



MASTERPIECE

MASTER CONTROL SWITCHER

User Manual

13-06515-010

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www.grassvalley.com

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality, triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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A Grass Valley manual may have been revised to reflect changes made to the product during its manufacturing life. Thus, different versions of a manual may exist for any given product. Care should be taken to ensure that one obtains the proper manual version for a specific product serial number.

Information in this document is subject to change without notice and does not represent a commitment on the part of Grass Valley.

Warranty information is available from the Legal Terms and Conditions section of Grass Valley's website.

(See www.grassvalley.com.)

Title	Masterpiece User Manual
Part Number	13-06515-010
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Important Safety Information

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

Symbols and Their Meanings



Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



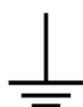
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.



Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.



Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.



Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.



The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.



The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings



A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for the rated mains voltage is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions



A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- This equipment is meant to be installed in a restricted access location.
- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.

- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment. Servicing should be done in a static-free environment.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Electrostatic Discharge (ESD) Protection



Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Battery Handling



This product may include a backup battery. There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please review the *Disposal and Recycling Information* at:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Cautions for LCD and TFT Displays



Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage.

If the LCD or TFT glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

Signification des symboles utilisés



Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.



Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.



Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.



Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.



Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.



Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.



Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.



La marque UL certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.



Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.



Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements



Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.
- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyeurs liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde



Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.

- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.
- Pour réduire le risque de choc électrique, branchez chaque cordon d'alimentation dans des circuits de dérivation distincts utilisant des zones de service distinctes.

Protection contre les décharges électrostatiques (DES)



Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Manipulation de la pile



Ce produit peut inclure une pile de sauvegarde. Il y a un risque d'explosion si la pile est remplacée de manière incorrecte. Remplacez la pile uniquement par un modèle identique ou équivalent recommandé par le fabricant. Disposez des piles usagées conformément aux instructions du fabricant. Avant de vous séparer de votre équipement Grass Valley, veuillez consulter les *informations de mise au rebut et de recyclage* à :

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Précautions pour les écrans LCD et TFT



Regarder l'écran pendant une trop longue période de temps peut nuire à votre vision. Prenez une pause de 10 minutes, après 30 minutes d'utilisation.

Si l'écran LCD ou TFT est brisé, manipulez les fragments de verre avec précaution au moment de vous en débarrasser. veillez à ce que le cristal liquide n'entre pas en contact avec la peau ou la bouche. En cas de contact avec la peau ou les vêtements, laver immédiatement à l'eau savonneuse. Ne jamais ingérer le liquide. La toxicité est extrêmement faible, mais la prudence demeure de mise en tout temps.

Environmental Information

European (CE) WEEE directive.



This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy since it is based on data received from sources outside our company. All specifications are subject to change without notice.

If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Lithium Batteries

Battery Warning

CAUTION

This equipment contains a lithium battery.
There is a danger of explosion if this is replaced incorrectly.
Replace only with the same or equivalent type.
Dispose of used batteries according to the manufacturer's
instructions.
Batteries **shall only** be replaced by trained service technicians.

Your Grass Valley equipment usually comes with at least one button battery located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Battery Disposal

Before disposing of your Grass Valley equipment, please remove the battery as follows:

- 1 Make sure the AC adapter / power Cord is unplugged from the power outlet.
- 2 Remove the protective cover from your equipment.
- 3 Gently remove the battery from its holder using a blunt instrument for leverage such as a screwdriver if necessary. In some cases the battery will need to be desoldered from the PCB.
- 4 Dispose of the battery and equipment according to your local environmental laws and guidelines.

WARNING

- Be careful not to short-circuit the battery by adhering to the appropriate safe handling practices.
- Do not dispose of batteries in a fire as they may explode.
- Batteries may explode if damaged or overheated.
- Do not dismantle, open or shred batteries.
- In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes.
- Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

Laser Safety - Fiber Output SFP and QSFP Modules Warning

LASER SAFETY



The average optical output power does not exceed 0 dBm (1mW) under normal operating conditions. Unused optical outputs should be covered to prevent direct exposure to the laser beam.

Even though the power of these lasers is low, the beam should be treated with caution and common sense because it is intense and concentrated. Laser radiation can cause irreversible and permanent damage of eyesight. Please read the following guidelines carefully:

- Make sure that a fiber is connected to the board's fiber outputs before power is applied. If a fiber cable (e.g. patchcord) is already connected to an output, make sure that the cable's other end is connected, too, before powering up the board.
- **Do not** look in the end of a fiber to see if light is coming out. The laser wavelengths being used are totally invisible to the human eye and can cause permanent damage. Always use optical instrumentation, such as an optical power meter, to verify light output.

Mains Supply Voltage



Before connecting the equipment, observe the safety warnings section and ensure that the local mains supply is within the rating stated on the rear of the equipment.



Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards



Information Technology Equipment - Safety Part 1

EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (4th Edition)

Standard for Safety – Professional Video and Audio equipment (UL file number E193966)

EMC Standards

This unit conforms to the following standards:

EN55032:2015 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN61000-3-2:2014 (Class A)

Electromagnetic Compatibility - Limits for harmonic current emissions

EN61000-3-3:2013

Electromagnetic Compatibility - Limits of voltage changes, voltage fluctuations and flicker

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

WARNING

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

SIGNAL/DATA PORTS

For unconnected signal/data ports on the unit, fit shielding covers. For example, fit EMI blanking covers to SFP+ type ports; and fit 75 Ω RF terminators to BNC type ports

COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having "dimples" which improve the contact between the plug and socket shells, are recommended.

toc

Table of Contents

1 Introduction.....	1
Product Overview	1
IP Master Control Switcher Overview	2
12G-SDI Master Control Switcher Overview.....	3
Masterpiece Functionality	4
Audio Mixing	4
System Integration.....	4
Masterpiece System Components	4
Connecting the Touch Screen Monitor GUI.....	5
Current Compatible Touch Screen Monitors.....	6
2 Initial Setup Menus	7
At Power-up.....	7
Log Off - Mainframe Configuration	8
The Connect Menu	9
Connect - Panel Config Menu.....	10
IP Mainframes.....	10
Panel Upgrade	11
Mainframe Configuration	12
Panel Login Limit.....	14
Mainframe Color and Icon	15
SATA Drive Config.....	16
Upgrade (software upgrade)	17
Log into the System	18
Switcher State - Overwrite and Load	18
Rolling Switcher States	19
Status.....	20
Defaults.....	21
Log Off	23
3 Masterpiece Mainframe Rear Connectors.....	25
IP Mainframe Rear Connectors	25
12G-SDI Mainframe Rear Connectors	26
4 Control Surface	27
Overview.....	27
The Control Surface.....	27
Source Selection Crosspoint Buttons and Colored Mnemonics	28
Mnemonics	29
OLED User Function Buttons.....	29
Key Layer On/Off and Key Next Take	29
Take Next.....	30
Transition Type and Transition Time	30
FTB/ATS	31
PFL (Pre Fade Listen)	31
Assignable Motorized Faders	32

Break Away Video/Audio Transitions	32
Touch Screen Graphical User Interface (GUI)	33
5 Masterpiece Menu Operation	35
The Graphical User Interface	35
Touch Screen Monitor Menu Overview	36
GUI Menu Layout Overview	37
Menu Selection Buttons	38
Using the GUI Menus	42
Title Bar	42
On Screen Control	43
Other Menu Functions	43
Time and Timecode Adjustments	44
On-Screen QWERTY Keyboard	45
The Masterpiece GUI	46
Information and Title Bar with a Swipe Function	46
Status Alert Triangle	47
Delegates Menu Button	48
Rotary Parameter Controls	48
Touch Screen Menu Area	49
Touch Navigation Buttons	49
How to use Copy and Paste	50
Masterpiece GUI Menu Controls and Buttons	52
Menu Buttons, Controls and Gesture Controls	52
Numeric Keypad	55
6 How to Save	57
Saving Files	57
Switcher States	57
Rolling Switcher States	58
Config Files - Saving and Loading	59
Snapshots	61
Saving a Snapshot	61
Detaching Snapshots	62
DMEM's	63
Saving a DMEM	63
Load/Save Pad	63
.....	65
Number Pad	65
Enables	67
7 Video Setup	69
System Setup	69
System Config	71
Inputs and Naming	72
Outputs and Naming	72
Aux Buses	73
Button Maps	74
User Config - Mixer Outputs	76
8 Audio Setup	77
Audio Mixing Overview	77
Getting Audio Into Masterpiece	78
Audio Shuffler	79

