloned or removed from individual Cues on a Cue Stack, from entire Cue Stacks, or from all Cues. The Stack Store and Cue Store filtering can be used to apply the changes to a specified set of Cues.

In the Group window press SHIFT + REPLACE GROUP to replace a Group in Cues. Then select the Group to replace, then the Group to replace with, then the item to clone in. Press ENTER to replace in all Cues - MagicQ prompts with a confirm box.

In the Group window press SHIFT + CLONE GROUP to clone a Group in Cues. Then select the

Group to clone from, then the Group to clone to, then the item to clone in. Press ENTER to clone in all Cues - MagicQ prompts with a confirm box.

In the Group window press SHIFT + REMOVE GROUP to remove a Group in Cues. Then select the Group to remove from, then the item to remove from. Press ENTER to remove from all Cues - MagicQ prompts with a confirm box.

Cloning and removing of Cues is only supported when Group Cues is enabled.

Removing Unused Group Cues

MagicQ has support for removing unused Group Cues and Group FX from Cues in a show. In the Cue Store press SHIFT + REMOVE UNUSED GC. Group FX and Group levels that reference invalid Groups or Groups with no Heads are removed from the Cues. Note this only removes the levels and FX - it does not remove the Cues themselves. The Cues may become completely empty.

To remove the unused Cues press the REMOVE UNUSED soft button in the Cue Store.

Temporary Recording of a Group Cue Instead of a Head Cue

Group Cues can be programmed even when Group Cues is not enabled. To record a Group Cue, first clear the Programmer, then in the Group Window press the TEMP GROUP CUE soft button. TEMP GROUP CUE mode is indicated in the Status bar.

Subsequent activation and changes of Head attributes in the Programmer will use Group Cues and Group FX. The next record to a Playback will record as a Group Cue. After the Record the TEMP GROUP CUE is deactivated again. Pressing CLEAR or BACKSPACE also deactivates the TEMP GORUP CUE mode.

Note that pressing TEMP GROUP CUE when there is already data in the Programmer will not convert the data into Group Cue information - it will remain as Head information - therefore it is important to CLEAR the Programmer before selecting TEMP GROUP CUE.

Converting Group Cues to Head Cues

Group Cues can be converted to Head Cues and Head Cues can be converted to Group Cues in the Cue Window. Press SET GROUP CUE or SHIFT + SET HEAD CUE.

Multiple Cues can also be converted to Group Cues or Head Cues in the Cue Store.

Execute Window

The Execute Window is a special window designed to allow customisation of the look and feel of the MagicQ. This layout of the window is configurable by the user and can contain Groups, Palettes, Macros, Cues and Cue Stacks and other special items.

The Execute Window is also automatically accessible on the MagicQ remote iOS and Android applications and items in the Execute Window can be trigger from Cue Stack Macros and from external systems using the [manual:remote_control_commands:::rpc].

Press the Exec button to open the Execute Window. Press 2 and Exec, 3 and Exec or 4 and Exec to open additional Execute Windows. Each Execute Window operates independently and can select different Execute Grid pages. Items can be copied between different Execute Windows.

There are three views, View Design, View Execute and View Max. Use View Design to design the grid size and to place items in the grid. Use View Execute for playback, or View Max for full screen playback.

Design View

Use the Set Grid Size soft button to specify a grid size.

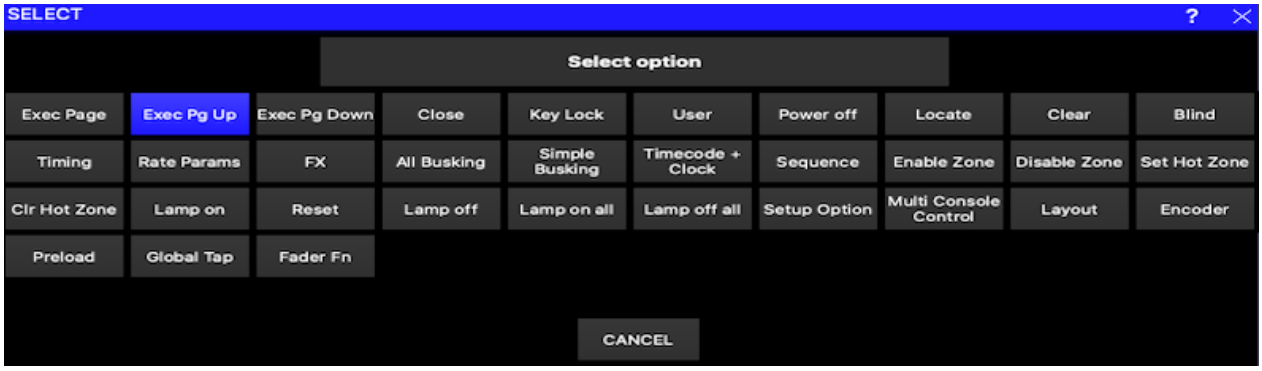
Then copy the relevant items from other windows. Items can be copied from the Group, Palette, FX, Macro, Cue Store, Stack Store, Playbacks, Media and Setup windows. They can also be copied from other Execute Windows. The Execute Window links to those items in the other windows - it does not create new items.

For example, to place a Group in the Execute Window; go to the Group Window, press Copy, select the Group, and then go to the Execute Window and select the box to place the Group.

Cues and Cue Stacks can be recorded directly into the Execute Window using Record and selecting a free item.

Multiple items can be selected for copying into the Execute Window.

You can also assign Special Functions to items in the Execute grid. These include Execute Page Up, Execute Page Down, Change to Exec Page, Close, Blind, Clear, Lamp On, Lamp Off, Reset, Key Lock. Press the ASSIGN SPECIAL soft button.



There are special functions for controlling universe zones – enabling, disabling and setting the hot takeover state. These enable complete control of complex DMX routing from a simple interface.

To view the details of an item in the Execute Window use the VIEW ITEM soft button. This makes it easy to change FX and Chase speed quickly.

Holding the SELECT button on the console front panel and pressing an item in an Execute Window also performs a VIEW ITEM on that item.

The GRID OPTIONS soft button enables simple options to be set such as the Colouring, including Playbacks in the Execute View, Setting the Group mode and sharing Regions.

The GRID ACTIONS soft button enables more complex actions like setting the Exec Max window size, the background image, passwords, Users and Groups.

Full Screen View

The Execute Window can be run in full-screen mode (View Max), allowing the whole of the screen to be customised. The size of the full screen Execute Window can be set via the GRID ACTION soft button and selecting Win Size – this defaults to 1024 by 768 for MagicQ PC/Mac and full screen for MagicQ consoles.

Selecting the "Run in Execute Window" option in the Setup Window ensures that the MagicQ will start up directly in the Execute Window. Note that on MagicQ PC/Mac, the buttons on the full screen Execute Window will only work when a MagicQ PC Wing is connected.

Use the close icon in the title bar to close the Execute Window. Use Assign Special to add a specific Close button into the Execute Grid. On MagicQ consoles you can press the CLOSE button to return to normal MagicQ windows.

On PC systems when the Win Size is set to the full screen, the top tool bar is removed. Where there is no title bar, use the shortcut CTRL + Q to close the Execute Window.

It is possible to have the legends for the 10 main playbacks displayed even when in full screen view - use the GRID OPTIONS soft button. The Playback legends take up the bottom part of the window, thus reducing the total size available for items.

Note that View Max is only supported on the first Execute Window.

Password Protection

It is possible to protect the Execute Window so that operators only see the Execute Window and can not use the main MagicQ application windows. From the Execute Window set up a password using the GRID ACTION soft button and Set Password.

If an operator tries to close the window then they have the choice of shutting down or entering the password to re-enter the main MagicQ application windows.

Password protection in the Execute Window is only supported when the Run in Execute

window option is enabled in Setup, View Settings, Playback and MagicQ has started in full screen execute. Simply pressing VIEW MAX in the Execute window will not prompt for the password.

For security reasons there is not a master password. To reset the password that is locked, please contact your local dealer.

Protection can be added so that users cannot operate any Execute buttons until they enter a password. A "Key Lock" Special Function button can be placed in the Execute Window. When pressed the Execute Window is locked and can only be unlocked by entering the password. If no password has been set, then entering a blank password will unlock the window.

Automated Start

MagicQ includes several options for automated start of Playbacks and Executes. These options are available on MagicQ consoles and on MagicQ PC systems when connected to a MagicQ USB Wing or Interface. See Setup, View Settings, Playback, Activate Playbacks On Start.

Sizing of Items

Items in the Execute window so that different items can have different sizes. This is particularly useful for laying out buttons around faders.

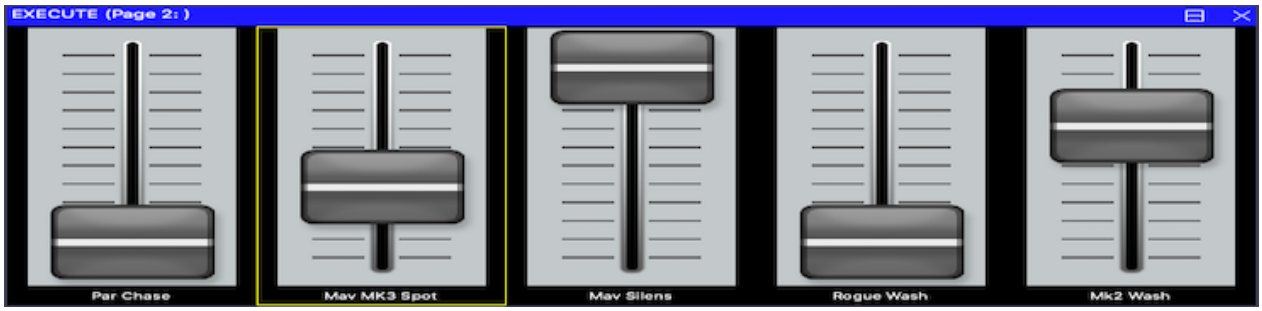
In View Design mode, use encoders and soft buttons X and Y to set the item width and height from 1 to 16 boxes wide . The default is 1 box wide and 1 box high.

Items that overlay other items will block the other items so overlapping items should be avoided.

The overall grid size can be set to up to 40 by 40 items - which enables detailed grid layouts to be constructed.

Faders

The Execute Window supports faders as well as buttons. Cue Stacks and Cues can be represented as faders. To set a Cue Stack or Cue as a fader, move the cursor to the item and press SOFT button E to toggle the Type between button and fader. A ‘F’ appears in the corner of the item when it is set to be a fader. Faders are only shown in Execute View and Max View, not in Design View.



MagicQ supports full sizing of all Execute items using the Item Width and Item Height soft buttons and encoders. If faders are set to width and height of 1 then if there is an unused box below the fader item then MagicQ automatically adjusts in the Execute View to fill the two boxes.

Use SHIFT or CTRL and the cursor keys to cursor select multiple items to set the type for multiple items in one go.

Buttons

By default buttons in the Execute Window are set to toggle their function on and off each time the button is pressed. It is possible to set a button in the Execute Window that is controlling a Cue or a Cue Stack to momentary rather than toggling. Move the cursor to the required item and use Soft button E to set the item type "Button Flash".



Buttons can also be set as solo buttons (also known as radio buttons) so that a group of buttons programmed as Cues or Cue Stacks can be set so that only one of the group is active at a time. Use soft button E to select "Solo".

The group consists of all buttons in the Region.

If the buttons are not in a Region then MagicQ uses all adjacent buttons in a horizontal row that have their "Item Type" set to "Solo". In this case "Solo" buttons must be immediately adjacent. Empty items or items that are not set to "Solo" will end the group.

Use SHIFT or CTRL and the cursor keys to cursor select multiple items to set the type for multiple items in one go.

Regions

Regions enable easier control of multiple items for attribute selection and soloing. Items in the Execute Window can be made part of the Region by selecting them with the cursor keys and pressing the SET REGION soft button.

The Region number is shown in the top right of the Execute item in View Design. MagicQ automatically uses a Region ID that has not been used on the that Exec Page. To set a specific Region ID type the ID on the keypad/keyboard before pressing SET REGION.

If the Region includes a Group item then Palettes within that Region will only affect the heads within that Group. The Group does not need to be selected first - those palettes will affect the heads regardless of head selection. This enables colours and other attributes to be selected on

different head types without changing the current selection. All Palettes are applied in the programmer as normal.

If a Region includes Cue Stacks that are set as Solo, then all those Cue Stacks will solo together; only one will be active at a time.

Use SHIFT and CLEAR REGION to clear a region.

If the CLEAR, LOCATE, LAMP ON, LAMP OFF, LAMP ON ALL, LAMP OFF ALL buttons are included in a Region then they only affect the heads from the Group controlling that region.

If RELEASE is included in a region it only affects the Cues and Cues Stacks in that region.

Multiple Groups

MagicQ supports multiple Groups in each Region.

If the Setup option, Prog, Select multiple groups is set to No then only a single Group can be active except for when SHIFT is pressed. When set to anything other than No, or when SHIFT is pressed, Groups toggle on/off.

Note that prior to v1.9.8.0 Regions in the Execute Window could contain multiple Groups, bot only one Group active at a time - this group affected all other items in the Region. By default the first Group in the Region was the active Group. Pressing the Group made that Group the active Group.

When there are multiple Groups in a Region then pressing any of the Groups within the Region does not select the Heads in the Programmer. If there is only one Group in a Region then behaviour is as before - pressing the Group selects the Group in the Programmer.

Groups can be copied over other Groups in a Region to quickly change which Group applies to each Region.

Note that recording to a Group in the Exec Grid re-records the underlying Group as if recording directly in the Group Window.

Sharing Regions

Regions can be shared between Exec Pages for the purpose of the Solo and Release functions. Set the Share Regions option in the Grid Options for each of the Exec Grids to be shared. Then set the same Region IDs on the different pages that need to be shared.

When a Region is shared between Exec Pages MagicQ then MagicQ checks the Regions with the same IDs on all the shared Exec Pages rather than just the Region on the Exec Grid where the Cue Stack/Cue was activated.

Sharing affects Cue Stacks with Solo set, and the Assign Special, Release item.

Timing

It is possible to add Timing items to the Execute Window via the Assign Special, Timing button. The timings affect how Palettes are played back in the Execute Window. The options include setting a time in seconds for Palette fades, setting a split fade, and directions - normal, reverse, in to out, out to in and random.

The timing options include standard fades of 0, 1, 2, and 3 seconds and also allow custom times. A fade of 0 seconds ensures that Palettes snap in regardless of other MagicQ console settings such as Busking Rate masters.

If the Timing items are within a Region then those times only affect the heads from the Group controlling that region. Using multiple regions this enables different times to be used on different heads simultaneously.

Timing items also affect releasing of Cues and Cue Stacks within a region using the RELEASE special item.

A Region can be set up with palettes and timing items but without a Group. In this case the timing will be used with those Palettes when applied to the currently selected heads. This is useful for example to have timings on Colour and Position Palettes, but not on Beam Palettes.

Rate and Parameters

It is possible to add Rate items to the Execute Window via the Assign Special, Rate Params button. The rate items affect how Cues, Cue Stacks and Programmer FX in the Execute Window are controlled. The Rate items include a Rate Tap to set the speed, controls to select Fade or Snap and controls to set the Parts to 2, 3 or 4.

If the Rate items are within a Region then they only affect the Cues, Cue Stacks and Programmer FX that are within the Region.

If the Rate items are not within a Region then they affect all Cues and Cue Stacks and Programmer FX in the Execute Window that do not have a Region set.

Rate items affect both FX and Chases. When a Cue Stack is set as Chase Timing then the Rate will affect the Cue Stack rate not the FX rate within the chase steps. Chases are not affected by Width controls.

The rate items affect the Cues and Chases regardless of whether they are active, so it is possible to set the speed, snap and width of a FX before activating a Cue or Cue Stack. Changes are stored with the Cue or Cue Stack so that when they are reactivated they will use the same parameters.

When the "Use Speed Master" Rate Param is active the inbuilt FX in the Execute Window will use the respective Speed Master for timing if it is active. If the Speed Master is not active, then timing will remain as per the above Rate Params in the Execute Grid.

Execute Window FX

It is possible to add simple FX items directly to the Execute Window via the Assign Special, FX button. The FX items generate FX for Intensity chase, Zoom chase, Colour flick, 2 Colour chase, 3 Colour chase and White Flick. In addition it is possible to add Colour 1, Colour 2 and Colour 3 buttons to select the Colours Palettes used within the FX.

If the FX items are within a Region then they use only the channels from the Group of that Region. If the FX items are not within a Region then they will use currently selected heads.

All the Colour FX items are affected by a change in Colour Palette. Note that Colour Flick only uses Colour 1, 2 Colour only uses Colour 1 and Colour 2. Intensity Chase, White Flick and Zoom Chase do not use any Colour Palettes. Colour Palettes can be selected before the FX items are active.

When the item is activated the FX is added to the Programmer. When it is deactivated the FX is removed from the Programmer. As the FX are in the Programmer they run at normal programmer priority overriding any FX from Playbacks. The BLIND button affects these FX just like any other values/FX in the programmer.

Execute Window Soft Palettes

The Execute Window supports Soft Palettes. These are Palettes that can easily be updated from other Palettes so that Cues and Chases can be immediately changed to have new values. This is useful for instance when running Cue Stacks with colour chases and wanting to update the colours.

Set "Item Type" to "Soft" (Encoder E) in the Execute Window to set the Palette to be a Soft Palette. Soft Palettes are marked with a "S" in the top right corner.

To change the contents of the Palette press the item and then select another Palette (not a Soft Palette) from the Execute Window. The Soft Palette will be updated with the values from the other Palette for all the currently selected heads.

If the Soft Palette is set as part of a Region which has a Group and Palettes in it then it is not needed to press the Soft Palette - the individual Palettes can be selected directly to alter the Soft Palette. Note that in this case the Palettes in that Region only perform this function - they can not be used in the normal way.

Execute Window Sequencing

It is possible to set items within the Execute Window to automatically sequence through the items according to defined time. Sequencing is possible for Positions, Colours, Beams, FX, Cue Stacks, Cues, Macros, and Groups. The sequence can be in sequential order or random. One item of each type will be activated at a time with all other items of that type released.

In the Execute Window select ASSIGN SPECIAL and select Sequence. Then choose between Sequence and Random, followed by Sequence. Then enter a sequence time - this is the time between execute items automatically being activated/deactivated.

If the Sequence item is within a Region then it will only affect items within that region. If it is not in a region then it will affect all items within the Execute grid. All item types are affected and are sequenced independently - for example if you have both Colour items and Cue Stacks items in the grid then MagicQ will sequence the colours at the same time as the Cue Stacks. Using the random sequence would cause a different colour and different Cue Stack to be activated after each sequence time has expired.

MagicQ will apply any fade times from timing items within the Region/Grid that the sequence item is in.

To make the Sequence Random, add a Random button - ASSIGN SPECIAL, Sequence, Random. When the RANDOM button is active the sequence will run random instead of following one after another.

Only one sequence item can be active at any one time within a Region. Only one sequence items outside a Region can be active at a time.

Execute Window Group

Each Execute Grid can have a Group assigned to it. This operates in a similar way to regions, except that the Group applies to the whole window without the need to set regions.

Press the GRID ACTION soft button, and select SET GROUP. To clear the Group select SET GROUP and choose NO GROUP.

The Group Mode Filter determines whether MagicQ filters or expands to the group. Set the Group Mode Filter in Grid Options. For filtering the data in the Exec Grid must have the required channels in it. For expanding, the data in the Exec Grid can have any channels (but must have required attributes).

By default no Group is assigned. When a Group is assigned then by default it expands to the Group.

Button Appearance

The appearance of the boxes can be set using Soft button B "Appearance". It is also in the Group Options.

The options are "Boxes" or "Coloured" for the appearance of the buttons, faders and encoders. "Coloured" colours the buttons according to function. When that function is active the button appears brighter.

The Execute Window supports custom images for the buttons, faders and encoders. When set, these are displayed in "Coloured" mode instead of the coloured control. The images should be stored in the bitmaps folder and named according to:

Button up image	<filename>up.bmp
Button down image	<filename>dn.bmp

Fader track image	<filename>trck.bmp
Fader knob image	<filename>knob.bmp
Encoder back image	<filename>base.bmp
Encoder dial image	<filename>dial.bmp

Where <filename> is any name. The images can be .bmp, .jpg or .png. The bitmaps can be selected for each item in the Execute Window, View Design by pressing the BUTTON BITMAP soft button and selecting the required image file.

When selecting the file, choose the "up", "trck" or "base" file. MagicQ will automatically substitute the "dn" file when the button is active.

Use SHIFT + CLEAR BITMAP to remove the bitmap.

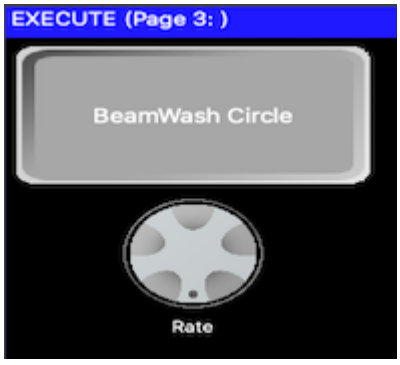
The bitmap will be applied to all new buttons created on that Grid until the SHIFT + CLEAR BITMAP is pressed on an item.

Use SHIFT or CTRL and the cursor keys to cursor select multiple items to set the image for multiple items in one go.

Button images used within MagicQ shows are stored in the .xhw show file.

Speed Encoders

The Execute Window supports encoders for speed control of Cue Stacks. Use Insert Special, and select Encoder to insert an encoder below a recorded Cue Stack. The Encoder will only be active when the Cue Stack directly above is active.



Attribute Encoders

The attribute encoder acts like the encoders in the Intensity, Position, Colour, Beam windows, affecting the currently selected heads.

Preload

The Preload function allows execute window items to be selected before the change is applied. Press the PRELOAD soft button to start selecting/deselecting items. MagicQ will show

the items selected/deselected but will not apply them until the PRELOAD GO soft button is pressed. The Busking Rate Master can be used in conjunction with this feature to allow all the items to fade at the same time.

Background

It is possible to set a background using the GRID ACTION soft button and selecting Set Background

The background should be a bmp or jpeg of the size set by the WIN SIZE button.

Use GRID OPTIONS soft button and Clear Background to remove the background.

Background images used within MagicQ shows are stored in the .xhw show file.

Assigning Execute Pages to Users

Execute Pages can be assigned to a specific user - enabling some pages to be hidden from some users.

Press the GRID ACTION soft button and select Set User. The User for the page is shown in the title bar of the Execute Window.

Once an Execute Page is assigned to a user then only that user can access the Execute Page - other users will just see a blank page. MagicQ hides the Execute Page change select items for Execute pages that the user does not have access to.

Super Users can always access all Execute pages.

To remove the assignment press GRID ACTION, select Set User and select Default.

Special Options

There are a number of special options that can be assigned as buttons using the ASSIGN SPECIAL soft button. These include:

Special	Individual Special buttons
Timing	Set timing including split direction for Palettes
Rate Params	Set rate of Chase / FX
FX	Add FX to selected heads
All Busking	Adds all Timing, FX and Rate items
Simple Busking	Adds basic Timing, FX and Rate items
Timecode + Clock	Timecode, clock items
Playback + Stack	Playback and Stack items
Uni Zone	Management of multiple universe zones

Fader Fn	Record current fader mode
Setup Option	Change a Setup option
Net Session	Control and status of Net Sessions
Net Status	Status of Network Ports, Art-Net and ChamNet
Multi Console Control	Shortcuts for multi console control
Encoder	Add a rate or attribute encoder
User	Change the user
Speed Master	Controls the Speed including enabling/disabling, rate and divisor

The individual special options are:

Exec Page, Exec Page Up, Exec Page Dn	Buttons to change Execute Grid
Blind, Close, Clear, Locate, Release	Useful buttons in Execute Grids
Add, Swap, DBO, DBO inactive, No FX, FX active	Control playback from Exec Grid
Global Tap	Global Tap to Time button
Lamp On, Lamp Off, Reset	Affects selected heads
Lamp On All, Lamp Of All	Lamp On/Off whole lighting rig
Preload	Enter/leave preload mode
Key Lock	Lock the Execute Window so users cannot change / shut down
Power Off	Immediate shut down of the PC

Timing Options

Timing options enable live control of timing when applying FX, Palettes, Cues and Cue Stacks from the Exec Grid.

The options include Forward, Backward, Centre In, Centre Out, Random, Bounce, 1 second, 2 seconds, 3 seconds and N seconds.

From v1.9.8.0 the timing options Forward, Backward, Centre In, Centre Out and Random apply to FX as well as to Palette selection. This affects both FX applied in the Exec Grid using Assign Special, and also FX within active Cues and Cue Stacks within the Exec Region.

When a Region in the Exec Grid is set up without any FX, Cues or Cue Stacks then the Timing options apply to the currently selected Playback rather than to items within the Region. This avoids the need to create complex key macros to perform manual setting of FX parameters in the Cue / Programmer Window.

For Cue Stacks set to Chase the Tap To Time, Crossfade, and the Forward, Backward, Rnd,

Bounce directions can be applied. Parts, Segments, Chunks, and the other Directions are not supported for Chases.

Rate Params Options

Rate Params options include Tap Rate, Fade, Snap, Parts 2, Parts 3, Parts 4, Parts N, Segments N, Chunks N, Spread N, Width N, Size N and Group Spread and Use Speed Master.

- Parts, Segments and Chunks can be set to any of the values possible from the Programmer / Cue windows. Parts and Chunks automatically set Width to an appropriate value.
- Width is set in % and overrides Width set by any Parts or Chunks.
- Size is set in %.
- Spread is set in % and can be more than 100%.
- Group Spread enables access to all the Group Spread options available in the Programmer / Cue Window. Note that this will only have an effect on Group FX.
- Use Speed Master enables linking of the speed of the FX/Cues/Cue Stacks in a Region to a specified Speed Master

All Rate Params apply to FX programmed using Assign Special and to active Cues and Cue Stacks within the Region. The Rate Params can be set before the FX, Cue Stacks or Cues are activated and will be applied to the FX when it is activated.

When a Region in the Exec Grid is set up without any FX, Cues or Cue Stacks then the Rate Params options apply to the currently selected Playback rather than to items within the Region. This avoids the need to create complex key macros to perform manual setting of FX parameters in the Cue / Programmer Window.

For Cue Stacks set to Chase the Tap To Time, Crossfade, and the Forward, Backward, Rnd, Bounce directions can be applied. Parts, Segments, Chunks, and the other Directions are not supported for Chases.

Changing Execute Page

It is possible to build up multiple execute grids and to change between them using the Exec Page, Exec Page Up and Exec Page Down special options.

For example you could use Grid 1 as an "Home" grid with only buttons to change to other pages. Then each of the other pages could have a Exec Page button to change back to the "Home" grid.

Exec Page items for specific Execute Pages are hidden for users that do not have access those Execute Pages.

Uni Zone

This enables enabling and disabling uni zones, setting hot takeover universes and setting uni zones to input and merge.

Automating Setup Options

Setup options can be changed from the Execute Window without having to write keyboard macros. In the Execute Window – press ASSIGN SPECIAL and select Setup Option in order to assign the changing of a Setup Option to a single button.

MagicQ will prompt for what the value for each option (for example Yes/No, Enabled/Disabled or other value) and this will be stored in the shortcut. It is therefore possible to make two different shortcuts - one to enable an option and one to disable it.

A shortcut is to choose the option in the Setup window and then directly copy from the Setup Window to the Execute Window.

Net Session

In Net Session mode these items help with control and monitoring of Net Sessions.

- Take Control and Release Control can be used to quickly change Master/Slave in a Net Session.
- Num Consoles. This indicates the number of consoles that are in the Net Session of the console. It shows active when more than one other console is connected in the Net Session. It can be used to quickly determine that a console is missing.
- Console State. This shows the state of the specified console in the Net Session. Users can assign an item for any console on the network within the same Net Session including this console. It shows active if it is this console or when another console, when there is a connection to it. It will show inactive within five seconds of the connection to the console being lost.
- Force Last Act is used when Last Active channel control is in operation. This forces all channels of the selected heads to be actively controlled by the console as if they had been touched by the user. This enables channels from the output to be quickly brought back to a particular console without changing playbacks or programmer.
- Make User Main. When using User Main/Backup consoles this is used to make this console the Main console for the User.
- Include and Include Selected from other consoles.

Multi Console Control Shortcuts

In Net Session (Multi Console) mode these shortcuts enable quick selection of which console controls the output to which heads/channels on the lighting rig. These options are normally found in Setup, View DMX I/O, MULTIPROG SEL CHANS.

All of the normal options are available.

For the Group option, the Group selected when creating the Execute item is stored and is used for the shortcut. Therefore multiple shortcuts can be created for different Groups.

For Uni Zones, One Universe, Universes the uni zone or universe is that chosen when the shortcut is recorded.

For the One Head, Selected, Programmer, Last Active and Active options reflect the ongoing head/channel selection / activation state, not the selection or state when the shortcut was created.

The None, All, User options do not depend on selection state.

Timecode + Clock

It is possible to add the TC simulator and supporting buttons to the Execute Window. This enables, for example, a large display of the current timecode value.

There is also a 12 hour and 24 hour clock - allowing the Execute Window to be used to show the current time.

There are also items to show the next Scheduled Event and the time remaining to the next Scheduled Event from the Scheduled Events in the Autom Window. This could be used to list the running order of bands playing at a Festival.

There is also an item to show the Internal Timecode of the current Playback.

The TC display and the Clock displays auto expand to take up to three times the normal item size if the surrounding items in the grid are empty.

Select ASSIGN SPECIAL and then select Timecode + Clock.

User

This allows the User to be changed from the Execute Window. If passwords are configured for the users then MagicQ prompts for the password before changing user.

Execute Window Playback / Cue Stack information

MagicQ supports special items in the Execute Window that indicate the current Cue name, Cue ID, Cue comment or Cue time remaining of a Playback or Cue Stack. This could be used, for example, to display special comments from a Cue Stack in the Execute Window.

In the Execute Window press ASSIGN SPECIAL and then select Playback + Stack. Then choose the required Playback/Cue Stack feature. MagicQ will prompt for the Playback number or Cue Stack ID.

The Playback Rem time is the remaining fade time whilst a Cue is fading. For a timecode Cue once the current Cue has completed the fade, then the remaining timecode to the next Cue is shown.

The Playback Rem TC is the timecode remaining to the next step. If the next step is not a timecode step then the field will show as blank.

Playback / Cue Stack variables can be displayed.

*Playback Tot Activate Count *Playback Tot Active Time *Playback Var1 *Playback Var2 *Playback Var2 minus Tot Activate Count *Playback Var2 minus Tot Active Time *Playback

Var2 minus Var1 *Cue Stack Tot Activate Count *Cue Stack Tot Active Time *Cue Stack Var1 *Cue Stack Var2 *Cue Stack Var2 minus Tot Activate Count *Cue Stack Var2 minus Tot Active Time *Cue Stack Var2 minus Var1

For the Var2 minus options above, the Exec button type can be set to a Pie Chart or a Level to give a graphical indicator of the % remaining from the chosen Variable to Var2.

The current Page and next Page can also be shown.

The Move When Dark indication shows active when a Move When Dark is active on any Playback and goes inactive when the Move When Dark is complete.

Speed Masters

Speed Masters can be assigned to Exec Grids in the Exec Window using the ASSIGN SPECIAL soft button. This enables the specific Speed Master to be controlled and updated.

Select the Speed Master option and then choose the Speed Master (SP1 to SP100) and then function to assign:

Tap	Tap to Time button. Also shows the current BPM. Enter a number before pressing TAP to set to a specific BPM.
Enable	Enables/Disables the Speed Master
Halt	Halts the Speed Master/Restarts the Speed Master
Resync	Restarts any FX controlled by the Speed Master
Inc	Increases the rate divisor
Dec	Decreases the rate divisor
Div	Sets rate divisor back to 1. Also shows the current rate divisor.
Step	Steps on to the next step in the FX
DJ BPM	Uses the BPM from DJ system
Audio BPM	Uses the BPM from Audio input
DJ Beat	Steps on to the next step on beat from DJ system
Audio Beat	Steps on to the next step on beat from Audio input
Resync Beat	Resyncs FX controlled by the Speed Master to the beat
Fader	Adds a Speed Master fader
All	Adds all the above functions

Normally only one set of Execute buttons per Speed Master is required, but it is permitted to have more than set of buttons per Speed Master - for example on different Exec Grids - they will just duplicate each other.

The Speed Master controls the chase rate and FX speed of all active Cue Stacks that have selected this Speed Master in the Cue Stack Options. Cue Stacks are affected regardless of whether they are executed from a Playback, from an Execute Window or from the Stack Store.

Note the Speed Master does not directly affect the inbuilt FX in the Execute Window, for control of these FX in Regions, assign a Use Speed Master item as specified below.

There is more info on Speed Masters in the Busking section.

Execute Grid Use Speed Master

The inbuilt FX in the Execute Window are applied into the Programmer. Since the default for the Programmer Speed Master is "Ignore", the speed for these FX will normally be directly controlled by the Rate Params items in the Exec Window - i.e. the TAP button, and the PARTS, SNAP, FADE.

When using the TAP for the inbuilt FX in the Execute Window it shows the BPM, and applies Per Head timing rather than per Step timing.

It is possible to over ride this speed using a Speed Master. In the Exec Window press ASSIGN SPECIAL and select "Rate Params". Then select "Use Speed Master" and choose the Speed Master to use. This will then show in the Execute Window as "Use SP x" where x is the Speed Master SP1 to SP100.

When the "Use SP x" is active the inbuilt FX in the Execute Window will use the respective Speed Master for timing if it is active. If the Speed Master is not active, then timing will remain as per the above Rate Params in the Execute Grid.

It is possible (and often very useful) to have more than one Regions using the same Speed Master for Speed control.

It is also possible to have more than one "Use SP x" in a Region so that different rates can be quickly selected - the first active one will be used.

If the Programmer option, Programmer Speed Master is set to a Speed Master instead of "Ignore", then when active the respective Speed Master will control the above inbuilt FX. The "Use SP x" will take priority over the Programmer Speed Master.

Execute Window on iOS/Android Remote

Execute windows are automatically available on the iOS/Android remote apps.

Each iOS/Android device can access different Execute Pages on the MagicQ system. We recommend using the Execute Page Up, Execute Page Down, Change to Exec Page special functions to enable page selection on remote devices.

The iOS/Android device downloads any custom images used in the Execute Window from the MagicQ system.

Execute Buttons on Go/Pause buttons

The GO and Pause buttons for Playbacks 1 to 10 can be set to be Execute buttons from either Execute Grid 1, 2 or 3.

When this function is in use then Execute Grid should be set to size 10/2 giving a total of 20 items.

In Setup, View Settings, Playbacks if the options "Playback Go/Pause use Execute Grid 1,2 or 3" is set to "yes", then this makes all 20 Execute buttons follow the items the selected execute grid.

Setting this option will automatically set the Execute Grid to 10/2 if it was not previously used.

It is also possible to set individual items in Cue Stacks, Options, Buttons by setting the options Go uses Exec Grid 1 or Pause uses Exec Grid 1.

Note that if a button is set to an Execute and there is no corresponding item in Exec Grid 1 then the button operates as the normal Go/Pause for the Cue Stack.

When a button is set to Execute then the function of the button is shown in the display together with its activation state.

Exec Grid items can be set to Cue Stacks, Cues, Groups, Positions, Colours, Beams, Macros and other functions - all off these functions are available through the 20 Execute buttons. By default items in the Execute Grid toggle on/off - the LED on the Go/Pause button shows the state. Alternatively the Button function can be changed in the Exec Grid to be "Button Flash" or even "Button Solo".

Note that this function is only supported on the main 10 MagicQ playbacks; this function is not supported on Extra wings, Playback wings, Execute wings, Stadium Wings, Compact Wing or MQ500M Wings.

Multiple Execute Windows

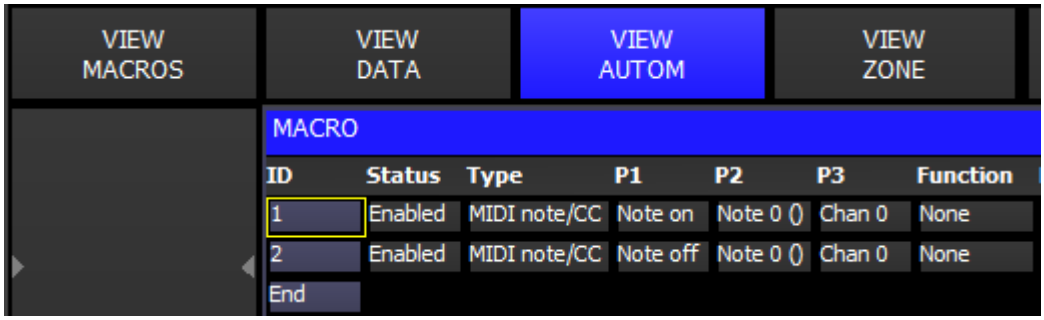
It is possible to have up to four execute windows open at any one time on MagicQ systems. To open a second, third or fourth Execute window, type either 2, 3 or 4 before pressing the EXEC window button.

Automation

MagicQ Automation Window

MagicQ supports an automation system to enable it to automatically respond to both external, internal and timed events. MagicQ can trigger on external events such as MIDI notes, DMX input, serial input, timecode, and the remote contact input. MagicQ can also trigger on internal events such as system startup, system shutdown and system powerfail. In addition MagicQ can trigger on timed (scheduled) events.

MagicQ supports up to 1000 Automations.



The Automation Window (Macro, View Autom) is used to manage all of the automated events. The Automation Window supports multiple events with each event being subject to specified parameters.

Each event then triggers a particular MagicQ function – this can be a function on a Playback, a Cue Stack, a Cue, a Page, a Macro or a Layout.

MagicQ can take a parameter from the event trigger and pass it to the function – for example, it could take the velocity from a MIDI note event and trigger a Playback, Cue Stack, Cue or Execute level using that velocity.

Automation is only supported on MagicQ PC/Mac when connected to a MagicQ USB Wing, MagicQ USB Interface or SnakeSys product.

Automations can be globally enabled or disabled from the Autom setting in Setup, View Settings, Mode.

Autom Events

Each event can have up to four parameters (P1,P2,P3,P4) to filter the event further.

Event	P1	P2	P3	P4
Scheduled	Time	Date mask		
MIDI note	Mode - on, off or both	Note	Channel – 0 for all	

Event	P1	P2	P3	P4
MIDI sysex	number of bytes to match	P2 is byte string	P3 is the byte to pass to the function	
MIDI clock	Divisor			
Timecode	Start timecode range	End timecode range		
Remote	Mode - on, off or both	Unit ID	Port ID	
DMX	Level	Channel		
Serial port	number of characters to match	P2 is character string	P3 is the character to pass to the function	P4 is parameter type
Custom TCPIP	number of characters to match	P2 is character string	P3 is the character to pass to the function	P4 is parameter type
Tracker	Type - inside, outside, enter, exit, X pos, Y pos, Z pos, X rot, Y rot, Z rot	Tracker ID	MagicVis object	
Scene Setter Button	Button number 1 to 16			
OSC	OSC Command maximum 39 characters			
Startup				
Shutdown				
Power fail				
Emergency				
Screen Save	Mode - on, off, both			
Breaker	Mode - on, off, both, tripped, faulty	Lyntec Device	Circuit	
Variable	Cue Stack Id	Command	Comparison	
Chan value	Level	Channel		
Status	Status Type			

External Autom events can be simulated within MagicQ using the keyboard.

For MIDI note events type testmidi followed by the 3 MIDI bytes - e.g. to test note on for note 10 at velocity 127 enter testmidi 144,1,127

For MIDI system exclusive events type testsysex followed by the required MIDI bytes in hexadecimal representation, e.g. testsysex BABE to match 0xBA for the first byte and 0xBE for the second byte

For OSC events type testosc followed by the OSC string, e.g. to go PB1 enter testosc /pb/1/go

For serial events type testser followed by the serial bytes, e.g. to simulate the bytes 1,2,3 enter testser 1,2,3

For remote input event, type testinput followed by polarity and option input number, e.g. to simulate remote input closed enter testinput 1

For breaker events type testbreaker followed by Lyntec device ID, Lyntec circuit and then the Status. Status is 0 for breaker being turned Off, 1 for turning On, 2 for On and Off, 3 for Tripped and 4 for Faulty

For emergency hot takeover, use SHIFT and SET EMERGENCY ON and SET EMERGENCY OFF soft buttons in Setup, View DMX I/O.

Autom Functions

The following functions are supported with each function having up to 3 function parameters F1, F2, F3.

Function	F1	F2	F3
PB a,r,level	Playback num		
PB level	Playback num		
PB activate	Playback num		
PB release	Playback num		
PB act full	Playback num		
PB go	Playback num	Cue ID	
PB go cue ID = level	Playback num		
PB back	Playback num		
PB ffwd	Playback num		
PB fbck	Playback num		
PB jump	Playback num		
Stack toggle	Cue Stack ID		
Stack activate	Cue Stack ID	Cue ID	
Stack release	Cue Stack ID		
Stack a,r,level	Cue Stack ID	Cue ID	

Stack random	Start Cue Stack ID	End Cue Stack ID	
Stack set var	Cue Stack Id	Variable	Value
Stack reset var	Cue Stack Id	Variable	
Stack inc var	Cue Stack Id	Variable	
Stack dec var	Cue Stack Id	Variable	
Stack enable	Cue Stack Id		
Stack disable	Cue Stack Id		
Cue toggle	QID in Cue Store		
Cue activate	QID in Cue Store		
Cue release	QID in Cue Store		
Cue a,r,level	QID in Cue Store		
Exec toggle	Exec Grid ID	Item ID	
Exec activate	Exec Grid ID	Item ID	
Exec release	Exec Grid ID	Item ID	
Exec level	Exec Grid ID	Item ID	
Run macro	Macro ID		
Change layout	Layout num		
Display message			
Change page	Page num	PB to activate	
Change page release main	Page num	PB to activate	
Change page release all	Page num	PB to activate	
Speed Master Tap	Speed Master ID		
Speed Master Step	Speed Master ID		
Lyntec zone on	Device ID	Zone	
Lyntec zone off	Device ID	Zone	
Lyntec circ on	Device ID	Circuit	
Lyntec circ off	Device ID	Circuit	
Emergency On			
Emergency Off			
Emergency State			
Reboot PC			
Power Off			

For Playback (PB) functions, F1 is the Playback number. MagicQ consoles support control of

all 202 playbacks. MagicQ PC supports control of the first 10 playbacks (PB1 to PB10).

For Stack functions, F1 is the Stack number. F2 is a Cue ID for Stack activate, and Stack a,r,level only.

For Cue functions, F1 is the Cue number (Qid) within the Cue Store.

Stack random enables the activation of one Cue Stack in the Cue Stack range F1 to F2. Each time the automation triggers all Cue Stacks in the range are deactivated, and one Cue Stack in the range is selected by random and activated.

For Macros, F1 is the keyboard macro ID. 0 means stop all playing keyboard macros.

For Page functions, F1 is the Page Number and F2 specifies a Playback to be activated on the Page Change (0 = none) and a Cue Id to jump to on PB go and PB jump.

For Display Message, the Description field is used to specify the message.

For Speed Master Tap and Speed Master Step the Speed Master ID is SP1 to SP100.

For Lyntec functions, F1 is the Lyntec Dev ID in Net Manager, View Lyntec. F2 is the Zone from 1 to 12 for Zone functions and the Circuit from 1 to 210 for Circuit functions.

For Emergency State, if the incoming level from the Event is greater or equal to 128 then the Emergency will be set on.

The current state of the function is shown in the Status field.

MIDI Events

If you add MIDI events then these override the miditable.txt file – the file is completely ignored.

The MIDI Clock enables triggering from the MIDI clock. The divisor can be specified to trigger on half note, full note or higher.

Serial Port Events

If you add serial port events then these override the normal ChamSys serial remote protocol functions. The serial port settings in Setup, View Settings, Ports must be set up with Serial Remote Protocol set to ChamSys RX.

MagicQ matches the serial data received to the string you specify in the P2 field using the same format as in the Cue Stack Macros but without the X. If you set the P2 field in the Autom to

1,2,3 it will match the serial data received 1,2,3

If there is a 'x' preceding the number then all following numbers are considered as hexadecimal (e.g. xBABE will consist of the byte 0xBA followed by 0xBE)

Note that the string entered in the P2 field must be encased with "". For example "1,2,3" MagicQ will display " as an '. You must use " when encasing the string.

P1 is the number of characters to match and P3 determines which character is passed onto the Autom function.

If you want to set up MagicQ to respond to serial commands to set the level of Playback 1 using the serial commands "L1" to "L100" you would set up the Autom as:

Type Serial Port

P1 1 // Match 1 character

P2 "L" // Character to match

P3 2 // 2nd character of received string

Function PB Level

F1 1

DMX and Chan Value events

P1 is the type of trigger:

- Level
- Threshold
- Rising
- Falling
- 8 Ranges
- 16 Ranges
- Below

When set to Level the DMX or Chan value must match the level specified in P3.

When set to Threshold the DMX or Chan value must be greater than the level specified in P3.

When set to Below the DMX or Chan value must be below the level specified in P3.

When set to 8 Ranges or 16 Ranges, P3 specifies the starting level of the range to match.

Custom TCPIP Events

The Custom TCPIP port settings in Setup, View Settings, Networks must be set up with UDP or TCP and a valid IP address and port.

MagicQ matches the network data received to the string you specify in the P2 field using the same format as in the Cue Stack Macros but without the Y. If you set the P2 field in the Autom to

1,2,3 it will match the serial data received 1,2,3

If there is a 'x' preceding the number then all following numbers are considered as hexadecimal (e.g. xBABE will consist of the byte 0xBA followed by 0xBE)

Note that the string entered in the P2 field must be encased with "". For example "1,2,3" MagicQ will display " as an '. You must use " when encasing the string.

P1 is the number of characters to match.

P3 determines which character is passed onto the Autom function. If the parameter type is set to binary then the character at the position is passed on. If the parameter type is "DEC" then the ASCII decimal number starting at the character is passed on. If the parameter type is "HEX" then the ASCII hexadecimal number starting at th character is passed on.

For example, to set MagicQ to set the level of Playback 1 using the network commands "SET1" to "SET255" you would set up the Autom as:

Type Custom TCPIP

P1 3 // Match 3 characters (the "SET")

P2 "SET" // Characters to match

P3 4 // Parameter is the 4th character of the received data

P4 DEC // Parameter is Decimal

Function PB Level

F1 1

Note that when Custom TCPIP is set to TCP, MagicQ attempts to make a connection to an external TCP server. MagicQ does not listen for TCP connections and therefore will not accept TCP incoming connections.

MIDI Sysex Events

MagicQ matches MIDI Sysex messages in a similar way to serial messages above

MagicQ matches the MIDI Sysex messages to the string you specify in the P2 field using the same format as in the Cue Stack Macros but without the X. If you set the P2 field in the Autom to

1,2,3 it will match the serial data received 1,2,3

If there is a 'x' preceding the number then all following numbers are considered as hexadecimal (e.g. xBABE will consist of the byte 0xBA followed by 0xBE)

Note that the string entered in the P2 field must be encased with "". For example "1,2,3" MagicQ will display " as an '. You must use " when encasing the string.

P1 is the number of characters to match, P3 determines which character is passed onto the Autom function. As MIDI is 7 bit data the character passed is doubled before it is passed onto the Autom function - enabling a MIDI Sysex value of 127 to set a playback to full level.

<!-- vale BritishSpelling.Spelling = NO --> Note that MIDI Show Control messages will always be read by MagicQ to trigger Cue Stacks and cues unless the MIDI Show Control type is set to "None" - in which case MIDI Show Control messages can be operated by automations. <!-- vale BritishSpelling.Spelling = YES -->

Cue Stack Variable Events

This enables mathematical calculations to be performed on variables to trigger events when Cue Stack variables change.

Variable	Cue Stack Id	Command	Comparison	Value

The Command can be:

Var1	Compares Var1 against Value
Var2	Compares Var2 against Value
Total Activate Count	Compares Total Activate Count against Value
Total Active Time	Compares Total Active Timer against Value
Activate Count, Var2	Compares Total Activate Count against Var2
Active Time, Var2	Compares Total Active Time against Var2
Var1, Var2	Compares Var1 against Var2

The Comparison can be:

Equal
Not Equal
Greater Than
Greater Than Equal
Less
Less Equal
Non Zero
Zero

When Comparison field is Non Zero or Zero the Value / 2nd Variable is ignored.

When comparing against Total Active Timer the Value is in seconds.

The automation will be triggered when the respective variable first meets the comparison. It will only be retriggered again once the comparison has again when the comparison has been not met. For example if the trigger is set when Var1 is greater than 10 then it will trigger when

Var1 is 11. It will then not trigger again until Var1 has been less 10 or less, and then goes to 11 or above again.

Scheduled Events

MagicQ supports timed events for trigger Cues at specific times of the day or days of the week. Any Cue in a Cue Stack can be set to trigger based on a scheduled event rather than following on from the previous Cue. This enables time of day and date based events to be run automatically.

Scheduled events are supported on MagicQ consoles and on MagicQ PC when connected to a MagicQ Wing.

`19/30/5` for 19 hours 30 minutes and 5 seconds

or

`*/10/0` to have the event occur every hour at 10 minutes past the hour

or

`//0` for every minute

When MagicQ starts up it checks for any scheduled Automs and sets the state according to the current time and date. For example if there is an Automation that runs at 7.00am each day and the system restarts at 9.00am then it will automatically trigger the 7.00am automation. The Automs are triggered in the order of oldest to newest as they would have been done if the system had been running at that time.

Automations, including scheduled events can be disabled (for example when Programming) on an individual basis or from the global Macro enable option in Setup.

Dates and Days of the Week

It is also possible to set dates in P2 using the following format:

`day/month/year`

Asterisks (*) can be used. Examples:

`24/12/2005` - specific date (24 December 2005)

`1//` - 1st day of every month

`/6/` - everyday in June

Alternatively you can specify days of the week using the characters A to G where A is Monday, B is Tuesday, C is Wednesday etc.

For an event every Monday and Tuesday enter:

`AB`

Sunrise + Sunset (Astronomical)

MagicQ has the capability to trigger events based on the sunrise and sunset at the particular location.

In order for sunrise and sunset events to occur correctly MagicQ must be configured with the correct longitude, latitude and time zones. These parameters are configured in Setup, View Settings, Mode. The sunrise and sunset times for the current location can be checked in Setup, View System, View Status.

To set a scheduled event based on sunrise or sunset first set the time starting with R for sunrise or S for sunset.

It is possible to set offsets on the sunrise and sunset times so the event is triggered a certain time before or after the sunrise or sunset.

For example to trigger 20 minutes after sunrise enter

R+0/20/0

To trigger 30 minutes before sunset enter

S-0/30/0

Tracker

MagicQ can trigger events based on a XYZ Tracker position related to a MagicVis object. This enables receive XYZ position from an external system and using that position information to control other attributes - e.g. ramping up intensity of a fixed Luminaire when performer moves into an area on the stage. We tie it into areas of the stage that we can define in our MagicVis visualisation so we can control attributes - intensity, colour, zoom etc... based on how close the performer is to a point or to a line.

When the trigger type is set to Inside then as the XYZ tracker moves inside the MagicVis object the trigger event level goes from 0 at the edge to 255 at the centre of the object.

When the trigger type is set to Outside then when the XYZ tracker is outside the MagicVis object the trigger event level is at 255. When it moves inside it goes from 255 at the edge to 0 at the centre of the object.

When the trigger type is set to Enter then as the XYZ tracker moves inside the MagicVis object the event is triggered.

When the trigger type is set to Exit then as the XYZ tracker moves outside the MagicVis object the event is triggered.

When the trigger type is set to X pos, Y pos, Z pos, X Rot, Y Rot, Z Rot the specific parameter is used for the event. The Tracker / Vis item value can be scaled by setting a minimum value in P3 and a maximum value in P4. The resulting value can be used in the Automation Functions such as Playback Level.

Support for Lyntec Products

MagicQ supports remote control and monitoring of up to 10 separate Lyntec relay or motorised break control devices.

MagicQ supports individual zone control on the 12 Lyntec zones, or individual circuit control on up to 210 breakers / relays per Lyntec device.

In Net Manger the View Lyntec enables configuration of connections to Lyntec devices and monitoring and changing of status of Zones on the Lyntec devices.

Connection to each Lyntec device is via TCP/IP. MagicQ stores an IP address, user name and password to connect to for up to 10 Lyntec devices.

When connected, the Zone information shows the Zone name and status for each Zone. The status is On, Off or Processing. Pressing ENTER when the status in On changes the status to Off. Pressing ENTER when the status is Off changes the status to On.

In Net Manger the View Lyntec CIRCS enables monitoring and changing of individual breaker or relay circuits on the Lyntec devices.

When connected, the circuit name and status is shown for each circuit. The status is On, Off, Tripped, Faulty or Empty. Pressing ENTER when the status in On changes the status to Off. Pressing ENTER for status of Off or Tripped status will attempt to change the status to On.

The Automation window includes new Automation events for triggering events from changes in Breaker status

Event	P1	P2	P3
Breaker	Mode - on, off, both, tripped, faulty	Lyntec Device	Circuit

To simulate breaker events type testbreaker followed by Lyntec device ID, Lyntec circuit and then the Status. Status is 0 for breaker being turned Off, 1 for turning On, 2 for On and Off, 3 for Tripped and 4 for Faulty

The Automation window includes new Automation functions for setting the status of Lyntec zones and circuits:

Autom	F1	F2
Lyntec zone on	Device ID	Zone
Lyntec zone of	Device ID	Zone
Lyntec circuit on	Device ID	Circuit
Lyntec circuit off	Device ID	Circuit

The following Cue Stack macros are supported for setting the status of Lyntec zones and circuits:

H 11 / <Device ID> /<Zone> / <Status>
H 12 / <Device ID> /<Circuit> / <Status>

Status is 1 for On, 0 for Off

Automated Start of Playbacks / Executes

MagicQ includes several options for automated start of Playbacks and Executes. These options are available on MagicQ consoles and on MagicQ PC systems when connected to a MagicQ USB Wing or Interface. See Setup, View Settings, Playback, Activate Playbacks On Start.

Keyboard Macros

Keyboard macros enable you to record sequences of key presses and to replay the sequence at the press of a single button. Keyboard macros can be assigned to any button on the console (including to a SHIFT+button and CTRL+button) or to buttons on an external keyboard. The first 10 keyboard macros are available on the Quick Macro Tool Bar.

Macros can be inhibited from the Setup Window using the "Inhibit Macros" option.

Recording Keyboard Macros

To record a keyboard macro, go to the Macro Window, press RECORD and select a macro to record. Alternatively move the cursor to a free item in the window and press the START MACRO soft button.

The console then records all of the following key sequences until you press the Macro Window button and the END MACRO soft button.

The title bar shows "Recording" whilst recording is in progress. MagicQ automatically removes the MACRO and END MACRO soft button press from the end of the recording.

MagicQ supports several different formats for storing the keys - by default it now uses the internal MQ keys. The internal MQ keys have the advantage that they are the same across all MagicQ consoles - therefore a keyboard macro that is recorded on a MQ80 will always run correctly on a Pro 2014 and vice versa.

Choose the Record Options by pressing soft button A in the Macro window. The options are "Keys", "MQ Keys" and "Functions".

Playing Keyboard Macros

Macros can be played by simply pressing the item in the Macro Window.

To stop a macro that is playing open the Macro Window, View Macros, put the cursor on the macro and press the STOP MACRO soft button. To stop all macros that are playing press SHIFT + STOP ALL MACROS.

Keyboard macros can be triggered from Cue Stacks using the Cue Stack Macro B, e.g. B1 plays macro B1. B0 stops all macros.

Keyboard Macro Timing

Playback of keyboard macros can use the times that the macro was recorded with or using external time code sources. By default macros are played back using "Step per tick" timing. Use the SET TIMING soft button to change the timing. The options are:

Immediate	All steps are executed immediately. The fastest play back, but in some cases where windows are opened/closed the macro may not play back as expected
Step per tick	Executes the macro one step per tick. Ensures macro plays back as expected
Ext Time Code	Executes according to external time code
Int Time Code	Executes with the internal timing it was recorded at
Old macros	Executed with old system timing - do not use for new macros

The timing type can be changed after the macro has been recorded – however if external time code timing is required then this should be selected before the macro is recorded. This enables the console to record the key and button presses according to the received time code signal.

Editing Keyboard Macros

Times can be modified in the View Data view of the Macro Window using the keypad and Encoder E. Multiple items in the macro can be changed at one time using SHIFT and the cursor keys to select the items.

When using time code timing, the + and – operators can be used to offset the timing of a sequence of items.

Macro steps can be deleted using the REMOVE key. Note when a button is pressed there is a "press" and a "release" – both should be removed – otherwise the button state will become confused.

It is possible to move steps in the Macro, View Data view – press MOVE and then select the source followed by the destination. Multiple steps can be moved using SHIFT and the cursor keys.

The RETIME soft button can be used to change the times for steps that are out of sequence - any times that are not in order are changed to a new time that is within order. The sequence that the keys are played back in is maintained.

The REORDER soft button changes the sequence of keys to match the timing. Note that this

will affect the result of playing the macro.

Assigning Keyboard Macros

To assign a macro to a button, press the ASSIGN MACRO soft button and press a key to assign it to (e.g. one of the 6 spare keys). Keyboard macros can also be assigned to a combination of keys – for example if you hold one key and press another key. Keyboard macros are saved into show files and also when you Save Settings, so it is possible to personalise your console.

If you accidentally assign a keyboard macro to the wrong button then you can easily change the assignment. Open the Macro Window, move the cursor to the macro you want to change the assignment for and press the ASSIGN MACRO soft button. Now press the button that you really wanted to assign it to.

A macro assignment can be removed using the DEASSIGN MACRO soft button.

Quick Macro Toolbar

The Quick Macro Tool Bar is accessed by pressing the screen in the Status Display (the area of the screen above Playbacks PB1 to PB5 with the Clock). The Macro Tool Bar can be closed by pressing in the Status Display again.

The Macro Tool Bar shows the Key Macros 1 to 10.

Recording Playback Faders

Macros support fader moves and encoder changes as well as button presses. This enables complete recording and playback of macro segments. Macro timing and playback uses a high resolution internal clock enabling accurate playback of recorded sequences.

MagicQ optimises fader moves to remove redundant steps.

In Built Macros

MagicQ supports a number of in-built macros which carry out common programming key sequences including quite a few that would normally require multiple key presses or simultaneous pressing of more than one key. The In-built Macros can be useful on touch systems where it is not possible to touch 2 keys at one time.

Press the In built Macro soft button and choose the macro to assign to the current item in the Macro Window.

Scheduled events in Cue Stacks

Cue Stacks can be used to program a list of scheduled events. To use this feature, set the Halt field of each of the Cues in the Cue Stack Window to "Sched". Double click to change the field. Then enter the time in the Wait field. The times can have wildcards and sunrise/sunset times as per Autom events.

If dates are required then they are entered into the macro field starting with Z and ending

with Z. For example to have an event on the

24 December 2005 enter:

Z24/12/2005Z

You can also specify particular days of the week using the characters A to G where A is Monday, B is Tuesday, C is Wednesday etc…

For an event every Monday and Tuesday enter:

ZABZ

For an event on the first day of every month enter

Z1Z

Motorisation and Customisation

MagicQ Stadium Series products with motorised faders enable many different functions to be applied to the faders with MagicQ changing the fader levels when the functions are changed.

In addition to the existing playback pages (sets of faders for different songs) the Stadium Series introduces the concept of playback banks to enable access to more playbacks on a page.

Stadium Playback Banking

The Stadium playback section is split into two with fader and encoder playbacks. The fader playback section consists of motorised fader, FLASH, GO, PAUSE and S buttons. The execute playback section consists of encoders with inbuilt button and FLASH buttons.

On the MQ500M/MQ250M and Stadium Connect the playback section is banked to provide access to up to six different playback banks – the first bank is PB1 to PB30, the second bank is PB31 to PB60, the third is PB61 to PB90, and so on enabling fast access to 180 playbacks in total. Typically the first bank would be used for the main song playbacks, whilst the second and third could be used for specials or key lighting.

The original MQ500 does not have motorisation so in order to access more playbacks it is necessary to add a Stadium Wing.

When used in multi console mode, the motorised Stadium consoles can access the same or different banks – enabling two or more operators to playback the show with different playbacks.

When pages are changed the banks will either all change or will change only individual banks depending on the bank ties set up. Page holdover and two page holdover works the same as on the MQ500.

The Stadium playback banking is designed to avoid the need to change page during songs - pages are used for new songs, rather than for additional playbacks.

When Playbacks are released the faders by default remain at the level they were set at. It is possible to make faders return to 0% when released. In Setup, View Settings, Playback set the "Motor Faders release to zero" option to yes. Any Cue Stacks that have "Fader releases stack" set to "yes" will be automatically returned to 0% when released.

Fader Modes

The current function of the faders is determined by the fader mode which can be selected by pressing and holding down the NEXT PAGE or PREV PAGE buttons. This shows a dual height shortcut toolbar with the top row showing the different modes and the bottom row showing the bank or offset within that mode.

On PC where hold functions are not available, as with other toolbars, it can be locked open by pressing SHIFT and NEXT PAGE or PREV PAGE.

The fader modes are:

Playbacks	The default mode as used by all other MagicQ consoles - faders are normal playbacks
Int	Intensity of heads - starting from lowest head number
Sel Int	Intensity of selected heads - starts from first selected head
Groups	Intensity of groups - starting from Group 1
Chans	Value of channels - starting from Universe 1 Channel 1
Sel Chans	Value of channels of selected heads - starting from first selected head
Int Masters	Intensity Master of heads - starting from lowest head number
Group Masters	Intensity Master of all heads in the groups - starting from lowest programmed group
Sel Int Masters	Intensity Master of selected heads - starting from first selected head
Cue	Intensity of heads in a Cue
Sel Cue	Intensity of selected heads in a Cue
Presets	Preset intensities - starting from lowest head number
Speed Masters	Speed Masters - starting from Speed Master 1

The non playback modes can be split into programmer modes, master modes, cue modes and preset modes.

In all modes the fader legends the GO button show red to indicate when the fader is active. Pressing PAUSE deactivates the fader.

Pressing NEXT PAGE or PREV page pages up and down through pages of the faders.

Pressing CTRL and NEXT PAGE or PREV PAGE enables paging through the faders in the mode one by one instead of page by page. This enables choosing the exact starting point for the first fader.

The starting point can be directly set by entering a number on the keyboard, opening the fader shortcut bar (hold PAGE UP or PAGE DOWN) and pressing the Head No N / Group No N / Chan No N button.

In all modes pressing SHIFT + BIG PAUSE deactivates all the faders for the mode across all pages.

Programmer Modes

In the Programmer modes all changes affect the programmer just as if the heads had been selected from the keypad, encoders or palette windows. Pressing CLEAR resets all faders.

In Intensity mode the faders are used to control intensity of any of the patched heads starting from the lowest head number. Adjusting the fader sets the intensity for that head in the programmer. Pressing the GO button sets the intensity to 100% while pressing the PAUSE button removes the intensity for that head from the programmer. The PAGE UP and PAGE DOWN buttons are used to page through all the patched heads.

Selected Intensity mode operates like Intensity mode, but uses only the selected heads – in order of selection, enabling quick access to the intensities of selected heads by simple selecting those heads.

In Group mode the faders are used to control intensity of each group of heads starting from Group 1, one group per fader. Adjusting the fader sets the intensity for all the heads in that group in the programmer. Pressing the GO button sets all heads in the group to 100% whilst pressing the PAUSE button removes the intensity for all heads in that group from the programmer. The PAGE UP and PAGE DOWN buttons are used to page through all groups.

In Chans mode the faders are used to control the channels on the console starting from the first universe. Adjusting the fader sets the value of the channel in the programmer. Pressing the GO button sets the channel to 255. Pressing the PAUSE button removes the value for the channel from the programmer. The PAGE UP and PAGE DOWN buttons are used to page through all channels.

In all these modes pressing the FLASH button puts the level to 100% and then on release returns it to the level of the fader.

Selected Chans mode operates like Chans mode, but uses only the channels of the selected heads – in order of selection, enabling quick access to the channels of selected heads by simple selecting those heads.

Master Modes

In Intensity Master mode the faders are used to control the master intensity of any of the patched heads starting from the lowest head number. Adjusting the fader sets the master intensity for that head. The master intensity operates at the output stage modifying the level of the intensity coming from playbacks or the programmer.

Pressing the PAUSE button return the intensity master for that head to 100%. The fader is set to half way for 100% - therefore it is possible to increase the intensity up to 200% in situations where the playback/programmer intensity is less than 100%. The PAGE UP and PAGE DOWN buttons are used to page through all the patched heads. Master Intensities can also be controlled from the Intensity Window, View Masters.

Selected Intensity Master mode operates like Intensity Master mode, but uses only the selected heads – in order of selection, enabling quick access to the master intensities of selected heads by simple selecting those heads.

In Group Master mode the faders are used to control the master intensity of the group of heads starting from Group 1. Adjusting the fader sets the master intensity for all the heads in the group. The master intensity operates at the output stage modifying the level of the intensity coming from playbacks or the programmer.

Pressing the PAUSE button return the intensity master for all the heads in the group to 100%. The fader is set to half way for 100% - therefore it is possible to increase the intensity up to 200% in situations where the playback/programmer intensity is less than 100%. The PAGE UP and PAGE DOWN buttons are used to page through all groups.

In Master modes pressing the FLASH button puts the master level to 100% and then on release returns it to the level of the fader.

If both a Master Intensity for a head and one or more Group Masters for the same head are active then they multiply together, for example if the programmed value is 100%, but then the head intensity master is 50% and a Group intensity master containing that head is at 50% then the output will be 25%. This enables multiple levels of masters, just as with existing intensity master system - the difference is that now it is not necessary to explicitly program intensity masters - access is available to intensity masters and group masters as soon as the heads are patched.

In Speed Master mode the faders and buttons control the global Speed Masters.

Cue Modes

These modes operate in a similar way to the Intensities mode and the Sel Intensities mode - you can page through the different heads - but they operate on the Cue data rather than programmer data.

In Cue mode the intensities of the heads in the current Cue (from the current playback, or selected from the Cue Window) are placed on the motorised faders. Moving the faders immediately edits those intensities within the Cue.

In Selected Heads Cue mode the currently selected heads are shown. Any that are used in the currently selected Cue are shown active. Heads that are not in the currently selected Cue are non active. Moving a fader of a non active Head automatically adds that Head into the Cue at the level of the fader.

Pressing the GO button adds the intensity of that Head to the Cue at its current output level.

Pressing the Pause button in either mode removes the intensity for that Head from the Cue.

As with all changes to MagicQ show data, UNDO can be used to restore the Cue to its previous channel values if channels are accidentally added/changed/removed.

There is a shortcut to enter the Cue Fader mode - press and hold CUE and press the S button of the Playback. This makes that Playback the currently selected and also opens the CUE window showing the data.

Pressing PAUSE in the manual crossfade section returns to the normal Playback Fader mode,

enabling quick return to playback.

The Cue Fader mode can also be entered/exited via the UNFOLD CUE soft button in the Cue Window. The PREV CUE and NEXT CUE can be used to bump through Cues in a Cue Stack.

Preset Modes

In Preset mode the faders are used to control preset intensities - as per the View Preset in the Intensity window. Preset intensities operate independently of the programmer and are used for setting fixed values - for example during changeovers or for background lighting.

Pressing GO puts the preset intensity to 100% - pressing PAUSE sets it to 0% (not active).

Pressing FLASH puts the intensity to 100% and then on release returns it to the fader level.

Shortcuts to Fader Mode

The fader mode and bank can be selected from a pop up menu by pressing and holding the PAGE UP or PAGE DOWN buttons.

The current fader mode and bank can be recorded as items in the Execute window which can then be operated from the 4x3 Execute section enabling single button changing of fader mode or banks.

Press and hold NEXT PAGE or PREV PAGE and press RECORD. MagicQ will prompt "Record shortcut - please press item". Select an item in the Execute Window or on the 4x3 Execute buttons (when in Execute Mode).

Alternatively in the Execute Window, select ASSIGN SPECIAL and choose Fader FN. The current fader bank mode and start item will be assigned to an item.

In Playback mode, ALT and the NEXT PAGE and PREV PAGE buttons can be used to change playback bank as an alternative to holding NEXT PAGE / PREV PAGE and selecting the Bank from the toolbar.

There are also inbuilt macros for NEXT BANK and PREV BANK which can be assigned to Execute grids for use in Execute windows or the 4x3 Execute section.

Fader Touch

MagicQ can tell when users touch the motorised fader knobs. As an option this can be used to change selected playback or to pre-visualise that playback in MagicVis.

Disabling Motorisation

Motorised faders have moving parts which can wear out with excessive use. Users should avoid creating macros or tracks that cause motors to constantly move.

Individual motors can be disabled in Setup, View Settings, Hardware, Faulty Motor Mask and Faulty Wing Motor Mask. These are hexadecimal bit masks - fader 1 is 0001, fader 2 is 0002,

fader 3 is 0004.

All motors can be disabled in Setup, View Settings, Hardware, Motorisation.

Illuminated Faders

In Playbacks mode the illuminated faders are used to indicate the function of the fader – blue for normal HTP level control, green for LTP faders, red for Intensity Masters and orange for FX Speed and FX size masters.

The faders can be configured to use the custom colour tags in the Cue Stack (set Setup, Windows, Playback Col Tag option to Cue Stack) thus enabling complete user control.

In Intensity and Selected Intensity mode the illuminated faders are set to white.

In Group mode the illuminated faders are set to yellow.

In Master modes (Int Master, Group Master, Sel Int Master) the illuminated faders are set to red.

In Channels and Selected Channels mode the illuminated faders are set to cyan.

In Presets mode the illuminated faders are set to green.

The overall brightness for the faders can be set by holding CTRL and using the encoders/soft buttons.

Playback Encoders

The playback encoders can be used for many different functions including:

- Intensity (HTP channel control)
- LTP channel control
- FX Size
- FX Speed
- FX Speed and FX Size
- Rate (not implemented yet)
- Time (not implemented yet)

When Cues are recorded to an Execute Playbacks (PB16 to PB30) by default the encoders will control the function of the Cue Stack on that Playback. The user can choose the Encoder mode to determine which function the encoder has. The current state of the encoder is shown in the playback legend.

It is possible to chose to control one or more different Playbacks or even a separate Cue Stack to control in which case the encoder is not related to the specific Playback. The following options are available from Cue Stack options, Fader tab, Encoder Mode:

- This Playback
- Other Playback
- All Playback on this Bank
- All Playback on this Page
- Other Cue Stack

When Cues are recorded to a Fader Playback, if there is no Cue Stack assigned to the Execute Playback above then the encoder from the Execute Playback will automatically take any encoder function that is set on the Fader Playback. This means that it is easy, for example, to record a FX Cue onto a fader playback and use the encoder above it to control the speed.

When set to Other Payback the Playback ID is specified in the Control Item option.

When set to Other Cue Stack then the Cue Stack ID is specified in the Control Item option. If the Encoder Mode is LTP or HTP and the Cue Stack is assigned to a Playback on the current Playback Page then it will activate from the Playback, otherwise it will activate from the Stack Store. As per the usual Cue Stack options in will only activate if Fader Activates is set to yes. For FX Size and FX Speed this will only take effect if the Cue Stack is already active on a Playback or within an Execute Grid or the Stack Store.

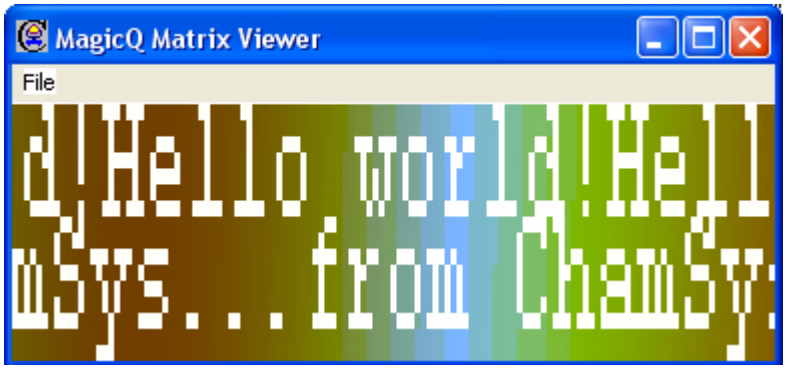
Illuminated Playback Encoders

In Playbacks mode the illuminated encoders are used to indicate the function of the encoder – blue for normal HTP level control, green for LTP faders, red for Intensity Masters and orange for FX Speed and FX size masters. The encoders can be set to use the custom colour tags in the Cue Stack thus enabling complete user control.

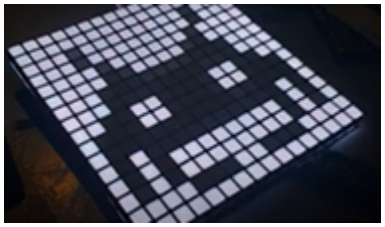
In other modes the illumination follows the same colour as the faders.

LED & Pixel Mapping

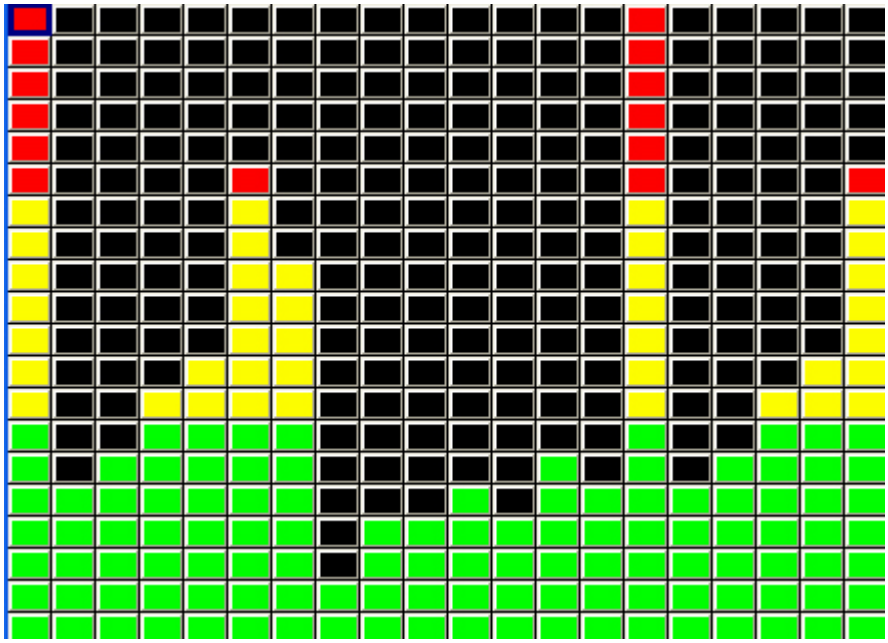
MagicQ utilises a powerful Cue engine, which enables it to easily handle large numbers of LED heads in the form of panels, battens and moving lights. MagicQ's ability to handle large numbers of heads independently ensures that Lighting Designers get to make the most of their LED arrays without being limited by the console. With MagicQ you can generate complete rainbow washes across all LED heads at the touch of a button with immediate live control during playback through encoders and buttons.

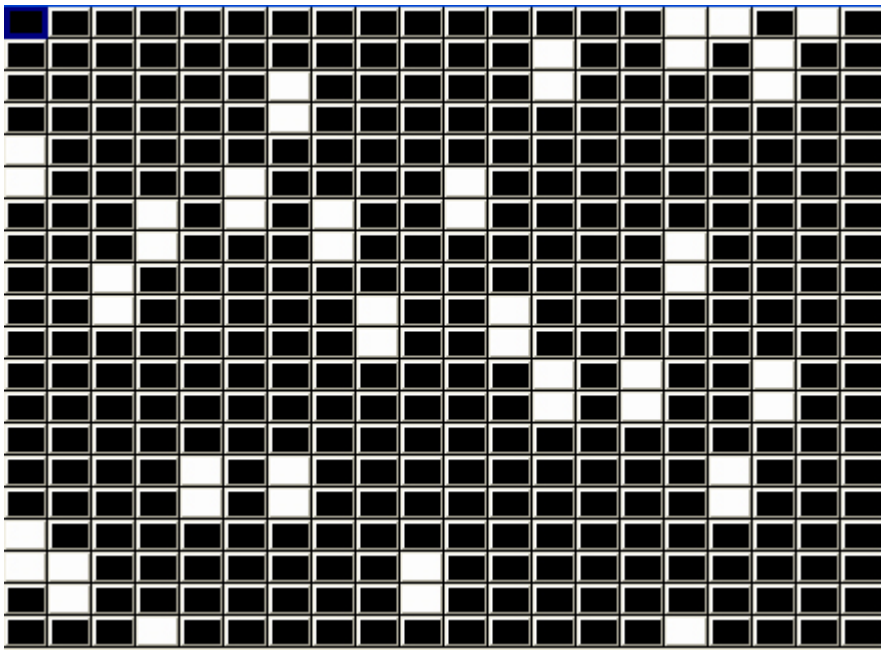


MagicQ includes a powerful Pixel Mapper designed for use with arrays of LED heads. You can design a grid structure based on the layout of the heads on the stage and then play back movies, bitmaps and text messages on that grid. The grid can have spaces in it allowing the heads to be spread over the grid as they appear on the stage.



MagicQ enables LED heads to be used in their "high resolution" mode enabling individual control of each LED pixel rather than the restricted modes where Lighting Designers are reliant on the same old in built effects that everyone has seen many times.





Patching LED on MagicQ

We recommend that you patch LED heads in their highest resolution mode (maximum number of controllable RGB elements) and chose a mode without extra inbuilt FX channels if possible.

The generic led3chan and generic led4chan can be used with most LED heads. If MagicQ does not have the required personality in its library then you can easily build your own personality using the in-built Head Editor.

For LED heads without dimmers we recommend you patch the RGB channels as HTP. For LED heads with an inbuilt dimmer channel the RGB channels should be LTP.

After patching your LED heads you should set up the head numbers for each head in the Patch Window. By default MagicQ numbers heads in the order they are patched starting at 1. Simply edit the head number field in the Patch Window to change the head numbers. Use

SHIFT and the cursors keys to set multiple head numbers.

Using the Grid view in the Outputs Window

To make the most of your LED head you can create a grid containing the LED head and then each head becomes a "pixel" in the grid. The MagicQ Pixel Mapper can then be used to play back movies, bitmaps, text and FX on the grid.

In the example above, we patched a 20 by 20 matrix of RGB pixels (total 400 pixels) on Universes 4.5 and 6.

In the Outputs Window select View Plan.

The View Grid soft button is used to show and edit the grid.

The data shown in each grid cell can be changed by pressing View Type. Choose between Head Names, Head Nos, Head Nos + Int, Cols and Cues. When Cues is selected the grid shows data from the currently selected playback rather than from the Output.

Set up the grid size, by pressing the GRID SIZE soft button. Enter the horizontal size followed by the vertical size separated by a forward slash – e.g. 20/20.

Use Encoder E to zoom the grid.

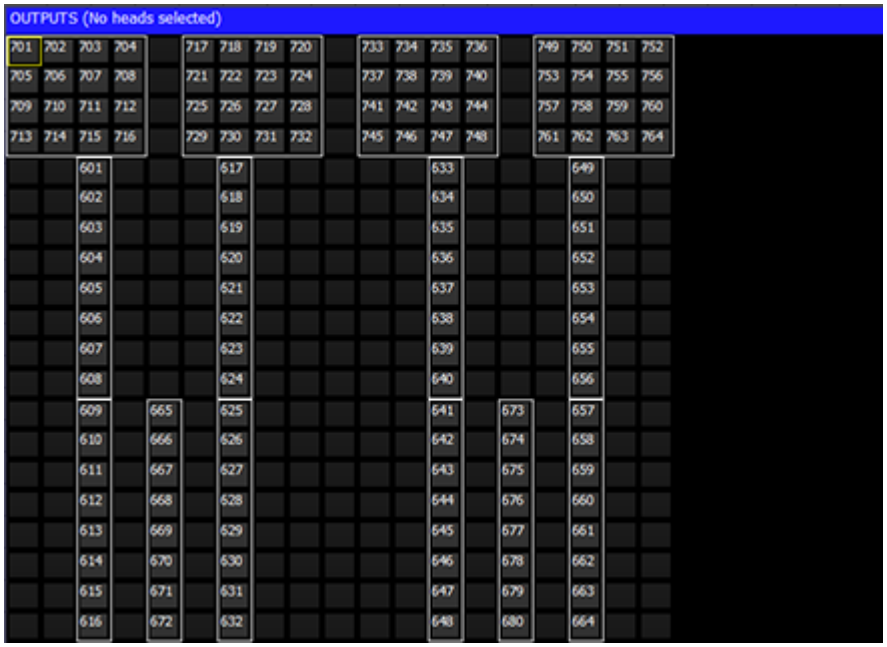
Inserting Heads into the Grid Using Head Numbers

You can enter the head numbers in the grid according to the layout of the LED heads within the matrix / stage. Put the cursor on the desired item and enter a head number on the keypad. To insert multiple head numbers in one go use SHIFT or CTRL and the cursor keys to set multiple head numbers in one go before entering the starting head number.

To set multiple items in a particular orientation then put the cursor on the starting item then move in the direction you wish them to number - for example to number from bottom right to top left going horizontally first, then put the cursor on the bottom right, press SHIFT and move left to the left corner and then up to the top left corner.



Note that it is not necessary to allocate a head number to every position in the grid – so if your LED heads are placed at weird angles you can make a grid with the LED placed as you would see it. Multiple grids can contain the same head numbers – so it is possible to have one grid with the LED tightly packed and anther representing how they are really spaced out.



Inserting Using INSERT HEADS

To insert the currently selected heads into the grid use the INSERT HEADS soft button. If no heads are currently selected then all patched heads will be inserted.

The Insert Heads soft button has 5 options - Horiz, Vert, 3D, Dup Ele and Col Web.

Horiz, Vert insert into the Grid in the horizontal or vertical direction. Multi element heads will be inserted into separate grid cells according to the width and height specifiers in the personality. Duplicate element heads will be inserted as a single cell.

3D is used for inserting for 3D pixel mapping in the 3rd dimension - only multi element heads can be inserted in 3D.

Dup Ele is to insert all the elements of a Duplicated Element head into the grid as separate cells.

Col Web is for inserted Col Web only.

Inserting Using the Spare Heads Below the Grid

The Output, View Grid view shows spare heads that have not yet been inserted in the grid in a space below the grid.

For group based grids the spare heads will include any heads from the Group Grid that have not been inserted in the grid.

For normal grids it shows any currently selected heads that have not been inserted into the grid. This enables easy inserting of heads into a grid - first select the group in the Group

Window and then they will appear below the grid in the Grid View.

For grids that are set to Grid Type = Groups, then the space below the grid will show any programmed groups from the Group Window that have not been inserted into the grid.

Move heads into the grid by moving in the normal way (press MOVE, source, destination). Alternatively press the DRAG MOVE soft button to drag and drop.

Optimise Grid

To remove unused rows and columns in the grid press SHIFT + OPTIMISE GRID.

To only crop the outside of a grid press SHIFT + CROP GRID.

Using the Grid

Once the grid is configured you can then see the Output by pressing the View Colours soft button and the View Grid soft button. For instance, below you can see the Output when all 400 heads were selected from the Group window (using the All LED3chan group) and then a RGB FX was played back on them.

You can test the head selected in the grid using the test mode to the Grid selected via soft button C. In test mode the head under the cursor is tested (located). This enables the grid layout to be easily checked.

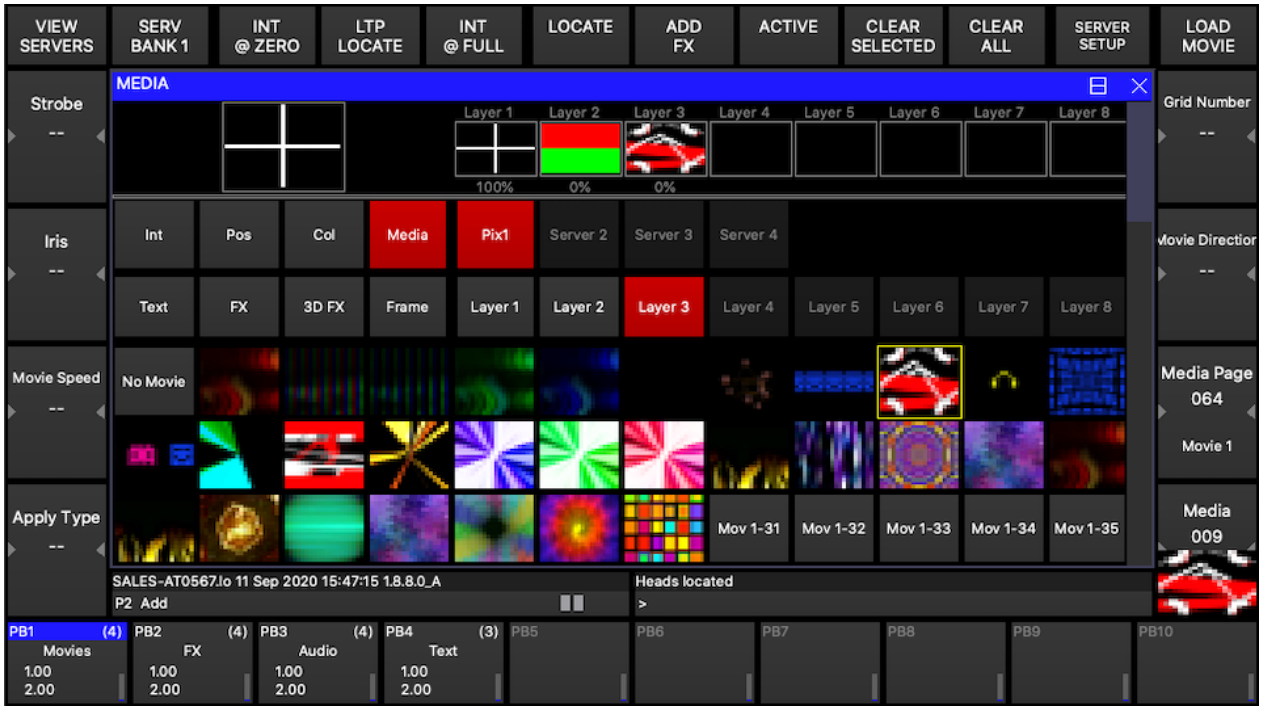
Pixel Mapper

MagicQ software contains an in-built Pixel Mapper that appears as a media server just like an external media server. The Pixel Mapper can be used to play back images, movies, text and FX on a grid of LED, dimmers or moving lights.

If the heads in the grid have colour mixing then the pixel mapping will operate on the RGB (or CMY). If they have no colour mix then the pixel mapping will operate on the Colour Wheel or if there is no colour wheel, then on the intensity. The pixel mapping can be set to always operate on the intensity regardless of head type.

When the Pixel Mapper is patched for a grid then MagicQ sets up the media settings automatically so that the Pixel Mapper appears in the Media Window.

Once a grid has been designed in the Plan View of the Outputs Window, then pressing the PATCH PIXMAP soft button automatically patches the internal pixel mapper (personality generic bitmapfx2).



MagicQ asks the user to specify the number of layers required and will patch that number of layers (generic bitmapfx2 heads). The layers will be named according to the grid that is selected in the Outputs Window. MagicQ uses head numbers above the other patched heads.

When operating on a layer within the pixel mapper it will default to operating on the grid that was selected when it was patched. MagicQ overrides the default value for Grid Number specified in the Head Editor for generic bitmapfx2.

MagicQ automatically adds the settings for the Pixel Mapper to the Media View of the Setup Window. This enables the Pixel Mapper to be accessed immediately from the Media Window without further set up.

MagicQ supports a total of 20 pixel map layers per show. This could be a single pixel map of 20 layers, or any mix of multiple pixel maps. For example 5 separate pixel maps all with 4 layers each.

Using Bitmaps, Movies, Text and FX on Grids

The bitmaps and text are controlled using bitmap layers – each layer is controlled like a normal moving light – i.e. it is patched as a virtual personality - generic bitmapfx2.hed. The personality has channels to select the bitmap or text, channels for X, Y position and size, rotate and master levels for red, green and blue. Multiple layers can be used to mix between the layers using add, subtract, min, max or invert colour mix modes.

Each bitmap layer uses 40 channels from the output channels. When you patch the Pixel Mapper from the Grid View, MagicQ chooses free channels for the layers. These channels are then reserved for the pixel mapper layers and can not be used for controlling real lights. It is best to patch generic bitmap layers to unused universes or to set them as unpatched.

The Bitmapfx2 is patched to the encoders as follows

- Intensity Page Intensity

- Position Page: Position, size, rotation of the Bitmap/Text/FX.
- Colour Page: Colour, mixing between layers of the Bitmap/Text/FX
- Media Page (Beam 1): Control of Movies, Bitmaps - internal, user and gobo icon library, Live Feeds
- Text Page (Beam 2): Control of Text – 2 separate text engines, real time editing of text string
- FX Page (Beam 3): Control of FX - lines, spots, snakes, rainbows, audio triggers, circles, squares

Media Priority

FX, Text and Media interact according to the following priorities, with FX having the highest priority and Media the lowest.

FX Page If FX Type is greater than 0 then FX has highest Priority

Text Page If Text 1 is greater than 0 or Text 2 is greater than 0 then Text has priority over media

Media Page Media has the lowest priority

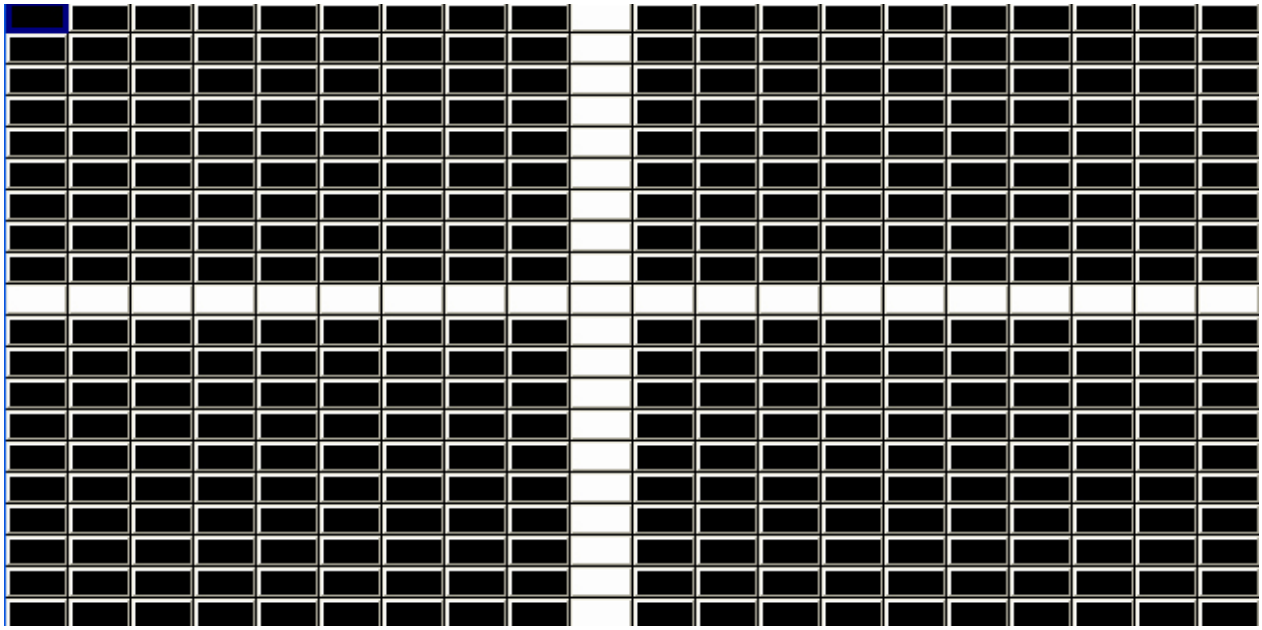
In the Media Window the Media Page (encoder Y) is used to select the media that is played on the grid. The Media pages are as follows

- Inbuilt: Inbuilt patterns and colours
- Pics 1-4: User bitmaps (.bmp, .jpg, .png)
- Movies 1-4: User movies (cmv – use Tools > CMV convertor from the menu bar)
- Gifs 1-4: User gif animations
- Timers: Date, Time, Up counters, Down counters, end of year counters
- Live Feed: Live capture from a PC screen
- Gobos: Access to all the gobo, colours and image libraries

Inbuilt Bitmaps

The Pixel Mapper contains a library of standard bitmap patterns on Bitmap Page 0. These patterns are automatically sized to the size of your grid.

Select the Pixel Mapper, Layer 1 and press LOCATE to set the layer to its defaults.



After a Locate the Media parameters will default to the white cross. Use the touch screen or encoders to select different Bitmaps.

User Picture Support

MagicQ supports custom image files in .bmp, .jpg or .png format. These can be loaded using the LOAD PICTURE soft button in the Media window.

Alternatively, images can be manually copied into the Pics 1-4 pages by copying the images into the bitmaps folder within the show folder. The images should be named with the format bitmap001-001.bmp. The first 3 digits are the bitmap page and the second 3 digits the bitmap within the page. bitmap003-025.png would appear on page 3, in the 25th slot.

Bitmap page 0 is reserved for standard, internally generated bitmap patterns.

It is best to make user bitmaps the same size as the output grid. By default User bitmaps and icons from the internal library are applied to the grid using their normal size. It is possible to make MagicQ scale the user bitmaps and internal icons to the size of the grid - use the Apply Type "Scale to Grid" to resize a bitmap to the full grid size.

Gobo / Colour Libraries

Media pages 128 to 255 select the icons from the gobo / colour library. The icons are all based on 32 by 32 pixels – but they can be sized in the Position Window to fill the required grid size.

Movie Support

MagicQ supports playback of movies as well as bitmaps. MagicQ supports up to 1024 different movie files.

Movies are accessed through the Media Page – there are 4 ranges on the "Media Page" encoder – Movie 1, Movie 2, Movie 3, Movie 4. These ranges are after the Inbuilt Page and Pics Pages.

User pictures and movies can be loaded into the internal pixel mapper directly from the Media Window using the LOAD PIC / LOAD MOVIE soft button available when the Pixel Mapper server is selected.

Movies are stored in the movies folder (show\movies) in a similar way that bitmaps are stored in the bitmaps folders. Movie files are stored in a special ChamSys movie format which compresses the data to the required grid resolution. The files are named movie001-001.cmv, movie001-002.cmv, etc...

ChamSys movie files can be created in MagicQ on PC/Mac using Tools, CMV Converter.

When converting movie files we recommend you choose the same movie resolution as your grid size on MagicQ. Click the auto install feature to automatically install the converted media file into the movies folder naming it with the next free movie ID.

The speed of movie playback can be controlled by the movie speed encoder.

When converting media, by default, the media file will play back at the MagicQ lighting rate of 33.3fps irrespective of source frame rate, for example, if your movie has a higher frame rate than 33.3 the playback of the converted file is slower than the original.

If you use the "Preserve media duration" option it will convert your media file to 33.3fps to match MagicQ's lighting engine and thus play back the movie at its native source frame rate.

Movie Mode

Whole movie	0	Plays movie from start to finish looping, restarts when Movie is changed
Frms	1	Plays clip from start to end point (in frames) looping, restarts when Movie is changed
Secs	2	Plays clip from start to end point (in secs) looping, restarts when Movie is changed
Whole, Once	8	Plays movie from start to finish looping, restarts when Movie is changed
Frms, Once	9	Plays clip from start to end point (in frames), restarts when Movie is changed
Secs, Once	10	Plays clip from start to end point (in secs), restarts when Movie is changed

Whole, Int Strt	16	Play from start Plays movie from start to finish looping, restarts when intensity off 0
Frms, Int Strt	17	Plays clip from start to end point (in frames) looping, restarts when intensity off 0
Secs, Int Strt	18	Plays clip from start to end point (in secs) looping, restarts when intensity off 0
Scan Frms	25	Scanning for start and end point (in frames)
Scan Secs	26	Scanning for start and end point (in secs)
Reset	255	Resets to start of Movie

The Start and End point reuses encoders A,B,E, and F in the Text Page (Text mode and Movies are never used together). For backward compatibility, Start and End point are not supported in Whole Movie Mode.

When scanning MagicQ will show the frame at the start and end point depending on which encoder was changed last. To choose a part of a movie the User can set Movie Mode to scan, set the start and end points and then revert to Clip mode to play the movie.

The current frame and time of the selected layer are now shown to the left of the master preview in the Media Window.

When using with shows with Pixelmap personalities already patched prior to v1.9.1.4 the Movie Mode ranges will not show unless the Head (generic_bitmap_fx3.hed) is reloaded using Edit Head, Reload Head.

Gif Animations

The Pixel Mapper has been enhanced to support playback of gif files. There are four folders under Media Page, Gif 1, Gif 2, Gif 3 and Gif4.

You can load gifs either:

a) by manually copying them to the 'show/movies/' folder and naming them gif001-001.gif and so on

b) using MagicQ File Manager to select a gif.

c) in Media Window, pressing the LOAD GIF soft button.

Playback of the gif occurs when the intensity of the media layer is greater than 0. When the Media Page or Media Id is changed, or when the intensity is dropped to 0 then the gif will reset to the beginning.

The movie speed encoder affects the speed including. It is possible to pause playback of the gif by taking the movie speed to 0.

Live Feed Support

The MagicQ Pixel Mapper includes a "Live feed" option for capturing live feed video signals from Media Servers and external live feed sources. MagicQ supports live feeds from all 50 connected Media Servers or CITP and NDI® feed sources.

To use the output of a Media Server in the Pixel Mapper set the Media Folder to Live Feed and choose the Media File Server 1 to Server 50 to choose a feed from the appropriate media server as configured in Setup, View System, Media.

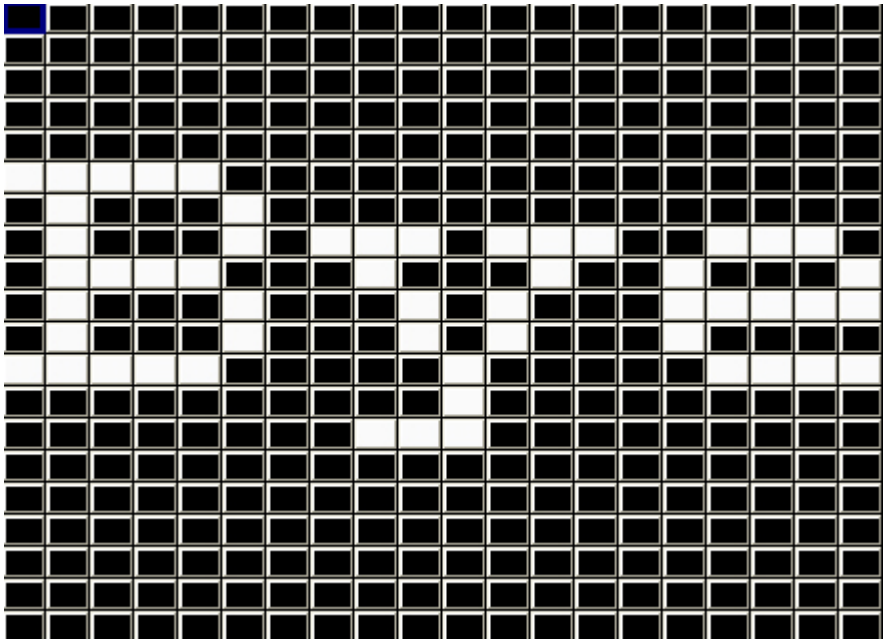
Feeds from external media servers use the live preview capabilities. Live feed is available from external Media Servers that support live preview over CITP MSEX.

Using Text Strings

Two text strings can be played back on each layer. The text strings can be positioned at the top, middle or bottom of the grid and can be made to scroll in either horizontal or vertical directions. Text strings can be edited live for real time message applications.

Control text strings from the Text Page (Beam Page 2). Each of the two text strings has a Text Page, a Text, a Text speed and a Text mode.

Using the Text Page and Text encoders select a string that has not been programmed – e.g. Text Page 1, Text 0. Type in new text on the keyboard, press SET and press the soft button associated with the Text attribute. The Input Display will report "text stored".



The Text mode determines how the text is displayed; horizontally, vertically, top, bottom or middle. The Text speed determines the speed that the text scrolls across the screen.

Note that Text mode values less than 128 cause the text to be scrolled across the screen with

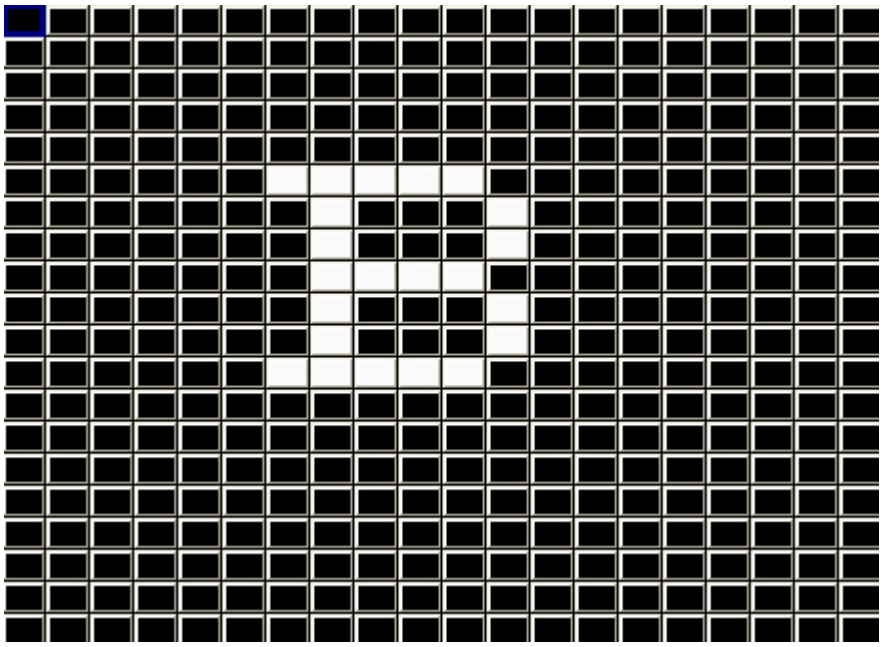
no gap between the start and end of the text. Text mode values greater than 128 cause the text to be scrolled with a gap between the end of the text and the starting of the text again. Two different fonts can be selected using the text mode values.

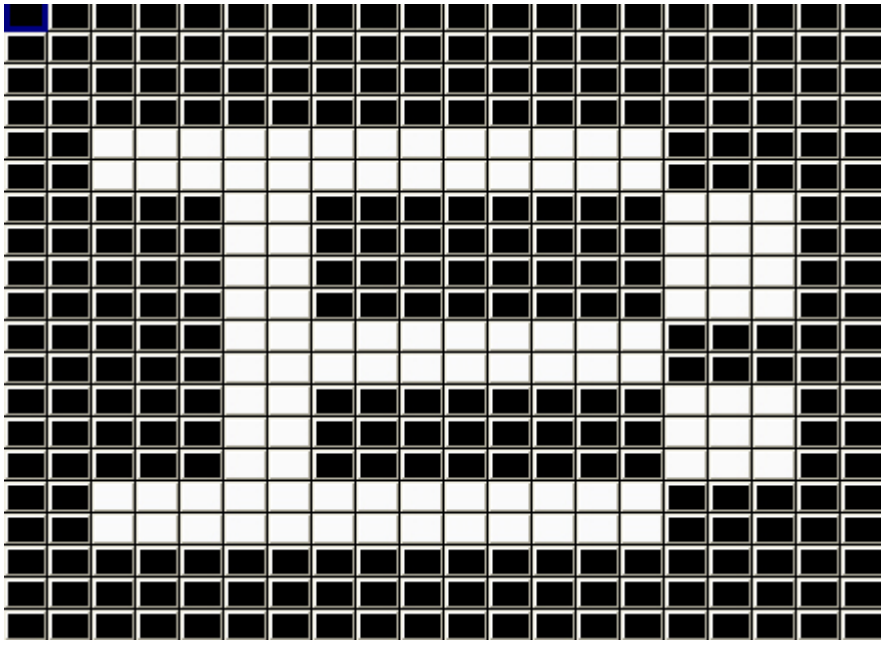
The two sets of text controls enable one text string to be scrolled in one direction and another text string to be scrolled in the opposite direction.

Text Display Modes

It is also possible to use the single modes to display a single character, a single word or a single phrase from the text string at a time on the screen.

By using the position and size parameters in the Position Window, the character can be placed anywhere in the grid or made to fill the entire grid.





When the mode is set to single words then MagicQ displays each word in turn. Each word must be separated by a single space in the text string.

When the mode is set to phrase, then MagicQ displays each phrase in turn. Each phrase must be separated by a single underscore (_) character in the text string. Space characters are displayed normally.

Manipulating Bitmaps and Text

Use the Position attributes of the bitmap layer to make changes to the position of the bitmap / text – set the X or Y position, the X or Y size and the rotation.

You can play back standard FX on the bitmap layer attributes just like you would on a moving head. For example, to scroll a bitmap form left to right, first set the X position to centre (X pos is 128) and then add a Ramp Up to the X pos.

Use the Colour attributes to determine the layers of red, green and blue in the bitmap / text. For LED matrix you may find it is better to use only one colour at a time – for instance, set Red to 255 and Blue and Green to 0.

An iris and a strobe function are also included under the Beam attributes.

It is also possible to use playbacks set as LTP faders in order to control individual parameters of the bitmap from faders.

Pixel Map FX

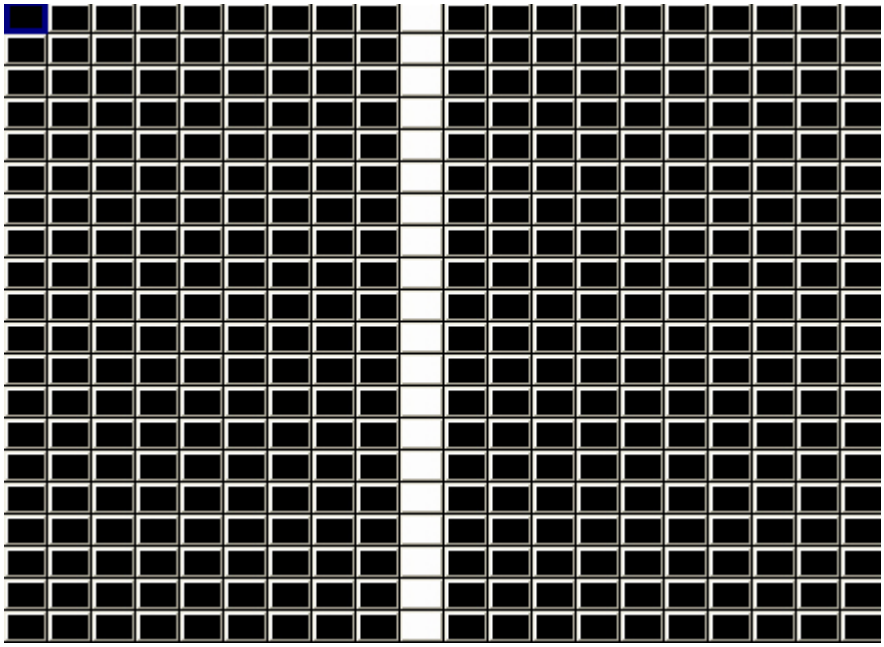
The FX channels enable FX to be applied to the grid. The FX type selects the FX that is applied. Some of the FX are stand-alone, e.g. lines and rainbows. Others like move and audio FX are applied on top of the selected bitmap or text.

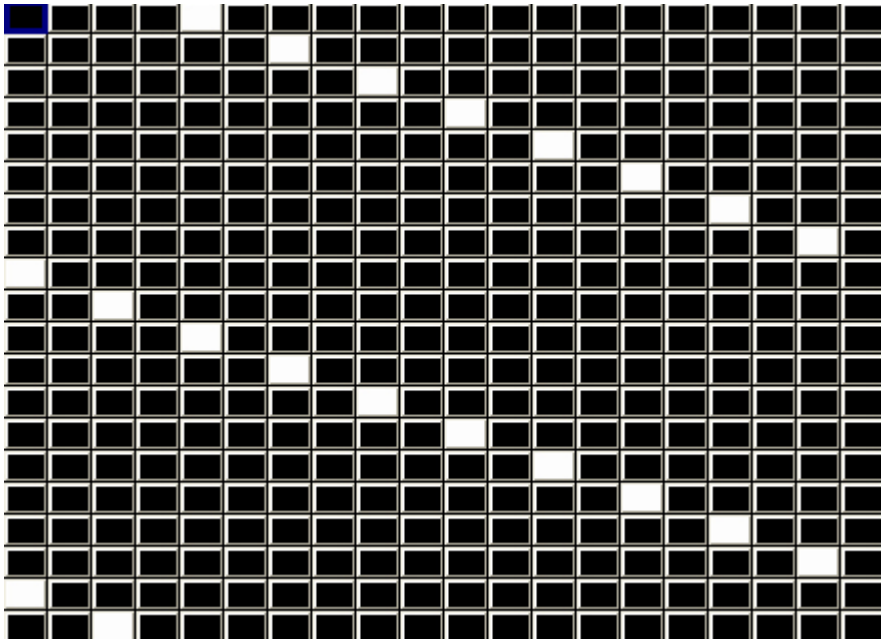
The FX parameters depend upon the FX type selected – but generally FX parameter 1 is the speed, FX parameter 2 is the offset between row or column items in the grid, and FX parameter 3 selects the mode – forward, reverse, bounce or twin.

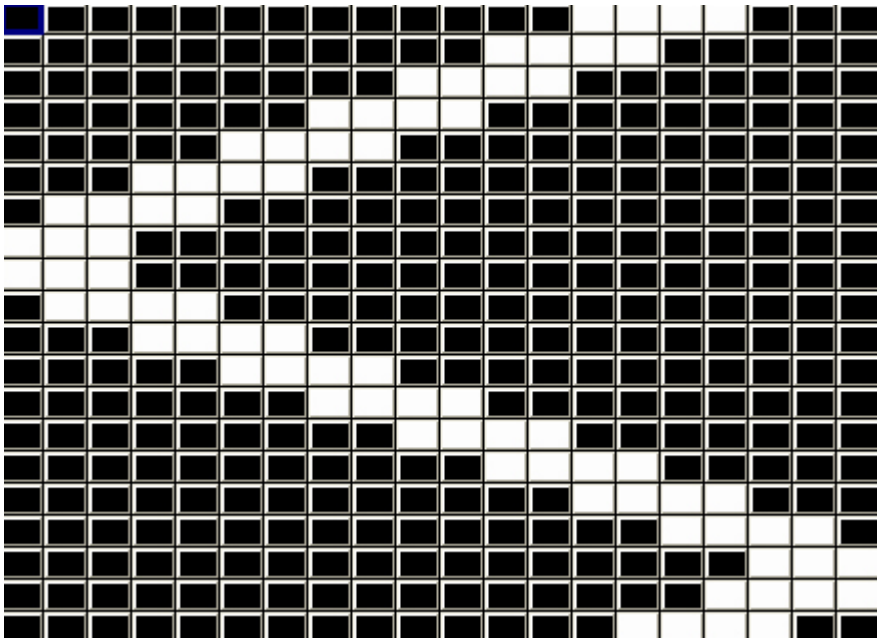
The currently supported FX are:

Vert lines, Horiz lines – enables lines to be moved across the grid. Modify the mode to change thickness of the lines. Change offset to make patterns rather than lines.

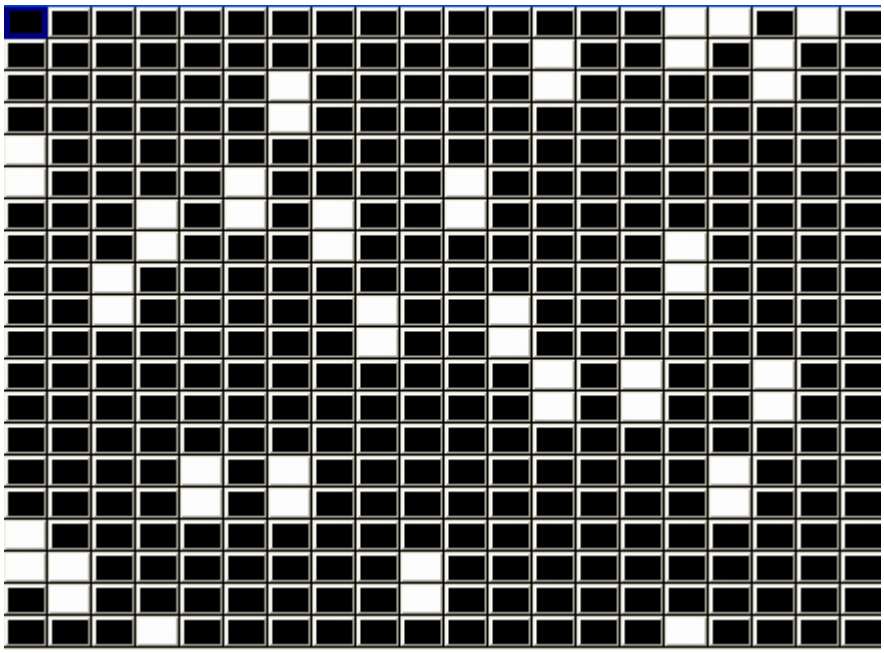
The first image below shows vertical lines with parameter 2 and parameter 3 set to 0. Adjusting parameter 2 gives an offset on the line as shown in the second image. Adjusting parameter 3 changes the width of the line and changes the mode to bounce instead of normal in the third image.



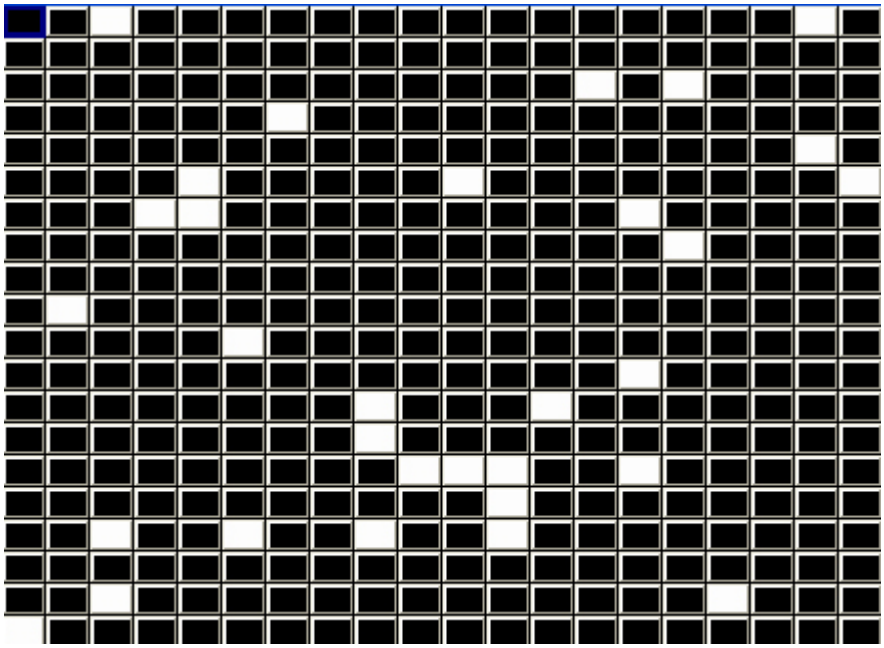




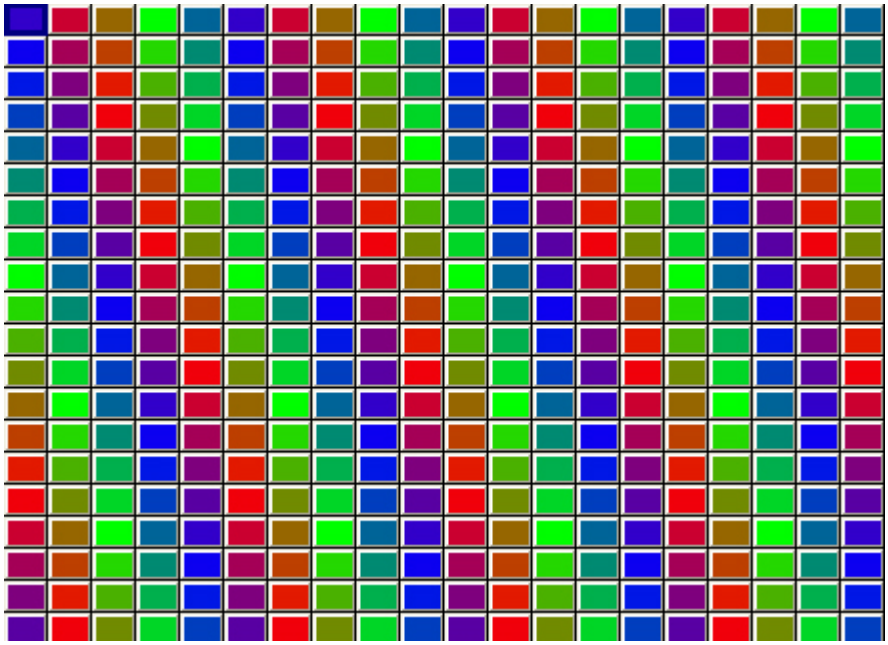
Vert random, Horiz random – enable random movement of elements across the grid. Modify the mode to change thickness of the elements and offset to change the frequency. With this FX it is possible to generate snow and rain type FX.



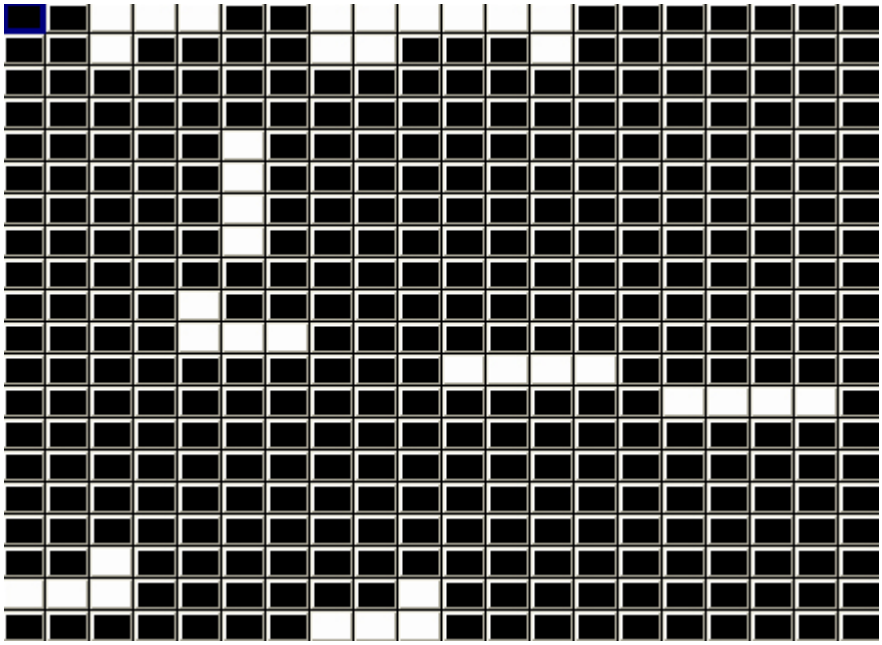
Spot random – enable random spots on the grid. Modify mode to determine whether the defaults is white spots on black background or black spots on white background.

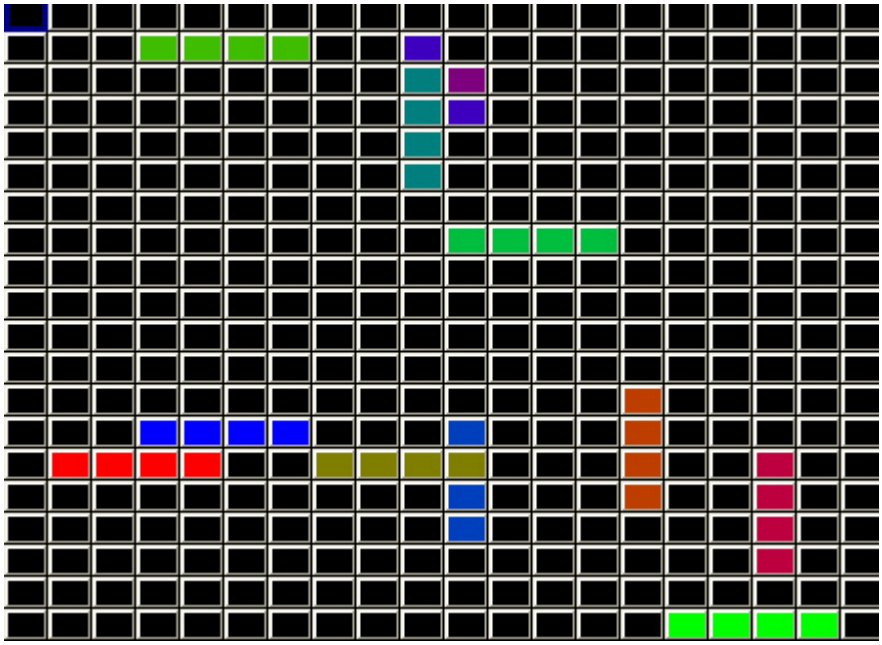


Vert Rainbow, Horiz Rainbow – enable rainbow patterns across the grid. Modify offset to multiply the rainbow across the grid.

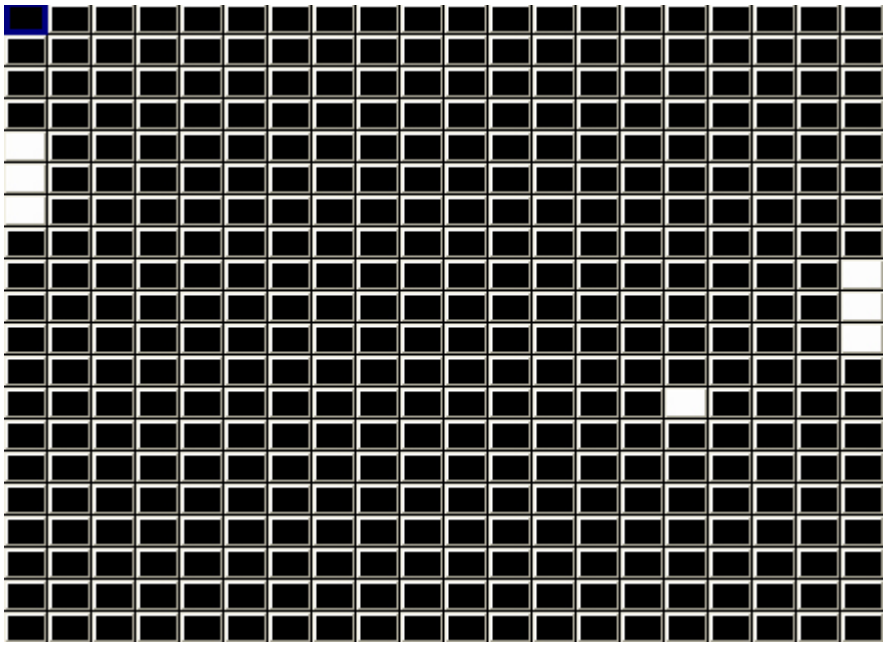


Snakes – enable snaking patterns on the grid. Modify the mode to determine the number of snakes, the randomness of the movement and whether they are white or coloured.





Bat'n'Ball – enables simple bat and ball game on the grid. The bats are controlled by FX Parameters 2 and 3. The game starts when one of the bats is moved. Other bitmap layers can be combined with this to make a background for the playing field.



Vert Move, Horiz Move, Move – moves the selected bitmap or text around the grid. The bitmap will wrap around the edges, thus allowing a texture to be moved across the entire surface of the grid.