How to Build a Shuffle Profile	80
Understanding the Masterpiece GUI Audio Menus.....	83
Masterpiece GUI Audio Menus.....	85
Using Masterpiece GUI Audio Menus	86
Program, Preset and Main Out.....	86
Program Audio.....	86
Preset Audio	87
Main Out Audio	89
Stores (internal audio source).....	90
Util Audio.....	91
Voice Over Audio.....	92
AES In Audio (1 to 4).....	94
25 Way AES/LTC Connector In/Out Pin Configuration.....	95
Audio Monitoring	96
Preview Audio	96
AES Audio Out 1 to 4	97
Audio Transitions.....	98
Audio Transition Menu	99

9 Engineering, User & Panel Configuration103

Saving Files.....	103
Saving a Config File.....	103
Sub Enables.....	104
How to save a Config.....	105
Engineering Configuration.....	106
Input Setup	106
Output Setup.....	109
System Standard	113
System Standard - UHD Mode	114
GPO.....	115
IP Gateways	116
Protocols.....	117
Status Monitor	120
Panel	121
Status Monitor Panel - SysLog Server.....	122
Syslog Application	124
Setup Menu.....	126
FormatFusion3TM	128
Input FormatFusion3 Inputs and Channels	128
Color Correction	132
User Configuration	137
Mixer Outputs.....	137
Fade To Black	138
Store Setup	139
Coupling & Linking.....	139
GPO Setup	141
Crosspoint Options.....	142
Modulation.....	143
Overview	143
Global Modulators	143
Bus Config Group	145
Mixer Trans Group	146
User Config Group	147
Basic How to Use Modulators.....	148
Mattes	150
Audio	151
Preferences	152

GUI Preferences	152
Panel Preferences	154
Snapshot	155
Screen Coordinate System.....	155
Panel and GUI Preferences on the Masterpiece GUI.....	156
Button Maps	157
Button Maps Main Menu	157
Editing a Button Map.....	158
Button Information.....	160
Button Functions.....	161
MAV Layout	163
Fader Maps.....	164
Panel Colors.....	165
Button Colors	165
Other Colors	165
By Standard Colors.....	166
10 12G-SDI Setup and Operation	167
Overview.....	167
Set the System up in UHD Mode	168
12G SDI Input Setup.....	170
12G-SDI Output Setup.....	171
11 IP Connectivity and Operation.....	173
Overview.....	173
IP Connectivity	173
IP Architecture	174
IP Input Menus	175
IP Output Menus.....	180
12 UHD Setup and Operation.....	185
UHD Quad and UHD 2SI.....	185
Connecting UHD to the Inputs and Outputs	185
Inputs to the Switcher Mainframe.....	185
Outputs from the Switcher Mainframe	185
UHD Initial Setup	186
UHD Engineering Config Setup	187
UHD Input Setup.....	188
UHD Output Setup	189
UHD Stores	190
UHD Transitions and Wipes.....	191
13 Keying and DVE Operation	193
Keying	193
Keying Theory	193
Linear Keying	193
Luma Keying.....	193
Accessing Keys on the Control Surface.....	194
Placing a Key Layer onto a Background.....	194
Keyer Operation.....	197
Using Keyer Control and Actions.....	198
Keyer Functions on the Masterpiece GUI	199
Linear and Luma Keying	200
Key DVE Operation	201

Position & Size	202
Crop	203
Border	204
Dual Tile	205
Dual Tile Menu	206
Tile 1 Position & Size	206
Tile 1 Crop	207
Tile 1 Border	207
Moving the two tiles so that both can be seen.....	208
14 Mixer and Transitions	209
Types of Transition	209
Setting Basic Transitions.....	209
Basic Background Mix Transition.....	210
Basic Background Transition with a Wipe.....	210
Basic Key Transition	211
Transition Control Button Functions.....	212
Video Transition Menus on the Masterpiece GUI.....	213
Transition Parameters	216
Wipe Parameters.....	216
Advanced Wipes	220
Mix	222
Matte Mix.....	222
15 Effects Dissolve and Squeeze Effects	225
Effects Dissolve.....	225
Saving an Effects Dissolve with a DMEM.....	226
Applying a Dissolve Effect to an existing DMEM	227
Bgnd DVE and Mixer DVE	228
Bgnd DVE.....	229
Setting the Utility Bus Background Source	231
Position & Size	232
Crop	233
Border	234
Setting up a Squeeze Effect.....	236
Mixer DVE.....	240
Position & Size	242
Crop	243
Border	244
16 Macros	245
Overview.....	245
Setting Up Macros.....	245
Macro Record	246
Pausing a Macro Record Sequence.....	247
Appending more Macro Actions to a Macro Sequence.....	247
Macro Test and Edit	248
Test Macro	248
Pause Macro	248
Wait Until Loaded	248
Ripple Action Delay	249
Attacher and Parameter Controls	250
Quick Macro.....	251
Using Quick Macro on the Masterpiece GUI	252
Offline Macro Editor	253

Offline Macro Edit Menu	253
Creating a Macro "Offline"	254
Edit an existing Macro using the Using Value and Details Parameters	256
Bitmap	257
Quick Text	262
Saving a Macro	263
Assigning Macros to buttons	264
GPI Assignment	265
Macro Load	266
17 Stores	269
Overview	269
ClipTrax™ - overview	270
Importing Stills and Clips	271
Store Load Menu	273
Using Store Load	273
Loading a Still or Clip into a Store	275
Sub-Clips	276
Creating Sub-Clips	276
Store Play/Edit	278
Transport Controls	278
Using Edit Mode	280
Store - Contents	281
Store - Grab	282
Taking a Grab	282
Playback Transport Controls	283
Store - Save	285
18 Crosspoints	287
Overview	287
External Router	290
Audio Shuffler	292
How to Build a Shuffle Profile	293
Automation Xpt	296
19 Aux Buses	297
Aux Bus Overview	297
Setup an Aux Bus	298
Aux Override	299
20 Filing System	303
Filing System Overview	303
Filing System - DMEM, Stills, Snapshots, Button Maps, Macros and Icons	304
DMEM	304
Applying a Dissolve Effect to an existing DMEM	306
Filing System - Config Filing System	307
Overview	307
The Eng Config Filing System	308
Import/Export	310
Importing	311
Import / Export Status	312

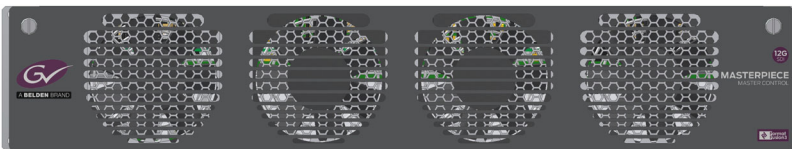
21 Peripherals	313
Peripherals Overview	313
How to Setup Protocols	314
Selecting a Protocol	314
Peripherals - Engineering	317
TSL UMD Output Only	317
TSL UMD IP Output Setup	318
TSL UMD In	319
EAS (Emergency Alert System)	320
Peripherals - Router Control	326
SW-P-08 - Xpt	327
Utah RCP-3A	329
Peripherals - Engineering Router Control	330
Router Config	330
Router Connections	331
External Router Control - Practical Application	332
Peripherals - User	339
Tally Control	339
VTR Control	340
User Protocol	342
P-Bus Setup	343
Shotoku Robotics	344
Using the Shotoku Robotic Peripheral Controls	344
Shotoku Camera Control	344
Camera - Shots Menu	347
Snell SW-P-32	349
As Router Control	350
Peripherals - Editor Control	351
RollCall Control	355
Peripherals - RollCall Set Param	356
User Definable	356
MV 800 Layout	357
Set Crosspoint	358
Peripherals - Others	359
VDCP Control	359
VDCP Ganged Commands	361
AVSP Control	363
Odetics Control	367
AMP Control	368
Nexio Server - AMP Protocol	370
Nexio Record Menu	372
Audio Mixer	373
VISCA Robotics Camera Control	386
Chyron Control	391
LiveTouch	395
 Contact Us	 399

1 Introduction

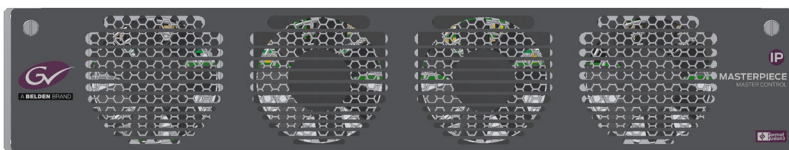
Product Overview

Thank you for purchasing your new Masterpiece Master Control Switcher. Whether you have purchased the IP system or the 12G-SDI system, this user instruction manual will guide you through each stage of setup and configuration of the system. Installation information and specifications information can be found in the Masterpiece Installation Manual.

Masterpiece 12G-SDI Mainframe



Masterpiece IP Mainframe



Masterpiece Control Surface



If you have any questions regarding the installation of your product, please refer to the contact details listed at the rear of this manual.

Note: All diagrams are for illustration purposes only and may differ slightly from the purchased product. Grass Valley operates a policy of continuous improvement and development. Grass Valley reserves the right to make changes and improvements to any of the products described in this document without prior notice.

IP Master Control Switcher Overview

Building on our world firsts in deploying IP solutions technologies we are introducing Masterpiece IP, which is a new market-defining master control switcher for the IP environment. Whatever your channel genre, whether it's sports, news or live entertainment and whatever your distribution— a single over-the-air (OTA) channel, multichannel content distribution or real-time streaming, Masterpiece IP has the power and flexibility to provide you with dynamic and rock-solid master control.

Features include:

- 4K UHD/1080p/1080i/720p Master Control Switcher
- IP connectivity 50 GbE
- Duplex, signals supported over RTP streams via 2x SFP + 28 cages
- 10x 4K UHD inputs
- 40x 1080p/1080i/720p inputs
- 4K UHD PGM/PST and clean outputs
- 4x 4K UHD keyers
- 4 channels of DVE assignable to backgrounds and keyers
- Multichannel audio mixer
- 16-channel audio shuffling for every crosspoint and output
- Controlled via Grass Valley Morpheus Automation
- Keying for channel branding
- Format Fusion3 for multiformat workflows
- DVE functionality for squeeze back and on-air effects
- 16-channel AES mixing
- Voice overs with automatic level control

12G-SDI Master Control Switcher Overview

The Masterpiece Master Control Switcher is a new addition to the Grass Valley Family of live production products.

With an intuitive and compact control panel, Grass Valley's Masterpiece 12G-SDI offers unbeatable master control operation. This is essential in today's complex master control environments where decisions have to be made quickly by operators across multiple channels to ensure the quality of output that's required.

Features include:

- UHD processing
- A single link SDI connection
- Keying for channel branding
- A video mixer
- A DVE for functional squeeze backs and effects
- Audio embedding, de-embedding and shuffling
- An audio mixer for mixing voiceover and voice-under
- Automation and manual control
- A dedicated panel for easy operations
- FormatFusion3 for multi-format operations supporting HD, 1080p and UHD
- UHD supports quad link and 2SI
- 12G over SDI single link

Example of a Masterpiece System



Masterpiece Functionality

Masterpiece combined with Grass Valley's FormatFusion3 technology is unique in the master control environment, giving you more capacity to feed multi-format material into your channels. This means you don't have to create multiple versions of the Grass Valley material to feed different channel outputs, and there is no need for external conversion equipment.

Seamless interfacing with Grass Valley's automation system Morpheus allows Masterpiece to deliver robust and resilient content distribution and flexible device management, making it the most efficient automation tool for your channel management.

Morpheus automation enables play-out schedules to run smoothly keeping your channel content working effortlessly. The Masterpiece control panel can also be operated manually, allowing for on-the-fly operations when needed.

Switching audio, breaking away audio from video, and triggering effects such as squeeze backs and loading clips on-the-fly are just some of the operations the Masterpiece 12G-SDI and Morpheus can achieve together for automated master control.

Audio Mixing

Masterpiece includes an 86 x 40 out audio mixer and can execute the following:

- Audio lead and log background transition
- Break away audio transitions
- Voice-overs and voice-unders

The benefit of pre-fading the audio before it goes live gives the operator confidence knowing that a channel's audio material and feeds are played out as scheduled. The audio mixer provides embedding and de-embedding audio processing. Any 16 embedded channels can be selected from any/all the incoming video sources. This is ideal for breaking out embedded audio to AES for processing then re-ingesting the resulting feeds back into the SDI domain. Audio channels can be shuffled for flexible alignment with in-house channel mapping.

System Integration

As a fully loaded master control system, Masterpiece offers a full solution to HD/1080p and UHD Master Control without needing any (optional) extras. Of course you can pair Masterpiece with Grass Valley's UHD-ready product range including routing, play-out, control and monitoring, servers and automation to ensure a seamless work-flow for your UHD productions. By combining Grass Valley systems, you get comprehensive master control facilities that satisfy even the most mission-critical live UHD production environments.

Masterpiece System Components

1. **Masterpiece Mainframe:** IP and 12G-SDI mainframes (2RU rack height).
2. **Control Surface:** Masterpiece Control Surface (19")
3. **External Power Supplies:** 2 x PSU for the Control Surface
4. **Cables:** For each system purchased, there are:
 - 1x RJ45 Network Cable, 5m ~ 19.6 inches length
 - 4x Power Cord 10A 2m ~ 78.7 inches (or 4x US Mains Lead IEC to 3 Blade 10A, 2.4m~ 94.4 inches.