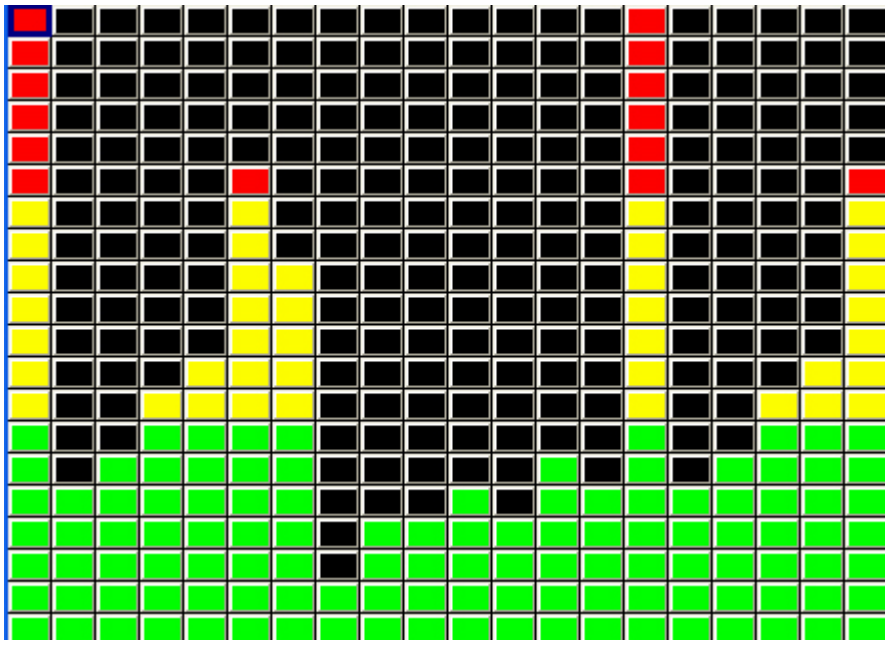
Ramp Horiz and Ramp Vert – these perform a ramp across the entire grid in the horizontal or vertical directions. FX P1 parameter controls the speed, FX P2 controls the crossfade and FX P3 controls the width.

Wipe Horiz and Wipe Vert – these perform a wipe of a colour across the entire grid in the horizontal or vertical directions. The colour wiped across the grid is determined by the red, green, blue colour attributes of the Pixel Map layer. It is possible to wipe multiple colours across a grid simultaneously by choosing different colours in sequence. When these FX are in

use the red, green, blue attributes do not affect the overall colour of the layer as they would normally.

Pixel Map Audio FX

The Pixel Mapper supports Audio FX – it uncovers part of the selected bitmap, text or movie dependent on the level of the audio input.



Parameter 2 select the channels to respond to. When set to 0, it uses all 14 audio input channels. From 1 to 14 it selects one channel to respond to. Value 15 selects the left channels, value 16 the right channels.

The mode determines from which grid edge the audio takes effect. The image below shows an audio effect on the internal green, yellow, red bitmap.

The possible modes are:

0	Graph top	Graphic equalizer down	FX P2 specifies channels
1	Level top	Columns left to right	FX P2 specifies channels
2	Level bottom	Columns right to left	FX P2 specifies channels
3	Level left	Rows top to bottom	FX P2 specifies channels
4	Level right	Rows bottom to top	FX P2 specifies channels
5	BMT1	Split into 3 - Mid,Base,Treble	

6	BMT2	Split into 3 - Base,Mid,Treble	
7	BMT3	Split into 3 - Base,Treble,Mid	
8	BMT4	Split into 3 - Treble,Base,Mid	
9	BMT5	Split into 3 - Treble,Mid,Base	
10	BMT6	Split into 3 - Mid,Treble,Base	
64	Graph bottom	Graphic equalizer up	FX P2 specifies channels
128	Graph bottom/top	Graphic equalizer up/down	FX P2 specifies channels
192	Graph top/bottom	Graphic equalizer down/up	FX P2 specifies channels

In Setup, View Settings, Ports, Audio Input select the audio interface. The Audio Max Level defaults to 0 which indicates a full audio range signal is expected. To boost the audio signal, set the Audio Max Level to the maximum value expected between 1 and 255. If there is a lot of noise then set the Audio Min Level to eliminate the noise.

Fizzle and Sparkle

These FX are designed to work together with other Pixel Map FX - they modify the other Pixel Map FX with random fade outs (Fizzles) and coloured random fade ins (Sparkles). They enable a 2nd level of FX at the ends (front and back) of the existing FX.

Fizzle and Sparkle work together with Vert & Horiz Lines, Vert & Horiz Random, Snakes, Vert & Horiz Ramp, Vert & Horiz Build, Vert & Horiz Offset, Rot Line, Half Line, Square, Circle.

FX P2 controls the Xfade whilst FX P3 controls the Dir and Width.

For Sparkle the colour may be controlled using the Red , Green, Blue parameters in the Layer.

For Flicker if there is no other Layer controlling the Grid then the Fizzle will apply to any bitmap or media playing on that Layer.

For Sparkle, if there is no other PixelMap FX running then it performs a simple stand alone Sparkle on all Pixels in the Grid.

For Fizzle FX it overrides the Mix Type, forcing Attenuate.

Mixing between Pixel Mapping layers

The interaction of the different pixel mapping layers can be controlled using the Col Mix attribute in the colour page. The types are

- Add
- Subtract
- Max
- Min
- Exclusive Or (EOR)
- Priority (higher layer numbers have priority)
- Priority > 0 (priority if level greater than 0)
- Masking
- Mask invert
- Blue key
- Green key
- Multiply
- No base
- Max with base

When a layer is set to "green key" then any green pixels in that layer pass through the media from the lower layers. Non-green pixels play back the media on that layer. The mask must be pure green.

When a layer is set to "blue key" then any blue pixels in that layer pass through the media from the lower layers. Non-blue pixels play back the media on that layer. The mask must be pure blue.

When any active Pixel Map layer is active (dimmer above 0%) then setting "no base" on that layer will make the Pixel Map effect ignore any base level for the controlled channels instead of adding to the base level.

When any active Pixel Map layer is active (dimmer above 0%) then setting "max with base" on that layer will make MagicQ perform a maximum of the Pixel Map effect and any base level for the controlled channels instead of adding to the base level.

Colour Mixing

The Colour Page of attributes allows the levels of the red, green and blue attributes to be set independently. The default values are 128, 128, 128. Each colour can be boosted or cut.

The Colour Mode attribute allows the overall colour to be adjusted including inverts, mapping of colours, black and white and other colour effects.

"Abs Mult" multiplies the average of the Image/Movie/FX pixel value by the absolute Colour specified by the Red, Green, Blue parameters in the Pixel Mapper. "Abs Active" outputs the absolute Colour specified by the Red, Green, Blue parameters in the Pixel Mapper if the Pixel Value in the Image/Movie/FX is active (above 0). ">R>G>B" and associated conditions, output the Image/Movie/FX pixel value if it satisfies the specified condition of the Red, Green, Blue

parameters

Apply Type

Added new apply type to the Pixel Mapper of "use int" and "fit use int". When these apply types are used the Pixel Mapper applies to the intensity channel of the heads in the grid instead of to the RGB channels. If the heads in the grid have no intensity channel then no pixel mapping is applied to the head. This is useful for example to use the pixelmapper on the intensity channel of moving lights or on strobes.

3D Pixel Mapping

Configuration

MagicQ supports 3D Pixel Mapping, enabling easy control of LED ceilings, chandeliers and other 3D LED objects. MagicQ supports 3D grids and multiple heads can be inserted into the 3D grid in one go making it easy to create the grid mapping.

In the Output Window, View Plan a grid can be made into a 3D grid by pressing SHIFT and SET GRID DEPTH. This makes the current grid into the starting grid and allocates the following grids to make up the depth. The following grids must be empty (0/0 size) before they can be allocated to a 3D grid. For example, to make a 10x10x20 grid - go to grid 1, set the grid size to 10x10. Then set the grid depth to 20. Grid 1 then becomes a 3D grid using grids 1 to 20. The Grid is shown on Encoder A as grid 1-1 (20) to 1-20 (20). MagicQ no longer shows grids 2 to 20.

Heads can be inserted into the grid in 3D direction as well as the normal way - horizontally or vertically. Pressing INSERT HEADS gives a list of options. When inserting in 3D direction the starting position in 3D is determined by the Grid number. For example if you have Grid 1 as a 10x10x20 grid then inserting a 5 element multi head into Grid 1-1 using 3D Direction will insert it into grids 1-1 to 1-5. If you do the same operation into Grid 1-10 then it will insert into grids 1-10 to 1-15.

The MagicQ Pixel Mapper personality (Generic_Bitmap_With FX 2.hed) has been extended to add extra channels for controlling 3D FX (Generic_Bitmap_With FX 3.hed). In the Outputs Window, View Plan pressing PATCH PIXMAP will now patch the 3D personality (FX3).

Effects

3D Pixel mapping effects are selected using the "3D FX Type" parameter under the "3D FX" page in the Media window. For each 3D FX there are a number of parameters (X,A1,A2,A3,B1,B2,B3).

3d FX Types such as Slide, Particle and Particle Bounce generate a 3D effect on a single Pixel Map layer.

There are a number of 3D effects available in MagicQ which can be modulated using up to two other Pixel Map layers as modulation layers - these extra layers modulate the 3D FX according to the intensity of each pixel in the 2D layer. 2D FX can be played on the

modulation layers which then affect the 3D layer.

The order of these layers is processed from left to right in the Media Window, with the modulate layers being a lower numbered layer than the 3D effect layer. Typically for these modulate effects, layer 1 will be set to 3D FX Type = Mod Layer 1, layer 2 will be set to 3D FX Type = Mod Layer 2 and layer 3 will be used to select the specific 3D FX such as Height Map, Full Up, Fill Down.

Slide

The slide effect slides the 2D frame and slides it either back or forward in the Z axis over time.

3D FX A1 determines the speed and direction of the movement. 0 to 127 being slide up from fast to slow, and 128 to 255 being slide down from fast to slow

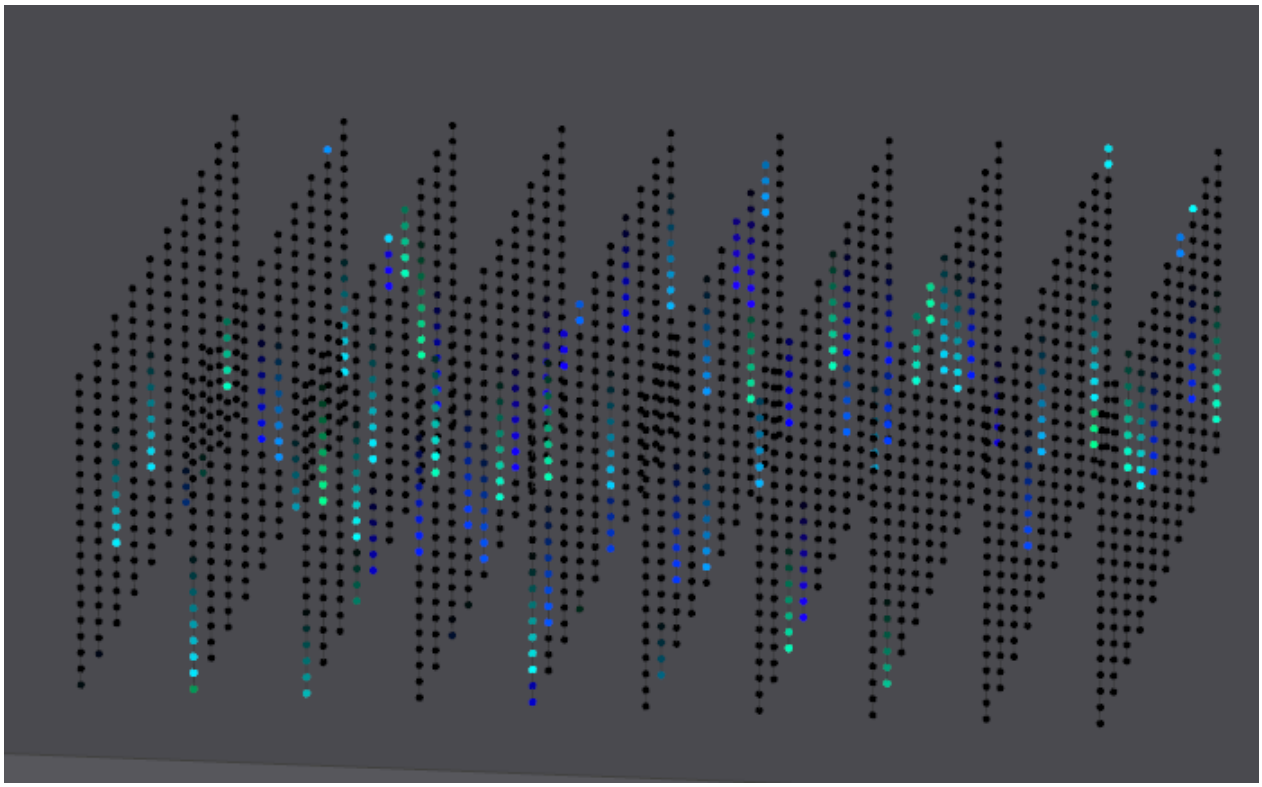
Particles

The particle FX applies a simple particle system to the 3D grid. The particles take their colour from the Hue/Sat/Brightness colour values in the Col section of the Media window.

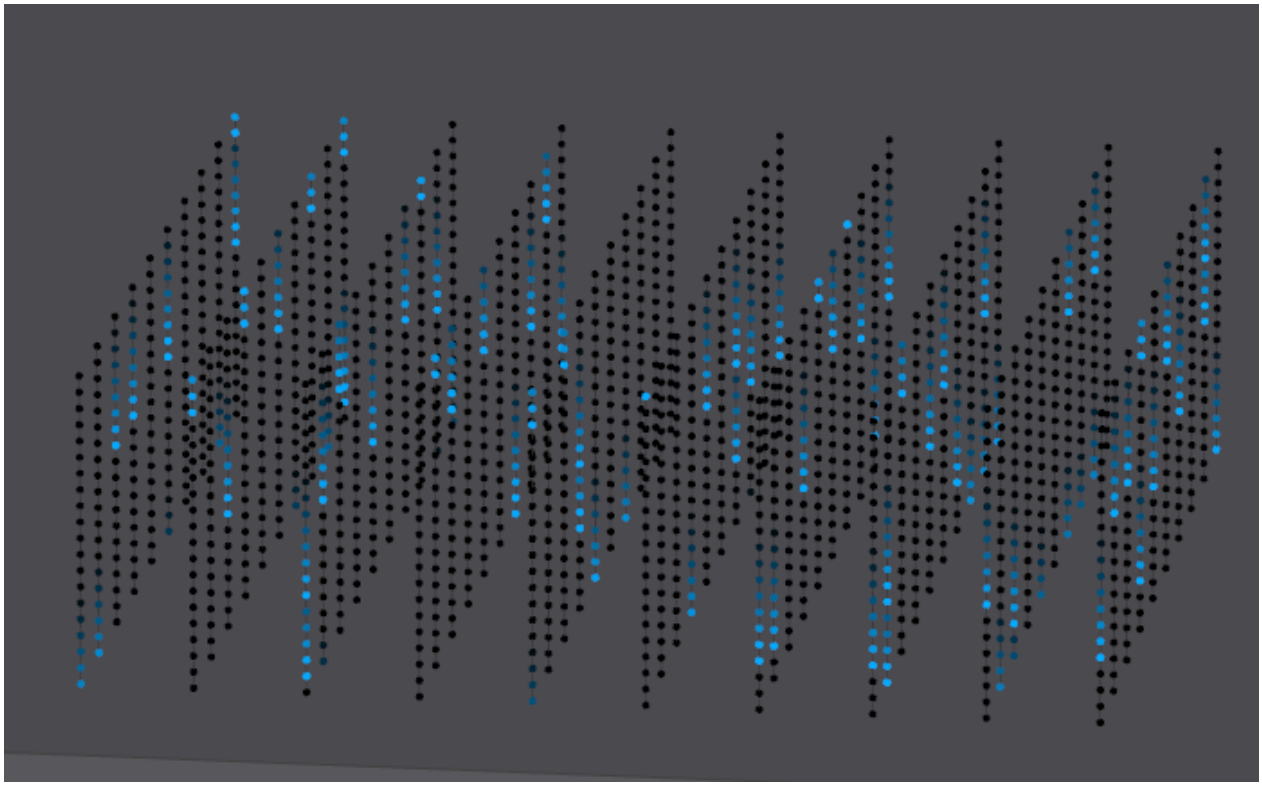
3D FX A1 determines the direction, axis and speed upon which the 3D particles travel.

3D FX X determines the spawn probability of a particle if one isn't currently alive in the column

3D FX B1 applies a random hue to the particles



3D FX A2 applies a "trail" to the particle as it moves.



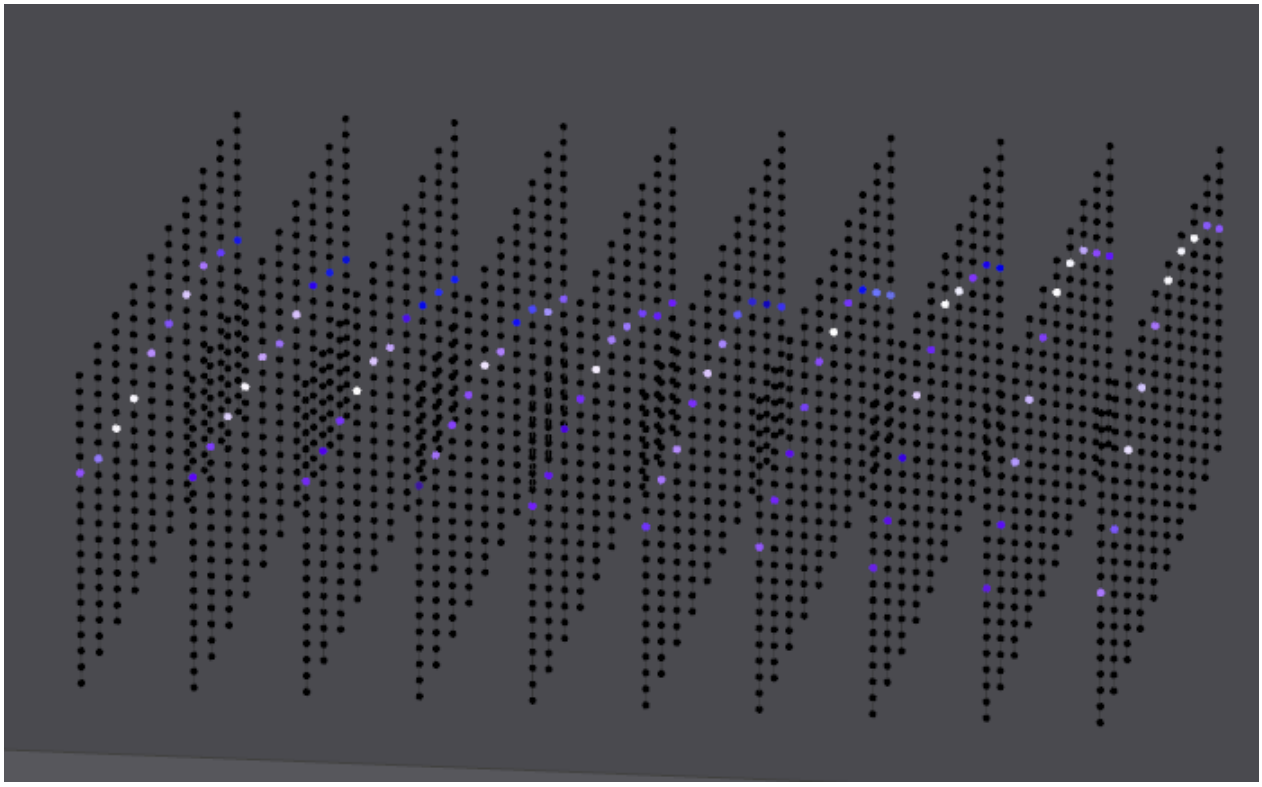
Col Offset

The col offset uses the colour of the pixels in the 2D frame to determine the offset in 3D.

3D FX A1 allows different colour types to be selected - e.g. using the offset based on red, green, blue or on combinations of colours such as red and blue.

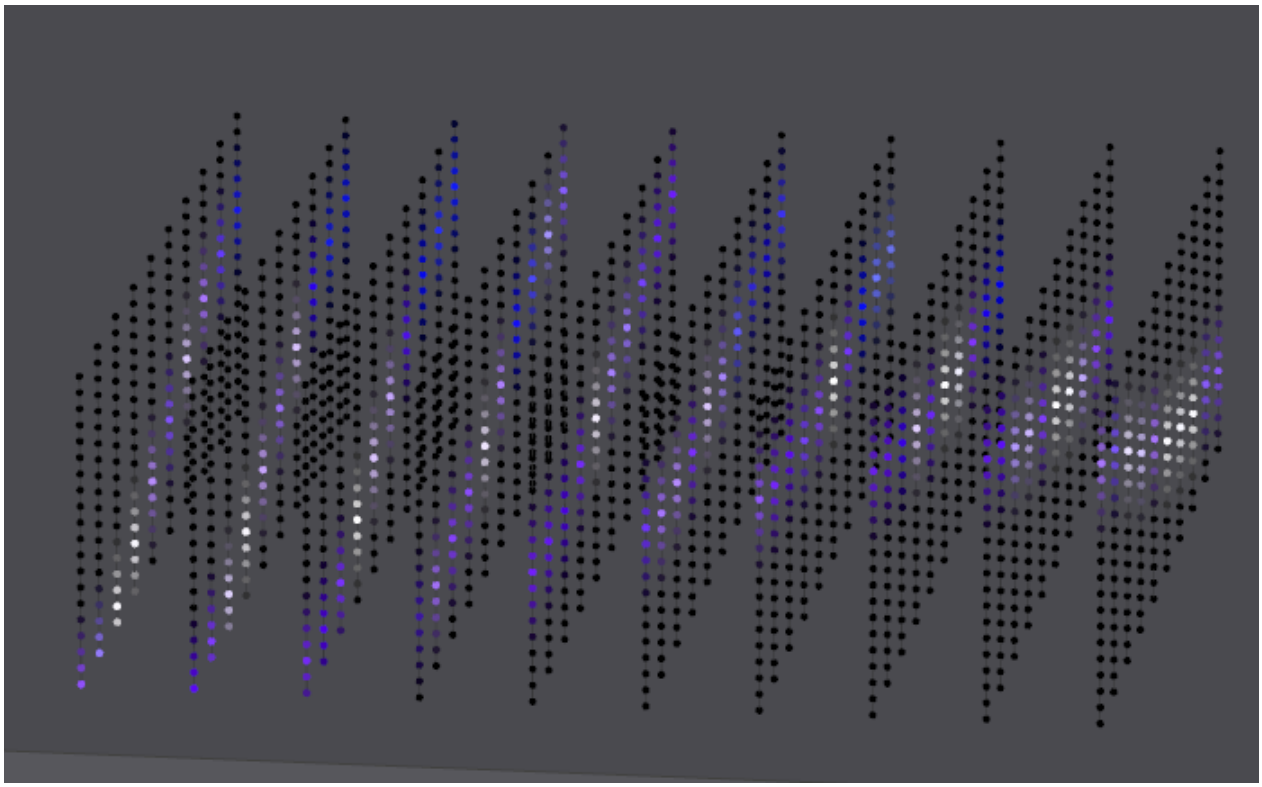
3D FX A2 allows the width to be modified - by default it is set to 50% of the grid depth.

Heightmap



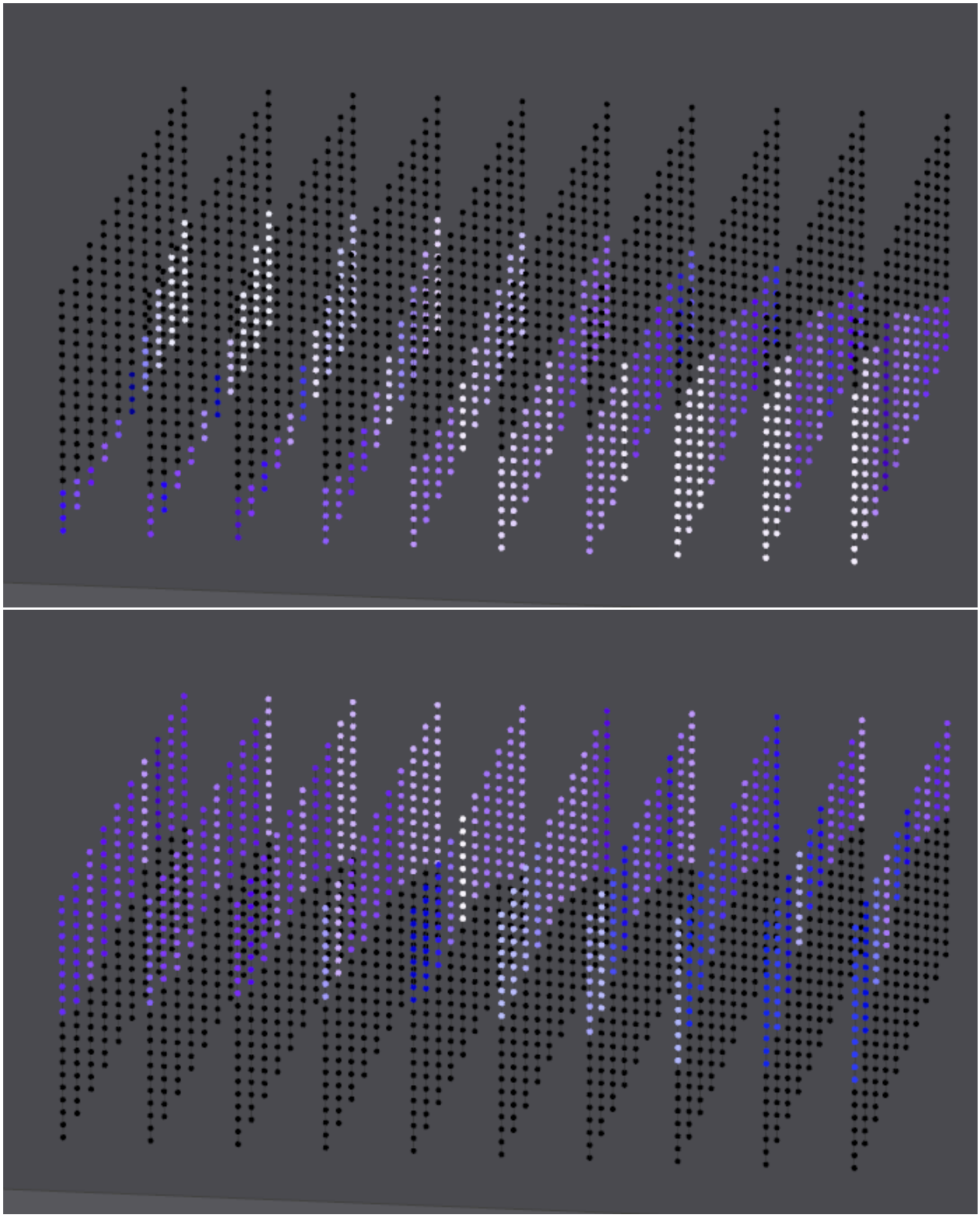
This effect takes the input media from it’s own layer, and uses Modulate Layer 1 to offset the vertical position of the layer in 3D space and the Modulate Layer 2 to change the amount of blur. The vertical position and blur are calculated per column, so wave effects can be applied by using the "Organic" 2D FX on the Modulate 1 layer.

3D FX A1 applies a constant height offset to the entire grid on top of the Modulate Layer 1 amount. 3D FX B1 applies a constant blur amount to the entire grid on top of the Modulate Layer 2 amount.



Full Up and Fill Down

The "Fill up" and "Fill down" modes fill the rest of the 3D space either above or below the media layer with the same pixel value.



Particle Bounce

The particle bounce effect can be likened to a grid of balls, where changes to the Modulate Layer 1 values are used as a "kick" to the ball upwards.

Using this method, you can use a flash button to flash on the Modulate Layer 1, and the particles will flick up, and then fall back down again under a simulated gravity. Alternatively using the Audio Input to MagicQ, use a bass beat to bump the particles in the grid.

Only when a particle is stationary will it receive a "kick". If the particle is still in mid air, it

will continue to fall under the effects of the simulated gravity.

A larger change in value to the input will result in a larger velocity.

Multi Element Heads

It is possible to play back patterns specifically on multi element heads such as Chromlech Jarags (5x5 dimmers) or other LED tile squares. If the Pos FX is set to "Mult head" then any media, text or FX on that layer will apply to the individual multi element heads rather than across the entire grid. The same "image" will be placed on all the multi head elements. For best results the grid should be made of same size heads with equal spacing.

Making Grids of Groups

Sometimes it is useful to make a grid of groups rather than a grid of individual heads – for example you may have a large amount of LED broken down into panels which you have then programmed as groups.

Grids of groups enable multiple heads to be allocated to one box in the grid. When Bitmaps, Text or internal FX are played back on the grid, then all heads in a group will take the colour/level associated with a particular box in the grid.

Use Soft Button B "Grid Type" to select "Groups" instead of "Heads".

Auto Groups

The auto groups function in the Outputs Window, Plan View has an option to generate groups for each of the multi element heads in the chosen grid.

These groups can then be use in a grid of groups to perform intensity and colour chases across all the multi heads. By using the first layer for the grid of heads, and the second layer for a grid of groups with colour mode set to multiply the FX on the individual multi heads and the FX on the complete heads can be mixed together.

Programming LED Using Standard FX

To program LED heads using standard FX rather then the bitmap layers, just select the heads and program them like moving lights.

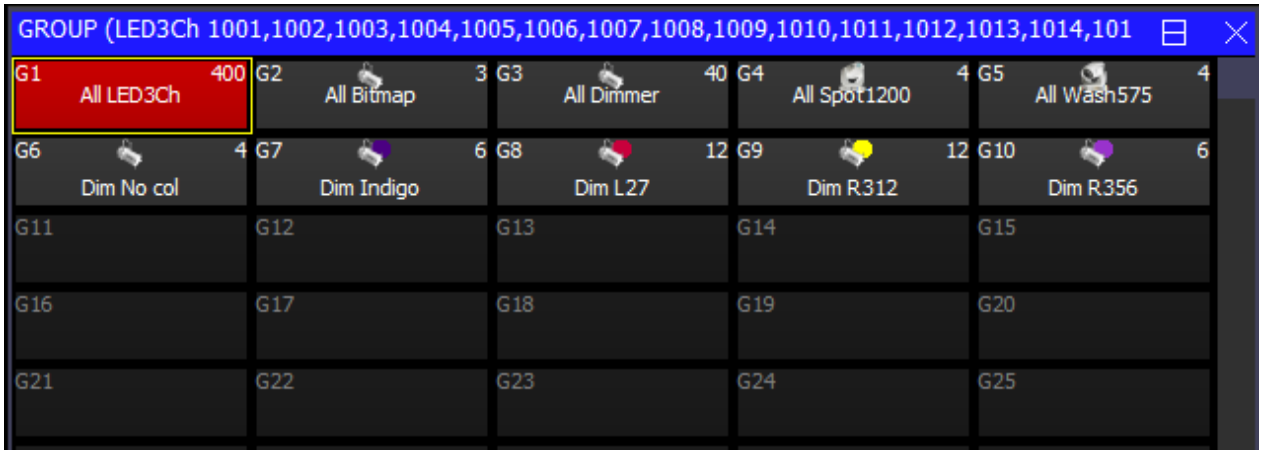
Select the group of LED heads, e.g. "All Pixeline", set the master intensities using the encoders or by pressing the DIM @ FULL soft button in the group window.

You can select standard in-built FX for LED heads in the Beam window.

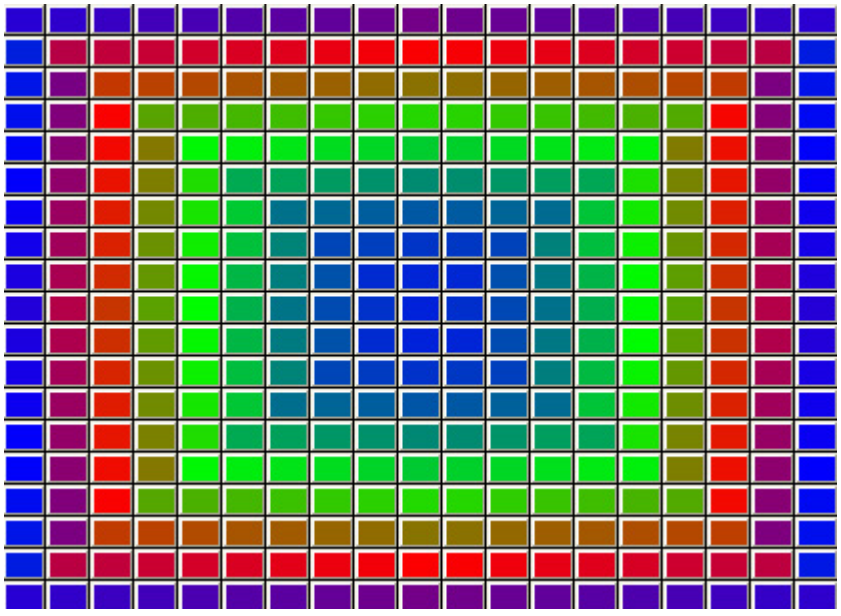
To program colour chases across all patched RGB pixels select all the RGB heads and then in the Colour Window select your base colour, e.g. Red at 128, Green at 128, Blue at 128. Then play back an FX on the head such as RGB, CMY or pulse4steps. Speed and size are controlled as normal.

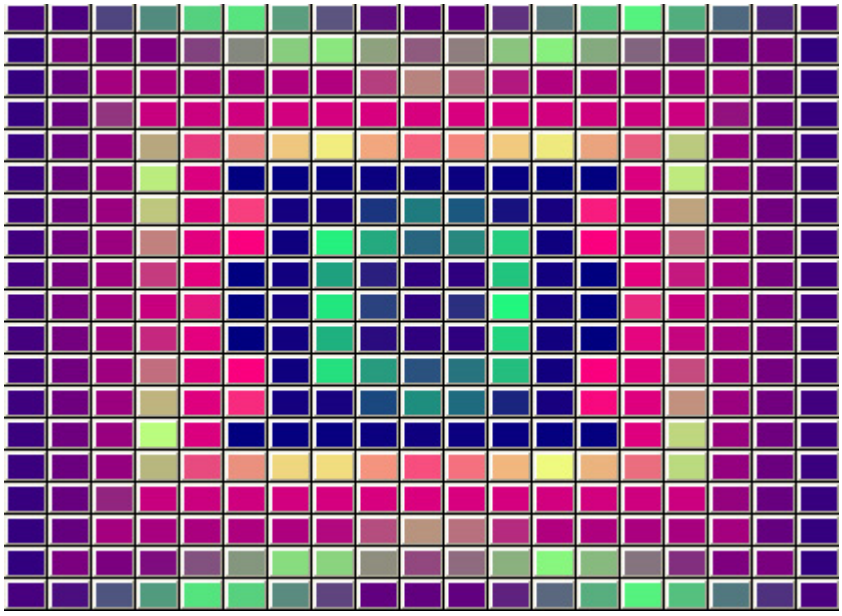
Using Groups Auto Generated From the Grid

Press the Auto Group button to automatically generate groups based on the grid size. This generates groups using the entire grid but with different orders of selection, e.g. from centre to outside, from the edges, and vice versa. This makes it easy to quickly generate different FX.



Using the auto groups, it is then possible to use standard FX such as RGB, sine waves, pulses to generate FX on your grid.





It is possible to make a group out of the currently selected items within the Grid. For example, use CTRL + select a few items and then press SHIFT + MAKE GROUP to make a group in the Group Window for all those items.

Making Groups Out of LED Pixels

To get the best out of a large array of pixel heads it is best to make groups. Select all the RGB pixels for a particular head and record it as a group. The order in which you select the heads determines the order that FX are played back on them. You can reverse the selection of an entire group by pressing the top right soft button in the Group Window.

If you have set up a Grid in the Plan View then you can easily select the pixel heads from this View before recording the group in the Group Window. Use Auto Groups to generate groups in different directions on the group and from the centre outwards.

In the Plan View use SHIFT + MAKE GROUP to make a group from the currently selected heads. If no text is entered before pressing MAKE GROUP the group is automatically named based on the first and last head numbers in the group.

To get a colour rainbow to roll seamlessly across a line of led battens you may need to reverse the selection of the individual groups - it depends which way you numbered your LED heads.

Making New LED Personalities on MagicQ

MagicQ has an in-built personality editor, so it is easy to create new personalities. New personalities can be based on other personalities or created from a blank personality.

For simple LED heads you may be able to use one of the generic LED personalities - either generic LED 3 chan or generic LED 4 chan.

When creating a personality allocate the red, green and blue channels to the cyan, magenta and yellow attributes.

Output Grid to External Monitors

From v1.9.4.2 Output grids can be output to external monitors as pure pixels for driving LED walls directly via HDMI/Display Port directly rather than via network protocols such as Art-Net and sACN.

In the Output Window, View Grid set the VIEW TYPE to Pixel. The Output window will then show as pure pixels - 1 pixel per Grid cell.

Zooming is supported to increase the number of pixels covered by each Output Grid cell. Soft button F can be used to zoom the Grid to fit to the window size.

When the Output Window is placed on an external monitor it will show without title bar and borders - i.e. pure pixels output from the Pixel Mapper.

When using this feature it is recommended to use Output Windows 2 or 3 and to fix them to the external monitors, by setting them as the Fixed Window for the required monitor in Setup, View System, Monitors.

Colour Picker

MagicQ includes an advanced colour picker system able to mix colour using all available emitters of any colour-mixing fixtures, including those with extended emitter sets (amber, lime, UV, etc).

To perform this task accurately, the colour picker relies upon colourimetry data (see section below), provided by the fixture manufacturer. If this is not available, an estimate is used which reduces the accuracy of colour matching.

Colourimetry data can also be provided by the user; to do this, refer to Adding colourimetry data to a head

Concepts

Colour Spaces

A number of different models exist to define individual colours; the most commonly used by colour-mixing fixtures are red-green-blue (RGB), cyan-magenta-yellow (CMY), with some including a mode for hue-saturation-intensity (HSI) as well. These are all examples of colour spaces, an abstract model for describing colours as a set of three (or more) values.

CIE 1931

One limitation of the above models is that they are defined based on a set of primary colours, which may vary between devices (for example, how red is the "red" in RGB?). For this reason, colour scientists use a more general model to describe colours: CIE 1931. This measures the colour of a light source using two coordinates, x and y, and the brightness with a third, Y (capital).

These coordinates are independent of any device, and form a three-dimensional space of potential colours. Note that not all combinations of x and y are real colours perceivable by the human eye. Points outside of the horseshoe shape of a CIE chart correspond to colours that could be "seen" if specific signals were given to the brain, but these signals can never be given by the human eye (under normal circumstances). These are "impossible" or "forbidden" colours, and they exist only theoretically. Under HSI models, they can be thought of as colours with over 100% saturation.

One advantage of CIE 1931 is that mixing any two colours on a CIE chart will produce a colour along the straight line that joins them (unfortunately, an equal mix is not guaranteed to be in the middle).

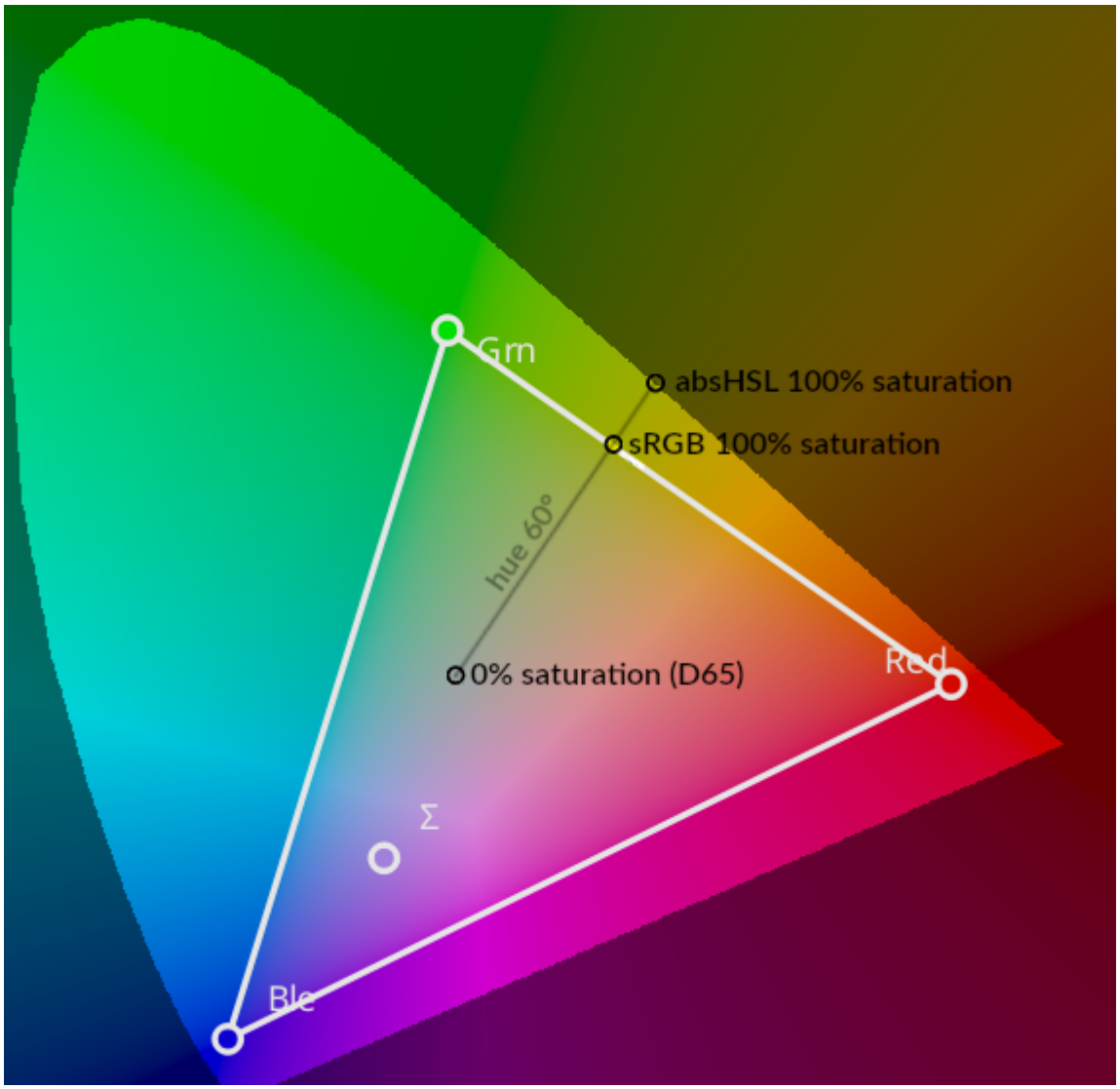
RGB

The RGB colourspace used in the colour picker is sRGB; this is the space of colours that can be displayed by most computer screens. It should be noted that these channels do not directly control the red, green, and blue emitters of a fixture; they may be able to display deeper colours than sRGB can produce.

HSL

The HSL colourspace used is an extension of the sRGB HSL space. It will be referred to here as "AbsHSL". The definition of "hue" is the same in both systems, as is the definition of "0% saturation" as being 6500K white. However, AbsHSL saturation extends all the way to the edge of the space of possible colours. This is the same as the concept of "excitation purity" in colour science (with a white point of D65).

For example, under sRGB, "Yellow" is usually defined as: hue 60°, saturation 100%. Under AbsHSL, this same colour is still hue 60°, but has a saturation of only 79%. The image below shows the difference between the two in CIE 1931 space (with sRGB overlaid). Note the straight line representing hue 60° in both systems.



CCT

The CCT colour space uses correlated colour temperatures. The two values are temperature (in Kelvin), and Delta-UV, (in UV units).

As objects are heated, they begin to glow different colours. The temperature of a "white" colour is defined as what temperature an object would need to be heated to start giving off that colour. For instance, heating an object to about 6500K will cause it to glow a bright white; the colour of a clouded sky. The colours that can be achieved this way fall along a curved line

in CIE 1931 space, called the "Plankian locus".

The delta-UV value is used to produce colours other than "whites". This measures the distance from the Plankian locus in a different CIE colourspace (CIE UV), either upwards (positive values) or downwards (negative). The practical effect of this is that a positive delta-UV is similar to "add green", and a negative is "subtract green", similar to colour gels made for the same purpose. Using this channel allows for reds, oranges, yellows, pale greens, pinks, and purples to be achieved.

There is a rough correspondence between plus/minus green gels and delta-UV; a one-eighth gel is about 0.004 UV, a one-quarter gel is about 0.008 UV, and so on.

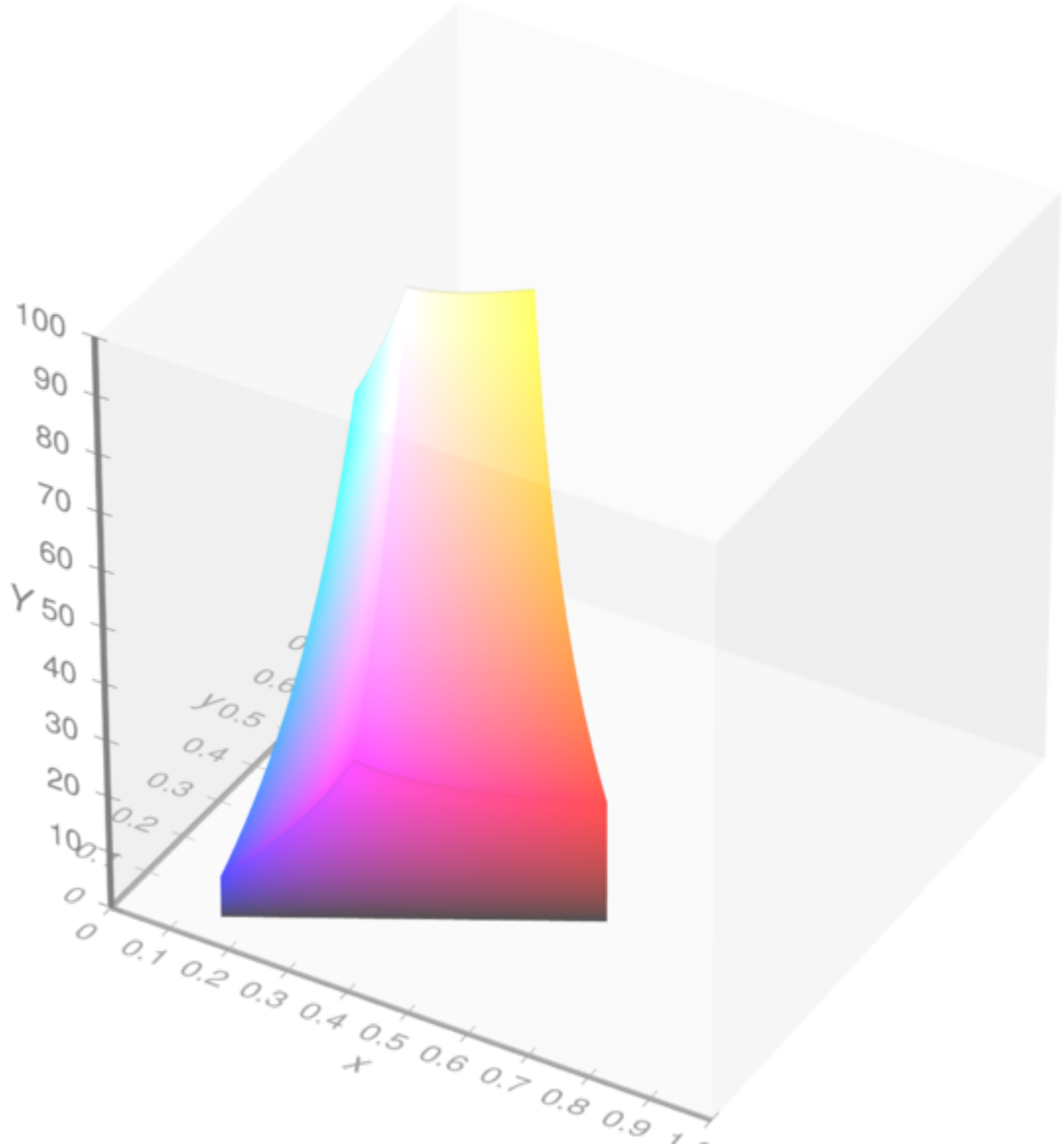
This colourspace cannot produce deep blues or cyans. This is because no matter how hot an object is heated, it will never give off saturated blue light; the temperature axis ends at "infinity kelvin", which is a deep sky blue colour.

Gamut & Colourimetry

You can measure a light source (such as a fixture) to determine the exact colours each emitter gives off; this process is called colourimetry.

From these colours, one can determine the range of all possible colours that a light source can give; this is called that source's "gamut". Plotted in 3D CIE 1931 space, this forms a roughly polyhedral shape; all colours inside this shape can be made. The bottom surface (Y=0) is all black; the very peak of this shape is the source's "white" - which you get if you have all the emitters set to 100%. The Y axis is scaled to the luminosity of this white, so it is always at Y=1.

To illustrate, below is a representation of all the colours that can be produced by a normal sRGB computer monitor. Note the corners that can be seen for the red and blue emitters (green is at the back), and again for cyan, magenta and yellow. Green is the brightest emitter by far, and so cyan and yellow have a very high luminosity compared to magenta.



Michael Horvath (SharkD), Christoph Lipka / Wikimedia Commons / CC BY-SA 4.0

Brightness, Luminosity

The different meanings of "brightness" and "luminosity" should be noted carefully.

Luminosity is the scientific measure of the intensity of a light source, regardless of its colour; it can be measured with a light meter, giving a value in lux.

"Brightness", on the other hand, has no strict definition. The definition used by the colour picker is dependent on a particular fixture's gamut. If one thinks of the three-dimensional gamut shape above, the "floor" (Y=0) represents both 0% brightness and 0 luminosity. The "ceiling" of that shape represents 100% brightness; these are the brightest versions of all the colours that the fixture can make. If one sets the colour picker to a certain colour (e.g: x=0.625, y=0.314), and the brightness to 50%, this means "50% as bright as the brightest colour that can be produced with (x=0.625, y=0.314)".

One challenge to colour matching is that finding the shape of this "ceiling" is a difficult process. MagicQ approximates it's shape by modelling it as a set of flat planes; in reality, it is

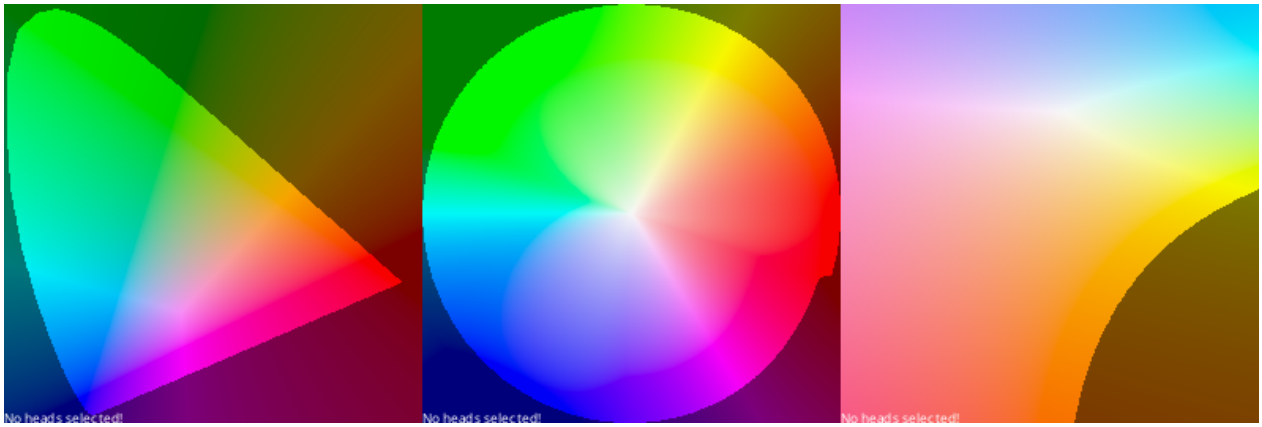
somewhat concave, meaning that MagicQ may overestimate what a fixture's brightest colours really are. This can lead to a slight loss of matching accuracy when the brightness is set very high; reducing the brightness should help if this is an issue.

Views

The colour picker window is divided into two separate views; the colour wheel or graph on the left, and a separate set of controls on the right. If the colour picker window is too small to display both, the wheel is hidden by default; the "SHOW WHEEL" soft button is then enabled, and can be used to toggle between the wheel and the other view.

Wheel

The left-hand view is a 2D representation of the colour space. This can be switched between different modes using the E soft button. This cycles through three modes: CIE 1931, a Hue-Saturation wheel, and a special chart for choosing colour-corrected whites.



The gamut of the current fixture is displayed as a white polygon; if multiple fixtures are selected, their gamuts are displayed overlaid on each other. The position of each emitter is shown as a white circle.

This gamut also shows another value, the "locate colour", which is signified with the Σ (sigma) symbol. This represents the result of turning all emitters to 100%; this is the fixture's white point. Note that on many fixtures, this may not be anywhere near a true white.

If there is no colourimetry available for a fixture, then a white message at the bottom indicates this. In this case, a default set of colourimetry data is used depending on the fixture type. Colour values shown will be an approximation only.

In all three modes, there is a portion of the chart that represents "forbidden colours", as mentioned above. This region is shown with darkened colours to represent this. While it is possible to select colours within this region, it should be noted that no fixture - even in principle - will be able to represent these.

Clicking on the colour wheel will select the colour under the cursor. If fanning is currently active (see below), the closest fan end to the cursor will be moved to it.

The selected colour or colours are shown as black circles. If a colour fan is active, the fan ends

are marked with S and E for "start" and "end", and hovering over the other circles will show their position in the fan.

Also visible sometimes are small black X marks; these appear if, for a variety of reasons, the selected colour cannot be perfectly achieved. The X shows the colour that the fixture is actually emitting.

The colour wheel mode also determines the function of the encoder wheels when the colour picker window is focused. Each encoder corresponds to one colour channel.

Faders

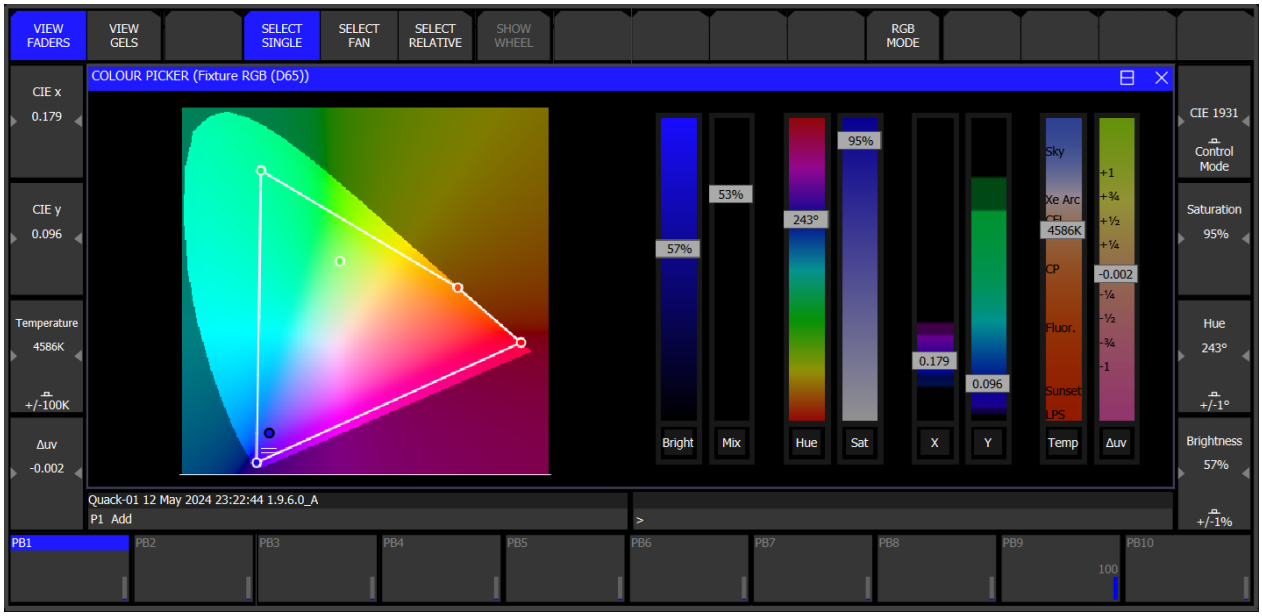
The faders view shows one fader for each available colour channel. The colour channels available depends on the current wheel mode; for instance, the RGB faders are not available in CIE 1931 mode, and most faders are not available in CCT mode.

The "hue" fader is not limited at it's ends. Dragging the fader beyond it's limits will cause it to wrap around from the other side.

The fader tracks show the colours that will be selected if the fader is moved along it's range. If these colours are outside of the fixture's gamut, they are shown darkened. If the colour is completely impossible, the fader track is black.

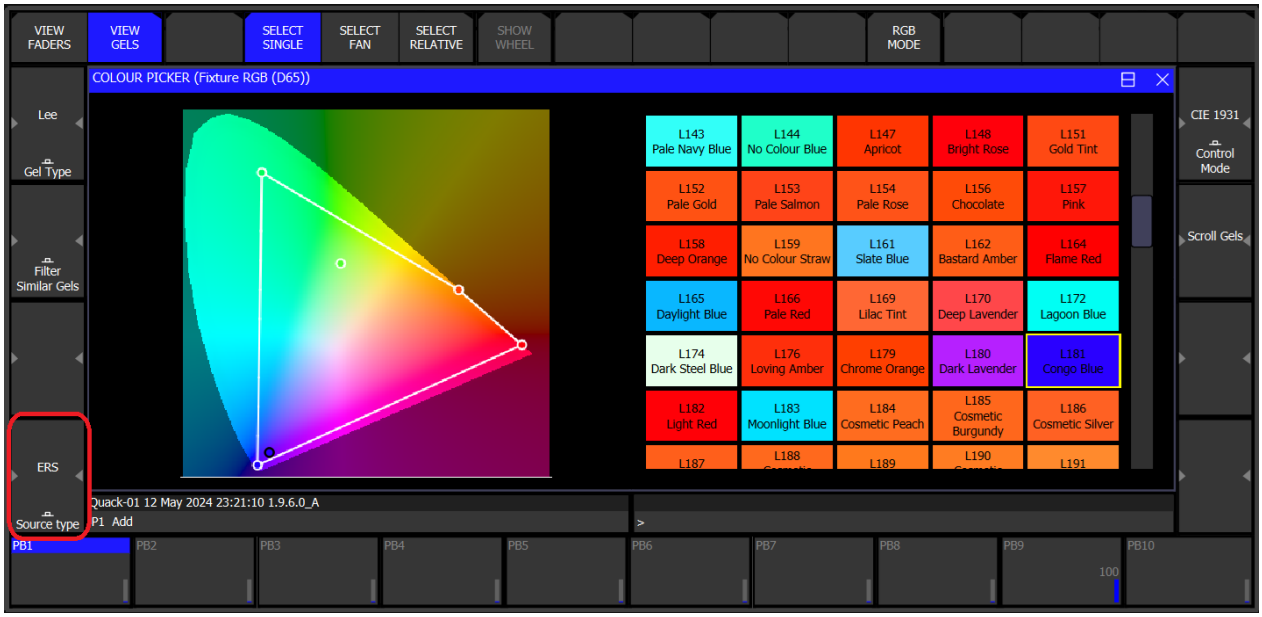
The faders can also be used to directly set a value; to do this, type in a number on the command line and click on the fader. For instance, to set the colour temperature to 6500K, type "6500" and click on the temperature fader.

Since version 1.9.5.4, there is a Mix fader. This fader only takes affect when you are using LED fixtures with four or more emitters and the brightness fader is not set to 100%. Moving this fader changes the output of emitters while maintaining the same colour. You can see the effect of this in the outputs window. The Mix fader allows the recipe for the selected colour to be changed. On a perfect white surface the colour is maintained, but when lighting other objects, set or people for example this can affect how the object looks.



Gels

In VIEW GELS the colour picker can be used to simulate the colours of popular lighting gels. By default, this shows generic colours. Press the Gel Type button (soft button A), the library can be switched between: Lee, Rosco, Apollo, or GAM. From v1.9.5.4 onwards a new source type is available. Source type can be found on Encoder D and allow changing of the source behind the gel. This allows for colour matching of LED Source colour mixing fixture such as the Chauvet Ovation Reve E-3 with traditional incandescent ERS (Profile) fixture, Par 64 and 1k and 2k Fresnels, along with D65 (Daylight 65000k). This enables the operator to set the source type (e.g. Par64), then pick a Gel (e.g. LEE181) and have the result match that of a traditional Par 64 (CP62) with a LEE181 gel in front.



Selection Modes

There are also three selection modes which determine how the colours influence the colour of the selected fixtures:

Select Single

The simplest mode, all fixtures and their fixture elements are set to the selected colour, if possible. If different types of fixtures are selected, the DMX values of each one will be set so that the closest possible representation of the selected colour is achieved.

Select Fan

This mode is for creating colour fans. The currently chosen colour is interpreted as being the START of the fan. Selecting a new colour (by any method) will choose the end of the fan. Once a fan is selected, you can use the SELECTED START / SELECTED END soft button to choose which end is adjusted by the faders. Clicking on one of the ends in the colour wheel will also change this.

The colours will fan across the channels that were adjusted. If you use a fader to create a fan, the colours will be distributed across that fader's colour channel; for instance, if the hue fader

was used to fan 7 fixtures from 0° to 60°, their hues will be 0°, 10°, 20°...50°, 60°.

If the colour wheel is used, then the fixtures will fan across the channels represented by the wheel: in CIE mode, this is CIE x and y, and in HSL mode, this is hue and saturation.

By default, all fans are symmetrical; they go to the target colour, and back again. Pressing FAN TYPE SYMMETRIC / FAN TYPE LINEAR will toggle between this and linear mode, where the first fixture has the start colour, and the last fixture has the end colour. Note that changing this option once a fan is already in progress may cause strange results.

Select Relative

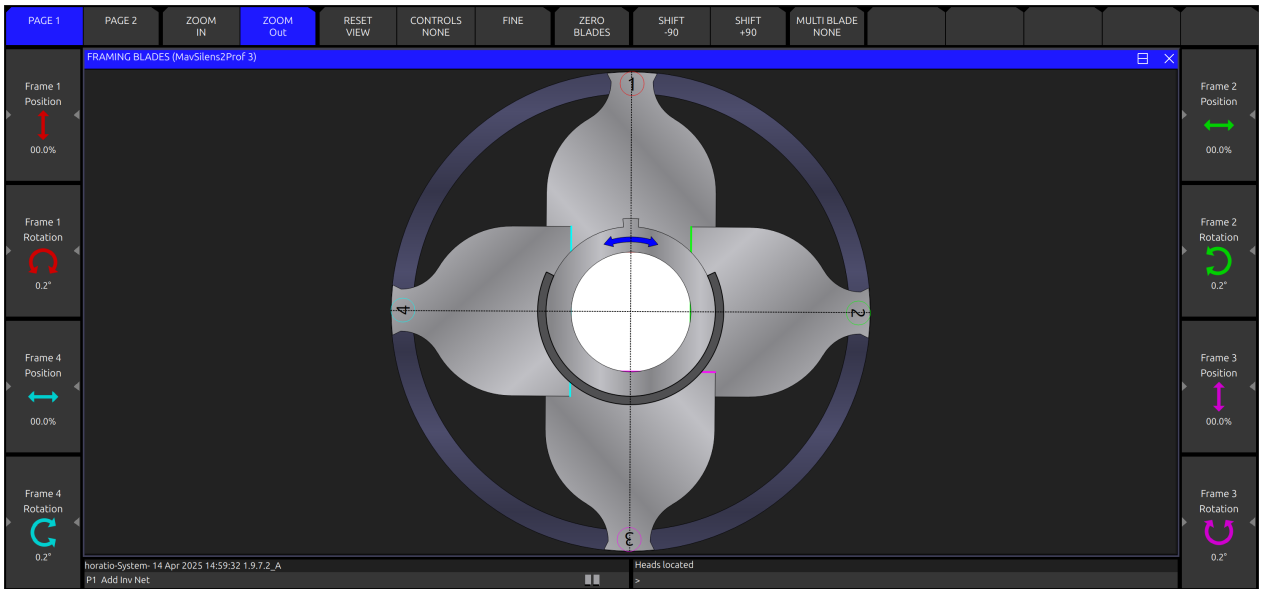
When in "SELECT RELATIVE" mode, the faders change function to adjust the colours already in the colour picker. For instance, if one already has a colour fan set up, one can use the saturation fader to make this fan smoothly fade to white. This can also be used to adjust the colour temperature of a set of colours (in an approximate way) by using the colour temperature fader.

Framing Blades

From version 1.9.7.1 MagicQ supports the control of motorised framing blades. Fixtures commonly have two methods for controlling the position of blades: a position + angle value, or two position values. MagicQ's framing shutters window can control either type of fixture with one interface.

User Interface

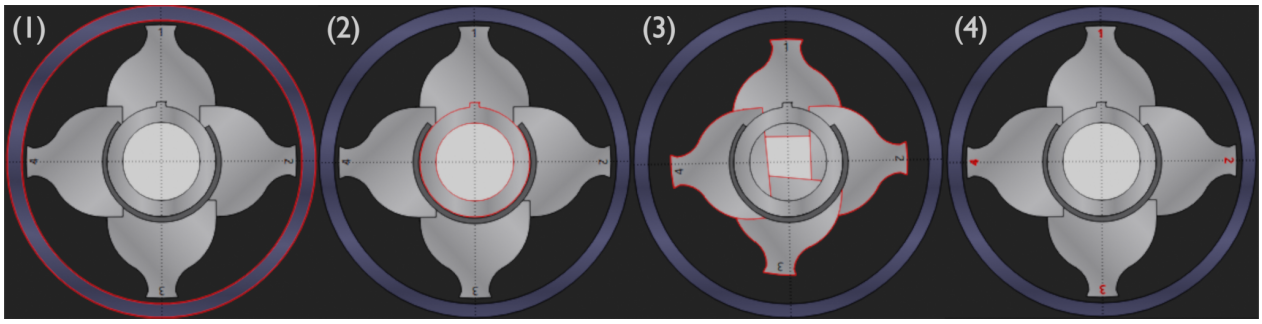
To open the framing blades window, use the soft button "VIEW BLADES" in the Beam window. Alternatively you can use the shortcut keys control + Beam. If you have a fixture selected that supports framing blades, you will see window that looks like the following.



The framing blades can be controlled through the graphical user interface (GUI), encoders and soft buttons. There are two pages available for encoders depending on your preference of how you like to control the blades.

GUI

The GUI is broken down into 4 parts which are highlighted in red below.



(1) View Ring - dragging this ring rotates the view of the GUI so you can line up the view with the real world beam you are trying to frame. It has no effect on the DMX output.

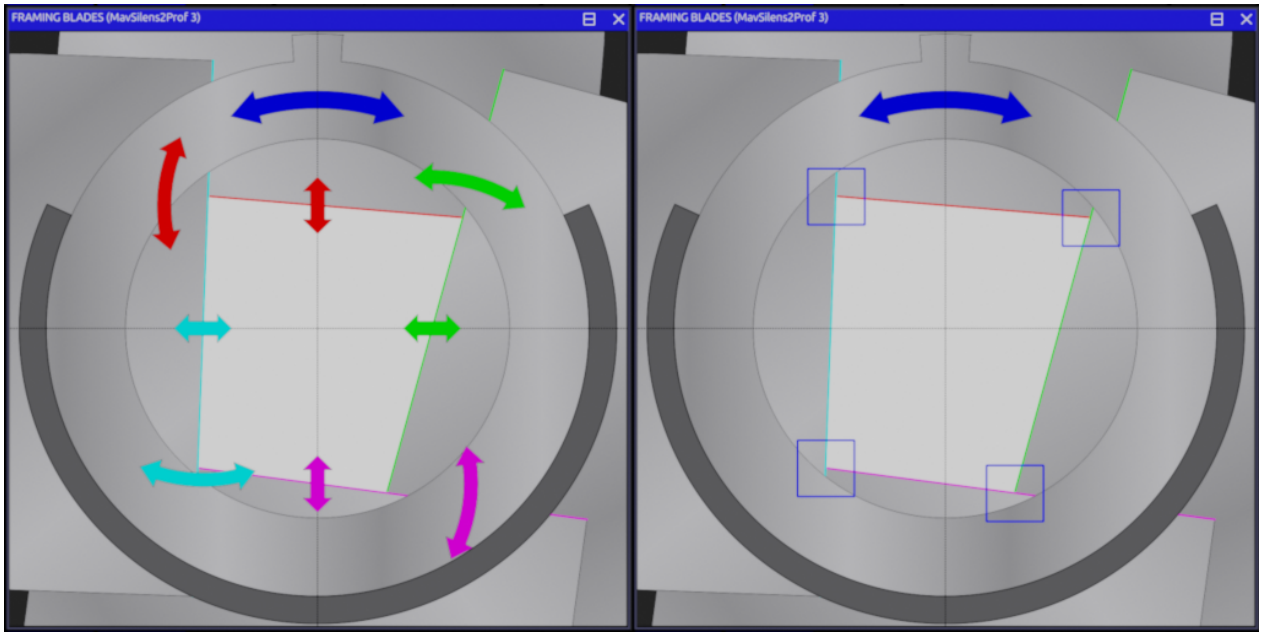
(2) Rotator ring - can be dragged to rotate the framing system on the fixture. The notch on this

ring shows the limit of where it can be rotated, it cannot pass the darker semicircular ring.

(3) Blades - blades can be moved to control the position and angle of each blade.

(4) Blade Numbers - This is the best place to press and drag the blades, they are also a useful guide to know which encoder wheels to use to control each blade.

The GUI can be zoomed in and out with the soft buttons at the top, and also toggle through controls. The arrow controls the position of a blade or the angle of a blade. The corners control can be used to move two blades at a time and just move one corner of the quadrilateral. the arrows and corner controls are shown in the image below.



Holding shift or toggling the FINE soft button will move the parts of the GUI more slowly for more accurate control.

Encoders

The eight encoders on page 1 control virtual attributes. If a fixture has dual position control for each blade, the position encoders will control both channels to push the blade in and out together and if the rotate encoders are turned, one channel will be added to and the other channel will be subtracted, therefore rotating the blade.

Page 2 has two encoders for controlling which blade was the last one moved in the GUI. An encoder for rotating the framing blade rotation (same as the Rotator ring). There's also encoders for adjusting Frost, Focus, Zoom, Pan, and Tilt. These encoders are added for convenience so you don't need to keep switching between windows as they will likely be needed along with the blade control.

Soft Buttons

RESET VIEW rotates the window view to default position

ZERO BLADES sets the position and rotation of each blade to zero and the rotator ring to zero. This is similar to locate but does not use the locate values (check the Troubleshooting section

for why).

SHIFT+90 and SHIFT-90 buttons will copy the values from each blade and move them to the blade next to them in a circular pattern. The position and angle from blade 1 will be move to blade 2, the values from 2 go to 3 and so on.

MULTI BLADE is a soft button that changes the behaviour of the blades to be able to control more than one blade at a time. It toggles between none, mirror, and all.

Multi Blade

The mirror option will control blades 1 and 3 together, or 2 and 4 together. The blades will reflect each other.

The all blades option will control all blades at the same time.

The multi blade options behave slightly differently for each of the ways the blades can be moved. Moving a blade in the GUI will make the other blades snap to a position. Moving a blade through an encoder will adjust the other blades encoder values by the same amount. The arrow controls will completely ignore the multi blade option.

Head Editor

If the framing shutter controller is not working correctly, it is easy to change the settings in the head editor. Go to Patch window, move cursor to the head you want to edit and press shift and EDIT CUR HEAD.

Options and Parameters

The framing type is in the Options sub menu in the Head Editor. This tells the framing blade window what kind of framing system the fixture uses. Currently two are supported.

PATCH → EDIT HEAD → VIEW GENERAL → Options → Framing Type

```
4 Frames Pos Rot: a channel is used to push the blade in and out, another channel
is used to rotate each blade.
```

```
4 Frames Dual Pos: two channels are used for each blade, one to push in the left
side of the blade and another to push the right side.
```

Parameters that affect the dimensions and mechanical limitations of the framing blades can be entered in the Params sub menu in the head editor. All the parameters begin with “Framing Blades”.

PATCH → EDIT HEAD →VIEW GENERAL → Params → Framing Blades*

```
Max Cover: 0% to 100%. How much beam can be covered each individual blade.
```

```
Max Angle: angle in degrees. How much each blade can rotate. Usually about 45°
```

```
Max Rotation: rotation in degrees. How much the framing assembly can rotate.
Usually          60°.
```

```
Invert Angle: yes/no. no: blades move clockwise when given positive DMX values
```

```
Invert Rotation: yes/no. No: framing assembly moves clockwise when given positive
DMXvalues.
```

```
Visualiser Rotation: 0° to 360°. Rotates the frames only in the visualiser. For
some fixtures     this might need to be set to 45°
```

If the values in the parameters are set to 0, the framing shutters window will assume default values of 100% coverage and 45° angle and rotation.

You must save head before any of these changes affect the framing shutter window.

Chans and Attributes

It might be that the attributes need to be reassigned if the order of the blades is incorrect. to do this go to:

PATCH, EDIT HEAD, VIEW CHANS

There are eight attributes for controlling the position and angle of the four blades: Frame1A, Frame1B, Frame2A, Frame2B, Frame3A, Frame3B, Frame4A, Frame4B, and one attribute to control the overall rotation of the framing shutter system, Cont 5. For the framing blade system to work correctly the attributes must be assigned correctly.

In MagicQ, Frame 1 is the frame top frame when inserted into the visualiser and pointed at the back wall. The rest of the blade numbers go in a clockwise order.

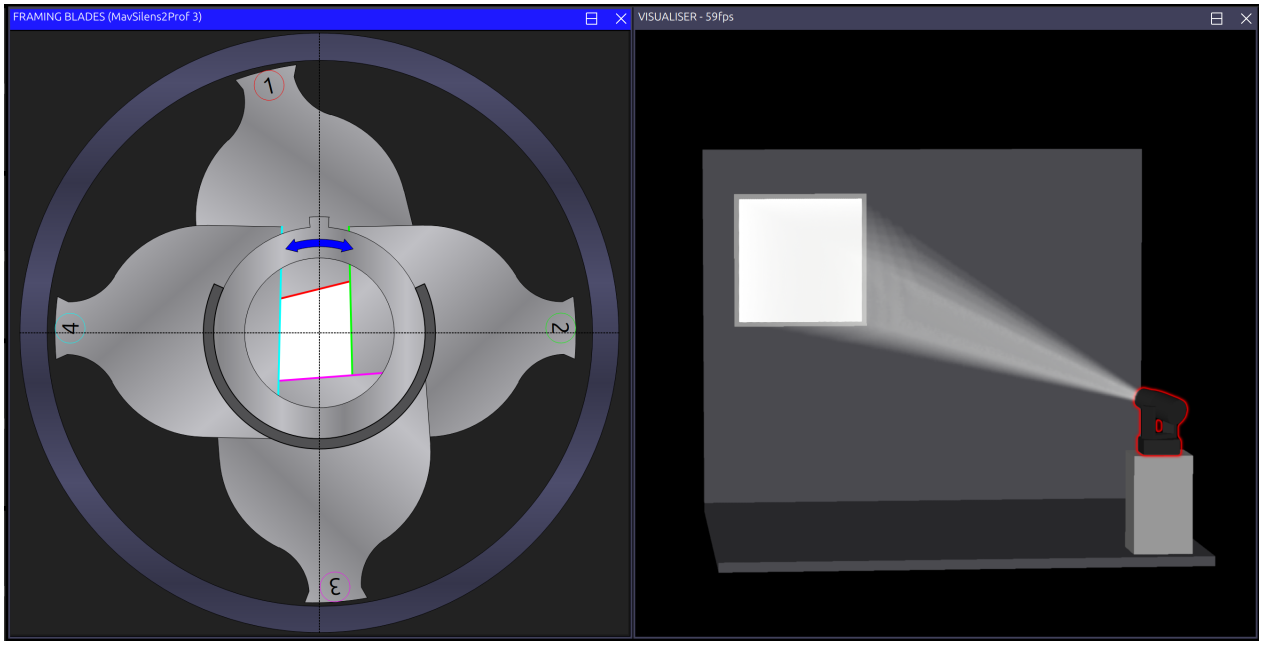
For dual position blade control: Frame1A is the left position of frame1 and Frame1B is the right position of frame1. The rest of the blades copy this pattern.

For position angle blade control: Frame1A is the position of the blade 1, Frame1B is the angle of the blade 1. The rest of the blades copy this pattern.

There is a soft button called AUTO FRAME ATTRIB. Selecting one of these blade orders will rearrange the attributes.

Visualiser

If all set up properly, the visualiser will show the framing blades.



Troubleshooting and Measuring Parameters

The most common error is that when you press the ZERO BLADES button the fixture will make a square shape, not a circle. This will be because the Framing Type Option is set incorrectly.

You might notice that the framing blade window and visualiser do not perfectly match the fixture in real life.

For most accurate results measure the parameters yourself. Start by setting the “Framing Blades Max Cover” to 100% and “Framing Blades Max Angle” to 45°. Make sure to save the head. Locate your fixture and point directly at a wall.

To measure the max cover: open the framing shutter window and toggle the multi blade option to “All BLADES”. Set any of the frames angles to 0° and position to 0%. Use any of the position encoders so that your beam makes a square. Use the Focus encoder to make the square as sharp as possible. Continue to increase any of the blade position encoders until your beam in real life has only just completely gone. Take note of the position value on the encoder, we will call this value P. Work out the “Framing Blades Max Cover” parameter with following equation:

Max Cover = 100 * (50 / P)

Set this value in the “Framing Blades Max Cover” in the head editor and save the head.

To measure the “Framing Blades Max angle” parameter set all the position and angles to zero on the encoders. Toggle the “MULTI BLADE” to “MIRROR”. Rotate one of the blades to its maximum angle. The light fixture should now be projecting a pizza slice shape onto the wall. Simply measure the angle of this point and divide it by two. Then set that as the “Framing

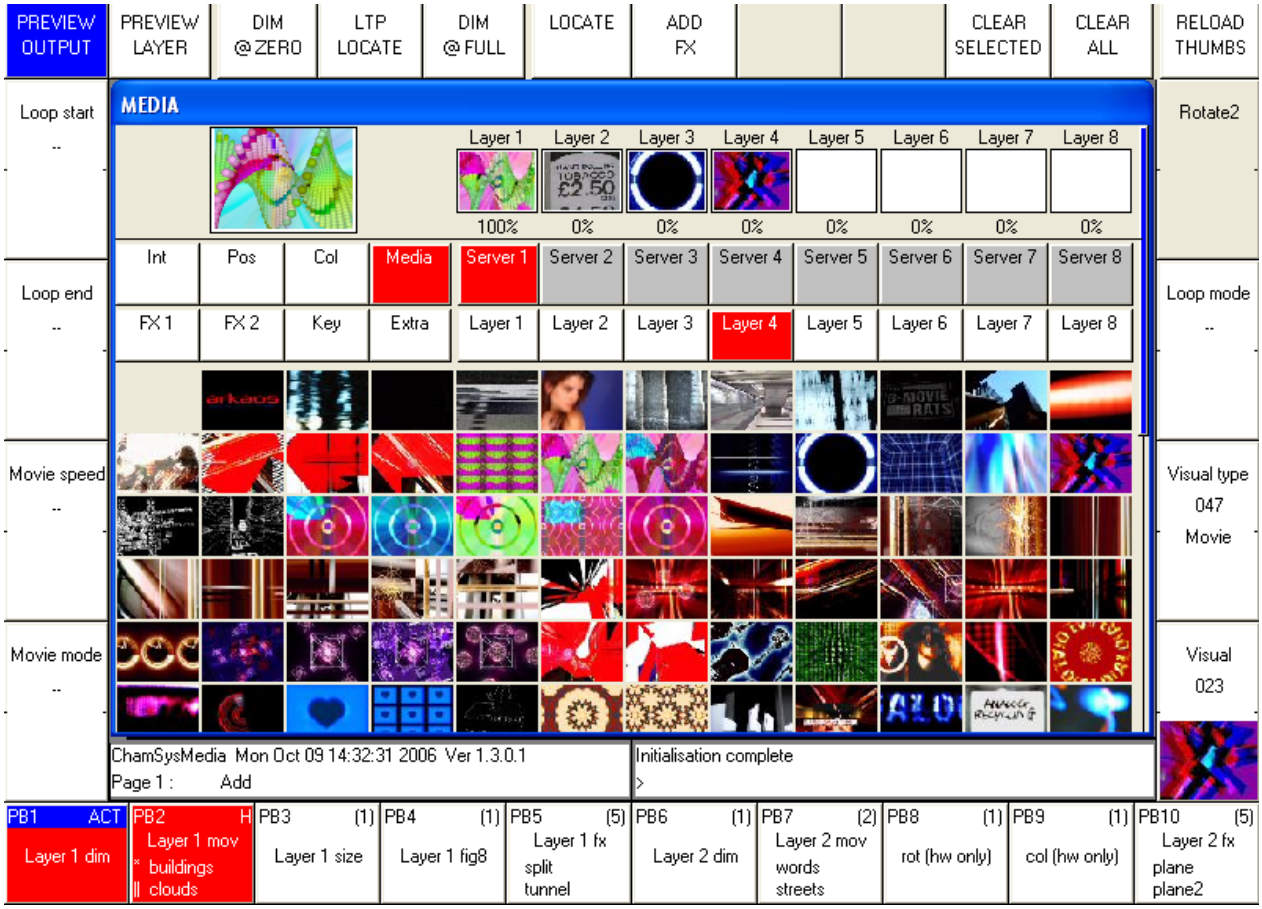
Blades Max Angle” parameter.

Controlling Media Servers

MagicQ is ideally suited to controlling media servers through its dedicated Media window - the eight encoder wheels enable quick and easy access to a large numbers of control parameters.

MagicQ has extremely powerful support for media servers. It is possible to connect to up to 50 different media servers or intelligent media yokes each with different media content. MagicQ downloads thumbnail previews for the media content from each media server independently.

MagicQ supports a special window, solely for controlling media servers, the Media Window. This window makes it much easier to control media servers. You can select media server, media layer, attributes and media content all from the same window. You can also see what content is selected on each of the layers of the selected media server. Open the Media Window pressing the Media button.



The Live Preview window shows the output of the media server. This is transferred is real time from the media server – so that you can see exactly what the media server is playing. This is particularly useful in situations with many media servers, or media servers that are remote from the control position.

Media Servers are normally connected via network rather than DMX - this enables MagicQ to communicate with the media server to retrieve thumbnails and to show live previews. MagicQ uses a network protocol such as Art-Net or sACN to control the Media Server - this is set up in Setup, View DMX I/O. In addition MagicQ uses a network protocol such as CITP MSEX or HMAP to communicate with the Media Server to retrieve thumbnails and live previews.

MagicQ supports many different types of Media Server including ChamSys MediaMaster.

Patching Media Servers on MagicQ

Media servers generally consist of a number of layers of one or more types. Each type of layer has a different personality. Each layer is treated as a different head on MagicQ with a different head number. To atch a media server each of the layers must be patched in turn on ascending DMX addresses.

On MagicQ it is possible to patch the media server in one go by using the Choose DIM/MEDIA soft button. This gives a choice of the media servers in their most common configurations. Patching using this method patches all the required layers of different types and configures the media server settings for one media server all in one action.

If your media server is not in the list of media servers then you will need to patch the layers individually as you would for a moving light. MagicQ includes demo show files for most common media servers – try loading these demo shows to see examples of the patch required.

Each media server should have unique head numbers. The layers in the media server should have ascending head numbers.

Connecting via Network

Connect the Media Server to MagicQ using a network cable.

Ensure that the Media server and the MagicQ system are using IP addresses in the same network range - for example if using Art-Net then the media servers and MagicQ should all be on the 2.x.x.x or the 10.x.x.x network range.

To check the IP settings you can try and "ping" from MagicQ to the Media Server. On MagicQ keyboard type three dots followed by the IP address to ping.

...a.b.c.d

where a.b.c.d is the IP address of the Media Server

The ping should show a "Reply from 2.x.x.x". If you do not get a reply then check the physical connection, check the configuration of the network port on the media server and check there is no firewall software on the media server.

Setting up Control of the Media Server

In Setup, View DMX I/O configure the MagicQ universe where the Media Server is patched. Set up the Output type to be the appropriate protocol - for example Art-Net os sACN.

Ensure that the Output Universe is set up to the same as the Media Server - for example if the Media Server is using Art-Net 0-4 then set up the Output Universe on MagicQ to Art-Net and 4.

Enable the universe. The Media Server should now respond to commands from MagicQ.

Configuring the Media Window

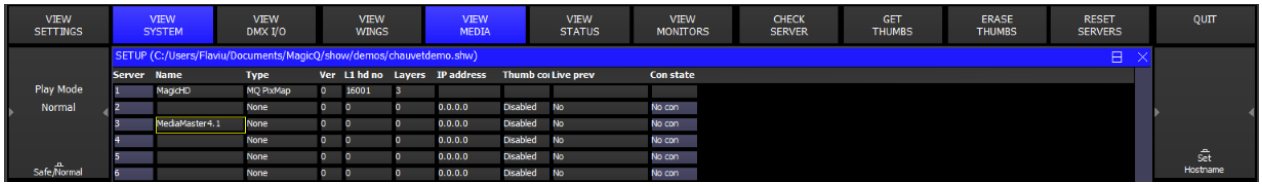
Simple Media Setup

In the Media Window press the Media Server you wish to configure. If the Media Server has not been configured at all then MagicQ will give a menu of options to choose from. If the Media Server has been previously configured then press the SERVER SETUP soft button to open the menu of options.

If you select "Advanced" then MagicQ will take you to the Setup Window, Media View to configure the media server parameters.

Advanced Media Setup

If you have patched using the Choose Media Server method above then the parameters should mostly be set up correctly for you. It is only necessary to enter the IP address of the media server.



Set the IP address of the media server. This will be used to locate the media server on the network and to retrieve thumbnails and live previews. Move to the IP address field and set the IP address. If you have only one media server active on the network then pressing enter should detect its IP address automatically. Note that the media server will respond to commands over Art-Net or sACN regardless of whether the IP address of the Media Server is set up correctly in MagicQ.

Select the type of media server and the version:

Set the number of layers you have patched – this is the number of media layers, and does not include master layers, soft edge or camera layers.

Set the head number of the first media layer. This tells MagicQ which patched layer is the first media layer on the media server. MagicQ expects layers to be sequential head numbers, for example set you head numbers for your layers to 1 to 8.

[[ChamSys MediaMaster]] ChamSys MediaMaster 26 is fully integrated with MagicQ. Set the Media Server type to MSEX. Set the version number to 2.

Set set the Media Server IP address to the IP address of the MediaMaster system.

Chamsys MediaMaster uses MSEX for retrieval of thumbnails, part of CITP protocol stack.

Live Previews are supported over MSEX. In MediaMaster ensure that CITP is enabled under Project, Preferences, DMX.

MagicHD

For use with MagicHD Stand alone. MagicHD is no longer in development and is last included with the MagicQ downloads in v1.9.8.4, however MagicQ can still be used to control legacy MagicHD Stand alone instances.

Set the Media Server type to MagicHD. Set the version number to 0.

Set the Media Server IP address to the IP address of the external MagicHD system.

ArKaos

For ArKaos 3.6 and above and Media Master choose MSEX (ArKaos). For ArKaos 3.5 select ArKaos. Set the version number to 0. ArKaos supports 8 layers.

ArKaos uses MSEX protocol for retrieval of thumbnails, part of CITP protocol stack.

MagicQ includes the mediamasterdemo.shw in the demos folder.

Catalyst

Select Catalyst and set the version number to 0. Thumbnails are retrieved from Catalyst using html to the inbuilt Mac web server. Catalyst does not support live previews.

Coolux

Select Coolux and set the version number to 0. The number of layers should be set to the total number of layers patched.

ArKaos uses MSEX protocol for retrieval of thumbnails, part of CITP protocol stack. In Setup, View Media, the Coolux option is the same as the MSEX option.

Hippotizer

Hippotizers now support MSEX - this is the recommended protocol to use.

For older Hippotizer choose either Hippo Stage or Hippo Express depending on which type you are using. For Hippo HD use Hippos Stage. Set the version field according to the version, 2 for Hippo v2, 3 for Hippo v3.

Maxedia

For Maxedia choose MSEX and set the version number to 0.

Mbox

For Mbox choose Mbox and set the version number to 0.

Note that the head numbers for the text and object layers are allocated lower numbers than the ancillary layers such as the ambient, spots, camera, shutter and keystone. This ensures

that the text and object layers appear before the ancillary layers in the Media Window.

There is a pre-patched show mboxdemo.shw containing 5 layers and several cues to demonstrate the Mbox EXtreme in the demos folder.

Megapixel VR Helios Support (Mimik)

MagicQ has support for the Megapixel VR Helios LED processor, which is used to control Kino Flo Mimik Fixtures. Within MagicQ the Megapixel VR Helios is treated like a media server with control of multi layers (referred to as MP Groups) each with intensity, position and colour control.

Whereas media servers generally take multiple layers of video with different position and size and combine them into one media output, the Megapixel VR Helios takes one media source and distributes it onto multiple LED outputs at different positions. However, from a control perspective it is similar control of multiple items that have Intensity, Position and Colour and have live previews.

Unlike other media servers the Megapixel VR Helios is not controlled over DMX - instead MagicQ connects directly to it over the network using the public REST API provided in the Helios enabling greater control and flexibility. MagicQ converts its internally calculated DMX values to suitable values for sending over the REST API.

The Megapixel VR Helios is patched in the Patch Window by selecting CHOOSE DIM/MEDIA, selecting "media server" and then selecting "Megapixel". This will automatically patch 30 Megapixel Group 20ch heads each named MP GrpX where X is 1 to 30. It will also create a Media Server in Setup, View System, Media set to type of Megapixel VR and referencing the patched Megapixel heads. Each head in MagicQ is automatically defaulted to control a Megapixel Group (1 to 30) - although this can be overridden when programming.

The Magapixel Group 20ch personality has the following attributes:

Chan	Function
1	Server No (Defaults to Server 1 - the first in Setup, View System, Media)
2	Group No - Megapixel Group number - automatically defaulted to 1..30 for the 30 patched Heads
3+4	Intensity
5+6	Red
7+8	Green
9+10	Blue
11+12	X position across canvas
13+14	Y position across canvas
15	Test pattern. 0 for none, 1-5 for patterns

16	Still store. 0 for none, 1-255 for images from still store
17	Top flag. 0 for none. 1-255 for top pixels to remove
18	Left flag. 0 for none. 1-255 for left pixels to remove
19	Bottom flag. 0 for none. 1-255 for bottom pixels to remove
20	Right flag. 0 for none. 1-255 for right pixels to remove

Note that there is no correlation between the normal MagicQ groups and the MP Groups on the Megapixel VR Helios. When the Megapixel VR Helios is patched fresh into an empty show on MagicQ then the MP Groups will be patched as Heads with Head numbers 1 to 30 in MagicQ. There will only be one MagicQ Group generated - which has all 30 MP Group heads in it. We recommend that the Megapixel VR Helios is configured with one Megapixel Group for each LED panel controlled starting at Megapixel Group 1.

In order to connect to the Megapixel VR Helios set the IP address of the media server in Setup, View System, Media to the IP address that the Megapixel VR Helios is using (displayed on its front panel display) and then set Live Preview to Enabled.

The Media window has a View VR view which can be selected by toggling through the views on the top left soft button. In VIEW VR the whole window is used to show a large preview from the media server. Note the Megapixel VR Helios limits the preview refresh rate to every half a second. Unlike the View Servers View in the Media window, the Preview will continue to be refreshed even when the Megapixel VR Server is not selected in MagicQ - thus enabling the Preview to be constantly viewed regardless of selected heads.

The MP Groups are drawn on top of the preview. Pressing within a MP Group selects it within MagicQ. Selecting a MP Group selects that MP Group (Head in MagicQ) enabling it to be controlled. The MP Group can be dragged around the preview to a new position.

See the separate "Using Megapixel VR Helios on MagicQ" document for full information on Megapixel setup and troubleshooting.

Megapixel Groups

Every time a Group is added on the Helios it assigns an internal Group number. When Groups are removed, the Helios will continue to use new (increasing Group numbers) unless the Auto Remove Groups is set to “Yes”.

The Helios auto names new groups based on the internal Group number – but note that it is possible to change the Group name on the Helios – and this will not affect the internal Group number – this can cause much confusion. We strongly recommend not to change the names.

It is important for lighting consoles that the Group numbers remain static – otherwise all the programming on the lighting console will reference the wrong receivers.

When starting a new installation we recommend on the Helios:

- Setting Auto Remove Groups = “Yes”
- Remove all Groups
- Position your receivers from left to right in the Helios mapping window so they are in the same order as the physical panels
- Moving from left to right assign each receiver to a Group – so the first receiver in your left to right chain is Group 1, and the last is e.g. Group 6

Other Media Servers

MagicQ supports the MSEX (Media Server Exchange) protocol which enables it to communicate with any media servers that support this protocol. Select CITP MSEX.

MagicQ also supports a generic protocol based on accessing the media folder of a media server and a generic csv index file to determine the mapping of thumbnails files to DMX values. Select "Generic" and set the version number to 0.

Thumbnail View

MagicQ retrieves thumbnails from the media server and shows them on the screen for easy selection of media banks and media images. The media server must be enabled in the Setup Window, Media View for it to retrieve thumbnails. MagicQ can handle different media on each media server thus making it easy to program larger configurations of media servers.

Thumbnail support is available when using ChamSys MediaMaster, ArKaos, Coolux Pandoras Box, Catalyst, Hippotizer, Mbox, Maxedia and any other media servers that support the MSEX or generic protocols.

To retrieve thumbnails press the GET THUMBS soft button in Setup, View System, Media. This grabs all the thumbnails for the media server which the cursor is on.

To force a reload of all the media from the media server, move the cursor to the required media server in the Media View of the Setup Window and press the ERASE CACHE soft button. Then press the GET THUMBS soft button to retrieve the new thumbs.

Individual pages of thumbs can be reloaded in the Media Window using the RELOAD THUMBS soft button. Press SHIFT and RELOAD ALL THUMBS to reload all pages.

Live Previews

MagicQ can connect to a media server to retrieve a live preview of the master output or of the individual layers. This is very useful where the media server is remote to the console, or in a multiple media server configuration.

Live Preview support is available when using ChamSys MediaMaster, ArKaos and Hippotizer and any other media server that supports the live preview part of the CITP MSEX protocol specification. Live preview is also available when configuring an NDI source.

Enable the Live Preview option in the Media View of the Setup Window.

The live preview is shown in the large window on the left of the Media Window. Choose using the top soft buttons whether the preview shows the output, or the currently selected layer.

When connected to media servers that do not yet support live previews, the preview window will show the image thumbnail from the first layer that has its intensity channel above zero.

NDI®

NDI® is a registered trademark of Vizrt NDI AB. https://ndi.video/

MagicQ supports NDI as an alternative to CITP MSEX for streaming input into the system. NDI takes much more network bandwidth and much more processing than CITP MSEX, so is best used only when NDI is the only option.

NDI, like CITP MSEX can be used in the MagicQ Pixel Mapper and Simple Pixel FX.

NDI feeds, like CITP MSEX can also be monitored in the Media and Execute Windows - enabling previewing of cameras and other broadcast feeds.

NDI streams are configured as a Media Server with a Live Preview, in a similar way to CITP feeds. In Setup, VIEW SYSTEM, Media, choose an unused server and select the Server type of NDI. Then double-click on the IP address field to select the source NDI stream. A low resolution stream will be created by default to minimite network usage. You can switch from "Low Res" to "High Res" to receive the full resolution that the NDI source is sending.

Once connected, the Connect field for the NDI stream will indicate "Receiving" together with the received frame size.

NDI streams can be named in the same way as any other Media Server.

NDI and CITP Live Feed are available on consoles, and on MagicQ PC systems with full unlock.

MagicQ Stadium consoles and MagicQ PC systems with a Stadium Connect support multiple NDI feeds. Compact consoles and MagicQ PC systems without a Stadium Connect only support a single NDI feed - the first Media Server set as NDI with Live Previews enabled.

NDI streams can consume a lot of network bandwidth and may impact lighting protocols such as Art-Net and sACN. It is recommended to use the "Low Res" option and to configure the source to send a frame rate of 25fps or 30fps.

NDI streams can be received on the Control network port as well as on the lighting network ports on MagicQ consoles. NDI input is not affected by the Firewall since this blocks incoming connections; the connection to the NDI server is initiated by the MagicQ console itself.

NDI sources must be on the same network and IP subnet as the console. If MagicQ is not discovering the NDI source,you can manually add the IP address of the NDI sender in *SETUP*, *VIEW SETTINGS*, *Network*, *NDI extra search IP's*, then try selecting the source again in the media setup window.

Live Feed FX

Media Server feeds can be used in Simple Pixel FX using the Live Feed FX. Select a Group, press ADD FX, select Pixel Map and Live Feed. Choose the attributes to apply to - typically RGB and the Media Server to use.

As with other Pixel FX the FX can be modified in Prog, View FX and Cue, View FX.

Use the Direction field to perform inverts. The options are "Normal", "Invert H", "Invert V" and "Invert H & V".

Use the Initial Offset field to rotate the feed; 25% is 90 degrees, 50% is 180 degrees.

Monitoring Live Feeds in the Execute Window

In the Execute Window use Assign Special and select Media Servers to assign a Media Server Preview into the Execute grid.

The Media Server Preview can be used for CITP feeds, NDI streams, Pixel Mapper and Media Server live previews similar to in the Media Window, View Outputs.

Use the existing Item Width and Item Height buttons to size the preview to the required size.

Media Window View

There are three main views - VIEW SERVERS, VIEW OUTPUTS and VIEW VR.

VIEW SERVERS is the default view enabling control of each of the configured media servers. MagicQ automatically expands the Media Window to show the maximum number of layers that are in use by the configured Media Servers. The older VIEW GROUPS and VIEW LIBRARY are now available via SHIFT.

To view the outputs of a Media Server press VIEW OUTPUTS. Pressing on an Output will enlarge it to full screen. Pressing again will drop it back down to normal size.

In VIEW VR a secondary button supports VIEW OUTPUTS, VIEW VR GROUPS and VIEW VR RECEIVERS.

Using MagicQ and Media Server software on the same PC

Using the Loopback IP Address

It is possible to use MagicQ and 3rd party Media Server software (for example ArKaos) on the same PC by altering some of the settings given above. In the Media View of the Setup Window, set the IP address of the media server to 127.0.0.1. This is the local loopback IP address and will allow the PC to talk to itself to retrieve thumbnails and live previews.

In the Settings View of the Setup Window, scroll down to Interface Settings. Set the option for Net host options to Normal + Loopback IP.

With the loopback IP and Send to Applications set correctly, you should be able to control your media server and use the live previews and thumbnails.

CITP (MSEX) Live Feeds

MagicQ supports live feeds over CITP (MSEX) for use in the MagicQ Pixel Mapper and for user display on MagicQ. Live feeds do not have to come from a Media Server, they can come from any CITP (MSEX) source such as PixelBeetle or MSexLord. Multiple different live feeds from multiple different source PC/Macs is supported.

To patch an MSEX server, go to Setup, View System, Media, find an unused server and change the type to "CITP Live Feed". The Media Server IP address should be set to the IP address of the PC/Mac providing the feed and "Thumbs" and "Live Previews" should be enabled.

To set up multiple live feeds from one PC/Mac then set up multiple identical Media Server entries - each with the IP of the live feed source and "thumbs" and "Live Previews" enabled. The entries do not have to be adjacent media servers in the list. MagicQ will only make one MSEX connection to the PC/Mac but will grab the previews for the multiple sources through this connection.

Live Feeds can be used in the Pixel Mapper by selecting Media Page as "Live Feed" (encoder Y) and selecting Media as the "Serv 1" (encoder X) depending on the number of the MSEX server.

The received Live Feeds can be viewed in the Media Window by selecting View Outputs instead of View Servers on the left most soft button.

Note that a 2nd Media Window can be opened by pressing CTRL and Media or by pressing 2 then Media. This enables the 2nd Media Window to be used for displaying live feeds whilst the first is used for controlling media servers.

When a Media Server is set to CITP Live Feed, MagicQ will request the feed all the time regardless of playback state and Windows opened. This is different to other media server types such as MSEX where MagicQ only requests previews when a Playback is using the live feed input, or when the Media Window is open.

Troubleshooting

If you do not have control of the Media Server check:

- MagicQ is connected to Media server via network
- There are no firewalls on - this will restrict access between the Media Server and MagicQ
- MagicQ is enabled to output either Art-Net, Pathport or ACN (Setup, View DMX I/O)
- The media server is configured to the correct DMX universe and address
- MagicQ is patched with the correct personalities at the correct addresses

Head Editor

The Head Editor is accessed from the Edit Head soft button in the Patch Window.

For shows with patched heads there is a shortcut to directly edit the currently selected heads. In the Group Window, press SHIFT and EDIT HEAD to go to the Head Editor directly for the currently selected Head.

Making changes modifies the head files stored on the MaqicQ hard drive and used for all new shows.

The Head Editor consists of five main views for modifying data:

- General
- Channels
- Ranges
- Palettes
- Others (includes Macros, Elements, Emitters, Functions)

In each of the views new values can be entered using the keypad or keyboard. New entries can be added to the lists by pressing the Insert soft button. The top right encoder wheel can be used to modify the item where the cursor is placed.

The Head Editor will start up with the chosen head - i.e. the last head you chose for patching. If you have not yet chosen a head then the Head Editor will be empty.

You can choose the head to edit from within the Head Editor by pressing the Choose Head button. This has the same effect as the Choose Head button in the Patch Window - i.e. you are presented with a list of heads to choose from.

Once you have made modifications to the head you can save the changes to disc by pressing the SAVE HEAD soft button.

If you wish to create a new head from scratch you can press the New Head soft button, whilst if you wish to copy an existing head you can use the Save As soft button.

At any time you can choose a new head - however if you have made changes, which you have not saved to disc, then you will be prompted whether you really wish to continue. Continuing will mean that the changes will be lost unless you already have patched heads of that type - in which case the patched heads in the show will keep the changes. In either case, the head file on the disc will not keep the changes.

Press the Patch button to leave the Head Editor and return to the Patch Window.

How Heads Are Stored in MagicQ

MagicQ stores heads in the show/heads folder. When you choose a head to use in a show it loads the head and stores it in memory.

When you save your show, MagicQ writes a copy of the head into the show file, ensuring that your show will work even if it is loaded onto a console which does not have the head files for your chosen heads installed.

If you load an old show into MagicQ then the heads in use on the show will be the ones recorded into the show file, not the heads in the show/heads folder on the MagicQ console. From the Patch Window, if you choose the head again, edit the head, or patch new heads of the same head type it will always use the head stored in the show file – this ensures consistency.

You can update a head stored in a show file with the one stored in show/heads using the "Reload Head" soft button. In the Head Editor press the "Reload Head" soft button. The head will be reloaded from disc and all the patched heads in the show will use the updated head. Note that it is not possible to reload a head where the number of channels in the head has been changed.

Expanding Library Head Files

MagicQ includes a large library of other 50,000 heads in the heads.all file in the heads folder.

In originally versions of MagicQ all the heads in heads.all were expanded into separate files in the heads folder. Subsequent versions allowed both expanded and unexpanded head files.

MagicQ now never expands the heads.all file. MagicQ only stores head files that have been specifically changed in the heads folder - all other head files are read directly from the heads.all file.

Loading New Heads into MagicQ

To update MagicQ with all the latest heads, download the latest heads files (heads.all) from the ChamSys web site ChamSys Website. Copy the heads.all file into the show/heads folder. Then restart MagicQ (SHIFT + RESET in Setup Window).

To load a single head into MagicQ consoles, simply copy the head file (myhead.hed) onto a USB drive, connect to the MagicQ console and select the file via the console file manager (Setup, File Manager) MagicQ will then automatically load the head file and recreate the head index.

To load a single head file into MagicQ PC systems use the 'tools' menu at the top of the MagicQ window and select the 'Install Head File(s)') option. Once you have selected your head file MagicQ will automatically load the head file(s) into MagicQ.

To force the index file to be regenerated, go to File Manager and press SHIFT + RECREATE INDEX. New heads should then appear in Patch.

Copying Head Files Created on PC/Macs to MagicQ Consoles

- Copy the .hed file to a USB drive.
- If you made the file on a Windows PC the head file will be under: Documents, MagicQ PC, Show, Heads.
- If you made it on a Mac it will be under Documents, MagicQ, Show, Heads.
- Insert the USB drive into your console, then go to: Setup, File Manager, USB Drive.
- Click on the file on the USB drive, the console will ask if you want to load the head onto the console.
- Head should then be loaded onto the console ready for use.

Alternatively, you can patch the head into a show file, save the show to USB, Load the show on the console, then go to Patch, put the cursor on the required head, hold SHIFT and press the EDIT CUR HEAD soft button and then press SAVE HEAD to save it to the console.

Modifying Existing Heads

Existing heads can be modified by simply making changes and pressing SAVE. Note however that these changes may be overriden if you change software version as this loads the latest head libraries. If there are genuine errors in the head then please let us know so that we can update our libraries.

The heads in the ChamSys library are protected to avoid accidental changes to them – MagicQ prompts the user before allowing changes to the heads. In the Head Editor, original ChamSys heads are indicated by an "LO" in the tile bar. If the head has been edited it will only show "L".

If you wish to modify an existing head then you should save it as a new type or new mode.

The easiest way to make a new head is to use SAVE AS to save as a new name. The new name used will automatically update the Manufacturer Name, Short Name and Mode fields.

For example to make a modification to the Chauvet Pro Maverick Force X Spot, 29 channel mode head choose the head then press SAVE AS and enter the new name.

ChauvetPro_MavForceXSpot_mymode

Removing Old Heads

It is possible to remove all old heads (and all user created heads) by pressing SHIFT and REMOVE HEADS in the File Manager. This removes all old heads and extracts the heads again from heads.all. Make sure all your user created heads are backed up to USB or to another system before removing all old heads.

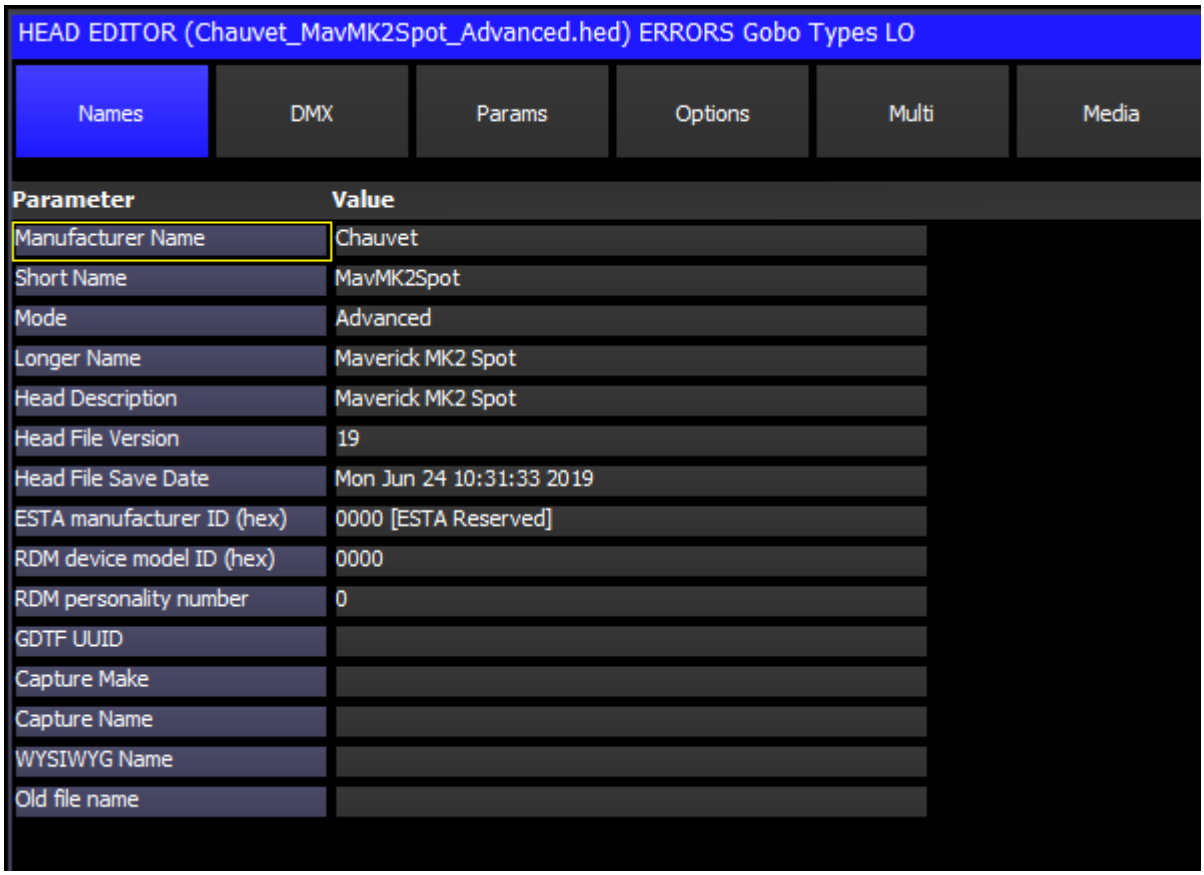
View Head Modes

The VIEW MODES soft button enables viewing of all the possible modes for a Fixture side by side including the channel listing with elements and coarse/fine indication. Pressing ENTER on a mode chooses that mode ready for Patching or Editing.

Note that choosing a mode does not change the mode of any patched heads - it just chooses the new mode ready for patching / morphing / cloning.

General View

The General View contains a fixed number of parameters. Note that as these parameters fundamentally affect the programming of the head they cannot be modified once a head of the type has been patched.



Names

The Manufacturer Name, Short Name and Mode are used to identify the head to the system. These fields should be unique to the moving light. If you make a new head based on one of the standard ones then you should make sure you change the mode to a name of your choice.

The Short Name and Mode are used in display windows where there is not much space. You should ensure that these names are as short as possible and do not contain any spaces - preferably less than 8 characters.

The Longer Name is used as an alias to the Short Name - the Short Name will always be used in naming of personality files, but the Longer Name will be used to display the name in the

Patch Window when choosing Head. The Longer Name should be exactly as the fixture is named on the web site of the manufacturer.

The Head Description contains details of the type of head – and is used for informational purposes.

The ESTA manufacturer ID, RDM device model ID and RDM personality number are used to match the head file to RDM-enabled fixtures. See the Remote Device Management chapter for more information.

The WYSIWYG and Capture patch information names indicate the names of this fixture in WYSIWYG and Capture to enable patch transfer from these visualisers.

DMX

Num Of Chans sets the number of channels for the head.

DMX Min, DMX Max and DMX Offset specify constraints on where the Head can be patched within the 512 DMX channels. Changing the Num of Chans will automatically change DMX Max.

Params

Pan Range and Tilt Range are used in visualisation and by the FLIP function.

Pan Invert and Tilt Invert. These are used by the visualiser to specify which direction the yoke/beam moves.

Pan Speed, Tilt Speed

Zoom Narrow and Zoom Wide are used by the visualiser to specify the angle of the beam. For heads without a zoom set both Zoom Narrow and Zoom Wide to the angle of the beam.

Slowest Strobe, Fastest Strobe, Slowest Rot Speed, Fastest Rotate Speed are used by the visualiser.

Options

Moving Head can be Mirror or Yoke - press ENTER to swap.

Colour Mix identifies the colour mixing channels – the options are:

CMY	For Heads with Cyan, Magenta and Yellow flags in front of a typically white source or incandescent lamp
RGB	For Heads with Red, Green and Blue LED emitters

RGBA	For Heads with Red, Green, Blue and Amber LED emitters, or Heads just with Amber emitter
RGBW	For Heads with Red, Green, Blue and White LED emitters, or Heads just with White emitter
RGBAW	For Heads with Red, Green, Blue, Amber and White LED emitters, or Heads just with Amber and White emitters
RGBAWV	For Heads with Red, Green, Blue, Amber, White and UVLime emitters
HSI	For Heads that are controlled using Hue, Saturation, Intensity channels.
CIE XY	For Heads that are controlled using CIE XY channels

The default configuration is CMY colour mixing – i.e. when the Cyan channel is at 100% and the Magenta and Yellow channels are at 0% you get Cyan. If your head uses RGB colour mixing – i.e. the above combination gives Red – then set the RGB option.

Virtual Chans. Some heads such as the Generic Scroller2chan are set up as a "Virtual" head – i.e. the channels in the head can be patched to any location on MagicQ – unlike normal heads where the channels are sequential from the DMX start address. In the View DMX view, the DMX address fields are used to specify the addresses for each channel in the virtual head – up to a maximum of 5 channels. (For normal heads these fields are used to specify multiple heads patched to one head.) Virtual heads could be used for other irregular fixtures such as water jet controls.

Virtual Dim. Used for heads with no Dimmer channel to force a virtual dimmer to be patched for each head.

Dimmer curve specifies the dimmer curve to be used for Intensity channels.

Framing type is used to specify the framing (shuttering) type.

MQTrack is specific to MagicQ tracking systems and is only used by MagicQ inbuilt head files.

Number of Emitters specifies the number of different colour LED emitters. When set to greater than zero, the emitter data is configured in VIEW EMITTERS.

Multi

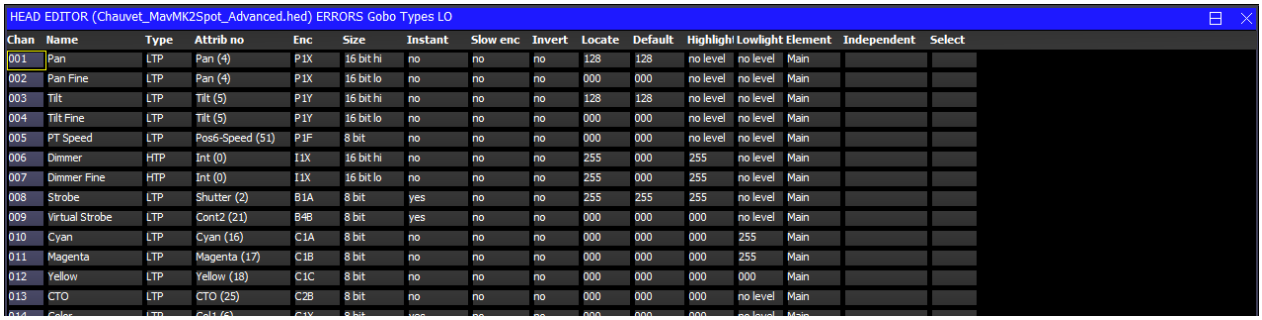
The Multiple Heads Type and subsequent fields refer to Heads with multiple elements – see the section Heads With Multiple Elements below.

Media

This section is used to automatically set media server options when a media server layer is patched. When a head with these settings is patched, MagicQ adds a new entry in Setup, View System, Media based on these parameters.

Channels View

This view allows the different channels of the head to be specified. Note that once a head of the type has been patched it is not possible to change the number of channels of the head.



Chan	Name	Type	Attrib no	Enc	Size	Instant	Slow enc	Invert	Locate	Default	Highligh	Lowlight	Element	Independent	Select
001	Pan	LTP	Pan (4)	P1X	16 bit hi	no	no	no	128	128	no level	no level	Main		
002	Pan Fine	LTP	Pan (4)	P1X	16 bit lo	no	no	no	000	000	no level	no level	Main		
003	Tilt	LTP	Tilt (5)	P1Y	16 bit hi	no	no	no	128	128	no level	no level	Main		
004	Tilt Fine	LTP	Tilt (5)	P1Y	16 bit lo	no	no	no	000	000	no level	no level	Main		
005	PT Speed	LTP	Pos6-Speed (51)	P1F	8 bit	no	no	no	000	000	no level	no level	Main		
006	Dimmer	HTP	Int (0)	I1X	16 bit hi	no	no	no	255	000	255	no level	Main		
007	Dimmer Fine	HTP	Int (0)	I1X	16 bit lo	no	no	no	255	000	255	no level	Main		
008	Strobe	LTP	Shutter (2)	B1A	8 bit	yes	no	no	255	255	255	no level	Main		
009	Virtual Strobe	LTP	Cont2 (21)	B4B	8 bit	yes	no	no	000	000	000	no level	Main		
010	Cyan	LTP	Cyan (16)	C1A	8 bit	no	no	no	000	000	000	255	Main		
011	Magenta	LTP	Magenta (17)	C1B	8 bit	no	no	no	000	000	000	255	Main		
012	Yellow	LTP	Yellow (18)	C1C	8 bit	no	no	no	000	000	000	000	Main		
013	CTO	LTP	CTO (25)	C2B	8 bit	no	no	no	000	000	000	no level	Main		

Name and Type

Channels can be added using the Insert soft button and deleted using the Remove Button (press twice to Remove).

The Name field is used to name the individual channel and distinguish it from other channels. If no name is specified then MagicQ will use the name of the attribute that it is assigned to.

The Type field is used to indicate whether the channel is Highest Takes Precedence (HTP) or Latest Takes Precedence (LTP). Generally only Intensity is set to HTP - all other channels are LTP. Note that if a head has combined Dimmer and Strobe channel then this should be set as Dimmer attribute with type of HTP.

Attrib No

The Attrib No field is used to identify the function of the channel to MagicQ. This is the most important field in the channel list - MagicQ uses it for determining how to control the Head, how to morph between different Heads, and to present information in the user interface.

Where a Head has more than one instance of an attribute, that attribute can be used multiple times with different Element numbers. An attribute of the same element number can not be used more than once except when specifying the high and low values of 16 bit or 24 bit attributes. See Element and Function Type below.

Table 6. Attrib No field

Function	Attrib No	Default Encoder
Intensity	0	I1X
Intensity Mode	1	I1Y

Function	Attrib No	Default Encoder
Pan	4	P1X
Tilt	5	P1Y
Pos1	46	P1A
Pos2	47	P1B
Pos3	48	P1C
Pos4	49	P1D
Pos5	50	P1E
Pos Speed	51	P1F
Col1	6	C1X
Col2	7	C1Y
Cyan/Red	16	C1A
Magenta/Green	17	C1B
Yellow/Blue	18	C1C
White	19	C1D
Amber	27	C1E
Lime UV	60	C1F
CTC	24	C2A
CTO	25	C2B
Col5	61	C2C
Col6	62	C2D
Col Speed	26	C2F
Shutter	2	B1A
Iris	3	B1B
Focus	12	B1C
Zoom	13	B1D
Frost1	32	B2A
Frost2	33	B2B
Gobo1	8	B1X
Gobo2	9	B1Y
Gobo3	28	B2X
Gobo4	29	B2Y
Rotate1	10	B1F
Rotate2	11	B1E

Function	Attrib No	Default Encoder
Rotate3	30	B2F
Prism Rot	31	B2E
FX1 Prism	14	B2C
FX2	15	B2D
FX3	34	B3C
FX4	35	B3D
FX5	36	B3X
FX6	37	B3Y
FX7	38	B3F
FX8	39	B3E
Macro	22	B3A
Macro2	33	B3B
Cont1	20	B4A
Cont2	21	B4B
Beam Speed	40	B4C
Cont4	41	B4D
Cont5	42	B4X
Cont6	43	B4Y
Cont7	44	B4F
Cont8	45	B4E
Frame	52	B5A
Frame	53	B5B
Frame 3	54	B5C
Frame 4	55	B5D
Frame 5	56	B5E
Frame 6	57	B5F
Frame 7	58	B5Y
Frame 8	59	B5X
Reserved	63	Reserved

Enc

The Enc field specifies which encoder position in the Intensity, Colour, Position, Beam windows the attribute appears on. The Enc field is defaulted based on the choice of Attrib No - this provides a common interface across all heads. In some circumstances users may wish to

modify the allocated encoder in order to bring similar attributes onto the same page.

On Compact console the encoders are positioned as follows:

Encoder A	Encoder E
Encoder B	Encoder F
Encoder C	Encoder Y
Encoder D	Encoder X

On stadium consoles. Encoder A to D are to the right of the main display and X, Y, E, F are horizontal above the programming buttons.

There is one page each for Intensity and Position, two pages for Colour and five pages for Beam.

Size, Instant and Slow Encoder

The Size field is used to specify the size of the attribute. For channels that are only 8 bit the Size field is set to 8 Bit. For 16bit channels the coarse channel is set to 16 bit Hi and the fine channel to 16 bit Lo. For channels with 24 bit resolution set the lower two channels as for 16 bit and the highest channel to 24 Bit Hi.

The Instant field specifies whether a channel by default snaps immediately to new values rather than fading – this is useful for colour wheels and gobo wheels where you want immediate changes.

The Slow Encoder field makes the encoder works more slowly than normal. This is good for attributes where every possible DMX value represents a different function and therefore only very small turns of the encoder are required to change function.

Default and Locate

The Default field defines what value the channel is set to by default on start-up. When the Setup, Programming option "Unused chans return to default" is set then channels also return to these values when they are no longer controlled by Playbacks or the Programmer.

The Locate field defines what value the channel is set to when a Locate is performed on the head – it is also used as the default value for a channel if no default values is specified.

The Default and Locate should specify the normal defaults for the head – the exact values used in a particular show can be overridden by making a Default Cue or Locate Cue in the Cue Store.

Highlight / Lowlight

The Highlight and Lowlight values are used when the Setup, Programming option Highlight mode is set to Advanced. This enables the user to configure custom highlight/lowlight settings for each type of head.

The Highlight and Lowlight fields can be set to "No level" by pressing ENTER to determine which attributes are affected by the Highlight and Lowlight functions.

Note that setting the Highlight and Lowlight values for Intensity attributes to "No Level" may not have the desired effect. In Highlight/Lowlight mode, MagicQ will always try to perform a highlight/lowlight so that the heads in the current selection which are not sub selected appear differently to the sub selected heads. This ensures that a highlight/lowlight is performed correctly even if the personality has not been written correctly.

If you do not wish to have any lowlighting then in Setup, View Settings, Programmer set the Highlight Mode to "Advanced - highlight only (no lowlight)". In this mode only the sub selected heads will be highlighted. Heads that are selected but not sub selected will remain at their playback state.

Element

The Element field is used for Duplicated personalities - these personalities have more than one instance of an attribute type within the personality - for example a LED moving yoke with three LED rings.

Heads are set as Duplicated Heads in the Multiple Heads Type field in the Head Editor. Duplicated elements always start from Element 1. All elements that are not duplicated are set to 0 (Main Element). For heads that have both a main element and a repeated element - e.g. a master RGB and then repeated RGB for each element then the master RGB is element 0 and the repeated RGBs start from 1.

For heads that have multiple functions, e.g. a central RGB beam and then a "eye candy" RGB element ring - the core RGB beam should start from Element 1, with the "eye candy" ring elements starting after the core RGB beam. Element 0 should only be used for Master channels, not for genuine individual control of elements - these should always be element 1 or higher. The Function Type field can be used to distinguish the different functions - i.e. Function 1 is the core beam, then Function 2 is the "eye candy" LED ring.

The Element field shows elements that are independent from Element 1 as Ind 2, Ind 3 etc..., whilst heads that are not marked as Independent are shown as Dup 2, Dup 3, etc...

Independent

Elements 2 and above of Duplicated Heads can be set as Independent.

When set to "Ind" all elements act independently and are made active in the programmer and programmed into Cues.

When set to "Dup" elements 2 and above are duplicated from element 1 when they are not explicitly in the programmer or active on a playback.

This field is hidden for element 0 and element 1 since they are automatically independent from each other.

When set to "Ind" then the "Select" field also becomes active and defaults to "yes".

Select

Some heads have multiple elements that operate completely separately to each other - for example centre RGB cells, and then an outside eye candy RGB ring. For these heads it is possible to make it so that the additional, less important elements are not selected by default and therefore are only programmed when explicitly requested.

The Select field for channels for these additional elements should be set to "no". The channels will not be selected (and hence programmed) unless explicitly selected using the dot (.) syntax.

Note that this field only affects general selection of heads. Selection of specific elements, or selecting a Group with specific elements will cause the specified elements to be selected and this field to be ignored,

Function

This field is used to distinguish between different element functions within the Head. When the Heads is patched if there is more than one function in the personality MagicQ automatically generates separate groups for each function using the appropriate element mask. For example, if a Fixture has element 1 as core RGB beam, and elements 2 to 8 as "eye candy" ring - then set Element one to Function Type 1 and elements 2 to 8 to Function Type 2. MagicQ will then make a group with element 1 mask only for the Core Beam, and a separate Group with elements 2 to 7 mask for the "eye candy" LED ring.