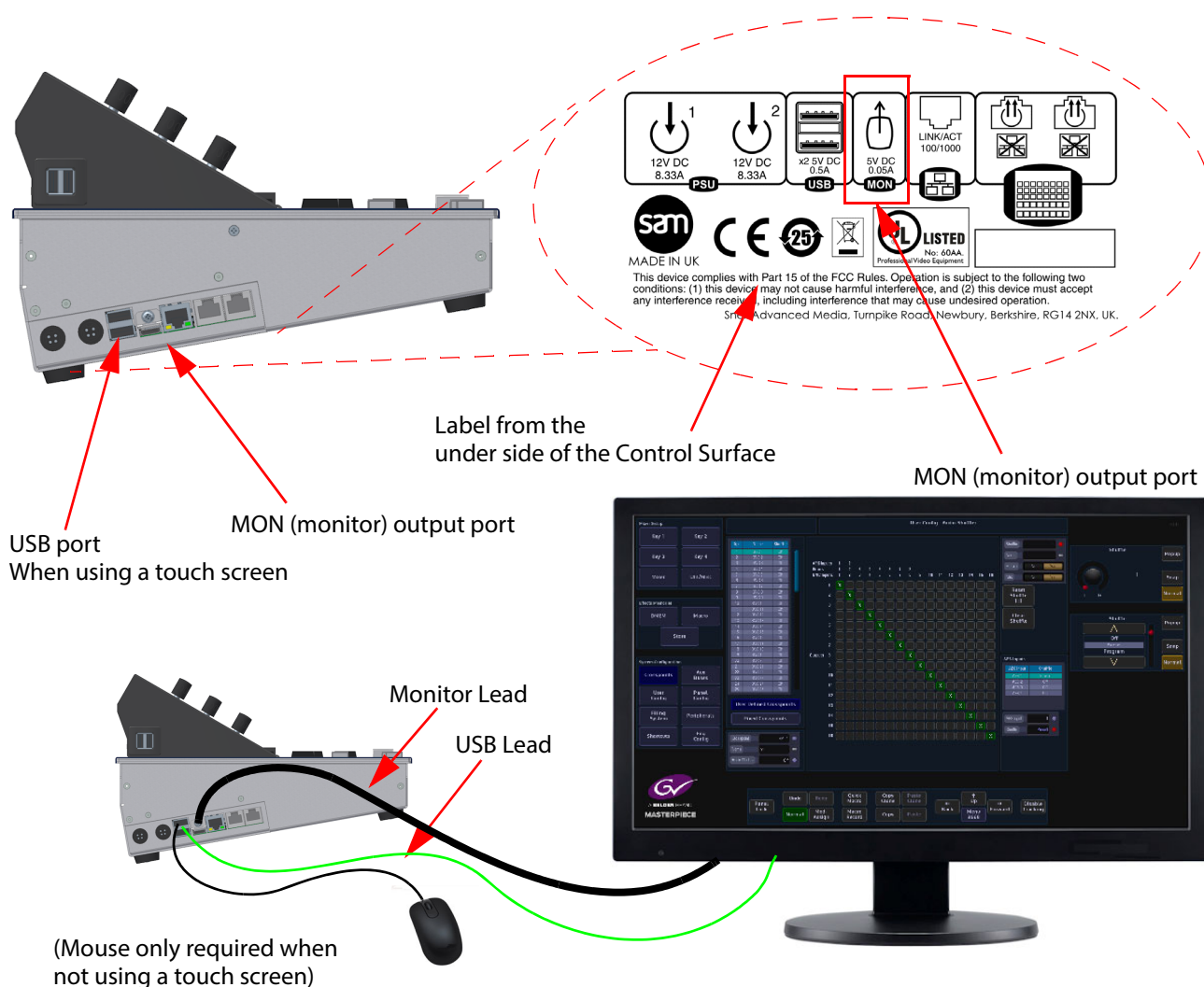
Note: Installation and User Manuals are supplied regardless of system components purchased.

Connecting the Touch Screen Monitor GUI

An external monitor has to be connected to the Masterpiece Control Surface to be used as an external touch screen GUI. The external monitor must have a 1920 x 1080 display resolution and can be either a touch screen or a non touch screen display.

For touch screen monitors, connect the USB lead from the monitor to a USB port on the Control Surface and the HDMI to DVI (for example) lead to the monitor port.

For non touch screen displays, the user can connect a USB mouse to a USB port on the Control Surface and the HDMI to DVI (for example) lead to the monitor port.



Touch screen monitor - once the external monitor is connected to the Masterpiece Control Surface, a USB control lead (shown above) is connected, allowing the touch screen functions to be used.

Non- touch screen monitor - once the external monitor is connected to the Masterpiece Control Surface, a USB mouse (shown above) is used to control the Masterpiece menus on the monitor screen.

Current Compatible Touch Screen Monitors

- iiyama T2250-MTS
- iiyama T2236-MS B1 and B2
- iiyama T2252-MTS
- GeChic On-Lap 1502
- ELO_1002L_1502L
- ELO-2002L
- Planar PCT2265
- beetronics 15TS5M

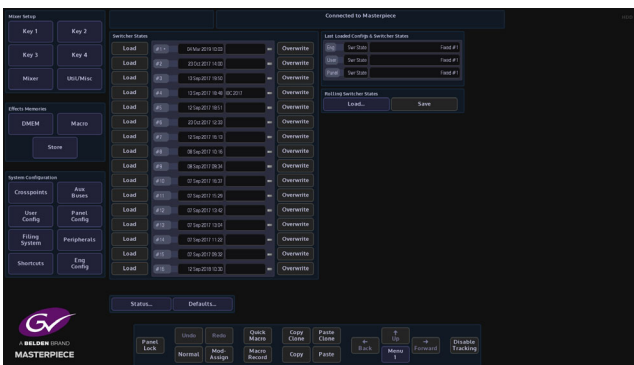
2 Initial Setup Menus

At Power-up

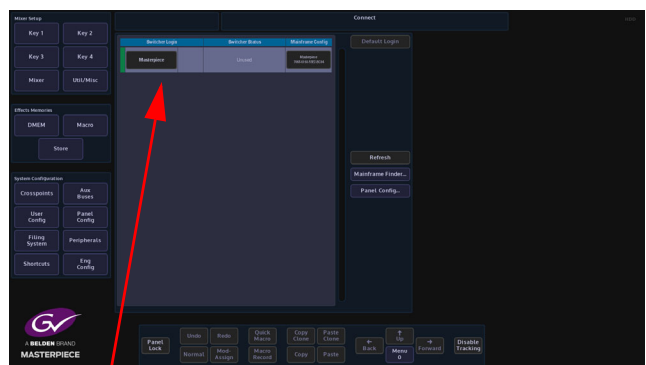
When the Masterpiece system is powered up, after the initial boot up sequence, the system will be in one of two states. These states will depend on the system being setup previously or not.

If the system has been correctly setup previously, the system will login and go straight to the "Connected to..." menu on both GUIs. If not previously setup, the "Connect" menu will be displayed, where you will have to touch the "Switcher Login" button on either one of the GUIs as shown below.

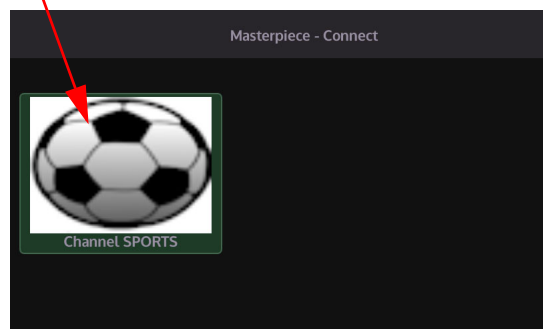
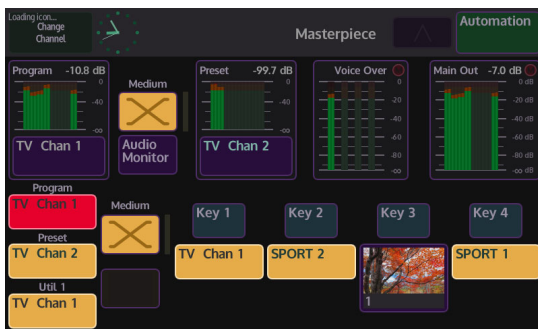
Connected to Masterpiece menus (Logged In State)



Connect Menu (not Logged In state)