This will also be used in strobes which have a Strobe function and a Plate function.

Each function must use different elements from the head - if element 1 to 3 are used in Function 1, then elements 4 and above must be used for Function 2, and so on.

The function can be named in the function tab under VIEW OTHERS.

When functions are in use then all elements should be set to Independent. Duplicated elements are not supported when Function 2 and above are in use.

When all channels are set to use Function 1 then functions are not used.

Importing Channels

Channels can be imported from a `.csv` format file using the Import Chans soft button. The data should be organised in the `.csv` file in the same column order as the fields in MagicQ.

```
<chan>,<name>,<type>,<attrib no>,<encoder>,<size>,<instant>,<slow
enc>,<invert>,<locate>,<default>,<highlight>,<lowlight>,<element>,<independent>,<
select>,<function>
```

```
<chan> must be sequential starting from 1.
```

<name> is a maximum of 15 characters.

<type> is LTP or HTP.

<locate>,<default>,<highlight>,<lowlight> are numeric values 0..255. If blank then there is no value.

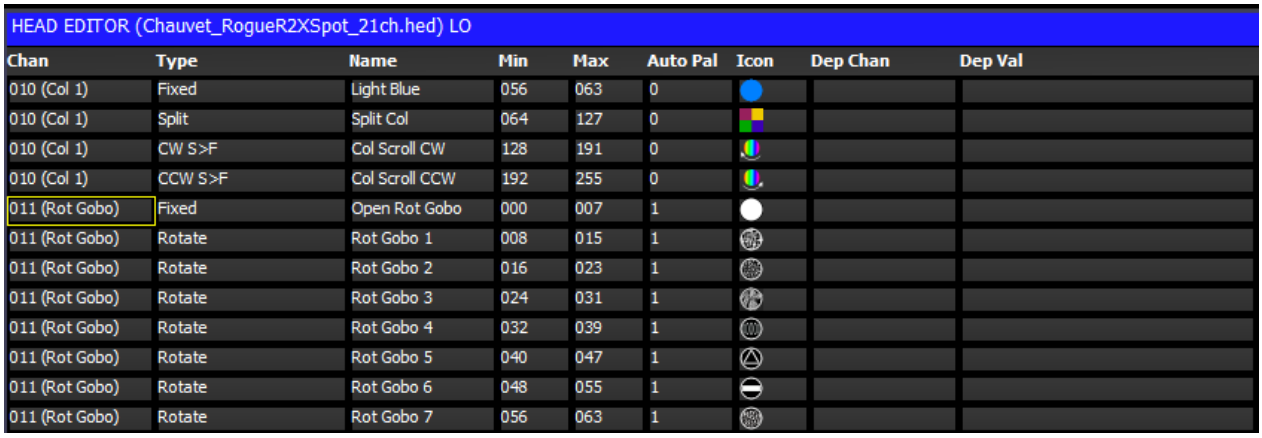
The <instant>, <slow enc>, <invert>, <independent>, and <select> fields should be either yes or no. Alternatively use 1 for yes and 0 for no.

<element> is the duplicated element number. 0 for main.

<function> is the function number starting at 1.

All fields are case insensitive.

Ranges View



HEAD EDITOR (Chauvet_RogueR2XSpot_21ch.hed) LO

Chan	Type	Name	Min	Max	Auto Pal	Icon	Dep Chan	Dep Val
010 (Col 1)	Fixed	Light Blue	056	063	0			
010 (Col 1)	Split	Split Col	064	127	0			
010 (Col 1)	CW S>F	Col Scroll CW	128	191	0			
010 (Col 1)	CCW S>F	Col Scroll CCW	192	255	0			
011 (Rot Gobo)	Fixed	Open Rot Gobo	000	007	1			
011 (Rot Gobo)	Rotate	Rot Gobo 1	008	015	1			
011 (Rot Gobo)	Rotate	Rot Gobo 2	016	023	1			
011 (Rot Gobo)	Rotate	Rot Gobo 3	024	031	1			
011 (Rot Gobo)	Rotate	Rot Gobo 4	032	039	1			
011 (Rot Gobo)	Rotate	Rot Gobo 5	040	047	1			
011 (Rot Gobo)	Rotate	Rot Gobo 6	048	055	1			
011 (Rot Gobo)	Rotate	Rot Gobo 7	056	063	1			

This view defines the ranges for channels that use specific values to access functions such as colour and gobo wheels, shutter channels and control channels. Ranges can be set up at any time regardless of whether heads of the type have been patched. The range data becomes immediately available. If the head has been patched then you can capture the minimum and maximum value fields from the programmer.

Ranges can be added using the Insert soft button and deleted using the Remove Button (press twice to Remove).

For each range you specify the channel number (starting at 1), the range type, the range name and the minimum and maximum DMX values for the range. The minimum and maximum

values can be the same value if required.

The Range Type field is used to specify the function of this range so that MagicQ and MagicVis can recognise the features of the head. MagicQ automatically generates palettes for gobos, strobes, zoom, iris based on the range types. The range types are also used in visualisation.

The Auto Palette field was used to indicate Gobo channels for auto palettes prior to Range Types being added. This field can be used to force auto palettes for Gobo 1 or Gobo 2 that do not have a range type set to Fixed, Index or Rotate. Where Range Types are set this field can be set to 0.

Up to 20 Auto Palettes are supported per channel. Set this value to 1 for a specific channel function such as a Cone Gobo on a gobo wheel or a larger value for a graded parameter such as the rotate speed on a Gobo Rotate channel. The sum of all the Auto Palette fields for a particular channel should not exceed 20.

The Icon field is the icon displayed in the relevant Windows and soft buttons. Double click to select an icon from the large MagicQ icon library. The icons selected in the ranges are used by MagicVis for visualising gobos. For prisms select from icon category 50.

The Dep Chan and Dep Val fields enable ranges to depend on other ranges. This enables ranges to be defined for heads with attributes that change their function depending on the value of another attribute – such as FX parameters that depend on the particular FX chosen. The range is only valid when the dependent channel (Dep Chan) is set to the range specified in the dependent value (Dep value).

Importing Ranges

Ranges can be imported from a `.csv` format file using the Import Ranges button. The data should be organised in the `.csv` file in the same column order as the fields in MagicQ.

```
<chan>,<name>,<min>,<max>,<auto pal>,<icon>,<dep chan>,<dep val>
```

<chan> and <chan names> must be within the range of channels set for the personality

<name> is a maximum of 15 characters. All other values are decimal numbers.

<min>, <max> and <dep val> are a number between 0 and 255

<icon> is a 32bit number

<auto pal> should be 1 for creating auto palettes from this range, 0 otherwise.

Capturing Ranges

To capture the minimum and maximum values from the programmer you must first insert a new range and select the channel number you are interested in. Then using the Group, Position, Colour, Beam, windows in the usual way set the minimum value for the attribute. Back in the Ranges View, move the cursor to the minimum field and then press the Capture

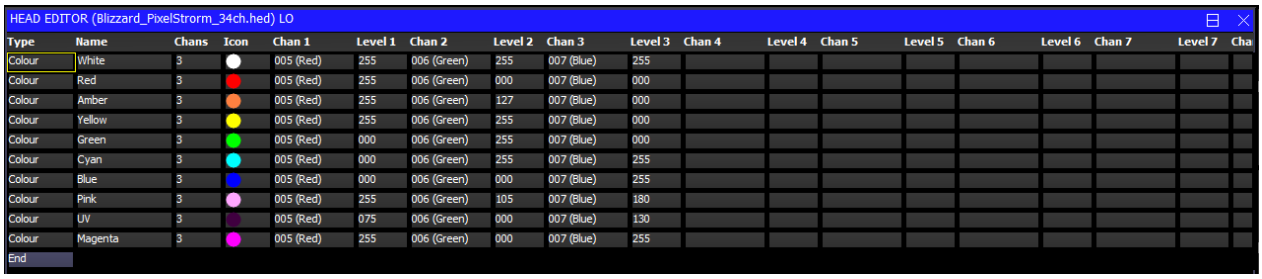
Range soft button. In a similar way, set up the maximum value in the programmer, move to the maximum field in the Ranges View, and then press the Capture Range soft button.

Attribute Test

The "Attribute test" mode enables the range to be tested on any patched heads of this type. In this mode moving up/down outputs the Range to all patched heads of this type. The value output is the middle point between the minimum and maximum – except when the cursor is placed in the minimum or maximum fields – in which case the actual minimum or maximum value is output.

Palettes View

This view defines the default palettes that are loaded when the head is patched. Palettes can be set up at any time regardless of whether heads of the type have been patched. The palette data is immediately available for patching new heads. When you have changed Palettes in the Head Editor you can regenerate palettes for heads that are already patched by using the "Regen Palettes" soft button.



For each Palettes you specify the type (press Enter to swap between the types), the name and the number of channels that make up the Palette. Then for each channel you specify the channel number and the level for that channel.

Palettes can be added using the Insert soft button and deleted using the Remove Button (press twice to Remove).

The Icon field is the icon displayed in the relevant Windows and soft buttons.

Importing Palettes

Palettes can be imported from a .csv format file using the Import Ranges button. The data should be organised in the .csv file in the same column order as the fields in MagicQ.

<palette type>,<name>,<num of chans>,<icon>,<chan 1>,<val 1>,<chan 2>,<val2>,...

The icon field is normally a decimal number but MagicQ will accept icons numbers in hexadecimal if they have0h or 0x at the start of the number.

Capturing Palettes

To capture the palette value fields from the programmer you must first insert a new palette and configure the channel numbers you are interested in. Then using the Group, Focus,

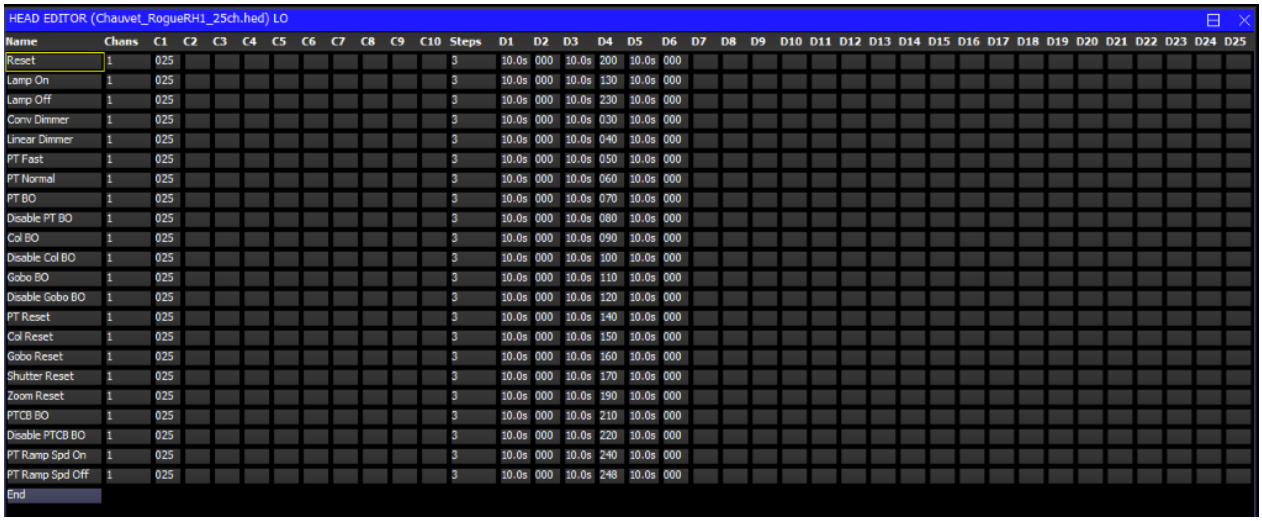
Colour, Beam windows in the usual way set up the palette values. Back in the Palettes View press the Capture Palette soft button.

Attribute Test

The "Attribute test" mode enables the palette to be tested on any patched heads of this type. In this mode moving up/down outputs the Palette to all patched heads of this type.

Macros View

This view defines the macros that are available to control special features of the head such as turning the lamp on and off and resetting motor channels. Every head should have a macro named "Lamp On", "Reset" and "Lamp Off". MagicQ uses these macros in short cut keys for these functions.



Each macro has a name and a number of channels. Up to 10 channels can be controlled by each macro.

The macro data consists of fields to specify which channels are used (C1 to C10) and then the macro step data. The macro step data consists of the number of steps followed by data fields.

The number of steps indicates how many steps are required in the macro – normally there are just two steps – the initial step to set the correct levels and hold them for a time (e.g. 5 seconds) and then a step that returns the channels to their default values.

The step data is specified in the fields D1...Dx. For each step there is a time for the step, followed by the values for each of the channels used for the step.

User Icons

It is possible to load user icons from bitmap and jpeg files. In File Manager click on the .png or.bmp files you wish to make into icons. The icons will appear under the "User icons" icon class.

User icons are not stored in the show file, so when changing MagicQ systems it will be

necessary to load the user icons onto each MagicQ console / MagicQ PC system.

Heads with Multiple Elements

MagicQ supports two methods for controlling heads with multiple elements - the original multi element heads which involved multiple personality files and the newer single personality file Duplicated elements.

In order to simplify the personality libraries, in early 2018 ChamSys converted all multi element heads to Duplicated elements. We recommend that all new personalities that have multiple elements use Duplicated elements.

In the Head Editor it is possible to convert between Multi elements and Duplicated elements.

For multi element heads, in Edit Head, View Chans press SHIFT and the soft button CONV TO DUP.

For duplicated heads, in Edit Head, View Chans press SHIFT and the soft button CONV TO MULTI.

Note that these conversion functions cannot be used if heads of the type are already patched in the show file - save as a different mode before attempting the conversion. If you then wish to convert patched heads then perform a morph operation.

Creating Duplicated Heads

The personality should be created in the same way as a personality with only single elements.

Then in the Head Editor, View General, Multi set the option "Multiple Heads Type" to "Duplicate".

Set the width and height appropriately ignoring the main element - for example if an LED bar has a main element and 5 multi elements, set the Width to 5 and the Height to 1.

In Head Editor, View Chans set the element number for each channel. For attributes that are only used once in the head the element should be left at "Main". Attributes that are used more than once should be set to element 1,2,3 etc...

Elements 2 and above can also have the Independent and Select fields set.

For moving heads normally the Independent field should be set to "No" - this allows the head to operate with a single RGB control without having to program all the elements into all Cues.

For fixed LED bars the Independent field may be set to "Yes" - this means all the duplicated elements will operate independently.

For elements that should not be selected by default (e.g. eye candy LED rings) set Select field to "No".

Patching Heads with Duplicated attributes

MagicQ supports Heads with more than one element of an attribute - for example a LED Wash light with 5 RGB elements or a club light with 2 tilt channels. Heads set as "Duplicated" now allow access to the individual elements and allow FX to be run over the individual elements.

By default the duplicated elements are treated as one element - the 2nd, 3rd and 4th elements just copy the programming from the 1st element. This ensures that the Head is simple to use and appears to act as if it only had a single element.

When locating, selecting palettes and using soft buttons or encoders on attribute parameters only the first element is made active in the programmer and therefore only the first element is recorded into Cues. When the Cues are played back then MagicQ copies the calculated values from the 1st element to the other elements.

Individual elements can be selected using the dot (.) operator. For example to select the 1st element only, enter .1 NEXT HEAD or .1 @@. This sub selects only the 1st element. Pressing returns the selection to all elements. When a sub selection is active on a Duplicated Head then the specific elements will be made active in the Programmer and subsequently recorded into Cues. When the Cues are played back MagicQ uses the programming from the Cue for elements that have been recorded in to the Cue, only copying for elements that have not been recorded.

All elements can be selected if you wish to apply split times across all elements or to include all elements in a FX. Select all elements using the syntax .> @@

Palettes values are by default created for the first element. When a sub selection is in operation MagicQ will use the value in the Palette for the first element if there is no specific palette entry for the element selected - this avoids the need for creating separate palette information for each element. When a Palette is updated it will update Cues that use that Palette from the sub element if it exists in the Palette - otherwise it will use the data from the 1st element - ensuring that the Cue gets updated as expected.

When selecting FX for channels on a Duplicated Head that have multiple elements MagicQ prompts three options for applying the FX:

- Dup Elements
- Include Elements
- Use Elements

Dup Elements treats the elements as duplicated - i.e. all elements in the head do exactly the same thing. This is the default operation which treats all the elements in a head as one.

Include Elements includes all the elements in the FX enabling separate control of each of the elements as if they were separate heads. For example if you apply a FX to 4 heads each with 3 elements then the FX would be spread over the 12 elements.

Use Elements runs the FX within the Heads, with all Heads performing the same FX synchronously across their elements. This is the same as Include Elements except that MagicQ

automatically sets Parts to the number of elements within the heads causing all Heads to have the same offset.

Heads are set as Duplicated Heads in the Multiple Heads Type field in the Head Editor. In the Head Editor, View Chans the element field (cursor right) is used to indicate the different elements. Duplicated elements always start from Element 1. All elements that are not duplicated are set to 0 (Main Element). For heads that have both a main element and a repeated element - e.g. a master RGB and then repeated RGB for each element then the master RGB is element 0 and the repeated RGBs start from 1.

Custom Element Layout

It is possible to specify a custom element layout for a Head, which is used when inserting multi element heads into Grids and for Group based Grids. This is particularly useful for heads with multiple elements arranged in clusters or circles - each of which has a completely different element ordering.

In View General, Multi, set the Order field to "Custom". This enables the VIEW ELEMENTS view where it is possible to drag and drop elements into the pattern then best represents them on the grid. By default the elements are placed in a square - by pressing the "MOVE DRAG" soft button they can be easily dragged to the correct position.

Note that this grid organisation is designed for pixel mapping where heads fit onto a fixed grid - the "View Ele Data" has data fields for X,Y,Z position to enable more accurate real life element positioning - in the future this will be used in MagicVis and in Plot View.

Emitters

To edit a Head's Emitter (colourimetry) data, it is first necessary to check that the Head has the correct number of emitters defined. On the "Lamp" tab, find "Number of emitters"; this will be set automatically to the number of colour-mixing attribute types used, so confirm it is correct. For example, an RGB fixture has 3 emitters; a RGBAL has 5; and an RGBAWLV has 7.

Then, select the "Options" tab and press the VIEW EMITTERS soft button to show the emitters editor. Each emitter has the following parameters: - Attribute: this is the channel attribute associated with this emitter. This should be an attribute number in use by the fixture. - Name: a short name for the emitter; e.g. "Ultraviolet". - Chromacity X and Y; these are CIE 1931 colourimetry values for the emitter's colour, from 0.0 to 1.0. - Luminosity: the emitter's brightness. The preferred unit is lumens; however, for colour matching, only the relative brightness between the emitters matters. Therefore, you can also use luminance (lux), or a percentage.

The data can normally be found from a fixture's manufacturer; however, it may not be specified by the manual, and some manufacturers may not measure their fixtures.

For more on colourimetry, see the Colour Picker chapter.

Old MagicQ Multi Elements

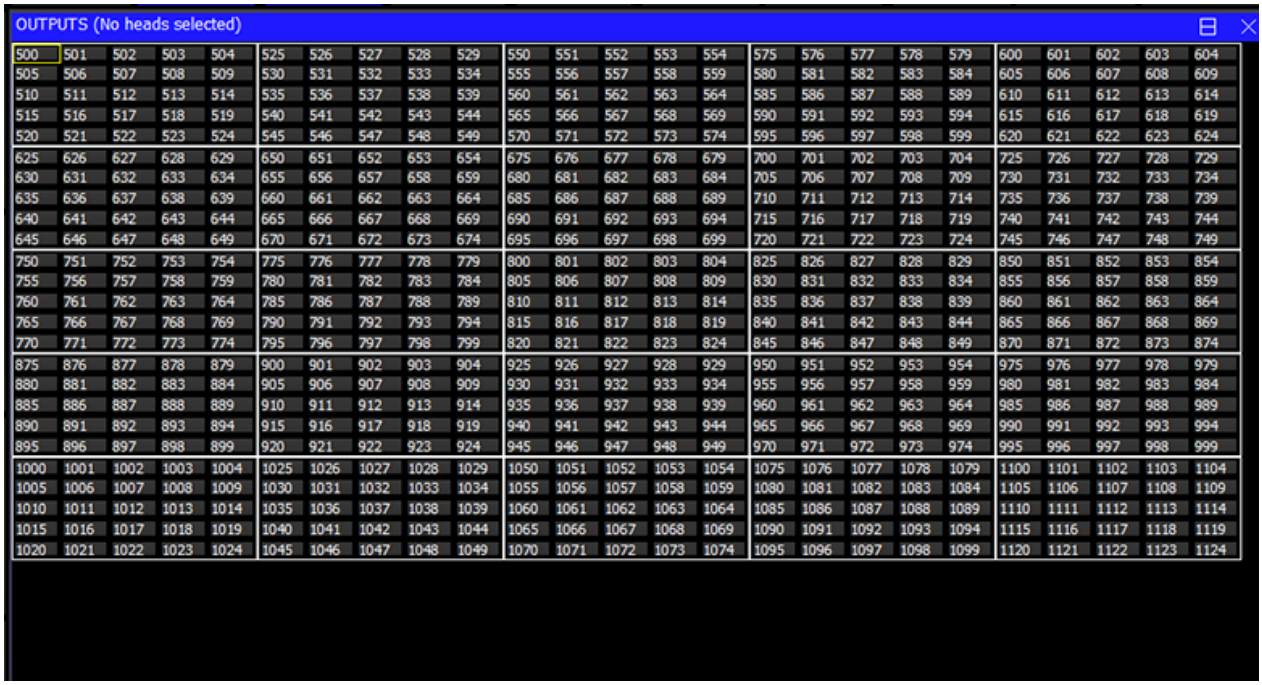
Older MagicQ supported multiple elements heads (e.g. RGB pixels), so that they can be patched in one action rather than patching the individual elements separately. When these heads were patched they continued to be controlled as separate heads.



Heads that consist of a single general element in addition to a repeated element are also supported. In these cases two different heads are required – one for the general element and one for the repeated element. The head for the general element is used for patching, and it references the repeated element to enable it to be patched automatically. It is possible to set the Multiple Heads Type field to specify whether the repeated elements are patched before or after the general element.

In the Patch Window, View Heads only the head general element is shown – however testing, moving, copying and setting the head no, affects all the elements in the head. The View Chans view continues to show the individual channels.

Heads with multiple elements can be inserted into the grid in one go. The Width, Height and Order fields in the head specify how the elements are arranged – for example the picture below shows Colour Web 125 inserted into a grid. Colour Web 125 has a strange DMX order with individual elements having a "L" shape rather than a square or rectangular shape.



It is possible to swap the repeated elements of a multiple element head around using the Swap field in the View Heads view. This is very useful, if for instance a LED batten has been rigged upside down.

When a head containing multiple elements is patched, a different head number will be allocated to each element. This enables each individual element to be controlled from the keypad and from the grid views. For heads that consist of a general element and repeated elements the general element will be allocated the base head number and the repeated elements will have increasing head numbers from the base element.

The Head Editor shows the full channel list in View Chans including the repeated channels.

Replacing Heads

It is sometimes necessary to modify Heads in the Head Editor without changing the show data programmed into Palettes and FX. This may occur when the original version of a Head file had an error in it. The Reload Head soft button in the Head Editor enables a Head within a show file to be reloaded with the latest version from the MagicQ library.

There is now a SHIFT + REPLACE HEAD soft button in the Head Editor which enables changing the data to data from a Head File with a different name - this could be useful if there are multiple versions of Head Files for a particular mode. The Head File replacing the Head File in the show must have the same number of channels.

An example could be where the original personality had a background colour on CTC and CTB, with the replacement file using functions with all colours on Cyan, Yellow and Magenta.

The Head file will be replaced with the new attribute assignment and channel options, but the data within the Palettes and Cues will not be changed. This ensures that any existing programming in the show file will continue to work correctly - but if the Head is morphed then it will have a better chance of success.

Custom Gel Libraries

MagicQ supports user custom gel libraries. User libraries are named `usergels1.csv` to `usergels5.csv` and must be stored in the `show/heads/` folder. The files consist of parameters separated by commas.

```
<short name>,<long name>,<gel number>,<gel BGR value in hexadecimal>,<CIE X>,<CIE Y>,<transparency>
```

The gel number is a number between 1 and 999.

The CIE X, Y, and transparency are optional fields used for colour matching; if absent, they will be approximated from the hexadecimal colour. They range from 0.0 to 1.0. For more on colourimetry, see the Colour Picker chapter.

For example, Lee 106 is represented as

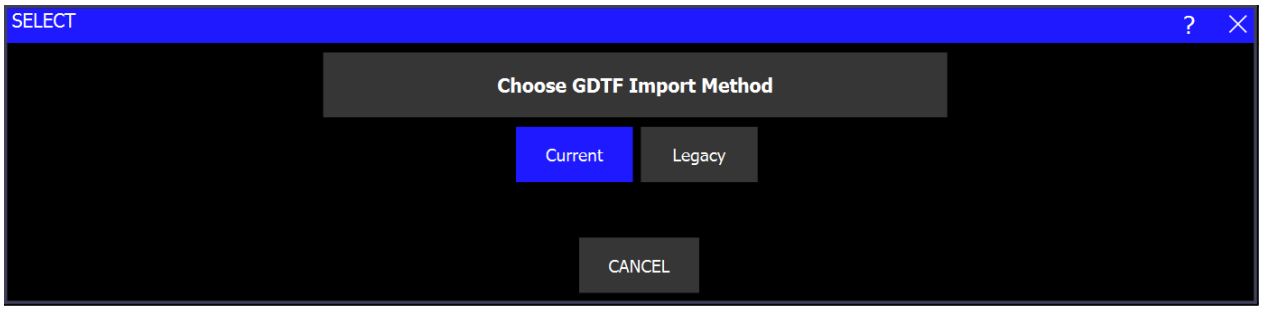
```
L106 Primary Red,Strong red effect cycloramas.,1106,3200F0,0.699,0.285,0.093
```

When MagicQ starts it loads the standard gel libraries and then looks for the five user gel libraries and if present loads them. Changes to the library files will not take place until restarted. The gel libraries are not stored in the show file so will need to be copied onto all MagicQ systems including remote PCs.

Importing GDTF Files

MagicQ supports the General Device Type Format (GDTF) for importing head files. To import a GDTF file, locate it in the file manager and select it by clicking or tapping.

A dialog is shown asking whether to use the Current or the Legacy Import method.



If the GDTF file contains multiple modes, MagicQ shows a dialog of the modes to import.

Part of the import process involves automatically determining if a head already exists in the ChamSys library. If a head match is found a dialog is shown offering the option to use the existing head instead.



The import should finish within a few seconds. Once it is completed, a new head file will be saved into the heads directory. If problems are encountered when importing, a dialog will appear for a few seconds indicating that warnings were issued; see "GDTF Troubleshooting" below for details.

The software will switch directly to the Patch Window and the new head file will be selected as the fixture to patch. From here, press "PATCH IT" to patch the imported head, or "EDIT HEAD" to inspect the imported file.

GDTF Troubleshooting

Due to variance with the way that GDTF files are created, not all files may import correctly. MagicQ follows a "best-guess" approach when dealing with noncompliant GDTF files; this may lead to incorrect results in some cases.

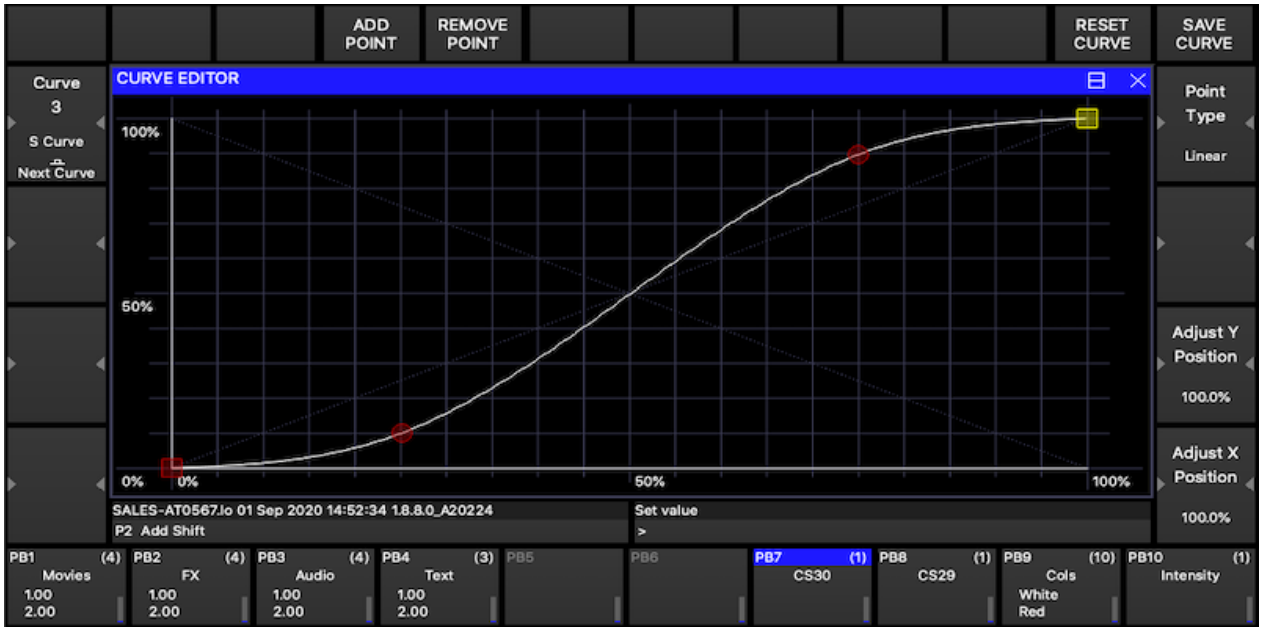
If warnings are issued during import, it is advised to check the import log; this is located in the "MagicQ/log" directory, in a file called "gdtf.log". The most common types of warnings are the following: - **GDTF attribute 'X' is not recognised**: this appears if unofficial GDTF attributes have been used. MagicQ will have attempted to guess how to handle channels with this attribute based on their names, which may fail. - **ChannelFunction X has no ChannelSets**: the GDTF file contains information about ranges, but the actual DMX ranges are not defined. A single range will be created which covers the entire DMX channel. - **text "X" contradicts PhysicalFrom/PhysicalTo**: the name of a range appears to contradict the direction that was encoded; "direction" here means "slow to fast", "wide to narrow", "high to low", etc. Check that range directions are correct. - Missing media files: the GDTF file references media files (likely for gobo images), but these were not found in the GDTF file. Gobo images will not be available.

If a GDTF file is severely malformed, the import process may abort with an error. This will appear on the MagicQ command line, and no head file will be created. If this occurs, contact the file creators to inform them of the problem.

Curve Editor

MagicQ includes a curve editor to allow users to create their own dimmer fade curves and effects curves. Curves are not specific to any head, they can be used on any head.

Note the Curve editor is not available on Compact consoles or Pro2010 consoles. User curves can be used on these consoles, but not edited.



User Curves 1 to 10 correspond to the user dimmer curves that were supported in previous versions of MagicQ. These will still be automatically loaded from the user dimmer csv files (e.g. show\heads\dimmercurveuser1.csv) if they exist.

User Curves 1 to 20 can also be used in the FX Editor (FX Window, Edit FX) as part of FX steps. Select View Chans and set the Curve filed. This allows completely custom FX waveforms to be generated.

User Curves are saved within the show file and can be imported from other show files using Setup, Import Show, Advanced, and by deselecting all options except for "Import Curves".

Creating a Curve

In the Curve Editor Window (FX Window, Curve Editor) use wheel A to find an empty curve, then press ADD POINT to add new points to the curve, at least 2 points will be required. The first 2 points are automatically placed at the start and the end of the curve. Additional points will be placed in between.

Curves can be saved into the show by pressing SAVE CURVE. RESET CURVE will return the curve to how it was last saved. Once the curve has been saved it will take effect.

Editing a Curve

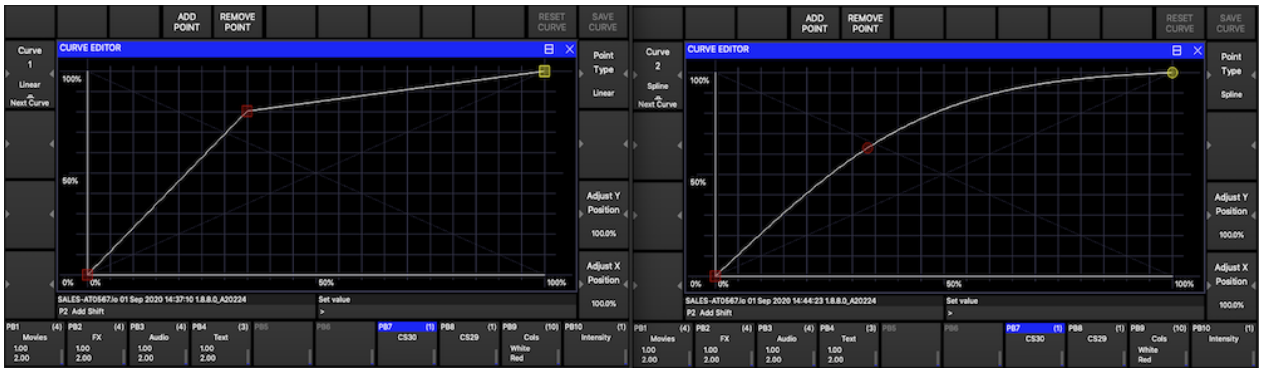
Points can be moved around by either clicking on them and dragging them, or by clicking on

them then using encoder wheel X and Y to move them around. By clicking and dragging it is possible to select more then one point at a time and move it around.

Pressing the Y encoder button will cycle the point between 100%, 0% and a position midway between the first and last points. To specify an exact position type the required percentage then press Set and the X or Y encoder button.

To remove a point first select it by clicking on it then press REMOVE POINT. If more than one point is selected they will all be removed.

Points can either be 'Linear' or 'Spline'. Spline points create a curved join between 2 lines while linear points create a sharp join between 2 lines. Select a point then press encoder E to change the type of a point.



To name a curve first type the required name then press Set, then encoder A.

Removing Curves

In the Curve Editor a Curve can be removed from the show by using the REMOVE CURVE soft button.

Setting a Dimmer Curve

To use a curve as a dimmer curve got to the Patch Channels Window (Patch Window, View Chans). There is a column in the table called 'Curve'. Select the Curve column for the Head and press Set. The first user created curve will be called 'User 1' or the name provided.



Importing/Exporting Curves

The curve editor has the ability to import/export curves via CSV files in the following format:

Range Row: The first row contains two columns for defining the Y-AXIS min/max range. The first column is the min value and the second column is the max value. The min/max range

can be 0-255, 0-65535, or any arbitrary range, e.g., 0-100.

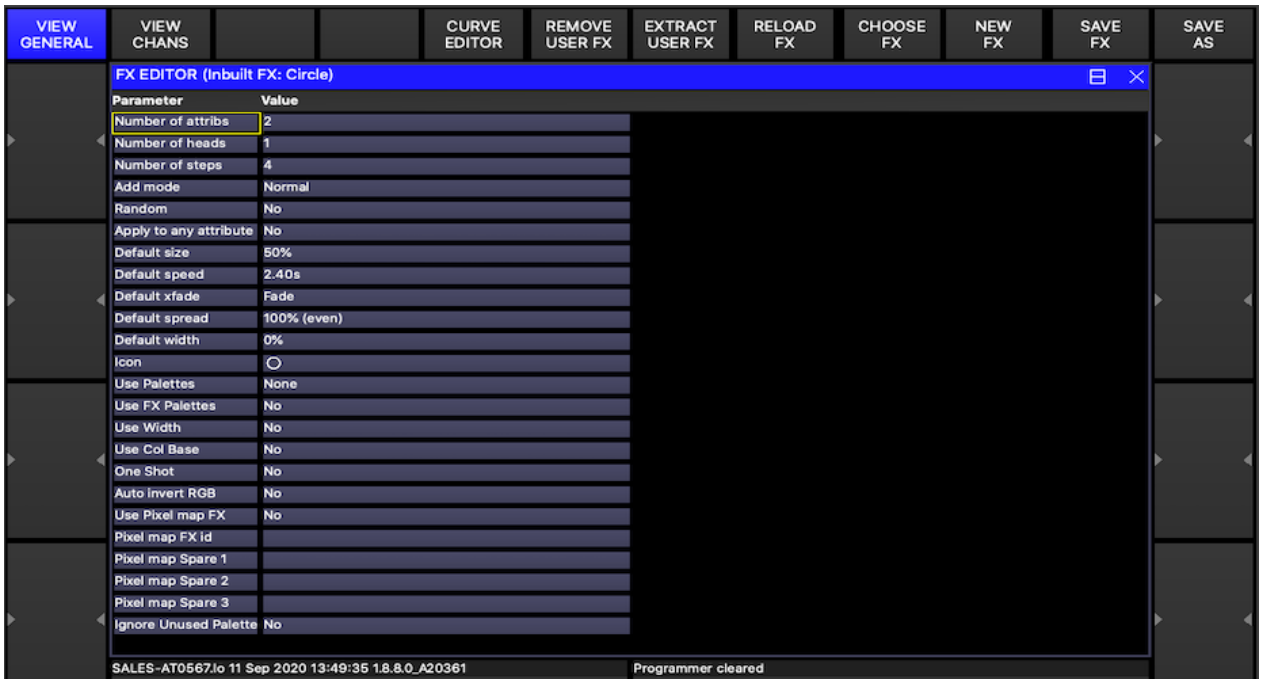
Data Rows: Subsequent rows contain the curve points data with up to a maximum of 256 rows supported. Each row has three columns: the first column is the X-AXIS with a value between 0-255, the second column is the Y-AXIS with a value within the defined range, and the third column is a boolean value indicating if the point type is a SPLINE (represented by '0' for No and '1' for Yes).

Example contents of a CSV file:

```
0,65535
0,0,0
48,32878,0
139,16245,0
188,40508,0
255,65535,0
```

FX Editor

MagicQ includes a FX editor added to enable users to create their own waveform FX and to edit existing waveform FX. The FX editor edits the core MagicQ waveform FX stored on the console – distinct from the combination FX stored in the FX Window. Waveform FX are not specific to a particular personality type – they can be used on any Head with the required attributes.



Changes made in the FX editor have immediate effect on all Cues that use the FX – for example changing the standard circle FX will affect all cues with circle. It also affects the FX stored on the console, so all changes will affect new shows made on the console.

MagicQ will not allow you to directly edit the inbuilt FX – you must SAVE AS to create a new FX before you make any changes in the FX Editor.

MagicQ FX supports any number of attributes in a Waveform

A MagicQ FX can store data for more than 1 Head – so that for instance, you can make a FX with some Heads performing circles whilst others perform squares.

In the FX Editor Window (FX Window, Edit FX) it is possible to extract the user FX from a show file to the console. Press the EXTRACT USER FX soft button.

To remove all user Waveform FX from a console, press SHIFT + REMOVE USER FX.

View General

In View General you can configure properties for the FX. For FX that only use 1 attribute setting the "Apply to any attribute" enables the FX to be used on any attribute rather than being tied to a specific attribute such as dimmer.

Defaults can be set up for speed, size, spread and contrast. Setting contrast to snap forces the

contrast for the FX to default to 0 – i.e. snap rather than fade. The contrast of a FX can be changed at any time during programming or playback.

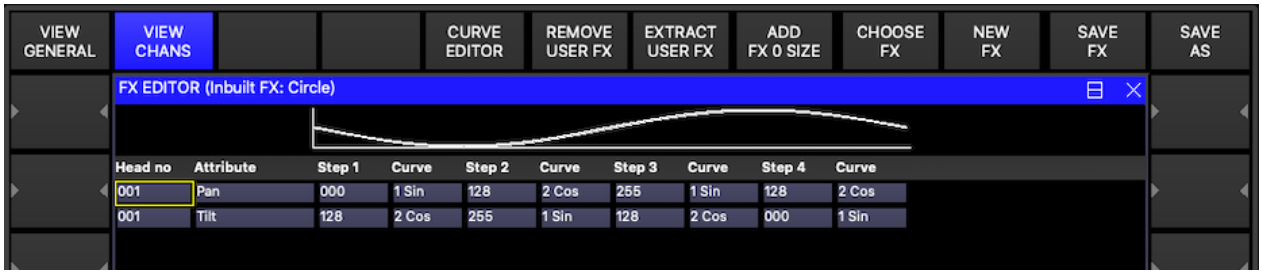
The add mode determines the default for how the FX is added to the base values – the choices are NORMAL, PLUS, MINUS or ABS. When set to ABS, playbacks will ignore any base values for the channels and treat the FX values as absolute values – this is useful for generating FX based on absolute positions or on specific colours on a colour wheel.

View Chans

Each step in the FX consists of a value between 0 and 255 and a curve. The curve specifies how the level changes from one step to the next. The valid curves are:

0 – proportional fade 1 – sine fade 2 – cosine fade 3 – snap

The waveform for the complete FX is shown at the top. Moving up and down with the cursor to a different attribute or head shows the waveform for that attribute / head.



FX that have been recorded in a show, but that have not been stored onto the console can be extracted from the show by including the Cue that uses the FX. This will bring the FX into the FX Editor, and it can then be saved on the console.

Palette FX

In the FX Editor in View General, set up "Use Palettes" to be either "Int", "Pos", "Col" or "Beam". Then in View Chans, the values become Palette parameter index entries rather than absolute values.

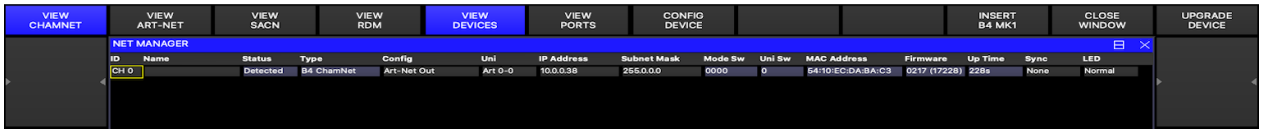
Use index from 1 to 10 for the 10 Palette parameters in a Palette FX.

When applying a Palette FX if a Palette does not contain the specified attribute for a selected head then it will use the attribute from the first head in the Palette with that attribute. If that attribute is not contained in the palette at all then the default value for that attribute will be used.

It is possible to set a FX to ignore attributes that are not in any of the specified palettes by setting the "Ignore Unused Palettes" to "yes". This, for example, enables a 2 Col FX which contains all colour attributes to be applied to a head without the FX affecting the colour wheels. When running Palette based FX any attributes that are used by the FX but that do not have values in the Palette will have a zero FX applied. When this option is not set then behaviour is as in previous software - the FX uses values from similar heads within the FX, or if none uses the attribute default value.

Network Manager

MagicQ supports a Network Manager (Setup, View DMX I/O, Net Manager) for monitoring and configuring network devices, including Art-Net and sACN nodes, RDM devices, GeNetix and SnakeSys products using the ChamNet protocol.



VIEW CHAMNET

ChamNet devices include GeNetix Nodes (GW2I, GW2O, GN2, GN5, GN8, and GN10, 10Scene Store), legacy SnakeSys Nodes (B4, R4, R8 and T2 (T6), older ChamSys 5 port Ethernet Interfaces and 10Scene Gateways,

GeNetix Nodes can be configured in multiple different ways, via their front panel switches and buttons on the product (GN2, GN5 and GN10), via their inbuilt webserver or via Network using Net Manager window on MagicQ consoles. GeNetix nodes always operate in ChamNet mode.

When using a PC or Mac, ensure that the correct network host adaptor is chosen in Setup, View Settings, Network, IP address. If an invalid network host adaptor is selected then INVALID NET will show in the title bar and MagicQ may not be able to discover ChamNet devices.

The ChamNet view has four tabs - Devices, Ports, Scenes and Options.

Devices

The IP address and subnet mask of the device can be set from this tab.

Factory Reset

The Factory Reset returns the device to its default configuration.

Note that security credentials are not reset.

Secure Reset

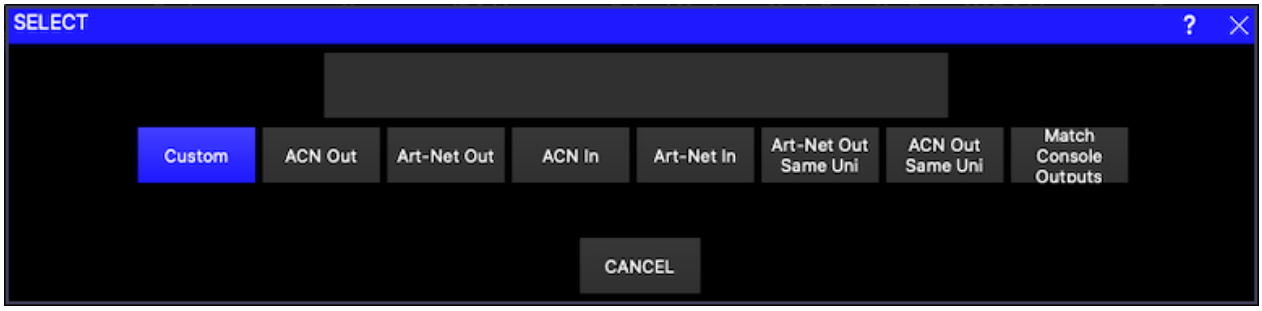
The Secure Reset is similar to a Factory Reset but also clears all security credentials. This is particularly useful for GeNetix nodes that do not have front panel controls such as GN4IP, GW2O and GW2I.

In order to prevent malicious resetting the Secure Reset is only supported after a particular power up / power down sequence has been performed on the device. The device must be powered off, then powered on for between 15 and 60 seconds, then powered off and then powered on again. At that point the secure reset is allowed within the first 60 seconds of power on. This ensures that secure reset is not allowed following normal power ons and

during normal running.

Configuring Entire Devices

All GeNetix and SnakeSys nodes can be configured using the CONFIG DEVICE soft button and selecting an appropriate profile.



The profiles act as a starting point – once a starting profile has been chosen, the detailed configuration can all be set individually for each port by changing to the VIEW PORTS view.

At any time you can revert back to a standard profile by pressing the CONFIG DEVICE soft button – this will show the list of DMX profiles.

Identify

Identify mode can be turned on from soft button C.

When Identify mode is entered, all ChamNet devices are set to LEDs off except for one device which is set into Identify mode with all LEDs on. Stepping through the devices in MagicQ will Identify each device in turn.

When Identify mode is exited, all ChamNet devices return to their normal LED states.

GeNetix nodes with front panels indicate Identify mode on the display as well as turning on all the LEDs. SnakeSys nodes turn all LEDs on.

Identify DMX Ports

Individual ports can be identified (requires GeNetix firmware 3.50)

In VIEW CHAMNET, Ports setting the Identify field to On causes the port on the node to go into Identify mode. As with all other fields in these tabs, the data is stored on the device / node, not on MagicQ.

There is also an Identify Selected Heads feature which can be enabled from Soft button D in VIEW CHAMNET, Devices and in VIEW SIGNET, Nodes. When Identify Selected Heads is on, MagicQ sets all ports on nodes that are receiving data for the currently selected heads into Identify. This is useful to find out which port on the DMX nodes is intended for a particular fixture or group of fixtures. For example, if you want to determine where the Smoke Machine should be plugged into the DMX node, then enabled the Identify Selected Heads feature and select the Smoke Machine group.

Note that GeNetix nodes will support per port Identify from firmware version V3.50.

RDM

GeNetix network nodes support ANSI E1.20 RDM which is enabled by default.

The GeNetix nodes only perform RDM operations when requested by the MagicQ or QuickQ console. They do not perform discovery on start up, or at predefined intervals – they only perform RDM discovery when explicitly requested by the console. This ensures that show critical DMX operation is not affected by RDM.

RDM on the node can be disabled on a menu option from the front panel and from the MagicQ console.

The node can also be set into a RDM Read Only mode. In this mode the GeNetix node will respond to RDM GET commands to receive information but will block all RDM SET commands. This enables users to discover the lighting rig, but not to change it.

Legacy SnakeSys Nodes

SnakeSys Nodes can be configured in two different ways – in normal mode the product is configured from the front panel switches and buttons on the product. In ChamNet mode the switches and buttons are ignored and the product is configured from MagicQ only.

If the SnakeSys product is set in a mode other than ChamNet Mode (such as Art-Net, ACN or buffer) then it is not possible to configure the interface from Net Manager. However, the device will still appear in Net Manager and it is possible to view its configuration.

In ChamNet mode each SnakeSys product on the network has a different ID in the range 0 to 99. All interfaces should have different IDs.

The ID is set on the SnakeSys product using either the control panel or rotary switches. The 10Scene Gateway ID can only be configured through Net Manager as it has no physical buttons on the device.

Note that GeNetix nodes can all have the default ID (0) and can always be configured from Net Manager. It is only necessary to use different IDs on GeNetix nodes when using the 10Scene ports on the GN5 or GN10.

Upgrading GeNetix and SnakeSys firmware

GeNetix and SnakeSys nodes can be firmware upgraded from MagicQ software - the latest MagicQ software contains the latest firmware for all GeNetix and SnakeSys products - this can be found in the firmware folder under on the installation.

ChamSys recommend not attempting a firmware update in a critical show environment.

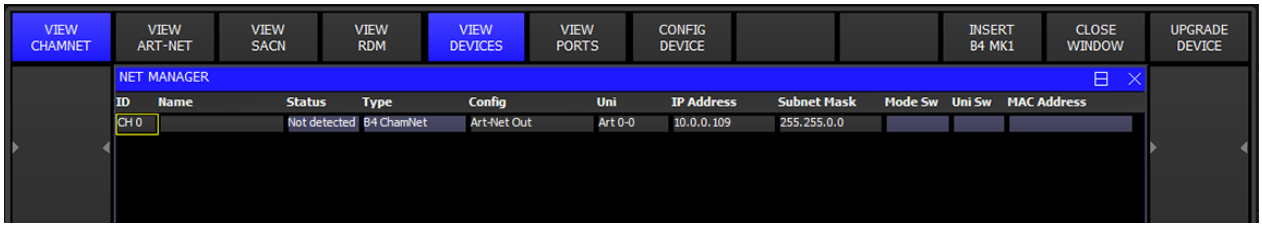
Download the latest MagicQ software from the ChamSys download site. In order to upgrade GeNetix devices, MagicQ must be running software version 1.9.5.0 or above.

http://chamsys.co.uk/download

- Connect the GeNetix or SnakeSys node to either a MagicQ Console or MagicQ PC/Mac

System via a direct network cable. It is advisable to remove all other equipment from the network.

- GeNetix devices ship with a default IP address in the 10.X.X.X range, in order to update the firmware on your device MagicQ must also be set to an IP address within this range.
- SnakeSys devices ship with a default IP address in the 2.X.X.X range, in order to update the firmware on your device MagicQ must also be set to an IP address within this range.
- For SnakeSys devices, set them into ChamNet/MagicQ mode. GeNetix devices upgrade in all modes, so no change is required.
- In Net Manager, put the cursor on the device to be upgraded and press UPGRADE DEVICE.
- Choose the required firmware version.
- Do not power off the interface whilst the firmware is being upgraded. When MagicQ reports "Device restarted successfully" the upgrade is complete.



If you are sent a newer firmware file by ChamSys support then copy the file into the firmware folder in the MagicQ installation. To install it onto a MagicQ console put the file onto a USB stick, then in MagicQ go to Setup, File Manager. Select USB DRIVE. Press COPY and select the file as the source to copy. Then select the destination, by selecting HARD DRIVE, UP DIR, and select the firmware folder. Press the "." item to copy to. Then follow the procedure above.

The firmware has the filename firmware_XXXX_YYYY or firmware_XXXX_XXXX_YYYY where the XXXX or XXXX_XXXX is the product code and YYYY is the firmware version number. The product codes are:

- SnakeSys B4 334A
- SnakeSys R4 342A
- SnakeSys T2 419B
- SnakeSys R8 330A
- 10Scene 0310_0024
- GeNetix GW2I 5000
- GeNetix GW2O 5000
- GeNetix GN2 5000
- GeNetix GN4IP 5100
- GeNetix GN5 5100
- GeNetix GN8 5100
- GeNetix GN10 5100

GeNetix nodes start up in a boot firmware, indicated red on the front panel display before starting the main application firmware. During firmware upgrade the nodes return to boot code. If for any reason the main application fails to program or run then the GeNetix node will return to the boot firmware and can be upgraded again.

Output Setup

In order to use a GeNetix or SnakeSys node with a MagicQ system the MagicQ system must be set up in Setup, View DMX I/O to output or input universes over the network

When outputting from the GeNetix node set up MagicQ universes with Output type of Art-Net or sACN with the Out Uni set to the Art-Net or sACN universes that the GeNetix node is set to decode.

For inputting DMX from the GeNetix node set up MagicQ universes with Input type of Art-Net or sACN with the In Uni set to the Art-Net or sACN universes that the GeNetix node is set to generate.

VIEW ART-NET

This view shows all Art-Net devices detected on the network. This includes all MagicQ consoles, QuickQ consoles and stand alone MagicVis applications as they all have Art-Net capability.

Press REFRESH NODES to force MagicQ to clear its table of Art-Net nodes and re-detect all nodes.

For each node that it detects it shows the IP address, node name and port configuration.

For each port it shows the universe that the node is set to output or input. The universe is preceded by the following letters to indicate status:

- O Port is configured as an Output
- OE Port is configured as an Output and is enabled
- sAO Port is configured as an Output for sACN
- sAOE Port is configured as an Output for sACN and is enabled
- I Port is configured as an Input
- IR Port is configured as an Input and is receiving data

For Art-Net ports the universe is the Art-Net universe (starting at 0) for sACN it is the sACN universe.

Note that whether these indicators are displayed is entirely dependent on the node and whether the manufacturer has implemented these fields in their Art-Net implementation. Where the node supports it, it is possible to directly configure the ports of the node by setting the Universe value in the Port Field.

GeNetix nodes fully support configuration over Art-Net.

Type S or s in the Port field to set the port to sACN. Type A or a in the port field to set the port to Art-Net.

Type I or i in the Port field to set the port to Input. Type O or o in the port field to set the port to Output.

Press RDM DISCOVERY to force an Art-Net node that supports RDMM to perform discovery and retrieve the RDM table of devices. Any devices that are detected will be shown in the VIEW RDM menu. SHIFT + GET RDM TOD retrieves the table of devices (TOD) without forcing the node to do a discovery of new devices.

Press VIEW STATUS to jump to the Output Window, Art-Net View to see the number of Art-Net packets being received on Art-Net universe 0 to 255.

VIEW SIG-NET

MagicQ supports Sig-Net on all universes, both inputs and outputs. MagicQ supports Sig-Net timecode and supports RDM over Sig-Net.

Sig-Net® is a free to use protocol designed by Singularity (UK) Ltd that provides security and authentication, created by Art-Net inventor Wayne Howell. Unlike Art-Net and sACN where anybody with a console or computer can accidentally or maliciously take control of the lighting rig. All new lighting equipment must support secure lighting protocols by the end of 2027 to be compliant with the incoming European Cyber Resilience Act. Sig-Net enables a full secure remote management and diagnostic interface to ease network configuration issues, and uses Multicast Folding™ to overcome the scaling and routing issues of sACN. In addition RDM, Timecode, MIDI and OSC can all be sent over Sig-Net securely.

Sig-Net configuration

Sig-Net is configured in Net Manager, VIEW SIG-NET, Uni Zones. MagicQ supports up to 16 different Sig-Net scopes which are aligned with MagicQ Uni Zones. For example, one Sig-Net scope could be used for the touring rig whilst another is used for the house rig.

For each Uni Zone MagicQ supports Sig-Net in both Secure and Open (Insecure) mode. In Secure mode, keys are set either by entering a passphrase, entering a 32 digit K0 key or by importing keys from a Sig-Net key file.

Use the IMPORT KEYS soft button to import keys from either a K0 key file or a guest key file. Use the EXPORT K0 and EXPORT GUEST soft buttons to export Sig-Net key files for the Uni Zone. Use SHIFT and EXPORT USB K0 and SHIFT and EXPORT USB GUEST to export directly to usb sticks.

Open (Insecure) mode is intended for low risk situations such as training and exhibition demos. In Open (Insecure mode) all of the Sig-Net features are supported, except that there is no authentication of security at all. For live lighting shows Sig-Net should always be run in Secure mode.

Note that if no Scope name is provided MagicQ uses the Sig-Net default "local" scope.

Individual universes are configured in Setup, DMX I/O the same way as for Art-Net and sACN.

All Sig-Net data is stored as console data, so will not be affected by loading new shows files unless using LOAD SHOW + CONSOLE. Sig-Net keys are stored securely with encryption.

Management of Sig-Net nodes

MagicQ includes Sig-Net Manager capabilities for full management of Sig-Net nodes.

Nodes and fixtures that support Sig-Net can be configured in VIEW SIG-NET, Nodes and VIEW SIG_NET, Ports. These tabs operate in a similar way to the ChamNet and Art-Net tabs, except that they use the secure Sig-Net protocol.

View Nodes

View Nodes shows the product name, IP address, MAC address, Netmask, Gateway, number of ports, firmware version, TUID and SOEM code.

The TUID is the Sig-Net device unique ID. The SOEM code is the manufacturer specific product type.

The name, IP address, Netmask and Gateway can be changed. Note that if the MagicQ console has only Guest Keys then it will not have the privileges to change these fields.

The node can be identified using the Identify field.

The events field shows if the node has detected any security events - for example if it detects a Sig-Net source sending unauthorised data (i.e. one that does not have the correct keys).

The node can be rebooted using the REBOOT NODE soft button.

Devices can be offboared using the OFFBOARD NODE soft button. ChamSys GeNetix nodes can be onboarded to Sig-Net using SHIFT + ONBOARD NODE. Note that this currently uses an insecure method of onboarding so should only ever be used when the lighting network is isolated from all other networks.

By default View Nodes shows all nodes. Use soft buttons A and B to filter by Uni Zones.

There is also an Identify Selected Heads feature which can be enabled from Soft button D in VIEW CHAMNET, Devices and in VIEW SIGNET, Nodes. When Identify Selected Heads is on, MagicQ sets all ports on nodes that are receiving data for the currently selected heads into Identify. This is useful to find out which port on the DMX nodes is intended for a particular fixture or group of fixtures. For example, if you want to determine where the Smoke Machine should be plugged into the DMX node, then enabled the Identify Selected Heads feature and select the Smoke Machine group.

Note that GeNetix nodes will support per port Identify from firmware version V3.50.

View Ports

View Ports shows the node IP address and name.

For each port it shows the Port Name, Protocol, Universe, Config, Timing, Trans Mode, Failover, Scene, Dir Cap, Refresh Cap and Status.

The Port Name, Protocol, Universe, Timing, Trans Mode, Failover and Scene can all be configured. Note that if the MagicQ console has only Guest Keys then it will not have the privileges to change these fields.

The Protocol can be changed between Sig-Net, Art-Net and sACN. Note some nodes may be configured to block usage of insecure protocols such as Art-Net and sACN.

The Status field will show Lvls when the port is receiving data over the network.

By default View Ports shows ports on all nodes. Use soft buttons A and B to filter by Uni Zones.

View Levels

View Levels shows the levels that a port is receiving on the network and is outputting. For ChamSys GeNetix nodes this will show regardless of the chosen protocol the port is using.

Use Soft Button A to choose the port to view.

Timecode

MagicQ supports Sig-Net timecode in and out.

Configure Sig-Net timecode using the Timecode Decode and Timecode Generate settings in Setup, View Settings, MIDI Timecode in a similar way to Art-Net and ChamNet timecode.

RDM

RDM in Sig-Net operates in a very similar way to RDM in Art-Net.

In Net Manager, VIEW RDM pressing DISCOVER ALL will attempt to discover all RDM devices on both Art-Net nodes, Sig-Net nodes and direct ports (MagicDMX or console outputs).

Security

To ensure security of a Sig_Net network:

- Use a K0 over passphrase if possible.
- If using a passphrase choose a strong passphrase with mixed category keys (the longer the better)
- Do not leave key files on USB sticks or on open computers
- Change passphrase/K0 regularly
- Give out Guest keys rather K0 keys to incoming users
- Do not write K0 / passphrase on signs / post-it notes

Sig-Net testing

The Secure (Verify) Mode can be used to test that the Sig-Net nodes are only accepting verified Sig-Net data. In this mode MagicQ periodically sends out invalid Sig-Net levels packets with all data set to 0 and a bad HMAC. If this modes causes the stage lights to flicker off then the node is not checking the HMAC of the packets correctly.

The Secure (Dev Only) Mode is for development use only. It repeatedly sends the same Sig-Net packet without increasing the sequence numbers or changing the packet data in any way. This is useful when testing HMAC decoders as the HMAC will remain the same. This mode should never be used in real lighting networks.

Press SHIFT + TEST KEYS to use the Sig-Net standard test key. This is for testing only, it should not be used on live show networks.

The Sig-Net derived keys can be viewed in MagicQ. Km, Kc and Km Global are shown in VIEW SIG-NET, Uni Zones and Km Local is shown in VIEW SIG-NET, Nodes.

The Events field in VIEW SIG-NET, Nodes shows any Sig-Net security events that have been detected by the node, such as invalid HMACs or replay attacks.

VIEW RDM

This view shows RDM devices.

MagicQ stores the list of RDM devices (to enable restoring of a lighting rig via RDM) in the show file, so the device list may contain devices that are not currently accessible.

Devices that have been discovered in the current session are shown in white, whilst devices that have been discovered in previous sessions and stored in the show file are shown in grey.

Press SHIFT and CLEAR RDM to clear all stored RDM devices out of the MagicQ show. Alternatively, use REMOVE to remove one or more individual entries.

Discovering and Configuring Devices

Press DISCOVER ALL to discover RDM devices. MagicQ will attempt to discover RDM compliant devices on its direct console ports (MQ50, MQ70, MQ80, MQ250M and Stadium Connect) and via connected Art-Net nodes that support RDM.

When MagicQ detects the RDM devices it will automatically attempt to get information from each fixture in turn on all. Some devices may not respond immediately - in this case it may be necessary to press GET INFO to force this information to be retrieved.

If the RDM devices are connected to an Art-Net node and nothing is detected then check that your RDM-enabled Art-Net node appears in VIEW ART-NET.



The fixture address, mode, dimmer curve and modulation frequency can be set directly for each RDM device shown in the Window. It is also possible to factory reset devices that support it.

Columns

Uni

MagicQ universe number.

Type

Shows if this is running over Art-Net or ACN.

RDM Uni

If this is running over Art-Net, this shows the Art-Net universe.

Addr

DMX address (1 - 512). Set this field to change the DMX address of the fixture.

Chans

Number of DMX channels this fixture uses in its current mode.

Per

Mode/personality of the fixture (1+). Set this field to change the mode of the fixture - MagicQ will show a list of the modes reported by the fixture.

Tot

Number of modes/personalities supported by this fixture.

Manufacturer

Manufacturer of the fixture.

Model

Model of the fixture.

Mode

Name of the currently selected mode/personality. Modes start from 1. This field can be set to change the mode of the fixture.

UID

This is a 12 digit hexadecimal number that is unique to this device. It enables the RDM protocol to ensure messages can be sent to specific devices. The first four digits of the UID is also known as the "ESTA Manufacturer ID" assigned to that manufacturer.

Device Model ID

A four digit hexadecimal number which uniquely identifies the model of the fixture for that manufacturer.

Curve

The dimmer curve of the fixture. Dimmer curve is an optional RDM field.

Freq

The modulation frequency of the fixture. Frequency is an optional RDM field.

Reset

This field enables resetting the fixture. Press on the field and confirm yes to perform a cold (like power on) reset on the fixture. This is an optional RDM field and is not supported by many fixtures.

Factory Reset

This field indicates if the fixture is in its factory reset state and enables setting to the factory reset state. Press on the field and confirm yes to perform a factory reset. This is an optional RDM field and is not supported by many fixtures.

Firmware Version

The current firmware version of the fixture.

Cable Index

This field is reserved for indicating cable index in systems that support DMX cable index identification.

Sel PID

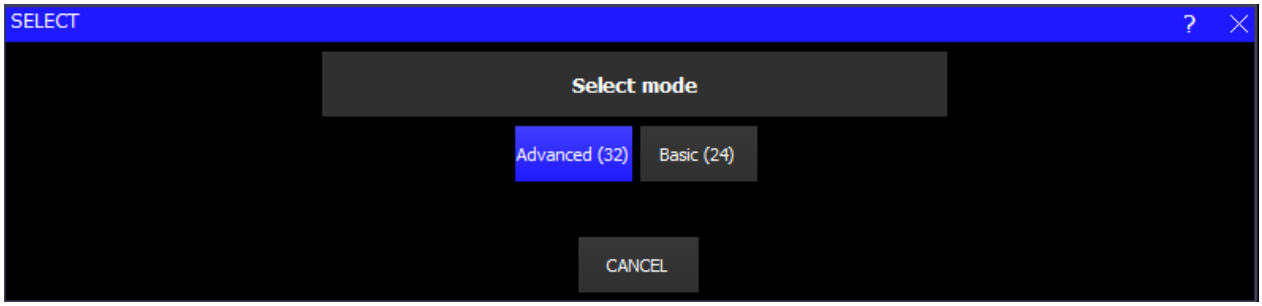
This field shows the value of the selected PID as selected on Soft Button X.

To further configure the manufacturer parameter PIDs of each connected RDM device, put the cursor on the required device and press VIEW PIDS.

Note that The DISCOVER ALL command requests Art-Net nodes to perform a flush of their RDM table of devices (TOD) and to then perform a discovery of all currently connected devices. In some cases it may be useful to just retrieve the table off devices without forcing a new discovery - in this case press SHIFT + GET TOD ALL. .

Auto Addressing

Press the AUTO ADDRESS soft button to automatically address all the fixtures in the list, starting at 1 and incrementing based on the channel count of each fixture.



Where there are devices from more than one universe the devices on each universe will be addressed starting at 1.

Restore Addressing

Once a DISCOVER ALL and GET INFO has been performed on a lighting rig, MagicQ stores the RDM address and mode for each fixture with its unique UUID in the show file. This is maintained in the show file through subsequent loads and saves of that show file.

At any time a lighting rig can be restored to a known state from a MagicQ show file.

First in Net Manager perform a DISCOVER ALL and GET INFO to get the addresses and mode of the RDM devices. Check that all the expected devices have been detected.

Then press SHIFT + RESTORE ADDRESS and select a show file to load the RDM information from. MagicQ loads the RDM data from that show file and readdresses the RDM fixtures to the mode and address from that show file. Note that MagicQ only loads the RDM information from that show file, it does not load or change any other data in your show.

When setting up a new venue, or a new lighting rig that uses RDM when the configuration is complete it is recommended to DISCOVER ALL and GET INFO for the complete rig and save the MagicQ show file with a name such as "VenueRDM.shw" which can then be used in the future to restore the lighting rig to the correct RDM state.

Identifying Devices

The RDM identify command forces a fixture to identify itself. This is usually a flashing white light or continuous pan, tilt and colour scroll. This allows you to match up the devices you are seeing in the VIEW RDM window with physical devices on the lighting rig, similar to the Head Test feature in the Patch window.

In the VIEW RDM window, press soft button C, RDM Test, and use the cursor keys to scroll up and down the list of devices. The device at the cursor will be sent the RDM identify message and highlighted red to show it is in test mode.

Sensors

Sensor information for the RDM device at the cursor is displayed at the top of the window and is continually refreshed. If the device is able to report multiple sensors then they are all shown.

Auto Patching

Pressing the PATCH RDM HEAD soft button will patch the RDM device at the cursor into the show, using its current DMX address and mode.

Press SHIFT and PATCH ALL RDM soft button to patch everything in the list.

This tries to find a matching head file using the ESTA Manufacturer ID, Device Model ID and mode. If this fails it tries to match the manufacturer and model descriptions and channel count.

To improve the accuracy of the auto patching feature, you can add in the RDM information into the head file using the head editor. In the General View there is

ESTA manufacturer ID (hex)

This is a four digit hexadecimal number which uniquely identifies the manufacturer of the fixture. This can be found by taking the first four digits of the UID (e.g. in the VIEW RDM window image above, the UID of the first fixture is 21A4-A30810F6 so the ESTA ID is 21A4, which will be the same for all Chauvet fixtures). A complete list can be found on the ESTA website.

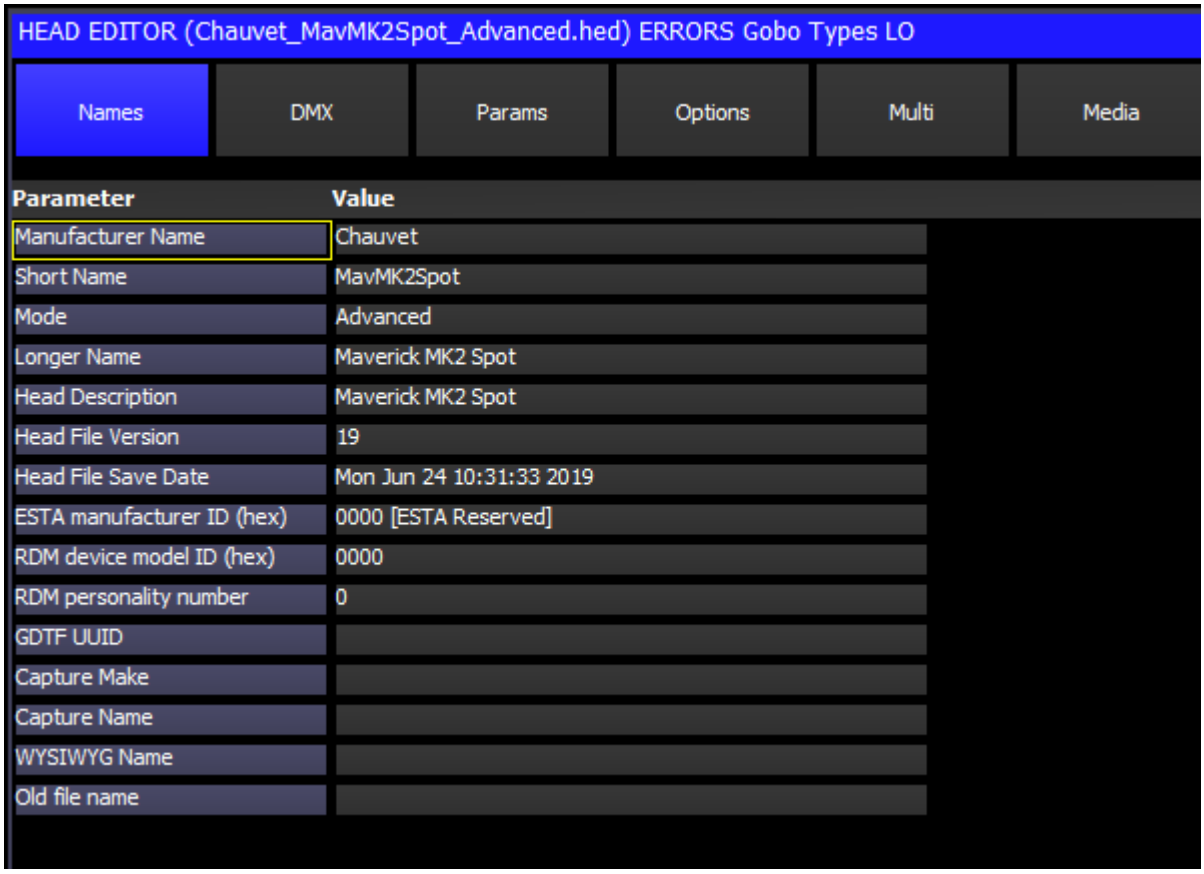
RDM device model ID (hex)

This is a four digit hexadecimal number which uniquely identifies the model for this manufacturer. It can be found in the *Device Model ID* column or in the manual. In this example, device model ID 00AE will be the same for all Chauvet Rogue R1 FX-B fixtures.

RDM personality number

This is a decimal number which represents the mode/personality reported by RDM. This can be found in the *Per* column and must be 1 or higher.

The ESTA Manufacturer ID, Device Model ID and Personality number are all reported by the fixture over RDM and together can be used to match a specific head file. You should not have more than one head file with all three of these fields the same.



Creating Heads from RDM data

MagicQ has an extensive personality library which covers nearly all fixtures. MagicQ personality library has very detailed modelling of fixtures including gobo icons and physical dimensions.

RDM optionally allows fixtures to provide basic reporting of attribute allocation enabling MagicQ to create a basic new personality which can be then used to patch the head.

Put the cursor on the required device and press CREATE HEAD to create a new personality. The name of the personality will be based on the Manufacturer, Model and Mode fields reported by the RDM device.

Note that creating heads is only possible if the RDM device supports the RDM SLOT_INFO PID.

Manual Repatch

MagicQ provides shortcuts for repatching a lighting rig RDM compliant fixtures in it.

There are two options - Readdress physical fixtures and Repatch show to fixtures.

Readdress Physical Fixtures

This is used when you want to change the addresses on the physical fixtures in the venue to match your show file - for example, when setting up a lighting rig for the first time where the fixtures have not yet been addressed.

Readdressing physical fixtures does not change the Patch information or any of your

programming in your show - instead it uses RDM commands to change the address and mode of the physical fixtures, just as if you were changing them on the fixture control panel.

First press DISCOVER ALL and GET INFO to get the RDM information for the RDM compliant fixtures in the lighting rig.

Then press MANUAL REPATCH and select Readdress physical fixtures. "RDM Readdr" will flash in the status window under the clock whilst RDM Readdr mode is in operation.

In RDM Readdr mode the fixture at the cursor in Net Manager is automatically tested (identified) to identify the fixture in the physical lighting rig.

Use the NEXT HEAD and PREV HEAD buttons to move to different fixtures in the lighting rig. Note that the NEXT HEAD and PREV HEAD buttons are not used to select heads whilst in RDM Readdr mode.

To readdress a RDM fixture to match a head in your show use one of the normal MagicQ head selection operations - either:

- Enter the head number - e.g. for head 10 type 10 @ @
- Select the head in Group, View Heads
- Select the head in the Plot Window
- Select the head in the Output Window, View Grid
- In the Patch Window, move cursor to a Head and press ENTER.

The RDM device will be readdressed and set to the mode of the selected head in the MagicQ show.

Use NEXT HEAD or PREV HEAD to change to another RDM fixture, and then select the head in the MagicQ show to readdress this fixture to.

When all readdressing has been done press the END READDRESS button in the Net Manager.

Repatch Show to Fixtures

This is used when you want to change your show data to match the DMX addresses and modes of the physical fixtures in the venue - for example, when touring and visiting a venue with a fixed lighting rig.

Repatch show to fixtures does not change the address, mode or any other parameters of the physical fixtures - instead it morphs your show file to the physical fixtures and repatches the addresses to match the physical rig.

First press DISCOVER ALL and GET INFO to get the RDM information for the RDM compliant fixtures in the lighting rig.

Then press MANUAL REPATCH and select Repatch show to fixtures. "RDM Repatch" will flash in the status window under the clock whilst RDM Repatch mode is in operation.

In RDM Repatch mode the fixture at the cursor in Net Manager is automatically tested

(identified) to identify the fixture in the physical lighting rig.

Use the NEXT HEAD and PREV HEAD buttons to move to different fixtures in the lighting rig. Note that the NEXT HEAD and PREV HEAD buttons are not used to select heads whilst in RDM Repatch mode.

To repatch a head in your show to use the physical fixture select that head using one of the normal MagicQ head selection operations - either:

- Enter the head number - e.g. for head 10 type 10 @ @
- Select the head in Group, View Heads
- Select the head in the Plot Window
- Select the head in the Output Window, View Grid
- In the Patch Window, move cursor to a Head and press ENTER.

The head in the MagicQ Patch will be morphed to the RDM fixture, and it will be moved to the DMX address that the RDM device reported.

Use NEXT HEAD or PREV HEAD to change to another RDM fixture, and then select the head in the MagicQ show to repatch for this fixture.

When all repatching has been done press the END REPATCH button in the Net Manager.

RDM Mode

Use soft button Y to set RDM mode options including Background RDM checking, Logging and Constel8 device order.

The RDM mode can be:

- Off (Default)
- Background Status
- Background Discovery
- Auto Patch
- Rig Lock

When set to Off, MagicQ only performs RDM discovery when requested by pressing the DISCOVER ALL button.

Background Status

When Background Status is set, every 30 seconds MagicQ sends RDM GET STATUS messages over RDM to determine if the devices are still responding to RDM.

When only Background Status is set, MagicQ does not perform RDM discovery. This ensures that any impact on the DMX fixtures is kept to a minimum.

Background Discovery

When Background Discovery is set, MagicQ performs a RDM discovery every 60 seconds to detect RDM devices and get their info.

Note that Background RDM checking requires a lot of RDM traffic, particularly on larger lighting rigs or with complex fixtures, which may slow down DMX refresh rates.

Auto Patch

Auto Patch enables a lighting rig to be detected and patched automatically. It also enables the show to be updated if any devices have had their address or mode changed.

When Auto Patch is on, then Background Discovery is automatically turned on.

When Auto Patch is on, MagicQ performs a background discovery and patches any new devices that it had not previously encountered in the show using the current device mode . If MagicQ determines that devices that it had previously auto patched have changed DMX address or mode then MagicQ will change the DMX address or mode of the patched Head in the show.

Note that MagicQ does not remove Heads from the Patch if devices are not detected - this ensures that the show programming is maintained. If devices are permanently removed from the lighting rig then they must be manually unpatched from the show.

Rig Lock

Rig Lock enables a lighting rig to be locked so that users cannot change the DMX address or modes of fixtures.

When Rig Lock is on, then Background Check is automatically turned on.

When Rig Lock is on, MagicQ performs a background discovery and checks any devices found. If the device address or mode has been changed then MagicQ sends a RDM command to return the device to the address and mode from its show file.

Rig Lock takes priority over Auto Patch. Generally Auto Patch should be set to off when Rig Lock is in use.

Logging

MagicQ has a high level of RDM logging supported.

To enable RDM logging, first set Setup, View Settings, Hardware, Extended Logging to Extended Logging or Extended Logging & Events.

In the RDM Options (soft button Y) choose Logging for basic RDM message logging, or Full Logging for a full byte breakdown of transmitted and received data.

Logs can be viewed in the Help window, VIEW LOGS. In VIEW RDM press SHIFT and VIEW RDM LOGS to quickly view the logs.

Updating firmware over RDM (FTC)

MagicQ shows the Firmware Version of each fixture in the Firmware Version column.

MagicQ supports E1.37-4 File Transfer Control with Remote Device Management over DMX512 Networks. This is currently a draft standard.

Note that upgrading of fixtures is a potentially risky operation which in some cases may render the fixtures inoperable. It is not recommended to upgrade fixtures during or just before critical show operations.

MagicQ (as per the standard) is unable to verify the contents of the upgrade files to check their validity or suitability for the fixtures - as per the standard it is entirely the responsibility of the fixture to determine that the file it receives is valid and suitable for the fixture before it uses the file.

RDM files are stored in the top level "RDM" folder. On PC systems this is under Documents/MagicQ.

In VIEW RDM put the cursor on the row of the fixture to upgrade, then press the UPGRADE FIRMWARE soft button. MagicQ will update the fixture.

For fixtures that support multiple firmware files (for example, fixtures that have multiple processing cards), MagicQ will prompt the user to choose which file to upgrade.

To upgrade multiple fixtures, use SHIFT / CTRL and the cursor keys to select the devices and then press UPGRADE FIRMWARE. MagicQ will automatically upgrade each fixture in turn.

MagicQ also supports downloading of files from fixtures. Downloading of files is optional, so not all fixtures will support downloading. Press DOWNLOAD FIRMWARE. For fixtures that support multiple firmware files, MagicQ will prompt the user to choose which file to download.

Downloaded fixture files are stored into the RDM folder. For fixtures that only support a single file the file will be automatically named <manufacturer> _ <model> _ <firmware version> . hex. For fixtures that support multiple files it will be named according to the name of the chosen file from the fixture.

The following manufacturer specific PIDs are currently supported for FTC:

FTC_INITIATE	0x9202
FTC_TRANSFER_UPLOAD	0x9203
FTC_COMMIT	0x9204
FTC_CANCEL	0x9205
FTC_FILELIST	0x9206
FTC_TRANSFER_DOWNLOAD	0x9207

VIEW PIDS

RDM fixtures support parameters referred to as PIDs. Parameters can be "Get" - i.e read only, "Set", i.e. set only, or "Get and Set".

All RDM fixtures must support the parameters used for discovering the device, identifying the device and setting the DMX start address.

In the VIEW PIDS all the PIDs that the device reports that it supports are shown. For each parameter there is an ID (as defined by the RDM specification), a description and the current value.

Standard PIDs have IDs in the range 0x0001 to 0x7FFF. Manufacturer specific PIDs are in the range 0x8000 to 0xFFDF.

The Size, Data Type, Min, Max, Type, Default, Unit and Prefix fields give more information about the particular parameter.

For parameters that are "Set" or "Get and Set" the Value field can be set. Enter a new value on the keyboard to change the value.

Press REFRESH PIDS to reload the PIDs from the device.

The GET SLOTS and LOG RDM soft buttons are used for testing RDM fixtures. Press GET SLOTS to force MagicQ to get the DMX Slot information (fixture attribute information) from the RDM device. LOG RDM writes all the details that have been retrieved from the RDM device including the general info, modes, slot info and PIDs to the file "rdm.csv" in the log folder.

Press COPY PID to copy the PID that the cursor is on to all devices of the same type. Press SHIFT + COPY ALL PIDs to copy all PIDs to all devices of the same type.

VIEW RDMNET

VIEW RDMNET is available by pressing SHIFT.

This view is for managing RDMNET and LLRP devices on the network.

RDMNET

MagicQ supports E1.33 RDMNET. RDMNET is an alternative to Art-RDM that enables sending of RDM over more complex networks. Unlike Art-RDM which is universally supported by DMX nodes and fixtures, RDMNet is currently only supported in a limited number of nodes.

RDMNet is much more complicated than Art-RDM and requires the use of a Broker in between the consoles and the nodes.

In order for MagicQ to detect RDMNET devices the IP Address and port of the RDMNET Broker must be first configured in Setup, View Settings, Network.

There are tabs for RDMNET Clients and for Endpoints.

Once MagicQ is connected to a Broker then it can connect to RDMNet clients. The Clients tab shows any RDMNET Clients that MagicQ has a connection to.

Once a RDMNET gateway has been detected, use GET ENDPOINTS to get the Endpoint data. A RDMNET Endpoint is typically an Ethernet to DMX port.

Use the DISCOVER ALL soft button to discover RDM devices connected to the Endpoint.

Discovered devices will be shown in the VIEW RDM tab. Once discovered, MagicQ interacts with the devices over RDM in the same way as for direct RDM connections or devices connected over Art-Net.

LLRP

MagicQ supports LLRP - part of the E1.33 RDMNET standard. LLRP is a simple protocol for connecting to Fixtures with a network port directly and to DMX nodes over the network, primarily intended for setting network and related settings.

In order to detect LLRP devices the LLRP mode must be configured in Setup, View Settings, Network.

Press the REFRESH LLRP soft button to search for LLRP devices.

Press SHIFT + CLEAR LLRP to clear the table of LLRP devices.

The list of LLRP devices is not saved to the show or console files.

Discovered devices will be shown in the VIEW RDM tab. Once discovered, MagicQ interacts with the devices over RDM in the same way as for direct RDM connections or devices connected over Art-Net.

E1.33 RDMNET limits the RDM messages that can be used over LLRP. When the MagicQ LLRP mode is set to "Enabled" MagicQ limits the messages supported to those allowed in E1.33. When set to "Enabled, All RDM" MagicQ allows all RDM messages to be sent and received over LLRP. Note that some will support only the limited set of messages, others will support an enhanced set.

IGMP

This tab shows a list of devices that have replied to an IGMP Query. The columns show indicates devices that have replied to sACN and ChamNet respectively.

VIEW LYNTEC

MagicQ supports remote control and monitoring of up to 10 separate Lyntec relay or motorised break control devices.

MagicQ supports individual zone control on the 12 Lyntec zones, or individual circuit control on up to 168 breakers / relays per Lyntec device.

In Net Manger the View Lyntec enables configuration of connections to Lyntec devices and monitoring and changing of status of Zones on the Lyntec devices.

Connection to each Lyntec device is via TCP/IP. MagicQ stores an IP address, user name and password to connect to for up to 10 Lyntec devices.

When connected, the Zone information shows the Zone name and status for each Zone. The status is On, Off or Processing. Pressing ENTER when the status in On changes the status to Off. Pressing ENTER when the status is Off changes the status to On.

In Net Manger the View Lyntec Chans enables monitoring and changing of individual breaker or relay channels on the Lyntec devices.

When connected, the channel name and status is shown for each channel. The status is On, Off, Tripped, Faulty or Empty. Pressing ENTER when the status in On changes the status to Off. Pressing ENTER for status of Off or Tripped status will attempt to change the status to On.

Lyntec devices can be controlled automatically from MagicQ uses Automs in the Automation window and Cue Stack Macros.

VIEW NET PORTS

View Net Ports contains a table of all the Network Ports on the system with configuration options. This provides an alternative to the individual options in Setup, View Settings, Network.

The existing IP settings in Setup, View Settings, Network remain, but are duplicated by the settings in Net Manager as part of the table of Net Ports - changing the setting in one place automatically changes it in the other.

From v1.9.8.2 MagicQ supports sending of Uni Zones of Universes of Art-Net and sACN to specific networks ports. By default all Uni Zones are output from the main lighting network port. In the Net Manager, View Net Ports, the Control/USB Net Port can be assigned to a specific Uni Zone. Any universes that are assigned to this Uni Zone in DMX I/O will output from this Net Port. All other Universes will continue to output from the main Lighting Port.

It is possible to have different universes of Art-Net sent out different network ports provided they have different IP address ranges. Discovery (Art-Poll) and Art-Sync will be handled on each port as appropriate. Universes set to Unicast will automatically be sent out the port with the associated IP address range.

It is possible to have universes of sACN sent out different network ports. sACN sync will be handled on each port as appropriate.

Note that the Net Host Option in Setup, View Settings, Network is still supported. If this option is set to "sACN on Control Net" or "Art-Net on Control Net" then this overrides and Uni Zone configuration.

Pathport and StrandNet are always sent out of the main lighting port.

A firewall continues to be supported on the Control Net (connected via USB) on MagicQ consoles. There is currently no firewall supported on any of the network switch ports. The firewall for the Control Port can be configured in Setup, View Settings, Network or in Net Manager, View Net Ports. More detailed settings are available in Net Manager.

Net Sessions is only supported on the main lighting port.

Network ports on consoles

MagicQ now supports advanced configuration of the network switch on MagicQ Stadium consoles - MQ250M, MQ500, MQ500M and MQ500M+. By default, all network ports on these consoles operate as an unmanaged switch with a single IP address. In Net Manager, View Net Ports, it is now possible to modify this behaviour so that individual network ports on the the network switch have their own IP address and act independently of the other network ports.

In order for a network port on the network switch to be used individually it must have a valid IP address and subnet mask and must be enabled. If it does not have a valid IP address or subnet mask, or it is disabled then it will behave as normal like Port 1.

When enabled each network port can be configured to support different uni zones for Art-Net and sACN and different protocols. Note that these ports do not support Net Sessions - this is only supported on Port 1 and any other network ports using the IP address of the main lighting port Port 1.

In current MagicQ consoles when they power up, the networks will still be joined together as an unmanaged switch until the MagicQ application starts. If it is important that the networks are always fully isolated then the Network ports should not be used in this way and the Control port via USB should be used to provide a fully isolated separate network. This networks on the switch are only joined on power up of the console. Once MagicQ is started, the networks will remain isolated according to the settings in Net Ports, even if the console is soft reset, upgraded. The networks remain isolated during the power down sequence. Future MagicQ consoles will overcome this limitation.

Note that if a MagicQ console is downgraded to software prior to 1.9.8.x then there is no support for multiple IP address on the network switch. If multiple IP addresses are set on the network switch when the console is downgraded, then the console will need to be power cycled to restore the network switch to normal operation.

Remote Device Management (RDM)

Introduction

Remote Device Management (RDM) is an extension to the DMX512 protocol that allows a lighting console to detect all the RDM-enabled lighting fixtures plugged into a DMX line, and remotely change their settings (e.g. DMX address and mode).

RDM-enabled fixtures can co-exist with older non-RDM fixtures. RDM uses the same pair of wires in the DMX cable as regular DMX, avoiding the need to replace any cabling. If you are using DMX splitters this will stop RDM from working unless the splitters are RDM aware.

Currently MagicQ MQ50, MQ70, MQ80, MQ250M consoles and Mini Connect, Compact Connect, Stadium Connect along with MagicDMX Full support RDM via direct DMX ports.

All MagicQ consoles support RDM over Art-Net with network nodes that support this function.

In MagicQ RDM Fixtures are viewed, configured, and patched in the Net Manager - go to Setup, View DMX I/O, Net Manager.

Networking of MagicQ Systems

Multiple MagicQ consoles can be used together on a single network – either to allow control of many different heads, remote control or to provide master/slave configurations.

MagicQ supports synchronisation (tracking) of Playback & Programmer between consoles to enable one or more consoles to follow the playback state of the master console.

MagicQ supports synchronising of show file data between consoles so that one console on the network acts as a master console with the master show file whilst slave consoles synchronise to that show data. Programming changes can be made on any of the consoles with the show file on the master being updated and then all other systems synchronised to the master.

MagicQ enables multiple consoles to be used on a network and shows on the separate consoles to be merged together and split up again. Zoning of universes enables consoles to be working on different universes all within the same network. MagicQ supports programming of a single show file from multiple consoles. MagicQ does not currently support programming by multiple users on a single console.

MagicQ supports automated copying of shows between consoles – for example to automatically keep a slave console updated with the same show that is running on the master console. This function can also be used as an "archiving system" to enable a PC to automatically grab the shows from the consoles on the network for back-up purposes.

MagicQ PC/Mac systems have reduced multi console support. Shows files can be synchronised, but syncing of playbacks is restricted to the main playbacks only. Other playback banks are not synced. For full show backup we recommend the use of two full consoles.

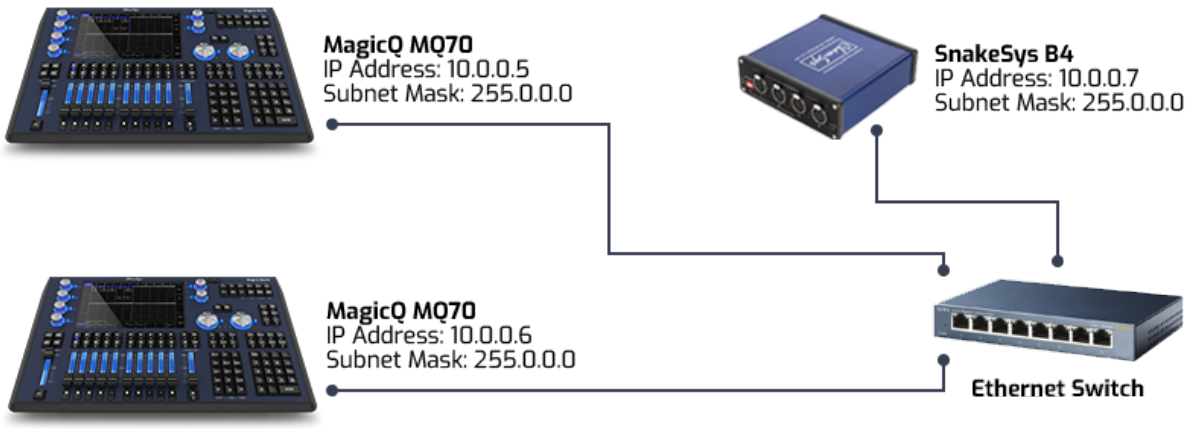
Network Addresses and Host Names

All devices on the network, including MagicQ consoles and PCs, must have a unique IP address and host name. On MagicQ consoles the IP address is configured in Setup, View Settings, Network. On PCs, a static IP address must be created in the control panel of the operating system you are using (Windows, Mac or Linux), then the same IP address set in MagicQ *SETUP*, *VIEW SETTINGS*, *Network*.

The host name is set in the Setup Window using soft button E.

MagicQ MQ50,MQ70 & MQ250M consoles ship from ChamSys with a randomised 10.X.X.X IP address, MagicQ MQ80 and MQ500(M) ship with a fixed 2.9.200.176 IP Address. On all consoles the default IP address can be user configured.

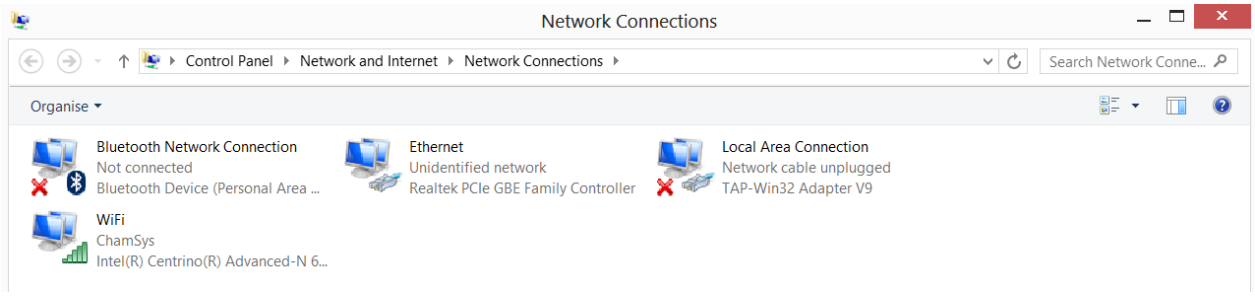
For example, a typical network with two MQ70 consoles and a SnakeSys B4 node might look like this:



Setting IP addresses on a PC

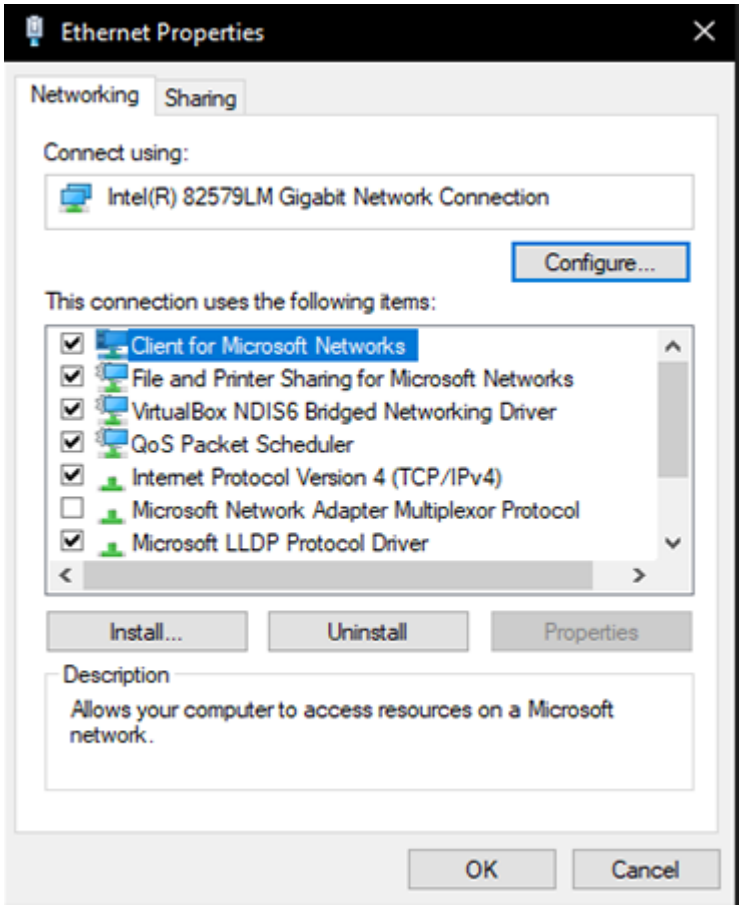
The exact method will depend on the version of Windows.

On Windows 10, open the **start menu**, search for **"View network connections"**.

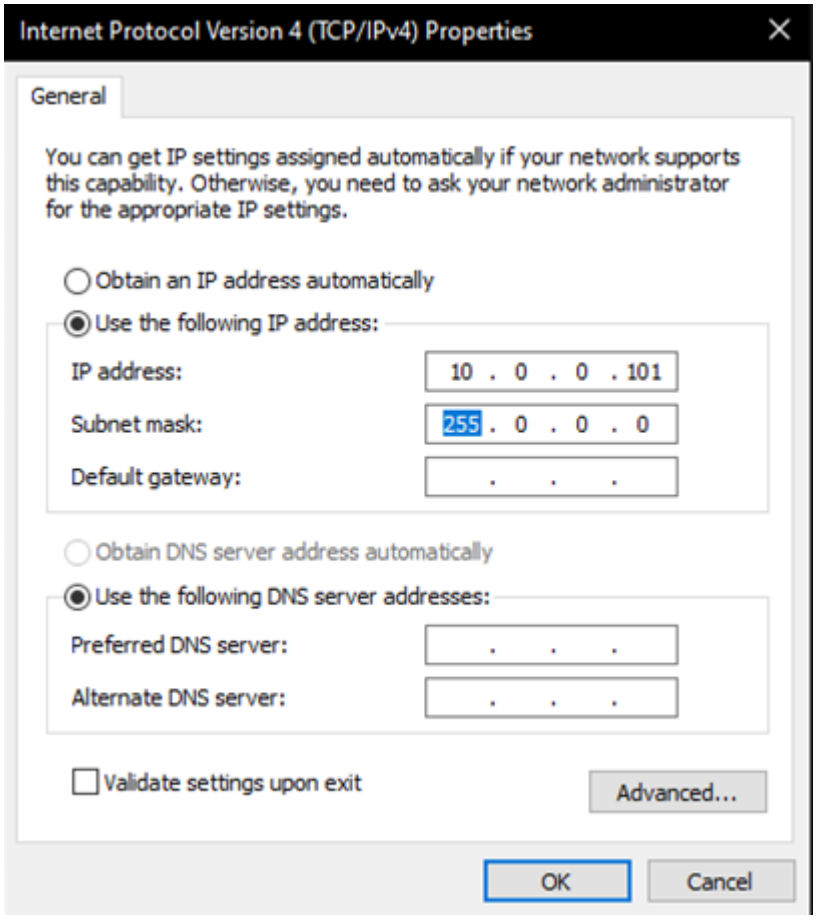


This will open a window with a list of network interfaces, including any wired, wireless and virtual interfaces.

Identify the Ethernet interface you are using for lighting, **right click** on it and select **Properties**. Choose **Internet Protocol Version 4 (TCP/IP)** and click on **Properties**.



A dialog box will appear with the title Internet Protocol (TCP/IP) properties.



Choose **"Use the following IP address"**. Enter the *IP address* (e.g. 2.0.0.10) and the *Subnet*

mask (e.g. 255.0.0.0). The default gateway can usually be left blank. Click **Ok** then **Ok**.

Setting IP addresses on a Mac

Click on the network/wifi symbol in the top right taskbar, and select **Network Preferences...**.

Click on the wired network interfaces you are using for lighting. Change **Configure IPv4** to **Manually**. Set the *IP Address* and *Subnet Mask*, the *Router* can be left blank.

Checking IP addresses - Ping Test

MagicQ includes a ping test for resolving network problems. At the command line type ping followed by the IP address, e.g. to test network connection to IP address 2.0.0.3

ping 2.0.0.3

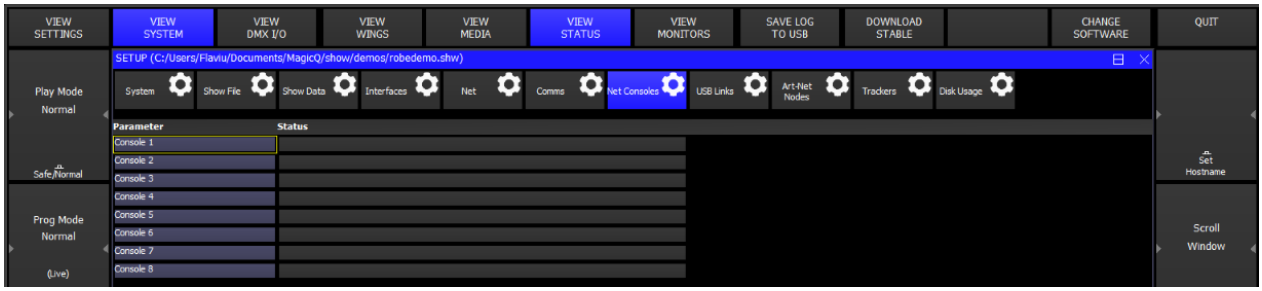
There is a short cut for use on the console keypad - enter three dots and then the IP address (no space)

...2.0.0.3

Entering just ... will ping the last tried IP address.

Checking Consoles on the Network

To check which MagicQ consoles are on the network go to Setup, View Status and select the Network tab.



Grabbing Shows from Other Consoles

It is possible to grab a show that is running on another console onto the current console. Press the Grab Show soft button in the View DMX I/O view of the Setup Window. Choose which console you wish to grab a show from. The show is copied from the other console to the show folder on this console, and the show is loaded into memory.

Grabbing shows from other consoles requires "Enable remote access" in the Setup, View Settings, Network Settings to be enabled on the consoles you are grabbing the show from.

Setting Up Network Sessions

Network Sessions allows easy configuration of multiple MagicQ consoles in a network:

- Net Sessions uses the main lighting network port on consoles.
- A MagicQ console is made part of a network session by simply setting the Net Session Mode and choosing a Net Session ID (0 is the default session).
- Within a network session only one MagicQ console is the Master, all others are Slaves to the Master console. Only the Master console outputs universes (Art-Net/sACN/Pathport) on the network. All universes that have patched heads and are set to an Output type of Art-Net, sACN or Pathport are controlled. Slave consoles will disabled all patched universes including those without patched channels.
- It is possible at any time to change which console is the Master console by using the Take Control feature from the Slave console.
- The Net Session Mode can be set to "Sync Auto Takeover" or "Sync Manual Takeover" – when set to "Sync Auto Takeover" if the Master console fails then a Slave will automatically take over. In "Sync Manual Takeover" the user must manually use Take Control - this it the recommended option.

Within a network session

- All Slaves are automatically synchronised to the show file from the Master console.
- All Slaves can take control of part of the output via the selective channel control feature.
- All Slaves can edit show data including Palettes, Cues and Cue Stacks on the Master console.
- All Slaves are automatically synchronised to the playback state of the Master console. Each Slave can choose to Inhibit PB Sync, for example whilst programming.

It is possible to inhibit all network output from the consoles in the network session using the Inhibit All feature. All consoles outputs within the network session are disabled. It is still possible to change Master but the outputs remain disabled.

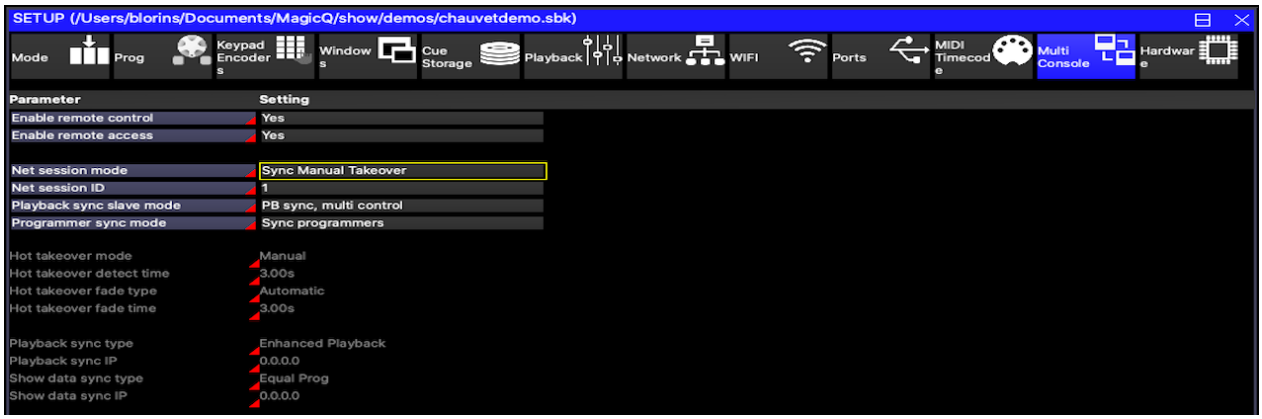
When the Network Session Mode is enabled (set to Manual Takeover or Automatic Takeover) then it is not necessary to set up any other settings relating to Hot Takeover, Playback Sync Type, Playback Sync IP, Playback Sync Port, Show Data Sync Type or Show Data Sync – MagicQ sets this automatically within the network session.

In Net Sessions when a Slave syncs to the Master it configures its universes in DMX I/O to the same as the Master console. Only universes that have one or more Heads patched on them will be modified - other universes will remain unchanged. These changes only occur when the Slaves resync the whole show file from the Master. If users change Universe settings on a Master console once in Net Settings then they must manually resync the Slaves.

Up to 10 MagicQ consoles can be in the same Net Session. Just set Net Session Mode and Net Session ID for all the consoles you wish to be part of the session.

Manual Takeover

This is the recommended mode for Net Sessions.

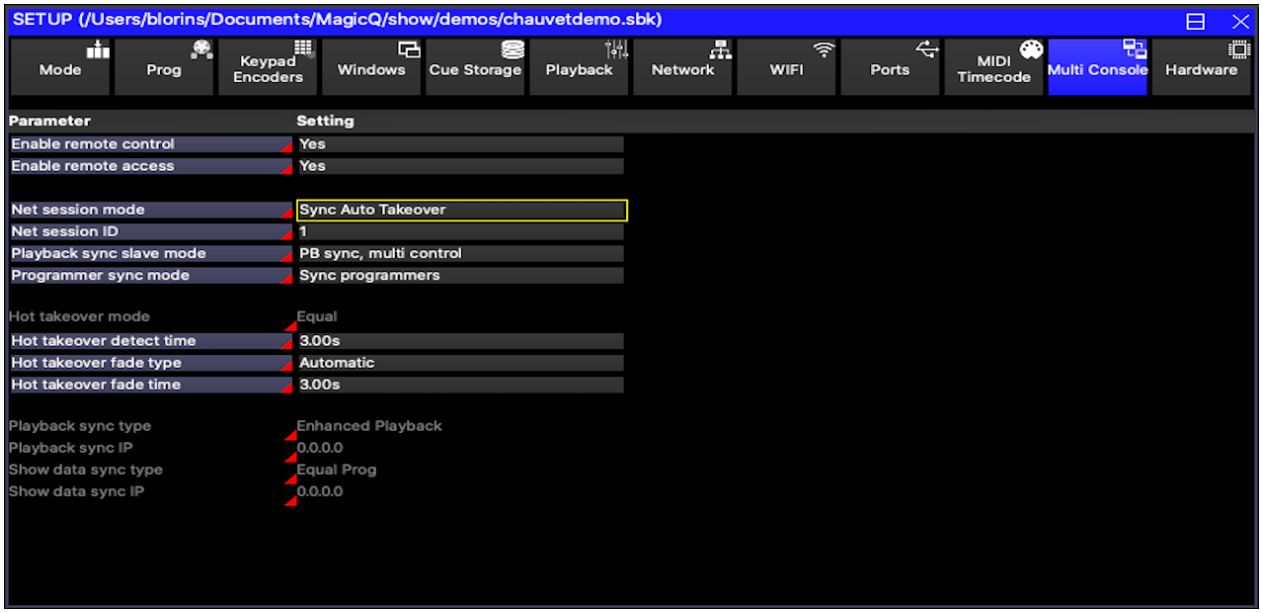


The first console to start becomes the Master. In Setup, View DMX I/O, Take Control and Release Control can be used to swap which console is the Master at any time. If you use Release Control, then you will need to also press Take Control on the other console.

Once one console is Master on the network then any other consoles starting that were previously the Master will be demoted to "Disabled". This protects in case a console has been accidentally connected to the network. To make them part of the network session press "Release Control".

Auto Takeover

Auto Takeover is useful in unmanaged systems where there are no operators. Where there are operators then we recommend using Manual Takeover to give the operators more control.



The first console to start becomes the Master. In Setup, View DMX I/O, Take Control and Release Control can be used to swap which console is the Master at any time.

If the Master console stops for any reason then one of the Slave consoles will take over.

The Hot Takeover Fade Type can be set to Manual or Automatic. When set to Manual the operator has output is frozen until the operator decides what new look to change to.

When set to Automatic, a gradual fade is made to the look set on the Playbacks – in this mode an operator will often put up a "safe" state on the standby console which can be used if the main console has a problem.

With manual fade type when MagicQ determines that it should take over a universe it will load a snapshot of the last data from that universe into its Programmer. The universe will be completely controlled from within the Programmer and not from the Playbacks. The operator can then set up the playbacks as they wish and then clear the programmer to change to this new look. Clearing the programmer with time enables the operator to specify a fade time to the new look.

With automatic fade type, MagicQ loads the snapshot of the last data from that universe into the Programmer and then automatically clears the programmer using the hot-takeover fade time.

Since both options use the programmer, it is recommended that the programmer is kept clear on the standby console.

Net Sessions Master Clash

If there is a Master clash on the network then MagicQ keeps the Master that has been running the longest and demotes all other Master consoles to Slaves.

If Net Sessions is set to "Manual Takeover" then Masters are demoted to "Disabled" instead of "Slave". A flashing warning is shown in the Status Window. In the "Disabled" mode the console does not output on the network and does not try to sync the show to a Master. The user can then decide whether to "Take Control" or "Release Control" on that console.

When a Master is demoted to Slave or Disabled, MagicQ saves a copy of the show file that was running on the Master using the existing show file name but with the "_swap" appended to the end before the file extension .shw - for example "myshow_swap.shw". If the Master show file gets lost then the original show file can be recovered by reloading the "_swap" file from the original Master and saving as a new file name. In order to prevent MagicQ repeatedly overwriting the "_swap" file with invalid data from the Slave, it only saves the file if it is at least 60 seconds since it was last demoted to Slave.

To make a "Disabled" console part of the network session, press "RELEASE CONTROL" on that console.

Inhibit Outputs

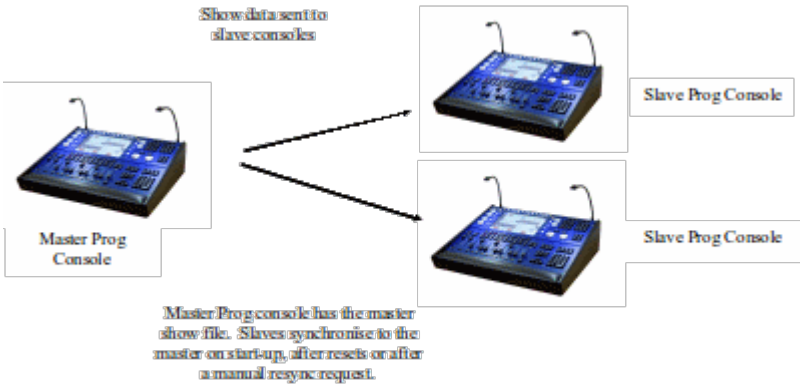
It is possible to inhibit all the outputs within the network session so that none of the consoles within the network session output onto the network – for example if a "guest" console is in use.

In Setup, View DMX I/O press the INHIBIT OUTPUTS soft button. Outputs will continue to be inhibited even if the Master console changes. When UNINHIBIT OUTPUTS soft button is

pressed the Master Console within the network session will resume outputting.

Multi Console Programming

Within a network session MagicQ supports programming of one show from multiple MagicQ consoles / MagicQ PC systems on the network.



Multi programming enables multiple consoles to access one show file held on the master console with all consoles being able to make changes to that show file. MagicQ ensures that the slave consoles are synchronised to the master console show data. Updates from any console are synchronised across the network.

When synchronised the consoles have the same show data, however they still operate as separate consoles with a separate programmer.

Recording and updating of Groups, Palettes, FX, Cues, Cue Stacks, Macros, and Grids will be synchronised between the consoles. Note however that changes to the Patch must be made on the master console and they will clear any programmer information on the slave consoles.

Users in Net Sessions

From v1.9.0.2 show settings are automatically synchronised between consoles in a Net Session whenever a setting is changed - previously the Slaves would only be updated on startup / resync.

The exception is when Users are in operation and then if the current user does not match between consoles and the current user has the user option set to Load Settings. In this case maintains its own settings, and updates from other consoles are ignored.

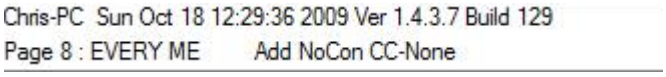
When a user has the option set to Load Settings then when changing to that user (or logging in as that user from a Slave console) the following user specific settings will be reloaded from the state when the user last logged in:

- Setup show settings
- Layout page (the Layouts are shared between all users, but each user can choose to view a different Layout Page from the 144 Layouts)
- The previous window layout

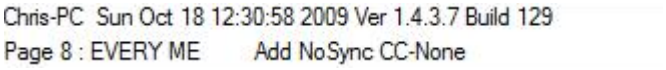
- The previous Programmer state (unless operating with Programmer Sync between all consoles)

Checking Slave Synchronisation

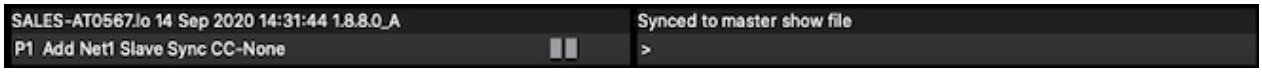
The status of the slave synchronisation is shown in the status bar. Initially the status window will show "NoCon" with a red background.



Once the Slave has a connection to the Master over the network (but not yet synchronised) it will show "NoSync".



Once synchronised it will show "Sync":

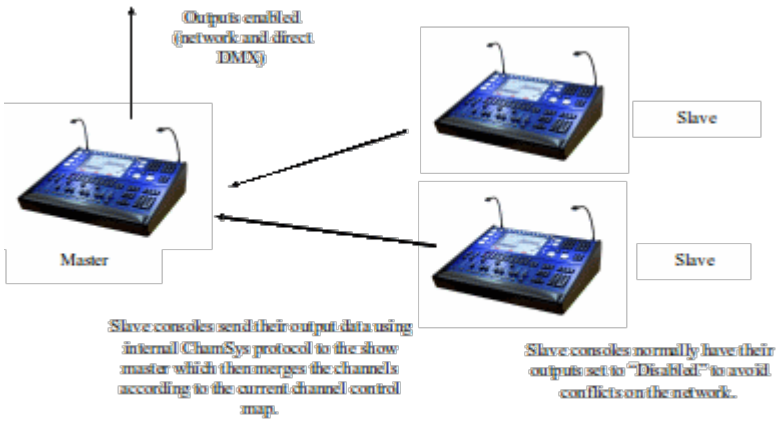


It is possible to force a show slave to resynchronise by holding the left and right cursor keys and pressing SET. It is also possible to resync by restarting or soft resetting the show slave console.

Selective Channel Control

Selective channel control enables Slave consoles to select and control different channels on the master consoles outputs. This allows any console on the network to take control of a set of channels in the lighting rig.

With selective channel control the slave consoles send their output data to the show master and then the show master merges the data from all the slaves onto its outputs.



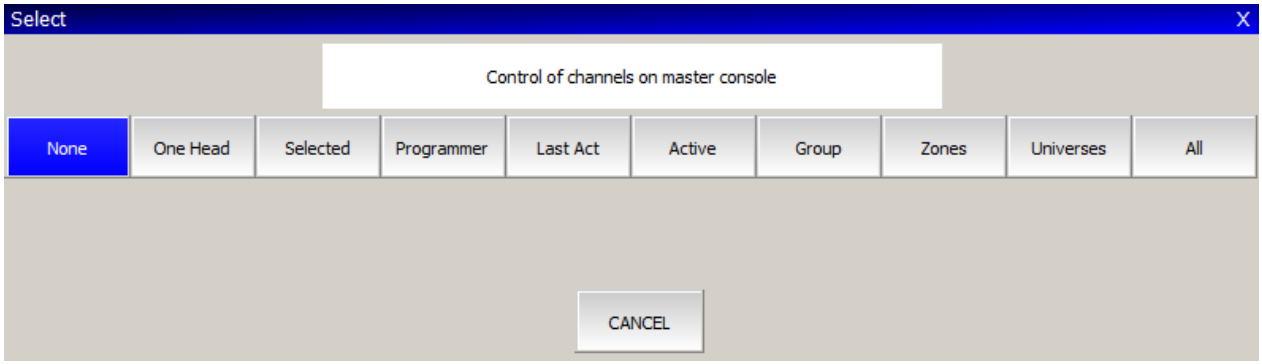
Selecting Which Console Controls Which Channels

MagicQ allows different ways of selecting which of the output channels are controlled from which console on the network – selected channels, active channels, groups of channels,

universes and universe zones. MagicQ defaults to the Master console having control of all the channels.

Slaves request control of output channels using the Setup, View DMX I/O, Multi Prog Select soft button.

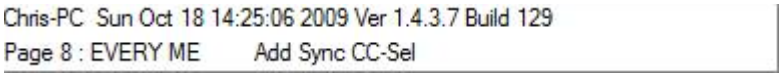
Note that the Slave can still program channels that it does not have control of - but it will not have control of the output to the physical fixtures.



None	The Slave does not control any channels.
One Head	The Slave controls the first selected head only. If Next Head is used to sub select heads then the first sub selected head is controlled.
Selected	The Slave controls the currently selected heads. When no heads are selected, none are controlled.
Programmer	The Slave controls all channels that are active in the programmer.
Active	The Slave controls all channels that are active in the programmer or on its playbacks.
Last Active	Each console controls the channels that it was the last console to change in the programmer. Also for last executed on playbacks when not in playback sync.
User	The Slave controls all the channels allowed as the current User
Group	The Slave controls the group that was selected when this option was chosen.
Uni Zones	The Slave controls selected universe zones (as set up in DMX I/O)
Universes	The Slave controls selected universes
All	The Slave controls all channels

When multiple slaves are in use then different slaves can control different channels on the lighting rig. If the same channel is requested by multiple slaves then the latest selection will

take precedence. The show slave shows the multiple control method in the status bar – e.g. for selected heads it shows "CC-Sel".



When the slave has no channels under control it shows "CC-None".



At any time the Master can take control of all channels using the Setup, View DMX I/O, Multi Prog Select soft button. When the Master is controlling all channels then it shows "MCC" in the status bar. When some channels are under control by a slave console then it shows "SCC".



Active Channel Control

When a channel is released from the Cues on one console then if another console also has control of that channel, then make that console the last active for that channel.

When using Net Sessions Last Active channel control or Active Channel control then pressing Active on an attribute or the entire programmer will activate the associated channels to the value currently outputting on the whole system. Previously it would activate to the value on the console that the Active was performed on.

Restricted Features on Slave consoles

Most MagicQ functions can be accessed from both Master and Slave consoles.

Load Show, New Show and Import Show are not supported on Slave consoles. Users can only be configured on the Master console.

Multi Console operation enables all Patch operations from Slave consoles with a few exceptions. The following operations are not currently supported on Slave consoles:

- Morph Heads
- Clone Heads
- Copy Head Programming
- Auto Groups and Auto Renumber Heads
- Import/Export Heads / USITT

UNDO is support on Slave consoles. UNDO will undo actions regardless of which console the original action was performed on.

CTRL and UNDO to show the complete UNDO log is only available on the Master console. The UNDO log shows which console the actions were performed on.

Playback Sync Modes

There are four Playback Sync Slave options which control whether the playback state of the Slave is synchronised with the Master.

In Setup, View Settings, Multi Console the options for "Playback Sync Slave mode" are "PB sync", "Inhibit, sync on swap", "Inhibit PB sync" and "PB Sync, multi control".

In "PB sync" mode the Slave playback state is always synced to the Master. It is not possible to change playback state (such as page, activation/release state, level of Playbacks) on the Slave.

In "PB sync, multi control" mode the Slave playback state is always synced to the Master. The playback state (such as page, activation/release state, level of Playbacks) can be changed from Master or Slave consoles.

In "Inhibit PB sync" mode the Slave playback state is never synced to the Master. If the Slave becomes Master then the playback state will not be changed - this allows for example a safe state to be set on the Slave console which is not synced to the Master playback state.

In "Inhibit, sync on swap" mode the Slave playback state is not synced to the Master whilst it is a Slave. If it gets promoted to be the Master then it will sets its playback state to the last received state from the original Master.

Note that MagicQ PC systems will only sync playbacks when a MagicQ Wing or Interface is connected, and then only Playbacks 1 to 10. When a PC Wing or Maxi Wing is connected to PC in addition to a Rack Mount dongle then Playbacks 1-34 are supported. When a Stadium Connect is connected then Playbacks 1 to 30 are supported.

There is no limit to the Playback sync between MagicQ consoles.

Programmer Sync Modes

By default each console in Net Sessions has a separate Programmer. Any changes in the Programmer on the Master are completely independent to changes in the Programmer on the Slave. Each console can record, and update different Cues independently.

The Programmer Sync Mode option can be set to enable synchronisation of Programmers. To use Programmer Sync Mode the Master console must have Programmer Sync Mode set to "Sync Programmers". Each Slave Console that should have its Programmer synced with the Master must also have its Programmer Sync Mode set to "Sync Programmers".

Where Net Sessions is in use with more than two consoles it is allowed that one or more Slaves use "Sync Programmers" and other Slaves operate independently.

A Slave can be changed in and out of Programmer Sync at any time by changing the "Sync Programmers" option. When enabling "Sync Programmers" the Programmer of the Slave will be overridden with the entire contents of the Master console programmer. When disabling "Sync Programmers" the contents of the Slave programmer will be unchanged - but will no longer be synced with the Master programer.

There are key shortcuts: hold the CURSOR LEFT and CURSOR RIGHT keys down. Then press * to turn on Programmer Sync. Press / to turn off Programmer Sync.

When a Slave is in programmer sync then its programmer will always be synced with the master and therefore any changes will go direct to the output. For this reason selective channel control is generally not required when running in programmer sync.

Include from Other Console

When in Net Sessions with separate programmers for each console (no programmer sync) it is possible to Include the Programmer from any of the consoles in the net session into any other console in the Net Session.

Press CTRL and INCLUDE. MagicQ shows a dialog box with each of the other the consoles in the Net Session. Select a console to include the programmer from that console.

It is possible to only include selected heads or selected attributes from another console. Press SHIFT + INCLUDE to open the Include Options. Then press SELECTED ONLY and/or choose attributes before pressing the new INCLUDE OTHER CONSOLE soft button. MagicQ then shows the console selection dialog box as above.

The Include Other Consoles is also available from the Include Options toolbar. Toolbars are shown when Setup, View Settings, Windows, Always Show Record Options is set.

When operating with Programmer Sync the programmers are already synced so Include from Other Console is not required.

Include from Other Console is only available when in Net Sessions as the show files must be synced on the consoles to ensure the Patch is the same.

Users in Net Sessions

When changing to a new User, if the console is part of a Net Session and the same User is already in use on another console, then MagicQ forces other console to save settings before this one switches to the User.

In Net Sessions, individual consoles can be set to always start in a specific User. Set the Net Session Login name in Setup, View Settings, Multi Console. Note this is different to setting a Start User in the User table which can be used in single console setups.

In Net Sessions when Users are in operation (i.e. some consoles are logged in as Users instead of the Default User) then MagicQ maintains a User Main / Backup state for each User.

The User Main / Backup state is independent from the Net Session Master / Slave state. Any Master or Slave console in the Net Session can be the Main or Backup console for a User.

The Master console in the Net Session will continue to manage the show data sync and merge the channel control data together regardless of User Main / Backup state.

User Main / Backup automates the Channel control state (CC) for Users that are set with Channel control. The Main console for the User will have the CC set according to the Channel

control in the User settings. The Backup console(s) will be set to CC-None.

On User login the following actions are taken:

None	No change to Channel Control
Group	CC-Group is set. Console takes immediate control of all channels in the Group
Last Active	CC-Last Act is set. If there are multiple Users in the session, any channels active in the Programmer or Playbacks are immediately made last active.
Active	CC-Act is set. Console takes immediate control of any channels active in the Programmer or on Playbacks

For Group Channel Control the Group to use is specified in the already existing Group field of the User table.

User Main / Backup can also be set to automate Playback sync for Users via a new User Sync option in Setup, View Settings, Multi Console, Playback Sync. When set to User Sync the User Main console will send playback sync information direct to the User Backup consoles in the net session. This will only affect consoles of the same User - info will not be sent to consoles running other Users.

The User Name and User Main / Backup state is displayed in the status bar after the Master/Slave state.

In Setup DMX I/O press SHIFT and MULTIPROG MAKE MAIN to make this console the User Main. Note that this option is only available when the console is in a Net Session and logged in as a User.

In the Execute Window, use ASSIGN SPECIAL, Net Sessions, Make User Main to assign a User Main button. The button will show red when the console is User Main.

In the Execute Window, use ASSIGN SPECIAL, Net Sessions, User State to assign a User Main status indication. The state will show red when the console is User Main and orange when User Backup.

Speed Masters in Net Sessions

Speed Masters are considered to be part of the show state rather than the playback state. Therefore, by default when in Net Sessions the Speed Masters are always synced between consoles regardless of the Playback sync modes.

An exception is when Cue Stack macros are in use to control the speed of Speed Masters. When in Net Sessions and Playback Sync is inhibited, and a Speed Master is set from a Cue Stack macro, the Speed Masters are no longer updated between Master and Slave. This enables users who set their Speed Masters from Cue Stack macros to use the same Speed

Master on Master and Slaves at different speeds when programming their show. When not in Playback sync, once a Speed Master has been set from a Cue Stack macro it will no longer be synced until the show is reloaded or a Playback sync mode is entered. When in Playback sync modes the Speed Masters are always synced.

Universe Zoning

MagicQ supports Uni Zones for controlling multiple rooms / areas in a venue. In Setup, View DMX/IO each Universe can be allocated to a Uni Zone, and then all the Universes in a Uni Zone can be controlled together – e.g. for enabling / disabling of a Uni Zone.

Special items in the Execute Window to enable easy control of Uni Zones, including enabling and disabling Uni Zones and setting and clearing hot takeover in a Uni Zone. This allows complete control of a multi-room system directly from the Execute Window without users needing to access the Setup Window.

Inter Console Messaging

It is possible to trigger message boxes from Cues in a Cue Stack. Simply add a comment field to the Cue in the Cue Stack starting with a !. When this Cue executes the message box will be shown.

In Setup, View Settings, View Windows there is a new option, Message Window. This specifies where the message box is shown (main screen, external screen 1, external screen 2) and whether a network message is sent to other consoles.

Setting "Net Only" results in messages only being sent over the network, not shown on the console where the Cue executed.

By default the message box shows immediately for 5 seconds and then closes. The delay before the message box shows and the time it stays visible can be set using parameters in between the !.

!<delay>,<show length>!

!10!Hello World // Delay for 10 seconds before showing message

!10,20!Hello World // Delay for 10 seconds and show message box for 20 seconds

!0,0!Hello World // Show message and do not close message box

If the comment starts with a !! instead of a ! then the console does an alert as well as showing the message. The alert flashes the main screen intensity and the console lamps to try to get the operators attention.

Messages can be sent directly from the keyboard by entering text starting with a ! or a !!.

Control Network

The control net is a secondary network interface. It must have a different, non-overlapping IP address and subnet mask to the primary network.

The control net is more restricted; things such as Art-Net and sACN are not usable by default, however it can be used with the remote app, 10Scene app, remote control and SMB file access. In rare cases the control net is needed to be used to send Art-Net or sACN data, the option can be enabled inside of Setup > View Settings > Net Host Options.

This provides isolation from the broadcast-heavy traffic of Art-Net, and is ideal for connecting a wireless access point for using the MagicQ Remote App. It can also be used to connect the console to a wide area network (WAN), or the internet.

Although the control net is restricted, there are still unauthenticated protocols available through it. It must be connected to a trusted network with appropriate firewalls and security measures. See the network security section for more information.

Configuring

Control net is available on MagicQ consoles through a USB to Ethernet adaptor.

If using a USB adaptor, plug this into the console. Go to the Net tab in Setup, View Settings, View Status. If a MAC address appears under *Control IP*, then the adaptor is ready to use.

Go to Setup, View Settings, Network. **Control net mode** can be set to one of three options:

- **Static IP** - manually configure the IP address
- **Dynamic** (DHCP client) - automatically configure the IP address
- **DHCP Server** - same as Static IP, but also run a DHCP server to automatically issue IP addresses to other devices on the network

The **Gateway address** setting can be used for either the primary network or the control net. Set this to the address of the router if communicating with a WAN or the internet.

In **Dynamic** mode, go to Setup, View Status, Net to see what IP address has been assigned.

The IP addresses and subnets used for the primary network, control net and wifi must not overlap. A sensible setting for the control net would be `192.168.250.10`, `255.255.255.0`. See the top of this chapter for a list of allowed IP address ranges.

The **Control net firewall** setting can be used to restrict incoming network traffic. If set to *Allow Remote only*, then only MagicQ Remote app and remote control can connect to the console via control net. If set to *Block all*, then all incoming connections are blocked (although the console can make outgoing connections to other devices).

On MagicQ PC the Control Net IP address can be set to select a secondary network port. The Control net mode and Control net firewall are not supported.

Compatibility

- Control net via USB to Ethernet adaptor (version 1.9.1.0 minimum):
  - MQ50
  - MQ70
  - MQ80*
  - MQ250M
  - MQ500 + MQ500M

*The MQ80 will also need a Linux Kernel upgrade - follow these steps.

These USB to Ethernet adaptors have been tested, however many other adaptors will also work:

- UGreen USB 2.0 to 100Mbit Ethernet
- UGreen USB 3.0 to Gigabit Ethernet
- uni USB 3.0 to Gigabit Ethernet
- Amazon Basics USB 2.0 to 100Mbit Ethernet
- deleyCon USB 2.0 to 100Mbit

Manual Configuration of Multi Console Operation

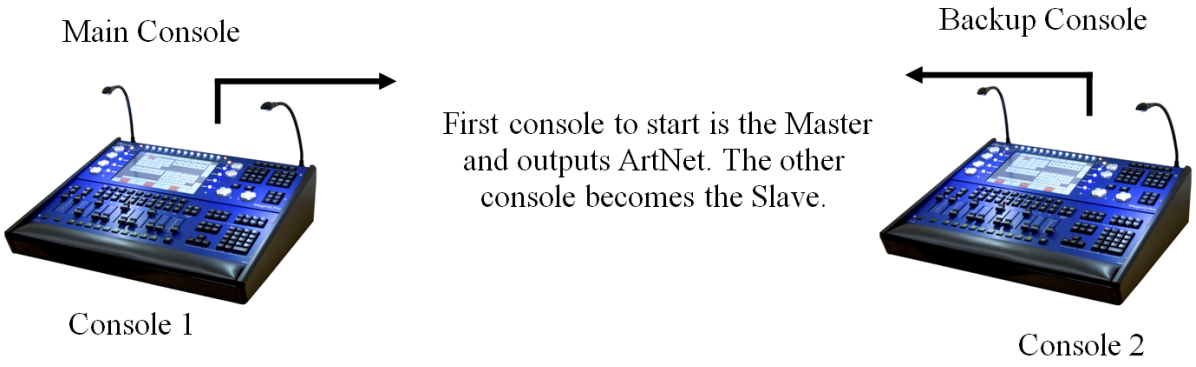
We recommend you use network sessions to control hot takeover as this provides much simpler and automatic configuration.

When interworking with 3rd party console, or setting up install systems with emergency hot takeover it can be configured manually as below.

Manual Configuration of Hot Takeover

Hot takeover allows the use of multiple consoles in case a console stops working. Hot takeover can be used in two ways - depending on what you wish to happen when the main console becomes available again.

In "Preferred mode" only one of the consoles (or MagicQ PCs) on the network is designated as a back up. All the universes on the console are set to "Hot takeover". Whenever there is no received DMX traffic on the network for a particular universe, the back-up console starts sending data for that universe. As soon as data reappears, the back-up console stops sending data.



In "Equal mode" all consoles on the network are set to "Hot takeover". At any one time, one of the consoles will run as the master, with all universes enabled. If that console fails, one of the others will take over. It is recommended that you set the "Hot takeover detect time" to different values on each of the consoles to avoid conflict conditions.

The first console to start is the Master and outputs. The other console becomes the Slave.

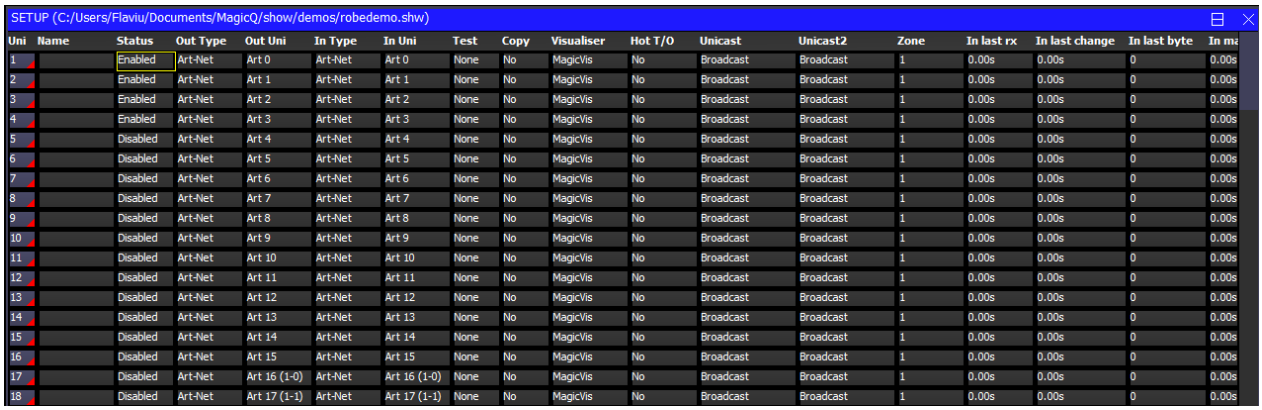
Hot Takeover Mode

Hot Takeover Mode is set in Setup, View Settings, Multi Console. The options are:

Manual	User Takes control and Release control as required.
Pref Master	Console will always be Master

Pref Slave	Console will only be Master if another console is not detected
Equal	Both consoles have same priority
Split	Universes controlled independently. (default)
Inhibit	All MagicQ consoles on the network disable their outputs. Used to enable 3rd party consoles to output on the network.

For all modes it is still necessary to set up Setup, View DMX I/O so that all universes that you wish to use as Hot Takeover have their Output and Input universes and type set correctly.



Uni	Name	Status	Out Type	Out Uni	In Type	In Uni	Test	Copy	Visualiser	Hot T/O	Unicast	Unicast2	Zone	In last rx	In last change	In last byte	In ma
1		Enabled	Art-Net	Art 0	Art-Net	Art 0	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
2		Enabled	Art-Net	Art 1	Art-Net	Art 1	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
3		Enabled	Art-Net	Art 2	Art-Net	Art 2	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
4		Enabled	Art-Net	Art 3	Art-Net	Art 3	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
5		Disabled	Art-Net	Art 4	Art-Net	Art 4	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
6		Disabled	Art-Net	Art 5	Art-Net	Art 5	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
7		Disabled	Art-Net	Art 6	Art-Net	Art 6	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
8		Disabled	Art-Net	Art 7	Art-Net	Art 7	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
9		Disabled	Art-Net	Art 8	Art-Net	Art 8	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
10		Disabled	Art-Net	Art 9	Art-Net	Art 9	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
11		Disabled	Art-Net	Art 10	Art-Net	Art 10	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
12		Disabled	Art-Net	Art 11	Art-Net	Art 11	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
13		Disabled	Art-Net	Art 12	Art-Net	Art 12	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
14		Disabled	Art-Net	Art 13	Art-Net	Art 13	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
15		Disabled	Art-Net	Art 14	Art-Net	Art 14	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
16		Disabled	Art-Net	Art 15	Art-Net	Art 15	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
17		Disabled	Art-Net	Art 16 (1-0)	Art-Net	Art 16 (1-0)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
18		Disabled	Art-Net	Art 17 (1-1)	Art-Net	Art 17 (1-1)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s

When you set a universe to "Hot Takeover" you must ensure that Input is enabled on that Universe and that it is set to the correct type and universe number – generally the Input should be set up the same as the Output.

When using "Hot takeover" on MagicQ PC, ensure that the IP address of MagicQ PC (set up in Setup Window, View Settings) is set to the valid IP address of the network you are using. If this setting is incorrect then Hot Takeover will not work correctly.

Preferred Mode

Setting one console to Preferred Master and the other to Preferred Slave operates a Master/Slave mode whereby one console will always be the Master, with the other console only taking control when that Preferred Master console is not available (shutdown, reset, disconnected from the network). As soon as the Preferred Master restarts or is connected back on the network then it will take control and the Preferred Slave will stop outputting.

All required universes on both consoles should be set to Hot Takeover.

Equal Mode

Setting both consoles to Equal operates a Master/Slave mode whereby both Consoles have the same precedence. The first console to start becomes the Master. Take Control and Release Control can be used to swap which console is the Master.

All Universes are treated the same – enabling / disabling together. For systems which require hot takeover to operate independently on different Universes the Split mode should be used.

If the network cable between the consoles is broken then neither console will see the other console and both will become Master. If one of the consoles is still connected to the lighting rig then it will have control – both consoles will not be connected to the lighting rig – otherwise the consoles would see each other.

When the network between the consoles is reconnected then both consoles will detect the other consoles at the same instance. The console with the lower IP address will become the Master.

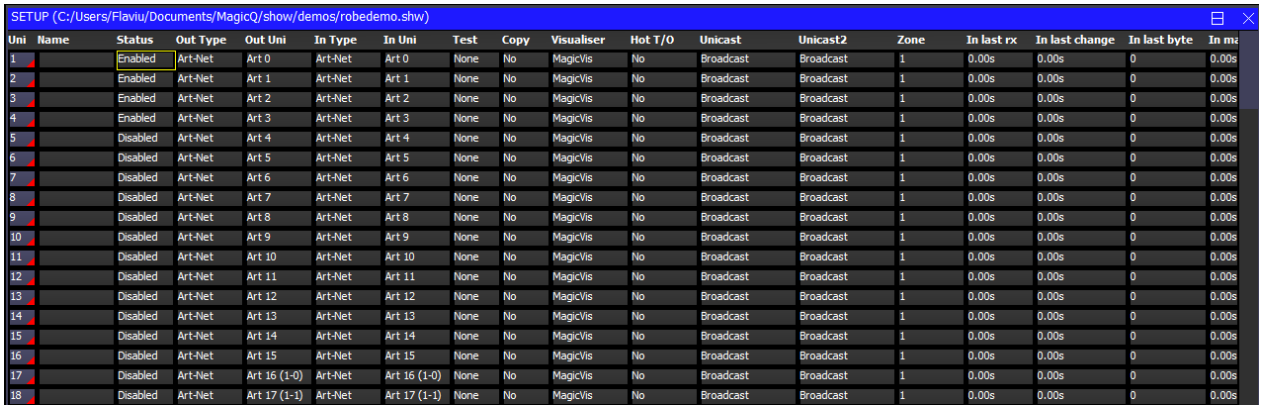
All required universes on both consoles should be set to Hot Takeover.

Split Mode

This mode makes the consoles operate as in previous version of software. Set Hot Takeover in Setup, View DMX I/O for the required Universes.

To make a single system a backup for another system set the universes to Hot Takeover only on the slave console. For a Master/Slave system with equal precedence, set the universes to Hot Takeover on both systems.

Hot Takeover Type



Uni	Name	Status	Out Type	Out Uni	In Type	In Uni	Test	Copy	Visualiser	Hot T/O	Unicast	Unicast2	Zone	In last rx	In last change	In last byte	In ma
1		Enabled	Art-Net	Art 0	Art-Net	Art 0	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
2		Enabled	Art-Net	Art 1	Art-Net	Art 1	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
3		Enabled	Art-Net	Art 2	Art-Net	Art 2	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
4		Enabled	Art-Net	Art 3	Art-Net	Art 3	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
5		Disabled	Art-Net	Art 4	Art-Net	Art 4	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
6		Disabled	Art-Net	Art 5	Art-Net	Art 5	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
7		Disabled	Art-Net	Art 6	Art-Net	Art 6	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
8		Disabled	Art-Net	Art 7	Art-Net	Art 7	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
9		Disabled	Art-Net	Art 8	Art-Net	Art 8	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
10		Disabled	Art-Net	Art 9	Art-Net	Art 9	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
11		Disabled	Art-Net	Art 10	Art-Net	Art 10	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
12		Disabled	Art-Net	Art 11	Art-Net	Art 11	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
13		Disabled	Art-Net	Art 12	Art-Net	Art 12	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
14		Disabled	Art-Net	Art 13	Art-Net	Art 13	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
15		Disabled	Art-Net	Art 14	Art-Net	Art 14	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
16		Disabled	Art-Net	Art 15	Art-Net	Art 15	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
17		Disabled	Art-Net	Art 16 (1-0)	Art-Net	Art 16 (1-0)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
18		Disabled	Art-Net	Art 17 (1-1)	Art-Net	Art 17 (1-1)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s

The hot takeover type can be set to manual or automatic. When set to manual the output is frozen until the operator decides what new look to change to. In automatic, a gradual fade is made to the look set on the Playbacks – in this mode an operator will often put up a "safe" state on the standby console which can be used if the main console has a problem.

In manual mode, when MagicQ determines that it should take over a universe it will load a snapshot of the last data from that universe into its Programmer. The universe will be completely controlled from within the Programmer and not from the Playbacks. The operator can then set up the playbacks as they wish and then clear the programmer to change to this new look. Clearing the programmer with time enables the operator to specify a fade time to the new look.

In automatic mode, MagicQ loads the snapshot of the last data from that universe into the Programmer and then automatically clears the programmer using the hot-takeover fade time.

Since both options use the programmer, it is recommended that the programmer is kept clear on the standby console.

Swapping Control Between Multiple Consoles

In Equal Mode, a console that is set to "Hot takeover" can be forced to control all universes using the "TAKE CONTROL" soft button. This will force an immediate change of control from one console to the other.

Similarly, control can be given to another console using the "RELEASE CONTROL" soft button. This will force the other console to take control, and depending on the hot takeover options will enable a controlled fade to the new console outputs.

Note that the "TAKE CONTROL" and "RELEASE CONTROL" are only active when one or more universes are set to "Hot takeover".

When universes on MagicQ consoles are set to hot-takeover then the current Master / Slave status is shown in the Status Display underneath the date and time.

Note that a MagicQ console is considered a Master if any of the universes that are configured as a hot takeover universe are currently enabled and hence outputting to the network. A MagicQ console is considered a Slave if all universes that are configured as hot takeover universes are currently disabled – the console is not outputting to the network on these universes.

Emergency Hot Takeover

MagicQ includes an Emergency Hot Takeover feature that forces all universes to output the data from itself rather than from received data from other consoles.

When MagicQ enters Emergency Hot Takeover, all universes set to Hot Takeover are immediately enabled and any looping through of received Hot Takeover data is stopped.

When MagicQ leaves Emergency Hot Takeover, normal Hot Takeover will operate - the Hot Takeover Mode determining which universes are controlled by which consoles.

Emergency Hot Takeover can be triggered from the Remote Input port.

It can also be triggered from Automations (hence can be triggered from 10Scene input ports, MIDI, OSC, incoming DMX etc...)

Cue Stack Macro H 112, H 911 and H 999 can be used set Emergency Hot Takeover on and off.

ChamSys Remote Protocol Command 112 H, 911 H and 999 H can be used to set Emergency Hot Takeover on and off.

It can also be manually triggered from Setup, View DMX I/O with SHIFT + the top soft buttons EMERGENCY ON and EMERGENCY OFF.

When using Emergency Hot Takeover and outputting over network to DMX nodes it is important that only the system where the Emergency Hot Takeover is configured to output universes directly to the DMX nodes.

All other consoles on the network should output universes to the MagicQ system and then be

looped through to the universes of the DMX nodes as required. In Setup, View DMX I/O set Hot Takeover on the universes to "Yes, Loop". When using loop through the Input and Output Universes should be set to different ranges in the Art-Net / sACN universe ranges.

To set a MagicQ system for Emergency Hot Takeover:

In Setup, View Settings, Multi Console

- Set Net Session Mode = None
- Set Hot Takeover Mode = Pref Slave or Split Universes
- Set Hot Takeover Fade Type = Automatic

In Setup, View DMX I/O

- Set Output Type and Output Uni to output to the required DMX nodes
- Set Input Type and Input Uni to a different universe range
- Set universes Takeover to "Yes, Loop"

Arrange that any other consoles on the network output to the different universe range

The Autom Type "Emergency" triggers when Emergency Hot Takeover is entered and left. This enables triggering of Playbacks/Cues etc... dependent on the Emergency state.

Manual Configuration of Multi Console options

From software version 1.9.8.0 the manual configuration of Show Data Synchronisation and Playback Sync is fully superseded by Net Sessions.

Older multi programming control and multi programming options in the Show sync type are no longer supported.

Automatic Backing Up of Shows from Other Consoles

It is possible to set a MagicQ console or a MagicQ PC to automatically back up show files from one or more other consoles on the network. Optionally, this console can be made to automatically run one of the shows.

Warning - if this option is configured incorrectly then your show files could get accidentally overwritten. Always back up your show files to external media / computer systems.

In the Setup Window, View Settings, Multi Console configure the "Show sync type" option to "Archive".

When set to "Archive", MagicQ periodically checks for other consoles on the network and grabs the show files that are running on those consoles. The show files are stored in the normal show folder.

When this feature is used to back-up multiple consoles, it is important that different show file

names are used on each of the other consoles – otherwise files from different consoles will overwrite each other on the back-up console.

Note that files will only be copied from consoles that have the "auto backup" option set to "yes" or "on changes". Files will not be copied from consoles that do not have this set (e.g. when the playback mode is set to "Safe"). This avoids any performance impact from copying of files from live consoles.

When set to "Grabber" MagicQ copies the files as above. It will then load one of the shows that it has copied. If there are multiple consoles on the network then it will always run the show file from the same console.

This feature can be used to back up show files from PCs running MagicQ PC as well as from consoles – these PCs must have the drive where MagicQ is installed shared on the network (e.g. share C: as C).

Remote Control of MagicQ

MagicQ supports the remote control of other MagicQ consoles and PC/Mac systems. Any MagicQ console or any MagicQ PC system can be controlled from any other MagicQ console or MagicQ PC system on the network. This enables complete remote management of any system from any other system. The remote system appears exactly as if it were running on the local system.

Remote control over a VPN is supported subject to the VPN allowing UDP traffic on port 4910 and TCP traffic on port 4911.

Remote Control must be enabled on the console that is to be controlled – by default it is disabled. It can be enabled in Setup, View Settings, Multi Console settings, Enable Remote Control.

Remote Control Full

There is now a Remote Control Full option when selecting remote control of another MagicQ system.

Remote Control Full operates by fully synchronising show data, programmer data and playback data between the controlling MagicQ system and the controlled MagicQ system. This is different to the previous remote control which synchronised the viewed GUI data only.

With Remote Control Full all of the MagicQ windows including the Colour Picker, Plot View, Curve Editor, Timeline and Visualiser are available on the remote controlling system. On previous Remote Control only the simple items select and spreadsheet views were available.

With Remote Control Full the graphics are independent on the Controlling and Controlled console so it does not matter if they have different resolutions.

When going into Remote Control Full the controlling MagicQ stops running and outputting its current show and loads the full show from the controlled MagicQ system. Whilst in Remote Control Full the controlling MagicQ does not output any DMX direct or via network. When exiting Remote Control Full the Controlling MagicQ reloads the show it was running previously and resumes outputting on any enabled Universes as normal.

Note that when in Remote Control Full, it is not possible to change the console settings of the remote Console - only show settings can be changed.

Note that both the Controlling and Controlled system must be v1.9.8.0 or higher for Remote Control Full to be used.

MagicQ Remote Control (Windows/Mac/Linux)

When you install MagicQ on PC or Mac there is a MagicQ Remote Control option under the ChamSys menu that enables MagicQ to run solely in remote control mode.

In remote control mode MagicQ acts only as a remote control system; it does not transmit any

network traffic (such as lighting protocols, Art-Net, ACN, Pathport etc...) except for the control of the remote MagicQ system.

When you start up MagicQ in remote mode it will scan for MagicQ consoles on the network and give a list of the available consoles to select from.

In the list is "Specify IP" to enable connection to a specific IP in case MagicQ is unable to detect the console - e.g. when using a VPN.

To stop remote control of a MagicQ console and exit, click on "Quit".

To stop remote control of a MagicQ console and choose a different console, press CTRL CLOSE.

Remote Control from MagicQ



The remote control function can be accessed from MagicQ in Setup, View System, View Monitors. To control another MagicQ press the Remote Control soft button. MagicQ then presents a list of all the other MagicQ consoles / MagicQ PC systems it can find on the network and you can choose which one you wish to control.



If for any reason it cannot connect to the console you can abort the remote control by pressing the backspace ←- key, or by pressing CTRL CLOSE.

You can tell which system you are controlling by looking at the system name in the Status Display (above PB1 to PB5). When MagicQ is remote controlling another console it indicates "REM" at the start of this status line.

To end remote control of another system press CTRL 1 on the keyboard of the controlling system. Alternatively press QUIT or CTRL CLOSE on the controlling system. The status line will change back to be the normal line without "REM".

When a remote system is under remote control it is still possible to control the system locally – the normal system interface is still fully operational. We recommend that you only use one interface at a time – having two operators will cause confusion!

This function is only enabled when the target system (i.e. the one you wish to control) is a MagicQ console, or it is a MagicQ PC system with a MagicQ PC Wing or MagicQ USB interface attached. There are no restrictions on the MagicQ system that you use to control the remote system – for example, this can be MagicQ PC running on a wireless tablet.

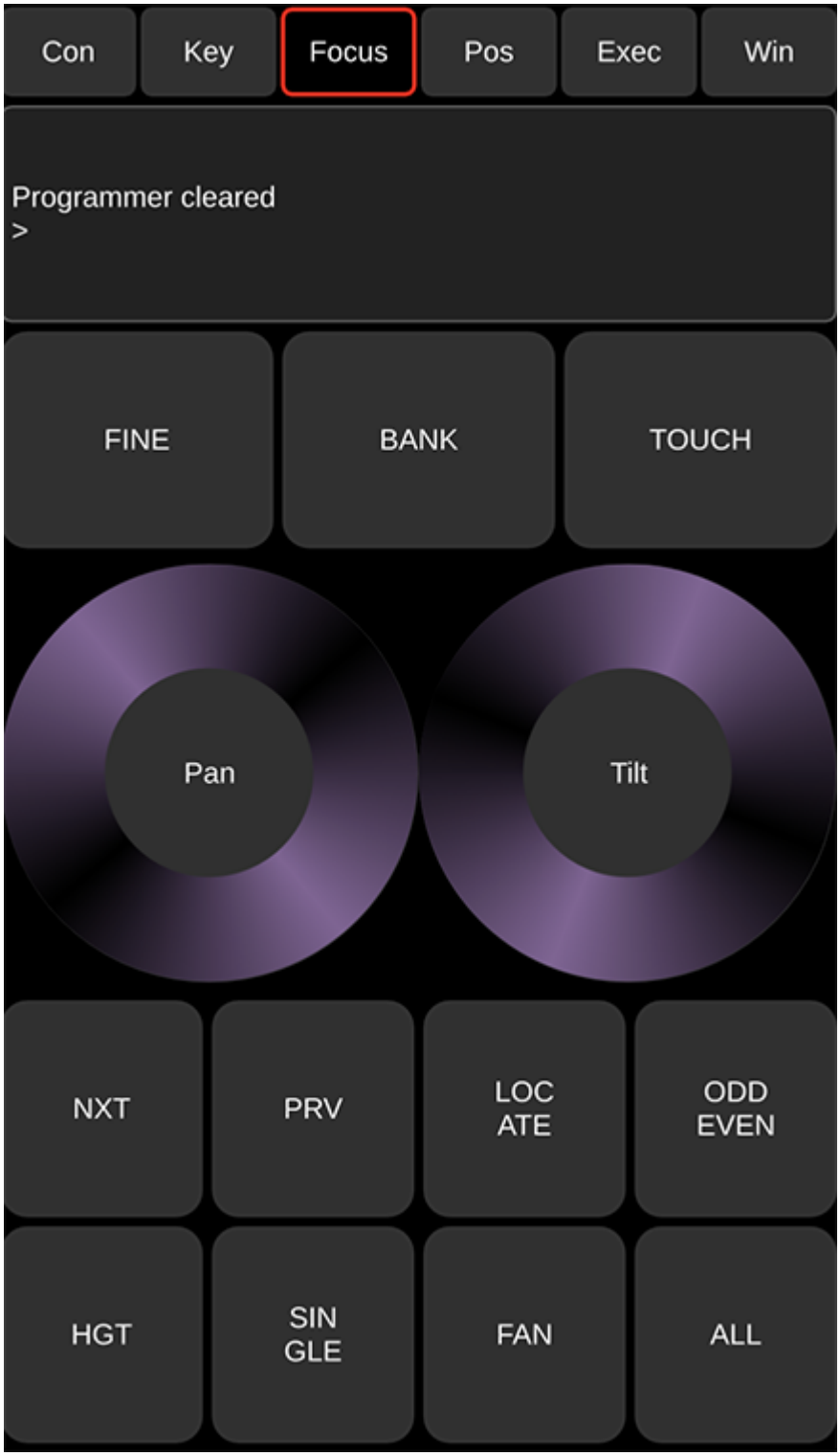
You can specify a particular IP address to connect to by entering the IP address in the command line before pressing REMOTE CONTROL or through the "Specify IP" option in the list of consoles.

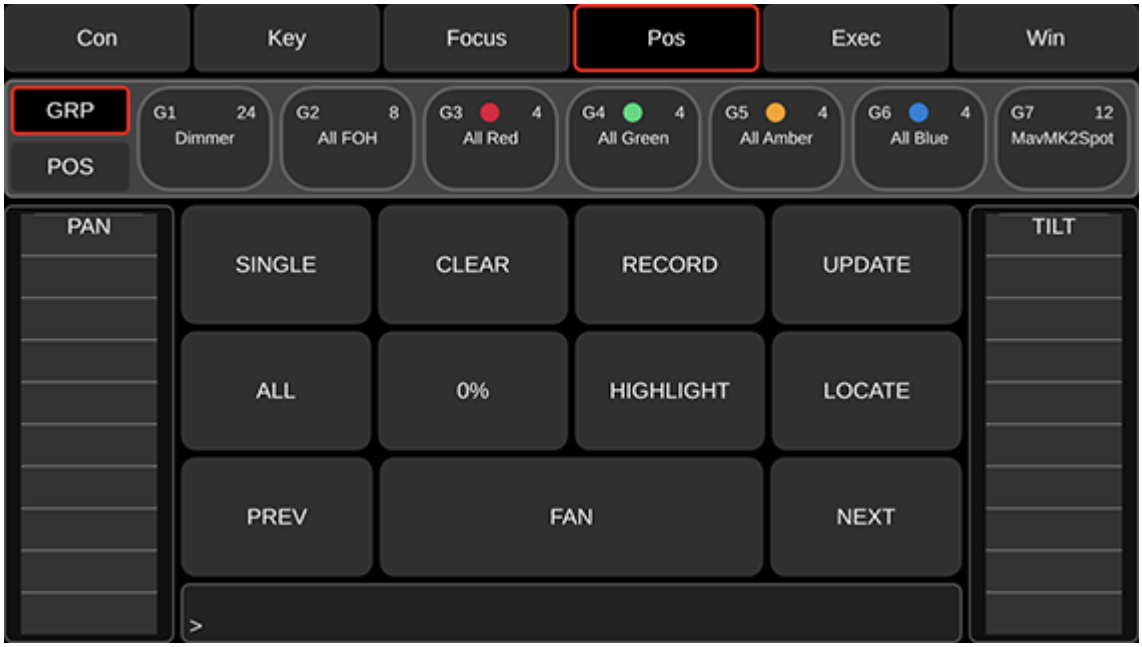
iOS / Android Remote App

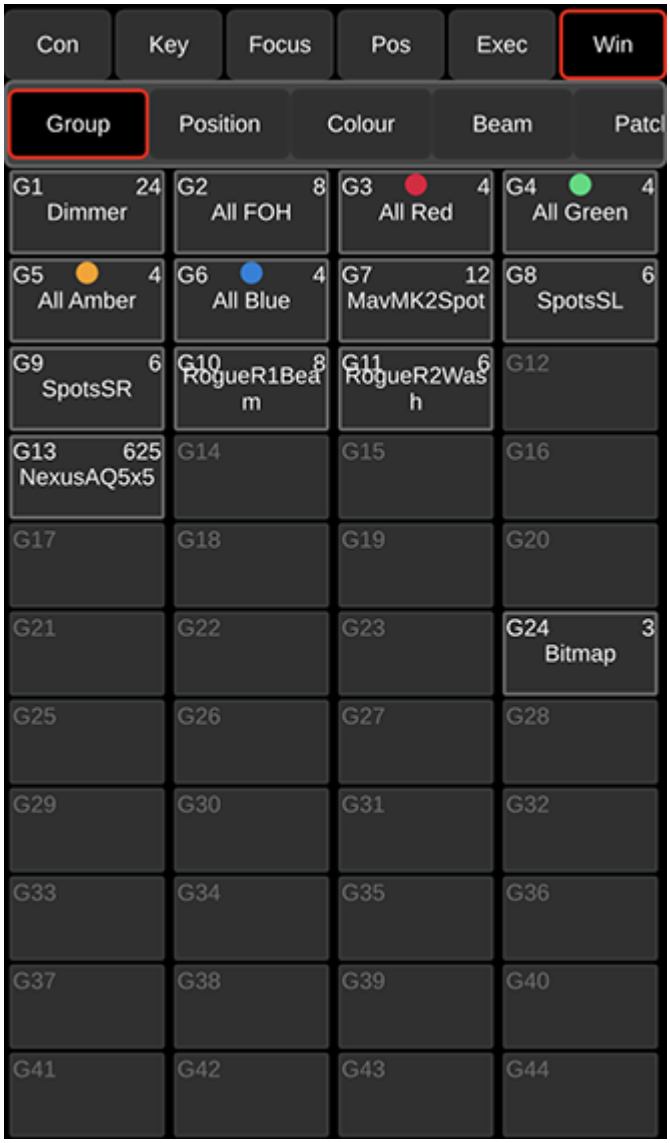
MagicQ systems can be used together with an Apple iPhone, iPad, iPod Touch or Android phone or tablet for remote control.

All MagicQ consoles support remote control. On MagicQ PC systems remote control support is only unlocked when connected to a MagicQ Wing or MagicQ Interfaces (not MagicDMX).

In order to use the remote with a MagicQ console, connect an external wireless access point to the console via network cable. Some consoles also have an inbuilt wireless access point which can be used instead or, when the app is simply being used as an additional screen the mobile device can be connected directly to the console via an Ethernet adaptor.


Con
Key
Focus
Pos
Exec
Win
Programmer cleared
>
FINE
BANK
TOUCH
Pan
Tilt
NXT
PRV
LOC
ATE
ODD
EVEN
HGT
SIN
GLE
FAN
ALL





The MagicQ Remote application can be downloaded free of charge from the Apple App Store. For Android it can be downloaded free of charge from the Google Play Store.

To enable support for the remote application, go to Setup, View Settings, Multi Console, set

Enable remote control and *Enable remote access* to "Enabled".

Setting Up an Access Point

In order to use a wireless access point with MagicQ you must configure the access point with an SSID, password, IP address and subnet mask.

Most access points have an inbuilt web server that enables configuration from a PC or Mac using a web browser. The web server generally has a username and password - you will need to consult the instruction manual for your particular access point.

Access points usually default to a standard IP address such as 192.168.1.1 and subnet mask of 255.255.255.0. Most access points have DHCP support - i.e. the access point will attempt to give out IP addresses to other computers on the network. DHCP may be enabled or disabled by default depending on the type of access point. Consult the manual for your access point to determine how to configure it.

In order for the wireless access point to work correctly with MagicQ, the access point should be in the same IP address range as the MagicQ console / MagicQ PC/Mac.

For example, if the console is set to IP address 2.0.0.5 then the access point should have an IP address on the 2.0.0.x network – e.g. 2.0.0.1. Note that many access points only support subnet masks of 255.255.255.0 instead of the normal Art-Net subnet mask 255.0.0.0. This can be overcome by simply making sure that all your devices are on the same subnet – i.e. all devices have a 2.0.0.x address.

The remote device (iOS/Android) should also have an IP address in the same range.

The access point can be set up with DHCP to provide a range of IP addresses to wireless devices - this removes the need to set the IP address manually on the remote device. For example, you could set up your wireless access point to give out IP addresses in the range 2.0.0.100 to 2.0.0.150.

Security settings should be set up on your access point to avoid unauthorised control of the console.

When using your own wireless access point the WIFI settings in MagicQ are not used - these are only for consoles with inbuilt wireless. Ensure that Setup, View Settings, WIFI, *Wireless mode* is set to "Disabled".

Inbuilt Wireless

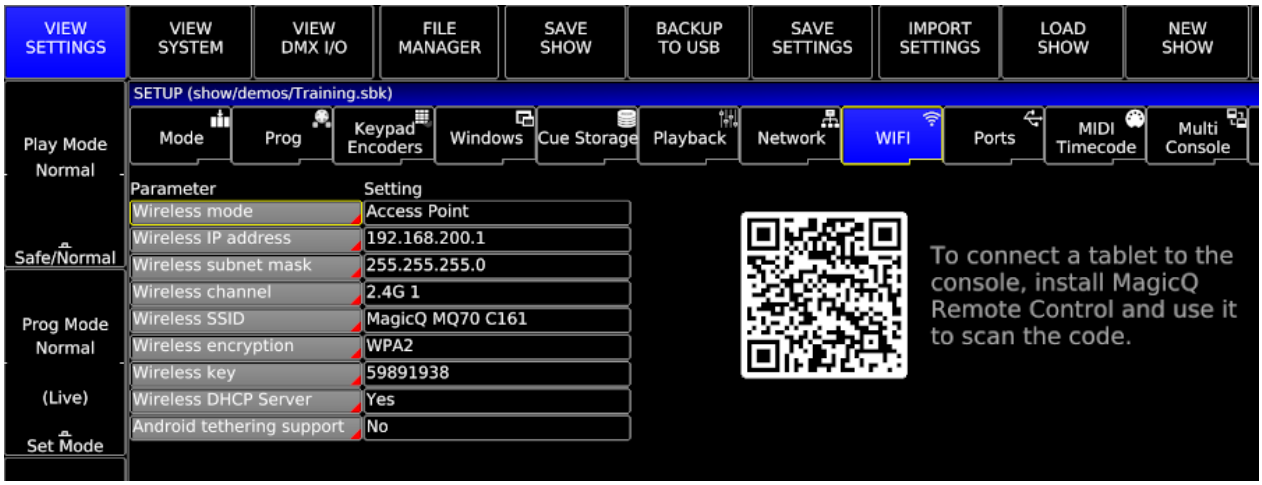
These consoles have an inbuilt wireless access point:

- MQ50
- MQ70)
- MQ70 (original)
- Pro 2010/2014 (optional extra via USB device)

Inbuilt wireless on Pro 2010/2014 consoles requires the Edimax EW-7711UAn USB device.

For all other consoles, and on PC/Mac, you need your own wireless access point connected via the wired network port (see *Setting up an access point* above).

Inbuilt wireless can be configured in Setup, View Settings, WIFI:



Wireless mode needs to be set to "Access Point" or "Access Point (Hidden SSID)".

The rest of the settings can be left at their default values.

See WIFI Settings for more information on the settings in this window.

The IP address in the *WIFI* tab should be in a different range from the IP address in the *Network* tab.

You can scan the QR code from the MagicQ Remote app or your device's camera app to automatically connect to the wireless network, or you can connect manually (see below).

Connecting the Remote App via Ethernet

In environments where there are a large number of WiFi devices or other devices that may interfere with WiFi signals and when the remote app is being used next to the console (e.g. as an additional screen) it can be beneficial to connect via Ethernet network cable rather than WiFi.

To do this an Ethernet adaptor is required for your mobile device. The Ethernet adaptor plugs into the USB or Lightning port of your Android or Apple device and allows an Ethernet cable to be connected (ensure that the adaptor you buy is suitable for your device).

Most devices can be connected either via a network external to the console which provides DHCP or directly to the console by setting a static IP address.

With an Ethernet adaptor connected to an Apple device an *Ethernet* menu option will appear in the device's Settings menu and under this an item for *Interfaces*. When connecting via an external network the LAN interface's *Configure IP* should be set to *Automatic*. This will configure the network settings for you. When using an Ethernet cable connected directly to the console *Configure IP* should be set to *Manual*.

The location of Ethernet settings on Android devices varies depending on the device but on many devices an option, *More connection settings*, is found under *Connections* in the Settings app. Under this option is an item for *Ethernet* which will be greyed out until the Ethernet adaptor is connected. Under the *Ethernet* option is an option, *Configure Ethernet device*. When connecting via an external network the *Connection type* under this should be set to *DHCP*. This will configure the network settings for you. When using an Ethernet cable connected directly to the console *Connection type* should be set to *Static IP*. To change settings the *Ethernet* Option will need to be disabled and should be enabled once the changes have been made. Some Android devices do not allow a static IP to be set. If you still require to connect the device directly to the console then you can do so via the Control Net secondary network interface. This should be set to a mode with the DHCP server enabled.

When using a *Manual* or *Static IP* connection the *IP Address* should be set to be in the same range as the console (e.g. if the console has an IP address of 2.0.0.5 the IP address could be set to 2.0.0.7). The *Subnet Mask* or *Netmask* should be set to the same value as set on the console.

To use an Ethernet adaptor you may need to disable WiFi on the device.

Making a Connection to MagicQ

In the case of inbuilt WiFi, you can scan the QR code in the WiFi settings tab using the MagicQ Remote app.

If you are using your own access point you need to connect manually:

- Turn on your mobile device and select the required wireless network to connect to - the network name (SSID) of your access point.
- Check the WiFi settings for the remote device to ensure that it has automatically received a correct IP address. If it has not, then enter a static IP address - this must be in the same range as the console IP address (when using your own access point).
- Open the MagicQ remote app.
- In the remote application, go to the *Con* tab. You should see a list of all the available MagicQ consoles on the network. Select the required console so that it is highlighted in green. If your console does not appear in the list tap the *Search* button or select *Manual IP* and enter the IP address of the console. If a user is set on the console with a password then you will see a padlock icon next to its details. To control the console enter the username and password in the *Settings* view. The padlock icon should now show as open.
- You should now have control. Change to the *Pos* tab and try selecting a group.

If you are connecting via a VPN then you must specify the IP address of MagicQ in the *Settings* view of the app. The VPN must allow UDP traffic on port 4920.

The *Con* tab on MagicQ Remote has a green communication health bar. If this starts to turn red then packets are being missed and there is an issue with communication between MagicQ and MagicQ Remote. Check that the device that the app is running on is in range of the WiFi access point it is connected to. Communication will also be impacted by other devices either using WiFi or interfering with it.

Modifying Palettes with the Remote App

It is easy to modify palettes with the remote application.

In the Focus tab (Key tab on iPad), select your heads (e.g. GROUP 1 ENTER) then select the position palette (e.g. POS 5 ENTER). If you cannot remember the numbers then change to the Windows tab and select the Pos, Colour or Beam Windows.

In the Focus tab use the encoder wheels to modify the look on stage. On a small screen device like a phone use the Bank button to change the attributes controlled by the wheel. On a tablet or other large screen device you can press the Pos, Colour, Beam buttons.

When you are happy with you look then record over the palette (e.g. REC POS 5 ENTER). MagicQ will ask for a confirmation. Press 1 to confirm yes. Press 0 to cancel.

Using the Execute Window

We recommend you use the Execute Window on the remote app for shortcuts, group selections, focus test, etc... Items from the Group, Position, Colour, Beam, Cue Stack Store, Cue Store, Playback and Macro windows can all be copied into the Execute Window for immediate access from the remote device.

On the MagicQ console press the Execute Window and then press SET GRID SIZE to create grid 1. We recommend a grid size 5/5 for the iPhone/Android phones. For iPad 10/10 or 12/12 is good.

Copy items from the Group, Pos, Colour Beam windows into the Execute Window. You can copy multiple items in one go, by using SHIFT and the cursor keys in the source window to select multiple items. Press COPY. If it says "select source" then press COPY again. When it says "select destination" change to the Execute Window and select the place in the grid to copy to.

This latest version allows the Execute Window images to be shown on your device as images instead of boxes. Custom button images will be automatically downloaded to the app from MagicQ.

Restricting Access (Execute Mode)

The app can be limited to only have access to the Execute Window by modifying the "Enable Remote App" setting in the user settings on MagicQ. (This mode was formally called Install Mode). Access can also limited to selected users. See the section on Restricting Remote App Access for more information. A particular console IP address can also be specified in the app Settings View to ensure the app always connects to the correct console. The Execute Page number can also be specified in the Settings View.

In App Settings

The Settings View in the app has the following options:

- Username - The username required to access MagicQ.
- Password - The password required to access MagicQ.

- Execute Page # - The Execute page to display.
- MagicQ IP Address - The IP address of the MagicQ device to connect to.
- Pos Pan/Tilt Invert - When enabled the direction of the Pan/Tilt wheels in the Position Window are inverted.
- Win Status Display - When enabled the MagicQ Status box is added to the bottom of the "Window" Window.
- Win Match Columns - When enabled Window Views will match the number of columns used in MagicQ.
- Redownload Images - When enabled the custom images for the Execute Window are redownloaded from MagicQ overwriting any existing ones.
- Execute Appearance - Allows the appearance of the Execute Window to be toggled between Boxes and Coloured buttons with additional detail.
- Large Screen Mode - When enabled the Keyboard and Focus Windows are combined into a single view with additional controls. This is enabled by default on large screen devices.
- Display Views on MagicQ - When enabled switching the Window View on the app will also display that view on MagicQ.
- Lock Orientation - (Android Only) When enabled the orientation of the app will not change when the device is rotated.
- Delete All Downloaded Images - When selected all Execute Window images downloaded from MagicQ are deleted from the app device.

In App Help

The top section of the Help View in the app displays the release notes and copyright notices for the app. Below this are the details of the version of the app and (if the device has an internet connection) the details of the latest available stable and beta version of MagicQ. Tapping the Stable version details will open the ChamSys MagicQ Downloads web page.

If the app is connected to MagicQ then the details of the version running are also displayed.

At the bottom of the view are a grid of buttons:

- Open Manual - Opens the MagicQ Manual web page.
- Email Support - Opens a view with help information and a form to contact ChamSys Support.
- Fixture Finder - Open the ChamSys Fixture Finder web page.
- Copyright Notices / Release Notes - Toggles the content of the top view.
- Report Bug - Opens the ChamSys Bug Tracker to report a bug.
- Join Beta Programme - Opens a form on the App Store to opt in to Beta versions of the app.

Key & Focus View

These two views can be combined into a single Focus view. This is the default on tablets and

other large screen devices and can be toggled view the Large Screen Mode control in Settings.

The Bank control allows selection of a bank of attributes for the Focus View encoders. Tapping the centre of the encoder allows the range to be selected. The Shift button on the combined view will act on the next control selected. If enabled on MagicQ Remote it will not affect a control selected on MagicQ. With Position attributes selected the Enc and Touch buttons will toggle between encoder and touch pad control. The arrow bars on either axis can be used to adjust the value on a single axis. With Colour attributes selected the Enc and Picker buttons will toggle between encoder and colour picker control.

Pos View

The Position View provides pan and tilt bars and a set of controls specific to positioning.

Exec View

The Execute Window replicates the window from MagicQ. Custom images will be downloaded from MagicQ. The page shown can be changed by assigning Exec Page, Exec Pg Up and Exec Pg Down special button or by setting the Execute Page # in Settings. From Settings the appearance of the window can also be toggled between Boxes and Coloured.

Win View

Select the window type and its sub view to display the view. The Win Status Display at the bottom of the view can be hidden by toggling Win Status Display in the Settings view. The Camera icon in the Window sub view selection bar allows a photo to be taken to use as a Custom Photo Icon for a Window item.

Remote Control via Web Server

MagicQ includes an in-built web server for enabling access to MagicQ from web browsers on external computers, pocket PCs and mobile phones with web browsers. The web server includes web pages for monitoring of the status of the MagicQ, remote control, and access to the MagicQ windows such as the Patch window for downloading complete patch lists / cue sheets.

By default the web server is disabled – enable it in Setup, Network Settings. The default port is 8080 although this can be changed in the Network Settings.

To browse to the console enter the console name followed by the port number, e.g. for chamsys176, enter the URL in your browser. Note that by default most browsers use port 80 – so you must explicitly specify port 8080 in the URL or it will not work.

chamsys176:8080

or you can use the IP address of the MagicQ (e.g. 2.0.0..5)

2.0.0.5:8080

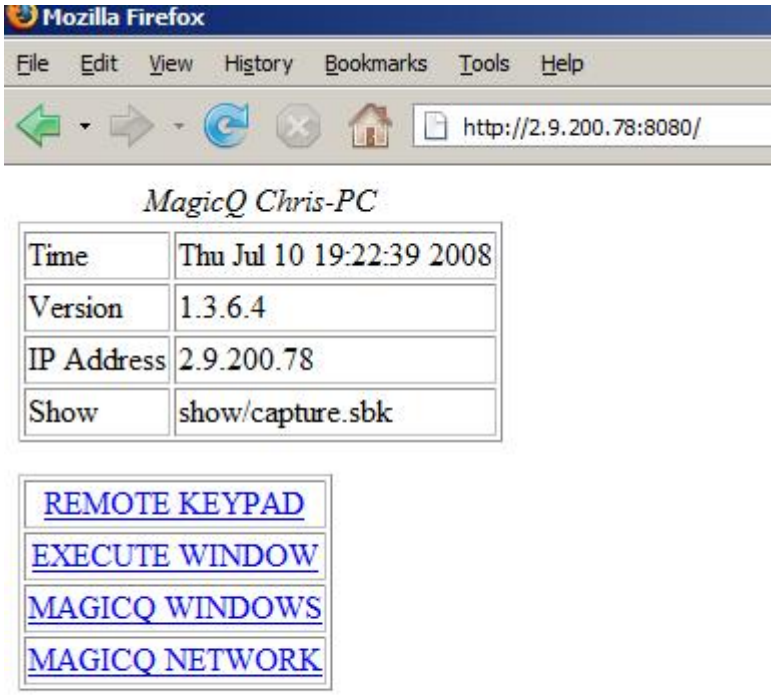
This URL will get you to the home page on the MagicQ console - a general system overview and a main menu of items, including Remote, Execute, Windows and Network.

On some browsers you may need to enter the full http line:

http://chamsys176:8080/index.html

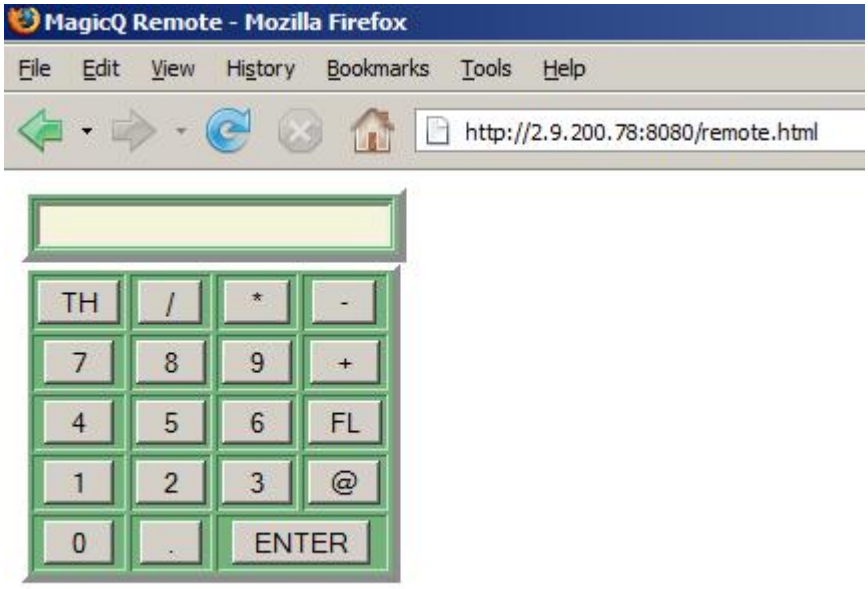
or

http://2.9.200.5:8080/index.html



The Remote page is a simple remote focus for setting channel levels. It can also be accessed by adding "/remote" to the URL. This is useful for Pocket PC and mobile phones to go directly to the remote control page.

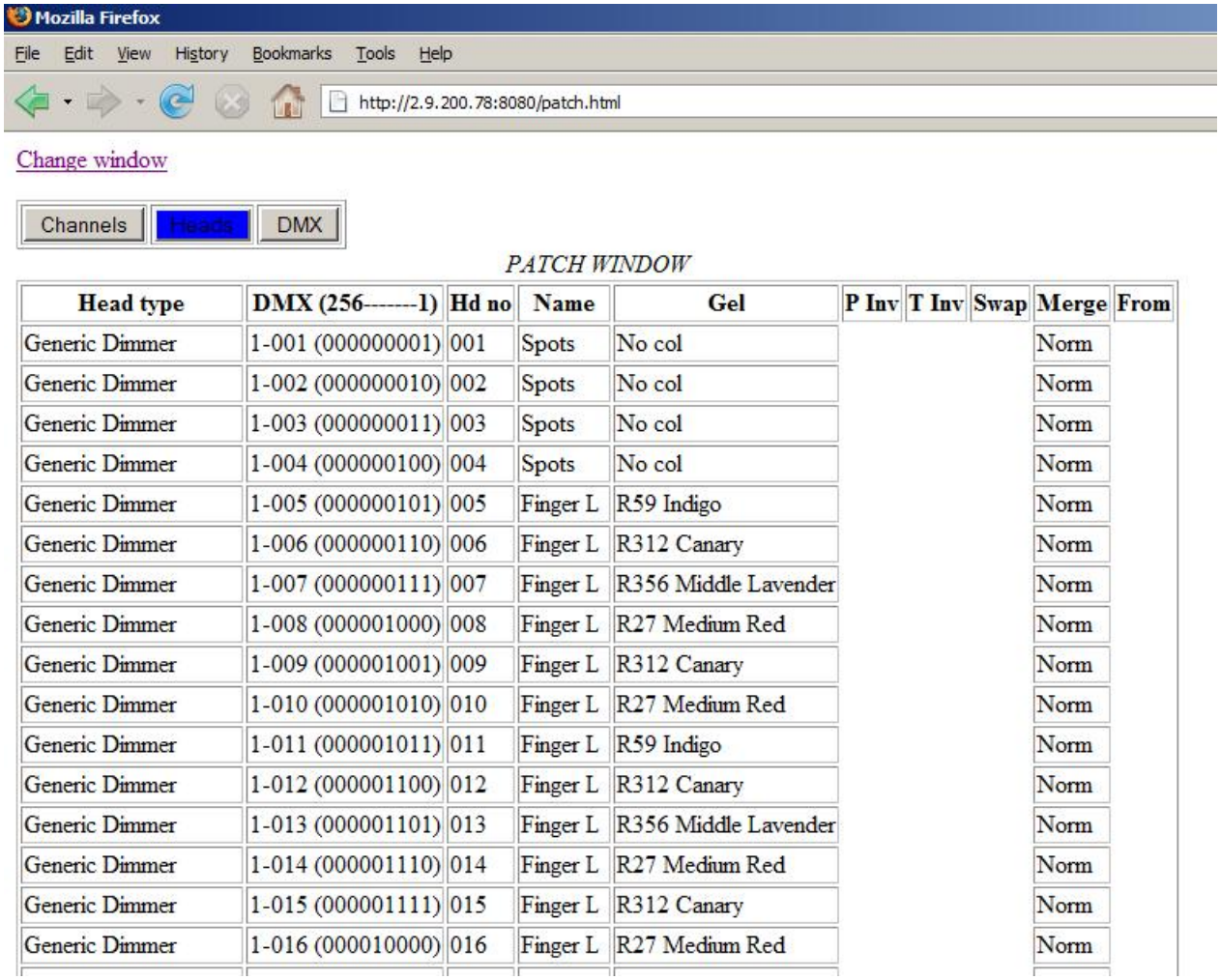
chamsys176:8080/remote



In order to set up a PC, Pocket PC or mobile phone to connect to MagicQ you must ensure that there is a physical connection to MagicQ – either directly via network cable, or via a wireless router. The IP address of the PC, Pocket PC, or mobile phone must be set to be on the same network as the MagicQ – this is generally the Art-Net IP addressing scheme – so the device must have an IP address starting with 2 (e.g. 2.0.0.2) and a subnet mask of 255.0.0.0.

The Execute page is very similar to the Execute Windows on the console but accessible through any PC with a browser on the network – it enables users to remote manage the console via the Execute window.

The Windows pages enable users to view all the windows on the console remotely within a browser. This is useful for checking the status of a remote console or for easy printing of console show data.



Head type	DMX (256-------1)	Hd no	Name	Gel	P Inv	T Inv	Swap	Merge	From
Generic Dimmer	1-001 (000000001)	001	Spots	No col				Norm	
Generic Dimmer	1-002 (000000010)	002	Spots	No col				Norm	
Generic Dimmer	1-003 (000000011)	003	Spots	No col				Norm	
Generic Dimmer	1-004 (000000100)	004	Spots	No col				Norm	
Generic Dimmer	1-005 (000000101)	005	Finger L	R59 Indigo				Norm	
Generic Dimmer	1-006 (000000110)	006	Finger L	R312 Canary				Norm	
Generic Dimmer	1-007 (000000111)	007	Finger L	R356 Middle Lavender				Norm	
Generic Dimmer	1-008 (000001000)	008	Finger L	R27 Medium Red				Norm	
Generic Dimmer	1-009 (000001001)	009	Finger L	R312 Canary				Norm	
Generic Dimmer	1-010 (000001010)	010	Finger L	R27 Medium Red				Norm	
Generic Dimmer	1-011 (000001011)	011	Finger L	R59 Indigo				Norm	
Generic Dimmer	1-012 (000001100)	012	Finger L	R312 Canary				Norm	
Generic Dimmer	1-013 (000001101)	013	Finger L	R356 Middle Lavender				Norm	
Generic Dimmer	1-014 (000001110)	014	Finger L	R27 Medium Red				Norm	
Generic Dimmer	1-015 (000001111)	015	Finger L	R312 Canary				Norm	
Generic Dimmer	1-016 (000010000)	016	Finger L	R27 Medium Red				Norm	

The Network page shows all the MagicQ consoles and PC systems on the networks and enables easy selection of particular consoles for remote control.

The Remote and Execute functions are only enabled when connected to a MagicQ console or a MagicQ PC System that is itself connected to a MagicQ wing or MagicQ interface.

Custom Web Server Pages

There is now support for user HTML pages. These pages should be stored in the web folder and their name should start with "user" e.g. user1.html, user2.html. The MagicQ remote commands can be sent from the HTML using the button/input types to submit.

```
<html>

<head><META NAME="HandheldFriendly" content="True"><META
NAME="MobileOptimized" CONTENT="240">

<title>MagicQ User HTML Page</title>

</head>

<body>

<!-- User forms must start with the name user - e.g. user1, user2 -->
```

```
<!-- Remote commands can be found in the MagicQ manual -->

<FORM ACTION="user.html" name="user" METHOD=GET>

<!-- Remote commands are sent using input types -->
<!-- Place the command in the value and set the name to "cmd" -->

<input type="submit" value="1T" name="cmd">
<input type="submit" value="1U" name="cmd">
<p>
<!-- Or as button types -->
<!-- Note for Internet Explorer to work the value
feature below is not used and you must put the remote
command in the name after "cmd" -->

<button type="submit" name="cmd1T" value="1T">PB1 act</button>
<button type="submit" name="cmd1U" value="1U">PB1 rel</button>
```

Remote Control Using Magic Wand Simulator

MagicQ supports a Magic Wand simulator which acts like the MagicQ Playback Wand.

To use the Magic Wand simulator start MagicQ with the command line argument "wand". MagicQ will run just a simulation of the Magic Wand controlling the first 4 playbacks from the first Wing.

If you wish to restrict the Wand simulation to only connect to a specific IP address then include the required IP address as the second command line argument of the IP address.

The MagicQ Wand simulator must be run on a separate system to the one running MagicQ.

ChamSys Remote Protocol Commands

ChamSys remote protocol consists of simple commands consisting of a list parameter values separated by commas ‘,’ and ending in a character A to Z (or a to z). Commands can contain spaces, tabs, and carriage returns; they are all ignored.

The remote protocol is split into remote playback commands and remote programming commands.

Remote Playback Commands

The commands are:

<playback number> A	Activate playback
<playback number> R	Release playback
<playback number> T	Test playback (activate with level 100%)
<playback number> U	Un-test playback (release with level 0%)
<playback number> G	Go on playback
<playback number> S	Stop (go back) on playback
<playback number> B	Fast back on playback (no fade)
<playback number> F	Fast forward on playback (no fade)
<playback number> , <level> L	Set playback fader level
<playback number> , <cue id> , <cue id dec>J	Jump to Cue Id on playback
<page number> P	Change page
<channel number> , <level> I	Set intensity channel to level
<program command number> H	Remote programming command
<button id> X	10Scene zone 1 button
<button id> , <state> X	10Scene zone 1 button press or release
<zone id> , <button id> , <state> X	10Scene zone button press or release

The following parameter values are supported

<playback number>	a number between 1 and 10 (202 on MagicQ consoles)
<level>	an integer between 0 and 100.
<page number>	an integer between 0 and 100
<channel number>	an integer between 1 and 32769 DMX channel number
<cue id>	an integer between 1 and 65536

<cue id dec>	an integer between 0 and 99. Note that for Cue ID 1.5 use 50
<button id>	an integer between 1 and 10
<zone id>	an integer between 1 and 20
<state>	1 for button pressed, 2 for activate, 3 for release, 4 for toggling, 7 for cycle, 9 for increase, 10 for decrease

For example, to set dimmer channel 4 to 50% you would use:

4,50I

To jump to Cue id 2.5 on playback 8 you would use:

8,2,50J

Commands can be sent back to back – e.g.

1A2A1S2G3,4I

MagicQ on PC and Mac only supports control of the first 10 playbacks (PB1 to PB10). On MagicQ consoles all 202 playbacks can be controlled.

Remote Programming Commands

Remote programming commands enable simple programming actions to be carried out from a remote terminal. Remote programming commands consist of the program command number followed by parameters and completed with an "H".

The commands are:

\<01> , <start head> , [<end head>] H	Select one or more heads
\<02> , <start head> , [<end head>] H	Deselect one or more heads
\<03> H	Deselect all heads
\<04> , <group number> H	Select group
\<05> , <level> , [<time>] H	Set intensity of selected heads
\<06> , <attribute number> , <value> , [<time>] H	Set attribute value of selected heads
\<07> , <attribute number> , <value> , [<16bit>] H	Increase attribute of selected heads
\<08> , <attribute number> , <value> , [<16bit>] H	Decrease attribute of selected heads
\<09> H	Clear programmer
\<10> , <palette id> H	Include position palette
\<11> , <palette id> H	Include colour palette

\<12> , <palette id> H	Include beam palette
\<13> , <cue id> H	Include cue
\<19> H	Update
\<20>, <palette id> H	Record position palette
\<21> , <palette id> H	Record colour palette
\<22> , <palette id> H	Record beam palette
\<23> , <cue id> H	Record cue
\<30> H	Next head
\<31> H	Previous head
\<32> H	All heads
\<40> H	Locate
\<41> H	Lamp on
\<42> H	Lamp off
\<43> H	Reset
\<71>, <state> H	Remote trigger
\<80> , <Q id> H	Test Cue
\<81> , <Q id> H	Untest Cue
\<82> , <cue stack id> , <level> , <cue id> H	Test Cue Stack, level and cue id are optional (default to 100% and first cue)
\<83> , <cue stack id> H	Untest Cue Stack
\<90> , <show file id> H	Save show showXXXX.shw
\<91> , <show file id> H	Load show showXXXX.shw
\<92> , <import file id> H	Load show importXXXX.csv
\<93> , <import grid id> H	Load grid gridXXXX.csv
\<94> , <shutdown type> , 81, 117 , 105, 116 H	Shutdown, 1 is normal (close MagicQ application only on PC, power off on console), 2 is power off, 3 is reboot
\<112> , <state> H	Emergency Hot takeover - <state> is 1 for On, 0 for Off.
\<911> , <state> H	Emergency Hot takeover - <state> is 1 for On, 0 for Off.
\<999> , <state> H	Emergency Hot takeover - <state> is 1 for On, 0 for Off.

```
[] indicates an optional parameter
```

```
The parameter values are:
```

<level>	an integer between 0 and 100
<palette id>	an integer between 1 and 1024
<Q id>	an integer between 1 and 10000 representing Q in the Cue Store
<16 bit>	0 for change in 8 bit resolution, 1 for change in 16 bit resolution
<time>	an integer time in seconds
<group number>	is an integer between 1 and 200
<start head> and <end head>	integers between 1 and 6145
<show file id>	four digit decimal number between 0000 and 9999.
<state>	is 0 or 1 to set state on/off, or 2 is toggle current state.

Attribute Numbers

Intensity (0) Intensity Mode (1)

Pan (4) Tilt (5) Pos1 (46) Pos2 (47) Pos3 (48) Pos4 (49) Pos5 (50) Pos6 (51)

Cyan (16) Magenta (17) Yellow (18) Col mix (19) Col1 (6) Col3 (26) Col2 (7) Col4 (27)

Shutter (2) Iris (3) Gobo1 (8) Gobo2 (9) Gobo3 (28) Gobo4 (29) Rotate1 (10) Rotate2 (11) Rotate3 (30) Rotate4 (31) Focus (12) Zoom (13) Frost1 (32) Frost2 (33) FX1 (14) FX2 (15) FX3 (34) FX4 (35) FX5 (36) FX6 (37) FX7 (38) FX8 (39) Macro1 (22) Macro2 (23) Cont1 (20) Cont2 (21) Cont3 (40) Cont4 (41) Cont5 (42) Cont6 (43) Cont7 (44) Cont8 (45)

Controlling MagicQ Using UDP/IP

MagicQ consoles and MagicQ PC/Mac software supports the use of an network protocol for controlling external devices, such as media servers, video or automation computers.

The protocol can also be used to remote control MagicQ consoles or MagicQ software via a simple set of text commands.

Note that the use of the ChamSys Remote Ethernet Protocol on MagicQ PC/Mac is only enabled when it is connected to a MagicQ Wing or Interface (not MagicDMX).

On MagicQ commands are placed in the Macro field of the Cue Stack and are transmitted when the Cue starts to execute. In addition MagicQ will accept commands received according to a pre-defined protocol.

ChamSys Remote Ethernet Protocol is not supported when net session mode is in use.

ChamSys Remote Ethernet Protocol

Enable ChamSys Remote Ethernet Protocol in the View Settings view of the Setup Window.

ChamSys Remote Ethernet Protocol is an open protocol – i.e. you do not need permission to use it for your own purposes. It is a UDP/IP based protocol using port 6553 in broadcast mode.

The port number can be changed in setup, View Settings, Network, Playback Sync Port.

The structure of the UDP/IP packets are a ChamSys CREP header followed by the remote commands:

```
long32 chamsys;
word16 version;
byte seq_fwd;
byte seq_bkwd;
word16 length;
byte data;
```

where `long32` is 4 bytes, `word16` is 2 bytes and `byte` is 1 byte.

ChamSys is 4 characters C R E P. Note that on MagicQ this is stored as little-endian, so that on the network it will appear as P E R C.

The version is initially 0 and allows for future expansion of the protocol.

The fwd sequence number is an incrementing sequence number. It enables the receiving end to determine if packets are missed. In addition the receiving end should sends back the last sequence number it received in the backward sequence number.

Length is the length of the data field. It does not include the length of the ChamSys header.

ChamSys Remote Ethernet Protocol Messages are also supported without the ChamSys CREP header - this allows easier integration with external systems but reduces the amount of checking of messages performed. In Setup, View Settings, Network, set Ethernet remote protocol to "ChamSys Rem (rx no header)", "ChamSys Rem (tx no header), or "ChamSys Rem (tx + rx no header)".

Writing to the Network Port

Commands are transmitted from the network port using the Y macro in the Macro field of the Cue Stack window (use Page Right to find the Macro field). In the View Settings view of the Setup Window, set the Ethernet Remote Protocol to "ChamSys Rem tx".

The format of Ethernet commands is Y followed by the data. To send Ethernet data, the Y command must be the only macro command in the macro field. The Y command is followed by ASCII data contained within " " or ‘ ‘ or by decimal values separated by commas. For example to send Hello World followed by a carriage return:

```
Y"Hello World",10,13
```

To send the hexadecimal data stream 00 01 02 03 04

```
Y0,1,2,3,4
```

To send text only:

```
Y"abcedf"
```

To send several lines of text:

```
Y"Hello",10,13,"World",10,13
```

On the Ethernet the data above is encapsulated in the data field of ChamSys Ethernet Remote Protocol in the UDP packet.

Note that commas ‘,’ are not allowed within the ASCII data inside " " or ' ' . If you wish to send ', then you must send it as its hexadecimal ASCII code.

Reading from the Network

By default data received on the network is ignored. This can be changed to make MagicQ accept remote commands received on the network port. In Setup, View Settings, set the Ethernet Remote Protocol to "ChamSys Rem rx".

ChamSys Remote Protocol consists of simple commands consisting of a list parameter values

separated by commas ', and ending in a character A to Z (or a to z). Commands can contain spaces, tabs, and carriage returns; they are all ignored. See the section on ChamSys Remote Protocol for further details.

Sample Code Fragments

The code fragments below show you could connect to MagicQ using simple C programming.

```
#define REMOTE_ETHER_PORT 0x1999
#define MAX_CREP_MSG 1000

typedef struct {
  long32 chamsys;
  word16 version;
  byte seq_fwd;
  byte seq_bkwd;
  word16 length;
  byte data;
} remote_ether_message_t;


int remote_ether_sock = 0;
word16 remote_ether_fwd = 0;
word16 remote_ether_bkwd = 0;


int remote_ether_init(void)
{
  struct sockaddr_in name;
  char opts[100];
  socklen_t optlen = 100;
  int flags;
  int i;

  // For Windows OS we need to start winsocket
#ifndef LINUX
  {
    WSAData ws;
    int code;
    code = WSAStartup(MAKEWORD(1,1),&ws);
  }
#endif

  if (remote_ether_sock)
    return (TRUE);

  remote_ether_sock = socket (PF_INET, SOCK_DGRAM, 0);
  getsockopt (remote_ether_sock,SOL_SOCKET,SO_REUSEADDR, opts, &optlen);
  opts[0] = 1;
  setsockopt (remote_ether_sock,SOL_SOCKET,SO_REUSEADDR, opts, optlen);
```

```
  /* Give the socket a name. */
  name.sin_family = AF_INET;
  name.sin_port = htons (REMOTE_ETHER_PORT);
  name.sin_addr.s_addr = htonl (INADDR_ANY);

  if (bind (remote_ether_sock, (struct sockaddr *) &name, sizeof (name)) <)
  {
    closesocket(remote_ether_sock);
    return (FALSE);
  }

  getsockopt (remote_ether_sock,SOL_SOCKET,SO_BROADCAST, opts, &optlen);
  opts[0] = 1;
  setsockopt (remote_ether_sock,SOL_SOCKET,SO_BROADCAST, opts, optlen);
  {
    u_long block;
    block = 1;
    ioctlsocket(remote_ether_sock,FIONBIO,&block);
  }

  return TRUE;
}

int remote_ether_rx(char *data, word16 size)
{
  char message[MAX_CREP_MSG];
  int nbytes;
  remote_ether_message_t *rem = (remote_ether_message_t *) message;
  struct sockaddr_in name;
  int name_len = sizeof(name);

  if (!remote_ether_sock) return (0);

  nbytes = recvfrom (remote_ether_sock,
                   message,
                   MAX_CREP_MSG,
                   0,
                   (struct sockaddr *) &name,
                   &name_len);

  if (nbytes > 0)
  {
    if (rem->chamsys == (('C'<<24)|('R'<<16)|('E'<<8)|('P')))
    {
      int len = wswap(rem->length);
      remote_ether_bkwd = rem->seq_fwd;

      if (len<(MAX_CREP_MSG-(sizeof(remote_ether_message_t)+1)))
      {
        if (len>size) len = size;
```

```
        memcpy(data,&(rem->data),len);
        return (len);
      }
    }
  }

  return (0);
}

char remote_ether_tx(char *data, word16 size)
{
  // Format the message
  byte message[MAX_CREP_MSG];
  remote_ether_message_t *rem = (remote_ether_message_t *) message;

  int nbytes;
  struct sockaddr_in name;

  if (!remote_ether_sock) return (FALSE);

  if (size>(MAX_CREP_MSG-sizeof(remote_ether_message_t)+1))
    size = MAX_CREP_MSG-sizeof(remote_ether_message_t)+1;

  rem->chamsys = (('C'<<24)|('R'<<16)|('E'<<8)|('P'));
  rem->version = wswap(0);
  rem->seq_fwd = remote_ether_fwd;
  rem->seq_bkwd = remote_ether_bkwd;
  rem->length = wswap(size);
  memcpy(&(rem->data),data,size);

  my_broadcast_address.s_addr = ip_address | ~subnet_address;
  name.sin_family = AF_INET;
  name.sin_port = htons (REMOTE_ETHER_PORT);
  name.sin_addr.s_addr = dwswap (my_broadcast_address.s_addr);

  nbytes = sendto (remote_ether_sock,
                message,
                size(sizeof(remote_ether_message_t)-1),
                0,
                (struct sockaddr *) & name, sizeof(name)
               );

  if (nbytes>0) remote_ether_fwd++;

  return (TRUE);
}
```

Q-Sys Plugins

ChamSys provides plugins for QSC Q-Sys that utilise the ChamSys Remote Ethernet Protocol.

The Plugins default to using the standard CREP port 6553.

In Setup, Network set the Remote Ethernet Protocol to ChamSys Rem (tx + rx no header).

The ChamSys MagicQ plugin supports control of:

- Playbacks 1..10
- A selected 10Scene zone (1..100)
- Cue Stacks 1..100

MagicQ provides feedback of the levels of the Playbacks and the 10Scene. MagicQ provides simple state active/inactive for the Cue Stacks. In the Plugin the polling time can be set to determine how often QSC checks the state of the MagicQ Playbacks and 10Scene zone. The valid values are from 50 milliseconds to 100 seconds - if defaults to 0.5 seconds.

Specify the 10Scene Zone in the properties of the Plugin.

Playback pins are provided for toggling the Playback state between active at 100% and inactive. Pins are also provided for direct level control. Fade times are as programmed on MagicQ.

10Scene pins are provided for toggling, increasing by 5% and decreasing by 5%. Pins are also provided for direct level control.

Cue Stack pins are provided for toggling the Cue Stack active and inactive. Fade times are as programmed on MagicQ.

Plugins are also provided for QuickQ consoles and GeNetix nodes. QuickQ consoles support the same control of 10 Playbacks and selection of a 10Scene Zone (1..10) from Q-Sys.

GeNetix nodes support triggering of the 10Scene only from Q-Sys.

Controlling MagicQ Using the Serial Port

The MQ500 and MagicQ PC software support the use of a serial port for controlling external devices or automation computers.

The serial port can also be used to remote control the MagicQ console or MagicQ software via a simple set of text commands.

MagicQ supports standard baud rates, stop bits and parity options for serial communication.

The use of a serial port on MagicQ PC is only enabled when it is connected to a MagicQ Wing or Interface.

Connecting the Serial Port

The MQ500 uses a female DE-9 connector.

Table 7. Serial port pinout

DE-9 pin	Signal	Direction
2	RX	Into console
3	TX	Out of console
5	Ground	

You need a cross-over cable (aka "null modem cable") to connect between two serial ports, which swaps pins 2 and 3 .

Turn off software and hardware flow control on the remote serial port - MagicQ does not use these. The usage of pins other than 2, 3 and 5 varies between consoles but in most cases do not need to be connected.

Enabling the Serial Port

Enable the serial port in *SETUP*, *VIEW SETTINGS*, *Ports*. Set *Serial com port* to the COM port that you wish to use (on the console always select COM1). Set the baud rate, parity, data bits and stop bits.



Writing to the Serial Port

Commands are transmitted out of the serial port by placing the command in the Macro field of the Cue Stack window.

The format of serial commands is X followed by the data. To send serial data, the X command must be the only macro command in the macro field. The X command is followed by ASCII data contained within quotes (' ') or by decimal values separated by commas. For example to send Hello World followed by a carriage return:

```
X'Hello World',10,13
```

To send the binary data stream 00 01 02 03 04

```
X0,1,2,3,4
```

To send text only:

```
X'abcedf'
```

To send several lines of text:

```
X'Hello',10,13,'World',10,13
```

Reading from the Serial Port

Serial remote protocol must be set to *CRP & Automs* to receive remote commands or trigger AUTOM items.

ChamSys Serial Remote protocol consists of a list of parameter values separated by commas ‘,’ and ending in a character A to Z (or a to z). Commands can contain spaces, tabs, and carriage returns; they are all ignored. See the section on ChamSys Remote Protocol for further details.

AUTOM items can trigger on serial commands. Set *Type* to *Serial*, *P2* to the number of bytes expected and *P3* to the serial command expected, in the same format as serial cue macros without the leading 'X'.

If there are any serial AUTOM items, remote protocol commands are ignored.

Testing Receiving Serial Commands

It is possible to test the behaviour when MagicQ receives serial commands without an external serial connection. Type "testser" followed by the command, in the same format as serial cue macros without the leading 'X'.

For example to activate playback 1 enter:

```
testser '1a'
```

or:

```
testser 49,65
```

Audio

Audio Input

Audio input can be used in many ways on MagicQ - to bump a Cue Stack from step to step, to set a Cue Stack tempo, to set the virtual level of the playback fader and as part of the MagicQ Pixelmapper.

Audio bump functions can also triggered from the remote input port.

Audio Input Ports

MagicQ Consoles and Connects feature audio input ports, these use either Hardware or Software to analyse the incoming audio. These inputs can be used for 7 band frequency detection, setting the level of Playbacks, stepping through cues and setting the speed of chases. When using consoles with Audio Software analysis in addition beat detection is possible. Beat detection is not supported with the Hardware analysis on Consoles and Connects. Detail on Support hardware type per system can be found below.

Audio input can also be achieved on both MagicQ consoles and MagicQ PC via a sound card. On PC systems, a ChamSys Wing, Connect or Interface (not MagicDMX) is required to enable Audio input functionality. Using an External USB-Sound card with MagicQ consoles without the Software Analysis (for example the MQ50 / MQ70 consoles) allows beat detection on these consoles.

When using the Audio Input on MQ80, MQ500, MQ500M and Mini and Compact Connects via the inbuilt audio ports. In Setup, View Settings, Ports set Audio Input to "ChamSys Audio Interface". These Products have the Hardware Audio Analysis. When using Audio Input on the MQ50, MQ70, MQ250M and MQ500M+ Consoles via the inbuilt audio ports. In Setup, View Settings, Ports set Audio Input to "Internal Sound Card". These Products have the Software Audio Analysis.

On the MQ250M there are two possible audio inputs. The S2L input uses hardware to analyse the incoming audio system - to use this select "ChamSys Audio Interface". The audio input uses software to analyse the incoming audio - to use this select "Internal sound card".

MagicQ Pro 2014 consoles require the latest Pro 2014 kernel (dated 4th June 2014) downloadable from the ChamSys download site, Docs page: https://secure.chamsys.co.uk/bugtracker/proj_doc_page.php

MagicQ PC / Mac supports audio input through the PC / Mac sound card when the PC / Mac is connected to a MagicQ Wing, Connect or Interface (not MagicDMX). In Setup, View Settings, Ports set Audio Input to "Internal sound card". The required device can be selected in the "Audio input device" setting. MagicQ currently supports stereo devices at 44100Hz.

Audio Input Options

The audio input signal is analysed in 7 different frequency bands: 63Hz, 160Hz, 400Hz, 1KHz,

2.5KHz, 6.2KHz, 16KHz. The levels for each channel can be used on MagicQ to set the level of Playbacks, to step through cue stacks and to set the speed of chases.

When connected, a graphic equaliser display is shown in the Status Display showing the current levels of the inputs. Audio trigger level should be set to 0.

Starting from version 1.9.2.0, when a full audio stream is provided, MagicQ now supports advanced beat tracking for an incoming audio signal which can then be used as part of any trigger based audio functions (e.g. Audio bumps GO/FX). This will work with the audio input on the MQ50/MQ70/MQ250M or MQ80/MQ500/MQ500M via a USB audio interface, or on MagicQ PC systems. The beat tracker is enabled when a playback is configured with an Audio channel of "Audio Input BPM". When the beat tracker is enabled, a beat indicator will be shown in the status bar adjacent to the audio input levels display.

Global Audio Settings

In order to use audio input on MagicQ set the setting Setup, View Settings, Ports, Audio, Audio Input. The options are

- None
- ChamSys Audio Interface
- ChamSys Audio Interface - Energy Only
- ChamSys Audio Interface - Left Only
- Internal sound card
- External USB sound card
- Audio output loopback

On MagicQ PC / Mac systems select "Internal sound card". Audio input is only supported when the PC/Mac is connected to a MagicQ Wing, Connect or Interface (not MagicDMX).

On MagicQ Consoles the audio is received via dedicated audio ports on the console. To use these, choose the "Internal sound card" option. MagicQ Pro 2014 consoles require the latest Pro 2014 kernel and the MQ40, MQ60 and original MQ70 require the latest firmware.

When using an external ChamSys USB Audio Interface then choose "ChamSys Audio Interface". When set to "ChamSys Audio Interface - Left Only", any signals received on the left channel are automatically duplicated onto the right channel. This is useful in situations where only a mono audio feed is available. When set to "ChamSys Audio Interface - Energy Only" all 14 received audio bands are combined into one level and all MagicQ audio options will use this one level.

MagicQ supports global minimum and maximum audio levels to enable the levels to be matched to the received audio. Both the Minimum Audio Level and the Maximum Audio Level default to 0 indicating they have no effect.

The minimum is used to adjust for noise whilst the maximum can be set if the audio signal is particularly weak. When set to non zero values any levels below the minimum or above the

maximum are ignored and the levels are scaled appropriately.

Cue Stack Audio Options

In the Cue Stack options there are five possible audio modes – Audio Controls fader level, Audio bumps GO/FX, Audio sets BPM, Audio level jumps to Cue Step, and Audio beat step.

Audio modes are not active until the Cue Stack is activated by raising the fader or pressing the GO button.

Double click on the Audio channel to select the channel to respond to. Audio level, audio parameter 1, and audio parameter 2 should be set to 0.

"Audio Controls fader level" enables the level of the fader to be controlled by the received audio level on the chosen channel. In this way you can control all sorts of different functions depending on how you set the Fader options - HTP, LTP, FX Size, FX Speed etc... For example, you could control the iris opening of a moving light by also setting the Fader controls LTP (IPCB) chans option, or you could control a Master Intensity fader. When using this mode, then Audio P1 and Audio P2 can be set to control the response:

Audio P1 = 0 Normal (direct trigger from level)

Audio P1 = 1 Decayed (decays by Audio P2 each sample)

Audio P1 = 2 Pulse (triggers at Audio Level, Audio P2 is duration of pulse)

Audio P1 = 3 Pulse decay (triggers at Audio Level, decays by Audio P2 each sample)

Audio P1 = 4 Switch (triggers to on/off at Audio Level)

Audio P1 = 5 Slow (increases/decreases by Audio P2 each sample)

"Audio level jumps to Cue Step" enables the level of the specified channel to determine which step in the Cue Stack is executed – for example if you have a Cue Stack with 10 steps, then a level of 0% will execute step 1, 10% will execute step 2 whilst a level of 100% will execute step 10. This is very useful if you wish to program different Cues onto LED or media servers.

"Audio bumps GO/FX" causes the Cue Stack to bump to the next step every time a peak in the audio is detected on the specified channel. This enables a Cue Stack to follow the beat of the music. This is best used with the Cue Stack set to Cue Timing instead of Chase Timing. A divider can be configured using the "Rate divisor" option. This will skip the selected number of beats between triggering Go. For example, when set to 2, every other input beat will trigger a Go.

"Audio beat step" will work with the detected beat number mentioned in the Audio Input Options section above, when the "Audio channel" is set to "Audio Input BPM". It will match the beat number currently being received, and will match the Cue with the corresponding Cue ID to jump to. To use this, generate a new Cue Stack with your required cues, set it to Cue Timing, and enable the "Audio beat step" option to "Yes". The beat number on which to trigger each Cue needs to be set in the Cue ID column. For the basic case, the default Cue IDs will provide steps on incremental beats. To have a Cue Stack where one Cue runs for beats 1 through 3,

and then a second Cue runs for beat 4, set the first Cue ID to 1.0 and the second Cue ID to 4.0 and so forth. By default the loop length will loop on every 4 beats, however this can be changed in the "Audio beat step length" setting. Setting this to 8 or 16 will cause the loop to repeat every 8 or 16 beats respectively. If a rate divisor is configured, then this will divide the incoming beat by the divisor. For example with a divisor set to 2, then Beats 1 through 8 would trigger steps 1 through 4.

"Audio sets BPM" causes a Cue Stack set as a chase to automatically set the chase speed to the timing of the peaks on the specified channel. The Cue Stack should be set to Chase Timing.

Pixel Mapper and Audio

The Pixel Mapper Audio FX support comprehensive Pixel Mapping using audio triggering.

Audio Playback

MagicQ supports playback of audio files directly from Cue Stacks. Documentation for this can be found in the Audio in Cue Stacks section.

Audio Output Ports

Audio output is supported from MagicQ consoles with a dedicated audio output port, and MagicQ PC systems using the internal sound card.

Audio output is also supported via an external USB sound card on supported consoles.

In Setup, View Settings, Ports, the Audio Output option allows you to select between the internal sound card output on a console, or the external USB sound card if connected. On PC systems, the required device can be selected in the "Audio output device" setting. MagicQ currently supports stereo devices at 44100Hz.

MagicQ PC

On Windows, macOS and Linux, you can select the device for both audio input and audio output by using the "Audio input device" and "Audio output device" settings.

Different Audio APIs are supported on each platform. Windows supports MME, DirectSound, WASAPI and KS. Linux supports Alsa, JACK, and OSS. macOS supports Core Audio.

USB Sound Cards

Instead of the built-in audio connections on consoles, a USB sound card can be used with the following consoles:

MQ50, MQ70, MQ80*, MQ250M, MQ500, MQ500M.

This can be useful if you need low noise and/or balanced outputs.

If the USB sound card has been plugged in after starting the console, you must do a soft

restart of MagicQ for these to be detected (*SETUP → [SHIFT] + RESET*).

To see which interface is currently being used for output and input, go to the Setup Window, VIEW STATUS, Interfaces. The USB sound card should appear in **Audio output device** and **Audio input device** options.

The following devices are known to work, however this is not exhaustive:

- Audient: Evo4 / iD14
- Behringer: UCA202 / UMC202 / UMC22 / UMC404
- Creative Labs: Sound Blaster Play! 3 / X-Fi Surround 5.1 / K3+
- Focusrite: Scarlett 2i4 / Scarlett Solo
- M-Audio: Fast track Pro / M-Track Solo
- Mackie: Onyx Artist 1*2
- Presonus: AudioBox 22VSL / iTwo
- Swissonic UA-2X2
- Tapco Link USB
- Dante AVIO USB IO Adapter 2x2 (Audio over Ethernet)

When the USB sound card is selected, the respective internal audio port will be disabled. You can use the external USB sound card for audio output whilst using the internal audio port for audio input, and vice versa.

*The MQ80 will also need a Linux Kernel upgrade - follow these steps.

Control of Winamp

MagicQ supports control of a Winamp instance on the same PC by patching a Winamp personality. The Winamp personality can control track number, play mode, track position, volume, and audio pan.

The PC must have a MagicQ Wing, Connect or MagicQ Interface connected to enable Winamp control.

Simply patch one Winamp head anywhere in the patch - MagicQ treats the heads as a special head and ignores the DMX address.

Winamp does not need to be configured - MagicQ automatically connects to it.

DJ

MagicQ supports the ability to connect to external DJ systems via a network connection. This enables MagicQ to both see what is currently playing on the connected DJ decks, as well as using the timecode information to be able to synchronise Cue Stacks to a given track.

Further detail of the connection statuses can be found in the Setup Window, VIEW STATUS, Timecode/DJ. Please send across a screenshot of this window along with your query; if you are facing any issues when using any of these protocols.

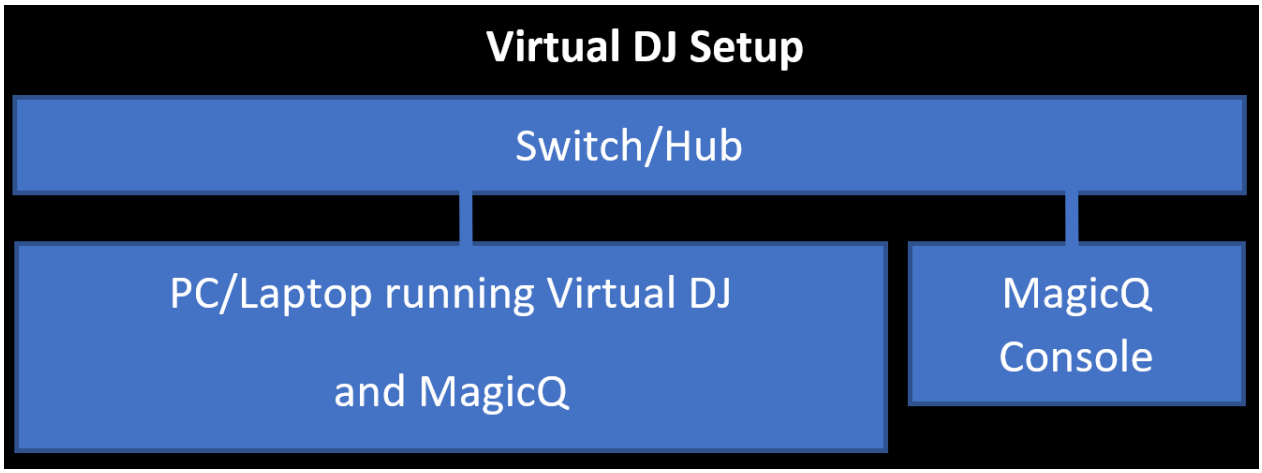
Supported Systems

VirtualDJ / OS2L

MagicQ uses the Open Sound 2 Light protocol to communicate with VirtualDJ. To enable this, set the "VirtualDJ OS2L" protocol to "Yes" within the MIDI / Timecode tab of the Setup window. Within VirtualDJ, to enable the connection to MagicQ, go into the Settings window, select Options, and filter by "os2l". Set the "os2l" setting to "yes" or "auto", and set the "os2lDirectIp" setting to the IP address of the MagicQ system, with ":8060" appended on the end to specify the port number.

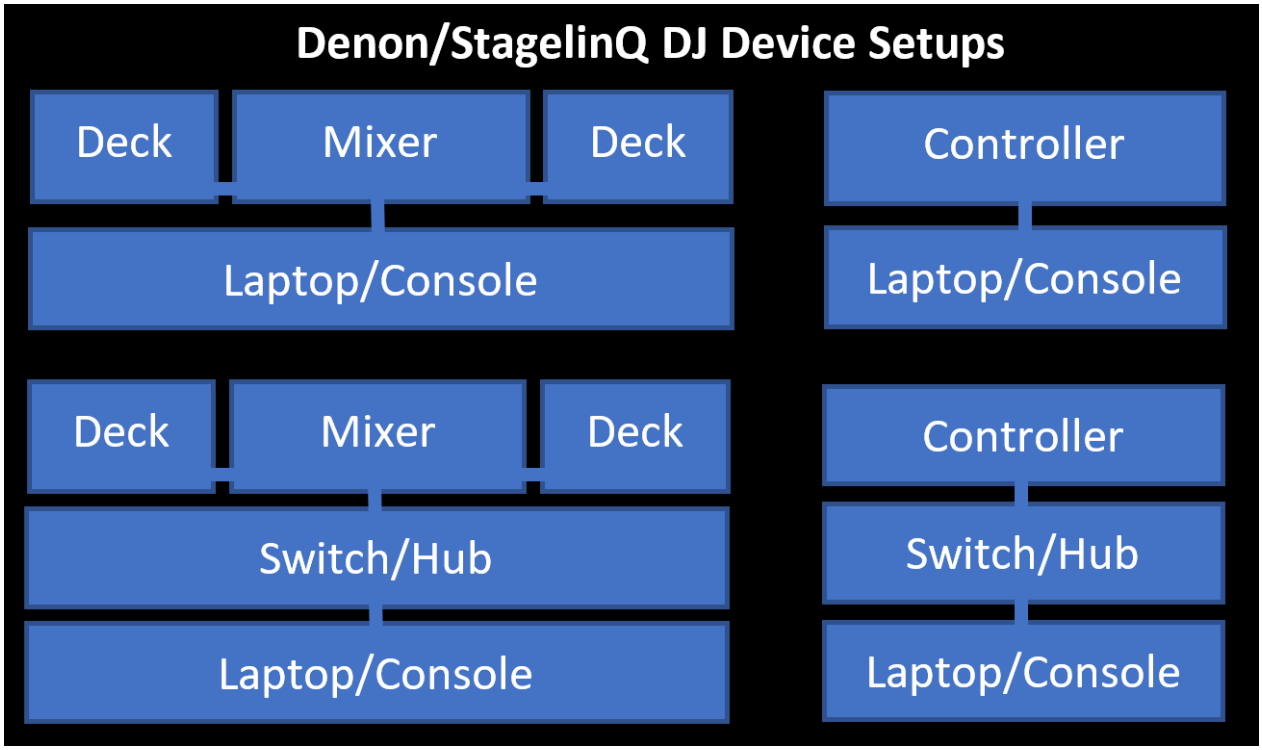
Currently VirtualDJ will not send data to MagicQ until an initial OS2L command is sent from the software to MagicQ. To configure this, a macro will need to be configured to send "os2l_cmd 1 on". This can be configured in VirtualDJ to either be a key bind or button.

VirtualDJ can run on the same computer as MagicQ, or can be connected remotely to a separate MagicQ system as long as they are connected to the same subnet.



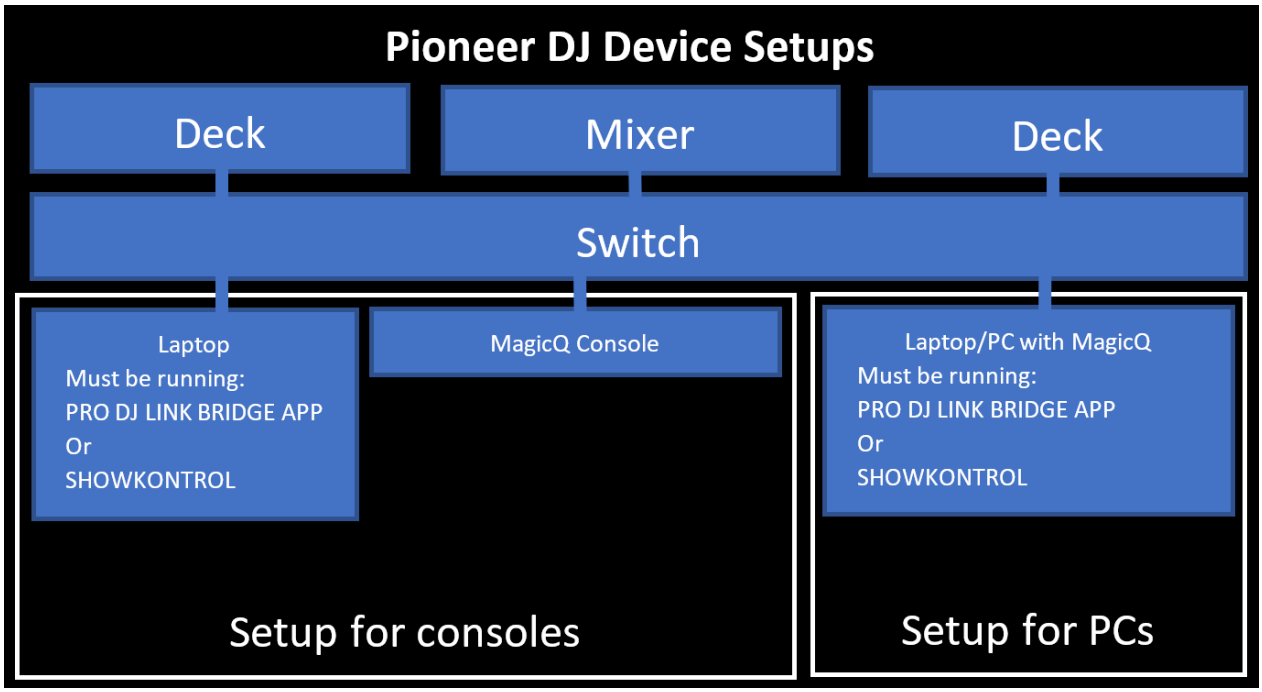
StagelinQ / Engine Prime

MagicQ uses the Engine Prime network architecture to communicate to Denon DJ equipment. To enable this set the "StagelinQ" protocol to "Yes" within the MIDI / Timecode tab of the Setup window. Any connected devices that are within the subnet will appear in the popup when selecting a deck.



TCNet

To connect to a ProDJLink system, you will need to have either the ProDJLink Bridge application (Windows or macOS) application, or ShowKontrol application (macOS only) running on an external system. These applications form a bridge between the ProDJLink network which connects the mixers and decks together, and the TCNet network. To enable this connection, set the "TCNet" protocol to "Yes" within the MIDI / Timecode tab of the Setup window and make sure the ProDJLink bridge application is running on the same subnet as MagicQ. MagicQ should appear as a node within the TCNet tab of the bridge application.



Deck Configuration

MagicQ supports four DJ decks at once, but these can be mixed from different systems, rather than being limited to a single system. Once a protocol has been enabled, you should be able to select the decks from the "DJ Deck 1-4" options within the MIDI / Timecode tab of the Setup window.

MagicQ also has support for DJ mixer channel configuration. You can configure each DJ Deck mixer channel from the MIDI / Timecode tab. Channels can be set to "Default", which matches the mixer channel to the DJ Deck value, or the channels can be configured with "1-6".

MagicQ supports Auto Detection for DJ Decks when the console starts up or when MagicQ has lost connection to the external DJ Software. This setting can be found in SETUP → MIDI / Timecode → Auto Detect DJ Decks. If there is a connection between the console and the external DJ Software you can force the software to re-detect the DJ Decks by toggling the setting from "Off" to "On" and the DJ Decks will be re-detected.

Audio Window

The Audio window has two main modes to show either the status of the connected DJ systems, or the status of the audio input beat tracking.

The Audio Window can be loaded by selecting it from the "Window" menu on PC systems, or alternatively by pressing ALT+PAGE. The mode can be changed by using the two soft buttons "View DJ Deck" and "View Beat Track".

When in DJ Deck mode, this window provides an overview of the connected and configured decks, showing the track info, position, BPM, volume, VU level and an overview of the waveform.

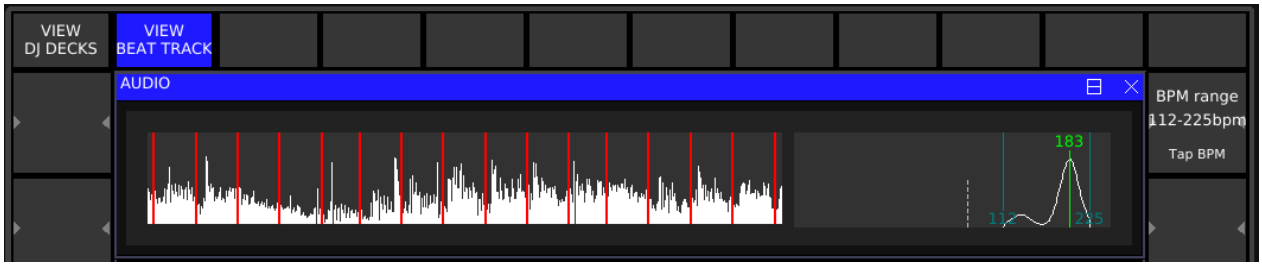
Note some DJ systems do not provide all of this information, MagicQ will display the information it can receive as well as displaying what information it cannot receive. If this information is later received, the DJ Deck should update with the relevant information.

DJ Decks can be used to control the timecode for Cue Stacks. If a DJ Deck has the EXACT same title and artist as the Cue Stack Audio file (Cue Stack Options > Audio > Audio file), when the playback is activated and the DJ Deck is playing, the Cue Stack should start playing using the tracks position as the timecode. You are also able to link a DJ Deck to a Cue Stack. This can be done by pressing COPY then the Cue Stack you want to link to, followed by the DJ Deck you want to link from.

Note for the track to auto-link to the Cue Stack, the tracks metadata for title and artist have to be EXACTLY the same on the DJ Deck and in MagicQ.



In Audio Beat Track mode, it will show a running waveform of the audio input, and the beats detected will be shown as red lines in the waveform. A histogram is also shown alongside to show the confidence the algorithm has in each BPM value. The peak will be used to set the BPM in MagicQ. The range of BPM values can be configured using the encoder in the Audio window. This will limit detection to the range of BPMs selected. This is useful in the case there are songs which the algorithm either ends up detecting a beat at either twice or half the actual BPM desired.



Timecode and Level Synchronisation

To synchronise the playback of a track with a Cue Stack in MagicQ, you must associate the incoming track information together with the required Cue Stack. To do this, load the desired track so that it is showing in the Audio Window, then use the Copy function in MagicQ, select your Cue Stack as the source, then click on the header of the relevant deck in the Audio Window. This will set the "DJ Track" setting on the Cue Stack which corresponds to the track information we can determine from the deck.

Some DJ Systems don't provide unique track identifiers for tracks, so we have to generate a unique identifier based off the artist name and track title. Because of this, please ensure that any tracks you try to synchronise all have unique names within the relevant system.

To disable the DJ Deck from synchronising with the timecode of the cue stack, then set the "Track DJ Deck timecode" setting within the "Advanced" tab to "No".

To enable the Cue Stack to automatically activate and release when the track is loaded and unloaded from a deck, set the "Activate and Release on DJ System" setting to "Yes" under the "Activate Release" settings of the Cue Stack. When enabled, this will activate the Cue Stacks in the same way they are activated from an execute grid, or from the Stack Store window.

Depending on the "Crossfader Mode" option within the MIDI / Timecode tab, the activated Cue Stack will either be activated at full when set to "Cue Stack 100% when active", or will follow the crossfader and fader up levels if set to "Cue Stack follows volume". Tracking the

crossfader and fader up levels is only available on DJ systems which provide this information externally.

Beat Tracking

If a DJ System is connected, then the active deck will be the source of the global beat number within MagicQ which can be used with the "Audio beat step" functionality. When an audio input is configured instead, then the beats will be used to drive a beat count internally to MagicQ.

Diagnostics

The status of the underlying connections to the different DJ systems can be viewed within the Setup, View System, View Status, DJ/Timecode tab. This will detail connection status and IP's of connected systems to aid in setting up a new system.

Mixer Channel Configuration

MagicQ supports DJ Mixer Channel Configuration. If your DJ system is configured in a way where your DJ Deck 1 is being controlled via Channel 2 on the Mixer, you can set Channel 2 to control that DJ Layer.

To configure the Mixer Channels, set each "DJ Deck Audio Channel" to the respective Channel that you are using within the MIDI/Timcode tab of the Setup window. Channels can be set to either "Default" or 1 to 6. "Default" uses the Channel number that relates to the DJ Deck, for example, DJ Deck 1 will use Channel 1. Setting the "DJ Deck Audio Channel" to 1 to 6 allows the use of any of the available Channels on the DJ Mixer to control the DJ Decks in MagicQ.

If the DJ Deck in MagicQ is configured to be controlled via Channel 6 and the DJ Mixer being used only has four Channels the setting will need to be changed to be in range of the Mixers Channels.

MIDI

Consoles can use MIDI via the rear input and output DIN sockets. MagicQ PC (Windows, Mac and Linux) can use 3rd party USB or virtual MIDI interfaces.

MagicQ can *send and receive* MIDI Timecode (MTC), Notes on/off and Control Change (CC) messages.

MagicQ can *receive* Beat Clock and MIDI Show Control (MSC) messages.

On MagicQ PC Systems MIDI is only supported when fully unlocked. Note that MagicQ licensing changed from v1.9.5.1 onwards, for MIDI Notes on PC is enabled when MagicQ is fully unlocked. MIDI notes is not available on PC when a GeNetix GN2 / Legacy Dual DMX / MagicDMX / Legacy Audio Interface or Legacy SnakeSys products are connected to the system.

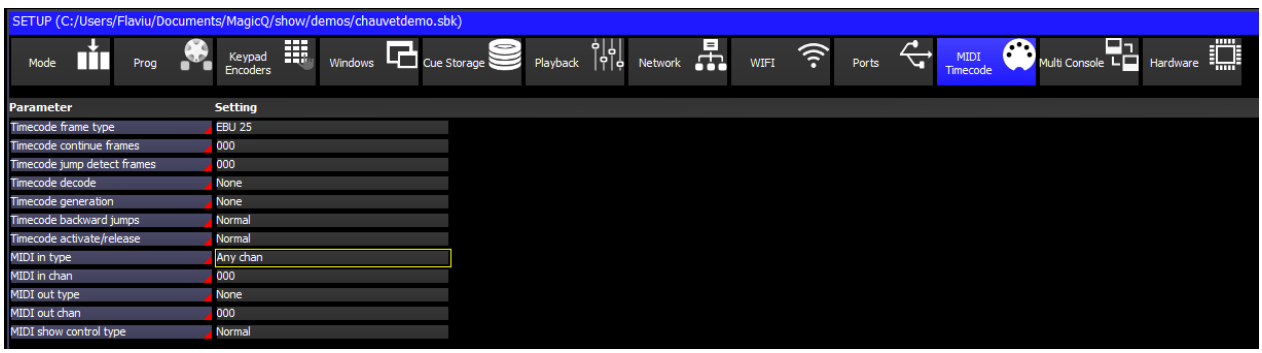
Table 8. Supported MIDI messages

Product	**MIDI messages**
MagicQ PC (demo mode) / Core Mode	None
MagicQ PC (fully unlocked)	MTC, Beat clock, Notes, CC, MSC
MQ50 (2019)[1]	Notes, CC, MSC
MQ70, MQ80, Stadium Connect, MQ250M, MQ500(M)[1]	MTC, Beat clock, Notes, CC, MSC
MQ60, MQ70 (old), MQ100 Pro 2014	Beat clock, Notes, MSC
MagicQ blue USB MIDI/Timecode box[2]	MTC, Beat clock, Notes, MSC

[1] Minimum firmware version of V1.25 is recommended.

[2] Use of the MagicQ USB MIDI/Timecode box with MagicQ PC additionally unlocks all MIDI functions via a 3rd party USB or virtual device.

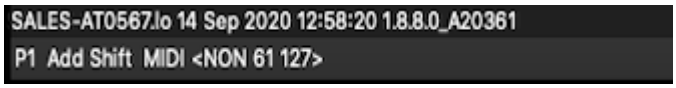
MIDI is configured in the *SETUP* window, *VIEW SETTINGS → MIDI Timecode* tab. On MagicQ PC, you must also select the MIDI device in the *Tools → Virtual (USB) MIDI Setup...* menu at the top.



MIDI Notes and CC Receive

To receive MIDI notes, set the MIDI In Type in the SETUP window. You can choose between "None", "Any chan" and "Requested Chan". When set to "Requested Chan" the requested channel is configured in the MIDI IN Chan field.

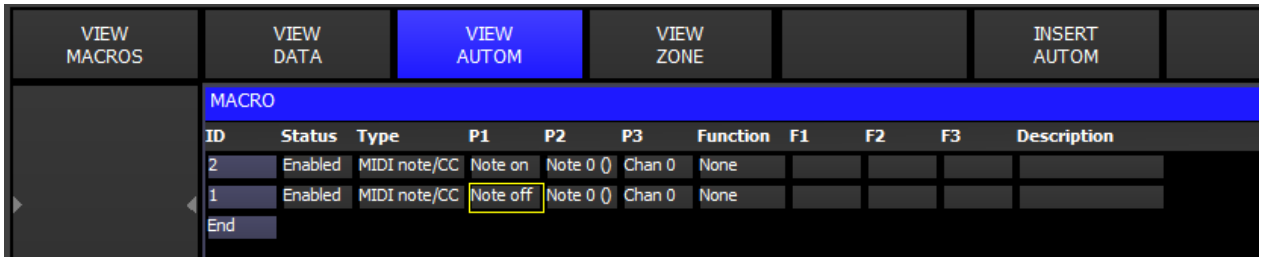
When using MIDI notes, the Timecode options can be set to none and then the last received MIDI command will be shown in the Status Display.



MIDI Autom Events

MagicQ supports triggering of automated events via MIDI in the Macro Window, View Autom.

Autom events can be set to trigger Playbacks, Cue Stacks, Cues and other events when MIDI Notes and CC messages are received.



MIDI Learn

In the *EXECUTE* window, pressing encoder D enables and disables MIDI Learn mode.

When this mode is enabled, any MIDI Note or CC message received will be assigned to trigger the currently selected execute box (use the cursor keys to change the selected box). This adds or replaces entries in the *MACRO → VIEW AUTOM* window.

In the *MACRO → VIEW AUTOM* window, pressing encoder X enables and disables MIDI Learn mode. When enabled, the currently selected automation row will be changed whenever a MIDI Note or CC messages is received.

MIDI Mapping File

MagicQ supports a custom MIDI mapping file for use instead of the Autom events - this enables greater flexibility and control. If any Autom events are set to respond to MIDI then the MIDI mapping file is ignored.

MagicQ uses the text mapping file miditable.txt stored in the MagicQ folder to convert from MIDI commands to MagicQ serial commands.

An example file `miditable.txt` is included which maps MIDI notes to the playbacks PB1 to PB34. Each line in the file specifies a received MIDI command and then the mapping to the serial command in inverted commas "".

For example, the first to lines in the default file are:

```
144,36"1t"
128,36"1u"
```

MagicQ checks the received MIDI note byes to see whether they match the values. If the MIDI message matches 144 36 then it executes the remote command 1t (Test Playback 1). Similarly if it matches 128 36 then executes the remote command 1u (UnTest Playback 1).

Note that Test and Untest are like Activate and Release except they force the Playback level to be 100% and 0% respectively.

Note that for security reasons MagicQ limits the number of playbacks that can be controlled using MIDI and the remote protocols. On MagicQ consoles PB1 to PB34 can be controlled. On MagicQ PC, playbacks PB1 to PB10 can be controlled.

Users may use their own MIDI conversion file `usermidimap.txt` rather than the in-built `miditable.txt`. This avoids user MIDI tables being overwritten when new software versions are loaded, since only the `miditable.txt` is updated on software updates.

Advanced MIDI Mapping

It is possible to match all 3 MIDI message bytes including the velocity. For example:

`144,36,100"1t"`

`144,36,101"1u"`

This would execute the Test Playback 1 when Note On for note 36 at velocity 100 was received and Untest Playback 1 when Note On for note 36 at velocity 101 was received.

To jump within a Cue Stack instead of testing / untesting a Playback just change the remote command in the inverted comments.

`144,36"1,10j"` (Jump to Cue Id 10 on Playback 1)

It is also possible to map the note or velocity directly into the remote command using the %01 for the note and %02 for the velocity.

The following command would look for Note On, Note 36 and then use the Velocity to jump to a specific step on the Playback.

`144,36"1,%02j"`

`144,36"82,%02H"`

The %02 is replaced with the velocity received, so that if MagicQ receives **144 36 50** then it will execute the remote command **1,50j**, which jumps to Cue Id 50 on Playback 1

For the latest list of remote commands check the section on ChamSys Remote Protocol Commands.

Default miditable.txt File

```
144,36"1t"
128,36"1u"
144,38"2t"
128,38"2u"
144,40"3t"
128,40"3u"
144,41"4t"
128,41"4u"
144,43"5t"
128,43"5u"
144,45"6t"
128,45"6u"
144,47"7t"
128,47"7u"
144,48"8t"
128,48"8u"
144,50"9t"
128,50"9u"
144,52"10t"
128,52"10u"
144,53"11t"
128,53"11u"
144,54"12t"
128,54"12u"
144,55"13t"
128,55"13u"
144,56"14"
128,56"14u"
144,57"15t"
128,57"15u"
144,58"16t"
128,58"16u"
144,59"17t"
128,59"17u"
144,60"18t"
128,60"18u"
144,61"19t"
128,61"19u"
144,62"20t"
128,62"20u"
144,63"21t"
128,63"21u"
144,64"22t"
128,64"22u"
144,65"23t"
128,65"23u"
144,66"24t"
128,66"24u"
```

```
144,67"25t"
128,67"25u"
144,68"26t"
128,68"26u"
144,69"27t"
128,69"27u"
144,70"28t"
128,70"28u"
144,71"29t"
128,71"29u"
144,72"30t"
128,72"30u"
144,73"31t"
128,73"31u"
144,74"32t"
128,74"32u"
144,75"33t"
128,75"33u"
144,76"34t"
128,76"34u"
```

It is possible to test how MagicQ responds to MIDI commands by typing in the MIDI message on the keyboard. This is only supported when connected to a MagicQ Wing or Interface. For example to test the command

144,36,127 Note On, note 36, velocity 127

Type **testmidi** followed by the message on the keyboard with no spaces between the MIDI values.

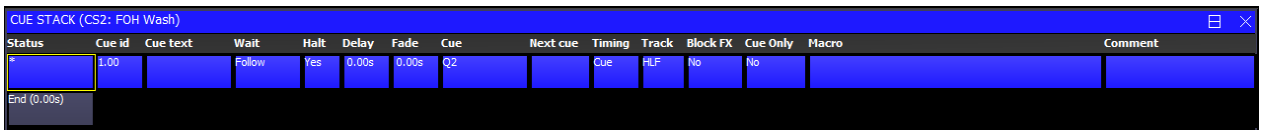
```
testmidi 144,36,127
```

MIDI Notes and CC Transmit

To transmit a MIDI Note command, first set the MIDI Out Type in the Setup Window. You can choose between "None", "Any chan" and "Requested Chan". When set to "Requested Chan" the requested channel is configured in the MIDI Out Chan field.

When set to "Any chan" MagicQ will send out any MIDI commands specified in the Cue Stack macro field regardless of the channel specified using the channel specified in the Cue Stack macro. When set to "Requested Chan" MagicQ will always change the MIDI commands before transmission to be sent on the requested MIDI channel

MIDI commands are entered in decimal in the Macro field of the Cue Stack Window (page right) using the 'N' macro command. It is possible to over-ride the channel specified in the MIDI commands using the MIDI Out Channel in the Setup Window.



MIDI note commands are 3 bytes long, consisting of the command (note on / note off) byte, followed by the note and then the velocity

`<command> <note> <velocity>`

MIDI notes, Control Change, Program Change and Aftertouch messages are supported.

the <command> denotes the MIDI message type, see table below for the command values

144	Note On
128	Note Off
160	Polyphonic Key Pressure (aftertouch)
176	Control Change
192	Program Change
208	Channel Pressure (aftertouch)
224	Pitch Bend Change

For example, to send a note for middle C set the macro field to the following:

`N144,60,127` (Note 60 on velocity 127)

`N128,60,0` (Note 60 off)

MagicQ accepts both 'N' and 'n' to specify MIDI commands.

The <command> consists of top 4 bits for the command - 144 for note on, 128 for note off, added to the bottom four bits for the channel - 0 for channel 1, to 15 for channel 16.

N144 is note on channel 1. N145 is note on channel 2. N128 is note off channel 1. N129 is note off channel 2.

The same 'N' macro command can also be used to send a MIDI System Exclusive (Sysex) message. A Sysex message must start with the value 240 (F0 hex) and end with the value 247 (F7 hex), with any manufacturer specific data bytes entered in decimal in between. To send a Sysex message set the macro field to the following: `N240,x,y,z,a,b,c,247` Where `x,y,z,a,b,c` represent the manufacturer ID and data bytes of the Sysex message, in decimal, as required by the receiving device.

Patching MIDI Channels

A special MIDI head can be patched that transmits MIDI data whenever the value of its channels change.

You can find the personality the PATCH - CHOOSE HEAD window under *Generic - mqmidi*. MIDI heads contain three channels: Status, Data 1, Data 2, allowing you to send any MIDI command. These channels can be found on encoders A B C on page 5 of the beam window.

The value of the status channel determines which data channels are sent.

No data will be sent if the status channel is lower than 128 or the data channels are larger than 127, in accordance with the MIDI specification. For more information on the values you can transmit, see https://www.midi.org/specifications/item/table-1-summary-of-midi-message

MIDI will only be sent when the channels *change*, therefore setting the status to 0 and back can be done for retransmission. Alternatively you can record a playback with the status channel set to 0 and keep it activated permenantly.

If you need to send multiple messages in one cue, you can patch multiple *mqmidi* heads; heads with lower head numbers will always be processed first. This way, for example, you can set one to a Note On command and another to a Note Off command.



Sending MIDI messages with more than 2 data bytes is not supported via this method. Consider using the cue stack macro column.

MIDI Problems

MIDI interfaces can be tested using the test show **midilooptest.shw**. This show simply runs a 2 step chase on Playback 1 which sends out MIDI commands corresponding to activation and release of Playback 2.

- If on a PC, connect and setup a MIDI interface
- Connect a MIDI cable from the Out to the In on the Interface
- Set MIDI In Type to "Any chan"
- Set MIDI Out Type to "Any chan"
- Load **midilooptest.shw**
- Raise Playback 1
- If MIDI is working then Playback 2 should activate and release every 1 second.

MIDI Show Control (MSC)

MagicQ supports receiving MIDI show control messages from other systems.

MagicQ responds to the GO, STOP, RESUME and TIMED GO commands.

The effect of the MSC commands is determined by the MSC type. This is configured in *SETUP* Window, *VIEW SETTINGS → MIDI Timecode → Show Control Type*. The options are Normal, Cue Stack 1 and Playback 1. This is useful for integration with (e.g.) Strand consoles which only have 1 Cue Stack and which do not allow the show Control commands to be configured.

When set to Normal then MSC commands trigger Cues in the Cue Store or Cue Stacks in the Cue Stack Store. MSC commands with two parameters (Q number, Q list) will trigger Cue Stacks in the Cue Stack Store. MSC commands with one parameter (Q number) will trigger Cues in the Cue Store.

When set to Cue Stack 1 or Playback 1 then the commands will affect Cue Stack 1 or the Cue

Stack stored on Playback 1 respectively.

MagicQ ignores the times in the TIMED GO command and uses the programmed times. GO and RESUME have the same effect.

MagicQ MIDI/Timecode interfaces manufactured prior to October 2009 do not support MIDI show control messages.

MIDI Show Control Command Format

For more details on MSC protocols see http://en.wikipedia.org/wiki/MIDI_Show_Control

MSC Commands are of the format

```
F0 7F <device_ID> 02 <command_format> <command> <data> F7
```

<device_ID> is 7F for "all call" ID for system wide broadcasts

<command_format> is 01 for "Lighting"

MagicQ supports the following commands in the <command>

- 01 GO
- 02 STOP
- 03 RESUME
- 04 TIMED_GO

For example:

`F0 7F 7F 02 01 01 31 F7` (Go Cue 1 in the Cue Store)

`F0 7F 7F 02 01 01 32 30 F7` (Go Cue 20 in the Cue Store)

`F0 7F 7F 02 01 02 31 F7` (Stop Cue 1 in the Cue Store)

`F0 7F 7F 02 01 01 00 31 30 F7` (Go Cue Stack 10 in the Stack Store)

`F0 7F 7F 02 01 01 32 00 31 30 F7` (Go Cue 2 on Cue Stack 10 in the Stack Store)

It is possible to test how MagicQ responds to MSC messages by typing in the MIDI message on the keyboard (this is only supported on consoles and MagicQ PC when fully unlocked (Unlocked mode)). For example to test the command

```
F0 7F 7F 02 01 01 31 F7
```

Type **testsysex** followed by the message on the keyboard without the initial F0 and with no spaces between the MIDI values

```
testsysex 7F7F02010137F7
```

MIDI Beat Clock

MagicQ Supports MIDI Beat clock messages in addition to supporting MIDI Notes & Timecode. In order to use MIDI Beat clock, first MIDI devices must be setup under SETUP_ Window, *VIEW SETTINGS → MIDI Timecode → Timecode Decode*. This is set to either MIDI or Virtual (USB) MIDI depending if you are using direct ports on a console or a virtual/USB device on a PC system. The MIDI in type setting should also be set to 'Any Chan'.

When MagicQ receives a MIDI Beat Clock message it toggles the remote trigger input as if the remote trigger input had been pressed or released. This option is set under SETUP_ Window, *VIEW SETTINGS →PORTS → REMOTE TRIGGER TYPE*.

Set Remote Trigger Type to "MIDI Beat" to get a remote trigger every MIDI beat or "MIDI Beat Half" or "MIDI Beat Qtr" to get triggers for half and quarter notes. Then set the Remote Trigger action as required.

Remote input can be used in multiple ways by setting Setup, View Settings, Ports, Remote Trigger Action including "Audio Bump" and "Tap to Time Sel PB".

MagicQ USB MIDI/Timecode Box Firmware Versions

3	Fixed SMPTE drop frames
4	Added MIDI beat clock support
5	Fixed incorrect timecode configuration
6	Fixed MIDI notes input channel filtering
7	Fixed MIDI timecode generate flags
8	Fixed LTC decode after LTC generate

Timecode Support

MagicQ supports both time code decode and time code generation.

MagicQ MQ70, MQ80, MQ250M and MQ500 consoles have inbuilt support for Timecode. MagicQ consoles do not support timecode via 3rd USB party MIDI interfaces or through the console phono (RCA) interfaces. For MQ80 and MQ500 we recommend using a balanced input. For MQ70 it can be balanced or unbalanced.

On MagicQ PC / Mac systems MIDI and timecode can be received using an external MagicQ MIDI/Timecode interface or a 3rd party USB/Virtual MIDI interface. Timecode and MIDI beat clock are only supported on 3rd party USB/Virtual MIDI when a MagicQ Wing or Interface is connected. MIDI notes is only supported on 3rd party USB interfaces when a ChamSys rack mount dongle is attached. For timecode we recommend the Adrem solutions TC1 time code reader (http://www.adrem-solutions.com).

Cue Stacks can be set up to run Cues according to timecode signals received from external sources via LTC or MIDI timecode. They can also be set up to use an Internal timecode source which is activated from 0:0:0 when the Cue Stack is activated and runs at 100 frames per second.

If a Cue Stack is intended to be run from External Timecode then we recommend setting it to External Timecode when programming so that the timecode frames match the expected input times rather than the 100 frames per second of the internal timecode. If there is timecode input available then the Timecode Simulator can be used to simulate receiving external timecode.

See Timecode Cue Stacks.

Automation events can be triggered by timecode.

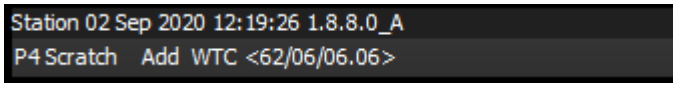
Timecode Decode

MagicQ supports decode of both linear time code (LTC) and MIDI time code.