Touch the Switcher Login button

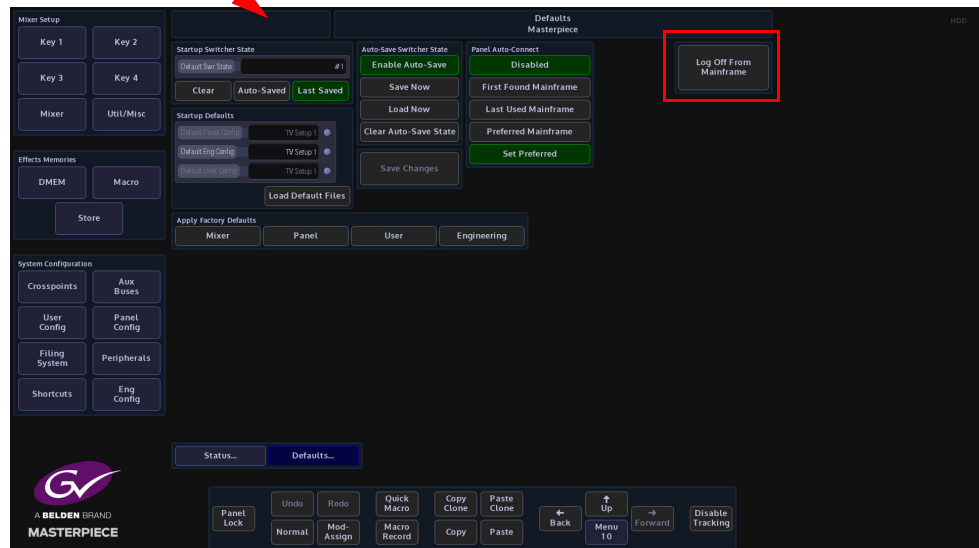
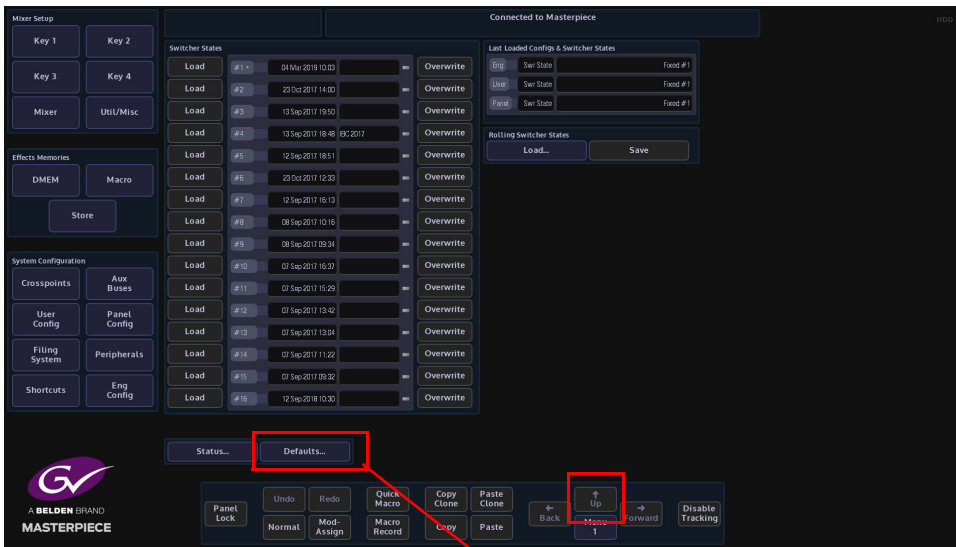


Once logged in, you can start configuring and setting up the system to your requirements.

Log Off - Mainframe Configuration

Keep touching the “Up” button until the “Connected to...” or “Top” menu is reached. Next, touch the “Defaults” button to get to the “Defaults Masterpiece” menu. Touching the {Log Off From Mainframe} button, a prompt message will then appear asking the user if they actually do wish to Log Off.

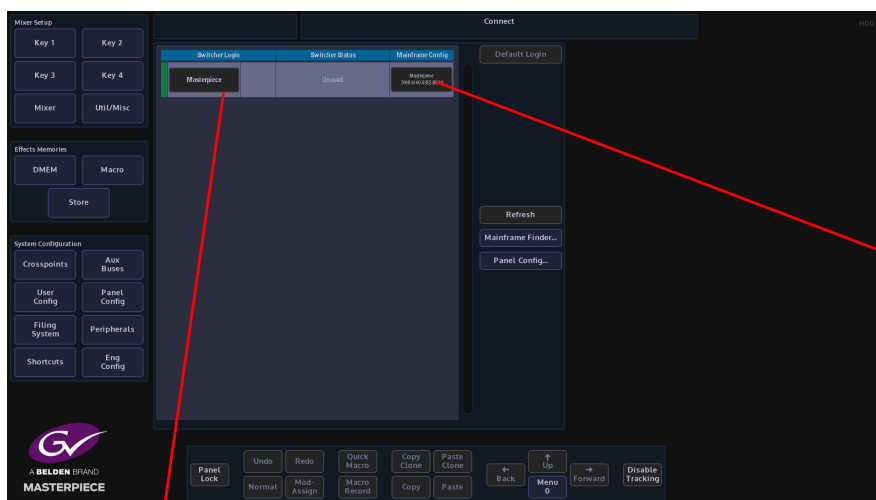
This is a safety mechanism designed to stop the user from accidentally logging off without saving their settings.



The other functions within this menu will be discussed later in this section. After log off, the “Connect” menu will appear.

The Connect Menu

The Switcher Login column will show the mainframe the user can log into. Switcher Status column will have the given name of the Switcher.



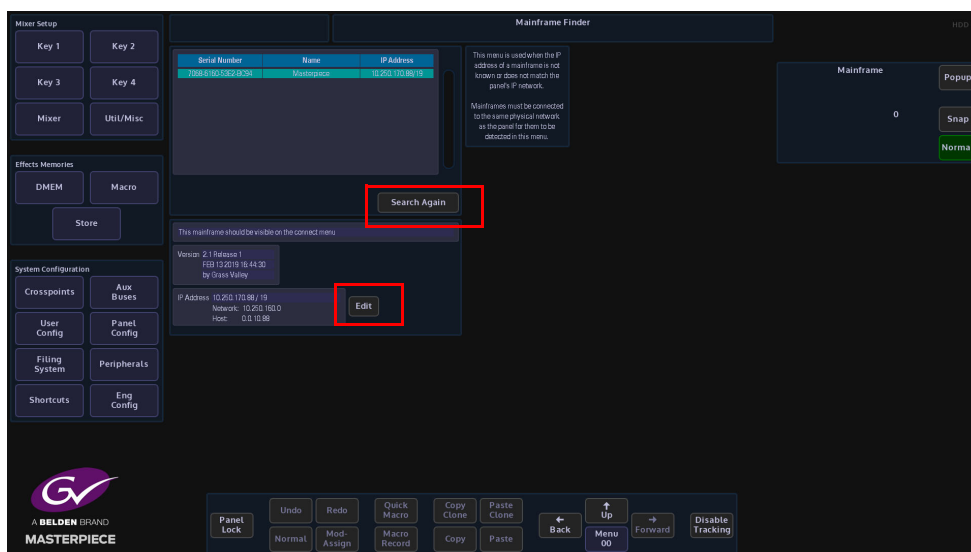
Mainframe Config button displays Name given to the mainframe. Mainframe serial number

Switcher button displays the name of the switcher/s

The *Default Login* button allows a panel to log in “Exclusively” and will prevent any other panel(s) logging into the Masterpiece mainframe. To log in exclusively, select the {*Default Login*} button, top right on the GUI Login. If a panel is already logged into a switcher you cannot then log into it exclusively.

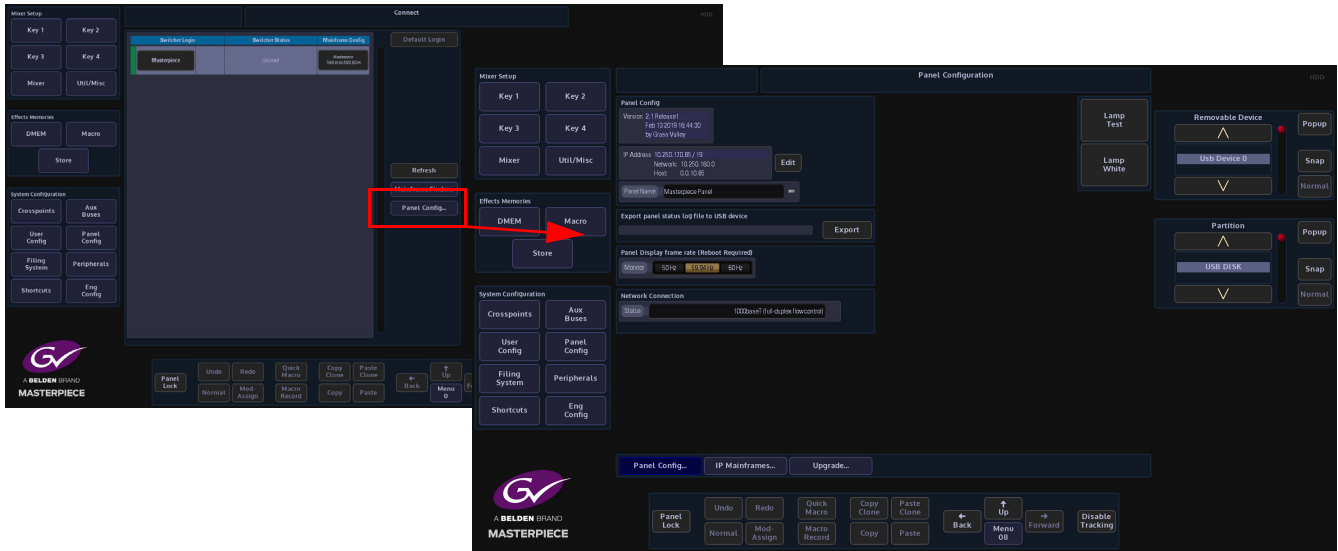
The *Refresh* button allows the user to refresh the display if other mainframes have been connected whilst the mainframe is being used. Press the {*Refresh*} button and the system will search for any other mainframes.