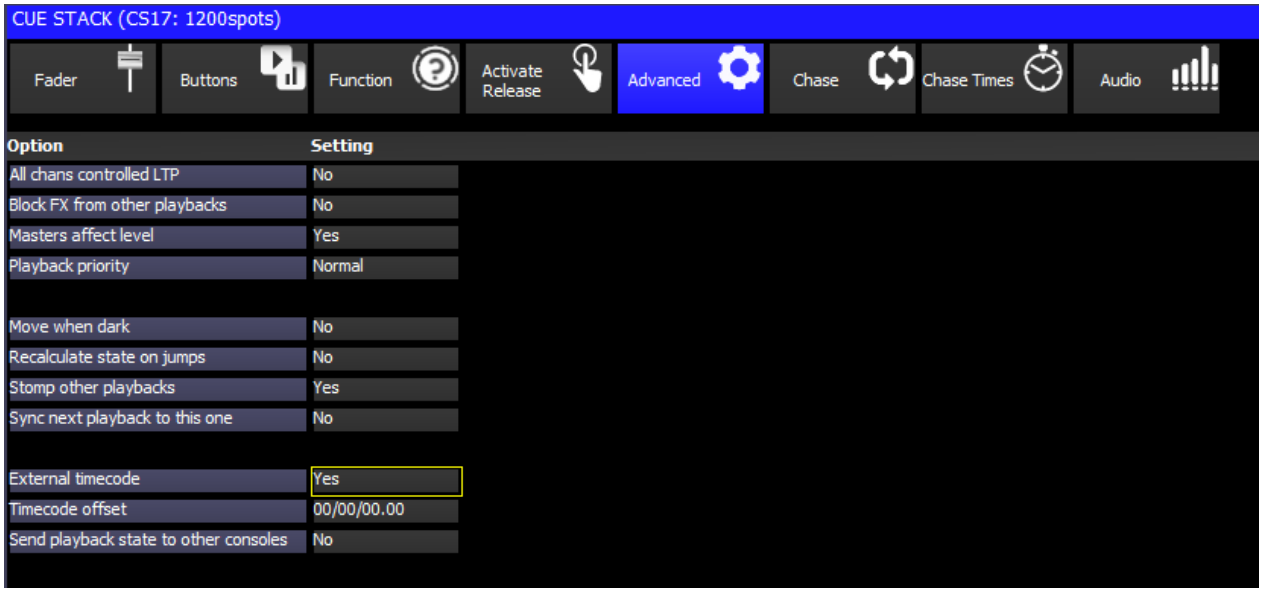


Set the Timecode Decode to LTC, MIDI or Art-Net depending on the timecode source.

The timecode type can be set to EBU-25, SMPTE30, NTSC30 and Film 24. The Status Display will show the current timecode being received.



The timecode continue frames is the number of frames to continue internal regeneration of the timecode signal when it is lost. After this time the timecode will be frozen until a signal is received again.



Time code can be triggered from an external timecode source using the MagicQ MIDI/Timecode module, or it can run from the internal time code source. To control a Cue Stack using external timecode set the "External timecode" option in the Cue Stack options.

Timecode from Winamp

On a PC, timecode can be received from Winamp instead of from a MagicQ MIDI/SMPTE interface.

The PC must have a MagicQ Wing or MagicQ Interface connected, or be connected to a network with a MagicQ console. If connected via network then check in Setup, View Status, Net Consoles that the MagicQ PC can see the MagicQ console in the network. It should report status 03c3. If it can not see the console check that MagicQ (mqqt.exe) is not being blocked by a firewall such as Windows Defender.

Patch a Winamp personality in MagicQ (winamp_winamp.hed). If there is no Winamp personality in the show file then MagicQ will not connect to Winamp.

When MagicQ has a Winamp personality patched, MagicQ detects the instance of Winamp running and connects to it automatically. There is no need to configure anything in Winamp.

Set Timecode Decode to Winamp - the received timecode will be shown in the status display prefixed by "WTC".

When a file is played in Winamp the timecode will start running. Winamp typically starts the first track at 1/0/0 instead of 0/0/0 - but this will depend on how you set up the tracks in Winamp.

Timecode from Stand Alone MagicHD

Legacy Stand alone MagicHD (discontinued from v1.9.8.4 onwards) can send timecode for the currently playing video, either over Art-Net or directly into MagicQ (if running as the internal player).

Set the "Timecode Output" channel of MagicHD (#047) on the output layer to a value from 128 to 136, to select which video layer will be used for the timecode. On the MEDIA window, this can be found under Output > Control > Encoder D.

Set "timecode generation" to "Art-Net "

On the standalone player, MagicHD will always output over Art-Net if "Timecode Output" is over 128 and MagicHD is out of demo mode (for example if there is a ChamSys console or unlocked MagicQ instance on the local network).

Timecode Simulator

MagicQ includes a powerful timecode simulator for simulating external timecode when an external timecode source is not available. In the Setup Window, the simulator is turned on using soft button Y. When the simulator is on, then any received external timecode is ignored.

The timecode start value can be set by entering a timecode value and pressing the X soft button. The X soft button is also used to start and stop the timecode running.

Entering a new timecode value whilst the timecode simulator is running will jump directly to the new value and continue running.

Typing * before pressing the X button will restart from the last entered timecode.

Timecode Generation

MagicQ can also master timecode. Timecode Generation takes priority over Timecode Decode, so only enable Timecode Generation if it is required.

Set Timecode Generation to LTC, MIDI or Art-Net or combinations of the protocols.

When set to Art-Net MagicQ has a workaround to overcome the limitations of third party Art-Net timecode receivers struggling to lock to Art-Net timecode. MagicQ will now not repeat the same frame within 1 second. If the timecode is not changing then a timecode frame will be sent every 1 second.

When generating Timecode the Timecode Decode setting should be set to None.

Free Running Timecode

There are special Cue Stack macros to enable time code mastering and to set the time code value.

Q <time code> Set current time code (also enables time code generation)

W <enable> Enable / disable time code generation (1 for enable, 0 for disable)

For example, to set timecode to 0/01/00.00

Enter Q100 in the Cue Stack macro field.

Note that after first starting the console, timecode generation requires a Q command to set the initial value and start timecode running.



MagicQ consoles generate MIDI and LTC timecode in hardware, and you must use a Y-split cable (with LTC) or MIDI splitter if you want MagicQ to see this timecode.

Using Cue Stack Internal Timecode

To generate timecode based on the internal timecode of a Cue Stack. Use the Cue Stack macro W 2 in the Cue Stack you wish to use. MagicQ will use the timing of the Cue Stack from the Playback where the W 2 macro was last run.

To stop generation from the internal timecode of a Cue Stack and return to no timecode generation or free running timecode generation use the W 0 or W 1 Cue Stack macros.

Note that timecode will only be generated from a Cue Stack internal timing if the Cue Stack is active and it is set to internal timecode.

The Cue Stack internal timecode takes precedence over the Timecode Simulator for generating Timecode.

Using the Timecode Simulator

When the Timecode Simulator is on and Timecode Generation is set, then the timecode from the Simulator is used to generate timecode.

When the Timecode Simulator is started and stopped it automatically starts and stops timecode generation - any W0 or W1 macro commands are ignored.

Timecode Re-Transmit

The LTC or MIDI timecode decoded from a MagicQ MIDI/Timecode interface or from Winamp can be retransmitted over the network as Art-Net timecode.

This can then be received by any MagicQ console on the network even if it does not have a MIDI/SMPTE interface - just set the timecode input type to Art-Net.

For MagicQ PC/Mac systems the receiving system must have a MagicQ Wing or MagicQ Interface connected to enable the decoding of the Art-Net timecode - but this does not have to be a MagicQ MIDI/SMPTE interface.

PC/Mac systems with Winamp must have a MagicQ Wing or MagicQ Interface connected to enable the timecode to be received from Winamp.

Multiple Timecode Sources

From v1.9.6.0 MagicQ supports multiple external timecode sources, with the addition of 10 additional timecode sources received over ChamNet from GeNetix GN5 and GN10 devices.

The operation of the main external timecode source remains the same - it is configured in Setup, View Settings, MIDI/Timecode with choice of incoming timecode protocol, including LTC, MIDI, Art-Net and ChamNet set by the Timecode Decode setting as before.

By default, GN5 and GN10 devices are set to the default ChamNet ID of "Def" (0) with ChamNet timecode sent to MagicQ and QuickQ consoles as the Default timecode source. When they are set to a ChamNet ID of 1 to 10 they will send timecode on that ChamNet ID.

The status of the incoming ChamNet timecode can be viewed in the Timecode/DJ tab in Setup, View Status.

Cue Stacks now have a TC Source option in Cue Stack, View Options enabling them to listen to a different timecode source from the main external timecode. Cues Stacks default to the "Default" source. It can also be set to CH1 to CH10 to select timecode from a non default ChamNet ID.

The Timecode activate/release option in Setup, View Settings, MIDI/Timecode applies to Cue Stacks set to use the Default timecode and also to Cue Stacks set to use ChamNet ID 1 to 10. For each Cue Stack it will use the associated timecode source to determine activation and release.

In the Execute Window, Assign Special it is possible to assign items to show the main timecode and also for each of the timecode sources from ChamNet ID 1 to 10.

Note that on GeNetix and 10Scene Store the ChamNet ID also determines ID used for the close contact inputs on the 10Scene ports.

Timeline

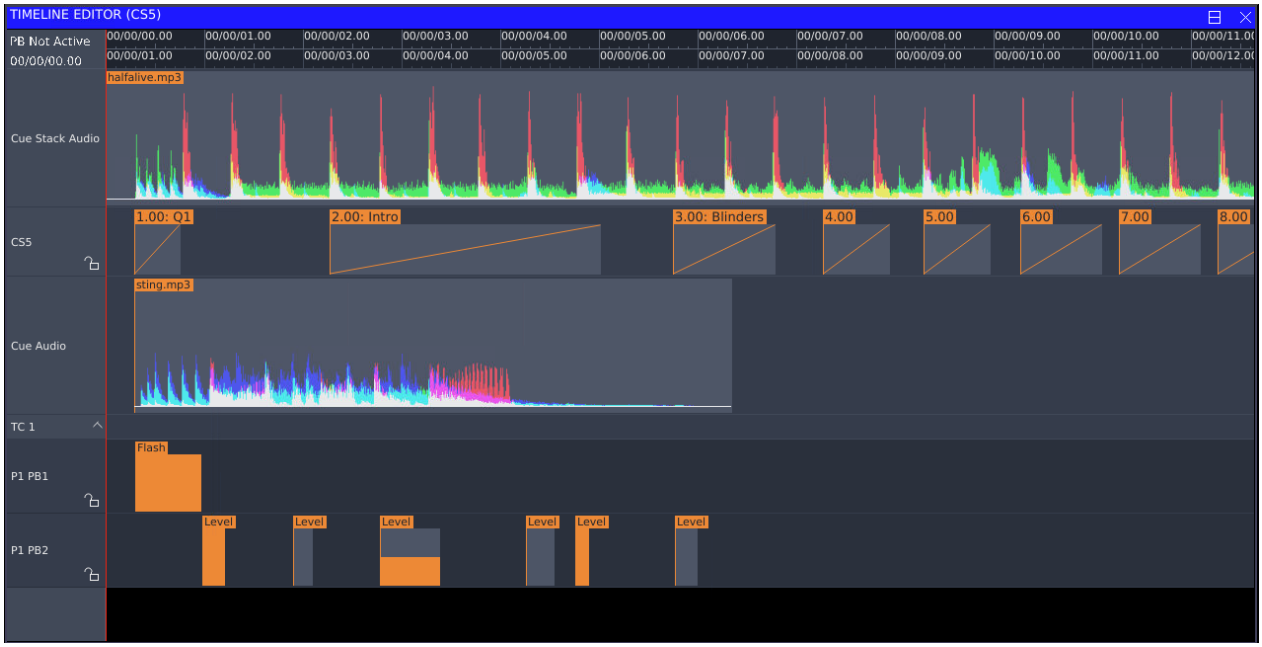
The Timeline Window provides alternative views into the Cue Stack and enables editing of Cues and TC Tracks events in a track sheet or visual timeline form. There are three views in the Timeline window; VIEW SHEET, VIEW CUELINE and VIEW EDITOR.

View Editor

The Timeline Editor is designed to allow you to lay out Cues from a Timecoded Cue Stack on a traditional timeline based view. It visualises:

- Timecode values
- Audio tracks
- BPM grids
- Section and unique markers
- Cue and Macro Track events

in rows to allow you to visually see and modify the Cue Stack.



To access the Timeline Editor, select your Cue Stack, press the TIMELINE button and then press the TIMELINE EDITOR soft button. If there is nothing recorded to the playback cue stack, the timeline will only show the left hand column and a timecoded ruler at the top of the screen.

To show the Cues layer in the editor you will need to have a playback cue stack with cues recorded to it. If the Cues layer is blank and you can't see the cues, select VIEW CUE STACK to take you to the Cue Stack window and select VIEW CUE STACK. Select CUE TIMING and choose YES. Select Halt at the top of the cue stack so the Halt column is highlighted yellow, press the Input Display in the bottom right of the screen, and select Timecode and this will change all the cues in the stack to use timecode timing. You may not want to use the cue stack in

timecode timing, so if you leave the stack as it is when recording a standard cue stack it will still run through the timecode time when the playback is activated.

To add an audio file to the timeline, you will need to go to the cue stack options. Double click on the cue stack that you are using and select VIEW OPTIONS. Select the audio tab, then select the Audio File feild. Select an audio file from the file manager and this will fill in the Audio File feild. Press the timeline button to return to the timeline. The top of the timeline will now have an audio layer that will show you the songs loading status, a pin and magnet icon, the name of the file selected, the length of the song, and a song name and title if the audio file metadata contains that data. The first time you load a song it will process which is denoted by the "Loading" status. If you are using a large file this may take a few seconds to process and load. Once you have loaded the song once, subsequnt times should take less time to display the audio waveform.

The Cue Stack audio file will always start at the 00/00/00.00 timecode value as this is started when the Cue Stack is activated. Cue Audio files will move in conjunction with their corresponding Cue in the above row.

The underlying image files are stored in the show folder in the folder "audio_bin" based on the audio file name. If an audio file with the same name is replaced in the audio folder of exactly the same file size the contents of the waveforms will not get regenerated and you will need to clear the waveform images cache folder for that audio file name to regenerate the audio waveforms.

To record a timecode track, select "Record new TC Track" in the left hand column. The playback will activate and the playhead will start moving. By pressing flash keys, GO keys or faders for the different playbacks will record those actions into a timecode track. If you deactivate the playback that the timeline is using while recording a timecode track, this will record this action into the track and deactivate the playback when you set the track to run and it hits the time that you completed this action. Timecode track items are shown on the timeline where each macro target is shown on it’s own row. This means that Playback actions for multiple Playbacks will appear on their own rows. An entire timecode track can be hidden using the arrow in the row name. The timecode track can also be enabled or disabled using the icon. For TC track entries which change the level of a Playback, the level shown in the timeline window is the target level which the Playback will fade to. The level can be modified using the "Level" D encoder while that entry is selected. You have a maximium of TEN tracks that you can record to each cue stack, each track can have information from multiple playbacks.

In its default mode, the beat, cue and timecode track rows are unlocked and will allow movement by clicking and dragging individual items. To prevent accidental changes to a Cue Stack, a row can be locked and unlocked by clicking the padlock icon next to the row name.

The Cursor Playhead is used to mimic a cursor on the screen to allow you to place certain items into the timeline at specific places. This playhead is displayed in yellow. To move the cursor use the F Encoder. Pressing the top of the encoder will centre the view on the cursor playhead. Pressing the bottom of the encoder will reset the cursor to the beginning of the timeline.

The Playback Playhead is used to display the current timecode that the cue stack is using. This playhead is displayed in RED. When a the playback has been activated you can control this playhead using the X Encoder. Pressing anywhere in the encoder will play/pause the timeline when the playback is active.

To zoom the timeline in and out you can either use pinch gestures or use the Zoom which is on Encoder E. Using the pinch gestures allows you to zoom into a specific spot. Pressing the top and bottom of the encoder will zoom in and out respectivly.

To scroll allong the timeline you can either use dragging gestures or use the Y Encoder. Pressing the top of the encoder will centre the view on the playback playhead. Pressing the bottom of the encoder will toggle if the view will keep the playback playhead in the centre of the view while the playback is running.

When nothing is selected in the timeline, the A, B, C & D encoders are used to change the timecode settings for the cue stack and the console. Encoder A is used to change whether the cue stack will use internal or external timecode. If the cue stack is set to use INTERNAL timecode, Encoder B will display the internal timecode type. This can be set to the default of 100 FPS or to mimic an external timecode source. If mimic external is set then Encoder C will display the Timecode Frame Types that can be mimicked. You can select from EBU 25, SMPTE 30, NTSC 30 or Film 24.

If the cue stack is set to use EXTERNAL timecode then Encoder C will stay as the Timecode Frame Type. Encoder D will show the detected frame type being received in MagicQ. Selecting this will set the timecode frame type to the detected frame type.

When a timecode offset is enabled in the Cue Stack, then two rulers are shown at the top of the window, with the upper showing timecode from the start of the Cue Stack, and the lower showing the equivalent external timecode with an offset applied. An offset can be set by going to the cue stacks options and going to the AUDIO tab and setting an Audio Offset.

The Timeline Editor is supported on the MQ500M, MQ500, MQ250M, MQ80, MQ70, MQ50 and MagicQ PC Systems. Legacy products such as the MQ40,MQ40N, MQ60 and MQ100 Series consoles do not support the timeline editor.

Soft Buttons

The soft buttons at the top of the timeline window give you access to more features and control over what you can acheive while using the timeline.

View Markers

Pressing VIEW MARKERS will change the soft buttons at the top of the window to MARKERS mode. From here you can add "info" markers to your timeline as well as creating beat grids for timeline.

All the markers can be moved, copied and removed using COPY, MOVE and REMOVE buttons.

Naming a marker set or marker (if applicable) can be done using SET.

ADD SET TO STACK

Pressing ADD SET TO STACK will add a marker set to the timeline for the cue stack that you are on. This allows you to have marker sets that are unique to the cue stack.

ADD SET TO AUDIO

Pressing ADD SET TO AUDIO will add a marker set to the timeline for the audio file that you are using. Any markers that are added to the audio marker set will show up in other timelines that also use that audio file.

SECTION MARKERS

To add a section marker to your set, you will need to select the set that you want to add the marker to, pressing the area in the left hand column where it says "Set" will highlight the layer yellow. Pressing ADD SECTION MARKER will place in a section marker to that highlighted layer. Pressing the soft button again will add a new section marker after the previous one created and will be attached.

Once a section marker is in the timeline, you can select the marker by pressing anywhere along it. It will highlight the diamond grab area on the right hand side of the marker. You can either use the touch screen to drag the position of the marker or use encoder A while the marker is selected.

While the marker is selected you can use the B, C & D encoders to change the colour of the section marker. By pressing the B encoder you can also select a colour from a simple colour pallette.

UNIQUE MARKERS

To add a unique marker to your set, you will need to select the set that you want to add the marker to, pressing the area in the left hand column where it says "Set" will highlight the layer yellow. Pressing ADD UNIQUE MARKER will place in a unique marker to that highlighted layer.

Unique markers are placed dependant on the Playback Playhead or the Cursor Playhead. If the cursor playhead is at the start of the timeline then the position of the playback playhead will be used to place the markers into the timeline. if the cursor playhead is anywhere but the start of the timeline, the position of the cursor playhead will be used to position where the markers are placed.

BEAT GRIDS

There are two ways of adding a BPM Beat Grid in timeline, auto and manual.

The default setting is AUTO BEATS. When this is selected the A Encoder will allow you to select the BPM range of the track you are using and pressing the encoder will generate the beats. This may take a few seconds depending on the length of the track. When the auto beats have been generated you can select individual beats and move them around. This can be done by either dragging them or using the A Encoder.

Pressing the AUTO BEATS soft button will change the beat marker mode to MANUAL BEATS. To create a manual beat grid, you will need to set the start and end times of where the beat grid should go using the A and B Encoders. The BPM of the grid will need to be set for the grid, this defaults to 120 BPM but can be changed using the C Encoder. Pressing the D Encoder will insert the BPM grid in the position that you have selected and using the BPM.

To move the beat grid you can drag the grids using the touch screen or by using the encoders to set the beginning and end times of the beat grid. RECOMMEND: Use the dragging of beat grids to move them around as this will hold the length of the created beat grid.

You can have multiple MANUAL BEAT grids on one timeline. Once one has been created, move the start position encoder to the end of the previous beat grid and redefine your end and BPM. If you put your start time over the end of a previous beat grid then that section of the previous beat grid will be overwritten.

To edit the created beat grids, first select one and then use the start, end and BPM encoders to update the grid. To change the colour of a created beat grid, once it has been created, select the beat grid and the D Encoder will change to Choose Col Tag. Selecting this will bring up a default colour palette of colours that can be chosen from.

If you have generated an AUTO BEAT grid this will disappear but can be brought back by pressing the same button again and going back to the auto beat mode and vice versa.

Choose Cue Stack

Pressing CHOOSE CUE STACK, will lock the current cue stack to the timeline window. To unlock the timeline, press UNLOCK WINDOW and you will be able to chose the playback used in the timeline window.

View Cue Stack

To view the cue stack for the timeline that you are currently viewing, select the VIEW CUE STACK soft button.

View Cue

After selecting a cue in the timeline you cam press the VIEW CUE soft button to show you the contents of the cue.

Renumber Cue IDs & Reorder TC

When you move cues out of their cue stack order, the cues that are out of order will turn a grey colour. Pressing REORDER TC will sort the ordering of the cues in the cue stack, this may lead to decimal place cue stacks if a cue is moved between two cues in a stack. Following that, if you press the RENUMBER CUE IDs soft button, it will renumber the cue numbers starting from 1 and increasing in whole values.

Restart TC

When using internal timecode on the cue stack and the playback is active. Pressing the

RESTART TC soft button will restart the internal timecode for the playback.

Audio Views

To change the audio graph views press the "VIEW FREQ BANDS" / "VIEW PEAK / RMS" soft button. This will toggle between the two graph views.

The first will show the peak and RMS values of the overall waveform. The second mode shows the peak values of the hi, mid and lo frequency bands of the audio file as an overlaid red, green, and blue waveform. This can aid in aligning cues to particular beats which may not be easily visible on the standard waveform, but easy to see when just looking at a particular channel. The modes can be toggled by pressing the "VIEW FREQ BANDS" and "VIEW PEAK/RMS" soft button in the timeline editor window.



TC Loop

To configure the timecode loop, hold shift and press the CONFIG TC LOOP soft button. To set the start and end times of the timecode loop you can either use the A and B Encoders, or when the Playback Playhead is running pressing the SET LOOP IN POINT/SET LOOP OUT POINT soft buttons. To get back to the original timeline page, press the BACK soft button.

Pressing ENABLE TC LOOP will show two orange lines in the place that you configured, when these are visible the timecode loop is enabled. When the playback is running and the TC loop is enabled the playback playhead will stay within the loop area until the loop is un-enabled.

Holding SHIFT and pressing the RESTART LOOP soft button will jump the timecode to the beginning of the timecode loop.

Importing TC Tracks

Pressing the IMPORT TC TRACK soft button will take you to a file manager like page. You can select a txt or a CSV file, this will bring up an option box where you can choose between: Making a Cue Track/Importing into a previously existing one, Importing into the last selected TC Track, or Loading Markers.

Hiding and Unhiding Tracks

Pressing the UN/HIDE TRACKS soft button will bring up a popup window. You can select from the tracks that you have available which ones you would like to see or hide.

When a set of tracks have been selected these can be saved onto the layouts, this means that if you are working on certain tracks and do not want to keep hiding and unhiding tracks you can use either the F1, F2, F3 buttons or layout soft buttons depending which console you are on to switch between the selected tracks that are displayed.

Other Encoders

While selecting items around the timeline you will notice that the left hand encoders will be changing.

When you have a CUE selected, Encoder A, C & D will be used for Timecode, Delay & Fade times of the cues selected, respectively.

When you have the Auto Beats or TC Track Marker items selected, only the Timecode will be able to be changed. This will stay on the A Encoder.

View Sheet

Press View Track Sheet to view the track sheet. The Track Sheet shows the data for the Cues for the Cue Stack on the currently selected Playback.

Colours in the track sheet are as follows.

Red	In programmer
Cyan	Increasing value
Green	Decreasing value
White	Static value controlled by Playback/Cue
Magenta	Tracked value

Values can be directly edited in the Track Sheet.

Use SHIFT and BLOCK CUE and SHIFT and UNBLOCK CUE to block and unblock Cues in the Track Sheet.

View Cueline

The Cueline is the original MagicQ timeline which enables viewing of a Cue Stack horizontally as a timeline. This view only shows Cues within the Cue Stack, not TC Track Events and there is only very limited editing supported.

Use encoders A to specify the level of detail shown for each head and encoder B to choose specific attribute masks.

By default all of the heads in the Cue Stack on the selected Playback are shown – use the SEL HDS ONLY soft button to make it only show the currently selected heads from that Playback.

Encoder D is used to modify the horizontal scale to choose how many Cue Steps are shown in

the window.

Use encoders X and Y to scroll around the timeline.

View Vals and View Raw can be used to view the data values rather than the timeline.

Press VIEW TRACKING to show the tracking information for information that tracks from one Cue to another. When this is not selected only the hard values in each Cue are shown.

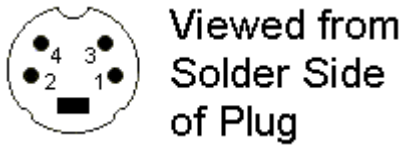
Remote Input Port

The MagicQ PC Wing, MagicQ MaxiWing and MagicQ consoles support a remote input port on the rear panel, which can be used to trigger functions in MagicQ from an external control device or switch. MagicQ MQ250M, Compact Connect and Stadium Connect feature 10Scene Ports which include a contact trigger input working in the same way.

The remote trigger can be used to trigger Cues in Cues Stacks, to flash playbacks, as a master GO button, or as a ADD/SWAP selector.

Connection (MagicQ Consoles, MagicQ PC Wing Compact and MagicQ MaxiWing)

The remote input is provided on a standard 4 pin mini DIN connector.



The connections are (in the sequence they appear physically on the connector)

2	0V and equipment ground
4	Opto isolated input negative
3	Power supply positive (Current limited)
1	Opto isolated input positive

The remote input can be used to receive an external signal on the opto isolated inputs, or it can be wired to an external switch. To receive an external signal wire the signal + to pin 1 and the signal – to pin 4. When used as external optically isolated input the maximum continuous voltage rating is 24V DC.

When wiring to an external switch links pins 2 and 4. Then connect the external switch between pins 3 and 1.

The Pin 3 Power Supply voltage is 5v on MQ50, MQ70, MQ80, MQ500 and PC Wing Compact. On MQ60's, MQ100 series consoles and Maxi Wings it is 12-13v.

Connection (Original PC Wing)

On the original PC Wing the remote input is provided on a standard 5 pin 180 degree DIN connector.



The connections are (in the sequence they appear physically on the connector)

3	0V and equipment ground
5	Opto isolated input positive
2	Power supply positive (5 Volt, current limited)
4	Opto isolated input negative
1	0V and equipment ground (same as pin 3)

The remote input can be used to receive an external signal on the opto isolated inputs, or it can be wired to an external switch. To receive an external signal wire the signal + to pin 5 and the signal – to pin 4. When used as external optically isolated input the maximum continuous voltage rating is 24V DC.

When wiring to an external switch links pins 4 and 1. Then connect the external switch between pins 2 and 5.

Enabling the Remote Input in MagicQ

In the View Settings view in the Setup Window page down to the Port Settings. Set up the remote trigger type and remote trigger action.

The remote trigger type can be set to NONE, MAKE, or BREAK, depending on whether your external switch is a push to make or a push to break switch. When using an external signal, setting the type to make will cause a trigger when the voltage differential is positive.

The remote trigger action, determines what action is taken by MagicQ when the remote input signal is detected. The options are:

- NONE
- CURRENT PLAYBACK GO
- CURRENT PLAYBACK FLASH
- ADD/SWAP
- SWAP
- DBO
- WING1 PB1 GO
- WING1 PB1 FLASH
- WING1 PB12 GO
- WING1 PB12 FLASH
- PB10 GO
- PB10 FLASH
- AUDIO BUMP
- TAP TO TIME

When set to NONE there is no special action associated with pressing the remote input. However, the remote input can still be used in Cue Stacks to trigger specific cues by setting the Halt Field in the Cue Stack to REMOTE. The Cue will then wait till the remote trigger is detected before starting to execute the Cue.

When set to SWAP, playbacks are set to SWAP mode whenever the remote signal is detected – this can therefore be used with a foot-switch to temporarily engage SWAP mode.

WING1 PB1 GO and WING1 PB1 FLASH are provided as an alternative to the current playback GO and FLASH. This allows, for example, a smoke machine to be set up on WING1 PB1 trigger by the remote input.

AUDIO BUMP allows the remote trigger to be used in the same way as when triggering from receiving audio. Any Cue Stack set with "Audio Bumps Go" set will bump one step every time the remote input is triggered.

TAP TO TIME changes the speed of the currently selected playback.

In Setup, View Status, Interfaces there is a counter of the number of times the remote input has been switched since the system was started. This enables MagicQ to be used to count the number of times an event has occurred – e.g. customers pressing a button or starting a presentation sequence.

10Scene

The ChamSys 10Scene ecosystem includes Wall Plates, Gateways, Contact Trigger devices and Touch Panel Wall Controllers (TouchScene). 10Scene is used to describe the ecosystem that these devices fall under.

MagicQ supports 10Scene Wall Plates, 10Scene Gateways, 10Scene Contacts and TouchScenes, enabling up to 50 different zones of 10Scene operation and trigger inputs.

10Scene supports ten scenes (MagicQ Cues) programmed onto 10 buttons which can be activated and released by pressing the buttons. In addition the level of the programmed Cue can be decreased and increased by pressing and holding the buttons for 1 second or more.

10Scenes can operate in a simple mode with minimal configuration, or in an extended mode with manual configuration per Zone.

10Scene Wall Plates and 10Scene Contacts are connected to MagicQ via one or more 10Scene Gateways, via 10Scene ports on GeNetix GN5/GN10 or via the 10Scene ports on MagicQ Rack, MagicQ DIN and MagicQ MQ250M.

MagicQ includes a demo show ZoneDemo.shw for training. After loading the show you should set the 10Scene action setting as this is a console setting and will not be set when loading the show.

Note 10Scene Devices do not provide any unlocking to MagicQ PC Systems, which is required to use 10Scene on PC systems.

10Scene Ports

Each 10Scene port supports up to ten 10Scene Wall Plates or 10Scene Contacts and a single remote input trigger. It is possible to use the 10Scene Wall Plates, the 10Scene Contact and the remote input trigger simultaneously.

Up to ten 10Scene devices are supported per 10Scene port - this can include a mixture of 10Scene Wall Plates and 10Scene Contacts.

The 10Scene ports have the following pin out, left to right looking from the front:

Pin 1	12V
Pin 2	Trigger input (accepts 0 to 5V or close contact)
Pin 3	10Scene protocol
Pin 4	10Scene protocol -
Pin 5	Ground (0V)

To connect to 10Scene Wall Plates or 10Scene Contacts, pins 1,3,4 and 5 must be connected.

To use the trigger input connect with a switch connect it between pins 2 and 5.

10Scene Gateways

10Scene Gateways are ChamNet enabled devices that are managed through the View ChamNet in Setup, Net Manager. The IP address and subnet mask of the Gateways can be configured, and new firmware can be uploaded to them.

The ID of the Gateway can also be configured - this is different to other ChamNet devices such as the SnakeSys B4 where the ID is set by rotary switches on the device. Each Gateway and SnakeSys device in a system should be set to a different ChamNet ID.

Each 10Scene Gateway has two 10Scene ports.

10Scene Wall Plates

10Scene Wall Plates have the following pin out when looking into the connector.

Pin 1	12V
Pin 2	12V
Pin 3	10Scene protocol
Pin 4	10Scene protocol -
Pin 5	
Pin 6	Ground (0V)
Pin 7	Ground (0V)

It is only necessary to connect to pins 1,3,4 and 7. Pin 2 is connected internally to Pin 1. Pin 6 is connected internally to Pin 7.

Each 10Scene Wall Plate when manufactured has an ID which is used to link it to a specific Zone. If there is only one Zone in use then Zone IDs are not used.

Programming 10Scene Wall Plate IDs

The ID is factory assigned in the range 32768 to 61439. Users can change the ID to anything in the range 1 to 10000. All other IDs are reserved.

To change the ID the 10Scene Wall Plate must be connected to a MagicQ system with a 10Scene port or to a 10Scene Gateway support. In Setup, View Settings, Ports set 10Scene to Inbuilt if using a direct port, or Inbuilt and Gateway if using a 10Scene Gateway.

In MagicQ 10Scene Wall Plates are managed through the Macro Window, View Autom, View 10Scene. A list of detected 10Scene Wall Plates are shown, together with their current ID and firmware.

To identify a 10Scene Wall Plate move the cursor to the required row and press ENTER on

column 1. This will turn all the buttons on the 10Scene to red. Press ENTER again to stop identifying, or press ENTER on another 10Scene to identify that 10SCene instead.

To check the IDs of individual Wall Plates press the PROG 10SCENE soft button. This puts all the 10Scene Wall Plates into a mode whereby they display their ID as a sequence of digits. The sequence starts with all buttons blue and then lights each LED in turn for each digit. Buttons 1 to 9 represent the digits 1 to 9 and 10 represents 0. Press PROG SCENE again to exit this mode back to normal.

To change the ID of the 10Scene, then it is necessary to first reset it back to its factory ID if it has been changed before. Press PROG 10SCENE to enter the programming mode, and then press the RESET ID button and confirm yes. The 10Scene should now change to display its factory ID.

Alternatively press PROG 10Scene and on the 10Scene Wall Plate that you wish to reset to factory, press and hold buttons 2,4,7 and 9. The 10Scene Wall Plate will then return to factory ID and will display the factory ID.

If you wish to reset all connected 10Scene Wall Plates then press SHIFT and RESET ALL IDS instead, and all 10Scene Wall Plates will be reset and then display their original factory IDs.

To program an individual 10Scene go into PROG 10SCENE mode and on the 10Scene Wall Plate press and hold buttons 1,5,6 and 10. The 10Scene Wall Plate should change to all buttons blue. Now enter the required new ID using the buttons on the 10Scene Wall Plate. You can enter up to 5 digits. It is not necessary to enter leading 0s - for example to program the 10Scene Wall Plate to ID 1 simply press 1, to program to ID 23 press 2 and then 3. After two seconds the 10Scene will reprogram its ID and if successful display the new ID.

If an invalid ID is entered or no buttons are pressed within 20 seconds then all LEDs briefly show red to indicate an error and then return to displaying the current ID.

When in programming mode any 10Scene Wall Plate that is at its original factory ID can be programmed to a new ID - it is not necessary to enter and exit the programming mode. Note however, that if an ID is incorrectly set then it must be first reset to factory before changing to the correct ID.

When all programming is complete then exit programming mode by pressing PROG 10SCENE again.

10Scene Enable

To enable 10Scene Wall Plates set the 10Scene enable in Setup, View Settings, Ports to Inbuilt and Gateway or Inbuilt, Gateway, Remote.

When set to disabled, there is no communication with 10Scenes Wall Plates and remotes. 10Scene zones can still be used internally through automations and macros if the 10Scene action or 10Scene zones are configured.

10Scene Action

The 10Scene action is configured in Setup, View Settings, Ports, 10Scene action.

PB1 to 10	All 10Scenes control PB1 to PB10
Exec 1	All 10Scenes control Exec Grid 1, items 1 to 10
Exec 1 Multi	10Scenes with Zone IDs 1 to 10 control Exec Grid 1, Zone ID1 controls item 1 to 10, Zone ID2 controls 11 to 20, etc...
Exec 1 Groups	10Scenes control Exec Grid 1, items 1 to 10, but using Groups named with the Zone ID to determine which heads they control.
Exec Grids	10Scenes control Exec Grids - Zone ID 1 controls Exec Grid 1, Zone ID2 controls Exec Grid 2, etc...
Custom	The action for each zone is configured separately using the Type, P1 and P2 fields in Macro, View Zone

The state of the Zones is shown in Macro, View Zone. The Zone Type field in this window should be set to "Action" for all Zones, except when using Custom action.

PB1 to 10

All 10Scene Wall Plates control PB1 to PB10. Pressing a 10Scene button activates the Playback at 100%. Pressing again releases the Playback.

The 10Scene ID is not used. Regardless of their ID, all 10Scene Wall Plates control the 10 playbacks or the first 10 items on Exec Grid 1 respectively. The IDs can remain at factory settings.

Exec 1

All 10Scene Wall Plates control items 1 to 10 in Exec Grid 1. Pressing and releasing a 10Scene button has the same effect as pressing and releasing in the Execute Window. Items in the Execute window can be set to toggle (normal) or to flash.

The 10Scene ID is not used. Regardless of their ID, all 10Scene Wall Plates control the 10 playbacks or the first 10 items on Exec Grid 1 respectively. The IDs can remain at factory settings.

Exec 1 Multi

All 10Scene Wall Plates control Exec Grid 1 with the Zone ID determining which items are controlled. Zone ID1 controls item 1 to 10, Zone ID2 controls 11 to 20, etc...

By default the ID of the 10Scene Wall Plates maps directly to the Zone ID with ID1 to ID50

being supported - Wall Plate ID1 corresponds to Zone 1, Wall Plate ID2 corresponds to Zone 2. The mapping of IDs can be modified by configuring the Min and Max fields in the Zone data.

ID 10000 is also supported to control all zones. A Wall Plate with this ID will show a button active if that button is active on any of the Zones 1 to 10 and there is a 10Scene Wall Plate detected for that Zone or a Group set up for that Zone.. When a button is pressed on that Wall Plate, if that button is active on any of Zones 1 to 10 then it will deactivate all items for that button, otherwise it will activate all items for that button. For example, pressing button 2, when Exec Grid item 12 is active will cause Exec Grid items 2,12,22,32,42,52,62,72,82,92 all to be released.

Exec 1 Groups

MagicQ handles activation of the Cues in the Exec Grid 1 based on Groups. MagicQ handles converting the Cues to only affect the heads in the specific group for the zone. Cues are expanded to include all the heads in the Group to make it simple to program and to make the system expandable without having to reprogram Cues.

Groups must be created for each zone with the Group names containing the word "Zone" followed by the zone ID - for example "Zone 1", "Zone2". Capitalisation does not matter. There can be further data after the Zone data such as "Zone 1 Room 21" - this is useful for the 10Scene app which displays Zone names.

It is important to ensure that there is only one Group with each Zone ID - if you have multiple Groups e.g. two Groups named "Zone 1" then it will use the Group with the highest group ID.

By default the ID of the 10Scene Wall Plates maps directly to the Zone ID - with ID1 to ID50 being supported - Wall Plate ID1 corresponds to Zone 1, Wall Plate ID2 corresponds to Zone 2. The mapping of IDs can be modified by configuring the Min and Max fields in the Zone data.

ID 10000 is also supported to control all zones. A Wall Plate with this ID will show a button active if that button is active on any of the Zones 1 to 50 and there is a 10Scene Wall Plate detected for that Zone or a Group set up for that Zone.. When a button is pressed on that Wall Plate, if that button is active on any of Zones 1 to 50 then it will deactivate all items for that button, otherwise it will activate all items for that button. For example, pressing button 2, will cause Exec Grid item 2 to be activate and released for all Zones.

In this mode Exec Grid 1 in the Execute Window will not show active, as there are multiple different copies of the Exec Grid 1 in action, one for each Zone (Group). It is possible to see the state for a particular zone in Macro, View Zones. In this mode activating items 1 to 10 in Execute Grid 1 by pressing in the Window or using macros/automs will activate the original Cue containing all its heads, independently of the activation of the separate zone copies - therefore you may end up with both the original Exec Grid 1 item and the copy active at the same time.

Note that MagicQ makes converts from the original Cue to the Group using an intelligent copy. The original Cue does not need to contain the Heads from the new Group - MagicQ will try to copy from any attributes from other heads in the original Cue. This is beneficial when each Zone has different fixture types.

When using multiple different fixture types, it is recommend to program all required attributes into the original Cue for each head type rather than relying on default attributes - e.g. start programming with LOCATE. This prevents MagicQ copying attributes that are not in the original Cue from other fixtures that are in the original Cue.

Exec Grids

The 10Scene Wall Plates work in zones with each Zone controlling items 1 to 10 of an Execute Grid. Zone 1 controls Grid 1, Zone 2 controls Grid 2.

By default the ID of the 10Scene Wall Plates maps directly to the Zone ID - with ID1 to ID50 being supported - Wall Plate ID1 corresponds to Zone 1, Wall Plate ID2 corresponds to Zone 2. The mapping of IDs can be modified by configuring the Min and Max fields in the Zone data.

ID 10000 is also supported to control all zones. A Wall Plate with this ID will show a button active if that button is active on any of the Zones 1 to 50 and there is a 10Scene Wall Plate detected for that Zone or a Group set up for that Zone. When a button is pressed on that Wall Plate, if that button is active on any of Zones 1 to 50 then it will deactivate all items for that button, otherwise it will activate all items for that button. For example, pressing button 2, will cause item 2 to be activate and released for all Execute Grids 1 to 50.

Custom

When 10Scene action is set to Custom the function of the Zone is determined by the Type field.

When set to Playback, the Zone will control 10 playbacks starting from the playback specified by P1.

When set to Exec Grid, the Zone will control items 1 to 10 of the Exec Grid with Grid ID set by P1.

When set to Action the Zone will not control anything.

Manual Zone Configuration

Zone Mode

The Zone Status controls how the zone is configured. When set to Auto the Zone is entirely controlled in accordance with the action specified in the 10Scene Action option in Setup, View, Settings, Ports. No Zone specific data can be configured.

When set to Manual the Zone is configured with the data specified for that Zone including the Zone Name, Zone Status, Zone Type, Min ID, Max ID, Password, Passcode, Zone Switch, Join Zone and Join Status.

Zone Status

A Zone can be temporarily enabled and disabled. When disabled the buttons on all 10Scenes

for that Zone will be deactivated and macro and automation commands for that Zone will have no effect.

When the Zone Status is set to Auto the Zone is always enabled.

Zone Name

Each Zone can have a name that will be displayed internally and on the remote app.

If a Zone Name is not set then when the Zone Action is Exec 1 Groups or Exec 1 Multi, then if there is a Group named starting with "Zone" then this will be used as the Zone name - e.g. "Zone 2 Rm 5" would be used for name Zone 2.

10Scene ID Min and Max

Each Zone can be controlled by a range of 10Scene Wall Plates with different 10Scene IDs - enter a minimum and a maximum range for the 10SCene ID. The minimum must be set to at least 1 to operate.

If no minimum or maximum is specified then the Zone will be controlled by the 10Scene Wall Plate with ID set to the Zone ID - e.g. 10Scene ID2 will control Zone 2.

When minimum and maximum ranges are in use it is not necessary to match the 10Scene Wall Plate ID to the Zone ID - any 10Scene Wall Plate IDs in the range 1 to 9999 can be used.

Passwords

The password is used on the remote app to access the zone.

In manual mode a password can be assigned to each Zone.

In the other modes, the zones take a password from any users with passwords set up on the system (in Setup, View System, Users) and these passwords can be used on any zones.

In all modes, users that have a user set on the console with password authorisation can also use their master password to access any zone.

Users that have a user set on the console of level Programmer with password authorisation (Setup, View System, Users) can use this password to the "All Zones" zone to control all zones simultaneously.

From v1.9.2.2 MagicQ was enhanced to provide locking of show files via console user passwords - version 1.5 of the 10Scene app is required to enable automatic QR code logon to the Zones.

Passcodes

In manual mode a passcode can be assigned to a Zone. When a passcode is assigned then the 10Scene Wall Plates in that zone will have all buttons off until the passcode is entered. Once

the passcode is entered for a zone, then the 10Scene Wall Plates in that zone all show the zone state and button presses are accepted to change the state. After 20 seconds of inactivity the Zone is locked again and all 10Scene Wall Plates revert to off.

In some cases it may be desirable to have some 10Scene Wall Plates in a controlled zone with passcode and others without. The 10Scenes should then be split into 2 different zones, one with a passcode, the other without, and the Zones set to control the same items - e.g. the same Execute Grid and Group.

Passcodes are not available in the simple modes.

Joining Zones

When 10Scene action is set to Exec 1 Groups, Exec 1 Multiple, Exec Grids or when zones are configured individually to control an Execute grid using a group then it is possible to join zones together. When two or more zones are joined together they operate as one zone. All Cues are expanded to include all heads of the group from each zone that is joined together.

In manual mode any zone can be joined to any other by setting the required zone to join in the Join Zone field and setting the Zone Switch to Joined.

When using Exec 1 Groups a zone can only be joined to the previous zone - i.e. Zone 2 can be joined to Zone 1, Zone 3 can be joined to Zone 2. The Zone Switch field is used to Join this zone.

In manual mode the joining of zones can be temporarily enabled and disabled for each zone.

The Zone Switch can also be operated from an automation, enabling automatic operation from a remote input. In Macro, View Autom insert an automation of Type Remote, and with Function set to Zone Switch.

When joining and separating zones the Execute state from the joined/separated from zone is maintained and expanded to the newly joined or newly separated zone.

The joining and separation of zones will only affect the zones that are part of the join/separate. All other zones will continue to operate without interruption, even if they themselves are made of several zones joined.

The Zone Switch can also be added to the Execute windows - ASSIGN SPECIAL, select 10SCENE ZONE and enter the Zone ID. The Zone Switch item in the Execute window shows active when the Zone Switch for that zone is set to joined. The text of the item indicates which Zone it is joined to. Pressing the item will change the state of the Zone Switch.

10Scene Remote Triggers

MagicQ supports the 10Scene remote triggers from the 10Scene gateways in the Autom window. Add a new Autom with type Remote and set the ChamNet ID of the Gateway in P1 and the remote trigger number (1 or 2) in P2.

10Scene Remote App

MagicQ includes a 10Scene remote app for use on Android, iOS, Windows and macOS that provides a simple to use 10Scene interface designed for install and use by non-technical people without needing any knowledge of lighting or MagicQ.

The app connects to either the inbuilt WIFI of the consoles or to an external router.

The app shows the available 10Scene Zones and enables. Where required, Zones can be passworded, requiring the user to enter a password before having access to view or control the Zone. Master passwords can be set so that authorised users can have access to all zones.

On MagicQ passwords can be set on specific zones in the Macro Window, View Zone. Master passwords for all zones can be set by adding users in Setup, View System, Users and setting a user password. The user can be any level - it is assumed that anyone who can access the console as an operator should also be allowed to operate the 10Scene app. For example, specific passwords can be set for each Zone and given out to customers, whilst a user level password could be used for venue managers.

For a Zone, the app shows the ten 10Scene buttons with their name and current state. When the Exec 1 Groups and Exec 1 Multi actions are in operation, then Zone names are taken from the zone data in the Macro Window, View Zones. If names are not set, then it will take names from the Group Names - e.g. if a Group is named "Zone 2 Rm 5" then this will be shown on the App. In Exec 1 Multi, Zone Groups are only used for the naming, not for the execution of the Cues.

Testing an Installation

In Macro, View Zone the rightmost columns Named B1 to B10 show the ten 10Scene buttons for each Zone together with names. The buttons can be tested from this view by clicking or pressing ENTER on the button - this causes the Execute item for the 10Scene button to be activated or released.

It is also possible to trigger 10Scene buttons from Cue Stack macros using the T0 command or from ChamSys Remote protocol using the X command. The button press and button release can be triggered just like on a 10Scene wall plate, or the Execute item for the 10Scene button can be activated / released.

10Scene Contact

The 10Scene Contact connects to a 10Scene port in the same way as the 10Scene Wall Plate, but providing ten dry relay contacts.

MagicQ will detect the 10Scene Contact similar to a 10Scene Wall Plate when Setup, Ports, 10Scene is to anything other than "None".

10Scene Contacts can be managed in the Macro Window, in VIEW AUTOM, View 10SCENE in a similar way to 10Scene Wall Plates. The ID of the 10Scene Contact is set in the same way as the 10Scene Wall Plate using the ten test buttons.

The 10Scene Contact can be used in two ways - either as a replacement for the 10Scene Wall Plate with custom push buttons using all the standard 10Scene actions, or as a ten input Remote input for use in MagicQ Automations.

10Scene Contact as replacement 10Scene Wall Plate

When used as a replacement for a 10Scene Wall Plate, set the Setup option "10Scene Contact as 10Scene" option to "Yes".

If this option is set to "No" then the 10Scene Contact can only be used in Automations. The Automations can be used regardless of this setting.

Wire your custom buttons to the dry contacts. Then proceed to program the system as per a 10Scene Wall Plate.

10Scene Contact as Remote Triggers

To use the dry relay contacts as remote triggers, in the MagicQ Automation insert Remote Automations.

P2 should be set to the ID of the 10Scene Contact. P3 is 1 to 10 for the ten inputs.

TouchScene

TouchScenes are connected to MagicQ systems via Network. TouchScenes are PoE powered, requiring a PoE injector or PoE switch. We recommend the use of the GeNetix GS8 or GS5D to power TouchScenes.

Much like 10Scene Wall Plates, TouchScenes can control individual '10Scene Zones'

TouchScenes can be individually configured per zone.

To enable use of TouchScenes these must first be enabled under: Setup, View Settings, Ports, 10Scene+TouchScene. The TouchScene Option must be enabled.

TouchScene Zones will follow the '10Scene Action' setting within the Setup, View Settings, Ports window. For example when these is set to the 'Exec 1 Multi' option, each Zone controls a row within the Execute window Page 1.

The IP address and Zone are configured and selected on the TouchScene itself. See the GeNetix manual for configuration of the device.

The Appearance, Pin Code, Background Image and other interface settings for TouchScenes are driven via MagicQ. This is configured under Macro, View Zone, View TouchScene



TouchScene Screen Resolution

The TouchScene (8") device has a native screen resolution of 1280 x 800 and the TouchScene Mini (4") has a native screen resolution of 480 x 480. When creating custom screen save images, these resolutions should be used.

Scene Setter



The MagicQ Scene Setter enables control of MagicQ from a remote location using a fixed network connection. The Scene Setter has 4 playback faders and 12 playback buttons, and can be mapped to the wing playbacks on a MagicQ system. An LCD screen shows the legends for the playbacks.

The Scene Setter can be powered from the SnakeSys R4 which features a 3 port POE Switch, thus avoiding the need to run separate power cables. The scene setter can also be powered from any 48v PoE capable network switch that provides power on the unused Cat 5 pairs. If not used with a PoE switch, a Power over Ethernet injector will be required to power the unit.

Multiple Scene Setters can be used in a system - each with a separate ID, allowing each to control 4 different playbacks on the MagicQ system.

On MagicQ PC/Mac the system needs a MagicQ Wing or Interface, Rack Mount Dongle or SnakeSys network device connected to enable the Scene Setter functions.

Powering the Scene Setter

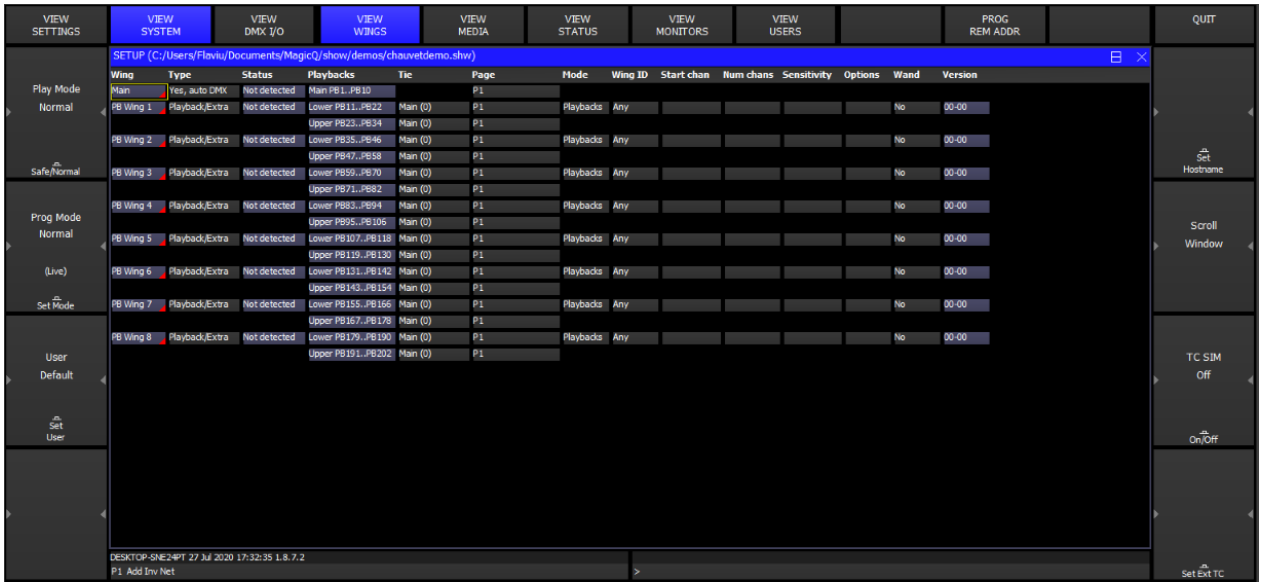
The Scene Setter can be powered from the SnakeSys R4 which features a 3 port POE Switch, thus avoiding the need to run separate power cables. The Scene Setter can also be powered from any 48v PoE capable network switch that provides power on the unused Cat 5 pairs. If not used with a PoE switch, a Power over Ethernet injector will be required to power the unit.

POE is required on the unused data pairs (4,5 DC+ and 7,8 DC-). Any suitable power injector that supplies 48V at up to 1Amp on the unused pairs is acceptable. Note that you need to check the specification of your network switch or power injector as many common brand names only supply power on the used pairs, not the unused pairs.

The Scene Setters can be used with MagicQ consoles and also MagicQ PC systems. The Scene Setters are only supported on MagicQ PC systems when connected to a MagicQ USB device (not a MagicDMX interface), Rack mount dongle or SnakeSys network device.

The Scene Setters fit into a 6/8 Gang back box.

Configuration



To enable the Scene Setter in MagicQ software, set one of the Wings in Setup, View System, Wings to "Remote Panels".

A "D" in the Status Window shows that the panel is detected. It will then control four Playbacks on that Wing. Playbacks can be programmed on MagicQ from the Playback Window.

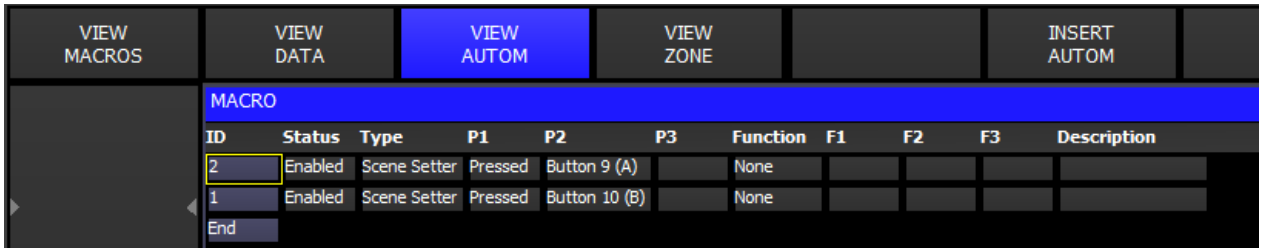
MagicQ Scene setters come with an IP address in the 2.9.200.XX range, note your MagicQ Console or MagicQ PC must be set to have an IP address in this range, with a subnet mask of 255.0.0.0.

Using the Scene Setter

The four playbacks control the playbacks just as if they were fader and buttons on a MagicQ Playback Wing. The top buttons are the S buttons, the next ones down the GO buttons, then the BACK buttons and the bottom buttons are FLASH buttons.

Alternatively the buttons can be assigned to Scene Setter autom events. When a button is assigned to one or more Autom events then the normal function of the button (e.g. S, Go, Back, Flash) is overridden. The button assignment affects all scene setters in the system.

Added support for Autom event to toggle Cue / Cue Stack on/off - this is useful when using Scene Setter buttons.



Changing the IP Address

The Scene Setters come set with an IP address in the 2.X.X.X network range. This can be found using the Digi utility program.

To change the IP settings of the Scene Setter, you must first connect to the Utility for changing the IP address and that can be found on the URL provided below: www.digi.com

For Windows 7:

http://ftp1.digi.com/support/utilities/40002319_p.exe

When you have connected your Scene Setter to your the PC and the Digi Utility has loaded up, it will automatically look for the Scene Setter over your network. Once set up you can change the IP Address.

Advanced Scene Setter Configuration

The Scene setter can be remotely configured using a web browser.

Type the IP Address of the device into a web browser. You should see a login box. The username and password are as below.

Login: root Password: dbps

Once you are logged in then you can configure all the settings of the network module in the Scene Setter. Note that if you change the IP address of the Scene Setter then it will be necessary to use the new address in your browser address bar.

Setting up the Serial Port

The serial port on the scene setter is set up at ChamSys so it should not be necessary to change these settings. If the configuration is lost for any reason then from the web browser connected to the Scene Setter:

- Change Profile
- UDP Sockets
- Enable UDP port using port 6554.
- Then set it to "Automatically Send Data" on to 2.255.255.255 port 6554.
- Send when data is present on the line and match "mahC".
- Untick "Send after following number of idle milliseconds"

Then Apply these settings.

Also set the Basic Serial Port settings to 9600, 8 bits, 1 stop bit, no parity, and no flow control.

Open Sound Control (OSC)

MagicQ supports sending and receiving of Open Sound Control (OSC) messages.

OSC is a network protocol commonly used to send messages between audio visual programs, such as show control, sound effect and tablet applications. The protocol is free to implement which makes it increasingly popular; the specification can be found at http://opensoundcontrol.org/introduction-osc

OSC is supported on MagicQ consoles (except MQ40 and MQ40N) and PCs when fully unlocked (Unlocked Mode).

MagicQ can interact with OSC in the following ways:

- Receive messages controlling the first 10 playbacks
- Receive messages controlling buttons, faders and encoders in the Execute Window
- Convert messages to ChamSys Remote Ethernet Protocol commands and midi messages
- Respond to message by using the Autom Window
- Send messages using the macro field of cue stacks
- Patch a special OSC head that sends messages when the value of the channel changes

An OSC message consists of two parts:

- **Address**: a forward slash followed by the name of the message. Can be separated by slashes, similar to file paths. e.g. `/myosc/method/address` or `/triggercue`
- **Arguments**: zero or more values, each with a specific type. Common types are:
  - *integer*
  - *float*: number with a decimal place
  - *string*: line of text
  - *midi*: MIDI message

Setup

To enable OSC on MagicQ you need to set the mode, and the transmit and/or receive port numbers in Setup, View Settings, Network.

Setting a port to 0 disables transmitting/receiving of OSC.

Optionally, a transmit IP address can be specified or set to 0.0.0.0 to broadcast to all computers on the lighting network. Note that if you wish to transmit on the control net then you must set a transmit IP address which is on the control net.

MagicQ automatically receives OSC on the main lighting network. MagicQ will receive OSC on the control net when the control net firewall is disabled.



Port number needs to be higher than 1024 on most systems. A good default is 9000 transmit and 8000 receive.

Receiving Messages

MagicQ OSC Addresses

The following table lists the built-in OSC messages that MagicQ will respond to. Only the first 10 playbacks and first 10 execute grids can be controlled with the built-in addresses.

You can use the AUTOM window to extend control to other parts of the MagicQ system.

Table 9. OSC Addresses

Address	**Arguments**	**Behaviour**
/pb/<*playback*>	float between 0.0 and 1.0 *or* int between 0 and 100	Set playback fader level
/pb/<*playback*>/go	(optional) non-zero value	Go on playback
/pb/<*playback*>/flash	0 sets to 0% non-zero sets to 100%	Set playback level to 100%
/pb/<*playback*>/pause	(optional) non-zero value	Pause playback
/pb/<*playback*>/release	(optional) non-zero value	Release playback
/pb/<*playback*>/<*cue*>	(optional) non-zero value	Jump to cue
/dbo	0 turns on non-zero turns off	Blackout
/swap	0 = add non-zero = swap	Set swap mode

Address	Arguments	Behaviour
/exec/<page>/<item> /exec/<item>	(optional) one of following *no arguments* = activate button/fader *0* = release button/fader; lower encoder *1* = activate button/fader; raise encoder *float between 0.0 and 1.0* = set fader level *int between 0 and 100* = set fader level	Control button, fader or encoder in execute window
/10Scene/<item>/<zone> /10Scene/<item>	(optional) one of following *no arguments* = activate button *0* = release button *1* = activate button	Control 10Scene buttons
/10Scene/<item>/<zone>/toggle /10Scene/<item>/toggle		Toggle 10Scene buttons
/rpc	string with commands	Send remote Ethernet command
/rpc/<commands>	None	
/midi	MIDI bytes	Send MIDI message - processed as if received from MagicQ or USB MIDI device (timecode messages are ignored)
/feedback/off	None	Turns feedback off
/feedback/pb /feedback/exec /feedback/pb+exec	None	Turns feedback on and transmits state of playbacks and executes (see TouchOSC)

If unspecified, as an argument either a float or an int is accepted.

<*playback*> := number between 1 and 10

<*cue*> := number with optional decimal, e.g. 2.5

<*page*> := number between 1 and 10 for execute grid, or name of execute grid

<*item*> := number of box in execute grid, or grid reference e.g. 4x3 for row 4 col 4, or name of execute item

To test the receipt of OSC messages from the keyboard type testosc followed by the command - for example to GO on Playback 1:

testosc /pb/1/go

Only one argument is allowed and must be preceded by a comma - for example to set the level of Playback 1 to 100% enter

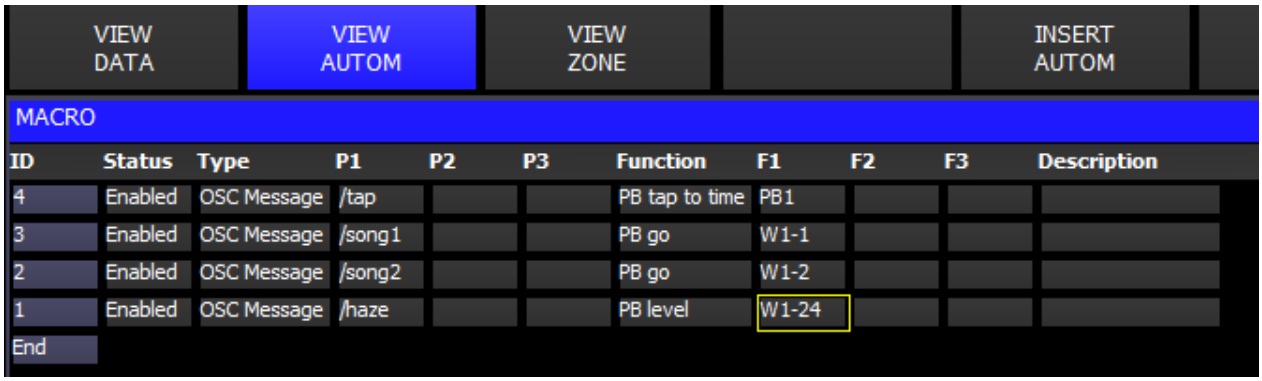
testosc /pb/1,100

This is supported on MagicQ consoles and on MagicQ PC systems unlocked with a MagicQ Wing or Interface.

Automation

MagicQ can respond to user-defined OSC messages by adding rows to the MACRO - VIEW AUTOM window. After setting the type to *OSC Message*, set the OSC address in the *P1* column.

Depending on the trigger type, an argument may be expected, e.g to set a fader level. This can either be an integer between 0 and 100 or float between 0.0 and 1.0.





When using custom OSC messages within the Automation window there is a 15 character limit on the defined command.

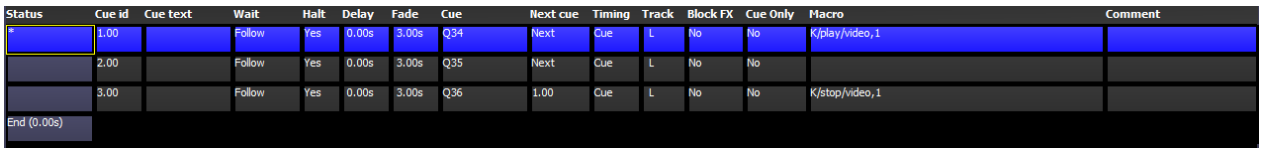
Sending Messages

Cue Stack Macros

OSC messages can be sent by using the macro field of a cues inside the Cue Stack window.

OSC addresses should be entered into the macro field, preceded by the letter K and must be the last macro command in a macro.

The address can be followed by an optional comma separated list of arguments.



Status	Cue id	Cue text	Wait	Halt	Delay	Fade	Cue	Next cue	Timing	Track	Block FX	Cue Only	Macro	Comment
*	1.00		Follow	Yes	0.00s	3.00s	Q34	Next	Cue	L	No	No	K/play/video,1	
	2.00		Follow	Yes	0.00s	3.00s	Q35	Next	Cue	L	No	No		
	3.00		Follow	Yes	0.00s	3.00s	Q36	1.00	Cue	L	No	No	K/stop/video,1	
End (0.00s)														



Specifying commas and backslashes in string arguments should be escaped with a backslash, e.g. \,, and \\.

Patching OSC Heads

A generic 1-channel personality can be patched that will send OSC messages whenever the value of the channel changes. This personality can be found in the CHOOSE HEAD window under *Generic - mqosc*. You can choose between three modes depending on the type of argument you want sent in the OSC message.

The channel value can be set using encoder Y in the INTENSITY window.

You will need to change the name of the head to the address of the OSC message, followed by an optional comma separated list of arguments that will be added before the value being transmitted (see Cue stack macros above).

TouchOSC

TouchOSC is a free iOS and Android application that can be used to create custom layouts of buttons, faders and encoders, and attach these controls to OSC messages.

There is an example TouchOSC file and show file in the MagicQ show folder called *magicqdemo.touchosc* and *MQTouchOSCDemo.shw*. You can load the TouchOSC file onto the app and edit the layout with the editor tool provided at http://hexler.net/software/touchosc#downloads

In the demo, the *Load vals* button sends a */feedback/pb+exec* message which transmits the current state of playbacks and execute controls to the TouchOSC app. This also enables automatic sending of any changes to playbacks and executes to keep the TouchOSC controls in sync with MagicQ.

The *Load vals* button can be used to reload the state of MagicQ if the app gets closed or after network loss.

Troubleshooting

Transmit or Receive Not Working

Make sure transmit and receive ports are set opposite to the device you are communicating

with.

If there are multiple networks cards on the PC, make sure the IP address in MagicQ setup is set to the IP address of the interface you want OSC to transmit on.

Make sure the OSC address starts with a forward slash.

Make sure the address does not contain any characters that are disallowed in the OSC specification.

If specifying arguments after the address in a cue stack macro or patched head, ensure the address is followed by a comma, and that there are no unusual characters. Backslashes in string arguments can also cause issues, only use a double backslash `\\` or to escape a comma `\,`

Ensure MagicQ is unlocked.

Check transmit and receive port numbers are set to values larger than 1024.

Check for any firewalls (e.g. Windows firewall) that may stop messages from being received.

Messages Getting Lost

Be careful not to flood the network with large amounts of OSC traffic, particularly if using OSC heads.

Large amount of broadcast Art-Net universes may case delayed or lost OSC messages.

Notes

MagicQ only supports OSC over UDP. Receiving OSC bundles is supported, although MagicQ does not currently transmit bundles.

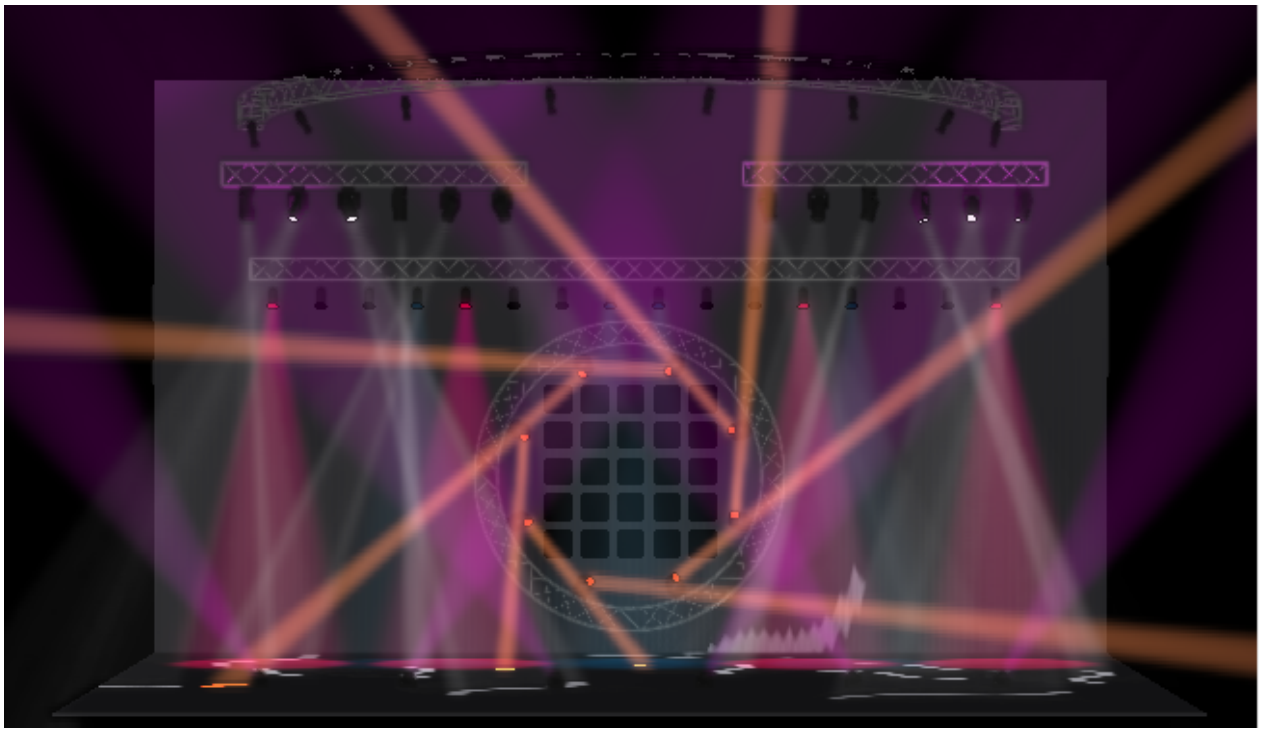
OSC patched head names are restricted to 15 characters.

In the Execute Window, select an item, type `//` and press ENTER to display the OSC address that is associated with the button. This is also the address that gets sent when feedback is enabled.

MagicQ Visualiser

MagicVis

MagicQ includes a visualiser called MagicVis available for Windows, Mac and Linux.



MagicVis is available in two versions:

- A standalone application called MagicVis that can connect to a MagicQ console or receive Art-Net or sACN data from other brands of console over a network.
- Part of the MagicQ PC application. This allows the editing and visualisation of a show on one PC.

The MagicVis application enables Lighting Designers to add visualisation to their MagicQ console simply by connecting a network cable and starting the MagicVis application. The graphics and processor intensive visualisation is performed on the attached computer, thus ensuring that the MagicQ console continues to run at full performance.

In order to render the beams MagicVis uses the graphics card in your PC / Mac - the better the performance of your graphics card then the better performance of the visualiser. PCs and Macs with shared graphics memory will perform slowly and will only be able to render small lighting rigs. A Nvidia or ATI/Radeon graphics card costing £100/£120€/160$ will make all the difference to your system.

Using the Separate MagicVis Application

The separate MagicVis application can connect to a console or a separate PC running MagicQ software. The show will be automatically loaded from the console over the network.

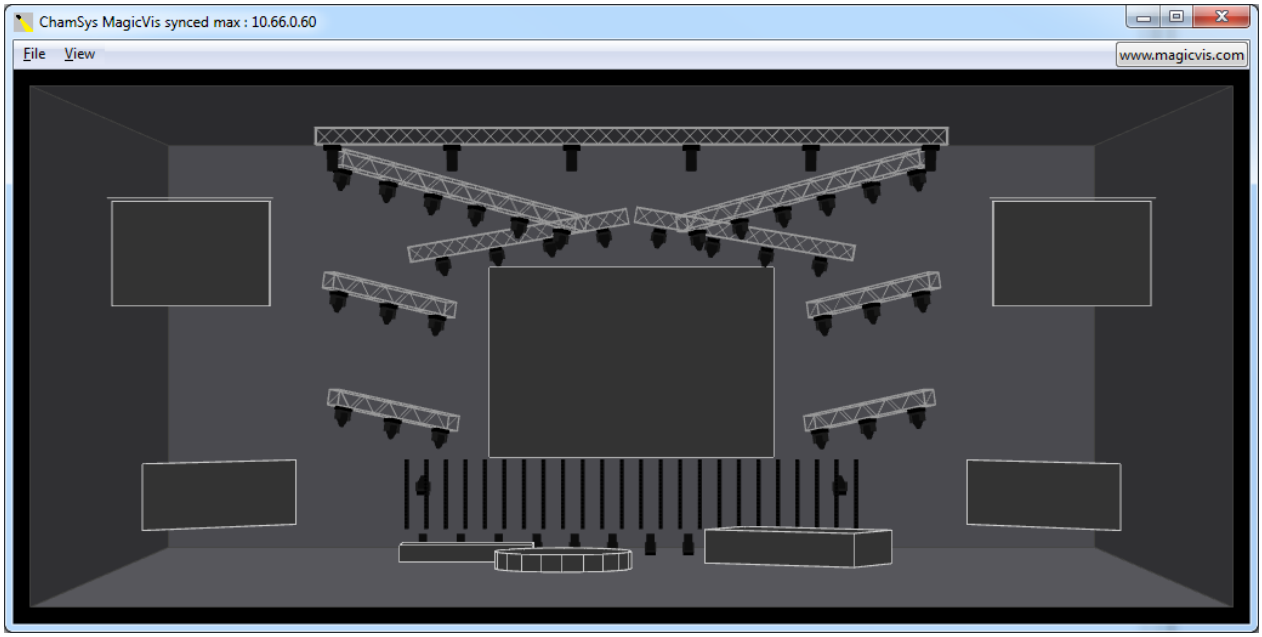
Configure the IP addresses of the both the console and the laptop to be within the same IP address range, e.g. set the console to IP address 2.0.0.1 netmask 255.0.0.0 and the laptop to 2.0.0.2 netmask 255.0.0.0. On the console

setup → VIEW SETTINGS → Multi Console

and ensure that **Enable Remote Control** and **Enable Remote Access** are set to **yes**.

Connect the console and the PC/Mac with a network cable, then start MagicVis. It should find the console automatically and connect. If the name of the console appears in red then make sure that **Enable Remote Control** and **Enable Remote Access** are set to **yes** on the console. If the IP address is red then it is on the wrong subnet.

If MagicVis fails to connect to the console click on 'File' → 'Settings...' to bring up the 'Settings' dialog. Click on the 'Network' tab then choose the network adaptor/IP address of the network port that connects to the MagicQ console. Then select the console from the list. If the console does not appear on the list then check the connecting cable.



Initially the title bar in MagicVis will show **searching for consoles**, then **trying to connect** once it has found a console. Once a connection has been made with the console then it will change to say **waiting sync**. Once the show data has been transferred over the connection from the console to the MagicQ vis application then it will change to say **synced**.

If the system continues to say **trying to connect** then check firewalls are disabled. In some systems you may need to disable other network adaptors such as the wireless adaptor. Windows often classifies lighting networks as 'public' networks and applies different firewall rules.

Once MagicVis is synced then whenever you load a new show on the console or change the visualiser patch then the changes will automatically appear in the visualiser.

When MagicVis starts it assumes that it will receive DMX data on Art-Net starting from Art-Net Universe 0-0. As soon as MagicVis has a connection with a console it then starts using the DMX protocols and universes in use on that console for each of the patched universes. If the

universes are not enabled on the console then the console will send the DMX data directly to the MagicVis using its own MagicVis protocol. This enables MagicVis to be used on a system where the outputs are not enabled.

Note that even when MagicVis is not synced it will visualise according to received Art-Net. Art-Net is sent separately to the connection for show data transfer.

Using MagicVis With Other Consoles

MagicVis can be used with third-party consoles other than MagicQ. The visualisation show must first be created in MagicQ and then loaded into MagicVis for use with the other console.

Load a MagicQ show file directly into MagicVis by clicking on 'File' → 'Load Show'. In this mode there is no sync, MagicVis just looks at the incoming Art-Net data for rendering the beams but does not sync the patch.



Once a show has been loaded using 'Load Show' MagicVis will not try to sync with a console.

Using the Visualiser in MagicQ

Run the MagicQ software then go to the 'Visualiser' menu in the menu bar and click on 'Show Visualiser'. The window can be sized and moved to the required position.



As the Visualiser is integrated with the MagicQ app it is not necessary to set up IP addresses or enable/configure universes.

Using MagicVis

MagicVis provides five views – Perspective, Top, Side, Front, and Free. The view can be changed either from the 'View' menu in the MagicVis window or in MagicQ in the 'Patch'

window, using Soft Button E.

The Top, Side, Front and Free views are orthographic projections and are wireframe views. The outline of the items in the room and the beams are shown. The Perspective view is fully shaded and the items are coloured and lit. If the camera is moved while in an orthographic view then the view automatically becomes Free.

You can rotate the camera around by pointing the mouse at the visualiser window, clicking and holding then moving the mouse around. Move the camera back and forth with the scroll wheel, or by pressing CTRL and right-clicking. Moving the camera back and forth has no effect in the orthographic views. Hold down SHIFT, click and move the mouse to translate the camera and hold SHIFT and move the scroll wheel to zoom in and out.

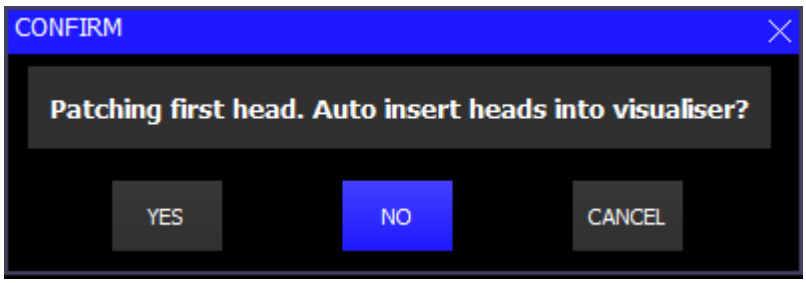
The lighting level of the room can be changed by clicking on 'View' → 'Dark'.



The demo show files have visualiser rooms set up. The 'ExhibitionDemo' file uses MagicVis extensively. Use these to see examples of how to create your own MagicVis visualisations.

Patching Heads in the Visualiser

When you patch the first head in your show, MagicQ will prompt you whether you wish to auto insert heads into the visualiser.



Once a head has been patched into your show MagicQ will not prompt you again. If you wish to change the setting then you can enable or disable auto insertion in

setup → VIEW SETTINGS → Mode → Visualiser.

When you patch heads in VIEW HEADS, MagicQ patches the head in the VIEW HEADS view but also generates a visualiser object in VIEW VIS.

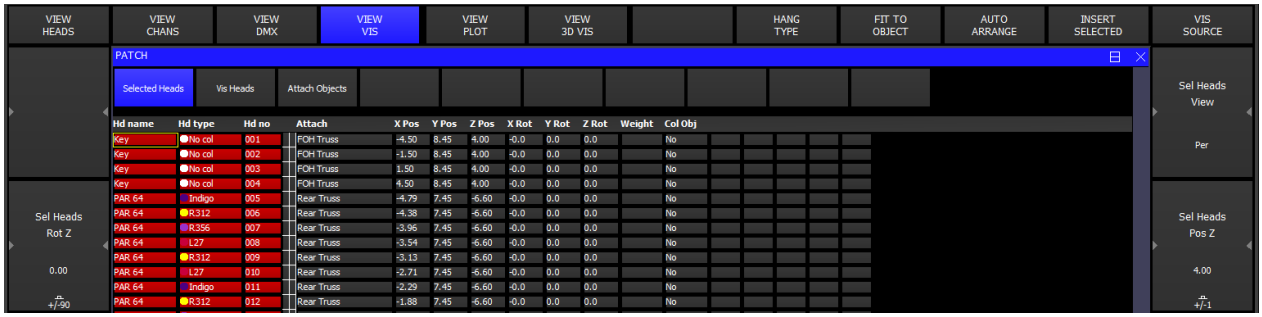
Visualiser heads are separate from MagicQ heads – for instance you can have multiple visualiser heads associated with one patched head. You might want to do this if you had two par cans on a single dimmer channel – you would have one Generic Dimmer patched in MagicQ and two visualiser heads.

By default when you patch heads MagicQ creates one visualiser head per MagicQ head. You can add extra visualiser objects for a head using INSERT.

View Vis View

Patch → VIEW VIS

The VIEW VIS view manages the data for the visualiser. There are several different tabs including Selected Heads, Vis Heads, and Attach Objects.



In 'Selected Heads', all the visualiser heads for the currently selected heads will be shown in the list. Heads are selected as usual using groups or direct from the keypad. In this view the encoders and soft buttons will apply changes to all the visualiser heads for the selected heads.

In Vis Heads, all the visualiser heads are shown. In this view the encoders and soft buttons will apply changes to the visualiser head under the cursor. Use SHIFT/CTRL and the cursor keys to apply changes to multiple heads.

In Attach Objects, all the other (non head) objects are shown in a list. In this view the encoders and soft buttons will apply changes to the object under the cursor. Use SHIFT/CTRL and the cursor keys to apply changes to multiple objects.

Positioning the Heads in the Visualisation

When you patch heads they automatically become selected so that in

Patch → VIEW VIS → Selected Heads

you will have direct control of the positioning and orientation of the head using the encoder wheels and soft buttons.

Encoders X, Y and F are used for X,Y and Z positioning.

Pressing the soft buttons X, Y and F increases the position by 1 metre on that axis. Pressing SHIFT + the soft button decreases the position by 1 metre on that axis.

Use fan to spread the position apart on the X,Y, or Z position wheels.

Encoders B, C and D are used for rotation. Pressing the soft buttons B, C and D rotates the heads by 90 degrees around that axis. Pressing SHIFT + the soft button rotates the heads by –90 degrees around that axis.

You can also enter values directly into the spreadsheet view of the VIEW VIS window.

You can change multiple values at a time by using SHIFT/CTRL and the cursor keys. Use THRU to enter a spread of values e.g. -5 THRU 5 to spread the X position between -5 and 5 metres.

Transform Modes

All items can be positioned and orientated using the encoders as described in the above section, "Positioning the Heads in the Visualisation". The behaviour of the encoders can be changed using the Transform Mode soft button.

There are four modes available: Original, World, Item, and Parent. The labels on the soft buttons will put W, I, or P to remind you what mode you are currently in.

Original: Changing an item’s position will move the item relative to the world axis. Changing rotation directly changes the Euler angle of the object, so that rotating on the y-axis will turn the object in the worlds y-axis, however rotating on the z-axis rotates an item about its own z-axis.

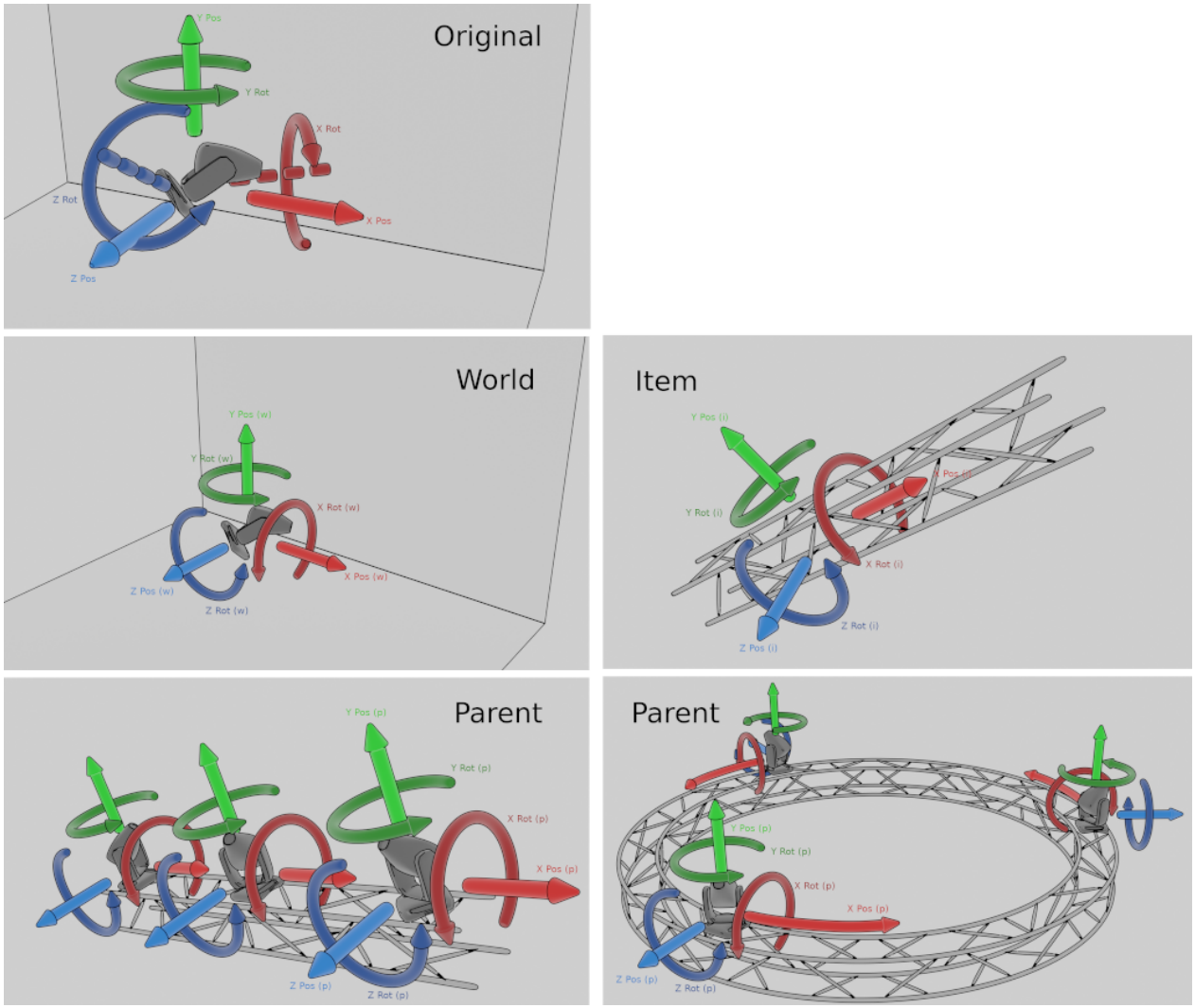
World: Changing an item’s position will move the item relative to the world axis. Rotating an item rotates it parallel the world axis.

Item: Changing an item’s position will move the item along its own axis, so the direction it moves is defined by its current orientation. Changing an item’s rotation will also be relative to its current orientation.

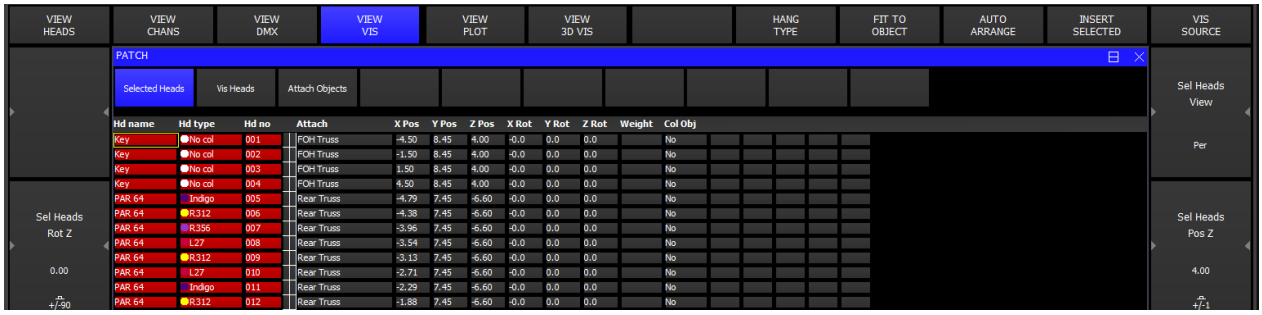
Parent: Items will only move if they are attached to an object. The position and rotation changes will depend on the position, orientation and type of the object they are attached to. Changing the X position will move an item along a truss and changing rotations will always be relative to the point where it is attached to a truss.

Please refer to the following figure below for a more visual explanation.

Also, while in parent mode, encoder button E turns into a Hang Type button, this enables you to toggle the hang type of a head while maintaining its position along the truss.



Objects



In View Attach you can insert many different types of objects, including trusses, pipes, people, simple shapes and commonly found furniture. You can also import custom model files in many different formats.

To create an Object press the INSERT soft button, then select what kind of object is to be created. The object is then created and added to the list. To add a sphere or a cylinder create a 'Form' object then go to the 'model' column, press Set and select the desired shape.



Typing a number before pressing the INSERT soft button will add that many items.

Enter values in the window for length, width and height. Adding a ' after the number enters

the dimension in feet rather than metres – so for 10 feet enter 10'.

Position the truss or pipe as required. Enter a name in the window for the truss or pipe.

After you insert a truss or pipe, then subsequent heads that are patched will be attached to that truss or pipe object. If for example you patch 6 spots after inserting a truss object, then they will be spread out along the length of the truss.

When you create reports, then as well as overall plots, a plot is created for each attach object – enabling the lighting rig to be broken down into separate pipes and trusses.

A texture can be applied to a Form object by entering the name of the texture in the Texture field. The texture should be stored in the bitmaps folder, for example ChamSys.png.



Create a truss and set the model to **Invisible** to group lights together and create useful plots for them.

For example in the 'ExhibitionDemo' show the PixelLines may be rigged on individual vertical pipes but in MagicVis they are all rigged on one invisible truss which is rotated so that when the paperwork is created there is a plot with all the PixelLines on it rotated so that it is obvious how they are laid out.

Drapes

To add a drape to the scene press the INSERT soft button, then select 'Drape'. The drape will then be added to the scene. The width, height and depth of the folds can be adjusted as usual, as can the position and rotation. The extra params columns at the end of the table allow fine control over how the drape is rendered. Param 1 controls the size of the wave. This defaults to 0.3m.

Param 2 controls how flat the folds are at the top of the drape. A value of 0 will show them entirely flat at the top, while a value of 1.0 will show the folds at the same depth as they are at the bottom, as though the drape were hung from a track system.

Param 3 sets the randomness of the folds. Real drapes do not hang evenly so the folds are often different sizes. Setting the Param to 0 will make all the folds the same, increasing it will make them vary. The default value is 0.4.

Custom Models

To add a custom model, press the INSERT button, then select 'Model'. A model object will be added to the scene; this will be invisible at first, until a model file is chosen for it.

To choose a model file, select the "texture" field; a menu will appear, allowing the selection of any previously imported model, along with an option to import a new model.

To import a new model, select the "Import Model..." button on this dialog. The file manager will appear, prompting for a model file to import. Only supported formats will be shown. Once a file is selected, another dialog will appear prompting for the import settings: whether to use the Y or Z axis for vertical, and what length units are used in the model.

To properly determine these settings, you should ask the person who created the model. As a rough rule of thumb, if the model was created by an artist, the Y axis may be vertical; if it was created by an engineer, the Z axis is more likely. If the wrong value is selected, the model will appear flipped front-to-back and rotated 90 degrees, lying on it's front.

Model objects have a slightly different scaling behaviour than other objects. Their default length, width and height is zero; this means that the object will use it's "native size", using the units specified using the process above.

If only one of length, width, and height is specified, and all other values are set to zero, then the model will be scaled such that the axis takes on the given value in metres; all other axes will be scaled proportionally, preserving the model's shape.

If all three axes are given (none are zero), then all three axes will be scaled independently, to the given values in metres. This will distort the shape of the model if proportional values are not given.

Only specifying two axes (leaving one at zero) is unsupported, and will produce unspecified behaviour.



It is not recommended to use models with a very high polygon count (also specified as triangle or vertex count); this can lead to a degradation in performance, especially on older hardware, when many lights are active in the scene, or when shadows are enabled.

To avoid this issue, try searching for or requesting "low-poly" models for use in MagicVis. As a rough guide, try to avoid using more than 1000 polygons per model.

Attaching Heads to Objects

Heads can be attached to trusses or pipes at any time. Select the heads you wish to attach using groups or the keypad. Change to VIEW VIS → Selected Heads tab and press the FIT TO OBJECT soft button.

Alternatively in the Vis Heads tab, double click on the Attach field. MagicQ will prompt you with a list of all the attach objects to choose from.

Heads that are attached to an object move with that object – so repositioning that object in the Attach Objects tab will move the object and all the attached heads.

MagicVis supports Hang Types so that Heads can be fitted to Attach Objects in specific orientations. This information is also available in the MagicVis reports. Hang type options are Normal, Bottom rear, Bottom front, Top rear, Top front face up, Top front face forwards, Top boom, and Bottom Boom.

Modifying Beam Angle and Head Shape

In Patch, View Heads it is possible to set specific shapes and beam angles for generic heads. When set these fields override the defaults from the chosen personality. The shape is also

shown in the Fixture Patch report.

If you wish to change the beam angle for heads other than generic heads then you must change the Zoom Narrow and Wide in the Params tab of the Head Editor for the chosen personality.

Visualising Media Servers

MagicVis can preview the output from media servers. First of all make sure that the Media window on the console is displaying a live preview of the media server output. Then, in the 'Attach Objects' window add a 'Form'. Set the 'Model' to 'Sheet' and set the 'Texture' to 'mp' and the number of the media server. The Media Server number can be found in Setup, VIEW SYSTEM, Media.

For example if the media server was the first in the VIEW MEDIA window then the 'Texture' would be 'mp1'. If MagicVis is unable to connect to the media server then the sheet will display "Media Server 1". If there is still no connection after 1 minute then the text will disappear. The preview is done via CITP so is quite low resolution.

Moving Trusses

To make an attach object movable via DMX patch a Generic Movement head into MagicQ. Then in Patch, View Vis set the attach object for the Generic Movement to be the Attach object to move. Any heads hung from the truss will move along with the truss.

The Generic Movement head has X, Y, Z position and X, Y, Z rotation attributes enabling complete control of the object from within MagicQ. The Generic movement head is a virtual head so it can be unpatched in the MagicQ Patch.

From software version 1.9.2.2 the Generic Movement has an additional channel Tracker. When this is set to a Tracker ID (1 to 20) then the position offset is taken from the Tracker instead of from the parameters in the Generic Movement Head - thus the movement can be controlled from an external system.

Coloured Objects

In MagicVis it is possible to set a Head item to colour an attach object, for truss warmers or for coloured scenic pieces.

In Patch, View Vis on the Selected Heads or Vis Heads tab page right to get to the Col Apply column and set it to Yes. If there are more than one heads attached to an object with the Col Apply set then it will use the last one in the list.

For RGB Heads the RGB colour will be applied to the object. If the Head only has intensity then the colour of the object will be scaled according to the intensity.

DMX Controlled Camera

The Generic Camera head enables the Visualiser view to be modified from within MagicQ programming. When a Generic Camera is patched in MagicQ and the Mode Attribute is non

zero then the Visualiser view comes under the control of the Camera. The Generic Camera head is a virtual head so it can be unpatched in the MagicQ Patch.

To use the Generic Camera select it then press Locate. This will put the camera into perspective mode and place it in the default position. Select the Position window then use the encoders to move it around and rotate the view. To return control to the Visualiser window use Encoder Wheel A to set the mode to Disabled.

The Generic Camera also controls the brightness of the room and of the beams. These attributes can be found in the Beam window.



FX can be applied to the position and rotation attributes to make the Camera fly around the visualiser and give a dynamic view of your design.

Removing Visualiser Heads and Objects

To remove a visualiser head go to VIEW VIS → Vis Heads and put the cursor on the item. Press REMOVE. Use SHIFT/CTRL and the cursor keys to cursor select multiple visualiser heads for removal. To remove an attach object go to VIEW VIS → Attach Objects and follow the same procedure.

When heads are removed from the visualiser they are not removed from MagicQ patch. Removing heads from the MagicQ patch will remove any associated visualiser heads.

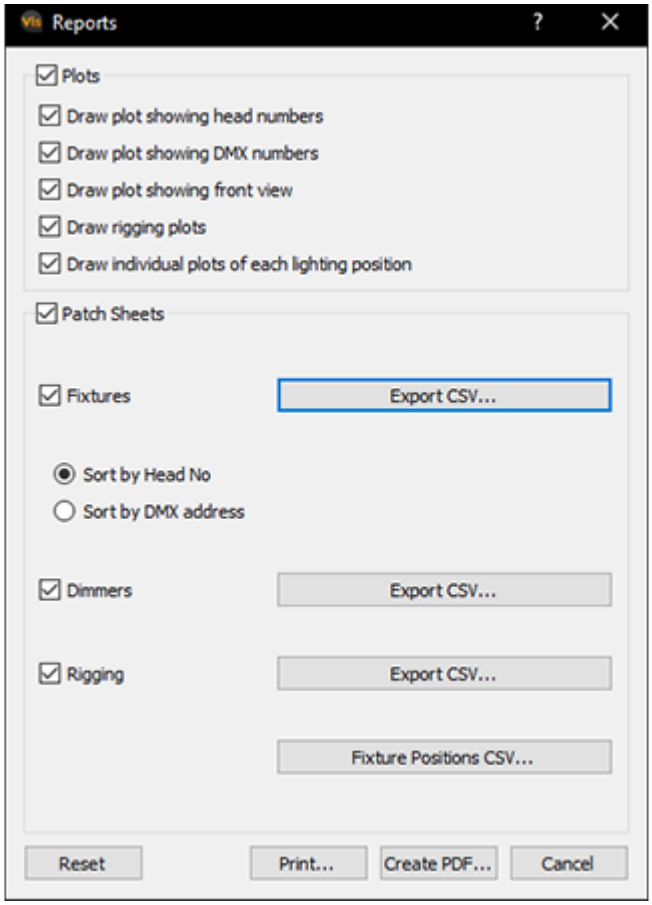
Changing the Size of the Room

It is possible to change the size of the room by adding a Room Object. By default MagicQ uses a room 20 x 20 x 20 metres. If you add a room object then MagicVis will use the dimensions of the room object instead. The datum is always on the floor in the centre of the room.

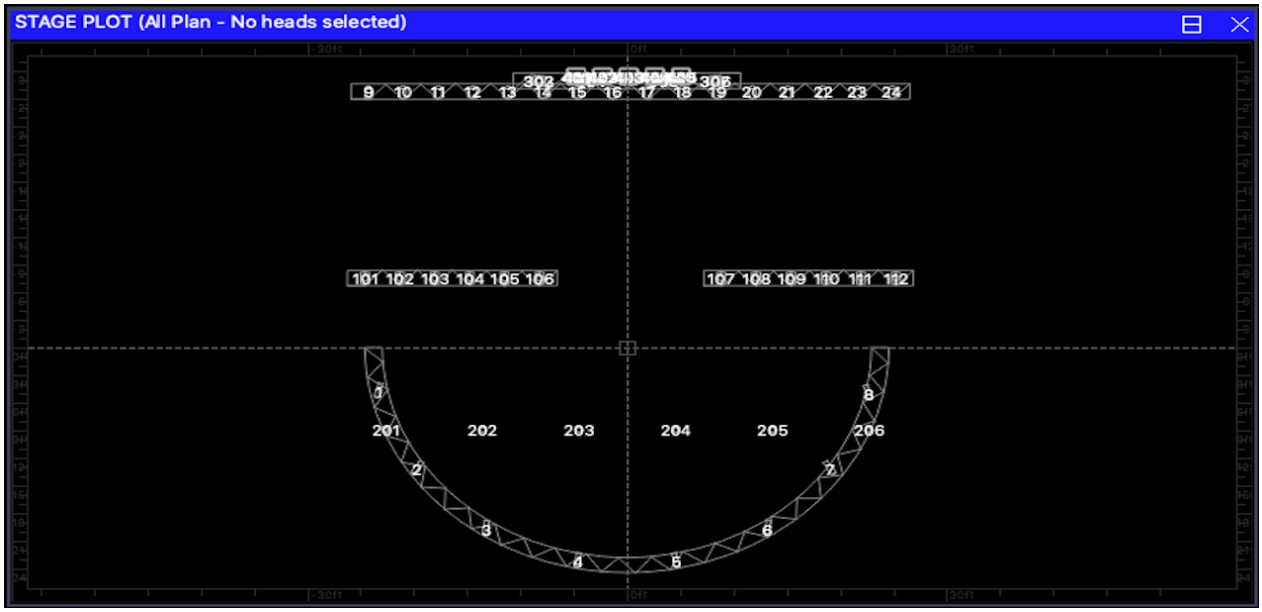
In View Attach, press INSERT. Select the object type **Room** and enter the length, width, and height.

Paperwork

You can use MagicVis to create plots and patch sheets. In the MagicVis window click on 'File' → 'Paperwork'. This will bring up the Reports window.



You can select what you would like to include and either print it out or create a PDF document. You can also export patch lists into a spreadsheet such as Numbers, LibreOffice or Excel. To do this click on one of the 'Export CSV...' buttons, then load the csv file into a spreadsheet. You can then add extra columns or lay out the tables however you like.



The Patch Sheets contain all the heads in the patch, whether or not they are in the Visualiser. Therefore you can create a patch sheet without having to set up heads in the Visualiser.

The Positions table is a list of all the trusses and pipes with trim heights, DMX universes and approximate weights. The given weight is the total weight of the heads and does not include the weight of the cabling, truss or rigging. It is intended to be a tool for estimating total

weights and should not be used for rigging calculations.

Converting an Existing MagicQ Show File

Old MagicQ show files can be loaded into MagicQ, but they will not have any visualiser heads defined. It is easy to take heads from an existing show file and create a visualisation.

Select the heads using groups or the keypad. Then go to

Patch → VIEW VIS → Selected Heads

and press the INSERT SELECTED soft button. This creates a visualiser head for each of the selected heads.

If you wish, you can attach the heads to an object using the FIT TO OBJECT soft button.

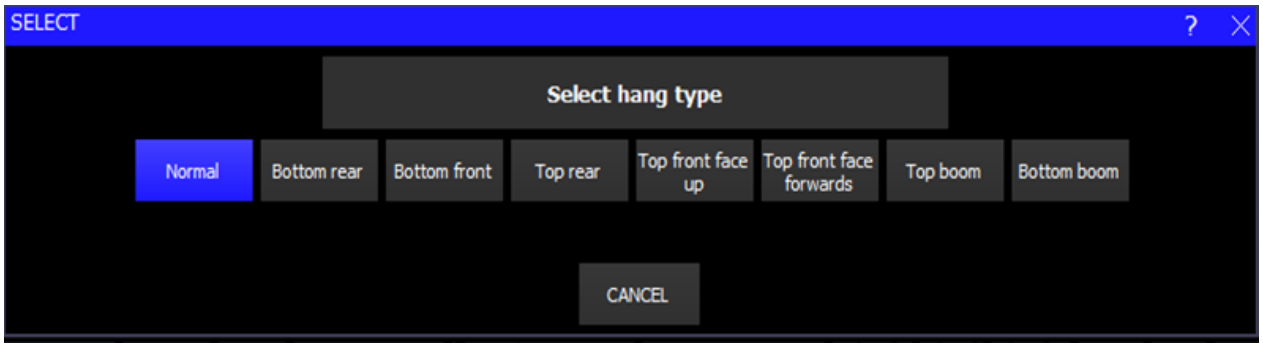
It is also possible to insert all the patched heads in your show file into the visualiser in one step. Make sure no heads are selected, then go to

Patch → VIEW VIS → Vis Heads

and press the INSERT PATCHED soft. This creates a visualiser head for each head in the patch. The heads will be positioned in a grid format.

Converting a MagicQ Grid Into a Visualisation

It is possible to convert a grid from the MagicQ Plan View into a visualisation. In the Output Window, View Plan press SHIFT + ARRANGE VIS. MagicQ will prompt you for the positioning within the visualisation.

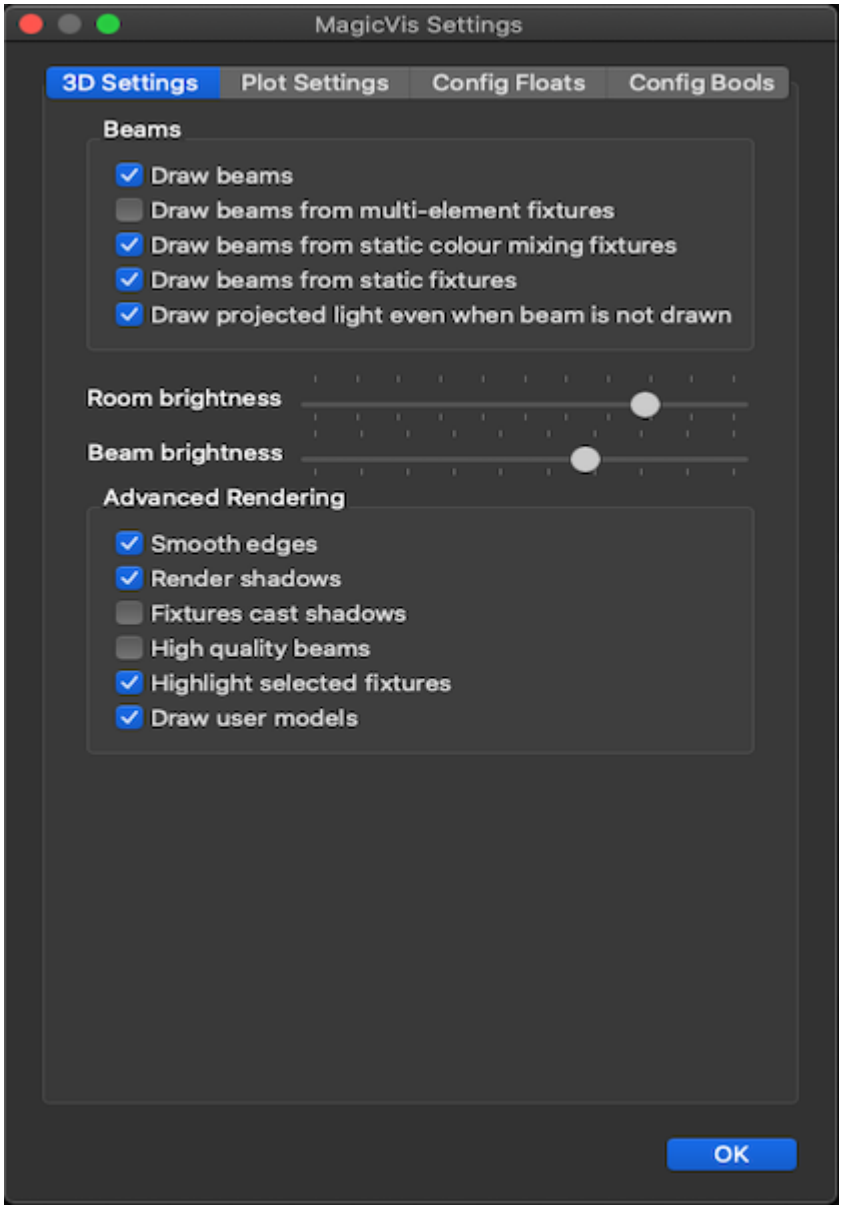


For each of the heads in the grid a visualiser head will be will be inserted into the visualiser. The positioning will be set according to the position in the grid.

For example if you select Top, then MagicQ will treat the grid as if it is a top view and all the visualiser heads will be positioned at the top of the room at the same height.

Visualiser Settings

MagicVis includes settings for how the visualisation looks.



On systems with lower power graphics cards which are using a lot of LED heads we recommend to turn off drawing of LED Beams.

MagicVis incorporates a new higher quality renderer with improved beams and shadows.

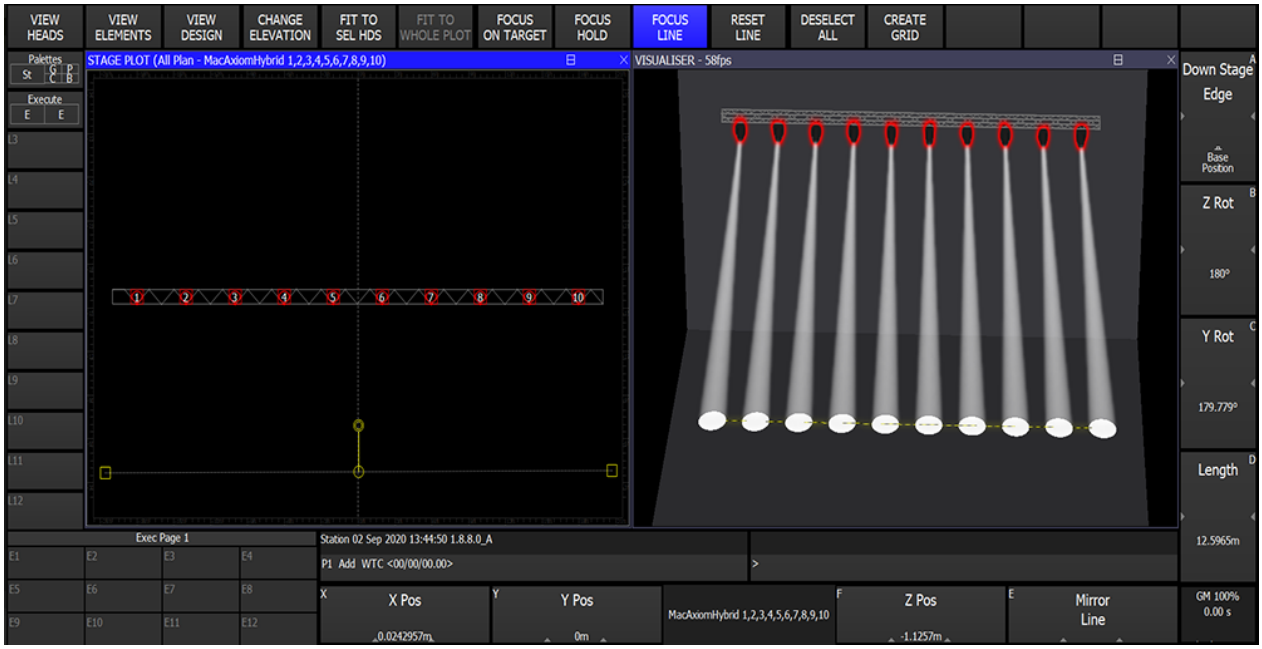
Plot Window

MagicQ incorporates a Plot Window displaying the position and orientation of heads within the lighting rig. The Plot Window can show Front, Overhead and Side elevations. The view can be moved and zoomed with encoders E, F, X, and Y. The view can be filtered show all heads, selected heads, heads within a group, heads on floor/flown, or attached to a specific object using encoder A. If group or attach object is selected, encoder B selects the group or object. Heads can be selected from the plot window either by clicking (touching) individual items or by multi selecting multiple items. The positional information is taken from MagicVis and can be edited in the Patch Window. Programing data can be coppied from one head to another, fist press COPY, then select a singe fixture or multiple with drag select to chose you source, then select other fixture(s) as the destination to copy programming the data to.

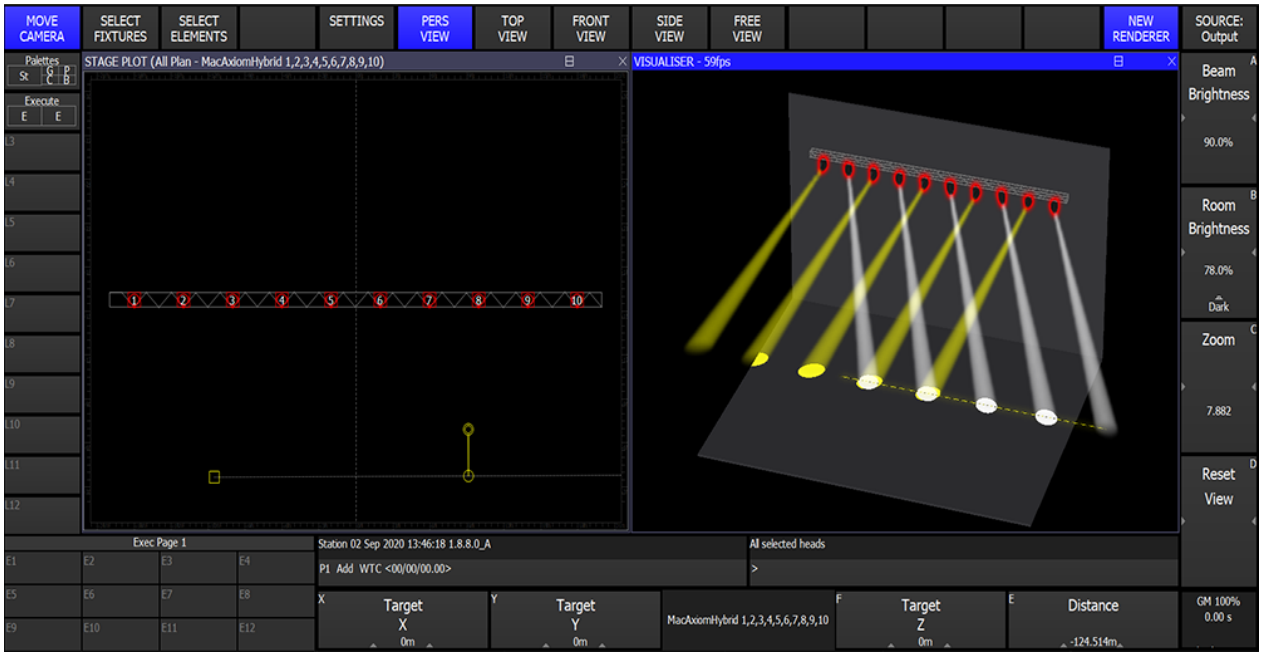
Focus Functions

It is possible to set the pan and tilt of selected heads from the Plot window so that the heads are focused on a point on the stage. To quickly focus the lights on a point press the FOCUS ON TARGET soft button then click on a point on the plot. The selected heads all move around to focus on that point. Click on FOCUS HOLD if you want to move the point around after clicking. On a touch screen you can move your finger around the plot window and the heads follow it. Click on FOCUS HOLD again to stop focusing.

More complicated looks can be created with the FOCUS LINE feature. After selecting some heads and clicking on FOCUS LINE a yellow line will appear on the plot. The heads will be focused along the line. The line will also appear in the 3D visualiser. The line can be moved around either by clicking on the points on the plot window or by using the encoder wheels. The line is initially at stage level but can be raised up using the Y encoder.



FOCUS LINE allows easy creation of even stage washes but it can also be used to create gobo washes on walls and scenery or ACL style beam focuses. Use the Fan menu to change how the beams are distributed along the line. To create a symmetrical ACL style look first focus one side of heads, then select the other side, select FOCUS LINE again and press Encoder E, 'Mirror Line'. This will mirror the line over the centre line of the stage so the look is symmetrical.



The 'Base Position' is the starting position for the heads before they are panned around to focus on the point. If the head has to pan more than 90° from the base position then it will 'flip' the head over. The default base position is directly downstage. If the lights flip while they are moving between positions then a different base position may be required.

To change base positions record a palette with the desired base positions then press and hold encoder button A and select the palette. For example if you have two trusses either side of a catwalk you may want a base position where everything is focused directly onto the catwalk.

Another Base Position option is 'Current Position'. This option will allow the heads to spin right round and only flip when they reach the end of their pan. This could be useful for creating specific movements between positions.

Converting the Plot View into a MagicQ Grid

It is possible to convert a plot into a grid using the CREATE GRID soft button in the Plot Window. MagicQ takes the heads from the current view and current filter in the Plot View and creates a new Grid in the Output Window.

MagicQ will only create a grid if it can fit all the heads shown in the current Plot View into a grid where the maximum size corresponds to the maximum number of channels patchable on the console. The number of columns is limited to 1024 whilst the number of rows in limited to the number of channels patchable.

For example on a MQ500M with 256 universes, it is possible to do 362x362, 1024x128 and 1x131,072.



The width of grids is more restricted than height. If the plot is extremely wide you can rotate the plot by 90 degrees using encoder F. Then try making a grid

If there are items in the plot that are overlaid over the top of each other then where possible

MagicQ will adjust the exact positioning of the item to fit into a unique position in the grid.

We recommend to filter using groups or selected heads to only include the required heads in the new Grid. If the Plot involves a large number of heads close to each other or overlaid over each other then the conversion will not work.

After creating the grid, unused rows and columns can be removed by pressing SHIFT + OPTIMISE GRID in the Outputs, View Grid.

Plot Design Mode

It is possible to move and rotate objects in the plot view by going to VIEW DESIGN. Select objects by clicking on them, or multiple objects with drag select. selected objects, highlighted in blue, can be dragged and rotated with the little widget that appears. For better position control you can enable the dimensions grid in the plot settings, and add reference images in the patch window.

If running MagicQ on PC, you can open a separate visualiser window and change the window to plot view. This also has a design mode with an additional side bar to help with selecting and entering specific values, and a tree view to see how objects are attached to truss.

While in edit mode you can type a number and press a location on the plot window and it will move the fixture with that head number to that location.

Plot Settings

The soft button "SETTINGS" in the plot window has three options to enable. Follow Selected Heads will ajduse the zoom and scroll so that whichever fixtures are selected will fill the whole plot view. Reorder Heads while draggind will make sure heads are selected in numerical order when you finish a box select. Draw Dimensions Grid will draw a grid in the background so that it is easier to position objects more accurately, the size of the grid depends on the zoom level and the Units Of Measurement setting in the SETUP window.

Background Images

From v1.9.8.0 you can add background images in the Plot View. To Add images: go to Patch, VIEW VIS, Plot Background Images, and select a file in the file column. The image file must be saved in the bitmaps folder in MagicQ.

You may have up to 16 images for each of the three views (plan, front and side). Each of the images can be independently scaled, positioned and brightness set. One image can be displayed at a time. By default MagicQ will show image 1.

In the Plot Window, VIEW BACKGROUND enables selection and modification of the background image. Use encoder X to toggle which image you see. Use encoders A to D to position the image. Use Encoder F to change image brightness and the button to invert the colours.

For more accurate positioning and scaling, Press SETTINGS and turn on Draw Dimensions Grid. You will now be able to accurately position background images if you know dimensions

of the image.

Fixture Position Calibration

The fixture position calibration can use four position palettes to locate the position and rotation of fixtures in 3D space relative to a given sized rectangle, (most probably a stage).

This is useful for quickly syncing the visualiser to the real world. This is very useful if you have a third party tracking system providing 3D position data to MagicQ via PSN for example. It can also be useful for position palettes that use XYZ or visualiser objects. It has also been used to make focus hold in the plot view very accurate to follow a person moving around.

For best results use fixtures with 16bit (2channels) pan and tilt, this is most moving heads. You will also want to make the smallest focused beam possible. A fixture with a centre dot gobo, a narrow iris or zoom to make smallest focussed dot possible works well. Also create the largest rectangle you can which all the lights are able to see all four corners.

The process for calibrating the heads can be broken down into three stages: Create the Calibration Markers, Create the Palettes, and Update Vis Positions.

Create the Calibration Markers

1. Patch a moving fixture that has pan and tilt.
2. Go to PATCH→VIEW VIS→Attach Objects→ INIT CALIBRATE
3. “Create Calibrate Markers and Palettes” →YES
4. This created a Cal Markers object which is a yellow box in the visualiser and plot windows. Set the length and width values to match the real life stage you are calibrating to (height is ignored)
5. Use X Pos, Y Pos and Z pos to position the rectangle in the 3D scene in visualiser to where you want it to be
6. If you are calibrating position to a wall instead of a stage then a value of +90 in the X Rot will make the calibration marker vertical. It will actually work with any rotation values in X, Y and Z, but it would be quite unusual to not be using a horizontal or vertical surface.

Create the Palettes

1. Four Palettes will have been created in step 3, they are called CalA DSR, CalB DSL, CalC USL and CalD USR. MagicQ uses these specific names to know which palettes are the calibration palettes, so do not rename them!
2. Select the head you wish to calibrate in the GROUP→VIEW HEADS
3. Position the fixture so that it is pointing at down stage right corner as accurately as you can. Make the tightest focused beam you can using zoom, iris, gobo or shutters that are controllable in the beam window. Hold shift while using the pan and tilt for fine control.
4. Record this position to CalA DSR. I usually do shift record and select REC INT, REC POS, REC COL and REC BEAM to record everything into the palette. It can be useful for later if

the fixture is moved slightly and you want to recalibrate quickly, but that's optional.

5. position the fixture pointing to the Downstage left corner and record to the CalB DSL palette.
6. position the fixture pointing to the Upstage left corner and record to the CalC USL palette.
7. position the fixture pointing to the Upstage Right corner and record to the CalD USR palette.
8. repeat these steps for each fixture you wish to calibrate.

Update Vis Positions

1. Select the fixtures you wish to calibrate and go to the patch window.
2. VIEW VIS→Attach Objects→CALIBRATE HEADS
3. "Calibrate position of selected heads?" → YES
4. Check the visualiser, the position of the fixture should be in the correct location, first time doing this it is often not, so have a look at the troubleshooting section below.
5. Also have a look at the comment are near the bottom right of the screen, it might say something like "Head calibration, Errors:1", "Head calibration, Successes 1" or "Head calibration, Warnings:1". Check the troubleshooting section below. The number is how many heads had errors, warnings or successes when trying to calibrate.

Troubleshooting

Head calibration, Errors: this just means it was unable to use the palettes to create a position, usually happens if you press the calibrate heads button before setting any of the palettes, or if you have swapped two of the Left/Right or Up/Down stages. If you followed the instructions properly you should never see this error.

Head calibration, Warnings: If you see warnings, it just means it found a solution, but not a very accurate one, so follow the instructions below (Double Check User Input, or Check Fixture Settings).

Head calibration, Successes: fixture has been successfully calibrated (probably).

Double Check User Input

If a warning appears after calibrating, or the fixture just doesn't look well position in the visualiser there might be a few things that are incorrect. Firstly, check that the dimensions of the real life stage and the Cal Markers match. Also check that the position palettes are pointed as accurately as possible to the corners of the stage and you have the Down/Up Left/Right corners correct. The plot view labels these for you to double check.

Check Head Settings

The calibration algorithm relies on the data for the fixture being accurate, it uses Pan Range, Tilt Range, Pan invert and Tilt invert. All of this is found in the head editor: PATCH→VIEW HEADS, select the head to edit, hold Shift and press EDIT CUR HEAD, and go to the Params tab.

Tilt Range: This is the most likely value to be incorrect, by default it will be 270. To correct this you need to measure the actual value or consult the fixture's user manual (but this is sometimes wrong). I usually use a little bit of easy maths to work this out. 1. I place the fixture on a flat surface like a floor and point the fixture 90 degrees and point it at something the same height as the fixture to ensure it is as close to 90 degrees as possible. 2. MagicQ will show on the encoder what angle it thinks the tilt value is. For example I move a fixture to 90 degree tilt in real life, but MagicQ reports this as 93.44. 3. I can divide 90 by 93.44 to get 0.963 (your numbers will obviously be different) 4. multiply the value in the Tilt Range in the head editor by your result from step 3: 270*0.963=260.01 5. Set the Tilt Range in the head editor to 260 (result from step 4) 6. save the head 7. If you go to the positions window, press the SET button, type 90, and press the Tilt encoder soft button the fixture should now move to exactly 90 degrees

Pan Range: I have not actually come across a fixture in my testing that wasn't 540 degrees when it said it was, but I guess you could follow similar steps as the Tilt range, but maybe use 180 instead of 90 degrees.

Pan Invert: if you calibrate the head and it appears on the wrong side of the yellow box (under the stage) then there will be a warning. In this case you change the pan invert from no to yes, or yes to no. It is also possible you got stage left and stage right the wrong way round.

Tilt Invert: I don't think tilt invert can cause any issues, if it is inverted when it shouldn't be it will just turn the heads 180 degrees and the visualiser and real life will look exactly the same.

Blind Visualisation

MagicQ supports Blind Visualisation and Preview Visualisation when used together with MagicVis, Capture or WYSIWYG. This enables a Visualiser to show the contents of the Programmer during BLIND mode or to preview a Playback that is not active on the real outputs.

In Patch, View Vis press the VIS SOURCE Soft button to choose between visualising the console Output, the BLIND programmer, the Programmer Only, the selected Playback, or the next step on the selected Playback.

When set to "Blind Programmer" MagicQ will add the contents of the Programmer to the Output visualisation even when the programmer is in BLIND mode.

When set to "Prog Only" MagicQ will show the contents of the programmer without the current playback state regardless of the Blind state.

When set to "Playback" MagicQ will show in the visualiser the contents of the selected Playback as if the Playback fader was at 100%. Only data from the selected Playback is shown.

When set to "Next GO" MagicQ will show in the visualiser the output of the console as it would appear if GO was pressed on the selected Playback. When the selected Playback has multiple steps then MagicQ always shows the next step in the Visualiser. If the selected Playback is not active then MagicQ will show what would occur if the Playback was activated.

When set to "Output" MagicQ will the console live output.

Blind Visualisation and Preview Visualisation do not affect the normal network outputs such as Art-Net, ACN, or Pathport. Only the DMX stream sent directly to the Visualiser is affected.

When using Capture visualisation, Capture must be connected via CITP universes rather than Art-Net – otherwise Capture will just show the console output.