The *Mainframe Finder* menu, The “Mainframe Finder” menu is used to find mainframes when the IP addresses of the mainframes and the control surface do not match. If you cannot see the mainframe in this menu, touch the {*Edit*} button and a dialog box will appear allowing you to type in the IP Address of the mainframe and touch the {*Search Again*} button.



Connect - Panel Config Menu

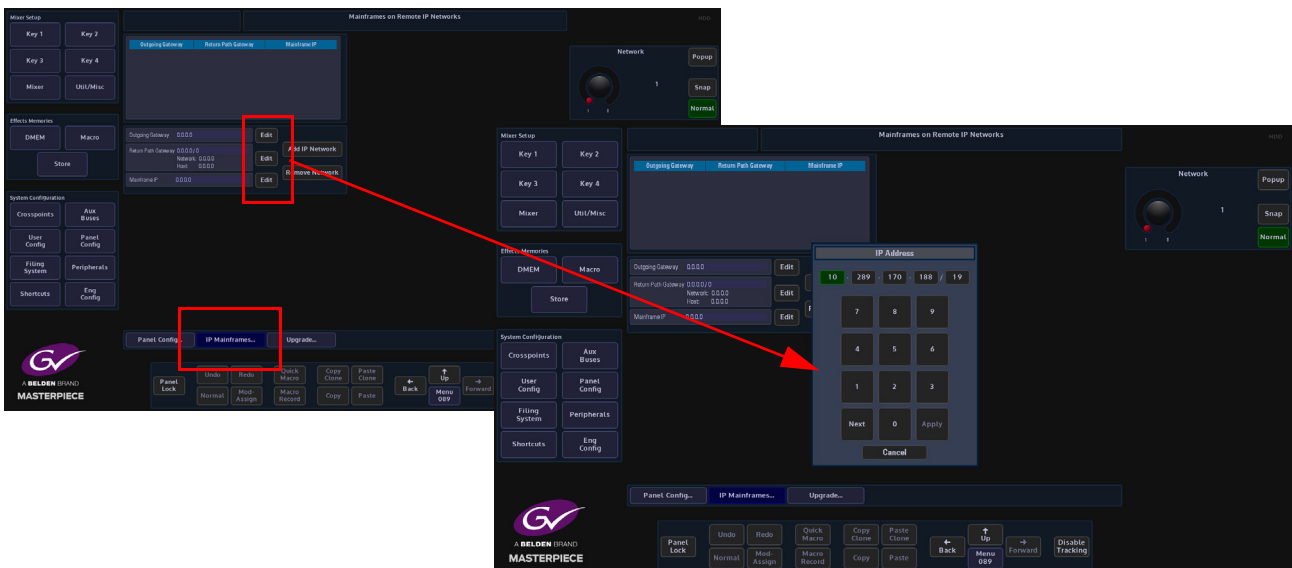
The **{Panel Config...}** button will enter the Panel Configuration menu, showing the current software version, IP Address and the given Panel name as shown below. The software for the panel is usually upgraded when the mainframe software is upgraded in the Mainframe Configuration - Upgrade menu, but using the Panel Configuration - Upgrade menu, the user is also able to upgrade just the Panel software, so as an example, allowing the panel to be used with a mainframe that is running a different version of software that is on the Grass Valley network.



The “Panel Display Frame Rate” parameter allows the user to set the frame rate to 50Hz, 59.94Hz and 60Hz. After setting the frame rate, a re-boot of the system is required. This may be required if connecting to a broadcast monitor or multiviewer.

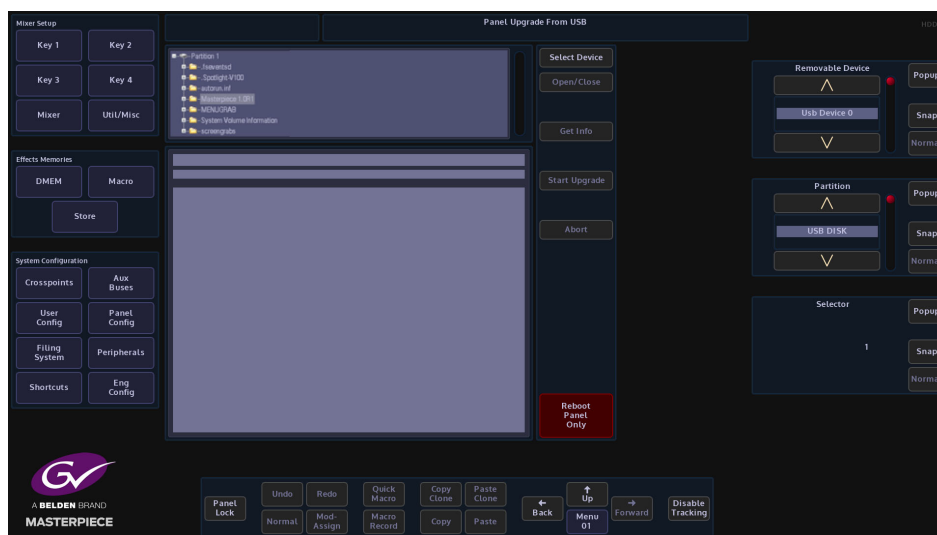
IP Mainframes

The **{IP Mainframes...}** menu is used to connect to other mainframes on a network. If a mainframe is on a different VLAN or on a totally different network, the user has to know the “Outgoing Gateway” of the facility they are working in, the “IP address” of the mainframe they wish to connect to and the “Return Path Gateway”. All these parameters have to be entered before being able to connect to the mainframe.



Panel Upgrade

Press the **{Upgrade...}** button to enter the Panel Upgrade From USB menu. This menu works in exactly the Grass Valley way as the Mainframe & Panel Upgrade menu, where the user inserts a USB memory device into one of USB ports on the mainframe or control surface, then presses the **{Select Device}** button. All the information on the memory device will be displayed as a filing system top left of the menu. Multiple versions of software can be Stored on the memory device, so the user needs to select the required version using the *Selector* parameter control.