Split Visualisation in MagicVis

MagicVis now supports split visualisation where it is possible to show simultaneously both the Live Output and the Blind Visualisation.

In MagicVis select View, Split Screen.

The upper window will always show the Live Output.

The lower window will show the normal MagicQ visualisation - which will depend on the Vis Source option above. When set to "Output" it will show the same as the upper window.

Note that when using stand alone MagicVis, for both the Output and the Blind Preview to work then the console Output must be set to output over the network using a network protocol such as Art-Net, ACN or Pathport - otherwise the Output will not be shown when Blind Preview is in operation.

Automatic Source Selection

In Setup, View Settings, Mode set the Visualiser option to "Auto insert, auto Pre-Vis" for automatic pre visualisation.

When MagicVis is running with the 3D view with Output as the source and BLIND is pressed on the console, then MagicVis automatically changes to split Output/Blind Preview mode so that both the output and Blind programmer can be monitored. When BLIND mode is exited then MagicVis returns to the single 3D view.

When MagicVis is running with the 3D view with Output as the source, and a S button is held on the console then MagicVis will change temporarily to show the contents of the Playback rather than the Output. On releasing the S button MagicVis reverts to showing the Output.

Using MagicQ with other Visualisers

In addition to its own free MagicVis visualiser, MagicQ supports connection with other Visualisers via network protocols. MagicQ supports transfer of patch, XYZ and head selection information to and from Visualisers. The protocol used to communicate between MagicQ and the Visualiser depends on the particular Visualiser.

The simplest way to connect is using the Art-Net protocol in the same way as you would connect to Art-Net to DMX interfaces. Art-Net does not support transfer of patch, XYZ or head selection information, so for this you will need to use a Visualiser specific protocol.

It is possible to run MagicQ PC/Mac on the same system that is running the Visualiser. For best performance it may be better to run them on separate PCs linked via Ethernet.

Connecting to a Visualiser

MagicQ PC outputs up to a maximum of 64 universes for real control of lighting rigs configured in the Status, Out Type, Out Uni fields in Setup, View DMX I/O.

From V1.9.6.0 MagicQ PC supports external Visualisers for up to 400 universes via direct links to the Visualiser. When using more than 64 universes direct Visualiser links must be used.

When in MQ250M Pre-Vis, MQ500 Pre-Vis and MQ500M Pre-Vis panel modes normal lighting output is inhibited and Visualisers must also be connected with direct visualiser links.

These are configured in the Visualiser field in Setup, View DMX I/O.

The options are:

MagicVis	Default
Capture (rem)	Capture (same PC)
WYSIWYG (same PC)	WYSIWYG (rem)
Art/sACN(same PC)	Art/sACN(rem)

When set to Art/sACN MagicQ sends directly over Art-Net or sACN to the Visualiser using the settings in Out Type and Out Uni. The universe does not need to be enabled.

In Setup, View Settings, Network set Visualiser IP to the required IP address of the Visualiser system. Art-Net and sACN data sent to Visualisers via the Visualisers field is always unicast - it is never broadcast or multicast.

To run both MagicQ PC and Visualiser on one PC set the option Setup, View Settings, Network, Net host options to Normal + Loopback IP.

To run MagicQ PC and a Visualiser on two different systems then you need to ensure that both systems have their IP address and Subnet Address set up to be on the same network range - e.g. set one to 2.0.0.1 subnet 255.0.0.0 and the other to 2.0.0.2 subnet 255.0.0.0.

When MagicQ PC sends to an external Visualiser the data for universes 65 to 400 will have occasional breaks to prevent it being used to control real lighting rigs. When MagicQ PC is in the MQ250M, MQ500 or MQ500M Pre-Vis modes all universes have these breaks. These breaks are not present on MQ500 200 universe or MQ500M+ consoles which output full 400 universes.

Capture

MagicQ supports connections to Capture visualiser (www.capturesweden.com).

There are two protocols for communication between MagicQ and Capture – Art-Net and CITP. Art-Net is a standard protocol used to carry DMX over Ethernet and enables control of the lighting.

CITP is an open protocol specific to Capture which enables both control of lighting and the transfer of the show patch between MagicQ and Capture. ChamSys provides executable files for both protocols.

To communicate using Art-Net simply set the required universes to Output Type of Art-Net in Setup, View DMX I/O and enable the universes. To use CITP simply set the Visualiser field for all required universes to Capture.

Receiving Patch Data from Capture

It is possible for patch data to be transmitted from Capture to MagicQ when connected via CITP protocol. Start a new show on MagicQ and then in the Patch Window press the Visualiser Patch soft button. This will download the Patch information from Capture to MagicQ. MagicQ uses a fields in the personality to specify the Capture manufacturer name (Make) and Capture moving light name).

Note that when receiving patch data from Capture, along with DMX addresses set in Capture, the channel number must also be set in Capture. Capture channel numbers = head numbers in MagicQ

WYSIWYG

MagicQ interfaces to the CAST WYSIWYG visualiser using a special driver file.

WYSIWYG and MagicQ can be on the same PC, or connected via network cable to another PC or console.

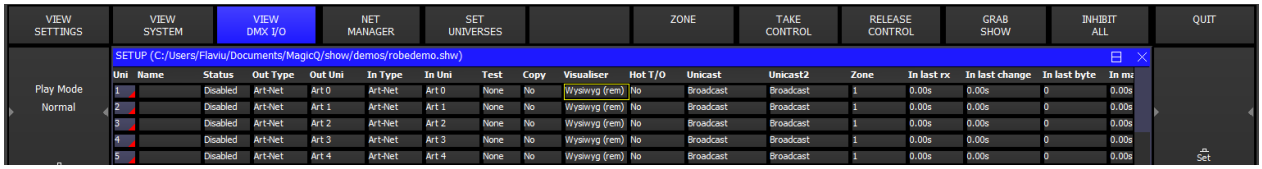
From MagicQ v1.9.0.5, the WYSIWYG driver is automatically installed when MagicQ PC is installed. Just install MagicQ v1.9.0.5 or later on the same PC as WYSIWYG. You can install a previous version of MagicQ afterwards if needed; the WYSIWYG driver will stay.

There is a WYSIWYG demo show at `show/demos/magicqwysiwyg.wyg`.

Enabling MagicQ to Output WYSIWYG Data

Now you need to configure the outputs. Go to the Setup, View DMX I/O window.

Move to the Visualiser row and select WYSIWYG for the universes you wish to use. There is no need to change the Status column to enabled - WYSIWYG is automatically enabled when you select WYSIWYG as the visualiser.



If you are using WYWISYG on the same PC as MagicQ then set the Visualiser to WYSIWYG (same PC) – otherwise, set it to WYSIWYG (remote). When connecting to WYSIWYG using a MagicQ console, always use WYSIWYG (remote).

When using WYSIWYG and MagicQ on different PCs it is important to ensure that MagicQ PC knows the IP address to use to communicate with WYSIWYG.

In Setup, View Settings, Network set the IP Address and Subnet Mask to be the same as the IP address of your network port in use on your PC.

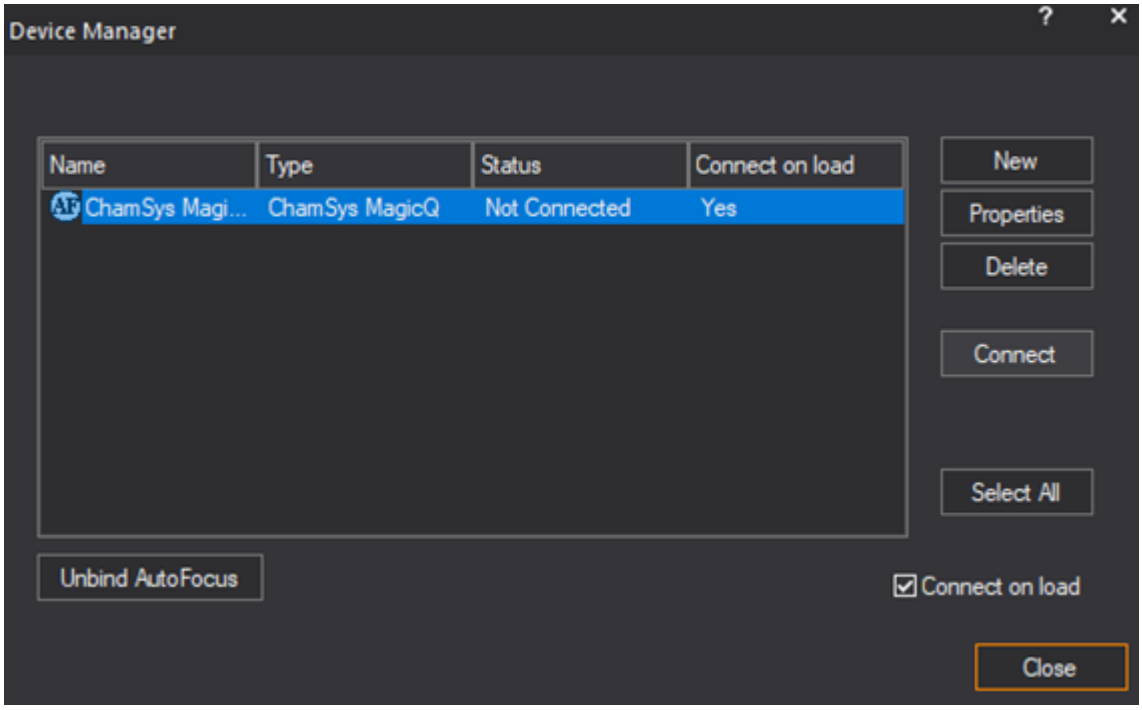
The WYSIWYG driver installed by MagicQ v1.9.0.5 and later allows up to 256 universes, depending on the universe count of the connected MagicQ PC or console.

Running WYSIWYG

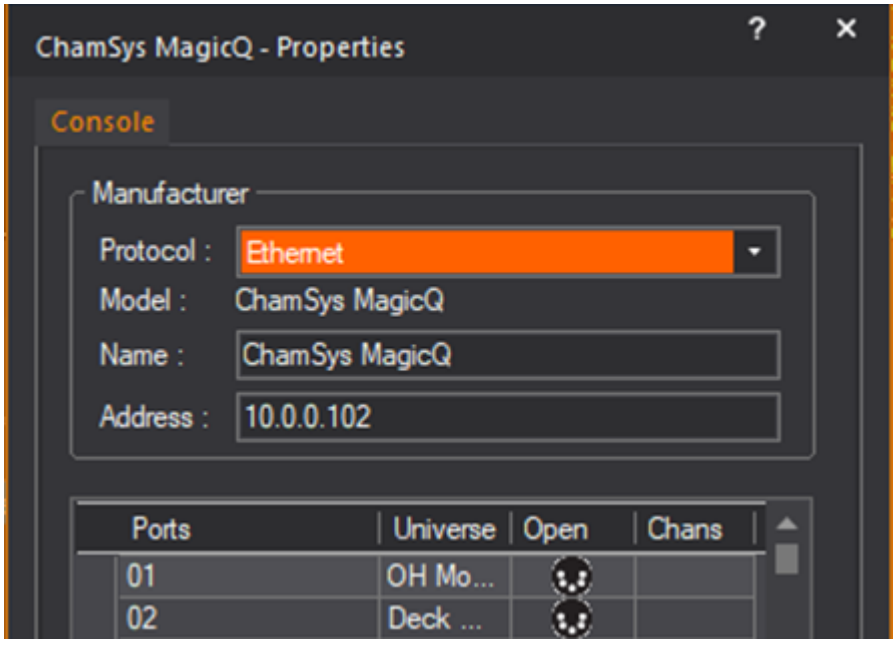
Start up WYSIWYG.

To get WYSIWYG to respond to data received you need to set up the ports in Device Manager. Go to *LIVE* mode, then *MANAGERS → Device Manager...*. If MagicQ is not already in the list, click on *New*, search for and add "ChamSys MagicQ". Select ChamSys MagicQ and then *Connect*.

Make sure you have installed the MagicQ WYSIWYG driver on the WYSIWYG PC. MagicQ will not connect to WYSIWYG without it.



The universes in WYSIWYG must be bound to the ChamSys MagicQ device in order for communication to occur with MagicQ. Select ChamSys MagicQ and click on *Properties* to setup universe mapping.



Auto Patch

MagicQ supports the WYSIWYG Auto Patch protocol, which transfers the patch from WYSIWYG to MagicQ. To transfer a new show to MagicQ first erase the show in MagicQ, then in WYSIWYG go to *LIVE* mode, then *LIVE* → *AutoPatch* → *Send Patch*.

Make sure that you have defined a Spot Number to each of your heads in WYSIWYG, otherwise WYSIWYG will not send the head over Auto Patch.

MagicQ identifies the fixtures in WYSIWYG and maps the names to the MagicQ heads using a mapping table and a matching algorithm. If MagicQ can not identify a head it may patch the

wrong head or not patch it at all.

In the MagicQ personality it is possible to specify the WYSIWYG Auto Patch name that it should map to this MagicQ personality.

When performing an Auto Patch, MagicQ will report any heads that it can not match. To fix a personality, edit the head in the Head Editor, setting the correct WYSIWYG name. If the WYSIWYG name is empty then pressing ENTER will fill in with the name received from WYSIWYG for the last mismatch.

When using WYSIWYG with a separate MagicQ console make sure that on the console, Setup, View Settings, Multi Console, Enable Remote Access = Yes. This ensures the patch can be transferred correctly to the console.

Auto Focus

MagicQ supports the WYSIWYG Auto Focus protocol. If you turn Auto Focus on for the ChamSys port in the Device Manager on WYSIWYG then changes made in WYSIWYG design mode will be relayed to the programmer in the console.

Troubleshooting

Problem: WYSIWYG does not receive any data.

Solution: Check that you have installed the MagicQ WYSIWYG driver on the WYSIWYG PC. Check that the connection is connected in WYSIWYG device manager. Check that you have configured the correct MagicQ universes to use WYSIWYG as their Visualiser.

Problem: WYSIWYG will not connect on the same PC as MagicQ.

Solution: Check that you have configured the Visualiser to be WYSIWYG (same PC) in the Setup Window.

Problem: WYSIWYG will not connect between two separate PCs.

Solution: Check that the network interfaces on the two PCs are configured to the same IP subnet, that they are enabled, and that you have configured MagicQ to use the correct network port (Setup, View Settings, IP address). Check any firewall settings.

Problem: WYSIWYG connects but no control of the lamps

Solution: Check the MagicQ Universe in WYSIWYG is bound to the MagicQ device.

Vision, Depence, L8

Vision, Depence and L8 all support Art-Net control. Simply set the required universes to Out Type of Art-Net and enable them. The Visualiser field should be set to "None".

For greater than 64 universes or when in Pre-Vis mode set the Visualiser field to Art/sACN (remote) or Art/sACN (same PC) and configure the Visualiser IP in Setup, View Settings,

Network.

Trackers

MagicQ supports many advanced 3D features related to 3D (XYZ) space using the inbuilt plotting and visualisation features.

This enables shows to be built up around XYZ positions in the performance space with positions being easily updated when moving between venues, or for real time tracking of objects, people, or of lighting truss /set piece movements during show playback.

MagicQ supports a number of tracking protocols to enable automated positions of heads on 2D or 3D positions within the stage, including PSN, E.159 OTP, and a simple MagicQ Track protocol. See the inbuilt demo show file TrackerDemo.shw.

The information from Trackers can be used by Palettes set as Track, to move MagicVis objects and also by Tracker Automations.

The current value of received trackers is shown in Macro, View Autom, View Trackers.

When tracker data is active MagicVis shows the tracker points as a green cross within the 3D space. If the tracker data is lost then the cross will turn red, and then after 2 seconds of not receiving any tracker data for that tracker the cross will disappear altogether.

MQ Track Protocol

MagicQ can transmit and receive tracker data over a simple UDP protocol on UDP port 6549. The format of the data received is:

<x>,<y>,<z>,<tracker id>,<tracker name>

Where <tracker id> is zero based - 0 for Tracker 1, 1 for Tracker 2.

For example, sending tracker 2 named "Bob" with position x of 2.5m, y of 3m and z of 3.5m the data in the UDP message would be

2.5,3,3.5,1,Bob

MQ Track protocol uses MagicQ XYZ space which has X and Z as horizontal on the stage / performance space and Y as vertical.

Object Transform Protocol

MagicQ supports E.159 Object Transform Protocol (OTP) for transmit and receive of tracker data and for transmitting and receiving MagicVis object position and rotation data.

The OTP function is set in Setup, View Settings, Network, OTP Function.

When set to "Tracker (rx)" MagicQ receives Tracker data over OTP and acts as an OTP consumer. MagicQ accepts any System or Group, where point is the Tracker ID.

MagicQ automatically converts between the Object Transform Protocol XYZ co-ordinates (X,Y

horizontal, Z vertical) and MagicQ XYZ space (X and Z horizontal, Y vertical).

When set to "Tracker (tx)" MagicQ transmits Tracker data over OTP and acts as an OTP producer. MagicQ transmits OTP System 1, Group 1 with the Point number mapping to the Tracker ID in MagicQ and the name set to the relevant tracker - for example "Tracker 1".

MagicQ can be receiving Tracker data over a protocol other than OTP, such as the MQ Track protocol and can then re-transmit that data using the "Tracker (tx)" option above.

When set to "Vis object (rx)" MagicQ accepts position and rotation data for the MagicVis objects modifying their absolute position and rotation accordingly. MagicQ accepts from any System or Group where the name matches the MagicVis object name.

MagicQ matches the names for the points received over OTP with the object names in MagicVis. The OTP name must exactly match the MagicVis object name including capitalisation. Changes in a point position or rotation will have an immediately move the object within the MagicVis XYZ space.

An alternative to matching the Attach Object names for making OTP data control MagicVis objects is to use Generic Movement heads - this applies an XYZ offset / rotation to the object rather than changing the absolute position and rotation. Note that only one method should be used for controlling Vis Objects - either matching the name or using Generic Movement.

When set to "Vis object (tx)" MagicQ transmits position and rotation data for all the MagicVis objects and acts as an OTP producer. MagicQ transmits OTP System 1, Group 2 and Points starting from 1. MagicQ transmits the name for each point as the name of the object within MagicVis.

When set to "Tracker + vis (rx)" MagicQ accepts both Tracker and MagicVis data. Where the OTP name matches a MagicVis object name it processes for the MagicVis object, otherwise it assumes it is Tracker data.

When set to "Tracker + vis (tx)" MagicQ transmits both Tracker and MagicVis data. Tracker data is sent as OTP Group 1 and MagicVis object data is sent as OTP Group 2.

When receiving OTP and PSN it is now possible for MagicQ to decode rotation data and use it to control MagicVis attach objects.

When the OTP Function field is set to Vis Object (rx) or Tracker + Vis (rx), then received tracker data with a name that matches the name of an Attach Object will cause the Attach Object to be set to the position and rotation received via OTP.

Receiving and transmitting Object Transform Protocol data is supported on MagicQ consoles. On MagicQ PC and Mac systems it is only supported when unlocked with an appropriate MagicQ or GeNetix interface.

PSN/SpotMe

When set to PSN/SpotMe, MagicQ receives tracker data from the PSN protocol / Robert Juliat tracking system. PSN is an open protocol for On-Stage, Live 3D Position data.

www.posistage.net.

MagicQ and PSN use the same XYZ space (X and Z horizontal, Y vertical). The Z position is automatically inverted - MagicQ has Z positive towards the audience, PSN has Z positive towards the back of the stage (up stage direction).

When the Tracker rx option is set to PSN, then received tracker data with a name that matches the name of an Attach Object in MagicVis will cause the Attach Object to be set to the position and rotation received via PSN.

An alternative to matching the Attach Object names for making PSN data control MagicVis objects is to use Generic Movement heads - this applies an XYZ offset / rotation to the object rather than changing the absolute position and rotation. Note that only one method should be used for controlling Vis Objects - either matching the name or using Generic Movement.

To send PSN set the Tracker tx option to PSN. This uses the PSN Function option to determine what function is sent. If this field is set to Vis Object (tx) then MagicQ sends the positions and rotations of MagicVis Attach Objects over PSN. Otherwise MagicQ sends the Tracker position and rotation for any valid Trackers.

Note that the PSN function option was introduced in v1.9.6.0. In previous versions it was necessary to set the OTP function to Vis Object (tx) instead of the PSN function for sending Vis Objects via PSN.

PSN is supported on MagicQ consoles. On MagicQ PC and Mac systems it is only supported when unlocked with an appropriate MagicQ or GeNetix interface.

Scaling, Offsets and Swaps

Scaling, offsets and swapping Y/Z can be set for individual Trackers in the Macro window, View Autom, View Trackers.

The incoming Tracker data is received and shown in the Data column. Than any Y/Z Swap is applied, the scaling is applied (which can be negative) and then any offset is applied. The result is shown in the X,Y,X columns which are then used internally by MagicQ for Tracker functions.

An IP address can be specified for each Tracker to restrict acceptance of Tracker data for that Tracker only from a single system with that specific IP address.

The Tracking settings are per console settings rather than per show settings. In order to load them from a saved show file use LOAD SHOW + CONS and ensure PORTS is selected.

Tracker Palettes

Tracker Palettes are special palettes that use a Tracker rather than absolute values stored in the palette.

By setting a Palette to be a Tracker Palette then wherever the Palette is used the channels

follow the Tracker with an optional offset. Tracker palettes recorded with values of 128 for the pan and tilt attributes (0 degrees pan and tilt) will have no offset. Any other values will function as an offset to the tracker device.

To set a Palette as a Tracker Palette go to View Palette and press the SET TRACKER soft button. Then select Tracker and enter a tracker ID.

To unset a Palette as a Tracker Palette press SHIFT UNSET TRACKER or press SET TRACKER and select none.

The Tracker controls the base position. It is therefore possible to add a FX on top of the tracker position - for example spots could be set to run a circle around the Tracker position of a moving car.

When a channel changes from control by an absolute value or normal Palette to a Tracker Palette then it uses the fade times to crossfade between the original position and the tracker position.

When a channel changes from control by a Tracker Palette to an absolute value or normal Palette then MagicQ used the fade times to crossfade from the tracker position to the new position.

By default all heads within the palette track the XYZ position of the Tracker. It is possible to set X and Z offsets from the MagicVis object XYZ position for each head in the View Palette view.

Using Automations with Trackers

MagicQ can trigger automation events based on a XYZ Tracker position related to a MagicVis object. This enables receiving XYZ position from an external system and using that position information to control other attributes - e.g. ramping up intensity of a fixed Luminaire when performer moves into an area on the stage. We tie it into areas of the stage that we can define in our MagicVis visualisation so we can control attributes - intensity, colour, zoom etc... based on how close the performer is to a point or to a line.

When the trigger type is set to Inside then as the XYZ tracker moves inside the MagicVis object the trigger event level goes from 0 at the edge to 255 at the centre of the object.

When the trigger type is set to Outside then when the XYZ tracker is outside the MagicVis object the trigger event level is at 255. When it moves inside it goes from 255 at the edge to 0 at the centre of the object.

When the trigger type is set to Enter then as the XYZ tracker moves inside the MagicVis object the event is triggered.

When the trigger type is set to Exit then as the XYZ tracker moves outside the MagicVis object the event is triggered.

For example, to set up a moving light to change magenta as a performer moves through a position, create a Cue Stack with a single Cue with the magenta colour attribute only. In

MagicVis create a Form - either a Cube or a Cylinder and place it on the floor of the performing space. Set the Cue Stack to Fader controls LTP and then create a Tracker automation type Inside and selecting the MagicVis object.

Tracking a Fixed XYZ when Lighting Trusses Moving

In situations where it is the lighting truss, and hence the position and rotation of the lights moving rather than an object moving it is possible to set up XYZ positions in the 3D space which are then tracked by the moving lights regardless of their actual position and rotation.

In this case the truss or object with the lights attached in MagicVis must be set to track the external Tracker either via OTP or via a Generic Movement personality. The Generic Movement personality can be set to get its data from an External Tracker by setting the Tracker attribute to a valid Tracker ID (1 to 20).

To use a fixed XYZ position, select the Heads and then use Focus Hold in the Plot View to position them. Record this position as a Position Palette, and then select View Palette and Set Tracker. Select the XYZ Pos option. Whenever this Palette is used in a Cue then the Heads will be positioned on this point, regardless of any changes in the physical position of the Heads in MagicVis.

It is also possible to use Focus Line instead of Focus Hold. As for Focus Hold, record this position into a Position Palette, and then select View Palette and Set Tracker to XYZ Pos option. The XYZ of each specific Head is stored into the Palette. The View Palette view will show the X and Z position in the Pan and Tilt fields.

Note that Setup, View Settings, Network, Tracker rx must be set to Internal or one of the external tracking protocols for tracking of fixed XYZ positions and objects. If it is set to None then no tracking will take place. Whenever this Palette is used, each Head will be positioned according to the specific Head XZ position. The Y (height) is common to all Heads in the Palette.

The View Palette window shows the palette XYZ position in the title bar. In addition for each head the Pan and Tilt fields show the X and Z offset of the individual head from the palette XYZ position. It is possible to adjust the offset of the heads for each head.

Tracking a Moving MagicVis Object

Where a MagicVis object is moving (under control of a Generic Movement head or using OTP Vis Object rx) then lights can be set up to track the XYZ position of the MagicVis object.

To track a MagicVis object, select the Heads and record them into a Palette and then select View Palette and Set Tracker. Select the MagicVis Object option and select the required object. Whenever this Palette is used in a Cue then the Heads will be positioned on this MagicVis object, regardless of where the object is or any changes in the physical position of the Heads in MagicVis.

Note that Setup, View Settings, Network, Tracker rx must be set to Internal or one of the external tracking protocols for tracking of MagicVis objects. If it is set to None then no

tracking will take place. Whenever this Palette is used, each Head will be positioned according to the specific Head XZ position. The Y (height) is common to all Heads in the Palette.

By default all heads within the palette track the XYZ position of the MagicVis object. It is possible to set X and Z offsets from the MagicVis object XYZ position for each head in the View Palette view.

Tracker Simulator

MagicQ supports an internal Tracker simulator that generates values for Tracker 1 and Tracker 2. Both trackers move within a rectangle from (-5,-5) to (5,5) metres. Tracker 1 is at 0.01m high and Tracker 2 at 0.05m high.

The movement is designed so that half the time the Trackers are moving in one dimension only and the other half they are moving in two dimensions. Tracker 1 moves in a positive X with no change in Z and then when it moves in a negative X it changes Z. Tracker 2 moves in a positive X changing Z at same time. When it moves in a negative X there is no change in Z.

The Tracker Simulator does not require MagicQ to be unlocked - it is possible to use it on MagicQ software without any external ChamSys interfaces.

The simulator is activated by setting Setup, View Settings, Network, Remote Tracker Protocol to Simulator.

Generic Tracker Personality

MagicQ supports a Generic Tracker personality that can be patched into a show. This enables a position to be tracked using control of the XYZ position from the Head within the MagicQ show or received as an input DMX from another system. It is possible to have control both from within the show and from an external system.

The Generic Tracker personality has ten channels:

Channel 1	Tracker ID
Channel 2	Spare
Channel 3+4	X position
Channel 5+6	Y position
Channel 7+8	Z position
Channel 9+10	Scale

All the attributes are mapped to the Position page when the Head is patched.

The tracker ID defaults to 1. If you are using more than one Generic Tracker then the Tracker ID for the Head should always be programmed into a Cue in the show file and activated.

The Generic Tracker personality uses MagicQ XYZ space which has X and Z as horizontal on

the stage / performance space and Y as vertical.

By default X,Y,Z are in mm. The 0 position is 32768, 32768, 32768. Values less than 32768 are negative. Values greater than 32768 are positive.

When scale is 0 or 256 then no scaling is applied. For other scale values the resulting X, Y, or Z position is multiplied by the scale divided by 256.

The Tracker data will also be scaled and swapped according to the Tracker parameters in the Macro Window, VIEW AUTOM, VIEW TRACKERS.

Normally the Generic Tracker will generate Tracker XYZ based on the MagicQ values for the channels programmed in the show file. If the channels are set to Input in the Patch then XYZ data will be received from DMX input. If the channels are set to Override in the Patch then date will be generated from MagicQ when the channels are active on a playback or in the programmer otherwise received from DMX input.

The Generic Tracker personalities do not require MagicQ to be unlocked to internally generate Tracker data - it is possible to use it on MagicQ software without any external ChamSys interfaces.

Receiving Generic Tracker data from DMX input is always supported on MagicQ consoles. On MagicQ PC and Mac systems it is only supported when unlocked with an appropriate MagicQ or GeNetix interface.

Generic Trackers can be used to generate internal Trackers within MagicQ in combination with receiving Tracker data from external protocols. Note that you should not use the same Tracker for internal generation and external receiving as the data will be mixed up.

Moving Vis Objects

Objects in MagicVis can be moved under control of Heads within the MagicQ show using the Generic Movement personality to model trusses that are on motors or set pieces that move around the stage. The Generic Movement Head also has a Tracker mode that can takes it offset data from an external Tracker instead of from its internal attributes.

To make an attach object movable patch a Generic Movement head into MagicQ. Then in Patch, View Vis set the attach object for the Generic Movement to be the Attach object to move. Any heads attached to the truss will move along with the truss.

The Generic Movement head has X, Y, Z position and X, Y, Z rotation attributes enabling complete control of the object from within MagicQ.

When the Tracker attribute is set to a valid Tracker ID (1..100) then the X , Y, Z position and X, Y, Z rotation is taken from the external Tracker. If the external Tracker does not provide valid rotation data then the X, Y, Z rotation is set to zero.

Note that PSN and OTP automatically try to match the incoming Tracker names to Vis object names - if you wish to use Generic Movement with trackers then ensure the names of the Vis objects are different to the tracker names.

The Generic Movement head is a virtual head so it can be unpatched in the MagicQ Patch.

The Generic Movement head can be used in combination with a Generic Tracker to simulate movement from within MagicQ when an external PSN/OTP feed is not yet available. Set both the Generic Movement and the Generic Tracker to use the required Tracker ID. In Setup, VIEW SETTINGS, Network, set Tracker RX to Generic XYZ Tracker.

Transmit Tracker 1 / Tracker 2 from Focus Hold

MagicQ can transmit the Focus Hold position to other consoles and devices using the MQ Track protocol.

Set Setup,View Settings,Network,Tracker tx to Generate Track 1 or Generate Track 2. MagicQ updates the respective Tracker from the Focus Hold position and transmits it over MQ Track protocol.

Generate Track 1 and Generate Track 2 can be used on secondary MagicQ consoles / systems to send the Focus Hold XY position from the Plot view to a primary MagicQ console (using MQ Track protocol), thus enabling separate operators to control the tracking points in real time.

DMX Input Tracking

Instead of tracking a single 3D position, MagicQ can receive tracker data for each Head directly on the DMX input corresponding to the output - for example if a Head is patched to Universe 1 channel 1 with pan and tilt on channels 10 and 12 respectively, then it will take the tracker data input for pan and tilt from input channels 10 and 12.

Whenever a Tracker Palette is active on that channel then the received DMX data will be used. When the Tracker Palette is not active then the normal MagicQ calculated data will be used.

Tracker Palettes are used for DMX Input tracking should be set to DMX In Tracker.

The palette pan and tilt values for each head should be set to 0% (128). It is possible to set pan and tilt offsets which are added to the received DMX in pan and tilt channels for each head in the View Palette view.

Tracker Demo Show

MagicQ includes a Tracker Demo show in the demo folder. The show has 6 Chauvet MK3 spots and playbacks programmed to demo tracking. Load the show and open the Visualiser Window.

When PB1 is raised a base look is put on the spots. A macro is run to set the Tracker Rx setting to Simulator. Trackers 1 and 2 will be moving across the stage - green and red crosses respectively.

PB2 contains a Tracker Palette for Tracker 1. Raising this playback fades to the spots tracking Tracker 1.

PB3 contains a Tracker Palette for Tracker 2. Raising this playback fades to the spots tracking Tracker 2.

PB4 contains a Tracker Palette for Tracker 3. Tracker 3 is controlled by the Generic Tracker head in the show file and shown in MagicVis with a green cross, that starts in the middle of the stage. Playback PB8 applies a circle FX to the Tracker 3 position. The spots will track Tracker 3 wherever it is.

PB5 has a Tracker Palette with a fixed XYZ position on the Drums. A Generic Movement head is attached to the lighting truss which enables via PB8 the truss to be raised and lowered. As the truss moves MagicQ recalculates the pan and tilt of the Spots to remain focuses on the XYZ position of the Drums.

PB6 has a Tracker Palette with a fixed XYZ position created from a Focus Line - each Spot in the Palette has a unique X and Z position in the Palette. The spots all share the same Y position. It operates similar to PB5 with the positioning being held as the truss moves.

PB7 has a Tracker Palette with a fixed position on the MagicVis Piano object. A Generic Movement head is attached to the Piano object which enables via PB10 the Piano to be moved left and right. As the truss moves, or the Piano moves MagicQ recalculates using the new position of the truss and the new position of the piano. The truss and the piano can move at the same time.

Stepping PB1 onto Cue 2 enables a Tracker Automation which triggers a Cue Stack with a Cue with the spots in yellow. As the specified tracker (Tracker 1) enters the specified Autom object (Auto Area - the rectangle on the floor left of centre) the Cue is triggered with a level proportional to the closeness to the centre of the object - at the edge it is 0% and at the centre it is 100%. The Cue Stack is set to Fader controls LTP so that the yellow is applied according to where the Tracker is in the area.

Note that on PC/Mac systems MagicQ must be unlocked for the Automation to work.

Settings

MagicQ supports a large number of settings that the user is free to change. These settings are divided into two categories – show settings and console settings. Show settings are settings that the user may wish to change on a show by show basis, whereas console settings are associated with the specific console and its connectivity to external devices.

Show Settings

- Mode Settings (not Product & Country)
- Keypad Encoders Settings
- Windows Settings
- Prog Settings
- Playback Settings
- Cue Stack Settings
- Cue Storage Settings
- Media Server Settings

Console Settings

- DMX I/O Settings
- Wing Settings
- Monitor Settings
- Mode Settings (Product and Country)
- Network Settings
- WIFI Setting
- MIDI Timecode Settings
- Port Settings
- Multi Console Settings
- Hardware Settings

Both show settings and console settings are stored in MagicQ show files, but by default only show settings are loaded when a MagicQ show is loaded. To force consoles settings to be loaded as well use SHIFT and LOAD SHOW+CON.

In MagicQ, console settings are marked with a red tag in the bottom right corner of the text box describing the setting.

Programming Mode

The MagicQ console allows the programming mode to be configured in the Setup Window. The modes control several of the different settings of the console. All of the settings can be configured individually – however, the modes make it easy to change between the most

frequently used settings.

The programming mode determines how the console is programmed. The options are Normal, Theatre non-track, Theatre tracking and Hog II Warp.

Changing mode during programming does not change Cue Stacks that have already been programmed – it only affects the programming of new Cue Stacks.

The settings affected by changing mode are:

Table 10. Setup, Prog Settings

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Programmer Tracking	No	Yes	No	Yes	Yes
Unused Chans return to defaults	No	Yes	Yes	Yes	Yes
Programmer overrides FX	No	No	No	No	Yes
Highlight mode	High/Low	High/Low	High/Low	High/Low	High/Low
Fan mode	Normal	Normal	Normal	Normal	No toggle
Select multiple groups	No	Multiple	Multiple	Multiple	Multiple
Recording to Palettes	Selected	All Heads	Selected	Selected	All heads

Table 11. Setup, Keypad Encoders

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Select heads on keypad intensity set	Yes	Yes	Yes	Yes	Yes
Select heads and palettes from keypad	Yes	Yes	Yes	Yes	Yes
Keypad always selects heads	No	Priority to Selected Heads	No	No	Yes

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Maintain encoders as Pos, Col, Beam	No	Yes	No	No	Yes
Keypad Syntax – Theatre Patch	No	No	Yes	Yes	No

Table 12. Setup, Windows

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Always Show Record Options	No	Yes	No	No	Yes

Table 13. Setup, Playback

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Intensity FX (HTP) can add,subtract	No	Yes	Yes	Yes	Yes

Table 14. Setup, Cue Stack Defaults, Fader

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Fader activates	Yes	Yes(single Cue)	No	No	No
Fader releases	Yes	Yes(single Cue)	No	No	No

Table 15. Setup, Cue Stack Defaults, Flash

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Flash activates	Yes	Yes	No	No	No
Flash releases	Yes	Yes	No	No	No

Table 16. Setup, Cue Stack Defaults, Step

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
Multi Cue, Controlled as chase	Yes	No	No	No	No
Multi Cue, Step halts before executing	No	Yes	Yes	Yes	Yes
Multi Cue, Zero Old HTP	Yes	No	Yes	No	No
Multi Cue, Zero Old FX	Yes	No	Yes	No	No
Track	L	HLF	L	HLF	HLF

Table 17. Setup, Cue Stack Defaults, Step Times

Setting	Live(Chase)	Live(Cue Stack)	Theatre non track	Theatre Track	Hog II warp
HTP in, HTP out, Pos times	0s	3s	3s	3s	3s

For changing between tracking and non-tracking mode simply change the "Programmer Tracking" setting in the Setup Window, "Prog" tab. This automatically sets the Default Cue Stack options (Recalculate state on jumps, Zero old HTP, Zero old FX) correctly.

Playback Mode

The playback mode determines how the console plays back cues. The options are Normal and Safe. In Normal mode the user can make changes during playback just like when they were programming the show. In Safe mode, making changes is not allowed and backups are turned off to any possible interference with the running of the show.

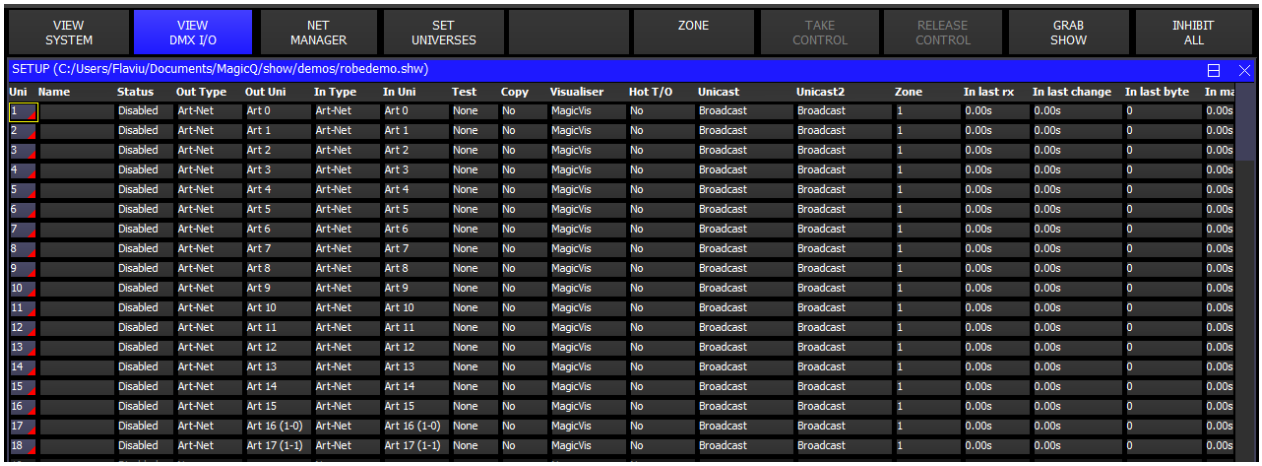
Output Settings

The console universes can be configured to use different protocols. Outputs must be configured and enabled before the console will output data. To set up outputs, open the Setup Window and select the VIEW DMX I/O view.

MagicQ software supports 64 universes but older versions of MagicQ support less universes. To change the number of universes in operation please see Configuring number of universes.

Configuring Output Universes

For each of the universes, the output and input protocol can be selected in the Out Type and In Type fields respectively. Press ENTER or double click to change to the next protocol type.



Uni	Name	Status	Out Type	Out Uni	In Type	In Uni	Test	Copy	Visualiser	Hot T/O	Unicast	Unicast2	Zone	In last rx	In last change	In last byte	In ma
1		Disabled	Art-Net	Art 0	Art-Net	Art 0	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
2		Disabled	Art-Net	Art 1	Art-Net	Art 1	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
3		Disabled	Art-Net	Art 2	Art-Net	Art 2	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
4		Disabled	Art-Net	Art 3	Art-Net	Art 3	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
5		Disabled	Art-Net	Art 4	Art-Net	Art 4	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
6		Disabled	Art-Net	Art 5	Art-Net	Art 5	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
7		Disabled	Art-Net	Art 6	Art-Net	Art 6	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
8		Disabled	Art-Net	Art 7	Art-Net	Art 7	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
9		Disabled	Art-Net	Art 8	Art-Net	Art 8	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
10		Disabled	Art-Net	Art 9	Art-Net	Art 9	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
11		Disabled	Art-Net	Art 10	Art-Net	Art 10	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
12		Disabled	Art-Net	Art 11	Art-Net	Art 11	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
13		Disabled	Art-Net	Art 12	Art-Net	Art 12	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
14		Disabled	Art-Net	Art 13	Art-Net	Art 13	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
15		Disabled	Art-Net	Art 14	Art-Net	Art 14	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
16		Disabled	Art-Net	Art 15	Art-Net	Art 15	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
17		Disabled	Art-Net	Art 16 (1-0)	Art-Net	Art 16 (1-0)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s
18		Disabled	Art-Net	Art 17 (1-1)	Art-Net	Art 17 (1-1)	None	No	MagicVis	No	Broadcast	Broadcast	1	0.00s	0.00s	0	0.00s

The possible protocols are

Table 18. DMX I/O Out Protocols

None	No protocol
Art-Net	Art-Net 1,2,3,4 protocols (over Ethernet)
sACN	ACN Streaming DMX (over Ethernet)
Sig-Net	Sig-Net secure DMX (over Ethernet)
Pathport	Pathport protocol (over Ethernet)
ShowNet	Show net protocol (over Ethernet)
MQ Direct	DMX outputs from MagicQ consoles
MQ Wing	DMX outputs on MagicQ Wings and Connects
MQ USB Interface	MagicQ Dual DMX interfaces and other MagicQ USB DMX devices
MagicDMX	ChamSys MagicDMX USB interface
Lumen Radio	

For network protocols such as Art-Net and sACN it is necessary to set up the Out Uni and In Uni fields - these determine which the ID of the Universe when carried over Ethernet.

A ! by a Universe indicates a clash whereby more than one Universe is being output on the same network Universes.

Using Art-Net

Art-Net™ Designed by and Copyright Artistic Licence Holdings Ltd.

To use Art-Net simply configure the Output Universe type to Art-Net, set the 'Out Uni' field to the desired Art-Net universe and set the 'status' for the universe to enabled. MagicQ will broadcast Art-Net over the network. MagicQ does not require any binding with nodes when using Art-Net in the default configuration.

When using Art-Net on a network with 32 or more universes it is recommended to use unicast Art-Net rather than broadcast Art-Net. Set the Art-Net type setting in Setup, View Settings,

Network to "V4 unicast". MagicQ then automatically unicasts Art-Net to detected Art-Net nodes rather than broadcasting.

Note that when using "Art-Net V4 Unicast" if a universe has fixtures patched and MagicQ can not detect any Art-Net nodes requesting that universe, MagicQ will broadcast that universe. When "Art-Net V4 Unicast Only" is set MagicQ will never broadcast Art-Net.

MagicQ can also be manually configured to unicast Art-Net to the IP addresses of two specific devices. Set the Unicast fields for each universe in DMX I/O. The IP addresses of Art-Net compliant devices on the network can be viewed in the Art-Net tab of the Net Manager.

When a Unicast address is manually set and the universe is set to Output Art-Net, MagicQ sends data for that universe direct to the unicast address rather than broadcasting that universe. Note that MagicQ will still broadcast that universe once per second - this allows all other consoles on the network to determine that there is a console outputting Art-Net for this universe. This additional broadcast can be inhibited by setting Setup, View Settings, Hardware, Reduced Rate DMX to "M+C no broadcast". Note that using both Unicast addresses doubles the amount of network traffic.

Take care when using manual unicast that the Unicast IP Addresses in DMX I/O are set up correctly. If they are incorrect then there will probably be latency in the response of the lighting rig since only the 1 per second Art-Net broadcasts will reach the nodes.

Art-Net is output from the console main lighting network unless the Net Host option is set to "Art-Net on Control Net" - in which case it outputs on the Control Net instead.

Using sACN

ACN Streaming DMX (sACN) uses multicast to output DMX data onto the network. When using many universes this often provides a much better solution that using Art-Net in broadcast mode. In sACN, DMX nodes only decode the universes they are interested in rather than having to decode all the universes broadcast on the network.

MagicQ supports unicast of sACN - set the Unicast addresses in Setup, View DMX I/O. When a Unicast address is set for a universe, MagicQ no longer sends that universe to the Multicast address. Unicast can be useful if the multicast is not reaching the nodes due to an IGMP or other problem with the network.

MagicQ supports use of the priority field in ACN universes.

The sACN output priority can be set in Setup, View Settings, Network. This should be between 1 - 200 and defaults to 100. When receiving sACN, MagicQ receives the highest priority. If there are multiple sources for a particular universe, MagicQ will only listen to the highest priority. The behaviour of MagicQ is undefined when there are more than 5 ACN sources for a particular universe or multiple sources with the same (highest) priority; this is not recommended.

sACN is by default output on the lighting network, but individual Sig-Net Uni Zones can be configured to be output on any of the network ports.

Using Sig-Net

In order to use Sig-Net the Uni Zone must be set up to use Sig-Net together with suitable scope and password in Net Manager, View Sig-Net, Uni Zones.

Sig-Net universes start from 1 the same as sACN.

Sig-Net uses multicast to output DMX data onto the networ. In Sig-Net, DMX nodes only decode the universes they are interested in rather than having to decode all the universes broadcast on the network. Unlike sACN which uses one multicast group for every universe, Sig-Net uses a maximum of 109 multicast groups for sending the DMX data, enabling scaling to thousands of universes without multicast group issues.

MagicQ supports unicast of Sig-Net - set the Unicast addresses in Setup, View DMX I/O. When a Unicast address is set for a universe, MagicQ no longer sends that universe to the Multicast address. Unicast can be useful if the multicast is not reaching the nodes due to an IGMP or other problem with the network.

MagicQ supports use of the priority field in Sig-Net universes and also supports per channel channel priorities based on patched or active channels.

The Sig-Net priority is set in the Net Manager, Vew Sig-Net, Uni Zones. This should be between 1 - 200 and defaults to 100. When receiving Sig-Net, MagicQ receives the highest priority. If there are multiple sources for a particular universe, MagicQ will only listen to the highest priority. The behaviour of MagicQ is undefined when there are more than 5 Sig-Net sources for a particular universe or multiple sources with the same (highest) priority; this is not recommended.

Sig-Net is by default output on the lighting network, but individual Sig-Net Uni Zones can be configured to be output on any of the network ports.

IGMP Multicast Settings

sACN and Sig-Net are multicast protocols and rely on IGMP in the network. MagicQ consoles have an inbuilt network switch which can perform IGMP snooping and act as an IGMP Querier.

When using sACN or Sig-Net on a MagicQ console together with a 3rd party managed network switch such as a Luminex GigaCore or a Netgear AV we recommend that IGMP Snooping on the internal MagicQ network switch is disabled, and the MagicQ IGMP Querier is set to detect other Queriers on the network.

- Setup, Settings, Network, Network Switch = Disable IGMP snooping (Default)
- Setup, Settings, Network, IGMP Querier = Normal, Detect Others

When the IGMP Querier option is set to: "Normal, Detect Others" it implements the full IGMP protocol that ensure the lowest IP address IGMP Querier is the active one.

MagicQ Consoles Direct Outputs

All current MagicQ consoles have four direct DMX outputs on the rear panel.

By default MagicQ consoles are set to output the first 4 console universes on the direct console outputs.

If the setting "Setup, View Settings, Ports, MagicQ Wings & Interfaces" is set to "Yes (auto DMX)" then the first 4 universes will output regardless of whether they are enabled in Setup, View DMX I/O.

If you wish to patch the direct outputs to other than the first four universes, then set the required universes to "MQ Direct" and set Port 1, Port 2, Port 3 or Port 4. As soon as any of the universes are set to "MQ Direct" or "Cham USB" then this overrides the default settings.

Note that MagicQ consoles support DMX input via Art-Net, Pathport or sACN. The direct DMX ports on MagicQ consoles and MagicQ Wings do not support DMX Input. In order to receive DMX into a MagicQ console we recommend to use a SnakeSys interface to convert from DMX to Art-Net or sACN.

MagicQ MQ500M Stadium Wing

The MagicQ MQ500M Stadium Wing is designed to connect to an MQ500M console to add extra playbacks and DMX outputs. Older versions of MagicQ supported the Stadium Wing on some other MagicQ products - in order to simplify the product range this is no longer supported.

MagicQ MQ500M Stadium Wing has four DMX outputs. When connected to a MQ500M the DMX outputs are by default set to output console universe 5 to 8. If you wish to patch the direct outputs to other than universes 5 to 8, then you will need to set all required universes to "MQ Direct".

The MQ500M and MQ500M+ Console support only 1 MQ500M Stadium Wing per console. When connecting the MQ500M Stadium Wing to MQ500M+ consoles, these consoles have 2 x DisplayPort++ Monitor outputs. The MQ500M Stadium Wing must be connected to DisplayPort output 1, this is the port closest to the Fan on the rear of the console. Connecting to the 2nd DisplayPort output on the console will cause the wrong display to be shown on the MQ500M Stadium Wing.

MagicQ Mini Connect, Compact Connect, Stadium Connect, Mini Wing, PC Wing and Maxi Wing

MagicQ Mini Connect & Wing have one DMX output, MagicQ Compact Connect, PC Wing and PC Wing Compact have two DMX outputs and the Stadium Connect & MagicQ MaxiWing have four DMX outputs.

By default MagicQ is set to output the first universes on the system to the DMX outputs on the Connects and Wings. For MagicQ Compact Connect & Mini Connect Universe 1 will be output from the DMX port, for Compact Connect, PC Wing and PC Wing Compact universes 1 and 2 will be output, and on Stadium Connect, MaxiWing universes 1 to 4 will be output.

If Setup, View Settings, Ports, MagicQ USB Wings & Interfaces is set to "Yes – auto DMX" then MagicQ will automatically output DMX on the Wings starting from Universe 1 – provided that none of the Universes have been explicitly set to "MQ Wing".

To use different universes, set the required universes to MQ Wing and enable them. The universes set to MQ Wing will be output to the ports in order.

Note when using the Direct DMX Output on the Mini Wing with some PCs/operating systems the USB driver for the MiniWing runs slowly, this can cause FX/Chases to run slower than expected. Unfortunately this is not under ChamSys control as the FTDI driver is closed software. Setting Setup, View Settings, Ports, MagicQ Wings and Interfaces = Yes instead of Yes, auto DMX and ensuring universes are not set to MQ Direct or MQ Wing will prevent MagicQ sending DMX to the MiniWing which should then avoid the slowing of the system. Other MagicQ Wings and Interfaces are not affected by this.

These Wings can be used in the standard Panel modes in MagicQ PC. They are not supported in the Stadium Panel modes.

MagicQ Dual DMX Interfaces

For MagicQ Dual DMX Interfaces select MQ Dual DMX. In older software this was ChamSys USB. Then select the module and port in the Out Uni field. For example, select Mod 1 Port 1 and Mod 1 Port 2 for the two outputs. Any of the universes can be output to MagicQ Dual DMX interfaces.

When connected to MagicQ consoles and some laptops the MagicQ Dual DMX Interface may need external power from a 12V power supply. Check Setup, View Status, Interfaces, DMX Modules.

When connected to MagicQ consoles the module should be configured as Mod 2 Port 1 and Mod 2 Port 2 since the console internal DMX module is considered to be module 1.

MagicDMX Interfaces

MagicDMX Interfaces automatically output on universe 1 when Setup, View Settings, Ports, MagicDMX mode is set to DMX Out.

It is possible to set the Out type for Universe 1 to be MagicDMX – this automatically sets the Setup setting MagicQDMX mode to DMX Out.

It is not necessary to set the Out type for Universe 1 – only the MagicDMX mode setting.

MagicDMX devices do not need any additional drivers – they use different HID drivers within the operating system.

Note that the MagicDMX Basic version is limited to 5 hours of continuous use. When the time is close to expiring warnings will be shown. On expiry the MagicDMX will send out DMX levels of 0. The MagicDMX Basic interface must then be unplugged and MagicQ software restarted to use the device again.

The MagicDMX Basic version only supports DMX Out. The MagicDMX Full Interface supports both DMX Out and DMX In.

The newer MagicDMX Full manufactured from May 2023 with USB C Connectors support RDM. Older MagicDMX Full with USB A connector do not support RDM.

The MagicDMX interfaces do not remove the automation and remote restrictions when used with MagicQ Software – this requires a MagicQ Wing, or MagicQ Dual DMX Interface.

Support for Lumen Radio Nova

MagicQ supports the Lumen Radio CRMX Nova TX USB dongle for controlling one universe of DMX via Lumen Radio. This allows Heads from many manufacturers including Robe and Ayrton to be controlled over wireless direct from the console.

In MagicQ simply set the Output Type in Setup, View DMX I/O for Universe 1 to Lumen Radio and enable the universe. When connected the interface should be shown under Setup, View Status, Interfaces, USB Port Type as "En". The Lumen Radio can only be configured on Universe 1. To output a different universe to the device set the copy field on Universe 1 to copy from the required universe.

The Lumen Radio device is supported on all MagicQ consoles except MQ40 and MQ40N.

Only one Lumen Radio device is supported per console.

3rd Party DMX Dongles

MagicQ software previously had some support for 3rd party DMX dongles - these are no longer actively developed or maintained and have been removed from v1.9.5.0. ChamSys are unable to offer support for these interfaces - we recommend the use of our low cost MagicDMX interfaces. 3rd party DMX dongle are supported on Universe 1 only. Note that some of these devices rely on the PC to do the DMX framing and therefore results may be unpredictable on some systems. Many of these devices are unable to transmit full DMX frames at the full DMX refresh rate.

Testing Output Universes

MagicQ supports some simple options for testing complete output universes, including sending all ‘0’s, sending all ‘255’s, and several additional test patterns. Tests can be performed on individual universes using by selecting the test in the Test field of the Setup Window, DMX I/O view.

Selecting "Input" automatically routes all 512 input channels received on the universe to the 512 output channels. This is useful for loopback and network protocol conversion.

Selecting "Merge" automatically merges the received 512 input channels with the consoles 512 output channels. All 512 channels are HTP merged - i.e. the output is the largest of the input value and the console calculated value.

When any of the universes are in test mode a warning flashes in the Status Display.

Copying Output Universes

MagicQ supports copying of entire universes to multiple outputs – this may be useful where you wish to duplicate an output universe onto different outputs of an Art-Net interface, or you want to set MagicQ wing outputs to be the same as Ethernet outputs. Select the universe you wish to copy in the Copy field of the Setup Window, DMX I/O View.

Select the Universe to copy – e.g. Uni 1 for the first Universe. You can enter the universe number. Enter 0 to turn off copying.

Hot Take Over

MagicQ supports hot takeover to enable a second console (or MagicQ PC) to takeover running the show if the first console has a problem.

When using Net Sessions, then all Hot Takeover fields in DMX I/O should be set to No.

For how to use hot takeover see Using Multiple Consoles.

The options are No, Yes and Yes, Loop. When set to "Yes", MagicQ will disable the universe if it receives incoming DMX for that universe. The Hot Takeover Mode option in Setup, View Settings, Multi Console, determination which console has preference.

When set to "Yes, Loop" MagicQ will show the universe as disabled, but will loop through the received DMX data for that universe. In Setup, View DMX I/O the In Type and In Uni determine where the data for a universe is received from and the Out Type and Out Uni determine where it is transmitted to. The Out Uni and Out Type do not need to match the In Type and In Uni - it is normal to receive into MagicQ one universe and output to a DMX node on a different universe.

Identify Universes

When the Identify field is set to On it will identify all ports on ChamNet and Sig-Net supporting nodes that are receiving data from this universe. Like all other fields in DMX I/O this field persists over a reset of the console.

Input Universes

MagicQ supports the same number of input universes as output universes. Input universes can be used for grabbing DMX data from other consoles, remote triggering via DMX, and merging with MagicQ calculated data. The Input universes can also be used to monitor lighting data on the network.

By default the Input universes are configured the same as the Output universes. If you wish to receive data from other consoles then you must use different universes for input from the ones you are using for output. For example if you have universe 1 to 16 set to output on Art-Net 0-0 to 0-15 then you must not uses these Art-Net universes for Input. We recommend using much higher universes for input - e.g. Art-Net 4-0.

The Input types supported are None, Art-Net, sACN, Pathport, Shownet and console.

When MagicDMX Mode is set to Input, data from the MagicDMX Full will always be received on universe 0 regardless of the settings of universe 1 in the DMX I/O window.

If data is received on the input from another console then MagicQ will detect a conflict and change the status field to show "En Cflct" and "Dis Cflct" dependent on whether the universe is "Enabled" or "Disabled".

Data being received on Input Universes can be viewed in the Output Window, View Chans, View DMX by selecting DMX Inputs. Make sure to change back to View Outputs after you have finished viewing the Outputs otherwise it may cause confusion later.

Data received on input universes can be merged into complete universes or merged in the Patch, or to trigger playbacks (Setup, View System, Wings) or used to trigger Automations. It can also be used to grab palettes from DMX.

The Input universe type can also be set to "Console" to loop the output back into the input. This enables output channels to be used coming back in for automations.

The DMX I/O window shows the status of the Input universes (page right) including:

In last rx	Time since last received input
In last change	Time since DMX data last changed
In last byte	The value of the 1st byte in the last DMX data received
In max gap	The maximum gap between DMX packets received
In last period	The period that this universe was last receiving data for
In IP	The IP address that data was last received from
In conflicts	The number of conflicts - where data transmitted/received from 2 or more sources

The maximum gap only starts counting once a valid DMX data is received on that universe. It is set back to 0 when changes are made in DMX I/O.

The period that the universe was last receiving data counts up whilst data is being received. If there is a gap of greater than 60 seconds then it is reset to 0.

The IP address shows the IP address of data received over the network and does not include data transmitted from this console.

The number of conflicts is increased if data for a particular universe is received from 2 or more consoles within 5 seconds. It is also increased if MagicQ transmits on a universe where data has been received from another console within the last 5 seconds. Note that MagicQ will not count conflicts when master/slave hot swaps are in progress.

Merging DMX from Another Console

To merge data from another console into MagicQ you need to set the other console to output Art-Net/sACN on a different universe range to the MagicQ.

The MagicQ console outputs Art-Net/sACN as normal to the nodes.

The other consoles sends either Art-Net or sACN to MagicQ on a different range of Art-Net / sACN addresses.

On MagicQ set the Input Universes to receive the universes from the other console.

For example, consider a MQ500M merging 256 universes of data from another console.

- MQ500M outputs on Art-Net universes 0..255
- Other console outputs Art-Net 256..511
- MQ500M Input universes set to Art-Net and 256..511

Then you need to choose how you merge:

If you just want to HTP merge some universes you can do this in the Setup, View DMX I/O window by setting the Test field to Merge. It does a HTP merge for the whole universe.

If you want to be able to control from MagicQ or from the other console then in Patch set all channels to over-ride. When those channels are used in MagicQ playback/programmer they will be controlled by MagicQ, otherwise they will be controlled by the other console. (i.e. MagicQ over-rides the other console)

Note that the MagicQ MQ500M is capable of merging 256 universes - but this means 256 universes output and 256 universes input. This means that you need 512 universes on the network, which can be achieved on a 100M network - but there will be a fairly high network utilisation.

To minimise network load we recommend disabling any unused universes.

Visualiser universes should be set to MagicVis when not used. Any universes set with the Visualiser field to WYSIWYG in DMX I/O will output network traffic since MagicQ is unable to detect the presence of WYSIWYG and therefore always sends data. Visualiser set to Capture/MagicVis is ok as MagicQ only sends if there is a connection to the Visualiser.

Note that if you use HTP merging you need to ensure that any LTP channels (such as Pan/Tilt) are set to 0 on the consoles when not being used - otherwise they will not be fully controllable from the active console.

Wing Settings

ChamSys manufacture the following wings that connect to PCs, Macs and consoles via USB

Table 19. Wings

Product	No of Playbacks	Playback numbers.	No of DMX	No of wings supported per PC / console
Mini Connect	10	Main (1-10)	1	1
Compact Connect	10	Main (1-10)	2	1
Stadium Connect	10	Main (1-10)	4	1
Extra Wing	24	1 * Wing Playbacks	None	8
Compact Wing	20	1 * Wing Playbacks	None	8
MQ500M Wing	30	2 * Wing Playbacks	4	1 (MQ500M only)

Connecting a Mini Connect, Compact Connect, Compact Wing or Stadium Connect

These products do not require any special drivers.

To enable the wing ensure that Setup, View Settings, Ports, MagicQ Wings & Interfaces is set to "Yes (auto DMX)".

The following short-cuts make programming on MagicQ PC Wing easier. The short cuts also work on MagicQ console.

Table 20. Programming Wing Shortcuts

Hold ALL and press a playback Select	Selects groups 1 to 10
Hold POS and press a playback Select	Selects position palette entry
Hold COL and press a playback Select	Selects colour palette entry
Hold BEAM and press a playback Select	Selects beam page or beam palette entry
Hold ALL and press Next Head	Selects next group
Hold ALL and press Prev Head	Selects previous group
Hold POS, COL, or BEAM and press Next Head	Selects next range for last encoder changed
Hold POS, COL or BEAM and press Prev Head	Selects previous range for last encoder changed

Connecting GeNetix Nodes (Via USB)

GeNetix GN2, GN5 and GN10 nodes can be connected via USB.

These products do not require any special drivers.

To enable detection of the GeNetix ensure that Setup, View Settings, Ports, MagicQ Wings & Interfaces is set to "Yes (auto DMX)".

Connecting Playback Wings and Extra Wings

To configure Playback Wings and Extra Wings open the Setup Window and choose View System, Wings.

In the Type field, choose "Playback / Extra Wing or Compact". When the console has detected the Playback wing it will show as "Fitted" in the status field.

If you wish to connect more than one Playback or Extra Wing then enable the required number of Wings.

Make sure you enable enough or the same number of wings as you connect to MagicQ. Connecting more Wings to MagicQ than you enable will cause unpredictable results.

Playback Wings and Extra Wings with Blue LCDs can have a Wing ID set for systems with more than one Playback or Extra wing. Hold down the lower NEXT PAGE and PREV PAGE buttons when powering on the Wing to get into the Wing configuration mode. From the menus you can then set a Wing ID.

In Setup, View System, Wings you can configure which Wing IDs are expected.

The Playback Wing was last manufactured in 2016 and newer versions of software may not support it fully.

Table 21. Old Products

Product	No of Playbacks	Playback nos.	No of DMX	No of wings supported per PC / console
Mini Wing	10	Main (1-10)	1	1
PC Wing	10	Main (1-10)	2	1
Maxi Wing	10	Main (1-10)	4	1
Playback Wing	24	1 * Wing Playbacks	None	8
Execute Wing	48	2 * Wing Playbacks	None	4
Stadium Playback Wing	30	2 * Wing Playbacks	4	1

Connecting a Mini Wing, PC Wing or Maxi Wing

Before you can use the MagicQ PC Wing the driver must be installed.

These wings are supported in the MagicQ PC standard panel modes. They are not supported in the Stadium panel modes.

Connecting an Execute Wing

The Execute Wing has 48 playbacks arranged as 12 fader playbacks and 36 button only playbacks. This corresponds to the 48 playbacks whereas with standard Playback Wings there are only 24 playbacks.

The upper 3 rows of playbacks control playbacks in the usual way. Note that as they do not have a fader, the value the attributes that would normally be controlled by the fader (generally Intensity values) will automatically default to 100%. The Playbacks can still have times in the normal way, so that Intensity values can be faded in and out.**

The Execute Wing was last manufactured in 2016 and newer versions of software may not support it fully.

Connecting MagicQ Consoles Together

It is possible to connect multiple MagicQ consoles together in order to control a larger number of Universes. The master MagicQ console then outputs some channels which act like playbacks for the slave consoles.

On the slave consoles, one of the wings is configured as "DMX In" and select a range of channels for it to respond to. Note that the universe that contains these channels must have input enabled in the "View DMX I/O" view. This causes the playbacks on the wing to be controlled by up to 24 DMX channels received into the console. The level of the playback is determined from the received channel.

Using an External DMX Console for Extra Playbacks

It is possible to use an external DMX console to gain extra playback controls when using MagicQ consoles. This is not a replacement for a MagicQ Playback wing with its electronic legending and Cue Stack controls.

On MagicQ PC this option is only available to control Playbacks PB1 to PB10 and is only enabled when a MagicQ Wing or MagicQ USB Interface is connected. This feature allows synchronisation of MagicQ with other consoles.

Configure an unused wing to be "DMX In" and select a range of channels for it to respond to. Note that the universe that contains these channels must have input enabled in the "View DMX I/O" view.

In order to allow use of FLASH buttons on the external DMX console, MagicQ uses the top 5% of the channel range as an indication that a FLASH button has been pressed. On the external console the playback master fader should be configured at a maximum of 95% with the flash master set to 100%. If it is not possible to set the master levels independently on the external DMX console then set the grand maser on it to 95%.

Monitor Settings

MQ500(M) Operating System

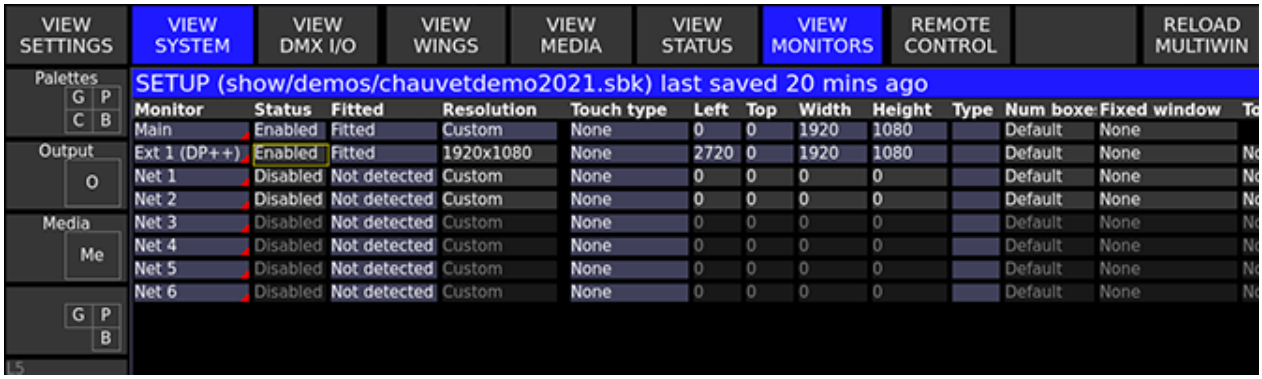
On the MQ500(M) one external touch screen is supported up to 1920x1080 resolution. The MQ500(M) has a DVI-D connector which supports connection to an external DVI Digital monitor via DVI. The DVI-D connector does not support the use of DVI-VGA adapters.

In Setup, View System, Monitors set Monitor 1 to the required resolution in the Resolution column, and enable it. You will be asked to restart - confirm No and set up the Type field.

MQ250M Operating System

On the MQ250M one external touch screen is supported. The MQ250M has a DP connector (display port), which supports both direct Display Port monitors and HDMI monitors using a Display Port to HDMI cable (MQ250M consoles are supplied with a Display Port to HDMI cable)

The MQ250M will auto detect supported monitors (note the use of HDMI/DP splitters/switchers with the console is not recommended and may cause issues with the detection of the external monitor). In Setup, View System, Monitors, the External Monitor is shown as 'EXT1 DP++'. The Status field will automatically change to enabled when the monitor is connected.



Compact (MQ50/MQ70) Operating System

On the MQ50 and MQ70 one external touch screen is supported up to 1920x1080 resolution - display via the HDMI connector and touch via USB. The MQ50 and MQ70 will auto detect supported monitors

MQ80 Operating System

On the MQ80 one external touch screen is supported up to 1920x1080 resolution. The MQ80 has a DVI connector which supports connection to an external monitor via either DVI or VGA cable - unlike other MagicQ consoles you must configure which cable you are using.

In Setup, View System, View Monitors set Monitor 1 to the required resolution in the Resolution column, and enable it. You will be asked to restart - confirm No and set up the Type field.

Set the Type field to VGA or DVI depending on which input socket you are using on your monitor - VGA or DVI.

After configuring View Systems, Monitors, the external monitor may still be showing as a clone of the internal monitor. Power the console off and on for the changes to take effect.

Old Compact (MQ40N/MQ60/old MQ70) Operating System

On MQ40N consoles one external monitor (not touch screen) is supported. The monitor is always fully enabled on the MQ40N, there are no settings to be set for this functionality.

On the MQ60 and MQ70 one external touch screen is supported. We recommend using a 1024x768 resolution monitor for best performance.

Touch screens are supported but note that the Linux operating system on use on these consoles does not currently support multi touch screens.

Monitor settings on MagicQ PC / Mac

When using multiple monitors on a PC first enable the monitors in Windows by putting the Windows desktop onto all the monitors. Then start MagicQ PC and in Setup, View System, Monitors enable the required monitors.

The first monitor is the main MagicQ Window and must always be enabled. Enable all the monitors that you wish to use for Multi Windows.

From the Toolbar select View, External or press the EXT button to move a Window between the different monitors.

Sizing of Windows on the other monitors occurs just like in the Main Window – you can select full windows, half windows and quarter windows.

The entire space on the other monitors is used for MagicQ Windows. When a Window is moved to another monitor the size is kept the same – for example, if it was a quarter window on the Main MagicQ Window it will be a quarter window on the other Window.

You can change the size on the other windows, just like on the Main MagicQ Window from the View menu on the Toolbar or by using the SIZE button.

Moving Windows to the External Monitor

Press EXT to move a Window to the External Monitor. The window that is currently in focus is transferred to the external monitor. Press EXT to return the window to the main monitor.

Press SHIFT + EXT to bring all windows to the internal monitor. On Compact consoles type 0 and press ALT MEDIA (EXT).

MagicQ includes an option to force a single window to one of the external monitor output(s). The Window will remain on the external monitor except when a SHIFT CLOSE is performed. This option is set in the Setup Window, View System, Monitors in the Fixed Window column.

Additional Cue Stack, Output, Programmer, Media, Execute, Group Windows

MagicQ supports additional windows - accessed by pressing CTRL and the Window button or by typing 2 and the Window button to get the second window.

Up to four Output Windows are supported by pressing 2 OUT, 3 OUT and 4 OUT. Up to 3 Execute Windows are supported by pressing 2 EXEC and 3 EXEC.

Up to three Group Windows are supported by pressing 2 GROUP and 3 GROUP.

For instance by using both the Outputs and the Outputs Info windows you can view both the plan view and the data values simultaneously.

Similarly, the Cue Stack Info window is designed as a master window to keep track of the Cue Stack on the currently selected playback. The columns have been rearranged so that the comment field is shown as one of the first columns.

This is ideal for theatre playback where the operator wishes to see notes about the Cues during playback – you could for instance put a comment on a Cue "Call spots when actor enters stage right".

Additional External Screens (Multi Windows) on Consoles

The MagicQ Stadium, Compact, and older MQ100 consoles support an external monitor directly from the rear panel.

It is possible to connect more monitors using the MagicQ Multi Window Client application running on one or more external PCs to display windows from remote MagicQ systems. These additional monitors can be touch screens if the PC supports them.

The MagicQ Multi Window Client application comes as part of the MagicQ PC installation.

The MQ500M supports up to 4 external monitors off one external PC, whilst other MagicQ consoles support 1 external monitor on an external PC.

In order to enable Multi Window connection on MagicQ, enable the net monitor on the console in Setup, View System, Monitors.

Connect the MagicQ console to the PC/Mac using a network cable and ensure that both PC/Mac and MagicQ console are on the same network IP address range (e.g. 2.x.x.x subnet 255.0.0.0).

On the PC or Mac, run the Multi Window Client application; it should automatically detect the console.

Note this function is not supported on the MQ40N console, and that the Curve editor window is not supported.

Touch Screen Settings

On PC / Mac systems touch monitors are set up under the operating system, not under MagicQ.

MagicQ consoles support many different touch protocols - however we are reliant on the drivers available in Linux, so not all touch screens will be supported. We strongly recommend you check the protocol is supported and test a sample with a MagicQ console before purchasing a touch screen. We can not guarantee that any touch screen will work with MagicQ - the list below is for guidance only.

We generally recommend ELO AccuTouch, ELO IntelliTouch and iiyama touch screens. ELO Acoustic Pulse Recognition (APR) touch screens are NOT supported. We currently do not support touch screens with multi touch support on the MQ60 Compact consoles.

For MQ500M, MQ500 and MQ80 the following touch screens have been tested and proven: Asus ProArt Display PA148CTV, Asus VT207N, Dell S2240T & P2418HT, Hanns G HT225HPB, iiyama ProLite T2336MSC, iiyama T2235MSC-B1, iiyama T2255MSC (from v1.9.6.0 onwards), iiyama T2252MSC-B1 (from v1.9.6.0 onwards), iiyama T2254MAC-B1, Lenovo ThinkCentre TIO22 / TIO24 (gen 4) and Viewsonic TD2421 touch screens.

For MQ250M, MQ50 and MQ70 consoles the above monitors listed as supported on the MQ500M, MQ500 and MQ80 are also supported with these consoles. In addition the Acer UT220HQL, ViewSonic TD2223-2 and Hanns G HT231HPB are also supported.

These monitors above are not supported on MQ60 or MQ100 Pro2010 consoles.

For MQ60 consoles we recommend the iiyama ProLite T1531SR-B1, or iiyama ProLite T1561SR-B3 connected via RS232 serial port for the touch - these monitors are not supported via USB on the MQ60. For USB connection on the MQ60, we recommend the ELO1919L model no. E176026 and Viewsonic TD2210 touch screens.

MagicQ will show any detected touch screens in Setup, View System, Monitors.

Tested another touch screen monitor with a MagicQ console? E-mail us at support@chamsys.co.uk with the make and model, so we can add to the list of tested monitors.

Configuring an external Touch Screen

To configure an external serial touch screen:

- In Setup, View Settings, Ports set Serial Remote Protocol to one of Ideal Touch, Pro Touch, A1 Touch, Elo Touch.
- In Setup, View Settings, Ports set Serial baud rate, parity, data bits, stops buts. If in doubt set baud rate to 9600, data to 8 bits, stop bits to 1 and no parity.
- Select the Serial Touch Monitor to the monitor the serial touch is associated with.
- Press ALT + CNTRL + SHIFT together to enter board test mode. Moving a finger around the edge of the screen should report increasing/decreasing X,Y values in the Status Window.
- Exit board test mode (ALT + CNTRL + SHIFT).
- Go to Setup, View Settings and select Calibrate Touch. Press 1 to confirm.
- Now press the X on the external touch screen in the four different positions as requested.

Do not press on any other monitors except the one being calibrated.

To configure an external USB touch screen:

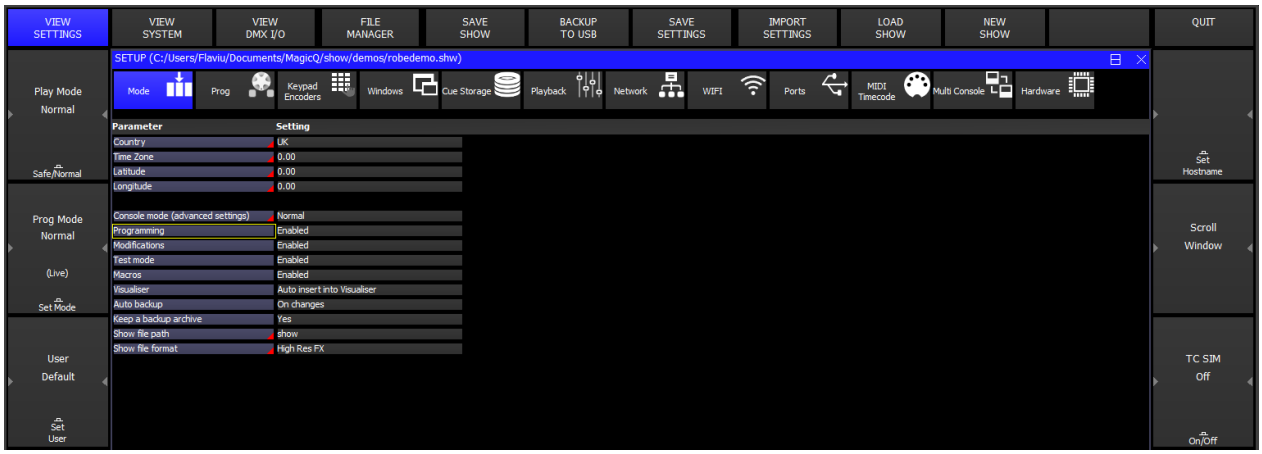
- Set up the Touch Type in Setup, View Settings, Monitors. Start with Normal or eGalax.
- If a touch screen is detected then it will show up in the Touch Status field.
- Press ALT + CNTRL + SHIFT together to enter board test mode. Moving a finger around the edge of the screen should report increasing/decreasing X,Y values in the Status Window.
- Exit board test mode (ALT + CNTRL + SHIFT).
- Go to Setup, View Settings and select Calibrate Touch. Press 1 to confirm.
- Now press the X on the external touch screen in the four different positions as requested. Do not press on any other monitors except the one being calibrated.

If the Touch Screen shows a status but does not give consistent values in Board Test then try a different Touch Type.

If the Touch Screen shows consistent values in Board Test but does not respond correctly then recalibrate the touch screen.

Mode & Security Settings

The Settings View of the Setup Window uses tabs to group similar settings together.



Country

The country setting determines the locale of the installed MagicQ system. Currently MagicQ supports: UK, US, F (French), D (German), E (Spanish), P (Portuguese), I (Italian) and NL (Dutch). When selected, menu items will be displayed in the appropriate language.

Time Zone

The time zone setting determines the current global time zone offset of MagicQ for systems where the system time zone is configured as UTC but the system time is set to local time.

The time zone setting is used when programming with scheduled events based on sunset and

sunrise times.

For MagicQ PC versions, your system will be likely configured to the correct local time zone, and this setting should be set to "0.0". For MagicQ consoles where the system time matches your local time, configure the time zone value to be the offset from your local time to UTC.

Enter the time zone offset in relation to UTC in decimal hours. For example, if 8 hours behind (West Coast US) enter "-8". For time zones using fractional hours, enter these as decimals, so UTC+5:30 should be entered as "5.5".

Latitude

The latitude setting determines the current latitudinal position of the installed MagicQ system.

The latitude setting is used when programming with scheduled events based on sunset and sunrise times.

Enter the latitude in decimal degrees, e.g. "50.91". Positive values are North and negative values are South.

Longitude

The longitude setting determines the current longitudinal position of the installed MagicQ system.

The longitude setting is used when programming with scheduled events based on sunset and sunrise times.

Enter the longitude in decimal degrees, e.g. "-1.41". Positive values are East and negative values are West.

Console Mode (Advanced Settings)

This setting defines the operational mode of the console. The options for console mode are: "Normal","MQ500M Banking" and "Compact Playback Levels".

The "MQ500M Banking" is for use with MQ250M and Stadium Connect. When set, it uses MQ500M Banking - i.e. 15 playbacks per bank rather than the default 10 playbacks per bank. Note that Playbacks can be easily moved around in the Playbacks Window, View All.

The "Compact Playback Levels" is for use when running shows programmed on Compact consoles on Stadium consoles. On Compact console with Playback Holdover Mode set to Default the Playbacks when changing page the Playbacks do not change level to the level last used. On Stadium consoles the levels are changed and the faders moved to the last level. This option enables shows programmed on Compact consoles with Default Playback Holdover Mode to be run in the same way on Stadium consoles.

Default: Normal

Programming

This setting enables and disables the recording of show data. When set to "disabled", show data can not be recorded, moved, copied or updated, preventing the show from being changed.

Parameters of Cue Stacks and Cues such as Chase Speed, Shape Size and times can still be modified.

Default: Enabled

Modifications

This setting enables and disables modifications of Cues and Cue Stacks.

Parameters such as Chase Speed, Shape Size and times can not be modified, ensuring Cues and Cue Stacks are played back exactly how they were programmed.

Default: Enabled

Test Mode

The Test Mode setting enables and disables the testing of Cues, Cue Stacks, Playbacks and Patched heads from the Cue, Cue Stack, Playback and Patch windows respectively. It also disables play back of Cues and Cue Stacks from the Execute window.

Use this setting to avoid accidental testing of programmed show elements.

Default: Enabled

Macros

This setting enables and disables key macros.

Use this setting to turn off key macros where they have been mistakenly assigned to keys or other show programming elements.

This setting does not affect Cue Stack macros - these are always enabled.

Default: Enabled

Automs

This setting enables and disables Automs.

Use this setting to disable all Automs. When disabled, the Autom window indicates Automs are disabled in the title bar.

Default: Enabled

Visualiser

The Visualiser setting determines how heads are inserted and operated within the Visualiser

When this option is set to "Disabled", heads are not auto inserted and the user is prompted when patching the first head within a show.

When this option is set to "Auto Insert Into Visualiser", heads are auto inserted into the visualiser upon patching within a show.

When this option is set to "Auto Insert, Auto Pre-Vis", heads are auto inserted and Cue previsualistion is enabled by holding the playback S buttons.

When this option is set to "Auto Insert, No Patch Offsets", heads are auto inserted but no patch offsets are added to the Output of MagicQ (both normal and Vis).

Default: Disabled

Start Mode

The Start Mode setting determines how MagicQ should operate when the software is started.

When "Splash Screen" is selected, MagicQ will display an image splash screen when the software is launched.

When "None" is selected, MagicQ will return to the last show loaded into the console.

When "Choose demo show" is selected, MagicQ will present the user with options to load the last show or a selection of preset and demo shows.

When "Visualiser" is selected, MagicQ will display the visualiser when launched.

When "Remote Control" is selected, MagicQ will launch in remote control mode.

When "Net sessions Slave" is selected, MagicQ will start up as a Slave console. The console will prompt for which Net Session to connect to and if Users are in use on that session then a User login.

When "Multi Window" is selected, MagicQ will launch in Multi Window mode and await for another MagicQ system’s connection.

Default: Choose demo show

Splash Image

This setting is used to specify a splash screen / lock screen for the current show. When set the image will be stored into the .xhw file when the show file is saved.

When no file is specified MagicQ uses the user splash screen stored on the console if present, otherwise it uses the default MagicQ splash screen.

Default: None

Run in Execute Window

This forces the Execute window into full screen mode when the system starts up.

When set to Cur Grid then MagicQ will start using the current Grid.

When set to Grid 2 to 10 then MagicQ will start using that Execute Grid.

See [manual:execute:::execute]

Default: No

Auto Backup

This setting enables the console to create automatic backups of your show file.

When this option is set to "No", no backups will be saved. "No" is recommended during playback of very large show files to avoid slowing the response of the console.

When this option is set to "On Changes", MagicQ will only back up your show file after changes are made. The backup is scheduled up to 60 seconds after the change. "On Changes" is recommended when programming to avoid loss of show data.

When this option is set to "Always", backups will be made every 60 seconds.

Default: On Changes

Keep a Backup Archive

This setting enables the console to keep periodic archives of previous auto backups created. If the Auto Backup setting is set to "No" then no archives will be made.

See archive.

Default: Yes

Show File Path

This setting defines the location of saved show files and backups.

Users can save show files in custom-named folders, this may be useful within the education environment to separate different users.

Default: "show" (Recommended)

Show File Format

This setting defines the format of saved show files.

When set to "High Res FX", MagicQ will use an improved file format capable of saving higher resolution timing values.

When set to "Normal", MagicQ will use a slightly smaller file format, excluding the higher resolution timing values found in "High Res FX".

When set to "High Res FX & Reduced Size", MagicQ will use a compressed file format designed for larger show files.

Default: High Res FX

Extras File Create Mode

This setting defines when the show extras file is generated

When set to "On show save", the show extras file will be generated when the user explicitly selects SAVE SHOW or SAVE SHOW TO USB.

When set to "Manual", then the show extras file will only be generated when selecting Shift + SAVE EXTRAS in the Setup window.

Default: On show save

Personality File Format

This setting defines the format for loading personality files.

Currently the only option is "Unexpanded" - the personality files are read directly from the heads.all file, without expanding.

Older versions of software supported "Original". When set to "Original", the personality files were expanded from the heads.all file when updated.

Programming Settings

Programming settings are automatically changed when you select the mode – Normal, Theatre non-tracking, Theatre Tracking or Hog II Warp.

Activate Chans/Head

This setting determines what is activated in the programmer when you perform a change on an attribute of a Head.

"Chans" only activates the actual channels of a modified attribute within a head.

"Heads" activates all channels within that head whenever any attribute is modified.

"IPCB" activates all the attributes of the IPCB type that is being modified - for example if a position (P) attribute type is changed such as pan, then all other position attributes such as Tilt, Pos Speed are activated.

"IPC" activates all the attributes of the type that is being modified except that Beam (B) attributes are modified individually.

"Col" activates all Colour attributes whenever any Colour attribute is modified.

"IPC B Split" activates Intensity, Position and Colour as per the IPC option, then Beam is split.

- Gobo 1 + Gobo 1 Rotate
- Gobo 2 + Gobo 2 Rotate
- Gobo 3 + Gobo 3 Rotate
- Prism + Prism Rotate
- Focus + Zoom
- All 8 frame attributes

Default: Chans

Programmer Tracking

Turns the overall function of tracking On or Off for any future programming once the setting is changed. It does not change any previously programmed items. Tracking can still be modified on a cue by cue basis within the cue stack, via the "Track" column.

When set Yes, then only attributes that have been modified since the Cue was recorded are stored into the new Cue.

Attributes are determined as modified if their value had been changed using an encoder, using keypad entry, using a range button, using a palette or by a locate Head. Note that modifying an attribute to a new value and then returning it to its old value counts as modified.

When set No, then the entire contents of the programmer is recorded into Cues regardless of whether attributes have been change since the last Cue was recorded.

Unused Chans Return to Defaults

When set to "Yes, all heads" this forces all LTP channels to return to their defaults when not controlled by a playback or in the programmer. The default returned to will be the Default Cue if it exists, otherwise the default value from the Head personality.

When set to "Heads without Intensity only" it only returns to defaults for heads that do not have an Intensity attribute and do not have a VDIM applied.

When set to "No" then no channels return to their defaults.

Note that some channels can be specified in the Head personality not to have a default - in this case those channels never return to defaults.

Default: The default is dependent on the programming mode chosen - in Normal mode it is set to "Heads without Intensity only". In other modes it is set to "Yes, all heads".

Programmer Overrides HTP

Determines whether the programmer overrides HTP (intensity) values on playbacks.

When set to "All Playbacks" any HTP channels on Playbacks are overridden by their levels in the programmer.

When set to "Playbacks except Above Programmer" then it as for "All Playbacks" unless a Playback is set to "Above Programmer" in the Cue Stack, Advanced, Playback Priority setting.

When set to "All Playbacks except HTP base" then any HTP channels with a base value in the programmer will override the base values from Playbacks. HTP channels that have only an FX but no base in the programmer can be affected by Playbacks if the "Intensity (HTP) FX can add,subtract" is set.

When not set, the highest value of the channel from the Playbacks and the Programmer is output.

Default: All Playbacks

Programmer Overrides FX

Allows the programmer to override FX on active playbacks. When set to Yes, any channels that have base levels in the programmer ignore FX for those channels from any active playbacks.

Default: No

Highlight Mode

Changes the function and operation of highlight mode when trying to work with a specific Head within a group of Heads.

"Dims non selected" - the intensities of the selected heads are reduced except for the one (or ones in Odd/Even mode) that are being sub selected.

"Highlight/Lowlight" uses the highlight and lowlight levels from the Head personality and as overridden by the user in the Highlight and Lowlight Cues in the Cue Window.

"Highlight Only (no lowlight)" is the same as Highlight/Lowlight but no Lowlighting occurs.

"High/Low no Reset" is the same as Highlight/Lowlight, but Highlight mode is only exited when you press Highlight again - pressing CLEAR does not exit Highlight mode.

"High/Low no Beam" is the same as Highlight/Lowlight, except that no changes to Beam attributes are made - this enables overriding of any Zoom/Gobo Higligh/Lowlight set in the Head Personality or Highlight/Lowlight Cue.

Default: Highlight/Lowlight

Fan Mode

This setting determines the fan mode.

"Normal" is a latch type operation where the user has to turn Fan on and off manually. "No Toggle" is a momentary type operation. "Pan Only No Tilt" allows fanning of all attributes except for Tilt.

Default: Normal

Select Multiple Groups

This setting enables multiple groups to be selected without pressing SHIFT. To deselect all groups press the DESELECT ALL soft button in the Group window.

"No" allows the user to choose between only being able to select one group at a time.

"Multiple in one go" allows the selection of multiple groups at one time. The selection resets after an attribute has been modified.

"Multiple always" is the same as above but does not reset.

Recording to Palettes

This allows either all heads, only the selected heads, or only the sub selected heads to be recorded into Palettes

Default: Only selected heads

Record Merge Overrides Times

When set "Yes" then Record Merge allows the time currently in the programmer to be merged into the Cue being updated

When set "No" Record Merge will not modify existing times in the merged Cue.

Default: Yes

Update Clears Programmer

When set the programmer is automatically cleared after using Update.

Default: No

Update Default

The options are Cues, Palettes or Cues + Palettes.

By default the Update only action highlights Cues for updating rather than Palettes. This setting enables Palettes to be the defaulted highlight. If a Cue uses a Palette then updating a Palette will update the Cue as well regardless of this setting. It sometimes may desirable to

Update both Palettes and Cues - for instance when updating a Position palette but also adding zoom directly into the Cue.

Default: Cues

Undo Mode

Allows the user to choose between two levels of Undo - "Undo Programmer" and "Undo Programmer and Actions".

Undo Programmer is any changes that have modified values in the programmer such as locating Heads, clearing, setting intensities, choosing palettes, or using encoder wheels to change programmer values.

Undo Actions include changes to show data such as recording, moving, copying, and naming.

When set to "Undo Programmer, Action via Ctrl" then pressing Undo by itself will only undo the Programmer. Press CTRL + UNDO to undo action.

Default: Undo Programmer and Actions

Keypad / Encoder Settings

Auto Enter on Keypad Intensity Set

This setting determines whether the user is required to press ENTER when defining head intensity via the keypad. If set to Yes, then intensity levels are set immediately when 2 digits or "FULL" have been keyed in after "@". e.g. "1 THRU 4 @ 50" or "1 THRU 4 @ FULL".

Default: Yes.

Auto Cursor Down on Enter

When set, pressing ENTER in a Spreadsheet view will auto cursor down to the item below.

Default: No.

Select Heads on Keypad Intensity Set

This setting determines whether the current head selection is modified when setting intensities via the keypad. When set to "No" the intensities are set without modifying the head selection. When set "yes" the intensities are set and then the head selection is modified, for example:

"1 THRU 4 @ 50" sets heads 1 to 4 at 50% intensity and selects heads 1 to 4.

"+5 @ FULL" sets head 5 to 100% intensity and adds it to the current selection.

Default: Yes.

Select Heads and Palettes from keypad

When enabled, select heads by typing the head selection and then pressing the appropriate Colour, Beam or Position window button. For example...

"1 THRU 4 COL" selects heads 1 through 4 and opens the colour window.

"1 THRU 4 COL 5" selects heads 1 through 4 and selects colour palette 5.

This option also enables copying of head data.

Default: Yes.

Select Heads on Include

This setting determines whether heads with levels in a cue or palette are automatically selected when including these cues and palettes into the programmer.

Default: Yes.

Keypad Always Selects Heads

When set to Yes, entering head numbers on the keypad followed by the ENTER key always selects the heads, but some advanced features of MagicQ are not available directly from the keypad. When editing numeric fields in the spreadsheet style windows in this mode, the operator must use the SET button rather than editing the field directly.

Setting the "Strict" option means it is not possible to toggle or choose items simply using the ENTER key. You will always need to use SET first.

Default: No (Window items)

Keypad Syntax - Theatre Patch

This setting adjusts the syntax used for patching Heads. With this option set to No, the syntax for patching is <number of heads> @ <DMX address>. When set to Yes, the syntax is: <head number> @ <DMX address>.

Theatre Patch supports patching multiple DMX addresses to one head when using Theatre Patch syntax. For example, to patch Head no.10 at DMX addresses 1, 2 and 3, enter "10 @ 1 + 2 + 3". There is a maximum of 6 DMX addresses per Head.

In Theatre Patch it is also possible to re-patch dimmer channels. If the head is already unpatched then just enter the new address – e.g. to repatch head number 20 to DMX channel 25, type "20 @ 25". You can also re-patch to multiple DMX addresses – e.g. to repatch head number 20 to DMX channel 25 and 26, type "20 @ 25 + 26".

Default: No (live mode) or Yes (theatre mode).

Encoder Mode

In "Normal" the encoder wheels function according to the currently active window. For example, when you change to the Colour window, the encoder wheels control colour attributes.

"Maintain Pos, Col, Beam" - The Position, Colour and Beam buttons will act as "Hard Buttons", meaning the encoders will be maintained on Position, Colour or Beam even when the Group, Output or Plot windows are opened. At any time the encoders can be forced to their default settings for the Window by pressing SHIFT and the window button – e.g. SHIFT + GROUP. In addition, the "Intensity" attribute will also appear on Encoder F in the Position window if that encoder is not already in use.

"Intensity on X" - When setting an intensity level from the keypad, MagicQ will open the Intensity Window and the X encoder will control intensity.

"Pos, Col, Beam, Int X" - MagicQ performs both the above options.

"Intensity always on X" - Once the Group or Intensity windows are opened then Encoder X will remain as Intensity until a window is opened using SHIFT and the window button, forcing the normal encoder assignment.

"Keep as Window" - MagicQ will maintain the current window when NEXT HEAD and PREV HEAD are used, rather than jumping into the Position window.

"Maintain Hard Keys" - This is the same as "Maintain Pos, Col, Beam" and "Keep as Window" combined, meaning the Pos, Col, Beam encoders are maintained, but NEXT HEAD and PREV HEAD do not open the Position window.

Default: Normal (live mode) or Intensity on X (theatre mode)

Encoder Sensitivity

When set to "Normal" encoders operate at their normal rate.

When set to "Slow" the encoders are slower than normal - i.e. they are less sensitive - a larger encoder change is required to make the same attribute change.

When set to "Slow" (Medium Fine) the encoders operate as normal, but when SHIFT is pressed they operate at medium fine instead of fine. This option is provided for users who are used to using SHIFT for fine, but who want the fine to be a bit more sensitive.

When set to "Remote Slow" the encoders operate as normal, except when controlled from MagicQ Remote Control on a remote PC such as a MS Surface. This enables greater sensitivity when using the remote control. Note that this only affects MagicQ Remote Control, it does not affect the MagicQ Remote app on iOS/Android.

The default is "Normal".

Note that this option does not affect attributes set as Slow Encoder in the personality such as gobo wheels and stepped control parameters - they continue to operate as slow encoders

regardless of this setting.

Swap Pan and Tilt Encoders

This setting swaps over the pan and tilt encoders. By default, the X encoder is pan and the Y encoder is tilt.

Default: No

Swap Encoder Direction

This setting changes the directions for adjusting values with encoders.

Default: Normal

MagicQ Keyboard Mode

These options set the function of the keyboard.

In "Normal" the keyboard is used for naming items and selecting heads.

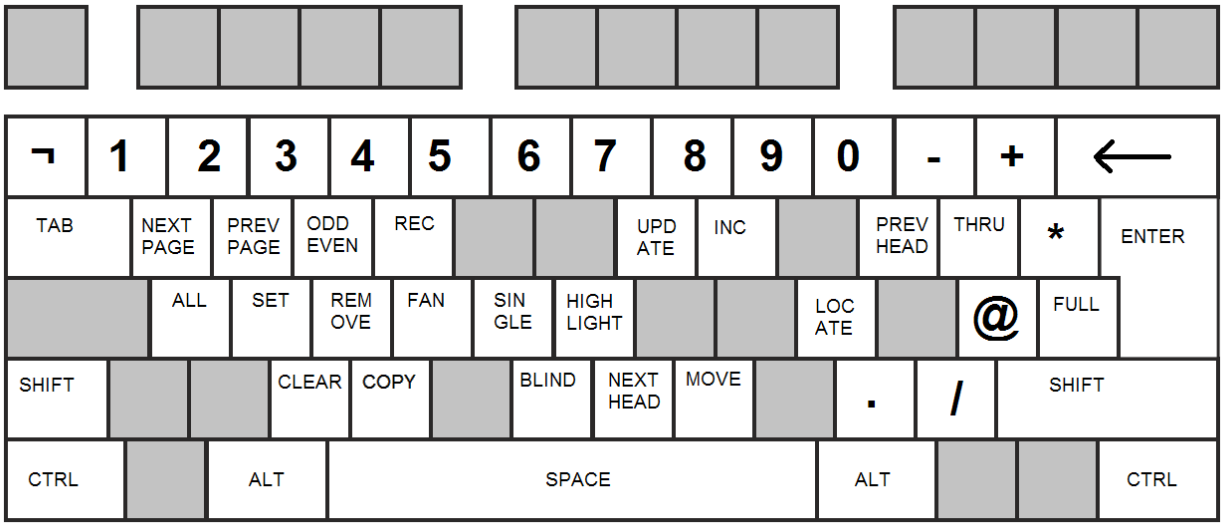
In "Programming shortcuts" the keyboard is set up for shortcuts to programming keys.

In "Playback shortcuts" the keyboard is set up for shortcuts to playback keys.

In "CTRL + Keys for Windows" the keyboard is works as per "Normal" mode, except when CNTRL is held, the keyboard is used to open windows. List of window shortcuts can be found in the Programming shortcuts section

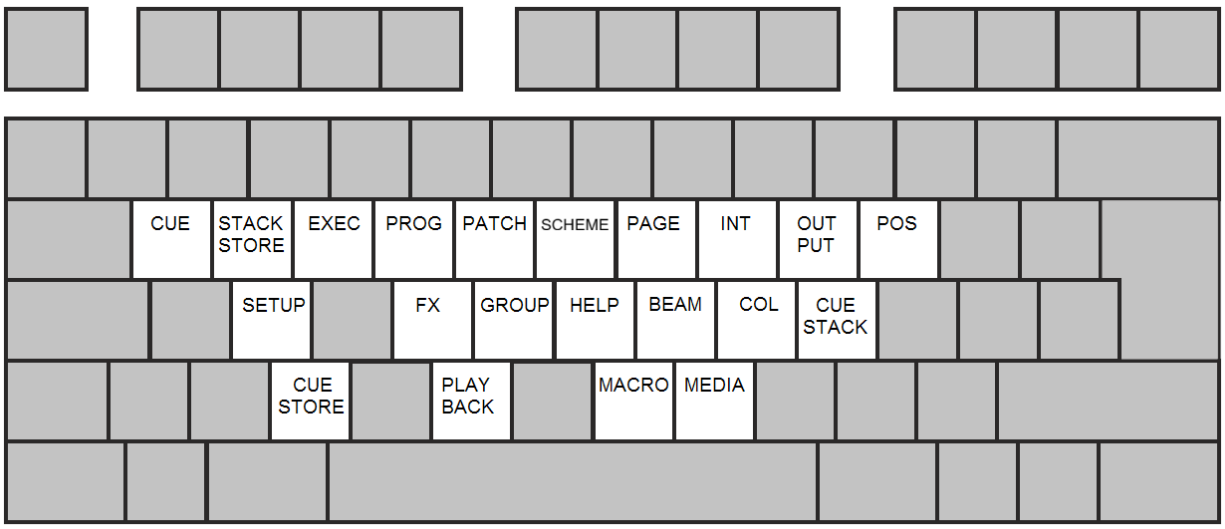
Default: Normal

Programming Shortcuts



Windows are opened using CTRL and the alphanumeric keys

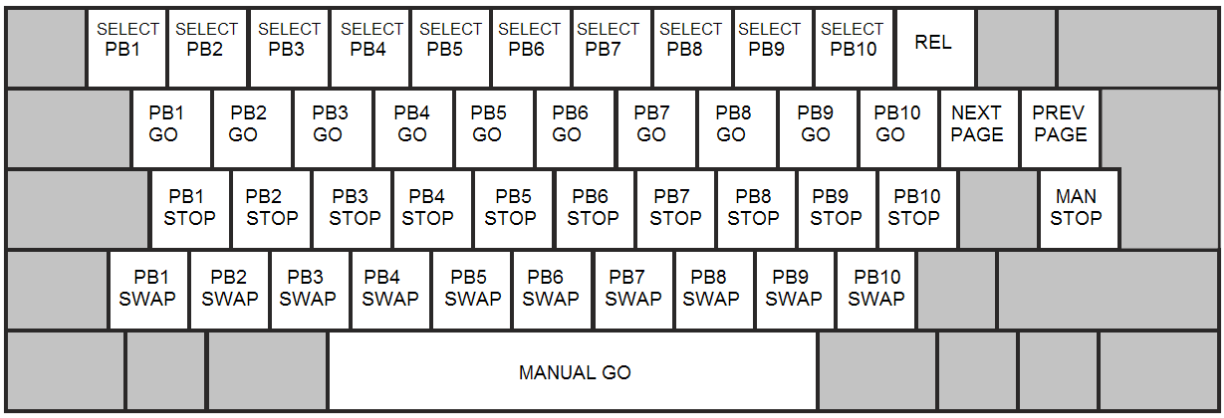
CTRL E	Execute
CTRL F	Fx
CTRL G	Group
CTRL H	Help
CTRL I	Intensity
CTRL J	Beam
CTRL K	Colour
CTRL L	Cue Stack
CTRL M	Media
CTRL N	Macro
CTRL O	Outputs
CTRL P	Position
CTRL Q	Cue
CTRL R	Programmer
CTRL S	Setup
CTRL T	Patch
CTRL U	Page
CTRL V	Playback
CTRL W	Cue Stack Store
CTRL X	Cue Store
CTRL Y	Toggle colour scheme



Playback Shortcuts

1 to 0	Select playbacks 1 to 10

Q to P	GO button playbacks 1 to 10
A to ;	STOP button playbacks 1 to 10
\ to .	Toggle test playback on at 100%. In Swap mode releases all others tested playbacks
`	Add / Swap mode
SPACE	Manual GO
#	Manual STOP
[	Next page
]	Prev page
-	Release



Note that in playback shortcuts mode many programming options will not work as expected because the keyboard keys are used for busking.

Map Keys to THRU, @, FULL

This setting allows the THRU, @ and FULL keys to be mapped to different keys on the keyboard. This is useful in some countries where the normal mappings (>, @ and #) are not easy to select. To set this setting, press the 3 keys you want to map to these functions, followed by ENTER.

Default: None set.

Enable Mouse to Control Pan/Tilt

This setting enables a mouse or trackball to control pan and tilt. The sensitivity can be selected by choosing any of the "Enabled Div 2" through "Enabled Div 9" options.

Mouse control of pan/tilt is only supported on fully unlocked MagicQ PC systems (Unlocked Mode)

Default: Disabled

Intensity Wheel

Determines the function of the Intensity Wheel on the MQ500, MQ500M, MQ250M and Stadium Connect.

When set to "Intensity" it controls Intensity of the selected Heads.

When set to "Intensity - Require ALT key" then holding ALT and turning the encoder will control Intensity in the Programmer. This is useful in high bass environments where the wheel could get accidentally nudged.

When set to "Sel PB Speed" it changes the Chase Speed or FX Speed of the currently selected Playback

When set to "Playback Rate" it controls the Playback Rate of the selected Playback as per the Playback Rate on soft button X in the Playback Window.

When set to "Global Rate" it controls the Global Rate as per the Global Rate on soft button Y in the Playback Window.

When set to "Audio Volume" it controls the master audio volume.

When set to "Scroll window" it scrolls the top (focused) window.

When set to "No function" it is disabled.

Default: Intensity

Windows Settings

Colour Scheme

This setting defines the colour scheme of the installed MagicQ system.

"Dark" uses a mostly black colour scheme with grey and purple highlights.

"High Contrast" sets the MagicQ background to black (On Windows, Mac & Linux) but the central programming area to a lighter grey with black text.

Default: Dark

Big Text Mode

Big Text Mode defines how text is displayed throughout MagicQ.

"ALL CAPS" displays all text in CAPITALS.

"First Letter" capitalises the First Letter Of Every Word.

"Large", much like "ALL CAPS", displays all text as CAPITALS but at a much larger font size.

Default: No

Icon Size

The Icon Size setting defines the size of all icons used throughout MagicQ.

"Small" will ensure icons only take up a portion of the window item.

"Large" sets icons to fill the whole window item.

"Large when no name" sets icons to "Large" but only where there is no text present within the same window item.

"Auto" allows icons to be auto-sized and auto-generated throughout MagicQ.

"Auto no Snapshot" disables Visualiser snapshotting when recording Cues, Cue Stacks and Playbacks.

"Auto no group / snapshot" disables Visualiser snapshotting and the generating of auto-group icons.

Default: Small

Col Tags

The Col Tags setting allows colour tags to be displayed, identifying different heads throughout MagicQ.

"None" disables the use of colour tags throughout the software.

"Head Types" separates Heads into colour groups depending on their type (Wash, Spot etc).

"Attach Objects" defines Heads based on the object they’re attached to within the Visualiser.

"Multi Console Control" separates Heads depending on their current console control.

"Parked" colours parked Heads to separate them from unparked Heads.

"Patch" defines separate Heads depending on their sorting within the Patch window.

"Uni Zones" separates Heads to signify which Uni zone they are assigned to.

"Universes" separates Heads to signify which universe they are patched in.

"Users" separates Heads based on the current user.

Default: None

Playback Col Tags

The Playback Col Tags setting allows the RGB LEDs found in the Stadium range to indicate the different Playback functions.

"Default" sets MagicQ to use the default colour set for different types of Cue Stack. Standard Cue Stacks are blue, LTP faders & Group masters are allocated different colours.

"Cue Stack" uses the colour tag set by the Col tag setting in Cue Stack, View Options, Function. Unused Playbacks are blue.

"Cue Stack (dim unused)" is the same as "Cue Stack" except that unused Playbacks are dimmed so that it is easier to identify free Playbacks.

Default: None (Cue Stack on Stadium consoles)

Speed Display

This setting determines how speed values are displayed throughout the installed MagicQ system. The options are seconds, BPM or frames.

When set to "Normal" MagicQ will determine the appropriate metric for that specific parameter.

Default: Normal

Attribute Display

This setting determines how attribute values are displayed throughout MagicQ.

When set to "Normal" MagicQ will display the attribute with the normal expected metric.

When set to "16bit" MagicQ will display all attribute values in 16bit format.

When set to "Percent" MagicQ will display all attribute values as percentages.

When set to "P/T Percent" MagicQ will display only pan and tilt attributes as percentages.

When set to "DMX Values" MagicQ will display attributes in DMX 0..255 values. 16bit attributes will be shown as two 0..255 values separated by a dash.

Default: Normal

Units of Measurement

This setting defines which unit of measurement MagicQ uses throughout the installed system.

When set to "Imperial" MagicQ will accept measurements of feet, inches and pounds.

When set to "Metric" it is still possible to input measurements in feet using the ‘ or / separator - e.g. enter "12/" for 12 ft and "12/4" or "12’4" for 12 ft 4 inches.

Default: Metric

Column Sizing

The Column Sizing setting determines how columns within windows are displayed.

When "Auto Size" is selected, MagicQ will auto size columns and hide any that are unused.

When "No sizing/hiding" is selected, the columns are set to a fixed width and are always present.

When "Hiding only" is selected, are fixed width, but are hidden if not used.

Default: Auto Size

Num Boxes Wide

This option is used to force the number of boxes wide for all box windows such as Group, Position, Colour, Beam, FX, Page, Cue Store, Stack Store, Macro. This can be used to ensure that the layout of items in windows remains consistent between different console types - particularly useful for the Group window.

It does not affect spreadsheet views.

Note that the per monitor, number of boxes wide in Setup, View System, Monitors when set to anything other than "Default" takes priority over this setting.

Default: Default

Auto Row Ordering

This setting determines how rows are ordered within the Output, Programmer and Cue windows. The currently selected heads appear at the top of the window.

When this option is set to "No" the rows of the aforementioned windows are ordered according to the Sort option within the Patch window.

Default: Yes

Playback Legends

This option determines how the data within the Playback Legends across the bottom of the screen is displayed.

When this option is set to "Normal", the Playback title is displayed within the Playback Legend just below the blue selection bar. If they are titled, the name of the next two Cues within the Cue Stack is shown. If not titled, the Cue ID is shown.

When this option is set to "Expanded", the Playback title is displayed within the blue selection bar. If they are titled, the name of the next three Cues within the Cue Stack is shown. If not titled, the Cue ID is shown.

When this option is set to "ID + Name", the Playback title is displayed within the blue selection

bar. At all times the name and the Cue ID of the next three Cues within the Cue Stack is shown.

Default: Normal

Confirmation Requests

This setting determines how confirmation requests are displayed and utilised throughout the installed MagicQ system.

When "Confirm (default no)" is selected, MagicQ will continue to confirm core functions with a default value of no.

When "Confirm (default yes)" is selected, MagicQ will continue to confirm core functions with a default value of yes.

When "Confirm critical only" is selected, MagicQ will confirm only critical functions with a default value of no.

When "Confirm critical (default yes)" is selected, MagicQ will confirm only critical functions with a default value of yes.

When "Never confirm" is selected, MagicQ will never ask for confirmation.

Please note: "Never confirm" should be used with great care.

Default: Confirm (default no)

Scroll Bars

The Scroll Bars option determines how scroll bars are displayed throughout MagicQ.

When set to "Normal scroll bars" scroll bars are set to their standard width and appear on all scrollable windows.

When set to "No scroll bars", scroll bars are hidden throughout all windows and selection boxes.

When set to "Wide scroll bars" the scroll bars are set to a larger width and appear on all scrollable windows.

When set to "Extra Wide scroll bars" the scroll bars are set to their largest width and appear on all scrollable windows.

Default: Normal scroll bars

Help Mode

Determines whether Tips are shown for settings.

When set to "Mouse Tips" MagicQ shows tips when the mouse is placed over settings fields in

the first column of the Setup and Cue Stack windows.

When set to "Dialog Tips" MagicQ shows option details in the select Dialog box.

When set to "Mouse + Dialog Tips" both the above are shown.

When set to "Mouse + Dialog Tips (Menus English)" both the above are shown in the language set by the Country, but Menus are kept in English.

Default: Mouse + Dialog Tips

Soft Buttons Mode

This settings determines the number of top soft buttons and whether the 12 available layouts are always visible on screen.

- Normal
- Layouts Always Active
- 12 top
- 12 top, layouts

When set to "Layouts Always Active" or "12 top, layouts", MagicQ will display the 12 layout selection buttons above the display's top soft buttons.

When selecting "12 top" or "12 top, layouts" MagicQ reverts to 12 top soft buttons and the extra 4 soft button functions are available via ALT and top soft buttons 1 to 4. With only 12 top soft buttons some functions will not be easily discoverable without pressing ALT.

Note that on Stadium consoles the layout buttons are shown on the left side of the main display and there are always 16 top soft buttons regardless of this option - therefore this option should be set to "Normal".

Default: Normal

Always Show Record Options

This setting determines when the record options, include options and copy options toolbars are displayed.

If set to "Yes", MagicQ will always display the record options toolbar whenever the RECORD button is pressed. The include options toolbar will be shown when INCLUDE is pressed and the copy options toolbar when the COPY button is pressed.

If set to "No", MagicQ will display the full record options when SHIFT + RECORD is pressed. The full include options are shown when SHIFT + INCLUDE is pressed, and the full copy options when SHIFT + COPY is pressed.

Default: No

Plan Intensity Type

This setting has been moved to the Grid Options in Output Window, View Plan.

Message Window

This Message Window setting determines where and how the message window box is shown.

When this is set to "Main" messages will only appear on the console's main screen.

When this is set to "2nd Display" or "3rd Display", MagicQ will only display messages on the defined external monitor.

When this is set to "Main No Net", "2nd No Net or "3rd No Net", MagicQ (when connected to a net session) will only display messages on the main monitor of the current console.

When this is set to "Net only", MagicQ will display messages to all other consoles within the net session but not the current console.

When this is set to "Net Session", all consoles, including the current console, will receive messages throughout the net session.

When this is set to "Main no flash", "2nd Display no flash" or "3rd Display no flash", MagicQ will display messages on the defined monitor without flashing.

Default: Main

Cue Storage Settings

Remove Cues When Remove Cue Stacks

This option allows you to force Cues to be removed when the Cue Stack(s) that use them are removed.

Default: No

Remove Cue Stacks on Remove Playbacks

This option allows the user to force Cue Stacks to be removed when Playbacks are removed.

Default: No

Use First Free Cues, Stacks, Palettes

By default when making new Cues, Cue Stacks or Palettes, MagicQ will use the lowest free item to save it to.

When set to No, it will record these in the first free item after the last one that was saved

Default: Yes

Copy Mode (Linked/Unlinked)

This setting determines how copies of your Cue Stacks are either linked or unlinked to the Cues that make up that Cue Stack.

When linked, changes you make to the copied Cue will carry through to the original Cue.

When unlinked, changes to the copied Cue do not update the original Cue.

When set to linked, this setting can be overridden using SHIFT + COPY.

The "unlinked, no state" option specifies that when Cues are copied within a Cue Stack only the "delta" values are copied not the state of the Cue at that step.

Copy Heads

This setting determines if data recorded to playbacks is ignored when copying data between heads (when set to Prog only).

Default: Prog + Playback

Derive Settings From Previous Cue

This setting specifies how MagicQ sets the Cue settings for new Cues recorded on a Cue Stack.

When set to No, MagicQ derives cue setting from the Default setting found in Options, View Defaults.

When set to Yes, MagicQ will use the settings found in the previous Cue in the Cue Stack.

Default: Yes

Hide Cue Store Ids (Qids)

MagicQ supports two different ids for Cues – the Cue Id of the Cue within the specific Cue Stack, and the Qid of the Cue within the Cue Store.

When set to Yes, this will hide the Qid found in the Cue Store from the Cue Stack and Cue windows, only showing the Qid of the Cue within the Cue Stack itself.

Default: No

Hide Vdims

This setting allows Virtual Dimmers to be hidden from the Patch Window. Vdims are still denoted by a +V next to the head number.

Default: No

Expand Heads in Palettes

This setting allows the building of a palette with one head type to then be expanded to all patched heads of that same type.

It can also be configured to expand to All Heads - it first creates a Default Palette from the existing Heads in the Palette and then uses this to expand the Palette for all Heads.

It is possible to choose just Colours and Beams to be expanded or all Palettes.

The options are

- No
- Same Head Type, Col & Beam
- Same Head Type, IPCB
- All Heads, Col & Beam
- All Heads, IPCB

Palettes are expanded when patching a new head, when recording palettes, and when setting this setting.

Default: No

Auto Create Default Palettes

This setting allows enabling and disabling of the creation of Default Palettes.

When Palettes are created and updated default palettes will be created for the specified palette types.

The options are

- None
- IC
- IP
- IPC
- IPCB

Default: IPCB

FX Palettes

This option determines the behaviour of FX palettes.

When set to "Normal" or "Changes unlink FX palettes" the FX Palettes link into the Cues and any updates to the FX Palette cause the Cues to be updated.

When set to "Disabled" there are no links between the FX Palettes and the Cues.

When set to "Changes unlink FX palettes" any updates to the FX in the Prog Window or Cue Window cause the link back to the FX Palette to be broken.

Heads Moved Aside are Unpatched

This setting determines that heads are unpatched rather than moved aside when repatching and morphing at an address with an existing head.

Default: No

Default Mark/Move When Dark Time

This specifies the default value for Mark cues and Move when dark.

Default: 3.00s

Group Cues

This setting determines whether Group Cues are used when programming. The options are Disabled, Prefer Group Cues, Prefer Group Cues (Warn), Prefer Group cues (safe), Group Cues Only.

See the section on Group Cues for more info.

Note that shows programmed with Group Cues can not be loaded directly into older MagicQ software versions - first in v1.9.2.0 or above, convert the shows to individual Head Cues and save the show, before trying to load into older software versions.

Default: Disabled

Playback Settings

Grand Master Function

By default the Grand Master controls levels of channels from both the Playbacks and the Programmer.

The options enable changing the Grand Master to control only the level of preset faders, only the level of Programmer data, or both. In each of these configurations it does not control Playbacks or Add/Swap levels, as it does by default.

See programmer data, playbacks and add/swap levels for more info.

When set as Cue Stack 1 it controls Cue Stack 1 from the Cue Stack Store, providing an extra Playback fader.

Default: Grand Master

Sub Master Function

The Sub Master can be configured to control playback faders only, add/swap buttons only, or both (the default). It can also be set as a programmer master, a preset master or both.

When set as Cue Stack 2 it controls Cue Stack 2 from the Cue Stack Store, providing an extra Playback fader.

Default: Playback Master

Crossfade Master Function

Configures the Crossfade master in different ways as described below:

- "Manual Crossfade" - The Manual Crossfade function enables you to advance Cues within a Cue Stack using the Crossfader by holding the SELECT or SHIFT buttons and moving the Crossfader. The display window will show "pickup" until the crossfader level matches the current position in the fade - it will then change to "manual".
- "Busking Rate Master" - In this mode the sub-master fader moves between 0 and 10 seconds. This rate is shown in the bottom right of the Status Display. The time is applied to selection of palettes and intensities.
- "Sub Master" - Sub Master is useful on consoles which do not have a separate sub master fader. When set to sub master, the Sub Master function above determines its function.
- "Cue Stack 3" - When set as Cue Stack 3 it controls Cue Stack 3 from the Cue Stack Store, providing an extra Playback fader.
- "Tap to Time SP1", "Tap to Time SP2" or "Tap to Time SP3" - the fader and buttons control the rate for the associated Speed Master.

The Crossfade master also has a number of rate master configurations. See manual control, rate master for further details.

Default: Manual Cross-fade Master

Crossfade Button Function

This option determines the function of the GO buttons in the crossfade master section.

When set to "Default" the function of the GO button is determined by the Crossfade Master function option.

- For "Global Rate" and "Club Master" the button is set to Tap to Time for the active playbacks
- For "Rate" and "Busking Master" it is set to Tap to Time for the selected playback.
- For all other options it is set to the normal "Go/Back" function.

When set to "Go/Back" this takes priority over the Crossfade Master function, with the master GO, BACK, BCK and FWD buttons all controlling the currently selected Playback.

When set to "Tap To Time selected" the GO button affects the absolute rate of the currently selected Playback.

When set to "Tap to Time active" the GO button affects the absolute rate of all active Playbacks.

When set to "Tap to Time SP1", "Tap to Time SP2" or "Tap to Time SP3" the GO button sets the rate for the associated Speed Master.

When set to Live Macro, The GO button will always act as the Live Macro Record/End/Go without needing to press CNTRL+GO to start the Live Macro Record.

Default: Default

Split Crossfade

Used to set up split crossfade functions, as below.

When set to any of the dual playback options, the two playbacks become Crossfade Masters for manual Fade in and out. Pressing the Pause button on either of the playbacks brings the current playback under manual. The faders can then be used to fade in each new Cue with separate control for fade in and out. Pressing the Go button on either Playback returns the current playback to normal Cue execution. When enabled, both playbacks can not be used as normal playbacks.

The "Stadium Split" option is used on MQ500(M) systems to set the two 100mm faders as split crossfaders - by default they are a crossfader and sub master. This option only takes effect if the Crossfade Master Function is set to "Manual Crossfade".

The PB2 option is designed for Theatre use with the main Cue Stack on PB1 and the crossfader on PB2.

Default: No

Crossfade Controls Playback

This setting enables is designed for theatrical use where one playback is the master Cue Stack.

The user can lock the manual playback section of MagicQ to Playback Fader 1, 2, 9, 10 or 15 regardless of the currently selected Playback.

Default: Selected

Wing Crossfade Master Function

Sets the function of the crossfaders on the MQ500M Wing and Stadium Wing. The options are:

- Manual Crossfade (Performs same as when main crossfaders are set to Stadium Crossfade
- Rate Masters (X1 is Cue Stack rate master, X2 is rate master (FX) for selected playback
- Global Rate Masters (X1 is Global Cue Stack rate master, X2 is Global rate master

- Cue Stack 4 and Cue Stack 5 (operates in similar way to CS1-CS3 on the other masters)
- Speed Masters 5 and 6
- No Function

Default: Manual Crossfade

DBO Function

This setting determines the function of the DBO button.

"DBO Momentary" and "DBO toggle" cause all intensity channels on the output to be set to 0%.

"No FX Momentary" and "No FX toggle" cause all FX size to be reduced immediately to zero size.

When set to "Tap to Time selected", the button sets the rate for the currently selected playback.

The "Flash taps when DBO held" option enables setting of speeds to playbacks by holding DBO and then pressing the flash button of the relevant playback.

When set to "Tap to Time active", the button sets the rate for all active playbacks.

When set to "Tap to Time SP1", "Tap to Time SP2" or "Tap to Time SP3" the button sets the rate for the associated Speed Master.

When set to "Temp Highlight" or "Temp Lowlight" then on pressing DBO MagicQ performs the temp highlight or lowlight on the selected heads. Releasing DBO returns to normal. This is useful in Film/TV for quick flashing of individual fixtures.

Default: DBO Momentary

TAP Function

This setting determines the function of the TAP button.

When set to "Tap to Time selected", the button sets the rate for the currently selected playback.

When set to "Tap to Time active", the button sets the rate for all active playbacks.

When set to "Tap to Time SP1" through "Tap to Time SP15" the button sets the rate for the associated Speed Master.

Default: Tap to Time selected

Stomp Playbacks

This option enables Stomping, the automatic releasing of Playbacks when they are fully overridden by other Playbacks.

When set to "Yes (LTP)" then when all the LTP channels on a Playback are overridden by other Playbacks then the Playback is released.

When set to "Yes (HTP and LTP)" then when all the channels (both HTP and LTP) on a Playback are overridden by other Playbacks then the Playback is released.

See Playback Stomping.

Default: No

Intensity (HTP) FX Can Add,Subtract

This sets whether one Playback intensity level can subtract from another Playback's level.

When set to "yes", FX on one Playback can subtract from the level on another Playback.

When set to "no", MagicQ performs pure HTP – i.e. the highest level (including FX) from all the Playbacks is output.

Default: No

Go Reasserts Channels

This setting determines which channels are reasserted when the Go button of a Playback is pressed.

When set to "All inc tracked", then pressing GO on the Playback will reassert channels that are tracking through the Cue Stack even if they were being controlled by another Playback.

"All no fade" forces an immediate change of the channel values controlled by the Playback.

When set to "Non tracked", only channels that are recorded as "hard values" in the current Cue will be reasserted.

When set to "Non tracked, Step then reassert", then the Cue any Cue Stack macros are executed before the channels that are recorded as "hard values" are reasserted, thus ensuring that it is possible to execute macros to release other playbacks first.

Default: All inc tracked

Fader Off Zero Reasserts channels

This setting is used to reassert channels using the fader. When set to Yes, faders reassert the Playback when the level leaves zero. The setting "Go reasserts channels" specifies how the channels are reasserted.

Default: No

Fader Mode

This setting defines the operation of faders. When set to Original they operate as before with

physical fader levels and fader levels from automations and Execute being treated separately. When set to Combined the physical fader level and the levels from automations and Execute are combined together so that when a Playback is triggered by an automation, the physical fader is set to that level and the level can be adjusted directly using the physical fader. On non motorised systems the fader level must be matched by moving the fader before it can take control.

When set to Auto Motor Moves the automations and Execute will combine the faders and cause the physical faders to move to the level of the automations. This option is not recommended for shows which make heavy use of macro and automations changes of playback levels as it may cause unnecessary wear on the motorised faders.

Default: Original

Motor Faders Release to Zero

This setting defines whether or not motor faders will drop to zero when releasing playbacks.

Default: No

Next Page Changes to Next Used

This enables page changes using the Next Page and Prev Page buttons to only access programmed pages rather than changing through all pages, including blank ones.

Other pages can still be accessed using the Page Window.

Default: No

Current Playback Follows Last Touched

This setting makes the Current Playback follow the last Playback fader to be raised. If set to No then the Current Playback is not changed when faders are raised - it is only changed when SELECT buttons are pressed.