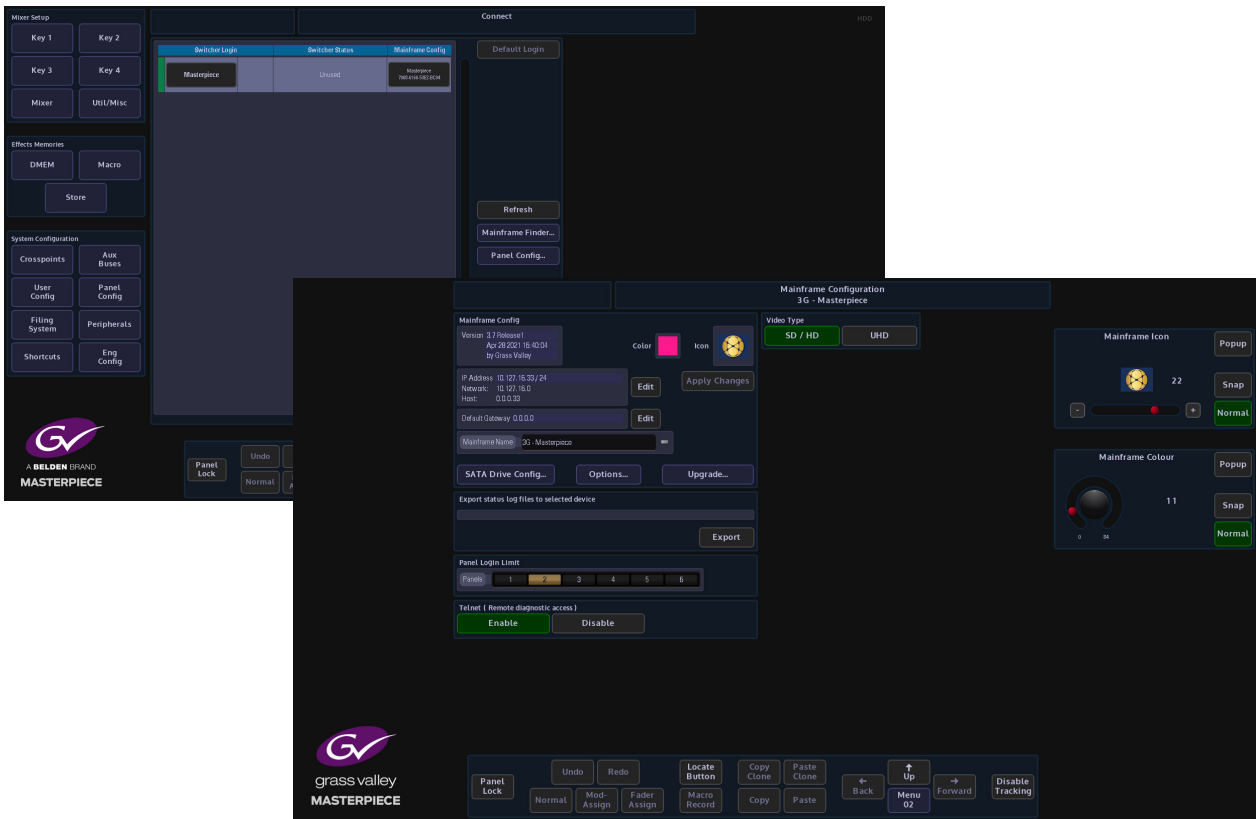


Next press the **{Get Info}** button and information related to the selected software from the file will be displayed in the information area. When happy that the correct software has been selected, press the **{Start Upgrade}** button.

The software will take a few minutes to upgrade the panel. When finished press the **{Reboot Panel Only}** button. The panel software upgrade is now complete.

Mainframe Configuration

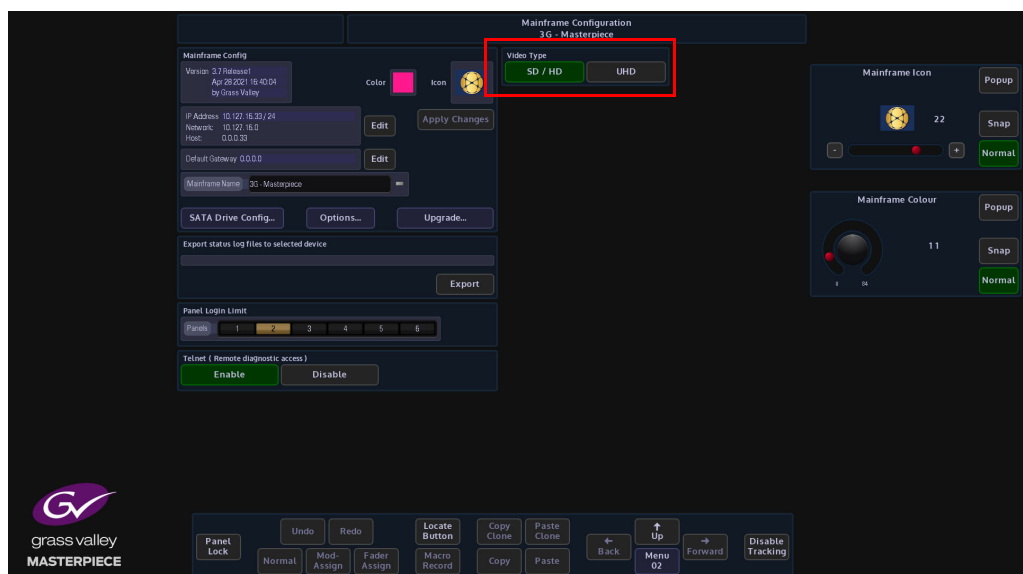
Touch the “Mainframe Config” button to enter the Mainframe - Configuration menu. This menu displays the current version of software the mainframe is running, the current IP address.



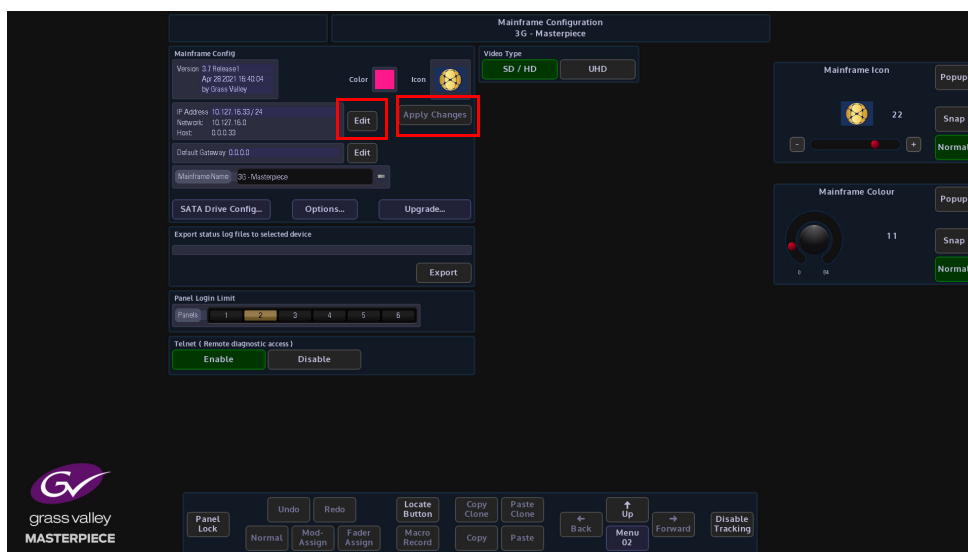
The user is also able to give the mainframe a unique name.

In this menu, the user can select if they want to set the Masterpiece mainframe to SD-HD (1080p) or UHD.

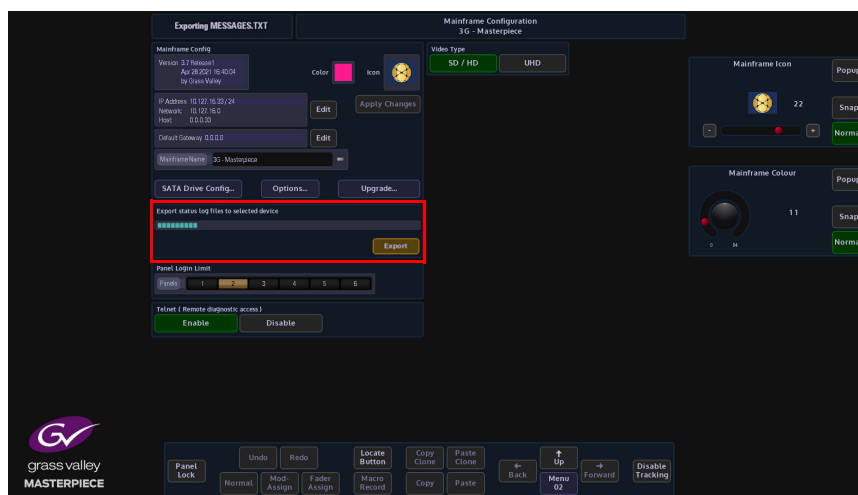
Setting the mainframe to run in UHD mode will allow the mainframe to be used in 12G-SDI single link UHD mode or UHD Quad Link and 2Si (for UHD setup, please read the Engineering Config section of this manual).