Default: No

Playbacks S + GO = PAUSE

This setting changes the function of S + GO on Playbacks to be a PAUSE function. This is useful on wings that do not have physical PAUSE buttons. When set to "No", S + GO steps to the next step without time.

Default: No

Tap to Time Buttons

Enables the SELECT, GO and PAUSE buttons, or a combination, to be set to Tap to Time for Playbacks.

There is also an option to use ALT + FLASH as Tap to Time.

Default: None

Int Master Applies to LTP Chans

This option makes Intensity Masters control any LTP channels that are recorded in the master Cue, rather than just HTP (Intensity) channels. This applies to existing masters, as well as newly created ones.

Default: No

Activate Playbacks on Start

This option enables one or more playbacks to be activated on startup. The options are:

- PB1
- Last Active
- Wing PB1
- Cue Stack 1
- Macro 1
- Lamp On all

When set to "Last active" then after a reset, MagicQ will reactivate Cue Stacks that were running when the console was powered down or reset. MagicQ will start the Cue Stacks from the step that they were previously on.

All options are Locked on MagicQ MagicQ PC systems in Demo mode.

Default: None

Playback Go/Pause use Exec Grid

Enabling this option allows the GO and PAUSE Playback keys to control the first two rows of Execute grid 1, 2 or 3. The GO keys will activate items on the first row, while the PAUSE keys will activate items on the second row.

Default: No

Playback Holdover Mode

This setting is used to enable Two Page Holdover mode, allowing Playbacks to be active on two different pages simultaneously.

When set to "Default" Playbacks can only be active one page - changing page causes the Playback to hold over active.

Default: Default

Network Settings

IP Address

The IP address of the console main lighting network Ethernet interface. This is stored as part of the console configuration; loading a new show does not change this setting.

On PC/Mac this must match the IP address of the network interface you are using. Double click on it to show the available network interfaces.

On PC/Mac you must also set the IP address of your adaptor in Windows Control Panel or Mac System Preferences.

For communicating with Art-Net the IP address is usually set to a number in the 2.x.x.x or 10.x.x.x range (e.g. 2.0.0.10) using subnet mask 255.0.0.0.

When using a PC or Mac with a Stadium Connect, Compact Connect or Mini Connect then the network port on the Connect product appears as a network port on the PC. If you wish to use this network port you must set up the IP address of this port in Windows Control Panel or Mac Preferences. This port must be in a different IP address range to any other network port on the PC/Mac.

Subnet Mask

The subnet mask for the console main lighting Ethernet network interface.

On PC/Mac this must match the network interface you are using.

For communicating with Art-Net the Subnet Mask is usually set to 255.0.0.0.

Gateway Address

This can usually be set to 0.0.0.0.

If used, it must be either in the primary or control net subnet.

Default: 0.0.0.0

Net Host Options

When set to "Normal", lighting protocols such as Art-Net are sent to the IP address specified in Setup, View Settings, Network, IP Address. If this network is not available then the lighting protocols will be sent to any other host adaptor found regardless of IP address range.

When set to "Strict", lighting protocols will only be sent to the IP address specified in Setup, View Settings, Network, IP Address.

When set to "Normal + Loopback IP" or "Strict + Loopback IP", lighting protocols are sent to the IP address as above, but also to the loopback IP address 127.0.0.1. This enables connection to apps on the same PC - e.g. sending Art-Net / CITP to Capture.

When set to "sACN on Control Net" any universes set to sACN in Setup, View DMX I/O will be output on the control net instead of the main lighting network. All other lighting protocols will be output on the main lighting network.

When set to "Art-Net on Control Net" any universes set to Art-Net in Setup, View DMX I/O will be output on the control net instead of the main lighting network. All other lighting protocols will be output on the main lighting network.

Loopback IP is only valid for PCs and Macs only – it is ignored on MagicQ consoles. "Normal" and "Strict" apply to all systems.

This setting used to be called "Send to applications on this PC", and has now been renamed and expanded to include the Strict options.

Default : Normal

Unicast Options

Option of Fast or Original.

In previous software versions, when MagicQ tried to Unicast sACN or Art-Net to IP addresses that were not on the network then the Output could be blocked whilst MagicQ tried to locate the IP address. This only occurred on MQ250M/MQ70/MQ50/MQRACK/MQDIN.

Setting to Original reverts the console to the old Unicast setting.

Default: Fast

Art-Net Type

When set to "Normal" MagicQ transmits Art-Net protocol v3. MagicQ receives any Art-Net protocol. This is recommended when the universe count on the network is low.

When set to "V4 Unicast" MagicQ transmits Art-Net protocol v4 via unicast to all detected Art-Net nodes, but also broadcasts packets on every universe once a second. This enables other Art-Net sources to determine that there is a transmitting Art-Net controller already outputting on that universe. This is the recommended protocol when using 32 or more Art-Net universes on the network. If a universe has patched fixtures but no Art-Net nodes are detected for that universe then MagicQ will broadcast the universe.

When set to "V4 Unicast only" MagicQ transmits Art-Net protocol v4 via unicast only and does not broadcast any Art-Net packets.

When set to "V4 Sync" or "V4 Sync Unicast Only" MagicQ sends Art-Net sync packets after it has sent all the Art-Net DMX data packets. Art-Net sync enables synchronisation of multiple DMX lines across multiple different Art-Net to DMX nodes.

When set to any of the V4 modes, MagicQ reports the full set of Art-Net universes that are enabled and configured with Art-Net inputs using the V4 bind index messaging. When set to "Normal" MagicQ replies to the Art-Net poll with a single V1 reply indicating the status of the first 4 universes.

When set to "No poll or RDM" MagicQ sends Art-Net data but does not send Art-Net Poll or RDM.

Default : Normal

sACN Type

When set to "Sync" MagicQ sends sACN sync messages. MagicQ uses the first enabled universe outputting sACN as the sync universe.

Default : Normal

When set to "TTL1" the Time to Live is set to 1 instead of the defualt which is 8. This affects sACN, ChamNet, MSEX, Pathport, OTP and PSN which can sometimes be blocked by some network switches.

sACN transmit priority

This is the sACN transmit priority.

If MagicQ receives sACN from more than one source to the same universe it will choose the highest priority source. If multiple sources have the same highest priority then the data will alternate between the various sources - avoid this.

RDMNet IP Address

This is the IP address of the broker in RDMNet.

This should always be set 0 unless RDMNet is being used.

MagicQ RDMNet implementation is still under test.

Default: 0

RDMNet Port

This is the TCP port of the broker in RDMNet.

This should always be set 0 unless RDMNet is being used.

MagicQ RDMNet implementation is still under test.

Default: 0

Network Switch

This controls the operation of the internal network switch (on MQ500M, MQ500, MQ250M and later revisions of MQ50 and MQ70).

When set to "Enable IGMP Snooping" the network switch will only pass multicast messages on a particular network port when a device connected to the network on that network port has

joined the multicast network.

When set to "Disable IGMP Snooping" the network switch will pass all multicast messages through the network switch regardless of whether any devices on the network have joined the multicast group. This is the recommended setting, except for systems with very large numbers of universes.

When set to "Original" the network switch operates as set in the hardware and is not changed by MagicQ. MagicQ hardware defaults to enable IGMP Snooping.

"Disable IGMP Snooping" is useful when connecting to some sACN devices that are not correctly joining the multicast group.

Default: Disable IGMP Snooping

IGMP Querier

This setting can be used to disable or force enable the IGMP Querier within MagicQ.

When set to "Normal (Detect others)" the behaviour is the same as "Normal" except that MagicQ detects other Queriers on the network. When this option is set it implements the full IGMP protocol that ensure the lowest IP address IGMP Querier is the active one.

When set to "Disabled (external Router is Querier)" MagicQ disables the IGMP Querier. This option should only be used where there is an external router with IGMP Querier enabled - for example where there is a Luminex GigaCore with IGMP Querier enabled. If the Querier is disabled on a network without another Querier enabled then sACN, ChamNet and other multicast protocols may not pass through the network correctly.

When set to "Force Enabled" the IGMP Querier is enabled and running regardless of other Queriers on the network.

When set to "Normal, Detect, Monitor" the behaviour is the same as "Normal (Detect Others)" except that MagicQ also monitors for IGMP messages and shows the activity in the Net Manager, VIEW RDMNET, IGMP tab. When this option is set it implements the full IGMP protocol that ensure the lowest IP address IGMP Querier is the active one.

When set to "No Router Alert" the behaviour is the same as "Normal (Detect Others)" except that the Router Alert option is not set in the IGMP Query messages.

When set to "Legacy (No Detection)" the IGMP Querier is enabled on MagicQ consoles and disabled on MagicQ PC systems.

Note that MagicQ Rack and MagicQ DIN consoles do not have an internal network switch, so there is no need for the IGMP Querier to be running. From v1.9.8.1 the IGMP Querier is not run on MagicQ Rack and MagicQ DIN unless the option "Force Enabled" is chosen.

All other MagicQ consoles include an internal network switch. On these consoles, when IGMP Snooping is enabled, then the IGMP Querier must be running to ensure multicast traffic passes through the internal switch correctly.

Default: Normal

Router Alert

On MagicQ consoles from software version 1.9.6.0, by default the inbuilt IGMP Querier now sends IGMP Query messages with the Router Alert option in the IP header. Previously the IGMP Query from these consoles did not include the Router Alert option.

It is possible to revert to Query messages without Router Alert by selecting the "No Router Alert" instead of "Normal" for the IGMP Query setting. This may be useful for some fixtures that do not respond if the Router Alert is included, in particular some Chauvet Maverick fixtures.

On MagicQ PC Windows and Macs, when enabled via the "Force Enabled (PC Only)" option, MagicQ always sends IGMP Queries with the Router Alert option.

Detect IGMP Queriers on the network

When set to "Normal", the MagicQ IGMP Querier sends Query messages regardless of other IGMP Queriers on the network. This provides a brute force approach to ensuring there is always an active Querier on lighting networks, which often do not have network routers with active IGMP Queriers.

The "Normal, Detect" option can be used to modify the behaviour so that the MagicQ IGMP Querier detects other Queriers on the network, and refrains from sending IGMP Queries if there is another IGMP Querier on the network with a lower IP Address. This matches the IGMP V2 specification behaviour more widely used on standard (non lighting) networks.

Control Net Mode

Static IP - manually specify and IP address, subnet mask, and gateway.

Dynamic (DHCP client) - automatically obtain an IP address, subnet mask and gateway.

DHCP Server - Same as Static IP, but automatically issue IP addresses to other devices in the network.

Default: Disabled

Control Net IP Address

A secondary network interface can be created on consoles using a USB Ethernet adaptor.

This IP address and subnet must not overlap with the primary and Wi-Fi interfaces.

Default: 192.168.250.10

Control Net Subnet Mask

Subnet mask for the Control net IP address.

Default: 255.255.255.0

Control Net Firewall

Affects the control net only, not the primary interface.

Firewall Disabled - don’t restrict incoming connections.

Allow Remote only - only allow MagicQ Remote app and MagicQ Remote Control to connect to this console.

Block all - don’t allow any incoming connections.

The console can still make outbound connections to other devices, regardless of this setting.

Protocols such as Art-Net and sACN are only used on the console main lighting (primary) interface unless the Net Host Options are set to "sACN on Control Net" or "ARt-Net on Control Net".

Visualiser IP Address

This IP address is used to specify an IP address for the Visualiser when sending Art-Net or sACN direct to an external Visualiser. This can be used to send data from Slave consoles to their own Visualisers when using Net Sessions. It can also be used to send a dedicated Visualiser feed from the Master console in Net Sessions that does not contain any channels controlled by other Slaves. It is also required on MagicQ PC in Stadium modes to output to a 3rd party Visualiser over Art-Net or sACN.

This field is only valid when one or more universes in Setup, View DMX I/O have the Visualiser field set to Art/sACN (Same PC) or Art/sACN (remote) and those universes Out Type are set to Art-Net or sACN.

Visualiser data is always unicast direct to the Visualiser IP Address - it is never broadcast or multicast. Broadcast and multicast addresses can not be entered in this field.

Visualisers may still receive broadcast or multicast data from other consoles on the network, it is important to ensure that the protocol and universes used are unique to the Visualiser.

Note that on MagicQ PC when running Stadium panel mode, MagicQ runs in a Pre-Vis mode where the normal Art-Net and sACN outputs are inhibited. In order to use external visualisers in this Pre-Vis mode, the Visualiser IP address must be set up to the IP address of the external visualiser and the Visualiser fields in Setup, View DMX I/O set to Art-Net or sACN.

Default: 0.0.0.0

Visualiser Type

This is used to determine the protocol used for unicasting the console output data to a Visualiser direct from the console. This is useful if you wish to use a different protocol or different universes for your Visualiser from those being used to output to the lighting rig.

Use DMX I/O	Unicast to the Visualiser IP address using the protocol and universes as specified in DMX I/O.
Art-Net DMX I/O Unis	Unicast to the Visualiser using Art-Net but using universes as specified in DMX I/O.
sACN DMX I/O Unis	Unicast to the Visualiser using sACN but using universes as specified in DMX I/O.
Art-Net Seq Unis	Unicast to the Visualiser using Art-Net using universes 0..255
sACN Seq Unis	Unicast to the Visualiser using sACN universes 1..256

When set to "Use DMX I/O", MagicQ does not output direct to the Visualiser if the console is already outputting broadcast Art-Net or multicast sACN to the network as the Visualiser will already receive this data. It will output if the universes are disabled (e.g. on Slave consoles), or if the Art-Net or sACN is being unicast (DMX I/O unicast fields set or Art-Net v4).

When set to all other types, MagicQ will always output direct to the Visualiser, regardless of the enabled/disabled state of the DMX I/O universes.

Default: Use DMX I/O

Visualiser Offset

This is an offset that can be used to offset the Art-Net / sACN universes sent to the Visualiser.

It applies to all Visualiser Types.

If Visualiser type is set to any of the Types with "DMX I/O" then the offset is applied to the Art-Net / sACN universe specified in DMX I/O.

When Visualiser type is set to the Types with "Seq Uni" then the offset is applied to the console universes starting from Art-Net 0 and sACN 1.

Default : 0

Ethernet Remote Protocol

Enables transmit and receive of ChamSys Remote Ethernet Protocol (CREP) for communication over Ethernet (UDP/IP) with external 3rd party systems.

There are options to enable tx, rx and both tx and rx. There are also options to use ChamSys Remote Ethernet Protocol without the header. Note that on receive (rx) MagicQ auto detects whether a header is present so can accept data CREP data with our without a header regardless of the header setting.

When set to rx echo then any received data is processed and then transmitted back out (echoed).

If set to None then any data received is ignored. When transmit (tx) is enabled, data can be transmitted from the Macro field of Cue steps in the Cue Stack.

See ChamSys Remote Ethernet Protocol and Multiple Consoles for more details.

Prior to v1.9.8.0 when using network sessions or multi console operation this option should be set to None. From v1.9.8.0 Net Sessions no longer uses CREP for playback sync.

Default: None

Ethernet Remote Port

This port is used for communication with 3rd party systems using ChamSys Remote Ethernet Protocol.

Note that prior to v1.9.7.2 this port was also used for playback sync in Net Sessions and needed to be the same on all systems using Net Sessions. From v1.9.7.2 playback sync in Net Sessions no longer uses this port.

Default : 6553

Custom TCPIP Type

This is used for custom connections to external 3rd party equipment over TCP/IP.

The options are None, TCP and UDP and UDP CREP.

When set to anything other than None, the "Y" Cue Stack macro sends messages over this connection instead of over ChamSys remote protocol.

Messages received from the remote equipment are logged as Custom TCPIP log messages and can be viewed in VIEW LOGS in the Help window.

When set to UDP CREP, messages received are processed according to the ChamSys Ethernet Remote Protocol (CREP). See ChamSys Remote Ethernet Protocol.

When set to TCP, MagicQ will attempt to connect to the IP address and port set in Custom TCPIP IP Address and Custom TCPIP port. MagicQ does not listen to TCP, so will not accept TCP connections from external equipment.

Default : None

Custom TCPIP IP Address

The IP address for the Custom TCPIP. When Custom TCPIP Type is TCP then this is the IP address that MagicQ connects to.

When Custom TCPIP Type is UDP then it is the IP address MagicQ sends to. The IP address can be a broadcast IP address. When set to 0 no messages are sent or received.

Default: 0

Custom TCPIP Port

The TCPIP port number for the Custom TCPIP connection or messages. When set to 0 no messages are sent or received.

Default: 0

Web Server

This is used to enable the in-built Web server which enables remote access to the console functions from other equipment using web browsers.

The option "Enabled CSS" uses improved CSS style sheet web pages.

Default: Disabled

Web Server Port

The port used by the web server.

Default: 8080

OSC Mode

The options are Disabled, Tx, Rx, Tx and Rx.

Default: Disabled

OSC Tx Port

The UDP port used for messages transmitted from MagicQ to external systems.

Default: 9000

OSC Rx Port

The UDP port used for messages received from MagicQ to external systems.

Default: 8000

OSC Tx IP (0 = Broadcast)

The IP address to send OSC messages to. When set to 0 the OSC messages are broadcast on the network.

Default: 0

Tracker Rx

Enables connection to a remote tracker system. Remote tracker protocols are only supported on MagicQ consoles and MagicQ PC systems connected to MagicQ wings and interfaces or

Rack Mount Dongle.

The options are None, DMX Input, MQ Track, PSN/SpotMe, Generic XYZ Tracker, Internal and Simulator.

When set to DMX Input, MagicQ receives tracker data for each Head directly on the DMX input corresponding to the output - for example if a Head is patched to Universe 1 channel 1 with pan and tilt on channels 10 and 12 respectively, then it will take the tracker data input for pan and tilt from input channels 10 and 12.

When set to MQ Track, MagicQ receives tracker data over a simple UDP protocol on UDP port 6549.

When set to OTP, MagicQ receives tracker data over Object Transform Protocol (OTP). The OTP function setting must be set to Tracker (rx).

When set to PSN/SpotMe, MagicQ receives tracker data from Robert Juliat tracking system.

When set to Generic XYZ Tracker the XYZ track information is received from a patched Generic XYZ Tracker head.

When set to Simulator, MagicQ generates a test pattern on the x and z positions of Trackers 1 and 2 in opposing directions for testing purposes. The simulator does not require MagicQ hardware.

When set to Internal, MagicQ does not receive tracking from any external devices, but it enables tracking from internal Trackers and MagicVis objects. When set to None, then Tracking is not enabled at all, even from internal Trackers and MagicVis objects.

The current value of received trackers can be seen in the Macro Window, under View Autom.

When tracker data is active MagicVis shows the tracker points as a green cross within the 3D space. If the tracker data is lost then the cross will turn red, and then after 2 seconds of not receiving any tracker data for that tracker the cross will disappear altogether.

The information from Trackers can be used by Palettes set as Track and also by Tracker Automations.

Default: None

Tracker Tx

Enables transmitting of Tracker information to remote systems. Remote tracker protocols are only supported on MagicQ consoles and MagicQ PC systems connected to MagicQ wings and interfaces or Rack Mount Dongle.

The options are None, MQ Track, OTP, and Generate Track1, Generate Track2.

When set to MQ Track, MagicQ transmits tracker data over the MQ Track protocol whenever data for a Tracker changes. MQ Track protocol is a simple UDP protocol on UDP port 6549.

When set to OTP, MagicQ transmits tracker data over Object Transform Protocol (OTP). The OTP function setting must be set to Tracker (tx).

When set to Generate Track 1 or Generate Track 2 MagicQ transmits the respective Tracker only over MQ Track protocol.

Generate Track 1 and Generate Track 2 can be used on secondary MagicQ consoles / systems to send the Focus Hold XY position from the Plot view to a primary MagicQ console (using MQ Track protocol), thus enabling separate operators to control the tracking points in real time.

Default: None

OTP Function

MagicQ supports E.159 Object Transform Protocol (OTP) for transmit and receive of tracker data and for transmitting and receiving MagicVis object position and rotation data.

When set to "Tracker (rx)" MagicQ receives Tracker data over OTP and acts as an OTP consumer. MagicQ assumes OTP System 1, Group 1 with the Point number mapping to the Tracker ID in MagicQ.

When set to "Tracker (tx)" MagicQ transmits Tracker data over OTP and acts as an OTP producer. MagicQ transmits OTP System 1, Group 1 with the Point number mapping to the Tracker ID in MagicQ and the name set to the relevant tracker - for example "Tracker 1".

When set to "MagicVis object (rx)" MagicQ accepts position and rotation data for the MagicVis objects modifying their position and rotation accordingly. MagicQ assumes OTP System 1, Group 1.

When set to "MagicVis object (tx)" MagicQ transmits position and rotation data for all the MagicVis objects and acts as an OTP producer. MagicQ transmits OTP System 1, Group 1 and Points starting from 1. MagicQ transmits the name for each point as the name of the object within MagicVis.

Receiving and transmitting Object Transform Protocol data is always supported on MagicQ consoles. On MagicQ PC and Mac systems it is only supported when unlocked with a MagicQ or SnakeSys interface.

Default: None

PSN Function

MagicQ support PosiStageNet (PSN) protocol. The options are:

- Normal PSN 0
- Normal PSN 1
- Vis Object (tx) PSN 0
- Vis Object (tx) PSN 1

PSN supports tracker IDs starting from 0. By default MagicQ maps PSN Id 0 to MagicQ Tracker 1, and so on.

MagicQ can be set to map PSN Id 1 to MagicQ Tracker 1. In this case any information received from PSN Id 0 will be ignored.

When set to Vis Object Tx, MagicQ sends Vis Object data instead of Tracker data over PSN. This can be used to send the absolute position of objects in MagicVis to external systems over PSN.

Default: Normal PSN 0

NDI Groups

Comma-separated list of NDI group names to restrict NDI sources. Leave blank to use the default group.

Default: Empty

NDI Extra Search IP Addressess

Comma-separated list of IP Addresses of NDI devices to search for NDI sources, in addition to the usual automatic discovery.

Default: Empty

WIFI Settings

Wireless Mode

Some consoles have an inbuilt wireless access point for remote control from an iOS or Android tablet. Set to "Access Point" to enable.

This is only supported on MQ50, MQ70 and MQ250M. It is an option on Pro 2010 and Pro 2014 consoles via a USB adapter.

On all other consoles and PC/Mac this setting must be set to "Disabled" - on these systems you can use an external wireless access point.

Default: Disabled

Wireless IP Address

IP address of the console when using the inbuilt wireless access point. Must not be in the same range as the wired network address in the "Network" tab.

Default/recommended: 192.168.200.1

Wireless Subnet Mask

Subnet mask of the console when using the inbuilt wireless access point.

Default/recommended: 255.255.255.0

Wireless Channel

Wireless channel (frequency) of the inbuilt wireless access point.

It is recommended to use either 1, 5, or 11.

Default: 1

Wireless SSID

Wireless network SSID (name) of the inbuilt wireless access point.

This will be the name that appears in the list of wireless networks on a device.

Wireless Encryption

Wireless encryption type of the inbuilt wireless access point.

Should be set to WPA2. All other options are deprecated and are not supported on new consoles.

Default: WPA2

Wireless Key

Wireless password of the inbuilt wireless access point.

Must be at least 8 characters.

Wireless DHCP Server

When enabled, MagicQ will automatically assign IP addresses to devices connected to the inbuilt wireless access point.

Default: Yes

Android Tethering Support

This feature is deprecated and should be set to "No".

Port Settings

MagicQ Wings and Interfaces

No - MagicQ will not connect to USB wings, interfaces or GeNetix network products via ChamNet, Setting this option disables ChamNet messages from MagicQ systems.

Yes - MagicQ will connect to all available USB wings and interfaces, and SnakeSys network products.

Yes, auto DMX - MagicQ will automatically output DMX starting universe 1 on the physical outputs, but only if there is nothing set to "MQ Direct" (consoles) or "MQ Wing" (PC/Mac) in DMX I/O.

On Mac, you can also choose to use just Virtual COM Port (VCP) devices (PC Wing Compact) or just FTDI devices (all other MagicQ USB wings and interfaces).

This option does not affect MagicDMX.

Default: Yes - auto DMX

MagicDMX Mode

The options are None, DMX Out or DMX In. This option defaults to DMX Out.

Setting the Out Type of Universe 1 in Setup, DMX I/O to MagicDMX will automatically set this option to DMX Out.

Note that DMX In is not available on the MagicDMX Basic version.

Default: DMX Output

Audio Input

MagicQ supports 14 bands of audio analysis - 7 frequencies each on a received left and right channel.

On MagicQ consoles with inbuilt audio ports use "Internal sound card".

On the MQ500, MQ500M, MQ500M+, MQ250M and MQ80 consoles there are two possible audio inputs. The S2L input uses hardware to analyse the incoming audio system - to use this select "ChamSys Audio Interface". The audio input uses software to analyse the incoming audio - to use this select "Internal sound card".

When using an external USB sound card with a MagicQ console, use "External USB sound card".

On PC or Mac when using a sound card use "Internal sound card". Audio input on PC/Mac is only supported when the system is unlocked by a MagicQ Wing or Interface or SnakeSys device.

The options "Energy only ChamSys audio", "ChamSys Audio Interface" and "ChamSys audio left only" relate to the ChamSys USB Audio interface. "ChamSys Audio Interface - Energy only"

analyses the 14 channels received and creates a single energy channel which is then copied to all the other channels. "ChamSys Audio Interface - Left only" copies the data received on the left channels to the right channels.

"Audio output loopback" will analyse the current audio stream being played back from MagicQ.

See Audio for full details on audio input.

Default: None

Audio Input Device

The specific audio device to use for audio input. This will show all compatible audio inputs available to MagicQ from the system.

This option is only available on PC systems.

Default: N/A

Audio Min Level

The minimum levels of the audio input. The minimum is used to adjust for noise.

When set to a non zero value any levels below the minimum are ignored and the levels above the minimum are scaled appropriately.

See Audio for full details on audio input.

Default: 0

Audio Max Level

The maximum level of the audio input. Useful if the audio signal is particularly weak.

When set to a non zero value any levels above the maximum are ignored and the levels below are scaled appropriately.

See Audio for full details on audio input.

Default: 0

Audio Output

On MagicQ consoles with inbuilt audio ports use "Internal sound card".

When using an external USB sound card with a MagicQ console, use "External USB sound card".

On PC or Mac when using a sound card use "Internal sound card".

Default: None

Audio Output Device

The specific audio device to use for audio output. This will show all compatible audio outputs available to MagicQ from the system.

This option is only available on PC systems.

Default: N/A

Audio Output Volume %

The audio volume from 0% to 100%.

Default: 100%

Audio Output Mute

Options are "Not Muted" and "Muted".

Default: Not Muted

Remote Trigger Type

This setting specifies how the remote input port on MagicQ consoles, MagicQ PC Wings and MagicQ Maxi Wing works.

It can be set to None, Make, Break or Make + Break.

It can also be set to MIDI Beat, MIDI Beat Half and MIDI Beat Qtr for triggering from the MIDI Beat Clock instead of from the remote input.

Default: None

Remote Trigger Action

This setting specifies specific actions to be taken on a remote trigger input. The options are:

The options are:

- None
- Current Playback GO
- Current Playback FLASH
- Add/Swap
- Swap
- DBO
- Wing1 PB1 GO
- Wing1 PB1 FLASH
- Wing1 PB12 GO

- Wing1 PB12 FLASH
- PB10 GO
- PB10 FLASH
- Audio Bump
- Tap to Time selected playback
- Tap to Time active playbacks
- Tap to Time SP1
- Tap to Time SP2
- Tap to Time SP3
- Emergency

The remote trigger can be used on a per Cue Stack basis by setting the Halt field of Cue step in the Cue Stack to "Remote". This is independent of any global action specified by the Remote trigger action setting.

Audio bump simulates audio received at full level. It is processed by MagicQ just as if the "bump" had been received from the audio port or the MagicQ Audio Interface, bumping any Cue Stacks set to Audio Bump.

Default: None

10Scene

This setting enables use of 10Scene Ports on Consoles, 10Scene Gateways, GeNetix GN5/GN10, TouchScenes and the 10Scene Remote app.

When set to "Inbuilt" enables 10Scene ports on Consoles only.

When set to "Inbuilt, Gateway" enables 10Scene ports on Consoles, 10Scene Gateways, and GeNetix GN5/GN10.

When set to "Inbuilt, Gateway, Remote" enables 10Scene ports on Consoles, 10Scene Gateways, GeNetix GN5/GN10, TouchScenes and the 10Scene Remote App.

Default: Disabled

10Scene Action

Specifies what 10Scene is controlling.

When set to "PB 1 to 10" All 10Scenes control PB1 to PB10

When set to "Execute 1" All 10Scenes control Exec Grid 1, items 1 to 10

When set to "Exec 1 Multi" 10Scenes with Zone IDs 1 to 10 control Exec Grid 1, Zone ID1 controls item 1 to 10, Zone ID2 controls 11 to 20, etc. . .

When set to "Exec 1 Groups" 10Scenes control Exec Grid 1, items 1 to 10, but using Groups named with the Zone ID to determine which heads they control.

When set to "Exec Grids" 10Scenes control Exec Grids - Zone ID 1 controls Exec Grid 1, Zone ID 2 controls Exec Grid 2, etc. . .

When set to "Custom" The action for each zone is configured separately using the Type, P1 and P2 fields in Macro, View Zone

Default: PB 1 to 10

Note that by default 10Scene Contact will perform the same function as 10Scene Wall Plates. To remove the 10Scene Contact from the above 10Scene actions in the Macro Window, VIEW ZONE set up a manual zone with the ID of the 10Scene Contact(s).

10Scene Contact as 10Scene

When set to yes the 10Scene Contact will act like a 10Scene Wall Plate using the normal 10Scene actions and will be available for use in Automations.

When set to no the 10Scene Contact can only be used in Automations.

Default: No

Serial COM Port

MagicQ supports one serial port for remote connections. On MagicQ consoles select COM1.

On MagicQ PC select a COM port from COM1 to COM8 depending on which COM port you wish to use.

Default: COM1

Serial Baud Rate

MagicQ consoles support baud rates from 300 to 57600. Baud rates supported on MagicQ PC will depend on the PC.

Default: 9600

Serial Parity

MagicQ PC supports None, Odd, Even, Mark and Space. MagicQ consoles only support None, Odd, Even.

Default: None

Serial Data Bits

Data bit sizes of 4,5,6,7 and 8 are supported.

Default: 8

Serial Stop Bits

MagicQ PC Supports 1,1.5 or 2 stop bits. MagicQ consoles support 1 or 2 stop bits.

Default: 1

Serial Remote Protocol

Determines what protocol is used on the serial port. If set to "None" then any data received is ignored. Data can be transmitted from the Macro field of Cue steps in the Cue Stack.

The other protocols are:

- CRP & Automs
- MagicWand
- MagicWand II

See Controlling MagicQ using the serial port for more details.

Default: None

Monitor Settings

The Monitor settings have been moved to Setup, View System, Monitors.

MIDI / Timecode Settings

Internal Timecode Type

Determines the timecode type used for internal timecode on Cue Stacks.

This can be set to Normal or Use External Frame Type. Use External Frame Type can useful when pre programming a show that is planned to be run using External Timecode.

Default: Normal (100/second)

Timecode Frame Type

The timecode type can be set to EBU 25, SMPTE30, NTSC30 and Film 24.

When enabled the Status Display will show the current timecode being received from the module.

Default: EBU 25

Timecode Continue Frames

When MagicQ is set to external timecode and the external timecode source is temporarily lost MagicQ automatically continues to increment the timecode. This parameter specifies how many frames MagicQ continues generating for before it stops. After this number of frames the timecode will be frozen until a signal is received again.

Default: 50

Timecode Jump Detect Frames

The timecode jump detect parameter is the number of frames that MagicQ waits before performing a jump. This allows spurious timecode values to be ignored.

Default: 10

Timecode Decode

This option controls which external source is used for timecode input.

The main options are None, LTC, MIDI, Art-Net, Winamp, Virtual (USB) MIDI, and TCNet.

LTC and MIDI are for use with the inbuilt LTC and MIDI ports on MagicQ consoles and when connecting to a ChamSys MIDI/SMPTE interface.

Art-Net enables receiving timecode over Art-Net protocol. For devices that can send Timecode according to the 2024 Art-Net specification the incoming Art-Net stream can be chosen.

ChamNet enables receiving timecode from a GeNetix GN5 or GN10 using ChamNet. The incoming ChamNet stream is determined by the Unit ID of the ChamNet device.

Dual Art-Net or Cham-Net streams can be selected for redundancy. The first stream is used whenever it is present. The second stream will be used when the first stream is not present.

The options "LTC+Art-Net" and "MIDI+Art-Net" provide resilience where the LTC or MIDI is the primary source, but if this is not available then MagicQ will fall back to using received Art-Net timecode.

Winamp is received from a Winamp instance running on the same PC. Virtual (USB) MIDI receives from any USB MIDI device or another application on the same PC with virtual MIDI.

When set to "None" then timecode is not accepted from any source.

When this option is set to anything other than None, then timecode generation (below) should be set to either "None", or "Art-Net (retransmit)".

On MagicQ PC/Mac systems Winamp, Art-Net timecode and Virtual (USB) MIDI are only available when the system is full unlocked via a MagicQ Wing or GeNetix device.

Default: None

Timecode Generation

The options are None, LTC, MIDI, Art-Net (retransmit) and Virtual (USB) MIDI.

When set to LTC or MIDI the MagicQ system generates timecode.

Art-Net (retransmit) causes any timecode received via sources other than Art-Net to be retransmitted on the network as Art-Net timecode. This allows resilience to be built up in multi console systems where timecode is received into multiple MagicQ consoles and forwarded over the network using Art-Net timecode.

The Art-Net and ChamNet options enable can be used to output on chosen Art-Net and ChamNet streams respectively. Note that ChamNet timecode generated by a MagicQ system can only be read by GeNetix devices - it can not be decoded by other MagicQ systems. To send timecode between MagicQ Consoles use Art-Net.

Virtual (USB) MIDI allows 3rd party USB or Virtual timecode interfaces to be used, note the interface must first be configured under the Tools > Virtual (USB) MIDI setup.

When this option is set to LTC or MIDI, then timecode decode should be set to None.

The timecode values can be set be initialised, reset and modified using Cue Stack commands W and Q. W1 to enable the inbuilt timecode generator. W0 to disable. Q Timecode where Timecode is value in frames.

W2 to use the timecode for this playback as the source for the external timecode. This enables external systems to be synced to the position in the Timeline of a Playback.

Default: None

Timecode Backward Jumps

The options are Normal, Adv backward Jump, Backward Jumps > 1 second.

Normal is the original MagicQ backward jump handling.

Advanced is the handling that was previously available on a debug option.

Backward Jumps > 1 second ignores backward jumps unless they are greater than 1 second - this option may help with some systems which can send small backwards jumps when they stop.

Default: Normal

Timecode Activate/Release

The options are Normal, Activate/Release TC Playbacks and Activate/Release TC Playbacks at Full.

When set to either of the Activate/Release options TC Playbacks will automatically activate when the TC value for the first cue is received and release after the last cue TC value is

received.

The Activate at Full option can be used to ensure that the Playback activates at Full, ignoring the physical fader level on the console.

Default: Normal

Timecode Offset

Applies a Global timecode offset to the incoming external timecode source.

A positive value adds frames to the received timecode, whilst a negative value delays the incoming timecode.

Default: 00/00/00.00

MIDI in Type

Setting for determining how MIDI channel messages are processed. The options are None, Any Channel or Requested Channel.

When set to Any Channel MagicQ will process MIDI notes received on any MIDI channel.

When set to Requested Channel then MagicQ will only process MIDI notes received on the MIDI In Channel that is set.

This option can be used at the same time as timecode in / timecode generation.

Default: None

MIDI in Chan

The MIDI Channel that MagicQ will listen to. When set to 0 it accepts MIDI commands on any MIDI channel.

Default: 0

MIDI Out Type

Setting for determining how MIDI channel messages are sent.

The options are None, Any Channel or Requested Channel.

When set to Any Channel MagicQ will send MIDI notes on the channel specified in the macro field in the Cue Stack.

When set to Requested Channel then MagicQ will always send the MIDI notes on the MIDI Out Channel that is set regardless of the channel specified in the macro field in the Cue Stack.

This option can be used at the same time as timecode in / timecode generation.

To send notes from the macro field in the Cue Stack:

<note on/off> <note> <velocity>

For example, to send a note for middle C set the macro field to the following:

N144,60,127 // Note 60 on velocity 127

N128,60,0 // Note 60 off

Default: None

MIDI Out Chan

The MIDI channel that MagicQ will send out on.

When set to 0 it outputs on the MIDI channel specified in the Cue Stack macro field. When set to non zero it overrides the MIDI channel.

Default: 0

MIDI Show Control Type

The options are Normal, Cue Stack 1, Playback 1 and None. This determines which Cue Stack is triggered when MIDI Show Control (MSC) commands are received.

In Normal, MSC commands with two parameters (Q number, Q list) will trigger Cue Stacks in the Cue Stack Store. MSC commands with one parameter (Q number) will trigger Cues in the Cue Store.

When set to None, MagicQ does not process MIDI Show Control Messages internally, enabling the messages to be handled by automations.

Default: Normal

Multiple Console Settings

Enable Remote Control

Enables devices and consoles to remote control MagicQ using the MagicQ remote control feature.

This setting must be set to Yes for remote controlling one MagicQ console from another, when using external Multiwindow and when using the MagicQ Remote App.

Default: No

Enable Remote Access

Enables other devices or consoles to communicate with MagicQ over the network.

This option must be set to Yes when using Net Sessions, Show Sync, remote file access, and when using TouchScenes and MagicQ Remote apps.

It must also be set when operating a MagicQ console with the stand alone MagicVis.

Default: No

Net Session Mode

Enables network sessions, allowing multiple consoles to communicate show and playback information over a network. This is only supported on the console main lighting network port (network port 1 when other network ports are configured differently to the main lighting network port). The options are:

- "None" - No network communication or show/playback sync is allowed to or from this console.
- "Manual Takeover" - Show and playback Sync will be allowed with Consoles in the same session. However, the console will not take over outputting DMX if the master is lost, until told to do so by the user.
- "Auto Takeover" - Show and playback Sync will be allowed with Consoles in the same session. The console will automatically take over outputting DMX if the master is lost after a period of time without any interaction from the user.
- "Slave Only mode" - In this mode Net Sessions can be used on MagicQ PC systems even when they are unlocked - there must be another unlocked MagicQ system on the network which is the Master. The Slave Only PC cannot take control - it is always a Slave, so it cannot be used for show backup purposes.

In most situations we recommend "Manual Takeover" as it gives most control to the operators. "Auto Takeover" is designed for situations where there is no operator.

See Multiple Consoles for full details on using multiple MagicQ consoles in a network.

Default: None

Net Session ID

For use in Network Sessions to specify the current session the console is a member of.

Consoles in a session should be set to a number other than 0 when using net sessions, to avoid a console not configured attempting to join a session when it is started.

Default = 0

Playback Sync Slave Mode

When Network Session Mode is set then this specifies whether the Slave synchronises its playbacks to the Master.

When set to "PB Sync" the Slave playbacks are synchronised to the Master playbacks. Pressing playback buttons or changing fader levels on the Slave has no effect.

When set to "PB Sync, multi control" the playbacks on the Master and Slave are synchronised

together, with either console being able to make changes via playback buttons and fader levels.

When set to "Inhibit PB Sync" the Slave playbacks are not synchronised – this is useful during the programming phase when creating a show using multiple consoles.

When set to "Inhibit, sync on swap" the Slave playbacks are not synchronised, but the Slave stores the Master state and if the Slave swaps to become the Master then it starts from the stored state.

For show playback, the Slave playbacks are normally synchronised to the Master.

Default: Inhibit PB sync

Programmer Sync Mode

When Network Session Mode is set then this specifies whether the Slave synchronises its programmer to the Master.

When set to "No Sync" the Master and Slave consoles operate separate programmers. Any changes in the Programmer on the Master are completely independent to changes in the Programmer on the Slave. Each console can record, and update different Cues independently.

When set to "Sync Programmers" the programmers are synchronised - any changes in either programmer immediately modify the other programmer. This allows to operates to control different lights but to record and update the same Cue at the same time. When a Cue is recorded or updated the complete programmer is used for the record or update.

Default: No Sync

Hot Takeover Mode

When using multiple ChamSys consoles this option is now superseded by the Network Session Mode. For manual configuration of this option see Manual Configuration of Multi Console.

This option may still be useful when configuring for an install with 3rd party consoles, and for emergency hot takeover.

The options are:

- "Split Unis" – Universe enable/disable is controlled independently on each console, allowing each console to send a specific set of universes.
- "Equal" – Each Console has equal Priority to be a master or slave, the first console to start will be the Master.
- "Manual" – Hot takeover will only enabled/disable universe when told to do so by the user.
- "Prefer Master" – This console will always be designated the master in a multi console network.
- "Prefer Slave" – This console will always be a slave in a multi-console network unless no other consoles are found then it will promote itself to master when alone.

- "Inhibit Outputs" – Prevents any console in the system, master or slave, from outputting DMX. This can be used to disable the data from a system when a "Guest" console is being used.

Default: Split Unis

For Emergency Hot Takeover, the Hot Takeover Mode must be set to either Split Unis, Equal or Prefer Slave. Emergency Hot Takeover will not work if this option is set to Manual or Inhibit.

Hot Takeover Detect Time

When Network Session Mode is set to "Auto Takeover", this setting specifies how long after a Slave detects there is no Master on the network that it takes over control as Master.

Default: 5.00 sec

Hot Takeover Fade Type

When Network Session Mode is set to "Auto Takeover", this setting specifies when a Slave becomes a Master, whether the output state is held or an automatic fade is carried out to the output of the new Master.

- "Automatic" - Loads a snapshot of the last data from that universe into the Programmer and then automatically clears the programmer using the hot takeover fade time.
- "Manual" - Loads a snapshot of the last data into the Programmer. The universe will be completely controlled from within the Programme. The operator can then set up the playbacks as they wish and then clear the programmer to change to this new look. Clearing the programmer with time enables the operator to specify a fade time to the new look.

Default: Automatic

Hot Takeover Fade Time

When Network Session Mode is set to "Auto Takeover" and Hot Takeover Fade Type is set to "Automatic", then this setting specifies how long it takes to fade the output when a Slave becomes a Master.

Default: 3.00 sec

Show Data Sync Type

This setting is now superseded by the Network Session Mode.

For manual configuration of this option see Manual Configuration of Multi Console.

- “Archiver” - checks for other consoles on the network and grabs the show files that are running on those consoles. When this feature is used to back-up multiple consoles, it is important that different show file names are used on each of the other consoles – otherwise files from different consoles will overwrite each other. Files will only be copied

from consoles that have the “auto backup” option set to “yes” or “on changes”.

- "Grabber" - works as Archiver, but also run the show file, rather than just storing it.

Show Data Sync IP

This setting is now superseded by the Network Session Mode which automatically configures this setting.

For manual configuration of this option see Manual Configuration of MultiConsole.

Hardware Settings

Level above 0 to activate LTP

This setting can prevent playbacks being triggered in error by reducing their initial sensitivity. Setting this to a level above 0 (e.g. 5) may remove any accidental triggers.

Default: 000

Hysteresis on Fader / Encoder Moves

In some circumstances where faders or encoders have become faulty and generate excess noise, setting this to a level above 0 (e.g. 5) may remove the noise.

Default: 000

Encoder Damping

Use this option on a MagicQ PC Wing to improve the performance of the encoder wheels. This option does not have any effect on MagicQ consoles.

Default: Damped

Touch Screen

The console touch screen can be disabled with this setting for cases where it may be faulty and causing issues.

Default: Enabled

Multi Touch

Multi touch can be enabled here.

Default: Enabled for MagicQ consoles. Disabled for MagicQ PC.

Encoders

The encoders can be disabled for cases where they may be faulty and causing issues.

Default: Enabled

Faulty Faders Mask

The faders can be disabled for cases where they may be faulty and causing issues.

The following values can be used:

- Set to 1 to disable the main faders.
- Set to 2 to disable Wing 1 lower faders.
- Set to 4 to disable Wing 1 upper faders.
- Set to 8 to disable Wing 2 lower faders.
- Set to 10 to disable Wing 2 upper faders.

Default: 00000000

Motorisation

Define whether fader motorisation is enabled on supported consoles.

Default: Enabled

Faulty Motor Mask

The fader motors can be disabled for cases where they may be faulty and causing issues.

Default: 00000000

Faulty Wing Motor Mask

The fader motors can be disabled for cases where they may be faulty and causing issues.

Default: 00000000

Power Fail Detection

This setting disables power fail detection for the current session in case the console has developed a fault and is falsely reporting power fails.

This setting will return to default upon a reset / power on.

Default: Enabled

Screen Save

This setting can be used to disable screen save for 7 days.

This setting will return to Enabled when a console is reset / powered on after 7 days setting to Disabled. This protects display life.

Prior to 1.9.6.2 the screen save was always re-enabled after reset/power on.

Default: Enabled

Close Display Action

This setting can be used to select the operation when the display is closed on the MQ250M.

The options are Screen Save, Lock, and No Function.

When set to Lock the console will automatically lock and screen save when the display is closed. When it is reopened the screen save will be cancelled, but user will need to unlock the console to use it.

Default: Screen Save

Reduced Rate Output

This setting determines how output of Lighting data is sent over the network (Art-Net/sACN), it does not affect direct DMX outputs on Consoles, Wings or MagicDMX.

When set to "Continuous" MagicQ outputs data regardless of whether it is changing. This can cause high network loads.

When set to "Changes only" MagicQ only outputs data only on changes, except once per second where it will send regardless of whether data has changed. This means that when data is not changing it reduces the output data from 39 frames a second down to 1 frame. When data changes MagicQ will send the data 3 times before reducing the rate of sending to 1 per second. MagicQ interleaves the output frames from the different universes so that network devices with small buffers will still be able to decode the correct universes on heavily loaded networks.

When set to "Changes No Broadcast" it is the same as "Changes only" except that MagicQ never broadcasts Art-Net packets.

When set to "Reduced" MagicQ outputs at half the normal frame rate. This option does not affect the DMX frame rate of direct DMX ports or of external DMX nodes. It only affects the output of network DMX via Art-Net, sACN, Pathport and ShowNet.

The "Changes Only, Direct C" and "No Seq" setting should not be used unless directed by ChamSys customer support.

Some older DMX equipment may not be able to receive full DMX packets at the required rate. If less than 120 are used in the Patch then the "Short packet (120 chans)" option can be tried - this only affects Lumen Radio. All other DMX ports will send 512 byte packets.

The "Continuous, no mixed" and "Changes, no repeat" are legacy options.

Data packets sent to MagicVis, WYSIWYG and Capture are sent only when the data changes. The reduced rate options do not affect the MagicVis, WYSIWYG or Capture data.

Default: Changes only

DMX Frame Timing

This setting determines the timing for the direct ports.

This setting only applies to the MQ250M, MQ80, MQ70, MQ50 and Stadium Connect. The setting will have no affect on other MagicQ consoles.

When set to "Maximum (default)" the console will output direct DMX512 data at its fastest speed. The break will be 100 µs, the mark after break (mab) will be 12 µs, and the slot time will be 50 µs giving an inter-byte time of 6 µs.

The "Fast" and "Slow" settings can help when some heads flicker due to missed frames as they can’t keep up with the defalt frame timing.

When set to "Fast" the console will output direct DMX512 data with a break of 150 µs, mab of 50 µs, and a slot time of 53 µs giving an inter-byte time of 9 µs.

When set to "Slow" the console will output direct DMX512 data with a break of 250 µs, mab of 100 µs, and a slot time of 56 µs giving an inter-byte time of 12 µs.

Display Edge

The MQ50 and MQ70 consoles are designed for minimum size to fit in hand carry restrictions and therefore the display edge is closer to the surrounding bezel than on other MagicQ consoles. The display edge option enables the window edge to be modified so that they are more visible.

Default: 0

Movie Buffer Frames (0=use default)

MagicQ uses buffering for Movie clips. By default (when this is set to 0) MagicQ uses a buffer size of 128 frames. MagicQ will always use a minimum of 128 frames regardless of this setting.

On consoles using a solid state drive, this setting won’t make a significant difference.

Default: 000

Debug Mode (Must be 0)

For ChamSys internal debugging only. Must be set to 000.

Default: 000

Standard Logging

This option should always be enabled, except when directed by ChamSys support.

Default: Yes

Extended Logging

This option allows extended logging to be enabled. ChamSys support may request that Extended Logging is enabled in order to investigate any issues.

Default: No

General Settings

Splash Screen Image

Users can add their own splash screen for the console by copying their splash image named usersplash.bmp, usersplash.png or usersplash.jpg into the MagicQ folder. This will be used in favour of the default splash.bmp on start up and when locking the console.

From v1.9.7.1, a splash image can be selected from Setup, View Settings, Mode. This is used in preference to the usersplash or splash above. The selected image is added to the show file .xhw so will automatically get loaded onto new consoles when the show is loaded.

Individual Playback Settings

Settings for individual Playbacks (Cue Stacks) are configured from the View Options and View Defaults views in the Cue Stacks Window.

Calibrating the Touch Screen

If the touch screen does not respond accurately to the position that you are pressing on the screen then you may need to re-calibrate the touch screen. Don’t be afraid, this is a painless exercise!

In the Setup Window press the Cal Touch button - use the physical button rather than the pressing the touch screen. This puts the screen into calibration mode. To calibrate the touch screen simply press the screen in the bottom left corner of the screen and then the top right corner of the screen. Press the screen on the corners where the displayed graphics starts/ends.

It does not matter which order you press the screen in. If you feel you have pressed the wrong bit of the screen just press the screen again in the correct position.

When you are satisfied you have pressed the correct position then press Cal Touch button to leave the calibration mode. Make sure you use the physical button rather than pressing the touch screen, as pressing the touch screen messes up the calibration.

You should now find that the touch screen is more accurate. If you continue to have problems then try pressing the screen with a small blunt object, but don’t use a sharp object as it may damage the touch screen.

When calibrating external touch screens calibrate only 1 touch screen at a time. Pressing in more than one screen will cause unpredictable results.

Displays Brightness and Contrast

To modify the brightness of the main display, press CTRL and adjust the bottom right encoder.

To modify the brightness of the LCD displays on the wing, press CTRL and adjust the next encoder up on the right.

To turn all the displays off press CTRL and the button associated with the bottom right encoder.

To turn off the all the lights on the console (i.e. the displays, the console lights and the LEDs) press CTRL and the "All Lights" off button.

To modify the contrast of Playback wings use the Wing Contrast encoder.

When multiple Playback wings are connected press CTRL and the Next Page button of the Wing you wish to change the contrast on.

Console Lamp Brightness

To modify the brightness of the console lamps press CTRL and adjust the top right encoder. To turn all console lamps on or off, press CTRL and the button associated with the top right encoder.

Button LED Brightness

To modify the brightness of the LEDs on the buttons, press CTRL and adjust the bottom left encoder.

Note that the brightness of the LEDs can only be adjusted from full to dim - they can not be turned off completely. This ensures that there is always an indication that the console is powered.

Controlling Console Lamp from the Programmed Show

The console lamp brightness, display brightness and LED brightness can now be controlled as a Head within the programming of the show.

Patch one "Generic MQlamps" at any free address. The Head can be unpatched to ensure that it does not affect any real channel outputs. The Head has the following attributes:

- activate set to 255 to take control of the console brightness
- master level for brightness
- white lamp brightness

- blue lamp brightness
- main display brightness of display – 0 is off
- wing display
- led brightness of the LEDs

Note that the screen saver will still blank the display.

Locking the Console

The console supports a simple locking mode to avoid accidental button presses affecting the output or programmed data. Press CTRL and the button associated with the top left encoder to lock / unlock the console.

Alternatively hold CURSOR LEFT and CURSOR RIGHT and press CURSOR UP to lock and unlock the console.

The console will not accept any button presses, fader moves, encoder moves or touch presses while it is locked.

When Users and passwords are configured in Setup, View System, Users then login with user and passwords will is required before the console is unlocked.

When a user splash screen has been set up then the lock screen will show the user splash screen. To add a user splash screen add the image file as usersplash.bmp, usersplash.jpg or usersplash.png in the main MagicQ folder.

Button Test Mode

The console supports a button test mode for checking suspect buttons and faders. To enter button test mode on MQ100/200/300 consoles press the two SHIFT buttons either side of the touch screen together (i.e. hold one down and press the other).

To enter button test mode on Compact consoles MQ40/60/70, press CTRL + ALT + SHIFT together to enter and exit board test mode.

In button test mode the buttons do not have their usual function - instead when pressed a message will be displayed in the status display indicating which button has been pressed. Faders and encoders also can be tested in a similar way.

In button test mode the Window shows a map of all the buttons, encoders and faders. When a button is pressed the map turns green to indicate that the button has been pressed and released o.k.

For encoders it turns green when the encoder has been turned both ways. For faders it turns green when the fader has been lowered to 0 and raised to full.

To test LEDs, enter button test mode and then press CTRL 1 and CTRL 2 to test the different colour LEDs. Press CTRL 0 to go back to normal state of the LEDs.

Button test mode is exited in the same way that it is entered.

On MagicQ PC to enter button test mode type "test" on the keyboard then hold SHIFT and CONTROL. Hold SHIFT and press CONTROL to exit button test mode.

Factory Reset

Under normal operation it should not be necessary to factory reset a MagicQ system, unless you are advised to by ChamSys Support.

MagicQ Console System Factory Reset

To perform a factory reset on a MagicQ console system, navigate to Setup, View Status and select the "Change Software" soft button. This will display the MagicQ Startup screen, from here users can select the "Factory Reset" option. Two options are available to users:

- "Full Reset" - This option will reset the MagicQ system to factory defaults including all settings, show files and user data. This option will remove all user show files and user data from the MagicQ system.
- "Reset Settings" - This option will reset the MagicQ system to factory defaults including all settings, but will not remove any user show files or user data from the MagicQ system.

MagicQ Rack

The MagicQ Rack can be factory reset the same way as a MagicQ console system.

As well as this users can, with the console powered off, press and hold the Recovery button and re-power the unit. Continue holding the Recovery button until the console boots into the MagicQ Startup screen.

System Management

Starting Up

On PC and Mac systems click on the MagicQ application icon. On MagicQ console systems hold the power button on for 1 second.

On first start up an introductory window is displayed on the screen. You are prompted to choose demo shows or to continue the last show. It is possible to turn this option off so that MagicQ automatically starts into the last show.

When MagicQ starts up it loads the last show file that was saved – either a file explicitly saved by you, or the last backup file it automatically saved.

Shutting Down

To shut MagicQ down, press the QUIT soft button in the Setup Window. When asked for confirmation, select yes. MagicQ consoles automatically power off when the shutdown sequence is complete.



On MagicQ consoles the console must be shut down correctly to avoid damage to their storage media. Removing power to the console when it is running may cause problems with the file system. Normally this will only result in a subsequent slow start-up whilst the system repairs the disk – however in certain circumstances the file system may become corrupted. If you always follow the instructions for shutting down you will have no problems.

CONSOLES THAT ARE NOT SHUTDOWN IN ACCORDANCE WITH THE ABOVE INSTRUCTIONS WILL INVALIDATE THEIR WARRANTY.

For situations where users regularly just disconnect the power from the console rather than shutting it down correctly it is possible to force a fast shut down on power fail. If the empty file "fast_power_fail.txt" is placed in the main MagicQ folder (up one from the show folder) then when power is lost the console will only wait 10 seconds for a user cancel before auto shutting down. This will help to avoid the battery going flat and the potential damage to the file system.

Saving Shows

When you are programming a show the show is stored in memory. In order to store your show on the disk you need to press the SAVE SHOW soft button in the Setup Window.

Whilst programming, you should regularly save your show, so that if the unexpected happens and the power fails your show data is not lost. You can chose any filename. The console will automatically set the file extension to .shw.

By default, MagicQ saves a backup of your show to disk shortly after you make changes – you

will see it show "AutoS" in the Status Display. It uses the same show name but with the file extension .sbk.

It is a good idea to save your show to different file names so that you have various points you can back-track to if things go wrong. For example, save the show as myshow-patch.shw after you have patched and then as myshow-final.shw after you have finished programming.

When you shut down MagicQ through the QUIT soft button in the Setup Window, it automatically saves a backup copy of your show with a .sbk extension. When you subsequently restart MagicQ this file will be re-loaded. This ensures that MagicQ starts up as it was when the QUIT soft button was pressed.

The Setup Window indicates when the show has not been saved (or autosaved) for over 10 minutes.

MagicQ consoles have a large hard disk to enable storage of a virtually infinite number of shows.

Show File Name Auto Increment

MagicQ supports auto incrementing show file names. To start an auto incrementing show file, save a show file with the last part of the name set as _001. When you next press SAVE SHOW, MagicQ will suggest saving to _002. Press ENTER to accept, or edit the name to save to a different name.

Note that in order to avoid accidentally saving to incrementing files, all 3 digits must be present - _1 or _10 is not supported. When the number _999 is reached MagicQ will not auto increment and will request a new name.

Please note that over use of the auto increment feature will lead to high disk usage. It is important to clear out old versions once the show is finished.

To delete all old revisions of the current show file, go to File Manager, and press SHIFT and REMOVE OLD REVS. This will remove all revisions of the current show file that have a lower revision number. It will not remove the current show file.

Backing Up to an External System

It is a good idea to back up your show to an external system. This ensures that should the unexpected happen you can transfer your show to another console. In a touring environment where the console is being moved every day we recommend you back up your show to an external system before moving the console.

You can either backup by transferring files over network or via USB memory stick. To backup to USB memory stick, first insert a USB memory stick into the USB slot in the front or the back of the console then press the BACKUP TO USB soft button in the Setup Window.

The USB memory stick should be formatted for a standard Windows file system (FAT32) and be 32GB or less - they generally come like this. This enables the memory stick to be used in both the console and standard PCs running Windows. For larger drives, exFAT can be used

with MQ500M+, MQ250M, MQ70, and MQ50 consoles.

Note that the Linux operating system on MagicQ consoles may not read USB drives that have spaces in the Drive Name - we recommend renaming the drive to remove any spaces.

Loading Shows

You can load a show that you have previously saved using the LOAD SHOW soft button in the Setup Window. If you load a new show it will erase any existing programming. The console will prompt you for confirmation.

Be careful to choose which type of show file you want to load – the .shw files are the ones you saved, whilst the .sbk ones are auto backups.

It is important that enough universes are enabled prior to loading a show file (Setup, View Settings, Set Universes). If loading a show where more universes are used than set within MagicQ will cause heads/data to be lost from the show when loaded.

When MagicQ saves a show file it saves the show data, the show settings and the console settings. By default when a show is loaded, only the show data and settings are loaded – the console settings are not loaded – so the console settings are not affected.

To force loading of the console settings from a show file, hold SHIFT and press LOAD SHOW+CON. A list of Load Options is shown enabling the user to choose which console settings they wish to load.

Console Settings

- Wing Settings
- Remote Settings
- Mode Settings
- Network Settings
- Media Server Settings
- MIDI SMPTE Settings
- Port Settings
- Multi Console Settings
- Hardware Settings

Selecting all the options loads the complete console settings and show settings – enabling the complete cloning of a console. Note that the console settings include the network settings and IP address – so if 2 cloned consoles are used on the same network then the IP address should be manually set to different addresses.

Any show created on a MagicQ or QuickQ console can be loaded, but you need to be aware of the number of universes in the show. If the show uses more universes than configured on the console/PC you are loading on then the data for the heads on the excess universes will not be loaded. See Loading a show onto a smaller console.

From v1.9.5.0 onwards MagicQ PC supports up to 400 universes - set the number of universes required in Setup, View DMX I/O. SET UNIVERSES before loading the show. Note that the more universes are set, the more memory is required on the PC - for older PC/Macs we recommend limiting the number of universes to those required.

Note that when setting the number of universes above 64, a DMX Spoiler is active on all universes. This enables offline programming with a visualiser, but does not allow output for show use. When set to 64 or less universes the Outputs of MagicQ PC are fully enabled without any spoiler.

Note also when using any of the 'pre vis' Panels for MagicQ PC Systems the DMX Spoiler is always active on all universes.

Erasing

To erase the entire show from memory, go to the Setup Window and press the NEW SHOW (was ERASE SHOW) soft button. You will be asked to confirm by selecting YES. You will then be asked for which initial mode you want the console to be set up for, Normal, Theatre Non Track, Theatre Tracking or Hog II Warp. If in doubt, select Normal.

Erasing a show clears all patching, all programming and all palettes. It does not clear console settings such as the configuration of the DMX outputs or the calibration of the touch screen.

Show Extras File

In order to allow MagicQ shows with additional media such as icon snapshots, image files and audio files to be transferred onto other MagicQ systems, MagicQ uses a separate show extras file with the extension ".xhw". If a show contains extra data such as icon snapshots, image files or audio files, then when the show file is saved using SAVE SHOW or SAVE TO USB, the show extras file is saved at the same time.

The show extras file contains only the icon snapshot data, image files and audio files used in your show - it does not contain the main programming of your show. If you wish to use your show on a different system then you need to copy both the ".shw" and ".xhw" files to the new system. When loading a new show MagicQ automatically checks for the presence of a ".xhw" file and extracts the required media from that file into the relevant folders on the MagicQ system.

The show extras file is not saved during auto saves and is only loaded (extracted) when the user loads an existing show using LOAD SHOW.

If the show file contains a lot of audio files, or particularly large audio files, then the generation of the show extras file can sometimes take some time to process. In this situation, smaller compressed audio files can be used as MagicQ supports both lossy and lossless audio codecs, or alternatively the automatic generation of the show extras file can be disabled by changing Setup, View Settings, Extras file create mode to 'Manual'. If the show extras file is needed, then this can be generated by pressing Shift + SAVE EXTRAS in the Setup window.

Import and Export of Show Data and Show Merging

MagicQ supports advanced features for merging shows together, taking selections from particular shows and adding them to other shows.

A selection of Heads, Cues, Cue Stacks or Pages can be exported from a show file to a new file. Only the show data that uses those selected Heads, Cues, Cue Stacks or Pages is present in the new show file. The new show file can then be merged into other show files, with MagicQ repatching the data as required.

Exporting Shows

Press SHIFT and SAVE SHOW (EXPORT SHOW) to export part of the current show. Only the currently selected heads are exported. All groups, palettes, cues and cue stacks that contain one or more of the selected heads are exported – but only with the data from the selected heads.

If no heads are selected then MagicQ looks for items that are selected in the Page, Stack Store, and Cue Store windows. Use SHIFT + the cursor keys to select items in these windows. Complete pages can be exported using the Page Window, complete Cue Stacks (including the Cues they use) from the Cue Stack Store or individual Cues from the Cue Store.

Merging / Importing Shows

Select SHIFT + IMPORT SHOW to merge or import a show. MagicQ gives you a simple menu of Entire Show, Palettes, Show Structure or Advanced.

Entire Show loads the entire show as separate heads, i.e. adding the loaded show to the existing show.

Palettes allows just palettes to be loaded from the imported show file. There are further options for choosing just some head types and whether to load Positions, Colours and Beams.

Show Structure loads the show with the Groups, Palettes, FX library, Cues and Cue Stacks but without the Patch or any programming in the Cues.

Advanced Merging

With Advanced Merging the imported data can be specified, including Settings, Patch, Palettes, FX Library, Cues, Cue Stacks, Playbacks, Grids, Curves are Vis data.

Settings includes show settings, layouts, key macros and automations.

Additionally you can determine how the data is merged into the current show data.

If the Merge Heads option is selected then MagicQ merges programmed data from the new file into the heads that match in the original show.

If the Merge Heads is not selected then MagicQ adds the channels to the new show. Channels from the imported show keep their DMX address unless they clash with channels in the

original show – in which case they are moved to the first free location.

If the Merge Palettes option is selected then any Palettes at the same Palette ID with the same name are merged together. If the Palettes at a particular ID do not match names, or the Palette is not programmed in the original show then the new Palette is added.

If the Merge Cues option is selected then any Cues at the same Cue ID in the Cue Store with the same name are merged together. If the Cues at a particular Cue ID do not match names, or the Cue is not programmed in the original show then the new Cue is added.

If the Merge Pages option is selected then Playback assignments are kept on the same Page as they were in the imported show – but they may be moved onto higher Playbacks (e.g. Playback wings) on the same page if the same playbacks are used.

It is also possible to load the data for only selected head types from the imported show file - the options are All, Chosen or None.

All merges all Heads from the file. Chosen opens a list of the Head Types in the file.

None is similar to the Show Structure option in the main merge menu except that it gives more control on the items that are loaded. When using None, Import Patch should not be selected.

Merging in Part of Another Show File

If you wish to merge in only specific items, such as Cues, Cue Stacks or Palettes, or just selected heads then you can use Setup, SHIFT + IMPORT SHOW and select Advanced as above.

If you wish to merge in only some Cues, Cues Stacks or Pages then you must first create another show file with only these items before importing it into your current show file.

- Save your current show file to a name different to the import show file.
- Open the import show file and cursor select the items in the Page, Stack Store or Cue Store windows you wish to export.
- Press SHIFT + EXPORT SHOW to export the show to a new file name - e.g. partial.shw.
- Reload your original show file.
- Import the partial show file using SHIFT + IMPORT SHOW and selecting ENTIRE SHOW.

Merging Different Versions of the Same Show

To merge two versions of a show together select Advanced and then Merge Heads.

MagicQ will merge in Cues and Cue Stacks from the selected show file that are different to the Cues and Cue Stacks in the original show. Note that for this to work you should ensure that the Cues and Cue Stacks that are different in the two show files have different names.

The heads must be the same type in both versions - it is not possible to merge between different head types. If the two versions you wish to merge have different head types then you must first morph the heads in one of the versions to be the same as the other.

Importing Cues From a Different Version of the Same Show

To import a newer version of a Cue from another show file go to Cue Stack Window and press SHIFT IMPORT CUE or to the Cue Store Window and cursor select one or more Cues and press the IMPORT CUE soft button.

Import Cue gives options of choosing only selected heads and whether to merge into or replace the Cue in the existing show file.

Only the selected Cues will be imported from the new show file. The Cues must exist (at the same QId in the Cue Store) and have the same name in the import file.

Note that if you want to add new Cues that are not in the current show file then you must use Setup, Import Show and then select Import Cues only.

USITT ASCII File Import

MagicQ supports import of dimmer patch, group, cue level and timing information from USITT ASCII files (.asc). In the Patch Window, View Chans, Import USITT.

MagicQ does not support import of non dimmer parameters or more complex heads as this is manufacturer specific and not specified in the USITT ASCII format. We will be happy to investigate whether we can add import from the format of your console.

Note that when importing USITT files with both patch and cues, MagicQ expects the PATCH section of the USITT file to be before the CUE section. A few consoles write the PATCH section at the end of the USITT file - for these cases it is necessary to edit the USITT file before importing, to move all the PATCH commands before the CUE Commands.

Importing Patch

A patch can be imported into a show to change the DMX addresses of the patched Heads. MagicQ matches the Head Numbers and repatches to the new DMX addresses.

First create a .csv file of the required patch. This can be created from another show file by loading the show, and then in Patch, View Chans press EXPORT HEADS. This will create a .csv file in the show folder of the patch.

Load the show file to repatch. Then in Patch, View Chans press IMPORT HEADS, select the .csv file, and select Readdress.

Note that the Head Numbers must match in the .csv file to the show file.

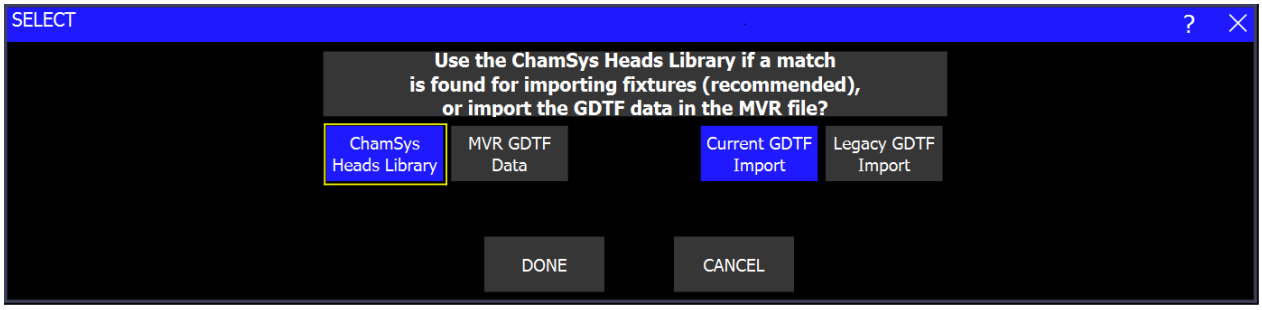
MVR File Import

MagicQ supports importing patch and fixture position information from My Virtual Rig (MVR) files. Currently, importing scene objects is not supported.

To import an MVR file, open the file manager (see below), and select the MVR file to import.

A dialog is shown asking whether to use a head from the Heads Library if it can be guessed

for each GDTF file. A second option on the dialog asks whether to use the current GDTF Import method, or the Legacy method. This option is used if selecting no to using a matched head from the Heads Library, or if no match can be found.



The heads in the file will be added to the current shows patch. GDTF files contained within the MVR file may be imported; MagicQ will use its own head files for a fixture if the user selected to do so and if they are available. See the section on importing GDTF files for more information.

Saving and Loading Settings

You can save your favourite show settings to a file. Settings include the options from the Setup Window, the defaults from the Cue Stack Window, the Layouts you have recorded and keyboard macros.

Once you have become familiar with the console, it is a good idea to save your preferred settings to a file so that then when you start a new show you can load your settings in.

File Manager

You can organise you show files using File Manager in the Setup Window. File Manager supports renaming, moving, copying and deleting of files.

All show files are located in the show directory. The show directory has sub directories for fx, heads and icons.

File manager can operate on both the internal hard disk and external USB memory sticks. To copy a file to the USB stick:

Select HARD DRIVE soft button.

Press COPY and then select the file you wish to copy.

Select USB DRIVE soft button

Select the "." entry.

Moving is done in a similar way using the MOVE action button. Renaming and deleting use the NAME and REMOVE action buttons respectively.

It is also possible to load shows, settings, icons and new software by clicking on items in the File Manager window.

Transferring Files over Network

The console supports remote file system access over the network. Files can be accessed whilst the console is running and outputting Art-Net thus allowing, for instance, users to set up automatic show back-ups to an external server.

Connect the console to the PC or Mac using a network cable.

Configure the IP addresses of the PC / Mac and the console so that they are all on the same IP sub-net. For instance if the console is set to IP address 2.9.200.5, subnet mask 255.0.0.0 then set the host system to IP address 2.9.200.6 subnet mask 255.0.0.0.

You can force Windows to find the console by using Search and searching for a computer – enter the IP address of the console.

On a Mac connect using Finder and selecting the console.

Log in as user magicq with password magicq.

On some Windows systems you may need to create a user account magicq with password magicq to enable Windows to connect to the console.

You can then transfer files between the host and the console. Show files, personality files, FX files and Patch files can all be transferred in this way.

If you have problems putting files onto the console then try pressing the Set Rem Access soft button in the File Manager window.

Storage of MagicQ User Files on PC/Mac

MagicQ now has an option to change where the user data files are stored.

Older installations of MagicQ stored show, head, log and other user data files in the Application folder. Windows and macOS now make it difficult for users to access the Application folder - either forcing files into a Virtual Stores or preventing write access.

This data can now be stored in the User Documents folder which is fully accessible. It is possible to revert back to using the Application folder at any time.

From the top toolbar select Tools, Change Files Location.

Reports

MagicQ supports printing of the contents of any window to a printer or a PDF file. On PC/Mac select File, Print Window. For spreadsheet views, MagicQ defaults to selecting the most commonly used columns from the window in order that they fit easily on a printed page width. It is possible to modify the column selection as required.

Status Window

There is a status view in the Setup Window. This shows data associated with the console and with the currently loaded show. This includes show size, data used, last saved times.

The status window also shows status of the console ports and interfaces, and all the MagicQ consoles on the network.

Backup Archives

By default the console stores an archive of the show files for every quarter of an hour of the day, and for every day of the week. This enables the user to revert to a previous copy of their show.

Archive files are only made when the console auto saves. If auto saves are disabled then no archive files will be generated. If the console is set to "auto save on changes" then archive files will only be stored when changes are made. To revert to an archived file press SHIFT and LOAD SHOW in the Setup Window.

Archive files are stored in a special directory that should not be modified by the user. When the user re-loads an archived backup file, the backup file is restored into the standard show directory.

Archive files have the name "backup0530.sbk" to indicate the show file that was recorded just before 5.30am. Daily files are also stored – "backupfri.sbk" indicates the show file that was recorded at the start of Friday. Archive files are overwritten every 24 hours, except for the daily files which are overwritten every 7 days.

Using Shows on Different MagicQ Products and Show Versions

In general MagicQ show files are backwards and forwards compatible so you can load any show into any version of software. Loading shows created and modified on newer software versions into older software versions may result in some features not being supported or not working exactly as expected.

MQ500M+ supports 400 universes, MQ500M supports 256 universes, MQ500 support 64 or 200 universes. MQ250M supports 64 universes expandable to 128. MQ80 supports 48 universes. MQ70 supports 24 universes expandable to 48 and the MQ50 supports 8 universes.

From v1.9.6.0 onwards MagicQ PC / macOS and Linux software supports up to 400 universes for previsualisation (only 64 for output).

Loading a Show Onto a Smaller Console

Note that the limit of number of universes/channels refers to both patched and unpatched channels - i.e. any heads that have programming within the console. Therefore unpatched heads in a show still take up channels from the total number of universes supported on the

console - MagicQ just allocates them to unused addresses.

VDIM channels are unpatched channels and therefore may also be above the universe limit of the smaller console.

The number of universes used by a show is reported in Setup, View Status on the Show Data tab, Highest Universe.

Unpatched channels can be forced onto lower universes by temporarily patching them and then unpatching them. For example, set the unpatched heads to +1-1. This will patch them onto the first free channels starting from Universe 1. Then unpatch the channels again.

If you try to load a show with more channels used than the MagicQ console supports then it will ignore any channels above the number of supported universes and will save the show using a default show name rather than the original show name to avoid the ignored heads being removed from the original show file.

We recommend that when loading a show into a console with less universes the show should first be reduced to the number of universes used by the smaller console. For example when transferring a show from a MQ100 Pro 2014 to a MQ60 the show should first be reduced to 12 universes. This show can be reduced on the Pro 2014 or using MagicQ on a PC or Mac.

Note that unpatched heads may affect the highest universe depending on which universe they were last used and how many heads you have in your show. Either remove unpatched heads or repatch them down to a universe below the total number of universes.

Configuring Number of Universes

To change the number of configured universes go to Setup Window and VIEW DMX I/O and select "SET NUM UNIVERSES" soft button. It is necessary to restart MagicQ before the changes take effect.

Show files are compatible – except that it is not possible to fully load a show using more universes than the console is set to. If a show with channels patched to universes 13 is loaded in a 12 universe console then any heads on the 13th universe will not be loaded.

Current consoles

Console	Number of Universes
QuickQ 10	1
QuickQ 20	2
QuickQ 30	4
MQ50	8
MQ70	24, (option to 48)
MQ80	48
MQ250M	64 (option to 128)

MQ500	64 (option to 200)
MQ500M	256
MQ500M+	400
MagicQ PC, Mac, Linux	400 Pre-Vis, 64 output

Old consoles

Console	Number of Universes
MQ40,MQ40N	4
MQ60, Old MQ70	12
MQ100 Pro-E	12
MQ100 Pro 2010	32
MQ100 Pro 2014	64

ChamSys does not guarantee performance if consoles are set to support higher numbers of universes than the hardware supports.

MagicQ Profiles

MagicQ supports different profiles – a profile is the entire set-up of the console including the console specific settings (like IP address, media settings etc…) and the show file.

Profiles enables the console to be used to control different venues with easy swapping between venues.

It is possible to set the console to request profile selection on start-up. This is useful in a studio environment where MagicQ can control any one of several studios over Art-Net from a central control booth. When you start up the console you choose which studio to control.

Profiles have a similar effect to using LOAD SHOW + CONSOLE but with a simpler interface. We recommend to use LOAD SHOW + CONSOLE for general purpose moving between venues, and Profiles where multiple studios are controlled from one console.

Profiles are loaded and saved from the Setup Window – in View Settings, press SHIFT and LOAD PROFILE or SAVE PROFILE. Profiles are saved to .mpr files in the show folder – note that the profile does not contain the show data – it only references it – so if you are backing up you need to store both .shw files and .mpr files.

To enable profile selection on start up put an empty text file "selectprofile.txt" into the main MagicQ folder (MagicQ PC on MagicQ PC). On start-up the console will then request which profile you wish to use before it loads the show and enables the outputs.

User Management

MagicQ supports user management. This enables users to be set up with restricted access.

Users can be set up to have full access to all the console channels, or to a group of channels only, or to all channels except a group of channels. Users can be set so that they can only "Operate" or "Program" the console without options to change settings. Execute pages can be assigned to specific users.

Users can have passwords set for their accounts.

The current user is displayed and selected in Setup, Soft button C. Note that on MagicQ consoles the Set Time function previously on Soft button C has been moved to soft button D and Set Date to SHIFT and soft button D.

Users are managed in Setup, View System, Users. When no users are configured the "Default" internal user is used and all MagicQ features are exactly as in previous versions.

Users are stored as show settings, not as console settings.

One of the Users in the User List can be set to be the Start User so that the console always start up into a restricted user. It can also be set so that the console starts locked and the user/password must be selected before the console can be accessed.

MagicQ provides a flashing warning "User" when a show is loaded with a User with restricted access.

Users apply to both Master and Slave consoles when using Net Sessions. On a Slave, selecting a User with reduced permissions will make that Slave only have access to the allowed channels. The Slave can control the output using Multi Prog Sel Chans, but is restricted to the allowed channels. There is a "User" option in the Multi Prog Sel Chans which sets the Slave to control the output of all the channels that it is allowed to.

Users can have Col Tags assigned for easy monitoring. In Outputs Window, VIEW HEADS use VIEW USERS to see which User has control of each parameter.

Passwords

When passwords are set then changing users requires entry of the password.

To force user selection and password entry on startup, set up the Start User for one of the users to "Yes (locked)".

To lock the console open the Setup Window and press soft button C, "User" and from the menu of users select the "Lock" option. The console will be locked and changes to show the Locked Screen. Any key press will return to the User selection where it is necessary to select a user and enter a password in order to unlock the console.

If Users with passwords are set, then when locking the console using the lock shortcut (hold CURSOR LEFT and CURSOR RIGHT and press CURSOR UP) will require selection of user and password entry to unlock.

Locking a console stops access to the console, but does not stop the operation of the console - the console continues running in the background with the current user. To leave a Net Session completely, go to Setup, View Settings, Multi Console and set the Net Session Mode to

"None".

This also applies to loading shows so it is possible to protect show files by setting a User and Password within them, making it impossible to access the show file on a MagicQ console or MagicQ PC without first entering a valid password. When loading a show with user passwords set, if an incorrect password is entered then the show is not loaded.

If passwords have been set on a show file and then forgotten please contact ChamSys support.

User Types

When at least one "Super User" is created then the Default User is no longer accessible and user management is in full operation. Users with type "Super User" have full access to all console features and settings without restriction.

Users settings can only be edited when using the "Default" user or by a user with "Super User" permissions.

"Programmer" can record, remove and modify show data but can not change Users.

"Operator" cannot record anything or modify settings.

Users that are "Disabled" are ignored.

Start Options

One of the users in the list can be set to the Start User with the additional option of Locked or Unlocked.

When a console starts, a show is loaded, or a Slave connects to a Net Session with a show that has users configured then this user is automatically selected. This immediately determines what channels are blocked from the Output according to the selected user.

The Start User can be set to be "No", "Yes (Locked)" or "Yes (Unlocked)". When set to "Yes (Locked)" the user must be selected and password entered before accessing the console.

This also applies to loading shows so it is possible to protect show files by setting a User and Password within them, making it impossible to access the show file on a MagicQ console or MagicQ PC without first entering a valid password.

Note that in order to protect show files with user passwords from being opened on previous versions of software any show files created in 1.9.2.2 or above that have user passwords can not be opened on software versions prior to 1.9.2.1. The user passwords must be first removed in 1.9.2.2 or above and then re-entered once the show is loaded in the older software version.

When using the 10Scene Remote app connecting to MagicQ with user passwords set (and no individual 10Scene zone passwords), version 1.5 of the app is required in order to use the automatic QR code to log onto the password protected zones. Older versions of the 10Scene Remote app will not be able to use the automatic QR logon, although manual entering of the password is supported on all versions.

Load Settings

If the User option Load Settings is set then the Playback fader mode, Bank and 4x3 Execute buttons will be loaded when changing users.

If the User option Load Pages is set then the Page will be changed to the Page last in use by the User for each of the Playback banks. If Cue Stacks are set to activate and release on Page change then the new Cue Stacks will be activated and the old ones released.

Access to Console Channels

Users can be configured to have type of "Group Only". This allows access to only the channels in the specified Group.

Users can be configured to have type of "Exclude Group". This allows access to all channels except those in the specified Group.

Users with "Superuser" permissions have access to all channels. User with "Group Only" or "Exclude Groups" can only select heads from their allowed channels and can only record and edit Cues and Groups with their allowed channels. They can not record over, merge into or remove any Groups or Cues that contain disallowed channels.

If the option "Block Output" is set then Users with "Group Only" or "Exclude Groups" can not affect the output of heads outside of their allowed channels - these heads will remain at 0 intensity and default LTP values.

If a user is created as Include Group without a Group set then they will not have access to any channels - they must chose a new user (and enter a password if set) to get access to the channels.

Restricting Remote App Access

If the option to "Enable Remote App" is set to "Yes" (the default) then the app user has full access from the iOS/Android MagicQ Remote App. "Yes (Exec Only)" will only allow access to the Execute Window, this option can be used in installs (formerly called Install Mode). "No" will disable MagicQ access from the MagicQ Remote app.

User Settings

Users can be configured so that they automatically load user settings for that user when switching users. For each user in Setup, View System, Users, set the "Load Settings" field to "Yes".

When changing user the settings for the old user are saved and the settings for the new user are loaded.

When the Load Settings is set for a user, MagicQ stores the current layout and the programmer contents as well as the show settings. When changing to a different user their layout will be opened and the progammer contents included.

When changing users, MagicQ saves the current layout and programmer contents for the old user before loading the settings for the new user. MagicQ uses free layouts and free Cues to store the Layout and programer contents starting from the highest free Layout or Cue. The Layouts and Cues are named User X: YYYY where X is the user number and YYYY is the user name. MagicQ adds and removes these Layouts and Cues as required without any user interaction required.

The programmer contents contains all the information that would be recorded into a Cue including values, times and FX. Note that head selection and selection order is not saved into Cues and therefore is not saved in the user settings.

When changing users there is a Logoff option. This logs the user off the console returning the console to the default user and locking the console. The Layout and programmer contents are automatically saved before logging out the user.

The current Playback fader mode, Fader Bank, Page and 4x3 Execute button mode are stored in user settings from v1.9.6.2.

To release Playbacks held over from Pages used by the previous User, use the Pre-existing shortcut ALT + REL or in the Execute Window use ASSIGN SPECIAL to assign a REL HOLDOVER item.

Security

Lighting consoles are designed to be used on private networks which are assumed to be secured, trusted networks. Where consoles need to be accessed remotely over the internet they should use secure network tunnels (VLANs) to protect the lighting network from access from the internet.

All of the standard industry wide lighting protocols are insecure - they have no authentication or encryption - any systems can connect over these protocols without any checking.

MagicQ supports the following insecure industry standard protocols:

- Art-Net
- sACN
- Pathport
- Shownet
- RDMNet
- LLRP
- CITP
- HippoNet
- MSEX
- NDI
- OSC

- PosiStageNet
- OTP
- TCNet
- Denon StageLinq
- OS2L (Virtual DJ)

MagicQ also supports ChamSys only protocols for net sessions, remote control, 10Scene and TouchScene support and for configuration of ChamSys GeNetix and SnakeSys devices. These protocols are also insecure or have limited security.

ChamSys explicitly denies any responsibility for security of MagicQ consoles or their use in safety critical roles. Users must assure themselves of the security of their networks - if in doubt ensure the WIFI options are disabled and do not connect to the console network ports.

We recommend ensuring that only the required network protocols are enabled in order to reduce the likelihood of unauthorised access.

Preventing network access

To prevent any network access from external systems the following options should be set:

Multi Console Settings

- Enable remote control = No
- Enable remote access = No
- Net Session mode = None
- Programmer Sync Mode = No Sync
- Playback Sync Type = None
- Show data sync type = None

Network Settings

- RDMNet IP address = 0.0.0.0
- LLRP Mode = Disabled
- Ethernet remote protocol = None
- Web server = None
- Control net IP Address = 0.0.0.0
- OSC Mode = None
- Track rx = None
- Track tx = None
- OTP function = None
- Custom TCPIP = None

- Visualiser IP = 0.0.0.0

WIFI Settings

- Wireless mode = Disabled

DMX I/O Settings

- In Type should be set to None for all universes
- Visualiser should be set to MagicVis for all universes

Firewall

The firewall is now supported on all network ports on MagicQ consoles.

The firewall can be disabled and enabled in Net Manager, View Net Ports for each supported network port. The firewall currently defaults to off for all network ports. In systems where security is important the firewall should always be enabled on all network ports.

MagicQ uses the Uni Zone field to determine which network ports require Art-Net and sACN. When the firewall is enabled for a network port then that port will block Art-Net and sACN dependent on which universes are assigned to its Uni Zone. If the Uni Zone is set to "None" then Art-Net and sACN will be blocked on that port. The only exceptions are for the Control Net, if the Net Host Option is set to "Art-Net on Control Net" or "sACN on Control Net" or if the Visualiser IPaddress is set to an IP address on the address range of that port.

The main lighting network port always supports Art-Net and sACN.

Pathport, Shownet, RDMNet and LLRP are only supported on the main lighting network regardless of the Uni Zones.

When the firewall is enabled, other protocols can be enabled and disabled for each port including:

- ChamNet
- CREP (including custom TCP/IP protocols)
- 10Scene+TouchScene
- Remote Control (MagicQ Remote control and MagicQ iOS/Android Remote App)
- Remote Access (File sharing)
- Trackers (PosiStageNet, OTP, MQ Track protocol)
- DJ (Denon Stagelinq, TC Net, Virtual DJ)
- OSC
- Media (CITP, MSEX, NDI)
- Vis (CITP, MagicVis)
- System

When the firewall is enabled for a network port and a protocol is disabled then the firewall will always block that protocol for that network port. When the firewall is disabled for a port, then the firewall does not block that protocol - but depending on the specific protocol MagicQ may stop the protocol being active on that network port.

Operating system access to MagicQ is now disabled by default and when set to disabled is blocked regardless of the firewall setting. Operating system access should only be turned on when requested by ChamSys support.

The firewall for the Control Net can still be configured in Setup, View Settings, Network, but more detailed settings are available in Net Manager.

When the firewall is enabled for a network port the MagicQ web server is blocked from that network port, except for the main lighting network.

Saving Support Files

If you encounter a problem in the operation of the console then please report it on the ChamSys bugtracker at https://secure.chamsys.co.uk/bugtracker/bug_report_advanced_page.php and upload your show file and log files.

MagicQ stores log files in the log folder. Each log file corresponds to a session when MagicQ is started, runs and then is closed. If the console resets for any reason then the log file closes and a new log file is started. The file is named according to the time and date that MagicQ started, and the file modification date is the time that MagicQ closed.

For example, the file Tue_Dec_07_19_15_11_2021.log indicates MagicQ started at 7:19:15 on Dec 7th 2021. The file modification time will tell when MagicQ was closed.

If a console has reset then the important log file is the one opened (and named) prior to the time of the reset. If in doubt then provide all the log files from the day when the reset occurred.

It is easy to create and save to USB a single Support file to help ChamSys support and distributors to recreate and understand problems. This file includes the show file, the session log and the log files from the last seven days. In Setup, View Status press the SAVE SUPPORT soft button.

This saves a file named support_XXXXXXX.zip into the log folder, where XXXXXXX is the date and time. A prompt is given to enable saving to a USB Stick. Alternatively in the MagicQ File Manager you can copy the file manually to a USB stick. On a PC system you can access the file directly from the log folder.

The older option SAVE TO LOG which saves just the session log file has been moved to SHIFT and SAVE LOG. This has been superseded by the SAVE SUPPORT function. The SAVE LOG creates a much smaller file so may still be useful in situations where it is not possible to transfer and upload larger files.

Log files are automatically deleted after 1 month to minimise disc usage.

Commands and Logs

The Help Window in addition to VIEW MANUALS also contains VIEW COMMANDS and VIEW LOGS. Press CTRL and HELP to open the Help Window directly in the VIEW COMMANDS / VIEW LOGS views.

VIEW COMMANDS shows the user commands and responses. Commands include those entered via the console buttons, the keypad and also those entered via the touch screens.

VIEW LOGS shows all the functions that are logged on the console into the log files including button presses, fader movements, encoder usage, touch screen presses and events generated internally or from external inputs. It also shows general system logs and errors.

Both views automatically update as the commands are entered and logs records are generated. The windows can be locked so they do not update using the LOCK soft button. The SEARCH, SEARCH FWD, and SHIFT + SEARCH BKWD soft buttons can be used to search for events.

In VIEW LOGS it is possible to filter the log records shown by log class. Press the FILTER CLASS soft button.

The Event class includes MIDI, MIDI SYSEX, MIDI OSC, ChamSys Remote Ethernet Protocol (CREP), Scheduled events and Automations.

Log records of the Event class are only generated when Extended Logging is set to Extended & Events. Events of this class can occur very frequently which could create very large log files. On systems with a lot of automated events we recommend only enabling Extended & Events during programming and when fault finding.

Set the Extended logging via the LOGGING TYPE soft button, or from the Setup Window, View Settings, Hardware tab.

On system start the commands and logs are the current commands and logs. Using soft button A the previous log files can be viewed to look at commands and logs from previous sessions - i.e. from before the current console start / reset. The title bar shows the file name of the current log file being viewed.

Press soft button B at any time to return to the current commands and logs.

On MagicQ PC it is possible to examine log files from other consoles. From the top toolbar under Tools, select Log Viewer. This opens a standard system file selection dialog box to enable selection of a log file from any folder on the PC/Mac. MagicQ opens the Help Window in the VIEWLOGS view showing that file. Use Next/Prev on soft button A to examine other files from within that same folder.

On system installs where the system is expected to run for many days, months or years the Help Window should be closed when not in use to prevent system degradation over time as the log files increase size.

Software & Firmware Upgrade

MagicQ software versions are fully compatible and show files can be created and loaded into any software version.

Changing MagicQ Console Software

MagicQ consoles store all versions of software that have been loaded onto the console allowing easy changing between different versions. To change software version go to Setup, View System and press the CHANGE SOFTWARE soft button. It is also possible to enter the software utility by pressing ENTER during boot up when prompted to enter the software upgrade utility.

To upgrade to a new version of software, download the software file from the ChamSys web site and store it onto a USB stick which is FAT32 Formatted, up to 32GB (On MQ500M+, MQ250M, MQ70, and MQ50 exFAT can be used for larger drives).

MQ50, MQ70, MQ250M	.cdz
MQ40*, MQ40N*, MQ60*, old MQ70*, MQ80, MQ500 Stadium, MQ500M Stadium, Pro 2014*, Expert 2014	.cdc
Pro 2010	.cdx
pre Pro, Expert, rack mount	.cde (versions 1.5.6.0 and above not supported)

Note that MQ40, MQ40N, MQ60, old MQ70 and Pro2014 consoles support software versions up to v1.9.3.8 only, they cannot be upgraded past this version.

If you are downloading using a Mac then you need to be aware that macOS often creates additional files with an underscore "_" at the start when it attempts to copy files to USB drives. For example, if you are copying magicq_v1_6_7_0.cdc to a USB drive it may also make a file ._magicq_v1_6_7_0cdc. At first glance this file looks the same, but it contains file information only and can not be loaded into a MagicQ console. It is easy to tell the files apart as the real MagicQ software file is around 100MB whereas the underscore file is only a few bytes. Make sure to use the file without the underscore at the start.

Ensure you have saved your current show file to a USB memory stick or to an external computer via network before you change software version. Also, ensure any personalities that you have customised have been saved to a different file name of your choice - the new software will install the latest version of the standard personalities. We recommend you only upgrade to new versions of software when you have plenty of time to recover the system - we don’t recommend you change it two minutes before doors!

On the MagicQ console select Setup, File Manager and change to USB DRIVE. Click on the software version, then confirm the update. The console then automatically upgrade the software.

It is also possible to copy the software directly via networking to the MagicQ folder on the MagicQ console and then to click on the file in File Manager, HARD DRIVE.

In case of a problem where MagicQ can not be started or where it resets then the software upgrade utility can be entered on start up, by pressing a key when prompted on the screen.

Console Kernel Update

It is not normally necessary to update the kernel version on MagicQ consoles. Below contains Kernel update instructions for specific MagicQ consoles.

MQ80 Kernel V2 Upgrade

This is recommended if using USB Ethernet or USB audio devices.

Download this CDC file:

https://secure.chamsys.co.uk/bugtracker/download_file.php?file_id=209&type=doc

Copy to a USB stick and install on the console, by going to Setup, View Settings, File Manager, USB Drive and selecting the file. The console will restart when completed successfully.

Go to *SETUP → VEW SYSTEM → VIEW STATUS → System*

Kernel version should contain **4.4.261**.

Resetting a MagicQ Console to Factory Defaults

The console software upgrade utility has two other functions - reset to factory defaults and erase console.

"Reset to factory defaults" changes settings back to factory settings but does not erase any user data. It is recommended that the current show is saved to a known file name before carrying out a factory reset. As a consequence of the reset to factory defaults, the console will reload the default show.

"Erase console" erases all user data and reloads the newest software on the system. All show data, custom personalities, and settings will be erased. Ensure all user data is saved before carrying out this action.

To carry out the above functions on MagicQ consoles enter the software upgrade utility by going to: -Setup, View Status, Change software. -Select yes to enter the software utility. -Once in the software utility follow on screen instructions for "Factory Reset" or "Erase All"

For "Factory reset" enter *999 followed by Enter.

For "Erase All" enter *777 followed by Enter and 1 followed by Enter to confirm.

Note once the Erase all is carried out user data e.g. show files cannot by recovered later. You must back these up if needed before carrying out the "Erase all".

Firmware

Each panel and interface on a MagicQ console and MagicQ wing runs separate firmware files, separate from the main MagicQ software.

It is not normally necessary to update firmware on consoles and PC Wings / Interfaces, unless advised by ChamSys support.

The latest firmware files are included in the latest MagicQ software release in the firmware folder.

In MagicQ, the currently installed firmware for each panel / interface can be viewed in the Hardware tab in Setup, View System, View Status. If there is newer firmware available for an interface it will indicate there is a newer version available.

To upgrade a panel / interface to the latest firmware version place the cursor on the item and press the LATEST FIRMWARE soft button.

A listing of the latest firmware version for each product can also be found in the firmware change log in the section below.

MQ50, MQ70 and MQ80 Front Panel Firmware

MQ50, MQ70 and MQ80 Consoles all share the same front panel firmware. The firmware file name for these products starts CH346. The firmware is also used for the MQ250M display controller and MQ500 and MQ500M MIDI interfaces.

For the original MQ50 and MQ70 (sold in 2015 or before) see Upgrading original Compact series as these do not use CH346 firmware for the above products.

The latest firmware is included with each MagicQ software release in the firmware folder under the name CH346_xxx.hex.

To check the version of firmware in use go to Setup, View Status and select the Hardware tab. The Programmer panel row will show the current firmware.

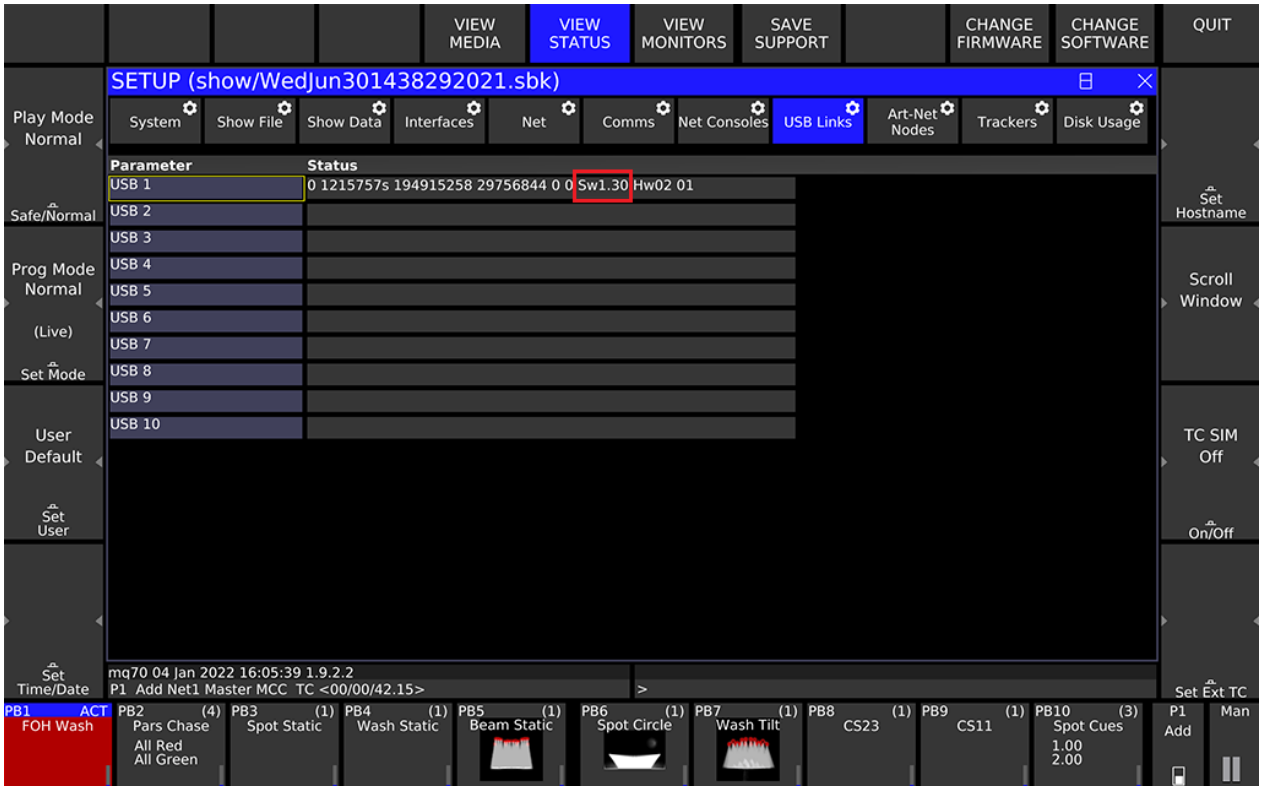
To upgrade to latest firmware put the cursor on the Programmer panel row and press LATEST FIRMWARE.

Pre V1.9.5.3 Software

We recommend to upgrade the console software to the latest stable before upgrading front panel firmware on these products.

To check the version of firmware in use go to Setup, View Status and select the USB Links tab. The software version is shown as the 7th number in the list of parameters as shown in the image below. The complete list of parameters is:

<link drops> <time link has been up> <tx packets> <rx packets> <tx errors> <tx retries> <sw version> <hw version> <build number>



Some MagicQ installers will not include every version of the CH346 firmware, however a higher version will include fixes and features of a lower version. i.e. CH346 V1.25 will include all fixes and features of the lower versions.

Note that versions equal to or above V1.20 can be installed on MQ80, MQ70 and MQ50.

Note, some early MQ80s had pre-production firmware versions left in the firmware folder. These can be identified as versions prior to CH324_V0.25.hex or with a name such as CH342_V80.69. Do not select these versions - these were pre-production firmware versions and are not compatible with the MagicQ software. They should be deleted from the firmware folder.

MQ250M and Stadium Connect firmware

The MQ250M Stadium console has four boards that firmware can be user updated.

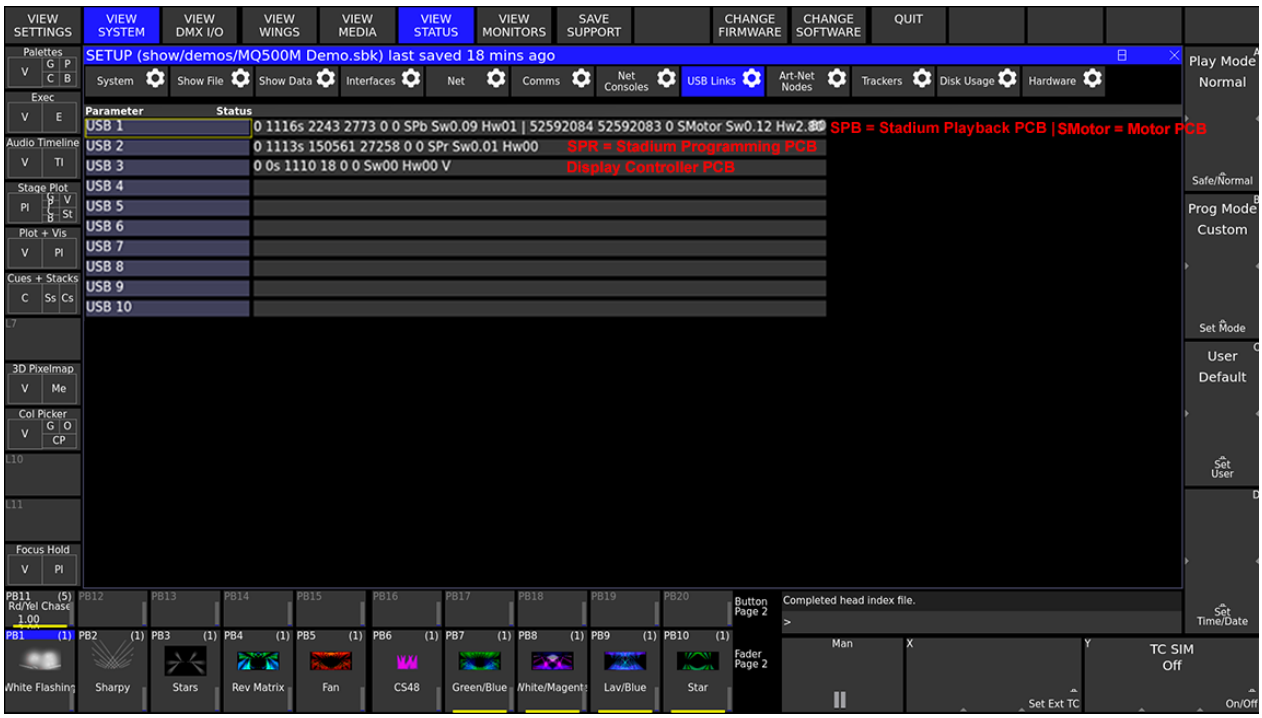
Programmer panel	Firmware 310-025_VX.YZ.hex via SPr USB link
Playback panel	Firmware 310-022_VX.YZ.hex via SPb USB link
Motor board	Firmware 310-021-VX.YZ.hex via SPb USB link
Display controller	Firmware CH346_X.YZ.hex via S2Dsp USB link

The Stadium Connect has the same boards as the MQ250M Stadium console except for the Display controller which is not present in the Stadium Connect.

Note that the playback panel and the motor board use the same USB link - the motor board is itself connected to the playback panel. When upgrading the playback panel passes the motor firmware onto the motor board.

Where date is the date, e.g. CH355A_2017_05_23.hex and X.YZ is version number e.g. CH346_V0.33.hex.

The below image shows the firmware versions for each board highlighted.



To check the version of firmware in use go to Setup, View Status and select the Hardware tab. For each panel/board it shows current version, available highest firmware version and current update status.

It is possible to see more details in the USB links tab - the software version is shown as the 7th number in the list of parameters. The complete list of parameters is:

<link drops> <time link has been up> <tx packets> <rx packets> <tx errors> <tx retries> <sw version> <hw version> <build number>

The latest firmware versions for each board can be found in the firmware change log in the section below.

MQ500 Stadium Firmware

The MQ500 Stadium console has four boards where the firmware can be user updated.

Programmer panel	Firmware CH355A_date.hex via SPr USB link
Playback panel	Firmware CH355B_date.hex via SPb USB link
MIDI controller	Firmware CH346_VX.YZ.hex via Smidi USB link
Display controller	SDsp USB link not user upgradeable. V2 of the controller board can use Firmware CH346_VX.YZ.hex via S5Dsp USB link

Where date is the date, e.g. CH355A_2017_05_23.hex and X.YZ is version number e.g. CH346_V0.33.hex.

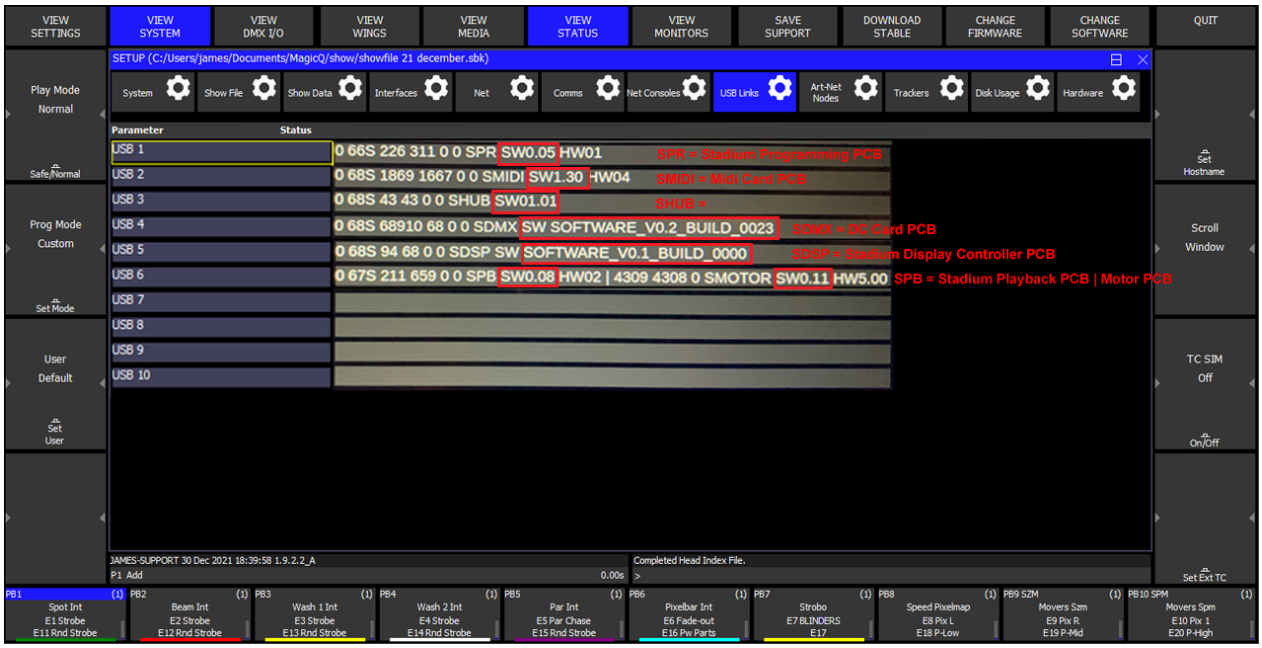
To check the version of firmware in use go to Setup, View Status and select the Hardware tab. For each panel/board it shows current version, available highest firmware version and current update status.

It is possible to see more details in the USB links tab - the software version is shown as the 7th number in the list of parameters. The complete list of parameters is:

<link drops> <time link has been up> <tx packets> <rx packets> <tx errors> <tx retries> <sw version> <hw version> <build number>

The below image shows the firmware versions with each board highlighted.

Note the SDMX USB link is for the DMX Card which is not user upgradable and users should not attempt to firmware update this card.



The latest firmware versions for each board can be found in the firmware change log in the section below.

MQ500M Stadium Firmware

The MQ500M Stadium console has the following boards:

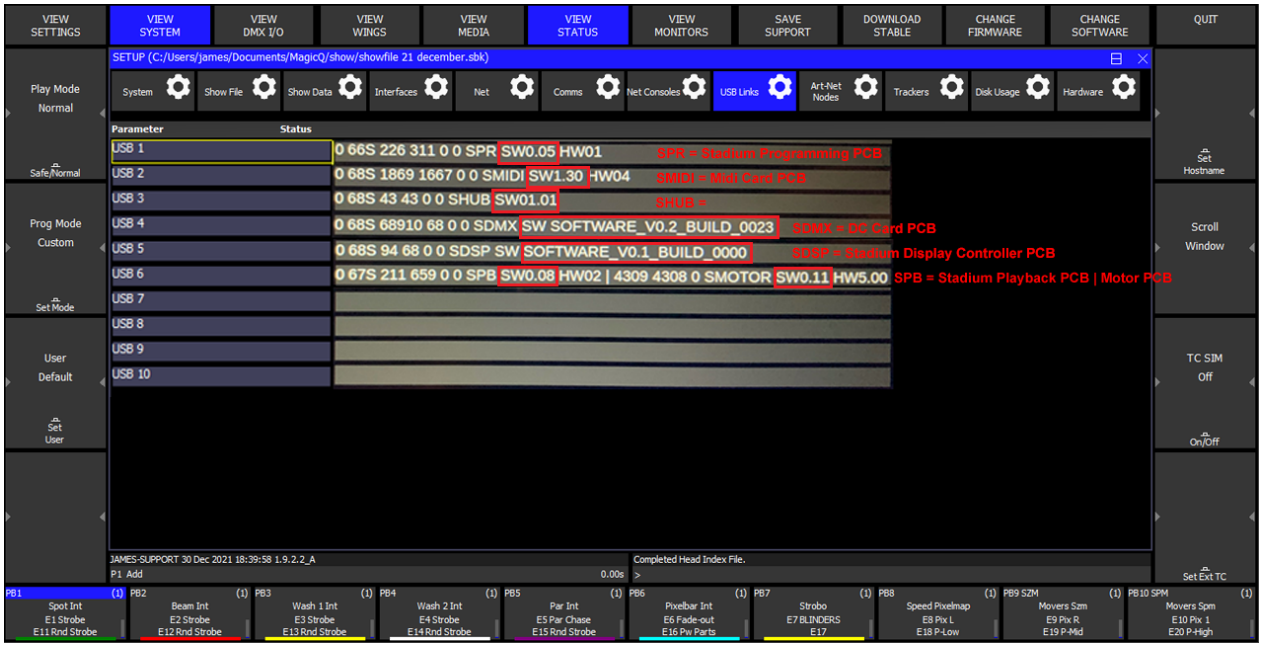
Programmer panel	Firmware 310-023_VX.YZ.hex via SPr USB link
Playback panel	Firmware 310-022_VX.YZ.hex via SPb USB link
Motor board	Firmware 310-021-VX.YZ.hex via SPb USB link
MIDI controller	Firmware CH346_VX.YZ.hex via Smidi USB link

Display controller	SDsp USB link not user upgradeable. V2 of the controller board can use Firmware CH346_VX.YZ.hex via S5Dsp USB link
Hub controller	SHub USB link not user upgradable

Note that the playback panel and the motor board use the same USB link - the motor board is itself connected to the playback panel. When upgrading the playback panel passes the motor firmware onto the motor board.

Where date is the date, e.g. CH355A_2017_05_23.hex and X.YZ is version number e.g. CH346_V0.33.hex.

The below image shows the firmware versions for each board highlighted. Note the SDMX USB link is for the DMX Card which is not user upgradable and users should not attempt to firmware update this card.



To check the version of firmware in use go to Setup, View Status and select the Hardware tab. For each panel/board it shows current version, available highest firmware version and current update status.

It is possible to see more details in the USB links tab - the software version is shown as the 7th number in the list of parameters. The complete list of parameters is:

<link drops> <time link has been up> <tx packets> <rx packets> <tx errors> <tx retries> <sw version> <hw version> <build number>

The latest firmware versions for each board can be found in the firmware change log in the section below.

MQ500M Wing Firmware

The MQ500M Wing has the following boards:

Playback panel	Firmware 310-022_VX.YZ.hex via SWPb USB link
Motor board	Firmware 310-021-VX.YZ.hex via SWPb USB link
Hub controller	SWHub USB link not user upgradable

Follow the same procedure as for the MQ500M console above except using the Stadium Playback, Stadium Wing base card and Stadium Wing motor links.

The latest firmware versions for each board can be found in the firmware change log in the section below.

Compact & Mini Connect Firmware

The Compact Connect uses 310-028 firmware and Mini Connect uses 310-033 firmware.

Latest firmware for these products is included with MagicQ PC and firmware is updated via MagicQ in the same way as updating firmware for MagicQ Consoles

Compact Wing

The Compact Wing uses 310-039 firmware.

Latest firmware for this products is included with MagicQ PC and firmware is updated via MagicQ in the same way as updating firmware for MagicQ Consoles.

Firmware Change Log

CH346 Firmware (MQ50, MQ70, MQ80, MQ500(M) MIDI Card, MQ500(M) V2 Display Controller and MQ250M Display controller)

CH346_V0.25	Original Production firmware for MQ80
CH346_V0.32	Improvements to DMX, MIDI, LTC and faders. Upgrade to this version if you are seeing periodic DMX flicks with some fixtures such as SGM P5. Upgrade to this version if you wish to use MIDI or LTC inputs.
CH346_V0.33	Fix for display not recovering from screen save
CH346_V0.35	No Changes - used for Production
CH346_V1.00	Support for RDM on the four DMX ports
CH346_V1.01	Fixes an RDM issue where the DMX port does not reset correctly after a RDM discovery collision.

CH346_V1.20	Initial Support of MQ70 and MQ50 (2019).
CH346_V1.22	Added Fader and Encoder brightness adjustment for the MQ70.
CH346_V1.23	Fixed DMX output stopping when MQ Direct is selected for less than 4 ports.
CH346_V1.24	Fixes MIDI show control and MIDI System Exclusive messages for the MQ500 MIDI Card.
CH346_V1.25	Fixes MIDI issues for MQ80 consoles, the MIDI communication issue was introduced in versions greater than and equal to V1.00.
CH346_V1.30	Fixes direct RDM Break and MaB (MQ80/MQ70/MQ50). Fixed RDM discovery times to help find large number nodes (MQ80/MQ70/MQ50). Fixed front panel drop outs when MagicQ is doing time consuming tasks (MQ80/MQ70/MQ50/MQ500 MIDI). Updates to low level USB driver code from a third party (MQ80/MQ70/MQ50/MQ500 MIDI).
CH346_V1.40	MQ250M display PCB code added.
CH346_V1.41	MQ250M tilt sensor function added.
CH346_V1.42	DMX USB message alignment fix.
CH346_V1.43	Fix for intermittent firmware update failure.
CH346_V1.45	Added support for V2 MQ500(M) Display Controller, and HW revision 3 of MQ250M Display Controller. These require MagicQ 1.9.2.4 and above.
CH346_V1.46	Fixed the self test on the HW revision 3 of the MQ250M Display controller not starting.
CH346_V1.47	Fixed issue with MQ250 Displays not turning on sometimes when lid is opened.
CH346_V1.48	Updated MQ250 startup sequence to blank the smaller screen until MagicQ starts.
CH346_V1.49	Updated MQ250 display board firmware to match tilt sensor hardware change.
CH346_V1.50	Updated MQ250+MQ500 display board firmware to turn off the backlight until MagicQ starts.
CH346_V1.52	Rebuild for compiler change.
CH346_V1.54	Fixes for Audio S2L input.
CH346_V1.55	Rebuild for compiler change.

CH346_V1.56	Added support for latest revision of the MQ250M CPU to work with the small display.
CH346_V1.57	Improved the fader update rate for MQ50/70/80 consoles.
CH346_V1.58	Fix for RDM discovery when certain combinations of MQ Direct mode were used and DMX output was disabled for MQ50/70/80 consoles.

CH310-021 Firmware (MQ250M & MQ500M Motor board)

310-021_V0.10	Initial release.
310-021_V0.11	Adds support of 12-bit moves to support cross fader tracking, needs 310-022_V0.07 or greater on the Playback board.
310-021_V0.13	Adds explicit reset for the capacitive touch sense on the faders in cases where the console has failed calibration due to faders being touched on startup.
310-021_V0.14	Improved fader positioning if fader belt contains more slack.
310-021_V0.15	Add support for changing the motor fader touch sensitivity with fader touch MCU firmware V2.2 or later, needs 310-022_V0.22 or later on the playback board.
310-021_V0.16	Modified default motor fader touch sensitivity value to 1000 for MQ500M(+) consoles.
310-021_V0.17	Improvements to Stadium consoles motor control reliability in reaching a target position. Needs 310-022_V0.23 or later on the playback board.

CH310-022 Firmware (MQ250M & MQ500M Playback Panel)

310-022_V0.05	Initial release.
310-022_V0.07	Fixed Motor status filling up MagicQ USB RX buffer. Adds support of 12-bit cross fader moves for cross fader tracking, needs 310-021_V0.11 or greater on the motor control board.
310-022_V0.08	Fixed drop outs when MagicQ is doing time consuming tasks.

310-022_V0.09	MQ250M Fader control added.
310-022_V0.10	WinUSB USB descriptors added.
310-022_V0.11	USB timeout fix.
310-022_V0.12	Fix for intermittent firmware update failure.
310-022_V0.15	Made changes to LED production tests. MagicQ v1.9.3.0
310-022_V0.17	Made changes to LED production tests. (dim down LEDs etc)
310-022_V0.19	Rebuild for compiler change.
310-022_V0.20	Made changes to LED production tests. (manual cycle of LED's)
310-022_V0.21	Rebuild for compiler change.
310-022_V0.22	Add support for changing the motor fader touch sensitivity with fader touch MCU firmware V2.2 or later, needs 310-021_V0.15 or later on the motor control board.
310-022_V0.23	Improvements to Stadium consoles motor control reliability in reaching a target position, needs 310-021_V0.17 or later on the motor control board.

CH310-023 Firmware (MQ500M Programmer Panel)

310-023_V0.03	Initial release.
310-023_V0.05	Fixed drop outs when MagicQ is doing time consuming tasks.
310-023_V0.06	WinUSB USB descriptors added.
310-023_V0.07	USB timeout fix.
310-023_V0.08	Fix for intermittent firmware update failure.
310-023_V0.11	Made changes to LED production tests. (dim down leds etc)
310-023_V0.13	Rebuild for compiler change.
310-023_V0.14	Made changes to LED production tests. (manual cycle of LED's)
310-023_V0.15	Fix issue with slow change of LED's and encoders.

CH310-025 Firmware (MQ250M Programmer Panel)

310-025_V0.04	Initial release.

310-025_V0.07	Made changes to LED production tests. (dim down leds etc)
310-025_V0.10	Rebuild for compiler change.
310-025_V0.12	Fixes for Audio S2L input.
310-025_V0.13	Fix for losing MIDI messages when receiving multiple messages at the same time.
310-025_V0.14	Rebuild for compiler change.
310-025_V0.15	Fix for RDM discovery when certain combinations of MQ Direct mode were used and DMX output was disabled.

CH310-028 Firmware (Compact Connect)

310-028_V1.01	Initial release.
310-028_V1.03	Resolved an issue with the keyboard locking up after a long period of time.
310-028_V1.04	Fix for fader levels changing without moving faders.
310-028_V1.05	Fix for Compact Connect locking up when Flash toggles was enabled
310-028_V1.06	Fix for an issue with the input levels on the S2L Audio input.
310-028_V1.09	Fix for an issue with the input levels and frequency bands on the S2L Audio input.
310-028_V1.10	Fix for a latency in the console faders.
310-028_V1.12	Modified how faders are handled for different hardware revisions.

CH310-033 Firmware (Mini Connect)

310-033_V1.01	Initial release.
310-033_V1.03	Resolved an issue with the keyboard locking up after a long period of time.
310-033_V1.04	Fix for fader levels changing without moving faders.
310-033_V1.05	Fix for Compact Connect locking up when Flash toggles was enabled
310-033_V1.06	Fix for an issue with the input levels on the S2L Audio input.

310-033_V1.09	Fix for an issue with the input levels and frequency bands on the S2L Audio input.
310-033_V1.10	Fix for a latency in the console faders.
310-033_V1.12	Modified how faders are handled for different hardware revisions.

CH310-039 Firmware (Compact Wing)

310-039_V0100	Initial release.
310-039_V0110	Fix for issue where the fader backlight LED's would intermittently not come on blue on connection to MagicQ.
310-039_V0120	Fix for issue where the Compact Wing could lose USB communications and restart after an extended period of use or on a fader movement.
310-039_V0130	Fix for issue where the Compact Wing could see erroneous playback activations when released and the faders were sitting above zero level.

Updating Firmware

Upgrading to Latest Firmware

The Hardware tab in Setup, View Status shows available firmware versions and current update status.

The LATEST FIRMWARE menu option enables a hardware item to be updated to the latest hardware version without manually selecting the file. Move the cursor to the required row and press LATEST FIRMWARE.

It is possible to press SHIFT and ALL FIRMWARE to upgrade all boards to the latest available firmware. A dialog gives the option to force upgrade all boards, or to only upgrade boards that are at lower firmware versions.

Each board is upgraded in turn - the current board being upgraded shows as "upgrading" and the others show as "queued". Sometimes it may be needed to run ALL FIRMWARE twice to ensure all boards get upgraded.

It is also possible to automatically change firmware direct from USB stick / firmware files copied to the console. In File Manager click on the file and a dialog will appear to ask whether to update all boards that use that firmware type.

Manual Firmware Update

Before updating firmware disconnect any Wings and USB interfaces & drives from the console.

Press Setup, View System, View Status and change to the USB Links tab.

Put the cursor on the line for USB link to be updated. Press the CHANGE FIRMWARE top soft button and select the new firmware file - e.g. CH346_V1.43.hex.

MagicQ will report "Starting firmware upgrade" then "Sent start upgrade".

Do not touch anything or power off the console whilst the update is in progress – interrupting the upgrade could leave the Console in an unusable state and it will have to be returned to ChamSys for repair.

MagicQ will then display "Sent firmware 1000", "Sent firmware 2000" and so on, the front Panel playback LEDs will also light in sequence to show the firmware update progress.

The console will report "Sent all firmware" and "Programmed Ok" once firmware has been updated.

Should the upgrade timeout or fail for the motor board the string "Boot" will appear after SMotor in the USB link, this indicates it is in boot-loader mode. A retry of the firmware upgrade should rectify this.

Upgrading Legacy Product Firmware

Original Compact Series MQ40/MQ40N/MQ60/MQ70 Firmware

To check the version of firmware in use go to Setup, View Status and select the USB Links tab. The software version is shown as the 7th number in the list of parameters. The complete list of parameters is:

<link drops> <time link has been up> <tx packets> <rx packets> <tx errors> <tx retries> <sw version> <hw version> <build number>

Alternatively check the front panel version field in Setup, View Status, System tab.

To upgrade the MQ40/40N/60/70 front panel firmware you must first be running a software version higher then v1.5.9.9 MagicQ software on the console. Do NOT use versions v1.7.0.1 to v1.7.0.4. Upgrade software to v1.7.1.0 or higher first.

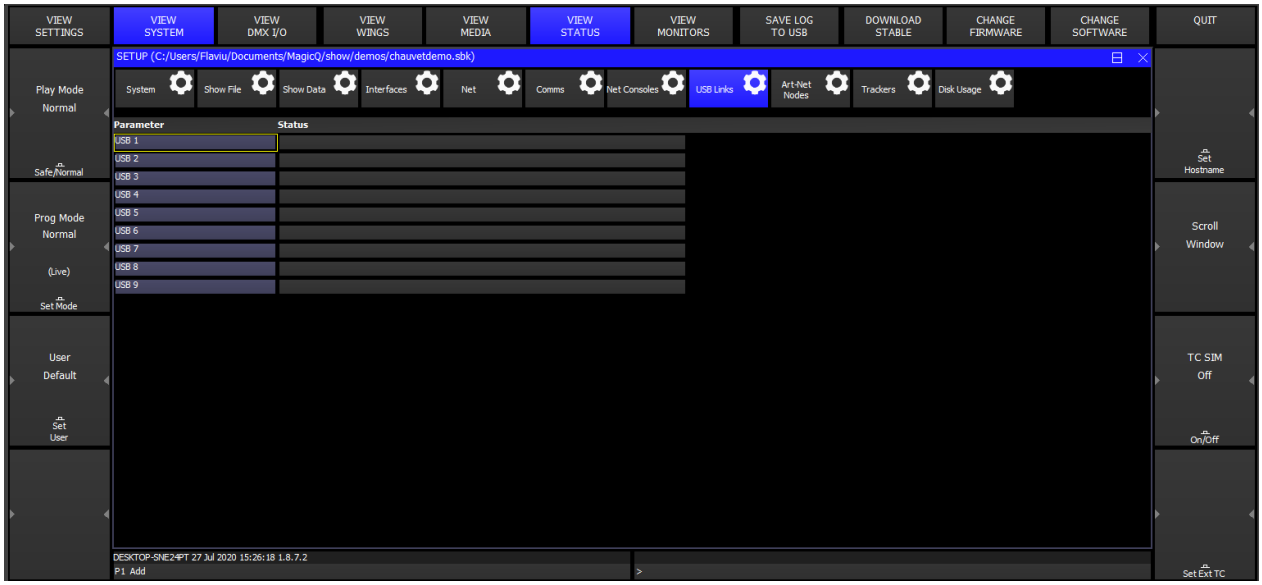
Some consoles have front panel firmware have a file version 2.0 in the firmware folder. Do NOT use this version. Only use version 1.0, 1.1 or 1.2.

Failure to update to a valid version before performing the firmware upgrade could result in the console needing to be returned to ChamSys for repair. The latest MQ40/40N/60/70 firmware is included with each release in the firmware folder under the name CH331_xxx.hex

CH331_V0	Original firmware
CH331_V1.0	Added audio support
CH331_V1.1	Added MIDI and LTC timecode support (MQ70 only - not for MQ40/60)
CH331_V1.2	Fixed RS232 serial port communications

Disconnect any Wings and network devices and remove any USB drives from the console.

Press Setup, View Status and change to the USB Links tab. If more than one USB device is shown then disconnect all other MagicQ Wings and interfaces.



Put the cursor on the line for USB 1 as above. Press CHANGE FIRMWARE and select the new firmware file - e.g. CH331_V1.0.hex.

MagicQ should then say "Starting firmware upgrade" and then a few seconds later "Sent start upgrade".



Do not touch anything or power off whilst the update is in progress – interrupting the upgrade will leave the Console in an unusable state and it will have to be returned to ChamSys for repair.

MagicQ will then wait between 5 and 10 seconds and then display messages "Sent firmware 1000", "Sent firmware 2000" and so on up to about "Sent firmware 76000".



It will then briefly say "Sent all firmware" and "Programmed Ok".



If all is ok then it will say "Programmed OK" and you are ok to power off the Console and restart it. Note that the console front panel is sometimes unresponsive at this point, so you may need to shut down from the touch screen using Setup, View Settings, Quit. If there is no response at all then you will need to hold the reset button to power off the console.

If it gets stuck on "Fails to Load Firmware" and the console continues to loop in the Load firmware screen the console should be powered off and will need to be returned to ChamSys UK for re-programming.

Handy Hints

- Use the "Lamp On All" and "Lamp Off All" soft buttons in the Macro Window to make turning on/off an entire lighting rig easier.
- Use a pan offset and/or tilt offset in Patch to adjust all the programming for some heads.
- Use SHIFT or CTRL and the cursor keys to carry out actions on multiple items in a Window.
- When recording items, type in a name for the item on the external keyboard before pressing the REC button.
- To force a minimum look on stage (e.g. during a changeover) whilst allowing full programming capability got to Intensity, View Preset and set up a minium look.
- When using encoders, to bump to the next range value (e.g. next colour), press the button associated with the encoder. To bump back, hold SHIFT and press the button.
- To modify a playback, press and hold the SELECT button associated with the playback and then use the encoders or key in new values.
- If your CMY colours are coming out inverted – i.e. red is cyan, green is purple, blue is yellow, then you need to set the CMY Invert option for that personality in the Head Editor.
- To restart the look in the programmer press BLIND twice.
- If you find yourself constantly changing Windows to perform an action, try sizing the required Windows and recording it as a Layout.
- After you have cleared the programmer you can reselect the heads that were selected when you pressed CLEAR by pressing the ALL button.
- To remove attributes from an entire Cue Stack (e.g. position information) activate those attributes in the programmer and use the RECORD REMOVE option.
- To add attributes into an entire Cue Stack (e.g. position information) activate those attributes in the programmer and use the RECORD MERGE option.
- To Record Merge the current contents of the programmer into the current Cue on a Cue Stack, press and hold the Select button of the playback and press RECORD.
- Copy palettes to Playbacks to make Cue Stacks of palettes.

MagicQ Shortcuts

Table 22. Saving / Loading

New show	SETUP <View Settings> <New Show>
Save show	SETUP <View Settings> <Save Show>
Load show	SETUP <View Settings> <Load Show>
Save settings	SETUP <View Settings> <Save Setting>
Load settings	SETUP <View Settings> <Import Settings>
Save partial show	SETUP <View Settings> <SHIFT + Export Show>
Merge in show	SETUP <View Settings> <SHIFT + Import Show>
Load archived backup	SETUP <View Settings> <SHIFT + Load Backup>
Export patch list	PATCH <View Chans> <Export Patch>
Import patch list	PATCH <View Chans> <Import Head>
Import ASCII file	PATCH <View Chans> <Import USITT>
Reset console	SETUP, <SHIFT + QUIT>
Save show to current show file name	SHIFT + CTRL + REC

Table 23. Patching

Select head for patching	PATCH <Choose Head>
Patch 1 head, next free address	1 <Patch It>
Patch 5 heads, next free address	5 <Patch It>
Patch 1 head, next free channel on universe 2	1@+2-1 <Patch It>
Patch 1 head at uni 1 address 1	1@1-1 <Patch It>
Patch 5 heads at uni 2 address 1	5@2-1 <Patch It>
Patch 5 heads at uni 2 address 1, head 100	5@2-1*100 <Patch It>
Patch 5 heads with offset 20	5/20 <Patch It>
Patch after uni 3 address 50	5@+3-50 <Patch It>
Reselect head Cursor to head	<SHIFT + Choose Head>
Edit patched head Cursor to head	<SHIFT + Edit Head>
Repatch selected heads without changing offset	3-1 / ENTER

Table 24. Select Heads

Select head 1	1 @@

Sub Select element 2	.2 NEXT HEAD
Select heads 1 to 4	1 THRU 4 @@
Select heads 1 to 10, not 5	1 THRU 10 – 5 @@
Deselect all heads	0 @@
Select all heads	NEXT HEAD + PREV HEAD
Reselect last heads after CLEAR	ALL
Select Group 1	1 * *
Select Groups 1 to 4	1 THRU 4 * *
Sub select 1st head	1 NEXT HEAD
Sub select 1st and 2nd head in selection	1 + 2 NEXT HEAD
Sub select 3rd, 4th and 5th head	3 THRU 5 NEXT HEAD
Sub select element 2	. 2 NEXT HEAD
Sub select pair	SHIFT + SINGLE
Sub select heads using palette above 0%	NEXT HEAD + Palette
Select all heads using palette	ALL + <Palette entry>
Select heads active in Playback	ALL + <S>
Select heads above 20% intensity	20 ALL + INT
Select all heads active in prog	CTRL + ALL
Reselect last heads after CLEAR	ALL
Change selection order	Press and hold ALL
Pair Selection	SHIFT + SINGLE
Invert current sub selection of heads	0 + NEXT HEAD

Table 25. Lamp On / Lamp Off / Reset

Lamp On entire rig	MACRO <Lamp on all>
Lamp Off entire rig	MACRO <Lamp off all>
Lamp On selected heads	SHIFT + LOCATE
Lamp Off selected heads	CTRL + SHIFT + LOCATE
Reset selected heads	CTRL + LOCATE
Lamp on selected heads	<select head> * + +
Lamp off selected heads	<select head> * - -
Reset selected heads	<select head> * / /

Table 26. Highlight

HIGHLIGHT	High light the sub selected heads

SHIFT + HIGHLIGHT	Low light the sub selected heads
CTRL + HIGHLIGHT	Solo the sub selected heads

Table 27. Setting Intensities

Set head 1 to 100%	1 @ FULL (Also 1 FULL)
Set head 1 to 50%	1 @ 50 ENTER
Set heads 1 to 4 to 100%	1 THRU 4 @ FULL
Set head 1 +10%	1 @ + 10 ENTER
Set head 1 –1%	1 @ - 01 ENTER
Set head 1 at 50, all others at 0%	1 @ 50 - -
Set head 1 to 50% time 3 secs	1 @ 50 / 3 ENTER
Set 2nd element from head 1 to 50%	1 . 2 @ 50
Set 2nd element from head 1 to 10 to 50%	1 THRU 10 . 2 @ 50
Set element 2 and 3 from head 1 to 50%	1 . 2 THRU 3 @ 50
Heads 1 to 10, 100% split delays 4s to 1s, 1s fade	1 THRU 10 @ FULL / 4 THRU 0 / 1

PC Keyboard THRU = '>' FULL = '#'

Table 28. FX

Add FX	Select heads, FX <ADD FX>
Convert chase to FX	CUE STACK <SHIFT + Make FX>
Force Cue to have no FX	Select heads, <SHIFT + Add FX 0 Size>

Table 29. Playback

Step through Cue Stack	>
Step back up Cue Stack	II or also SHIFT + >
Go to next step without time	>>
Go back a step without time	<<
Reassert Playback	S + FLASH button
Take manual control of Playback	S + move manual fader
Change chase / FX speed live	S + turn encoder X
Go to Cue ID 2	S 2 ENTER
Release Playback with 3 sec time	S 3 REL
Release all Playbacks	SHIFT + RELEASE
Release heldover Playbacks	ALT + RELEASE
Release all test Playbacks/Cues/Cue Stacks	CTRL + RELEASE

Enter/exit Blind with 3 sec time	3 BLIND
Make Cue Stack default all pages	Change to Page 1, PLAYBACK, <Default Cue Stack>
Transfer a Cue Stack to other playback	SHIFT + SEL select source > select target

Table 30. Loading Values into the Programmer

Default all attribs	Select heads, LOCATE
Default position attribs	Select heads <POS + LOCATE>
Default colour attribs	Select heads <COLOR + LOCATE>
Default beam attribs	Select heads <BEAM + LOCATE>
Default intensity attribs	Select heads <INT + LOCATE>
Make active all attribs	Select heads, <* + SET>
Make active pos attribs	Select heads, <POS + SET>
Make active colour attribs	Select heads, <COLOR + SET>
Make active beam attribs	Select heads, <BEAM + SET>
Make active int attribs	Select heads, <INT + SET>
Make hard all attribs	Select heads, <* + MOVE>
Make hard pos attribs	Select heads, <POS + MOVE>
Make hard colour attribs	Select heads, <COLOR + MOVE>
Make hard beam attribs	Select heads, <BEAM + MOVE>
Make hard int attribs	Select heads, <INT + MOVE>
Load Cue from Playback	INC <S>
Load Cue ID 2	INC 2 <S>
Load Cue ID 2 on current Cue Stack	INC CUE 2 ENTER
Load Cue at 40%	INC @ 40 <S>
Load Cue at current level	INC @ <S>
Load entire state of Cue Stack	ALL + INCLUDE
Load selected heads from Cue	<* + INC> <S>
Load int from Cue	INC INT <S>
Load pos from Cue	INC POS <S>
Load colour from Cue	INC COLOR <S>
Load beam from Cue	INC BEAM <S>
Load FX from Cue	INC FX <S>
Load heads from Cue	101 INC <S>
Load Group of heads from Cue	GROUP 8 INC <S>

Load Group of heads from Cue ID 2	GROUP 8 INC / 2 <S>
Load from DMX	Select heads, <CTRL + INC> ENTER
Snapshot output cues	PROG, <Snapshot>
Snapshot active values	THRU RECORD
Snapshot selected heads	* + SET
Copy Heads	<from Head No> COPY <to Head No> ENTER
Copy Groups of Heads	GROUP <from Group ID> COPY GROUP <to Group ID> ENTER

Table 31. Removing Values from the Programmer

Clear all values	CLEAR
Clear with 3 sec time	3 CLEAR
Clear selected heads	Select heads, SHIFT + CLEAR
Clear to default vals	CTRL + CLEAR
Clear to 0 vals	SHIFT + CTRL + CLEAR
Remove attrib	<REM + turn encoder>
Remove attrib	<soft button + REM>
Remove position attribs	<POS + REM>
Remove colour attribs	<COLOR + REM>
Remove beam attribs	<BEAM + REM>
Remove intensity attribs	<INT + REM>
Remove all attribs	<* + REM>

Table 32. Recording Cues

Record Cue on Playback	REC S
Record Cue ID 2.5	2.5 REC S
Record Cue to current Playback	REC ENTER
Record to Playback 2	REC 2 ENTER
Record to Cue ID 2.5 Playback 2	REC 2 / 2.5 ENTER
Record to Cue ID 2.5 on current Cue Stack	REC CUE 2.5 ENTER
Record sel heads only	<SHIFT + REC> <Sel Only> S
Record sel heads only	* + REC
Record sel attribs	<SHIFT + REC>, select attribs, S
Record entire state of programmer	ALL + REC
Record Cue Only	/ + REC
Record Snapshot	THRU + REC

Table 33. Record Merging / Removing

Record Merge	<+ + REC> S
Record Merge current Cue	S + REC
Record Merge current Cue	REC UPD
Record Merge selected head only	Hold * and + and press REC
Record Merge all Cue Stack	<SHIFT + REC> <Record Merge> S
Record Merge Cue Id 2 to 4	<+ + REC> 2 THRU 4 S
Record Remove	← + REC> S
Record Remove selected head only	Hold * and - and press REC
Record Remove all Cue Stack	<SHIFT + REC> <Record Remove> S
Record Remove Cue Id 2 to 4	← - REC> 2 THRU 4 S
Record Select Heads	* + REC
Record into current cue	REC 0 ENTER
Set Head 2 at 50% into current cue	S + <2 @ 50>
Set Head 2 at +10% into current cue	S + <2 @ + 10>
Set Head 2 at 50% all cues	S + <2 @ 50 THRU>
Set Head 2 at +10% all cues	S + <2 @ + 10>

Table 34. Editing Cues

Edit in Programmer	INC S, make change, UPDATE
Record merge current cue	Change vals in Prog, <S> + REC>
Record Merge all cues in Stack	<+ + REC><S>
Record Merge all cues in Stack	<SHIFT + REC> <Rec Merge> <S>
Remove Cue Stack	REM S
Remove Cue ID 2.5	REM 2.5 S
Remove Intensity from Cue	Hold S + Enter Level e.g <S> 1 @ 20 ENTER
Copy Playback	COPY <source S> <dest S>
Copy Playback unlinked	<SHIFT + COPY> <Unlinked> <source S> <dest S>
Copy Heads in Cues	<from Head No> COPY <to Head No> <S>
Copy Groups of Heads in Cues	GROUP <from Group ID> COPY GROUP <to Group ID> <S>
Copy Heads in Cues	Hold + and COPY or SHIFT COPY select COPY HEADS
Replace Palette in Cues	Hold - and COPY or SHIFT COPY select REPLACE PALETTE

Table 35. Editing Cue times

Set Cue 1 with a 2 second fade time	SET CUE 1 TIME 2 ENTER
Set Cue 1 with a 2 second Colour fade time	SET CUE 1 TIME COL 2 ENTER
Set Cue 1 with complex 5*+ times	SET CUE 1 TIME 5*+ ENTER
Set Cue 1 to 5 with 3 second fade time	SET CUE 1 THRU 5 TIME 3 ENTER
Remove complex fade times from Cue 1	SET CUE 1 TIME ENTER
Set Release time of 5 seconds	SET CUE TIME 5 ENTER
Set Cue 1 on Playback 3 with a 2 second fade	SET CUE 3/1 TIME 2 ENTER

Table 36. Current Cue Stack Operations

Move Cues	MOVE CUE <Cue ID> @ <Cue ID>
Copy Cue to end of Cue Stack	COPY CUE <Cue ID> @
Copy Multiple Cues	COPY CUE <Cue ID> THRU <Cue ID> @ <Cue ID>
Remove Cue 2 from current Cue Stack	REM CUE 2 ENTER
Include Cue 2	INCLUDE CUE 2 ENTER

Table 37. Palettes

Record Palette	Select heads, REC, select item
Palette using keypad	POS <palette number> ENTER
Re-record Palette	Select heads, REC, select item
Name Palette	Type name, SET
Name Palette (no keyboard)	SET SET, type name, sel item
Edit Palette	Select heads, INC, select item, make changes, UPD
Copy Palettes to Playback	<SHIFT + cursor> to select Palettes, COPY S
Set icon for a Palette	SHIFT + SET

Table 38. Palette Times

Palette with 3 secs	3 select item
Palette with 3 secs fanned	3 * select item
Palette with 3 secs reverse fan	3 * / select item
Palette with 3 secs into centre fan	3 * + select item
Palette with 3 secs centre out fan	3 * - select item
Palette with 3 secs Random fan	3 * . select item
Palette with 10 secs total 2 secs per Head	10 / 2 * select item

Palette with 10 secs into centre total 2 secs per Head	10 / 2 * + select item
Use last fan timing	*
Palette fan fade 0 to 3s	0 THRU 3 select item
Fan delay 0 to 3s, 1s fade	0 THRU 3 / 1 select item
Palette using keypad with time	<Palette type - INT/POS/COL/BEAM/FX> <palette ID> TIME <time> ENTER
Palette using keypad with time	<Palette type - INT/POS/COL/BEAM/FX> <palette ID> / <time> ENTER
Palette with 3 secs fade left to right across Group Grid	3 * . . select item
Palette with 3 secs fade right to left across Group Grid	3 * / / select item
Palette with 3 secs fade out to in on Group Grid	3 * - - select item
Palette with 3 secs fade in to out on Group Grid	3 * + + select item
Palette with 3 secs fade centre in to out on Group Grid	3 * + - select item
Palette with 3 secs fade centre out to in on Group Grid	3 * - + select item
Palette with 3 secs fade top to bottom across Group Grid	3 * . . . select item
Palette with 3 secs fade bottom to top across Group Grid	3 * / / / select item
Palette with 3 secs fade top out to in on Group Grid	3 * + + + select item
Palette with 3 secs fade top in to out on Group Grid	3 * - - - select item

Table 39. Information Windows

Additional Output Windows	2 OUT 3 OUT 4 OUT
Programmer Info Window	CTRL + PROG or 2 PROG
Cue Stack Info Window	CTRL + CUE STACK or 2 CUE STACK
Send text message	! delay , duration , ! message
Send text display 5 seconds	! 0 , 5 ! message
Send text stay visible	! message
Multiple Execute windows	2 EXEC, 3 EXEC

Multiple Group windows	2 GROUP, 3 GROUP

Table 40. Net Session

Resync SLAVE console	Hold Cursor Left Right Down + SET
Turn on Programmer Sync	Hold Cursor Left Right Down + *
Turn off Programmer Sync	Hold Cursor Left Right Down + \
Resync SLAVE console	Hold Cursor Left Right Down + SET
Include selected from other console	CTRL + SHIFT + INC

Table 41. Wing / Keypad short cuts

Select position palette	<POS + S>
Select colour palette <COLOR + S>	Select beam palette <BEAM + S>
Select position palette 4	POS 4 ENTER
Select colour palette 5	COLOR 5 ENTER
Select position 4 time 5 secs	POS 4 / 5 ENTER
Select position 4 time 5 secs fan	POS 4 / 5 * ENTER
Default intensity attribs	<ALL + LOCATE>
Make active intensity attribs	<ALL + SET>
Remove intensity attribs	<ALL + REMOVE>
Enter/exit test mode PC/Mac	Type test and press CTRL + SHIFT
Exit full screen Execute Window on PC	CTRL + Q

Table 42. Console

Start up	Start button on rear
Shut down	SETUP, <QUIT>
Soft reset	SETUP, <SHIFT + QUIT>
Calibrate touch screen	SETUP, <View Settings> <Cal Touch> or CTRL + SET
Hard reset	Hold rear reset button 5 seconds
Hard power off MQ100 MQ40/50/60/70	Hold rear reset button 15 seconds
Hard power off MQ80	Unplug powercon + Hold reset button 10 seconds
Shut down console	CTRL + SHIFT + DBO
Lock/unlock console	<CTRL + SOFT button Encoder A>
Console lights on/off	<CTRL + SOFT button Encoder B>
Console screen save, stealth mode	SHIFT + BLIND
Home on Compact consoles	ALT + Lay 1

End on Compact consoles	ALT + Lay 3
Home on Stadium consoles	ALT + HEAD
End on Stadium consoles	ALT + TIME
Enter/exit test mode MQ100	SHIFT + SHIFT
Enter/exit test mode MQ40/50/60/70/80	ATL + CTRL + SHIFT
Text Search in current window(consoles)	CTRL + > (Right cursor key)
Text Search in current window(MagicQ PC)	CTRL + F
Copy to Clipboard	CTRL + COPY
Paste from Clipboard	CTRL + UPDATE

Table 43. Cue Stack Macros

Activate Playback	A <Playback no>
Activate playback at level	A <Playback no> / <Level>
Activate playback at level with time	A <Playback no> / <Level> / <Fade time>
Run Keyboard Macro	B <Macro no> (0 = stop all macros)
Release Playback	R <Playback no> (0 = release this playback)
Release playback with time	R <Playback no> / <fade time>
Release All Heldover Playbacks	R1000
Release Heldover Cue Stack on this Playback	R999
Release all Playbacks except for this Playback	R998
Activate Playback 100%	T <Playback no>
Activate Playback 100% with time	T <Playback no> / <Fade time>
Release Playback 0%	U <Playback no>
Go on playback	G <Playback no>
Go to Cue id on playback (when <preload flag> is set to 1, cue is preloaded) <Preload Flag> and <Fade time> are optional	G <playback number> / <cue id> / <preload flag> / <fade time>
Go on current playback when the Pixelmapper layer is the given number of frames from the end (for server 2 and above add 16 to the layer for each server)	G 0 / 2 / <Frames> / <Layer>
1 – Lamp on all heads, 2 reset all heads, 3 lamp off all heads, 4 cancel screen save	H <Type>
Type is 5 for enable Uni zone, 6 for disable Uni zone	H <Type> / <Uni zone>
Set a Copy Universe in DMX I/O. 0 for no copy	H 7 / <Uni> / <Copy Uni>

Control Speed Masters	H 10 / <Speed Master> / <Command> / <Parameter>
Lyntec Zone. Status = 1 for On, 0 for Off	H 11 / <Device ID> / <Zone> / <Status>
Lyntec Channel. Status = 1 for On, 0 for Off	H 12 / <Device ID> / <Chan> / <Status>
Emergency Hot Takeover, <state> is 1 for On, 0 for Off. Also works for H 911 and H 999.	H 112 / <state>
Stop / Pause / Go Back on Playback	S <Playback no>
Choose Playback	C <Playback no>
Set level last Cue Stack activated	K <level> / <fade time>
Set level current Playback	L <level> / <fade time>
Set level of this Playback	M <level> / <fade time>
Jump to Cue id current Playback	J <Cue Id>
Conditional jump to Cue Id on current playback	J <Cue Id>/<variable>/<comparison>/<value>
Activate Cue Stack (Stack Store)	E <Cue Stack ID from Stack Store>
Activate Cue Stack (Stack Store) at level	E <Cue Stack ID from Stack Store> / <level>
Activate Cue Stack (Stack Store) at level and Cue	E <Cue Stack ID from Stack Store> / <level> / <Cue ID>
Activate Exec Grid item	E 0/<Exec Page>/<Item>
Releases Cue Stack (Stack Store)	F <Qid from Stack Store>
Release Exec Grid item	F 0/<Exec Page>/<Item>
Change Page	P <Page no> (0 is next)
Open view (window layout)	V <View no>
Set decoded time code	O <Time code>
Enable/disable external time code gen	W <Enable> (1 enable, 0 dis)
Enable/disable Automation (1 for enable, 0 for disable)	W <Autom ID> / <Enable>
Set current time code (gen only)	Q <Time code> e.g Q100
Set current time code (internal) (1000 to pause, 1001 to play, 1002 to reset to 0. All other values to set specific timecode)	I <Time Code> e.g. I100
Activate Playback 18 on wing 1	A1-18
Go on Playbacks 3 to 5	G3THRU5
Set the level of Playback 6 to 60%	C6L60
Lamp on all heads	H1
Reset all heads	H2

Lamp off all heads	H3
Cancel screen save	H4
Enable Zone	H5<zone number>
Disable Zone	H6<zone number>
Set Speed Master	H10,<Speed Master ID>,<Command>,<Parameter>
Trigger 10Scene - Zone id 1 to 20, Button id 1 to 10, State is 0 for button release 1 for button pressed 2 for button activate and 3 for release	T0 / <Zone id> / <Button id> / <State>
Transmit data on the serial port	X <Data>
Transmit data on the network port over ChamSys Remote Ethernet Protocol	Y <Data>
Transmit data over MIDI	N <Data>
Transmit data over OSC	K <Data>
Audio Command, supported commands are stop, close, jump, dev, Param1,g (gain)	D <Audio command>
Set Gain of current playback. Gain is 0 to 100.	D <Gain>
Set Gain of current playback. Gain is 0 to 100.	D <Playback no> / <Gain>
Set a Cue Stack variable and enable/disable Cue Stack	VA <command>
Scheduled Events Date	Z<DDMMYYYY>Z

Controlling Speed Masters

H10,<Speed Master ID>,<Command>,<Parameter>

Command	Parameter	Description
1	BPM	Set the BPM
2		Activate
3		Deactivate
4		Run
5		Halt
6	Divisor	Set Divisor (2 to 32. 0 for no divisor)
7	Multiplier	Set Multiplier (2 to 32. 0 for no multiplier)
8		Step
9		Source is DJ Beat
10		Source is Audio Beat

11		Source is DJ BPM
12		Source is Audio BPM
13		Source is Tap
14		Resync
15		Resync beat
16		Increase Speed Master
17		Decrease Speed Master

Table 44. Window Control

Cue window positioned on attribute	<S> + Pos Beam Col Int or FX button
Open Playback Cue Stack Window	Double click S button playback
Open Playback Cue Stack Options	Triple click S button playback
Open Cue Window current playback	SHIFT + Double click S button playback
Close all Windows	SHIFT + CLOSE
All Windows to internal screen	SHIFT + EXT
Open Colour Picker	CTRL + COL
Open Framing Window	CTRL + BEAM
Open Net Manager	CTRL + SETUP

Table 45. Stadium Shortcuts

Change Execute buttons function	SHIFT+NEXT/PREV Page
Move windows between monitors	ALT+SETUP
Change Faders mode	Hold Faders NEXT/PREV Page button
Change Faders mode on PC	SHIFT + Faders NEXT/PREV Page button
Page through one by one instead of pages	SHIFT + NEXT/PREV Page button
Deactivate all faders for the mode across pages	SHIFT + Big Pause button
Record current fader mode/state to an execute button	NEXT/PREV Page + Record
Next/Prev Bank	ALT + NEXT/PREV Page

Button Functions

Shift

The shift buttons are used to select alternative functions for buttons and faders. There are three shift buttons on the console – one at the top of each side of the touch-screen. The third is in the row of action buttons above the keypad.

The shift keys on external keyboards also have the same function.

Ctrl

The ctrl buttons are used to select alternative functions for buttons and faders. There are two shift buttons on the console – at the top corners of the touchscreen.

Alternative functions include selecting views and making adjustments to the display and console light brightness.

The ctrl keys on external keyboards also have the same function.

Alt

The alt button is used to access alternative functions which do not have dedicated physical buttons. The alternative function is outlined on the panel adjacent to the button in silver.

On all consoles

ALT + LEFT	PAGE LEFT
ALT + RIGHT	PAGE RIGHT
ALT + UP	PAGE UP
ALT + DOWN	PAGE DOWN
ALT + LOCATE	DEF COLOUR
ALT + ALL	SNAP COLOUR

On MagicQ Compact consoles (MQ40/MQ50/MQ60/MQ70) the additional functions are available

ALT + PROG	MIN
ALT + OUT	MAX
ALT + PATCH	NEXT
ALT + MEDIA	EXT
ALT + EXEC	SIZE
ALT + CUE	PLOT
ALT + PLAYBACK	TIMELINE
ALT + STACK STORE	MACRO

ALT + CUE STORE	HELP
ALT + SINGLE	PAIR
ALT + FAN	MIRROR
ALT + GROUP	HEAD
ALT + THRU	TIME
ALT + LAY 1	HOME
ALT + LAY 3	END

On MagicQ Stadium consoles

ALT + PROG	MIN
ALT + OUT	MAX
ALT + SETUP	EXT
ALT + PATCH	SIZE
ALT + HEAD	HOME
ALT + TIME	END

On all consoles ALT + ADD/SWAP will take a screenshot of the main screen (and external monitor, if present), and save it in a folder called "screenshots/" in the MagicQ home folder.

Min

Used to minimise a window. Windows appear in the windows section of the screen.

Max

Used to maximise a window. Windows appear in the windows section of the screen. A maximised window is sized to the complete main window area. The buttons around the edge of the screen and the status screen continue to be displayed.

Close

Used to close a window. Windows appear in the windows section of the screen. Pressing SHIFT and CLOSE causes all open windows to be closed.

When using remote control then CTRL + CLOSE disconnects from the remote console.

Next Win

This button was supported on older MQ100/MQ200/MQ300 consoles.

It allowed the user to select the active window from the currently open windows. The order of window selection is fixed, so that windows appear in a memorable sequence regardless of the order the windows were opened. Each press of the Next Win button selects the next window in the open window list.

Windows appear in the windows section of the screen.

Ext

This button is used to move windows to/from external monitors. External monitors must first be configured in Setup, View System, View Monitors.

Size

This button is used to modify the size and position of the active window on the screen. Pressing this button opens the Window Size dialog box.

Windows appear in the windows section of the screen. The initial size is the maximised size – i.e. the window takes up the whole of the window display area.

There are seventeen possible combinations of window size and position.

There are four half screen positions and 4 quarter screen positions.

There are four adjustable left hand positions and four adjustable right hand positions. Windows assigned to these positions will auto size to take up the whole of the left hand or right hand space.

Prog

This is a Window select button. Pressing this button makes the Programmer Window the active window. If the window was not open, then the window is opened.

The Programmer Window is used to view and modify the contents of the programmer.

Pressing and holding the Programmer button causes the Programmer Window to be temporarily made the active window until the button is released.

Type the number 2 before pressing PROG to open an additional Prog window, the Prog Info Window.

Outputs

This is a Window select button. Pressing this button makes the Outputs Window the active window. If the window was not open, then the window is opened.

The Outputs Window enables the user to view the output channels in many different ways including level data, intensities, movement, plan and colour display. It also allows input channels to be viewed.

In View Heads, the outputs are viewed by head enabling the operator to easily see the levels of different parameters.

In View Chans, there are two further options, View Int and View DMX. View Int shows all the intensity levels of patched channels and their current level in percentage – i.e. a traditional theatre output screen.

View DMX shows the actual data being transmitted out / or received into the console. In View DMX, patched channels are coloured according to function - intensity is shown in red, colour in yellow, position in green, and beam in white. Use soft button A to change universe.

In View Plan, a plan of the lighting rig can be created and then used to easily identify the levels of different lamps according to their position in the lighting rig.

Pressing and holding the Outputs button causes the Outputs Window to be temporarily made the active window until the button is released.

Type the number 2 to 4 before pressing OUT to open additional Output Windows.

Setup

This is a Window select button. Pressing this button makes the Setup Window the active window. If the window was not open, then the window is opened.

The Setup Window is used to perform major operations on show data such as loading, saving and erasing shows. It is also used to configure console settings and preferences.

The Setup Window has three views, View Settings, View DMX I/O and View System.

Pressing and holding the Control button causes the Setup Window to be temporarily made the active window until the button is released.

Patch

This is a Window select button. Pressing this button makes the Patch Window the active window. If the window was not open, then the window is opened.

The Patch Window is used to patch dimmers and intelligent heads onto the console channels. It has four different views, HEADS for general patching, CHANS for examining individual DMX channels, DMX for configuring dimmers and VIS for visualiser items. See Patching for more details.

Pressing and holding the Patch button causes the Patch Window to be temporarily made the active window until the button is released.

Vis

This is a Window select button. Pressing this button makes the Vis Window the active window. If the window was not open, then the window is opened.

Note that the Vis window is only available within the console on MQ500M. On all other systems the Visualiser must be run on an external PC/Mac.

Plot

This is a Window select button. Pressing this button makes the Vis Window the active window. If the window was not open, then the window is opened.

The Plot window is used to view a 2D Plot of the lighting rig, and to focus lights using the

FOCUS HOLD and FOCUS LINE features.

The Plot uses the XYZ data from the Patch Window for the placement of Heads.

Different elevations can be viewed. In VIEW DESIGN it is possible to reposition lights.

Macro

This is a Window select button. Pressing this button makes the Macro Window the active window. If the window was not open, then the window is opened.

The Macro Window allows the user to record and playback keyboard macros thus enabling them to customise buttons to perform actions unique to their own style of operation.

The Autom view supports automation of MagicQ events. Pressing and holding the Macro button causes the Macro Window to be temporarily made the active window until the button is released.

Help

This is a Window select button. Pressing this button makes the Help Window the active window. If the window was not open, then the window is opened.

The Help Window enables the manual to be viewed on-line on the console. The Help Window supports hyperlinks, searching, and quick links.

Hyperlinks are shown underlined – press the text on the touch screen to jump to the hyperlink.

To find information on a particular button on the console, press and hold down the Help button and then press the button you wish to get help on. On MagicQ PC/Mac version, press the BUTTON HELP soft button and then press the required button.

Pressing and holding the Help button causes the Help Window to be temporarily made the active window until the button is released.

Page

This is a Window select button. Pressing this button makes the Page Window the active window. If the window was not open, then the window is opened.

The Page Window is used to select which page of Playbacks is currently in use. Selecting of Pages can also be done using the Page Select buttons. The Page Window also provides a means for naming Pages.

Pressing and holding the Page button causes the Page Window to be temporarily made the active window until the button is released.

Playbacks

This is a Window select button. Pressing this button makes the Playbacks Window the active window. If the window was not open, then the window is opened.

The Playbacks Window is used to manage the allocation of Cue Stacks to Playbacks. Cue Stacks can be recorded, named, removed, moved, and copied between Playbacks.

Pressing and holding the Playbacks button causes the Playbacks Window to be temporarily made the active window until the button is released.

Execute

This is a Window select button. Pressing this button makes the Execute Window the active window. If the window was not open, then the window is opened.

Type the number 2 or 3 before pressing EXEC to open additional Execute Windows.

Cue

This is a Window select button. Pressing this button makes the Cue Window the active window. If the window was not open, then the window is opened.

The Cue Window is used to view and modify the contents of a Cue.

Also see Recording a Cue.

Pressing and holding the Cue button causes the Cue Window to be temporarily made the active window until the button is released.

Cue Stack

This is a Window select button. Pressing this button makes the Cue Stack Window the active window. If the window was not open, then the window is opened.

The Cue Stack Window is used to manage the steps in a Cue Stack. Steps can be recorded, named and removed. Cue timings and settings can also be configured.

Also see recording of Cue Stacks.

Pressing and holding the Cue Stack button causes the Cue Stack Window to be temporarily made the active window until the button is released.

Stack Store

This is a Window select button. Pressing this button makes the Stack Store Window the active window. If the window was not open, then the window is opened.

The Stack Store Window is used to view all of the Cue Stacks stored on the console. Cue Stacks can be recorded, named, removed, moved and copied.

Pressing and holding the Stack Store button causes the Stack Store Window to be temporarily made the active window until the button is released.

Cue Store

This is a Window select button. Pressing this button makes the Cue Store Window the active

window. If the window was not open, then the window is opened.

The Cue Store Window is used to view all of the Cues stored on the console. Cues can be recorded, named, removed, moved and copied.

Pressing and holding the Cue Store button causes the Cue Store Window to be temporarily made the active window until the button is released.

Group

This is a Window select button. Pressing this button makes the Group Window the active window. If the window was not open, then the window is opened.

The Group Window is used to select heads. Selected heads can then be modified in the Intensity, Position, Colour, and Beam Windows. The Window supports selecting of heads individually or by group.

Pressing and holding the Group button causes the Group Window to be temporarily made the active window until the button is released.

Type the number 2 or 3 before pressing Group to open additional Group Windows.

Head

This button is used to select one or more heads directly from the keypad. Selected heads can then be modified in the Intensity, Position, Colour, and Beam Windows.

This button is available on the MQ500. On Compact consoles press ALT + GROUP.

On any console heads can also be selected by typing the head number(s) followed by @@. The Head button simplifies this syntax.

Intensity

This is a Window select button. Pressing this button makes the Intensity Window the active window. If the window was not open, then the window is opened.

The Intensity Window is used to set the level of dimmer channels and the intensity attributes of intelligent heads. The Window supports two views, Programmer and Preset.

Pressing and holding the Intensity button causes the Intensity Window to be temporarily made the active window until the button is released.

FX

This is a Window select button. Pressing this button makes the FX window the active window. If the window was not open, then the window is opened.

The FX window enables users to store their favourite FX into a window for quick recall.

FX can also be applied directly from the Group window using the Add FX button. FX are applied to the currently selected heads. If no heads are currently selected then the Group

Window is opened to enable selection of heads.

Pressing and holding the FX button causes the FX Window to be temporarily made the active window until the button is released.

Pos

This is a Window select button. Pressing this button makes the Pos Window the active window. If the window was not open, then the window is opened.

The Pos Window is used to set and modify the position attributes of intelligent heads. The Pos Window also displays and allows selection of Palette entries from the Position Palette.

It also supports the Flip function for moving heads.

Pressing and holding the Pos button causes the Pos Window to be temporarily made the active window until the button is released.

Colour

This is a Window select button. Pressing this button makes the Colour Window the active window. If the window was not open, then the window is opened.

The Colour Window is used to set and modify the colour attributes of intelligent heads. The Colour Window also displays and allows selection of Palette entries from the Colour Palette.

Pressing and holding the Colour button causes the Colour Window to be temporarily made the active window until the button is released.

Pressing the colour button repeatedly cycles through the different colour views.

Beam

This is a Window select button. Pressing this button makes the Beam Window the active window. If the window was not open, then the window is opened.

The Beam Window is used to set and modify the beam attributes of intelligent heads. The Beam Window also displays and allows selection of Palette entries from the Beam Palette.

Pressing and holding the Beam button causes the Beam Window to be temporarily made the active window until the button is released.

Pressing the beam button repeatedly cycles through the different beam pages.

Next Head

Used to select the next head from the currently selected heads. See selecting individual heads.

Prev Head

Used to select the previous head from the currently selected heads. See selecting individual heads.

Locate

Pressing LOCATE, locates all the selected heads.

Fan

Used to enter Fan Mode. Fan mode enables adjustments to a number of selected heads to be applied in a non-linear fashion.

Pressing and holding Fan enables Fan mode to be entered temporarily. Make your changes and then release the Fan button.

Highlight

Used to enter Highlight Mode. Highlight mode enables adjustments to individual heads from the currently selected heads. The individual head is highlighted whilst the others are made less bright.

Single

Used to enter Single Mode. Single mode enables adjustments to individual heads from the currently selected heads. Similar to Highlight Mode but the head under adjustment is not highlighted.

All

Used to return control to all selected heads. Pressing ALL in Single Mode, Highlight Mode or Odd/Even Mode exits the mode.

See All.

Odd / Even

Used to enter Odd/Even Mode. Odd/Even mode gives control to the odd or even heads from the currently selected heads.

Mirror

Mirror reverses the pan information of the head.

The MQ500 includes a dedicated Mirror button. On Compact consoles press ALT + FAN.

See Flip/Mirror

Pair

The MQ500 includes a dedicated Pair button. On Compact consoles press ALT + SINGLE.

See Pair

Select

Used to select a playback as the current playback. Provides a means of selecting playbacks

when slaving other consoles to the MagicQ where the other console does not have separate flash and select buttons.

Also used to select playbacks that have been activated through the Playbacks Window as the current playback.

Release

The Release button is used to Release a playback – i.e. to make it inactive. By default Cue Stacks are configured so that they release automatically when the fader is brought back to zero. However Cue Stacks can be configured to require a manual release. See activating and releasing playbacks.

Blind

Used to enter Blind Mode. Blind mode stops the contents of the programmer from affecting the output channels of the console.

Clear

Used to clear the programmer.

Shift and Clear clears only the selected heads.

Ctrl and Clear clears all heads setting the values to 0.

Backspace

Used to remove the last character from the input.

If there is no input then it cancels any outstanding actions such as recording, naming. removing, moving or copying.

CTRL and backspace removes all input from the command line.

Set

An action button for setting show data.

Used to name playbacks and other items. Also used to set the values of items such as parameters.

Shift and Set is used for selecting icons.

Record

An action button for recording show data.

Used to record Cues onto playbacks and to record Groups, and to record Palettes

See also Recording a Cue.

Shift and Record is used to record but with additional record options.

Remove

An action button for removing show data.

Used to remove Cue Stacks from Playbacks, and to remove other items.

Undo

The Undo button allows the last few changes in the programmer to be undone. Press SHIFT and Undo to redo a change. The Undo functionality is enable in the Setup Window, Settings View.

MagicQ undo can be set so that all actions can be undone except for a small number of file related functions such as loading a new show file. In Setup, View Settings, Prog tab set "Undo mode" to "Undo programmer and actions" - this is the default setting.

Initially when UNDO is pressed any actions in the programmer will be undone - such as changes to head selection, head attributes such as Int, Pos, Col, Beam. Pressing UNDO again will undo any programmer changes for a maximum of 4 undo steps. After this Undo will start undoing actions including Record, Set, Move, Copy, Remove and Patch operations.

It is possible to redo any actions using SHIFT + UNDO. When some changes are undone, then once a new action is performed (e.g. recording a new Cue) it is then not possible to Redo any of the actions that were previously undone. The new action, and previous ones that have not been undone (or which have been redone) can be undone.

Press CTRL and UNDO to open the Undo History window. In the Undo history window it is possible to jump backwards and forwards in the Undo history.

The Undo history is reset when loading a new show file, or restarting the console.

The toolbar supports Undo, Redo and Undo History in the Edit Menu. Short cuts CTRL Z and CTRL Y are supported for undo and redo respectively.

We strongly recommend saving the show regularly to different named files and backing up to USB stick.

If a major mistake is made, or undo is not enabled then you can restore to a previous version of the show file using the Backup Archives feature.

Include

An action button for including previously programmed show data back into the programmer.

Used to edit Cues. See Editing Cues.

Shift and Include is used to include but with a additional options.

Update

Used as part of the edit process to update a Cue that has been included into the programmer. See Editing Cues.

Copy

An action button for copying show data.

Used to copy Cue Stacks between Playbacks, and to copy other items.

Shift and Copy is used to perform linked/unlinked copies - the default depends upon the option Setup, View Settings, Copy Unlinked.

Move

An action button for moving show data.

Used to move Cue Stacks between Playbacks, and to move other items.

Enc

On the Stadium Connect this button is used to change the bank of encoders. The Stadium Connect has 4 encoders whereas all other MagicQ consoles have 8 encoders.

Go

Used to activate a playback. Also used to start the next step in a Cue Stack when the step has been programmed to halt, or after the user has pressed the Pause button.

See Playback Buttons.

Pause

Used to pause the execution of a Cue Stack.

See Playback Buttons.

S

Used to make the playback the current playback. This enables the Cue Stack on the Playback to be viewed in the Cue Stack Window and the current Cue in that Cue Stack to be viewed in the Cue Window.

Pressing and holding a S button causes the Cue Stack Window / Cue Window to be temporarily made active until the button is released. The Cue Stack / Cue Window shows data for the playback associated with the S button.

This enables easy modifications of Cue and Cue Stack parameters such as FX size and chase speed.

Also used when programming for determining which playback to record a Cue onto.

Pressing S two times quickly opens the Cue Stack window associated with the Playback.

Pressing S three times quickly opens the Cue Stack, Options window associated with the Playback.

Flash

Used to temporarily activate playbacks by adding or swapping in the Cue Stack from the playback to the outputs.

Grand Flash

A spare button that can be used for keyboard macros.

Sub Flash

A spare button that can be used for keyboard macros.

Next Page

Used to select the page of playbacks. See the page select overview for how pages work.

Prev Page

Used to select the page of playbacks. See the page select overview for how pages work.

Manual Go

This Go button is part of the manual control section and controls the current playback. It has the same functionality as the Go button associated with a playback. It provides Go functionality for playbacks that do not have Go buttons.

Manual Pause

This Pause button is part of the manual control section and controls the current playback. It has the same functionality as the Pause button associated with a playback. It provides Pause functionality for playbacks that do not have Pause buttons.

Big Go

This Go button is part of the manual control section and controls the current playback. It has the same functionality as the Go button associated with a playback.

It is designed to be use for theatre style operation where one big GO button is important for cueing a show.

Fast Forward

The Fast Forward button is part of the manual control section and controls the current playback. It is used to bump a Cue Stack to the next step immediately without fading. It is particularly useful when editing a Cue Stack to bump through Cues to find the one to edit.

Fast Back

The Fast Back button is part of the manual control section and controls the current playback. It is used to bump a Cue Stack to the previous step immediately without fading. It is particularly useful when editing a Cue Stack to bump through Cues to find the one to edit.

Goto

The GOTO button is used to goto a Cue within the currently selected Playback. Press GOTO followed by a Cue ID and ENTER.

Tap

The TAP button is used to tap the time for the currently selected Playback.

Add / Swap

The Add / Swap buttons controls the function of flash buttons. See also the Add / Swap overview.

See Playback Buttons.

DBO

The Console Blackout Button, used for black-outs.

Numeric keys

Used for entering values for parameters. The console allows values to be entered before selecting the item to set on screen thus making configuration of parameters quick and easy,

Can also be used for selecting intensities and selecting groups.

Used for entering gel numbers. Numbers are assumed to be Lee gel numbers unless preceded by a dot in which case they are assumed to be Rosco gel numbers.

Dot

Used for entering fractional numbers such as Cue Ids and times.

Also used for selecting elements from within multi element heads.

Divide

Used in Patching to specify an offset - the number of channels between each head.

Also used as a separator when entering x / y coordinates and times and dates.

Mult

Used to select groups - e.g. 1** selects group 1.

Plus

The Plus key is used to select ranges of dimmers when selecting dimmers.

Minus

The Minus key is used to select ranges of dimmers when selecting dimmers.

Enter

The enter key is used for selecting items and to finish off an action – such as recording a window item, or editing a parameter value.

Thru

The Thru key is used to select ranges of dimmers when selecting dimmers.

@

The @ key is used to specify levels for dimmers.

Also used as a shortcut to select heads - e.g. 1@@ selects head 1.

Full

The full key is used to indicate 100% when setting levels for dimmers.

Time

This button is used to specify times for dimmers.

This button is available on the MQ500. On Compact consoles press ALT + THRU.

Page Left

This key scrolls the active Window to the left. See Cursor Control.

Page Right

This key scrolls the active Window to the right. See Cursor Control.

Cursor Keys

Used to move the cursor around the active Window. See Cursor Control.

Top Soft

The function of these buttons is soft – i.e. it changes according to the active Window and the current view in that window. The top soft buttons are generally used for menu items.

Side Soft

The function of these buttons is soft – i.e. it changes according to the active Window and the current view in that window.

The side soft buttons are closely associated with the encoders adjacent to them. For example, in the Beam Window on of the encoder controls the gobo attribute of intelligent heads. Pressing the soft button bumps the gobo wheel onto the next gobo. Pressing SHIFT and the soft button bumps the gobo wheel back to the previous gobo.

Troubleshooting

No Outputs

Check whether MagicQ is operating correctly by opening the Outputs Window and looking at the data in View Heads. If the intensity or other attributes are not at their correct levels then check:

- Are the Grand Master and Playback Master faders up?
- Are Playback faders raised?
- Is there channel data recorded in the Cues on the playbacks?
- Is BLIND mode on?
- Heads and dimmers are patched to the correct universe?

If the Outputs Window shows correct values then check the Outputs are configured and enabled correctly in the View DMX I/O view of the Setup Window. If you are using an Ethernet convertor box check that it is receiving data correctly. Check:

- Outputs are configured correctly
- Outputs are enabled
- Is test mode active in DMX/IO?
- If using network outputs check the IP address and subnet address are configured correctly

Try putting a test pattern on the entire DMX output - in DMX I/O set the test field to Ramp. The Outputs, View Chans, View DMX shows exactly what is being output on each universe.

MagicQ Not Responding

Is the time changing in the Status Display? If so then MagicQ is running o.k. Check

- Master faders up
- Correct playback pages selected
- Playback has a Cue stored on it
- MagicQ is not locked (CTRL top left soft button)
- Is button test mode on (Press CNTRL+ALT+SHIFT)

If the time is not changing then you will have to perform a hard reset on the console.

MagicQ Responding Slowly

Check memory usage in Setup, View Status, System.

Try

- Closing all windows (SHIFT + CLOSE)
- Ensure you have saved your show to hard disk not to a USB stick
- Remove any USB devices especially USB Sticks
- Disable network connections to media servers

Strange Key Presses, Unexpected Window Changes

Enter board test mode to determine the cause of the fault press CTRL + ALT + SHIFT keys to enter and exit this mode. On older MQ100 Series console press the SHIFT buttons either side of the display together.

- Check a button has not become stuck down
- Check nothing / no-one is leaning on the keyboard or other buttons
- Check a keyboard macro has not been accidentally recorded / played back

MagicQ Console Not Booting

There are quite a few different reasons for the console not to boot - it could be a problem with the system operating system software or a hardware problem.

MQ80 Console Blank Screen and Not Booting

When the BIOS settings are lost on the MQ80 console the internal display will not function, this can also cause MagicQ to not start correctly. An indication that this has happened would be when the console is powered on the blue soft button LEDs either side of the display illuminate, but the console display remains blank. To reset BIOS settings on the MQ80 console an external monitor and a USB keyboard connected to the lower Neutrik USB port are required.

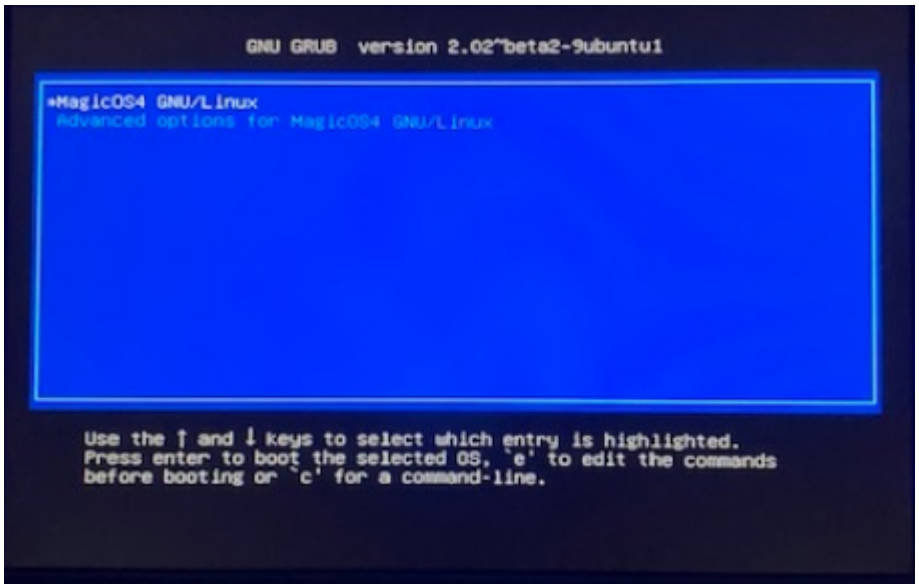
Once connected:

- Start up the console and Enter the BIOS using the ‘Delete’ key on the external keyboard.
- Go to Advanced, Chipset Configuration
- Select the primary output to be the LVDS output
- Select the "1440x900 24bit 2ch LED" option for the resolution (should be one above the 1280x900 option near the middle.
- Select the secondary output to be HDMI
- Press F10 to save and reboot the console

Note these settings are for the MQ80 console only and should not be used on ANY other MagicQ console. A BIOS update is available to default the correct settings if BIOS setting are lost in future - contact ChamSys support to obtain this.

MQ80 Console MagicQ Not Starting

If the console is not correctly shutdown or for some reason MagicQ is not closed correctly (for example by using the reset button on the console), the console may boot into the GNU GRUB display pictured below. To boot MagicQ when in this state a USB keyboard is required, connect a USB keyboard to the console and select the top option 'MagicOS4 GNU/Linux' using the cursor keys on the keyboard and press 'Enter' to select to boot this option. The console should then boot MagicQ and start correctly. When the console has booted into the GNU GRUB display do NOT attempt to reset the console by power cycling or resetting the console as this will cause damage to the consoles Solid State Drive.



MQ50 / MQ70 / MQ250M Console MagicQ Not Starting

MagicQ MQ50, MQ70 and MQ250M consoles feature a Recovery Mode allowing for the operating system to be re-installed. The Recovery button is located on the rear of the consoles. Recovery should only be used if the console is powering on, but MagicQ is not starting. Note the use of Recovery mode may erase user show files during the process.

To use Recovery:

- Power off the console
- Hold down the recovery button on the rear of the console
- Power on the console while continuing to hold the Recovery button
- After ~20 seconds release the recovery button, console will boot into Recovery Mode
- Select System Format in the Recovery menu
- Select Restore Boot partition
- After this completes, select back and shutdown the console, then Power back on the console.

If console doesn't boot into MagicQ after following the above these steps can be followed:

- Download the latest MQ50/MQ70/MQ250M software installer from the ChamSys website

(.cdz file) and copy onto a USB drive.

- Power off the console
- Hold down the recovery button on the rear of the console
- Power on the console while continuing to hold the Recovery button
- After ~20 seconds release the recovery button, console will boot into Recovery Mode
- Select System Format in the Recovery menu
- Select Format Internal Flash and Confirm, once complete select Back and shutdown the console *Note Show files are stored on Internal Flash on MQ50 Consoles, this process will erase show files/data on these consoles
- Power on the console normally
- Console will boot automatically the MagicQ factory menu
- Select Update from USB stick and select the .cdz file on USB drive.
- Once complete console should then boot into MagicQ.

MQ40/60 Console Not Starting

MQ40/60 series consoles feature an OS recovery mode. When powering on the console the 's' buttons should light in sequence and then start flashing until MagicQ has started. If MagicQ does not start this may indicate a problem with the OS.

Recovery should only be used if the console is powering on, but MagicQ is not starting.

To recover the OS on these consoles:

- Power off the console
- Hold down || keys of playbacks 1 and 3, and > key of playback 2
- While holding down these 3 keys, power on the console
- Continue to hold these keys for around 30 seconds
- MagicQ should then recover and reload an older version of the MagicQ OS

If the console continue to not boot after this contact ChamSys Support

MagicQ Console Blank Screen

If the screen is blank then this may be because of the screen saver. Try pressing SHIFT.

If the screen remains blank even after pressing buttons then try holding CTRL and pressing the X Encoder wheel soft button (Illuminated button closest to the X encoder wheel) twice. This attempts to restart the screen backlight.

The screen may have been turned off and locked by a user. Press CTRL and the second soft button down on the left (soft button B). If this does not help then press CTRL and the second soft button a second time.

If the screen still remains blank then try connecting an external monitor.

Avoid using the white reset button to shut down the console - hold down the three cursor keys (< V >) and press DBO to shut down the console.

MagicQ Console White Screen

MagicQ console white screen indicates that the display has power but no data signal. This could be because the main processor has halted or because the display signal cable is broken/disconnected.

Try pressing S buttons. If the blue LED follows the S button then the main processor is running correctly - check display cable. Get a qualified service technician to open the console to verify this.

If the S buttons are not responding then it is likely there is a bad connection in the rear panel. Get a qualified service technician to remove the rear panel and reseat the power and disc cables and ensure processor daughter card (transition card) is firmly pressed onto the processor card.

Avoid using the white reset button to shut down the console - use the three cursor keys (< V >) and press DBO to shut down the console.

MagicQ Console Distorted Screen

If the screen image is distorted, has multiple lines through it or has incorrect colours then this indicates that the graphics hardware has not started correctly.

Hold the three cursor keys (< V >) and press DBO to shut down the console.

MagicQ Console Internal Touch Screen Not Working

- Try to calibrate the touch screen (CTRL + SET)
- Check it is giving correct values in board test mode (SHIFT + SHIFT)
- Check there is no dirt around the edges of the screen
- Check that liquid has not been spilt into the touch screen
- Check the metalwork is not catching on the screen

All 10 S Buttons Flashing Blue

If all 10 S buttons are flashing blue this indicates that the console front panel is not communicating with the console main processor.

This could be caused by a problem with the console main processor or the cable/connection between the console main processor and the console front panel. If the main processor is running and showing MagicQ on the screen then the problem is with the cable/connection.

It is possible to check whether the main processor is running:

- Is there any output on the main screen? Do you see the boot procedure?
- Connect an external monitor. Do you see anything on the external monitor during boot?
- Connect a keyboard. If you press CAPS LOCK does the LED on the CAPS LOCK key come on?
- Is the console fan running?

Note that on a MQ100/200/300 the touch screen is controlled through the front panel so the touch will not work in this situation. Connect an external mouse to click items on the screen.

To shut down the console use a mouse, or if there is no output on the screen using the reset button.

As the front panel is not communicating with the main processor it will not be able to shut down using buttons on the front panel.

Fader, Encoder or Buttons Not Working Correctly

- Go into board test mode (CNTRL+ALT+SHIFT or SHIFT + SHIFT) to test the hardware.

If none of the buttons and faders are working then check that the front panel is running ok. If there are no LEDs lit on the front panel then it is possible that the front panel is not running correctly.

On MQ500, MQ100 series console and Playback and Execute Wings there are 4 LEDs underneath the arm-rest. The red LED indicates power whilst the green LED should flash to indicate that the front panel CPU is running. The two yellow LEDS show messages from/to the front panel. One of them should turn on when you move faders, the other should flash periodically when it receives messages from the console main processor.

To fix:

Go to Setup, file manager and press the 'up dir' soft button a number of times. This will then take you into the root folder (folders will appear on screen). Find the folder called 'home' go into it Create a folder called 'magicq'. Using the Create Dir soft button. Restart the console.

"MagicQ needs to write to the install folder..." message on Mac

If you get a message on Mac about incorrect permissions, please try the following steps:

1. Open the "Applications" folder in finder
2. Right click on the "MagicQ" folder and select "Get Info"
3. Click on the padlock in the bottom right corner and enter your password
4. If your username isn’t in the list of permissions, add it with the + button
5. Set the permissions of your username to "Read & Write"
6. Click on the settings icon underneath the permissions list, select "Apply to enclosed

items...", and accept the warning message

7. Restart the Mac

If you still see this error message, perform a clean install of MagicQ:

1. Open the "Applications" folder
2. Delete the "MagicQ" folder
3. Open Finder, choose "Go" > "Go to folder" from the toolbar
4. Type in "~/Library/Application Support/"
5. If a "MagicQ" folder exists, delete it
6. Restart the Mac
7. Download the latest version from https://secure.chamsys.co.uk/download
8. Open the .dmg file. Hold down shift, right click on the MagicQ package, select "Open" and click "Open".
9. Follow the installer steps

Linux: MagicQ Fails to Start / LibGL Error

If MagicQ is failing to start on Linux, try running it from the command line (with /opt/magicq/runmagicq.sh). If errors appear similar to the following:

```
libGL error: MESA-LOADER: failed to open swrast (search paths /usr/lib/x86_64-
linux-gnu/dri:\$${ORIGIN}/dri:/usr/lib/dri)
libGL error: failed to load driver: swrast
```

Then this is likely caused by your graphics drivers being built for a newer version of libc than MagicQ is distributed with. Try renaming /opt/magicq/lib/libstdc.so.6 to libstdc.so.6~ (this may require root) and running again; this will allow MagicQ to use the system version of libstdc.so.6. If this fails, rename the file back again and contact support.

MagicQ Status Box Errors

Network Errors

Table 46. Network Errors

Net Dis	The primary network port is not enabled, but networking is required.
Inv Net	The console's IP address/subnet is invalid for the configured network.
Inv Net Clash	The IP address is invalid and clashes with another device on the network.

Protocol/Output Conflicts

Table 47. Protocol/Output Conflicts

Art Cflct	Art-Net conflict: Another device outputting the same Art-Net Universe.
sACN Cflct	sACN universe/output conflict.
Path Cflct	Pathport universe/output conflict.
Show Cflct	ShowNet universe/output conflict.
IO Cflct	Generic network I/O conflict.
Out Cflct	Two enabled universes are outputting to the same Art-Net universe number from the same network port/zone.

Mode/Safety Flags

Table 48. Mode/Safety Flags

Blind	Blind mode is on (programmer is not output from the console).
Inhibit	Hot Takeover is in inhibit mode.
DMXTest	DMX test mode is active in DMX I/O.
Master=0	The grand master or sub-master level is at zero.
DBO	Dead Blackout button is active.
NO FX	"No FX" mode active on a playback.
EMERGENCY	Emergency Hot Takeover has been triggered.

RDM Operation in Progress

Table 49. RDM Operation in Progress

RDM Readdr	Console is in RDM "readdress fixtures" mode.
RDM Repatch	Console is in RDM "repatch show" mode.
RDM-D	RDM discovery running.
RDM-DI	RDM "get device info" in progress.
RDM-ChkP	RDM "check patch" in progress.
RDM-ChkS	RDM "check device status" in progress.

Backup/Save State

Table 50. Backup/Save State

AutoS	An automatic show file backup is currently being written.
A	The show has unsaved changes older than the auto-backup interval (a backup is due but hasn't started).

Manual Playback/Macro State

Table 51. Manual Playback/Macro State

REC LIVE	A live macro is currently being recorded.
LIVE MACRO	A live macro is active (not recording).
Pickup-^ / Pickup-v	A playback fader is in "pickup" mode, waiting for the physical fader to move up/down to match the programmed level before taking control.
Manual	The playback is under direct manual fader control.

Multi-Console/Networked Show Sync

These appear when running in networked/multi-console mode.

Table 52. Multi-Console/Networked Show Sync

Master, Slave, Slave-Only, MS-Dis	This console's role in the net Session
NoCon	Not connected to the sync partner console
Con	Connected but not yet synced.
Sync / Sync+Prog	Synced (and programmer-synced).
MCC / SCC	Master/Slave Channel Control active.
CC-One, CC-Sel, CC-Prog, CC-Act, CC-Last, CC-All, CC-G<n>, CC-GX, CC-Zone, CC-Unis, CC-Uni, CC-User, CC-None	The current multi-console programming type.
Arcv	Show archive/copy sync in progress.
ShwSync	Show run-sync in progress.
UserBlk	Current user has exclusive/include-group + start + block-output options all set (their output is blocked).
NO SYNC	Console is set to sync/network but is not currently synced or not connected to the master console.

Record Masking

Table 53. Record Masking

I/P/C/B + mask (e.g. IPCB mask)	Record mask active, letters show which attribute groups (Intensity/Position/Colour/Beam) are masked.
Attr mask	Record mask active but not in the IPCB-style masking mode.

Other

Table 54. Other

Shift / Ctrl	The Shift or Ctrl key is currently held down.
Fan-S, Fan-E, Fan-A (+ -GrpG/-GrpS/-GrpC/ -GrpP, -C<n>, -P<n>-S<n>, etc.)	Fan mode and grouping/segmenting currently applied to a selection.
P/T	Mouse pan/tilt control mode enabled.
Inc FX <n>, Inc <playback> step id <n>, Inc CS<n> step id <n>, Inc Q<n>, Inc Int/Pos/Beam/Col<n>, Inc G<n>, Temp GC	Indicates an "include" source is active (which cue/FX/palette/group is being included into the programmer).
POWERFAIL - auto shutdown <n>s	Mains power loss detected; console will auto-shutdown in <n> seconds unless power returns.
Bk<n>	Current fader bank number (MQ_M hardware only).

Licensing

MagicQ consoles use the Debian and Ubuntu Operating Systems. Details and links to sources can be found at https://www.debian.org/ and https://www.ubuntu.com/. The following are distributed alongside the MagicQ application.

Art-Net™ Designed by and Copyright Artistic Licence Holdings Ltd".

NDI® is a registered trademark of Vizrt NDI AB. https://ndi.video/

Demos show files may contain audio and other media. Users are not permitted to extract audio or media files, or to use them for any other purpose except training.

Qt

https://qt.io/

```
The Qt Company Qt LGPL Exception version 1.1

As an additional permission to the GNU Lesser General Public License version
2.1, the object code form of a "work that uses the Library" may incorporate
material from a header file that is part of the Library.  You may distribute
such object code under terms of your choice, provided that:
    (i)   the header files of the Library have not been modified; and
    (ii)  the incorporated material is limited to numerical parameters, data
          structure layouts, accessors, macros, inline functions and
          templates; and
    (iii) you comply with the terms of Section 6 of the GNU Lesser General
          Public License version 2.1.

Moreover, you may apply this exception to a modified version of the Library,
provided that such modification does not involve copying material from the
Library into the modified Library's header files unless such material is
limited to (i) numerical parameters; (ii) data structure layouts;
(iii) accessors; and (iv) small macros, templates and inline functions of
five lines or less in length.

Furthermore, you are not required to apply this additional permission to a
modified version of the Library.

            GNU LESSER GENERAL PUBLIC LICENSE

 The Qt Toolkit is Copyright (C) 2016 The Qt Company Ltd.
 Contact: http://www.qt.io/licensing/

 You may use, distribute and copy the Qt Toolkit under the terms of
 GNU Lesser General Public License version 2.1, which is displayed below.

-----------------------------------------------------------------------
```

```
            GNU LESSER GENERAL PUBLIC LICENSE
                Version 2.1, February 1999

 Copyright (C) 1991, 1999 Free Software Foundation, Inc.
 51 Franklin Street, Fifth Floor, Boston, MA  02110-1301  USA
 Everyone is permitted to copy and distribute verbatim copies
 of this license document, but changing it is not allowed.

This is the first released version of the Lesser GPL.  It also counts
 as the successor of the GNU Library Public License, version 2, hence
 the version number 2.1.

 Preamble

  The licenses for most software are designed to take away your
freedom to share and change it.  By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

  This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it.  You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

  When we speak of free software, we are referring to freedom of use,
not price.  Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

  To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights.  These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

  For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you.  You must make sure that they, too, receive or can get the source
code.  If you link other code with the library, you must provide
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it.  And you must show them these terms so they know their rights.

  We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.
```

```
  To protect each distributor, we want to make it very clear that
there is no warranty for the free library.  Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

  Finally, software patents pose a constant threat to the existence of
any free program.  We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder.  Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

  Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License.  This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License.  We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

  When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library.  The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom.  The Lesser General
Public License permits more lax criteria for linking other code with
the library.

  We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License.  It also provides other free software developers Less
of an advantage over competing non-free programs.  These disadvantages
are the reason we use the ordinary General Public License for many
libraries.  However, the Lesser license provides advantages in certain
special circumstances.

  For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard.  To achieve this, non-free programs must be
allowed to use the library.  A more frequent case is that a free
library does the same job as widely used non-free libraries.  In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

  In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software.  For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
```

```
system.

  Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

  The precise terms and conditions for copying, distribution and
modification follow.  Pay close attention to the difference between a
"work based on the library" and a "work that uses the library".  The
former contains code derived from the library, whereas the latter must
be combined with the library in order to run.

        GNU LESSER GENERAL PUBLIC LICENSE
    TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

  0. This License Agreement applies to any software library or other
program which contains a notice placed by the copyright holder or
other authorized party saying it may be distributed under the terms of
this Lesser General Public License (also called "this License").
Each licensee is addressed as "you".

  A "library" means a collection of software functions and/or data
prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

  The "Library", below, refers to any such software library or work
which has been distributed under these terms.  A "work based on the
Library" means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated
straightforwardly into another language.  (Hereinafter, translation is
included without limitation in the term "modification".)

  "Source code" for a work means the preferred form of the work for
making modifications to it.  For a library, complete source code means
all the source code for all modules it contains, plus any associated
interface definition files, plus the scripts used to control compilation
and installation of the library.

  Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope.  The act of
running a program using the Library is not restricted, and output from
such a program is covered only if its contents constitute a work based
on the Library (independent of the use of the Library in a tool for
writing it).  Whether that is true depends on what the Library does
and what the program that uses the Library does.

  1. You may copy and distribute verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that
you conspicuously and appropriately publish on each copy an
```

```
appropriate copyright notice and disclaimer of warranty; keep intact
all the notices that refer to this License and to the absence of any
warranty; and distribute a copy of this License along with the
Library.

  You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

  2. You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

    a) The modified work must itself be a software library.

    b) You must cause the files modified to carry prominent notices
    stating that you changed the files and the date of any change.

    c) You must cause the whole of the work to be licensed at no
    charge to all third parties under the terms of this License.

    d) If a facility in the modified Library refers to a function or a
    table of data to be supplied by an application program that uses
    the facility, other than as an argument passed when the facility
    is invoked, then you must make a good faith effort to ensure that,
    in the event an application does not supply such function or
    table, the facility still operates, and performs whatever part of
    its purpose remains meaningful.

    (For example, a function in a library to compute square roots has
    a purpose that is entirely well-defined independent of the
    application.  Therefore, Subsection 2d requires that any
    application-supplied function or table used by this function must
    be optional: if the application does not supply it, the square
    root function must still compute square roots.)

These requirements apply to the modified work as a whole.  If
identifiable sections of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works.  But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
```

```
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

  3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library.  To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License.  (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.)  Do not make any other change in
these notices.

  Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

  This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

  4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

  If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

  5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library".  Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

  However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
contains portions of the Library), rather than a "work that uses the
library".  The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

  When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
```

```
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library.  The
threshold for this to be true is not precisely defined by law.

  If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work.  (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

  Otherwise, if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

  6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

  You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License.  You must supply a copy of this License.  If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License.  Also, you must do one
of these things:

    a) Accompany the work with the complete corresponding
    machine-readable source code for the Library including whatever
    changes were used in the work (which must be distributed under
    Sections 1 and 2 above); and, if the work is an executable linked
    with the Library, with the complete machine-readable "work that
    uses the Library", as object code and/or source code, so that the
    user can modify the Library and then relink to produce a modified
    executable containing the modified Library.  (It is understood
    that the user who changes the contents of definitions files in the
    Library will not necessarily be able to recompile the application
    to use the modified definitions.)

    b) Use a suitable shared library mechanism for linking with the
    Library.  A suitable mechanism is one that (1) uses at run time a
    copy of the library already present on the user's computer system,
    rather than copying library functions into the executable, and (2)
    will operate properly with a modified version of the library, if
    the user installs one, as long as the modified version is
    interface-compatible with the version that the work was made with.
```

```
    c) Accompany the work with a written offer, valid for at
    least three years, to give the same user the materials
    specified in Subsection 6a, above, for a charge no more
    than the cost of performing this distribution.

    d) If distribution of the work is made by offering access to copy
    from a designated place, offer equivalent access to copy the above
    specified materials from the same place.

    e) Verify that the user has already received a copy of these
    materials or that you have already sent this user a copy.

  For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it.  However, as a special exception,
the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

  It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system.  Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

  7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

    a) Accompany the combined library with a copy of the same work
    based on the Library, uncombined with any other library
    facilities.  This must be distributed under the terms of the
    Sections above.

    b) Give prominent notice with the combined library of the fact
    that part of it is a work based on the Library, and explaining
    where to find the accompanying uncombined form of the same work.

  8. You may not copy, modify, sublicense, link with, or distribute
the Library except as expressly provided under this License.  Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License.  However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.
```

```
  9. You are not required to accept this License, since you have not
signed it.  However, nothing else grants you permission to modify or
distribute the Library or its derivative works.  These actions are
prohibited by law if you do not accept this License.  Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

  10. Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions.  You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

  11. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License.  If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all.  For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system which is
implemented by public license practices.  Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

  12. If the distribution and/or use of the Library is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Library under this License may add
```

```
an explicit geographical distribution limitation excluding those countries,
so that distribution is permitted only in or among countries not thus
excluded.  In such case, this License incorporates the limitation as if
written in the body of this License.

  13. The Free Software Foundation may publish revised and/or new
versions of the Lesser General Public License from time to time.
Such new versions will be similar in spirit to the present version,
but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number.  If the Library
specifies a version number of this License which applies to it and
"any later version", you have the option of following the terms and
conditions either of that version or of any later version published by
the Free Software Foundation.  If the Library does not specify a
license version number, you may choose any version ever published by
the Free Software Foundation.

  14. If you wish to incorporate parts of the Library into other free
programs whose distribution conditions are incompatible with these,
write to the author to ask for permission.  For software which is
copyrighted by the Free Software Foundation, write to the Free
Software Foundation; we sometimes make exceptions for this.  Our
decision will be guided by the two goals of preserving the free status
of all derivatives of our free software and of promoting the sharing
and reuse of software generally.

                NO WARRANTY

  15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO
WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW.
EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR
OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY
KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
PURPOSE.  THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE
LIBRARY IS WITH YOU.  SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME
THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

  16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN
WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY
AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU
FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR
CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

                END OF TERMS AND CONDITIONS
```

```
           How to Apply These Terms to Your New Libraries

  If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change.  You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

  To apply these terms, attach the following notices to the library.  It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

    <one line to give the library's name and a brief idea of what it does.>
    Copyright (C) <year>  <name of author>

    This library is free software; you can redistribute it and/or
    modify it under the terms of the GNU Lesser General Public
    License as published by the Free Software Foundation; either
    version 2.1 of the License, or (at your option) any later version.

    This library is distributed in the hope that it will be useful,
    but WITHOUT ANY WARRANTY; without even the implied warranty of
    MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
    Lesser General Public License for more details.

    You should have received a copy of the GNU Lesser General Public
    License along with this library; if not, write to the Free Software
    Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA  02110-1301
USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary.  Here is a sample; alter the names:

  Yoyodyne, Inc., hereby disclaims all copyright interest in the
  library `Frob' (a library for tweaking knobs) written by James Random Hacker.

  <signature of Ty Coon>, 1 April 1990
  Ty Coon, President of Vice

That's all there is to it!
```

LibPNG

http://www.libpng.org/

```
This copy of the libpng notices is provided for your convenience.  In case of
any discrepancy between this copy and the notices in the file png.h that is
included in the libpng distribution, the latter shall prevail.

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE:

If you modify libpng you may insert additional notices immediately following
this sentence.

This code is released under the libpng license.

libpng versions 1.0.7, July 1, 2000 through 1.6.27, December 29, 2016 are
Copyright (c) 2000-2002, 2004, 2006-2016 Glenn Randers-Pehrson, are
derived from libpng-1.0.6, and are distributed according to the same
disclaimer and license as libpng-1.0.6 with the following individuals
added to the list of Contributing Authors:

  Simon-Pierre Cadieux
  Eric S. Raymond
  Mans Rullgard
  Cosmin Truta
  Gilles Vollant
  James Yu

and with the following additions to the disclaimer:

  There is no warranty against interference with your enjoyment of the
  library or against infringement.  There is no warranty that our
  efforts or the library will fulfill any of your particular purposes
  or needs.  This library is provided with all faults, and the entire
  risk of satisfactory quality, performance, accuracy, and effort is with
  the user.

Some files in the "contrib" directory and some configure-generated
files that are distributed with libpng have other copyright owners and
are released under other open source licenses.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are
Copyright (c) 1998-2000 Glenn Randers-Pehrson, are derived from
libpng-0.96, and are distributed according to the same disclaimer and
license as libpng-0.96, with the following individuals added to the list
of Contributing Authors:

  Tom Lane
  Glenn Randers-Pehrson
  Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are
Copyright (c) 1996-1997 Andreas Dilger, are derived from libpng-0.88,
and are distributed according to the same disclaimer and license as
```

```
libpng-0.88, with the following individuals added to the list of
Contributing Authors:

   John Bowler
   Kevin Bracey
   Sam Bushell
   Magnus Holmgren
   Greg Roelofs
   Tom Tanner

Some files in the "scripts" directory have other copyright owners
but are released under this license.

libpng versions 0.5, May 1995, through 0.88, January 1996, are
Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, "Contributing Authors"
is defined as the following set of individuals:

   Andreas Dilger
   Dave Martindale
   Guy Eric Schalnat
   Paul Schmidt
   Tim Wegner

The PNG Reference Library is supplied "AS IS".  The Contributing Authors
and Group 42, Inc. disclaim all warranties, expressed or implied,
including, without limitation, the warranties of merchantability and of
fitness for any purpose.  The Contributing Authors and Group 42, Inc.
assume no liability for direct, indirect, incidental, special, exemplary,
or consequential damages, which may result from the use of the PNG
Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this
source code, or portions hereof, for any purpose, without fee, subject
to the following restrictions:

  1. The origin of this source code must not be misrepresented.

  2. Altered versions must be plainly marked as such and must not
     be misrepresented as being the original source.

  3. This Copyright notice may not be removed or altered from any
     source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without
fee, and encourage the use of this source code as a component to
supporting the PNG file format in commercial products.  If you use this
source code in a product, acknowledgment is not required but would be
appreciated.
```

```
END OF COPYRIGHT NOTICE, DISCLAIMER, and LICENSE.

TRADEMARK:

The name "libpng" has not been registered by the Copyright owner
as a trademark in any jurisdiction.  However, because libpng has
been distributed and maintained world-wide, continually since 1995,
the Copyright owner claims "common-law trademark protection" in any
jurisdiction where common-law trademark is recognized.

OSI CERTIFICATION:

Libpng is OSI Certified Open Source Software.  OSI Certified Open Source is
a certification mark of the Open Source Initiative. OSI has not addressed
the additional disclaimers inserted at version 1.0.7.

EXPORT CONTROL:

The Copyright owner believes that the Export Control Classification
Number (ECCN) for libpng is EAR99, which means not subject to export
controls or International Traffic in Arms Regulations (ITAR) because
it is open source, publicly available software, that does not contain
any encryption software.  See the EAR, paragraphs 734.3(b)(3) and
734.7(b).

Glenn Randers-Pehrson
glennrp at users.sourceforge.net
December 29, 2016
```

LibJPEG

http://www.ijg.org/

```
This software is based in part on the work of the Independent JPEG Group.

The authors make NO WARRANTY or representation, either express or implied,
with respect to this software, its quality, accuracy, merchantability, or
fitness for a particular purpose.  This software is provided "AS IS", and you,
its user, assume the entire risk as to its quality and accuracy.

This software is copyright (C) 1991-2016, Thomas G. Lane, Guido Vollbeding.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this
software (or portions thereof) for any purpose, without fee, subject to these
conditions:
(1) If any part of the source code for this software is distributed, then this
README file must be included, with this copyright and no-warranty notice
unaltered; and any additions, deletions, or changes to the original files
```

```
must be clearly indicated in accompanying documentation.
(2) If only executable code is distributed, then the accompanying
documentation must state that "this software is based in part on the work of
the Independent JPEG Group".
(3) Permission for use of this software is granted only if the user accepts
full responsibility for any undesirable consequences; the authors accept
NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code,
not just to the unmodified library.  If you use our work, you ought to
acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name
in advertising or publicity relating to this software or products derived from
it.  This software may be referred to only as "the Independent JPEG Group's
software".

We specifically permit and encourage the use of this software as the basis of
commercial products, provided that all warranty or liability claims are
assumed by the product vendor.


The Unix configuration script "configure" was produced with GNU Autoconf.
It is copyright by the Free Software Foundation but is freely distributable.
The same holds for its supporting scripts (config.guess, config.sub,
ltmain.sh).  Another support script, install-sh, is copyright by X Consortium
but is also freely distributable.

The IJG distribution formerly included code to read and write GIF files.
To avoid entanglement with the Unisys LZW patent (now expired), GIF reading
support has been removed altogether, and the GIF writer has been simplified
to produce "uncompressed GIFs".  This technique does not use the LZW
algorithm; the resulting GIF files are larger than usual, but are readable
by all standard GIF decoders.

We are required to state that
    "The Graphics Interchange Format(c) is the Copyright property of
    CompuServe Incorporated.  GIF(sm) is a Service Mark property of
    CompuServe Incorporated."
```

LibJPEG-Turbo

https://github.com/libjpeg-turbo/libjpeg-turbo

```
Copyright (C)<YEAR> <AUTHOR>. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification,
are permitted provided that the following conditions are met:
```

```
    Redistributions of source code must retain the above copyright notice, this
    list of conditions and the following disclaimer.

    Redistributions in binary form must reproduce the above copyright notice,
    this list of conditions and the following disclaimer in the documentation
    and/or other materials provided with the distribution.  Neither the name of
    the libjpeg-turbo Project nor the names of its contributors may be used to
    endorse or promote products derived from this software without specific
    prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS", AND
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

LibICU

http://site.icu-project.org/

```
ICU License - ICU 1.8.1 and later

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2016 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, and/or sell copies of the Software, and to permit persons
to whom the Software is furnished to do so, provided that the above
copyright notice(s) and this permission notice appear in all copies of
the Software and that both the above copyright notice(s) and this
permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT
OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR
HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY
SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER
```

```
RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF
CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN
CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale, use
or other dealings in this Software without prior written authorization
of the copyright holder.


All trademarks and registered trademarks mentioned herein are the
property of their respective owners.

--------------------

Third-Party Software Licenses

This section contains third-party software notices and/or additional
terms for licensed third-party software components included within ICU
libraries.

1. Unicode Data Files and Software

COPYRIGHT AND PERMISSION NOTICE

Copyright © 1991-2016 Unicode, Inc. All rights reserved.
Distributed under the Terms of Use in
http://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the Unicode data files and any associated documentation
(the "Data Files") or Unicode software and any associated documentation
(the "Software") to deal in the Data Files or Software
without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, and/or sell copies of
the Data Files or Software, and to permit persons to whom the Data Files
or Software are furnished to do so, provided that
(a) this copyright and permission notice appear with all copies
of the Data Files or Software,
(b) this copyright and permission notice appear in associated
documentation, and
(c) there is clear notice in each modified Data File or in the Software
as well as in the documentation associated with the Data File(s) or
Software that the data or software has been modified.

THE DATA FILES AND SOFTWARE ARE PROVIDED "AS IS", WITHOUT WARRANTY OF
ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND
NONINFRINGEMENT OF THIRD PARTY RIGHTS.
IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS
NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL
```

```
DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,
DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER
TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR
PERFORMANCE OF THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder
shall not be used in advertising or otherwise to promote the sale,
use or other dealings in these Data Files or Software without prior
written authorization of the copyright holder.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

 #     The Google Chrome software developed by Google is licensed under
 # the BSD license. Other software included in this distribution is
 # provided under other licenses, as set forth below.
 #
 #  The BSD License
 #  http://opensource.org/licenses/bsd-license.php
 #  Copyright (C) 2006-2008, Google Inc.
 #
 #  All rights reserved.
 #
 #  Redistribution and use in source and binary forms, with or without
 # modification, are permitted provided that the following conditions are met:
 #
 #  Redistributions of source code must retain the above copyright notice,
 # this list of conditions and the following disclaimer.
 #  Redistributions in binary form must reproduce the above
 # copyright notice, this list of conditions and the following
 # disclaimer in the documentation and/or other materials provided with
 # the distribution.
 #  Neither the name of  Google Inc. nor the names of its
 # contributors may be used to endorse or promote products derived from
 # this software without specific prior written permission.
 #
 #
 #  THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
 # CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
 # INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
 # MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
 # DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
 # LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR
 # CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF
 # SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR
 # BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
 # LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
 # NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
 # SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
 #
 #
 #  The word list in cjdict.txt are generated by combining three word lists
```

```
# listed below with further processing for compound word breaking. The
# frequency is generated with an iterative training against Google web
# corpora.
#
#  * Libtabe (Chinese)
#    - https://sourceforge.net/project/?group_id=1519
#    - Its license terms and conditions are shown below.
#
#  * IPADIC (Japanese)
#    - http://chasen.aist-nara.ac.jp/chasen/distribution.html
#    - Its license terms and conditions are shown below.
#
#  ---------COPYING.libtabe ---- BEGIN--------------------
#
#  /*
#   * Copyrighy (c) 1999 TaBE Project.
#   * Copyright (c) 1999 Pai-Hsiang Hsiao.
#   * All rights reserved.
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the TaBE Project nor the names of its
#   *   contributors may be used to endorse or promote products derived
#   *   from this software without specific prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
#  /*
#   * Copyright (c) 1999 Computer Systems and Communication Lab,
#   *                    Institute of Information Science, Academia
#       *                    Sinica. All rights reserved.
```

```
#   *
#   * Redistribution and use in source and binary forms, with or without
#   * modification, are permitted provided that the following conditions
#   * are met:
#   *
#   * . Redistributions of source code must retain the above copyright
#   *   notice, this list of conditions and the following disclaimer.
#   * . Redistributions in binary form must reproduce the above copyright
#   *   notice, this list of conditions and the following disclaimer in
#   *   the documentation and/or other materials provided with the
#   *   distribution.
#   * . Neither the name of the Computer Systems and Communication Lab
#   *   nor the names of its contributors may be used to endorse or
#   *   promote products derived from this software without specific
#   *   prior written permission.
#   *
#   * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
#   * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
#   * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
#   * FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
#   * REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,
#   * INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
#   * (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
#   * SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
#   * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
#   * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
#   * ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
#   * OF THE POSSIBILITY OF SUCH DAMAGE.
#   */
#
#  Copyright 1996 Chih-Hao Tsai @ Beckman Institute,
#      University of Illinois
#  c-tsai4@uiuc.edu  http://casper.beckman.uiuc.edu/~c-tsai4
#
#  ---------------COPYING.libtabe-----END------------------------------
#
#
#  ---------------COPYING.ipadic-----BEGIN-----------------------------
#
#  Copyright 2000, 2001, 2002, 2003 Nara Institute of Science
#  and Technology.  All Rights Reserved.
#
#  Use, reproduction, and distribution of this software is permitted.
#  Any copy of this software, whether in its original form or modified,
#  must include both the above copyright notice and the following
#  paragraphs.
#
#  Nara Institute of Science and Technology (NAIST),
#  the copyright holders, disclaims all warranties with regard to this
#  software, including all implied warranties of merchantability and
#  fitness, in no event shall NAIST be liable for
```

```
#  any special, indirect or consequential damages or any damages
#  whatsoever resulting from loss of use, data or profits, whether in an
#  action of contract, negligence or other tortuous action, arising out
#  of or in connection with the use or performance of this software.
#
#  A large portion of the dictionary entries
#  originate from ICOT Free Software.  The following conditions for ICOT
#  Free Software applies to the current dictionary as well.
#
#  Each User may also freely distribute the Program, whether in its
#  original form or modified, to any third party or parties, PROVIDED
#  that the provisions of Section 3 ("NO WARRANTY") will ALWAYS appear
#  on, or be attached to, the Program, which is distributed substantially
#  in the same form as set out herein and that such intended
#  distribution, if actually made, will neither violate or otherwise
#  contravene any of the laws and regulations of the countries having
#  jurisdiction over the User or the intended distribution itself.
#
#  NO WARRANTY
#
#  The program was produced on an experimental basis in the course of the
#  research and development conducted during the project and is provided
#  to users as so produced on an experimental basis.  Accordingly, the
#  program is provided without any warranty whatsoever, whether express,
#  implied, statutory or otherwise.  The term "warranty" used herein
#  includes, but is not limited to, any warranty of the quality,
#  performance, merchantability and fitness for a particular purpose of
#  the program and the nonexistence of any infringement or violation of
#  any right of any third party.
#
#  Each user of the program will agree and understand, and be deemed to
#  have agreed and understood, that there is no warranty whatsoever for
#  the program and, accordingly, the entire risk arising from or
#  otherwise connected with the program is assumed by the user.
#
#  Therefore, neither ICOT, the copyright holder, or any other
#  organization that participated in or was otherwise related to the
#  development of the program and their respective officials, directors,
#  officers and other employees shall be held liable for any and all
#  damages, including, without limitation, general, special, incidental
#  and consequential damages, arising out of or otherwise in connection
#  with the use or inability to use the program or any product, material
#  or result produced or otherwise obtained by using the program,
#  regardless of whether they have been advised of, or otherwise had
#  knowledge of, the possibility of such damages at any time during the
#  project or thereafter.  Each user will be deemed to have agreed to the
#  foregoing by his or her commencement of use of the program.  The term
#  "use" as used herein includes, but is not limited to, the use,
#  modification, copying and distribution of the program and the
#  production of secondary products from the program.
#
```

```
 #  In the case where the program, whether in its original form or
 #  modified, was distributed or delivered to or received by a user from
 #  any person, organization or entity other than ICOT, unless it makes or
 #  grants independently of ICOT any specific warranty to the user in
 #  writing, such person, organization or entity, will also be exempted
 #  from and not be held liable to the user for any such damages as noted
 #  above as far as the program is concerned.
 #
 #  ---------------COPYING.ipadic-----END---------------------------------

3. Lao Word Break Dictionary Data (laodict.txt)

 #  Copyright (c) 2013 International Business Machines Corporation
 #  and others. All Rights Reserved.
 #
 # Project: http://code.google.com/p/lao-dictionary/
 # Dictionary: http://lao-dictionary.googlecode.com/git/Lao-Dictionary.txt
 # License: http://lao-dictionary.googlecode.com/git/Lao-Dictionary-LICENSE.txt
 #              (copied below)
 #
 #  This file is derived from the above dictionary, with slight
 #  modifications.
 #  ----------------------------------------------------------------------
 #  Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
 #  All rights reserved.
 #
 #  Redistribution and use in source and binary forms, with or without
 #  modification,
 #  are permitted provided that the following conditions are met:
 #
 #
 # Redistributions of source code must retain the above copyright notice, this
 #  list of conditions and the following disclaimer. Redistributions in
 #  binary form must reproduce the above copyright notice, this list of
 #  conditions and the following disclaimer in the documentation and/or
 #  other materials provided with the distribution.
 #
 #
 # THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 # "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
 # LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS
 # FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE
 # COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
 # INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
 # (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
 # SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 # HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
 # STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
 # ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
 # OF THE POSSIBILITY OF SUCH DAMAGE.
 #  ----------------------------------------------------------------------
```

```
4. Burmese Word Break Dictionary Data (burmesedict.txt)

 #  Copyright (c) 2014 International Business Machines Corporation
 #  and others. All Rights Reserved.
 #
 #  This list is part of a project hosted at:
 #    github.com/kanyawtech/myanmar-karen-word-lists
 #
 #  -------------------------------------------------------------------------
 #  Copyright (c) 2013, LeRoy Benjamin Sharon
 #  All rights reserved.
 #
 #  Redistribution and use in source and binary forms, with or without
 #  modification, are permitted provided that the following conditions
 #  are met: Redistributions of source code must retain the above
 #  copyright notice, this list of conditions and the following
 #  disclaimer.  Redistributions in binary form must reproduce the
 #  above copyright notice, this list of conditions and the following
 #  disclaimer in the documentation and/or other materials provided
 #  with the distribution.
 #
 #    Neither the name Myanmar Karen Word Lists, nor the names of its
 #    contributors may be used to endorse or promote products derived
 #    from this software without specific prior written permission.
 #
 #  THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
 #  CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES,
 #  INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
 #  MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE
 #  DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS
 #  BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
 #  EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED
 #  TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
 #  DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON
 #  ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR
 #  TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF
 #  THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
 #  SUCH DAMAGE.
 #  -------------------------------------------------------------------------

5. Time Zone Database

  ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.

 # 7.  Database Ownership
 #
 #    The TZ database itself is not an IETF Contribution or an IETF
```

```
#    document.  Rather it is a pre-existing and regularly updated work
#    that is in the public domain, and is intended to remain in the
#    public domain.  Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
#    not apply to the TZ Database or contributions that individuals make
#    to it.  Should any claims be made and substantiated against the TZ
#    Database, the organization that is providing the IANA
#    Considerations defined in this RFC, under the memorandum of
#    understanding with the IETF, currently ICANN, may act in accordance
#    with all competent court orders.  No ownership claims will be made
#    by ICANN or the IETF Trust on the database or the code.  Any person
#    making a contribution to the database or code waives all rights to
#    future claims in that contribution or in the TZ Database.
```

FFmpeg Binary

https://ffmpeg.org/

```
                    GNU GENERAL PUBLIC LICENSE
                       Version 2, June 1991

 Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
 Everyone is permitted to copy and distribute verbatim copies
 of this license document, but changing it is not allowed.

                            Preamble

  The licenses for most software are designed to take away your
freedom to share and change it.  By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users.  This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it.  (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.)  You can apply it to
your programs, too.

  When we speak of free software, we are referring to freedom, not
price.  Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

  To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.
```

```
  For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have.  You must make sure that they, too, receive or can get the
source code.  And you must show them these terms so they know their
rights.

  We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute and/or modify the software.

  Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software.  If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

  Finally, any free program is threatened constantly by software
patents.  We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary.  To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

  The precise terms and conditions for copying, distribution and
modification follow.

                    GNU GENERAL PUBLIC LICENSE
   TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

  0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License.  The "Program", below,
refers to any such program or work, and a "work based on the Program"
means either the Program or any derivative work under copyright law:
that is to say, a work containing the Program or a portion of it,
either verbatim or with modifications and/or translated into another
language.  (Hereinafter, translation is included without limitation in
the term "modification".)  Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope.  The act of
running the Program is not restricted, and the output from the Program
is covered only if its contents constitute a work based on the
Program (independent of having been made by running the Program).
Whether that is true depends on what the Program does.

  1. You may copy and distribute verbatim copies of the Program's
source code as you receive it, in any medium, provided that you
conspicuously and appropriately publish on each copy an appropriate
copyright notice and disclaimer of warranty; keep intact all the
notices that refer to this License and to the absence of any warranty;
```

```
and give any other recipients of the Program a copy of this License
along with the Program.

You may charge a fee for the physical act of transferring a copy, and
you may at your option offer warranty protection in exchange for a fee.

  2. You may modify your copy or copies of the Program or any portion
of it, thus forming a work based on the Program, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

    a) You must cause the modified files to carry prominent notices
    stating that you changed the files and the date of any change.

    b) You must cause any work that you distribute or publish, that in
    whole or in part contains or is derived from the Program or any
    part thereof, to be licensed as a whole at no charge to all third
    parties under the terms of this License.

    c) If the modified program normally reads commands interactively
    when run, you must cause it, when started running for such
    interactive use in the most ordinary way, to print or display an
    announcement including an appropriate copyright notice and a
    notice that there is no warranty (or else, saying that you provide
    a warranty) and that users may redistribute the program under
    these conditions, and telling the user how to view a copy of this
    License.  (Exception: if the Program itself is interactive but
    does not normally print such an announcement, your work based on
    the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole.  If
identifiable sections of that work are not derived from the Program,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works.  But when you
distribute the same sections as part of a whole which is a work based
on the Program, the distribution of the whole must be on the terms of
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Program.

In addition, mere aggregation of another work not based on the Program
with the Program (or with a work based on the Program) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

  3. You may copy and distribute the Program (or a work based on it,
```

```
under Section 2) in object code or executable form under the terms of
Sections 1 and 2 above provided that you also do one of the following:

    a) Accompany it with the complete corresponding machine-readable
    source code, which must be distributed under the terms of Sections
    1 and 2 above on a medium customarily used for software interchange; or,

    b) Accompany it with a written offer, valid for at least three
    years, to give any third party, for a charge no more than your
    cost of physically performing source distribution, a complete
    machine-readable copy of the corresponding source code, to be
    distributed under the terms of Sections 1 and 2 above on a medium
    customarily used for software interchange; or,

    c) Accompany it with the information you received as to the offer
    to distribute corresponding source code.  (This alternative is
    allowed only for noncommercial distribution and only if you
    received the program in object code or executable form with such
    an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for
making modifications to it.  For an executable work, complete source
code means all the source code for all modules it contains, plus any
associated interface definition files, plus the scripts used to
control compilation and installation of the executable.  However, as a
special exception, the source code distributed need not include
anything that is normally distributed (in either source or binary
form) with the major components (compiler, kernel, and so on) of the
operating system on which the executable runs, unless that component
itself accompanies the executable.

If distribution of executable or object code is made by offering
access to copy from a designated place, then offering equivalent
access to copy the source code from the same place counts as
distribution of the source code, even though third parties are not
compelled to copy the source along with the object code.

  4. You may not copy, modify, sublicense, or distribute the Program
except as expressly provided under this License.  Any attempt
otherwise to copy, modify, sublicense or distribute the Program is
void, and will automatically terminate your rights under this License.
However, parties who have received copies, or rights, from you under
this License will not have their licenses terminated so long as such
parties remain in full compliance.

  5. You are not required to accept this License, since you have not
signed it.  However, nothing else grants you permission to modify or
distribute the Program or its derivative works.  These actions are
prohibited by law if you do not accept this License.  Therefore, by
modifying or distributing the Program (or any work based on the
Program), you indicate your acceptance of this License to do so, and
```

```
all its terms and conditions for copying, distributing or modifying
the Program or works based on it.

  6. Each time you redistribute the Program (or any work based on the
Program), the recipient automatically receives a license from the
original licensor to copy, distribute or modify the Program subject to
these terms and conditions.  You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties to
this License.

  7. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License.  If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Program at all.  For example, if a patent
license would not permit royalty-free redistribution of the Program by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under
any particular circumstance, the balance of the section is intended to
apply and the section as a whole is intended to apply in other
circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system, which is
implemented by public license practices.  Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.

This section is intended to make thoroughly clear what is believed to
be a consequence of the rest of this License.

  8. If the distribution and/or use of the Program is restricted in
certain countries either by patents or by copyrighted interfaces, the
original copyright holder who places the Program under this License
may add an explicit geographical distribution limitation excluding
those countries, so that distribution is permitted only in or among
countries not thus excluded.  In such case, this License incorporates
the limitation as if written in the body of this License.
```

```
  9. The Free Software Foundation may publish revised and/or new versions
of the General Public License from time to time.  Such new versions will
be similar in spirit to the present version, but may differ in detail to
address new problems or concerns.

Each version is given a distinguishing version number.  If the Program
specifies a version number of this License which applies to it and "any
later version", you have the option of following the terms and conditions
either of that version or of any later version published by the Free
Software Foundation.  If the Program does not specify a version number of
this License, you may choose any version ever published by the Free Software
Foundation.

  10. If you wish to incorporate parts of the Program into other free
programs whose distribution conditions are different, write to the author
to ask for permission.  For software which is copyrighted by the Free
Software Foundation, write to the Free Software Foundation; we sometimes
make exceptions for this.  Our decision will be guided by the two goals
of preserving the free status of all derivatives of our free software and
of promoting the sharing and reuse of software generally.

                            NO WARRANTY

  11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY
FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW.  EXCEPT WHEN
OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES
PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED
OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.  THE ENTIRE RISK AS
TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU.  SHOULD THE
PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING,
REPAIR OR CORRECTION.

  12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING
WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR
REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING
OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED
TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY
YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER
PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE
POSSIBILITY OF SUCH DAMAGES.

                     END OF TERMS AND CONDITIONS

            How to Apply These Terms to Your New Programs

  If you develop a new program, and you want it to be of the greatest
possible use to the public, the best way to achieve this is to make it
free software which everyone can redistribute and change under these terms.
```

```
  To do so, attach the following notices to the program.  It is safest
to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least
the "copyright" line and a pointer to where the full notice is found.

    <one line to give the program's name and a brief idea of what it does.>
    Copyright (C) <year>  <name of author>

    This program is free software; you can redistribute it and/or modify
    it under the terms of the GNU General Public License as published by
    the Free Software Foundation; either version 2 of the License, or
    (at your option) any later version.

    This program is distributed in the hope that it will be useful,
    but WITHOUT ANY WARRANTY; without even the implied warranty of
    MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
    GNU General Public License for more details.

    You should have received a copy of the GNU General Public License along
    with this program; if not, write to the Free Software Foundation, Inc.,
    51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this
when it starts in an interactive mode:

    Gnomovision version 69, Copyright (C) year name of author
    Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
    This is free software, and you are welcome to redistribute it
    under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate
parts of the General Public License.  Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the program, if
necessary.  Here is a sample; alter the names:

  Yoyodyne, Inc., hereby disclaims all copyright interest in the program
  `Gnomovision' (which makes passes at compilers) written by James Hacker.

  <signature of Ty Coon>, 1 April 1989
  Ty Coon, President of Vice

This General Public License does not permit incorporating your program into
proprietary programs.  If your program is a subroutine library, you may
consider it more useful to permit linking proprietary applications with the
library.  If this is what you want to do, use the GNU Lesser General
```

```
Public License instead of this License.
```

FFmpeg Library

https://ffmpeg.org/

```
                  GNU LESSER GENERAL PUBLIC LICENSE
                       Version 2.1, February 1999

 Copyright (C) 1991, 1999 Free Software Foundation, Inc.
 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
 Everyone is permitted to copy and distribute verbatim copies
 of this license document, but changing it is not allowed.

This is the first released version of the Lesser GPL.  It also counts
 as the successor of the GNU Library Public License, version 2, hence
 the version number 2.1.

                            Preamble

  The licenses for most software are designed to take away your
freedom to share and change it.  By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change
free software--to make sure the software is free for all its users.

  This license, the Lesser General Public License, applies to some
specially designated software packages--typically libraries--of the
Free Software Foundation and other authors who decide to use it.  You
can use it too, but we suggest you first think carefully about whether
this license or the ordinary General Public License is the better
strategy to use in any particular case, based on the explanations below.

  When we speak of free software, we are referring to freedom of use,
not price.  Our General Public Licenses are designed to make sure that
you have the freedom to distribute copies of free software (and charge
for this service if you wish); that you receive source code or can get
it if you want it; that you can change the software and use pieces of
it in new free programs; and that you are informed that you can do
these things.

  To protect your rights, we need to make restrictions that forbid
distributors to deny you these rights or to ask you to surrender these
rights.  These restrictions translate to certain responsibilities for
you if you distribute copies of the library or if you modify it.

  For example, if you distribute copies of the library, whether gratis
or for a fee, you must give the recipients all the rights that we gave
you.  You must make sure that they, too, receive or can get the source
code.  If you link other code with the library, you must provide
```

```
complete object files to the recipients, so that they can relink them
with the library after making changes to the library and recompiling
it.  And you must show them these terms so they know their rights.

  We protect your rights with a two-step method: (1) we copyright the
library, and (2) we offer you this license, which gives you legal
permission to copy, distribute and/or modify the library.

  To protect each distributor, we want to make it very clear that
there is no warranty for the free library.  Also, if the library is
modified by someone else and passed on, the recipients should know
that what they have is not the original version, so that the original
author's reputation will not be affected by problems that might be
introduced by others.

  Finally, software patents pose a constant threat to the existence of
any free program.  We wish to make sure that a company cannot
effectively restrict the users of a free program by obtaining a
restrictive license from a patent holder.  Therefore, we insist that
any patent license obtained for a version of the library must be
consistent with the full freedom of use specified in this license.

  Most GNU software, including some libraries, is covered by the
ordinary GNU General Public License.  This license, the GNU Lesser
General Public License, applies to certain designated libraries, and
is quite different from the ordinary General Public License.  We use
this license for certain libraries in order to permit linking those
libraries into non-free programs.

  When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library.  The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom.  The Lesser General
Public License permits more lax criteria for linking other code with
the library.

  We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License.  It also provides other free software developers Less
of an advantage over competing non-free programs.  These disadvantages
are the reason we use the ordinary General Public License for many
libraries.  However, the Lesser license provides advantages in certain
special circumstances.

  For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard.  To achieve this, non-free programs must be
allowed to use the library.  A more frequent case is that a free
library does the same job as widely used non-free libraries.  In this
case, there is little to gain by limiting the free library to free
```

```
software only, so we use the Lesser General Public License.

  In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software.  For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

  Although the Lesser General Public License is Less protective of the
users' freedom, it does ensure that the user of a program that is
linked with the Library has the freedom and the wherewithal to run
that program using a modified version of the Library.

  The precise terms and conditions for copying, distribution and
modification follow.  Pay close attention to the difference between a
"work based on the library" and a "work that uses the library".  The
former contains code derived from the library, whereas the latter must
be combined with the library in order to run.

                  GNU LESSER GENERAL PUBLIC LICENSE
   TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

  0. This License Agreement applies to any software library or other
program which contains a notice placed by the copyright holder or
other authorized party saying it may be distributed under the terms of
this Lesser General Public License (also called "this License").
Each licensee is addressed as "you".

  A "library" means a collection of software functions and/or data
prepared so as to be conveniently linked with application programs
(which use some of those functions and data) to form executables.

  The "Library", below, refers to any such software library or work
which has been distributed under these terms.  A "work based on the
Library" means either the Library or any derivative work under
copyright law: that is to say, a work containing the Library or a
portion of it, either verbatim or with modifications and/or translated
straightforwardly into another language.  (Hereinafter, translation is
included without limitation in the term "modification".)

  "Source code" for a work means the preferred form of the work for
making modifications to it.  For a library, complete source code means
all the source code for all modules it contains, plus any associated
interface definition files, plus the scripts used to control compilation
and installation of the library.

  Activities other than copying, distribution and modification are not
covered by this License; they are outside its scope.  The act of
running a program using the Library is not restricted, and output from
such a program is covered only if its contents constitute a work based
```

```
on the Library (independent of the use of the Library in a tool for
writing it).  Whether that is true depends on what the Library does
and what the program that uses the Library does.

  1. You may copy and distribute verbatim copies of the Library's
complete source code as you receive it, in any medium, provided that
you conspicuously and appropriately publish on each copy an
appropriate copyright notice and disclaimer of warranty; keep intact
all the notices that refer to this License and to the absence of any
warranty; and distribute a copy of this License along with the
Library.

  You may charge a fee for the physical act of transferring a copy,
and you may at your option offer warranty protection in exchange for a
fee.

  2. You may modify your copy or copies of the Library or any portion
of it, thus forming a work based on the Library, and copy and
distribute such modifications or work under the terms of Section 1
above, provided that you also meet all of these conditions:

    a) The modified work must itself be a software library.

    b) You must cause the files modified to carry prominent notices
    stating that you changed the files and the date of any change.

    c) You must cause the whole of the work to be licensed at no
    charge to all third parties under the terms of this License.

    d) If a facility in the modified Library refers to a function or a
    table of data to be supplied by an application program that uses
    the facility, other than as an argument passed when the facility
    is invoked, then you must make a good faith effort to ensure that,
    in the event an application does not supply such function or
    table, the facility still operates, and performs whatever part of
    its purpose remains meaningful.

    (For example, a function in a library to compute square roots has
    a purpose that is entirely well-defined independent of the
    application.  Therefore, Subsection 2d requires that any
    application-supplied function or table used by this function must
    be optional: if the application does not supply it, the square
    root function must still compute square roots.)

These requirements apply to the modified work as a whole.  If
identifiable sections of that work are not derived from the Library,
and can be reasonably considered independent and separate works in
themselves, then this License, and its terms, do not apply to those
sections when you distribute them as separate works.  But when you
distribute the same sections as part of a whole which is a work based
on the Library, the distribution of the whole must be on the terms of
```

```
this License, whose permissions for other licensees extend to the
entire whole, and thus to each and every part regardless of who wrote
it.

Thus, it is not the intent of this section to claim rights or contest
your rights to work written entirely by you; rather, the intent is to
exercise the right to control the distribution of derivative or
collective works based on the Library.

In addition, mere aggregation of another work not based on the Library
with the Library (or with a work based on the Library) on a volume of
a storage or distribution medium does not bring the other work under
the scope of this License.

  3. You may opt to apply the terms of the ordinary GNU General Public
License instead of this License to a given copy of the Library.  To do
this, you must alter all the notices that refer to this License, so
that they refer to the ordinary GNU General Public License, version 2,
instead of to this License.  (If a newer version than version 2 of the
ordinary GNU General Public License has appeared, then you can specify
that version instead if you wish.)  Do not make any other change in
these notices.

  Once this change is made in a given copy, it is irreversible for
that copy, so the ordinary GNU General Public License applies to all
subsequent copies and derivative works made from that copy.

  This option is useful when you wish to copy part of the code of
the Library into a program that is not a library.

  4. You may copy and distribute the Library (or a portion or
derivative of it, under Section 2) in object code or executable form
under the terms of Sections 1 and 2 above provided that you accompany
it with the complete corresponding machine-readable source code, which
must be distributed under the terms of Sections 1 and 2 above on a
medium customarily used for software interchange.

  If distribution of object code is made by offering access to copy
from a designated place, then offering equivalent access to copy the
source code from the same place satisfies the requirement to
distribute the source code, even though third parties are not
compelled to copy the source along with the object code.

  5. A program that contains no derivative of any portion of the
Library, but is designed to work with the Library by being compiled or
linked with it, is called a "work that uses the Library".  Such a
work, in isolation, is not a derivative work of the Library, and
therefore falls outside the scope of this License.

  However, linking a "work that uses the Library" with the Library
creates an executable that is a derivative of the Library (because it
```

```
contains portions of the Library), rather than a "work that uses the
library".  The executable is therefore covered by this License.
Section 6 states terms for distribution of such executables.

  When a "work that uses the Library" uses material from a header file
that is part of the Library, the object code for the work may be a
derivative work of the Library even though the source code is not.
Whether this is true is especially significant if the work can be
linked without the Library, or if the work is itself a library.  The
threshold for this to be true is not precisely defined by law.

  If such an object file uses only numerical parameters, data
structure layouts and accessors, and small macros and small inline
functions (ten lines or less in length), then the use of the object
file is unrestricted, regardless of whether it is legally a derivative
work.  (Executables containing this object code plus portions of the
Library will still fall under Section 6.)

  Otherwise, if the work is a derivative of the Library, you may
distribute the object code for the work under the terms of Section 6.
Any executables containing that work also fall under Section 6,
whether or not they are linked directly with the Library itself.

  6. As an exception to the Sections above, you may also combine or
link a "work that uses the Library" with the Library to produce a
work containing portions of the Library, and distribute that work
under terms of your choice, provided that the terms permit
modification of the work for the customer's own use and reverse
engineering for debugging such modifications.

  You must give prominent notice with each copy of the work that the
Library is used in it and that the Library and its use are covered by
this License.  You must supply a copy of this License.  If the work
during execution displays copyright notices, you must include the
copyright notice for the Library among them, as well as a reference
directing the user to the copy of this License.  Also, you must do one
of these things:

    a) Accompany the work with the complete corresponding
    machine-readable source code for the Library including whatever
    changes were used in the work (which must be distributed under
    Sections 1 and 2 above); and, if the work is an executable linked
    with the Library, with the complete machine-readable "work that
    uses the Library", as object code and/or source code, so that the
    user can modify the Library and then relink to produce a modified
    executable containing the modified Library.  (It is understood
    that the user who changes the contents of definitions files in the
    Library will not necessarily be able to recompile the application
    to use the modified definitions.)

    b) Use a suitable shared library mechanism for linking with the
```

```
    Library.  A suitable mechanism is one that (1) uses at run time a
    copy of the library already present on the user's computer system,
    rather than copying library functions into the executable, and (2)
    will operate properly with a modified version of the library, if
    the user installs one, as long as the modified version is
    interface-compatible with the version that the work was made with.

    c) Accompany the work with a written offer, valid for at
    least three years, to give the same user the materials
    specified in Subsection 6a, above, for a charge no more
    than the cost of performing this distribution.

    d) If distribution of the work is made by offering access to copy
    from a designated place, offer equivalent access to copy the above
    specified materials from the same place.

    e) Verify that the user has already received a copy of these
    materials or that you have already sent this user a copy.

  For an executable, the required form of the "work that uses the
Library" must include any data and utility programs needed for
reproducing the executable from it.  However, as a special exception,
the materials to be distributed need not include anything that is
normally distributed (in either source or binary form) with the major
components (compiler, kernel, and so on) of the operating system on
which the executable runs, unless that component itself accompanies
the executable.

  It may happen that this requirement contradicts the license
restrictions of other proprietary libraries that do not normally
accompany the operating system.  Such a contradiction means you cannot
use both them and the Library together in an executable that you
distribute.

  7. You may place library facilities that are a work based on the
Library side-by-side in a single library together with other library
facilities not covered by this License, and distribute such a combined
library, provided that the separate distribution of the work based on
the Library and of the other library facilities is otherwise
permitted, and provided that you do these two things:

    a) Accompany the combined library with a copy of the same work
    based on the Library, uncombined with any other library
    facilities.  This must be distributed under the terms of the
    Sections above.

    b) Give prominent notice with the combined library of the fact
    that part of it is a work based on the Library, and explaining
    where to find the accompanying uncombined form of the same work.

  8. You may not copy, modify, sublicense, link with, or distribute
```

```
the Library except as expressly provided under this License.  Any
attempt otherwise to copy, modify, sublicense, link with, or
distribute the Library is void, and will automatically terminate your
rights under this License.  However, parties who have received copies,
or rights, from you under this License will not have their licenses
terminated so long as such parties remain in full compliance.

  9. You are not required to accept this License, since you have not
signed it.  However, nothing else grants you permission to modify or
distribute the Library or its derivative works.  These actions are
prohibited by law if you do not accept this License.  Therefore, by
modifying or distributing the Library (or any work based on the
Library), you indicate your acceptance of this License to do so, and
all its terms and conditions for copying, distributing or modifying
the Library or works based on it.

  10. Each time you redistribute the Library (or any work based on the
Library), the recipient automatically receives a license from the
original licensor to copy, distribute, link with or modify the Library
subject to these terms and conditions.  You may not impose any further
restrictions on the recipients' exercise of the rights granted herein.
You are not responsible for enforcing compliance by third parties with
this License.

  11. If, as a consequence of a court judgment or allegation of patent
infringement or for any other reason (not limited to patent issues),
conditions are imposed on you (whether by court order, agreement or
otherwise) that contradict the conditions of this License, they do not
excuse you from the conditions of this License.  If you cannot
distribute so as to satisfy simultaneously your obligations under this
License and any other pertinent obligations, then as a consequence you
may not distribute the Library at all.  For example, if a patent
license would not permit royalty-free redistribution of the Library by
all those who receive copies directly or indirectly through you, then
the only way you could satisfy both it and this License would be to
refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any
particular circumstance, the balance of the section is intended to apply,
and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any
patents or other property right claims or to contest validity of any
such claims; this section has the sole purpose of protecting the
integrity of the free software distribution system which is
implemented by public license practices.  Many people have made
generous contributions to the wide range of software distributed
through that system in reliance on consistent application of that
system; it is up to the author/donor to decide if he or she is willing
to distribute software through any other system and a licensee cannot
impose that choice.
```

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

  12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

  13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

  14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

                            NO WARRANTY

  15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

  16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE

```
LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING
RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A
FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF
SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH
DAMAGES.

                     END OF TERMS AND CONDITIONS

           How to Apply These Terms to Your New Libraries

  If you develop a new library, and you want it to be of the greatest
possible use to the public, we recommend making it free software that
everyone can redistribute and change.  You can do so by permitting
redistribution under these terms (or, alternatively, under the terms of the
ordinary General Public License).

  To apply these terms, attach the following notices to the library.  It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

    <one line to give the library's name and a brief idea of what it does.>
    Copyright (C) <year>  <name of author>

    This library is free software; you can redistribute it and/or
    modify it under the terms of the GNU Lesser General Public
    License as published by the Free Software Foundation; either
    version 2.1 of the License, or (at your option) any later version.

    This library is distributed in the hope that it will be useful,
    but WITHOUT ANY WARRANTY; without even the implied warranty of
    MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
    Lesser General Public License for more details.

    You should have received a copy of the GNU Lesser General Public
    License along with this library; if not, write to the Free Software
    Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary.  Here is a sample; alter the names:

  Yoyodyne, Inc., hereby disclaims all copyright interest in the
  library `Frob' (a library for tweaking knobs) written by James Random Hacker.

  <signature of Ty Coon>, 1 April 1990
  Ty Coon, President of Vice
```

```
That's all there is to it!
```

LibArchive

http://www.libarchive.org/

```
  Copyright (c) 2003-2010 Tim Kientzle
  All rights reserved.

  Redistribution and use in source and binary forms, with or without
  modification, are permitted provided that the following conditions
  are met:
  1. Redistributions of source code must retain the above copyright
     notice, this list of conditions and the following disclaimer.
  2. Redistributions in binary form must reproduce the above copyright
     notice, this list of conditions and the following disclaimer in the
     documentation and/or other materials provided with the distribution.

  THIS SOFTWARE IS PROVIDED BY THE AUTHOR(S) ``AS IS'' AND ANY EXPRESS OR
  IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES
  OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
  IN NO EVENT SHALL THE AUTHOR(S) BE LIABLE FOR ANY DIRECT, INDIRECT,
  INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT
  NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE,
  DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
  THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
  (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
  THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

Zlib

http://www.zlib.net/

```
  Copyright (C) 1995-2013 Jean-loup Gailly and Mark Adler

  This software is provided 'as-is', without any express or implied
  warranty.  In no event will the authors be held liable for any damages
  arising from the use of this software.

  Permission is granted to anyone to use this software for any purpose,
  including commercial applications, and to alter it and redistribute it
  freely, subject to the following restrictions:

  1. The origin of this software must not be misrepresented; you must not
     claim that you wrote the original software. If you use this software
     in a product, an acknowledgment in the product documentation would be
     appreciated but is not required.
  2. Altered source versions must be plainly marked as such, and must not be
```

```
     misrepresented as being the original software.
  3. This notice may not be removed or altered from any source distribution.

  Jean-loup Gailly        Mark Adler
  jloup@gzip.org          madler@alumni.caltech.edu


  The data format used by the zlib library is described by RFCs (Request for
  Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950
  (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).
```

PortAudio

http://www.portaudio.com/

```
PortAudio Portable Real-Time Audio Library
Copyright (c) 1999-2011 Ross Bencina and Phil Burk

Permission is hereby granted, free of charge, to any person obtaining a copy of
this software and associated documentation files (the "Software"), to deal in the
Software without restriction, including without limitation the rights to use,
copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the
Software, and to permit persons to whom the Software is furnished to do so,
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM,
DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE,
ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.
```

Glossary

Active

Function of loading all parameters for selected heads into the programmer.

Art-Net

A protocol for transporting DMX over Ethernet LAN.

Attributes

Intelligent heads support a number of different functions that can be controlled via DMX – typically pan, tilt, colour, gobo etc... Each of these functions that can be controlled by a separate DMX channel is referred to as an attribute.

Attribute Type

Attributes of intelligent heads are categorised into one of four types - Intensity, Position, Colour, Beam.

Battery Back-up

The console supports battery back up, as an option. If fitted, this ensures that if there is a temporary interruption to the console power supply, the console continues to function. The battery will last for a specified time (usually 15 minutes) before the power should be restored or the console shut down.

Beam

An attribute type - attributes of an intelligent head that modify the make up of the beam are categorised as beam attributes. Examples are the shutter, iris, gobo wheels and prism wheels.

Calibration

A process of adjustment. Used on MagicQ to adjust the touch screen so that touching the screen in a particular position gives an accurate result.

Channel

The basic unit of control on the console. Each Universe has 512 channels.

Chase

A sequence of steps to modify channel values over time. On the MagicQ a chase is made up of a sequence of Cues in a Cue Stack.

Colour

An attribute type - attributes of an intelligent head that modify the colour of the beam are categorised as colour attributes. Examples are colour wheels and colour mixing attributes.

Contrast

The Contrast for the wing LCD screens enables the viewing angle of the screens to be modified.

Crossfade

Crossfade of a chase or an FX refers to how changes are made to the output channels when moving from step to step of a chase or FX. Crossfade of 100% indicates a smooth fade from one value to the next. Crossfade of 0% indicates a snap from one value to the next.

Cue

The basic unit of storage on the console. A Cue stores level, timing and FX information for a single look.

Cue Stack

A sequence of Cues that can be played in order.

Cue Store

A list of all the Cues stored on the console.

Cue Stack Store

A list of all the Cues Stacks stored on the console.

DBO

Dead Black Out. The DBO button when pressed causes all HTP channels to be set to zero. On release all HTP channels are returned to their previous values.

Console Lamp

Low voltage lamp which connects into the rear panel. Used to light up the console surface. The console supports 2 or more console lamps depending on the number of attached wings.

DMX

DMX512 protocol.

Encoder

Rotary dial used for easy control of parameters.

Ethernet

A method of connecting data equipment together in the form of a Local Area Network (LAN).

Fan

Method of modifying parameters using encoders whereby different changes are applied to the selected heads such that the parameter is fanned across the heads.

File Manager

A Window used for organising show data stored on the MagicQ internal disc and on external USB sticks.

Flip

For moving heads with 360 degree pan movement there is more than one setting for the pan and tilt attributes for each physical position. Flip modifies the pan and tilt attributes to

the alternate settings.

FX

FX is short for EFFECTS. The FX generator enables complex variations to be applied to parameters over time. For example a circle FX applied to the position attributes of a moving head causes it to move in a circle.

Gel

Coloured film that is placed in front of lights to modify the colour of the beam. The MagicQ stores a Gel colour for each dimmer, which makes identification and programming easy.

Generic

A generic dimmer channel. A head with a single channel which controls a dimmer from 0 to 100%.

Grand Master

The master fader which controls HTP levels for the entire console.

Gobo

A patterned object placed in front of a light source to modify the shape of the beam. Intelligent heads typically contain one or more wheels of gobos.

Head

An intelligent head

Include

Loading a Cue into the Programmer.

Intensity

An attribute type - the attribute of an intelligent head that controls the intensity of the mean. Often referred to as the dimmer.

Keyboard

The console includes an external keyboard, which connects into a socket on the back panel marked keyboard.

Keypad

The numerical keypad situation to the bottom left of the console. The layout of the keypad is similar to that found on standard PC keyboards with the addition of @, THRU and FULL buttons for quick control of lamp intensities.

LAN

Local Area Network

MagicQ PC

The PC version of the MagicQ console – enables editing and running of shows from PCs.

Mark Cue

A special Cue for preloading LTP values prior to the following Cue.

Master

The Playback Master can be configured to control the HTP level of the Playbacks or the HTP level of Add/Swap buttons.

Merge

A method of combining input and output channels. The console supports output of any input channels on any output channels.

Mouse

Pointing device used to select items on a screen. The MagicQ supports an optional mouse for users who do not wish to use the touch screen.

Move When Dark

A Cue Stack Option that enables automatic pre-loading of LTP values for following Cues when heads are at zero intensity.

Multi Windows

MagicQ allows any of the Windows to be moved onto a remote PC using the MagicQ Multi Window PC application.

Page

MagicQ supports multiple pages of Playbacks. The page can be selected through buttons or through the Page Window.

Parameter

A value of a function that can be changed. Typically used to describe the parameters of an FX - such as size and speed.

Patch

The way of setting up the console so that it knows what lights are connected to it. The MagicQ supports a complete Window, the Patch Window for controlling patching.

Pathport

A protocol for transporting DMX over Ethernet LAN.

Palette

The console supports Intensity, Position, Colour and Beam palettes. Entries in each palette can be used to quickly store and recall your favourite looks.

Playback

A fader or button which activates a Cue Stack. The console supports physical playbacks (faders and buttons) and also virtual playbacks through the Playbacks window.

Position

An attribute type - attributes of an intelligent head that modify the position of the beam

are categorised as position attributes. Pan and Tilt are Pan Lo and Tilt Lo are normally the only attributes of this type.

Programmer

The functional area of the MagicQ where show data is set up before it is recorded into Cues.

Record

Record button is used to record items into memory.

Record Merge

A method of merging the Programmer contents into an existing Cue

Record Remove

A method of removing the Programmer contents into an existing Cue

Snapshot

Loading the current outputs into the Programmer.

Spread

Offset between heads in an FX.

Stack

Short for Cue Stack.

Stack Store

Short for Cue Stack Store.

Touch Screen

The display supports a touch screen enabling functions of the console to be accessed by simply pressing the screen in the appropriate place.

Universe

A collection of 512 DMX channels.

USB

Universal Serial Bus - a serial bus available on all new PCs and lap-tops since around 1996.

USB stick

A USB device for storing show data and for transferring data to or from PCs.

Views

The console support several views for each Window, selectable using the top left soft buttons. In addition the console stores complete Window Layouts comprising the details of Window position and sizes. These can be recalled using CTRL and the top soft buttons.

Waveform FX

The core waveform FX contained on the console such as Circle, RGB, Sine, Pulse, etc... The

waveform FX contains value information for up to 3 attributes and 1 or more heads.

Wing

MagicQ supports both programming (Mini, PC, Maxi) wings and playback (Playback, Execute, Extra) wings.