A new IP Address can be given to the mainframe (see below) by touching the {Edit} button and a popup menu will appear. Use the popup menu to enter the new address using the numeric keypad, then touch the "Apply" button. Finally press the {Apply Changes} button.



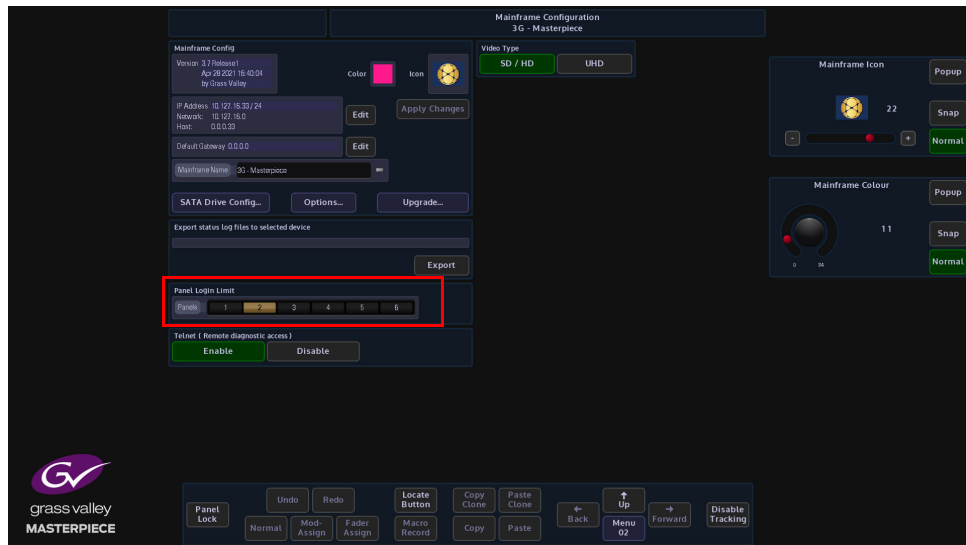
Exporting status log files, in the unlikely event that the system should fail in any way, this function allows critical data relating to a possible problem to be downloaded onto a USB memory device in the form of a (.txt) file. Touch the Export status log files attacher, then place the memory device into one of the USB ports on the mainframe, select the memory device using the *Removable Device* parameter.



If the memory device is partitioned, select the partition that the log files are to be Stored in and finally press the **{Export}** button.

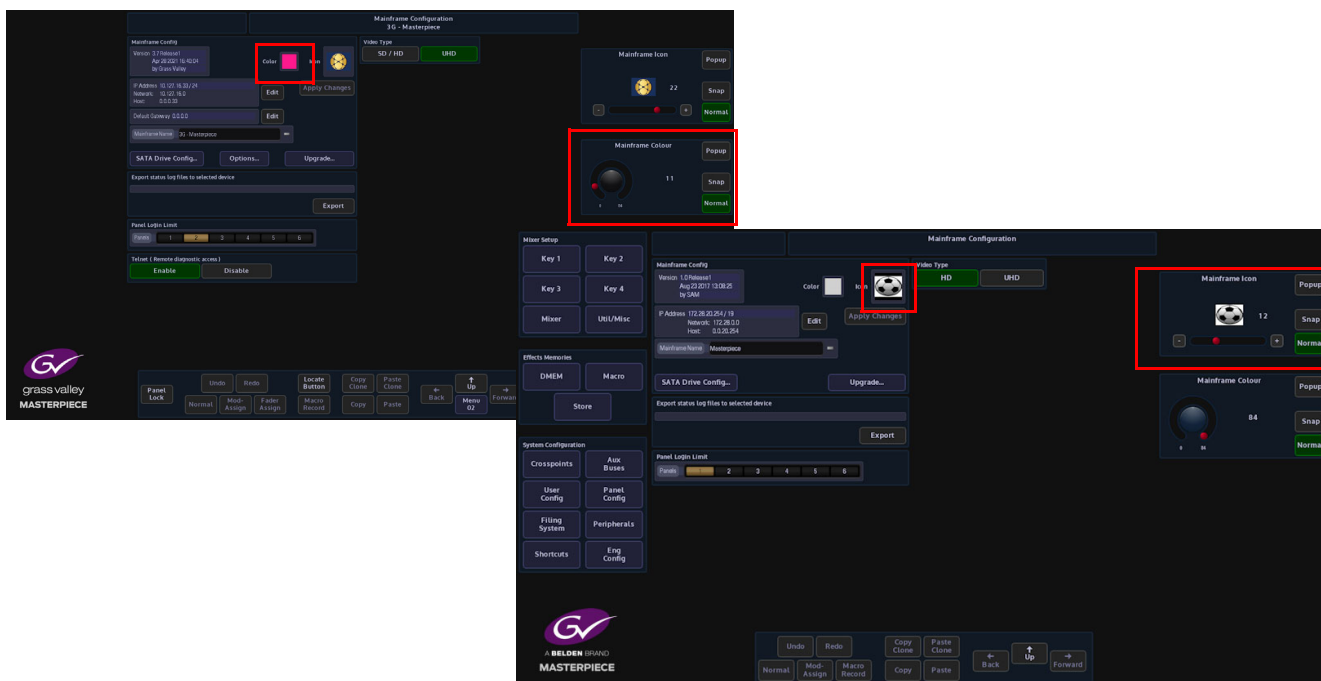
Panel Login Limit

This limits the number of Control Surfaces that can be connected and logged into the mainframe at any one time. The maximum number of control surfaces allowed to login is 6, but only 1 of the 6 control surface can be used at a time, or else there may be conflicts.



Mainframe Color and Icon

The Mainframe Color parameter allows the user to set an identifying color for each Masterpiece listed in the “Switcher Login” in the “Connect” menu.



Touch the color swatch and the “Mainframe Color” parameter popup will appear on the right. The user has 85 different colors to select from.

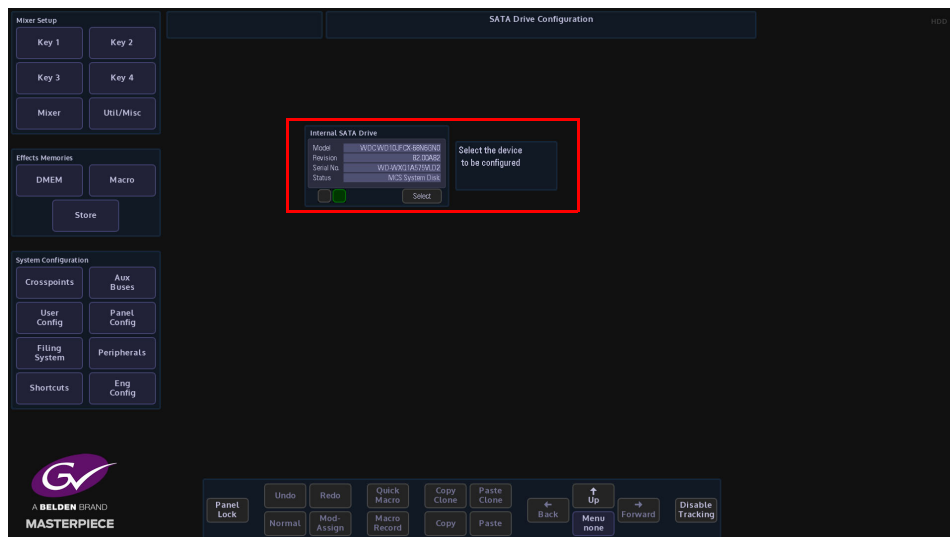
When a color is selected, touch the {Apply} button to apply the color to the switcher.

As well as an identifying color, and “Icon” can also be applied for easy recognition of the mainframe. If Icons have been imported, the list of Icons can be scrolled through using the “Mainframe Icon” parameter.

SATA Drive Config

The SATA Drive config is used format the internal hard disk drive.
Touch the {SATA Drive Config...} menu link button to enter the SATA Drive Configuration menu.

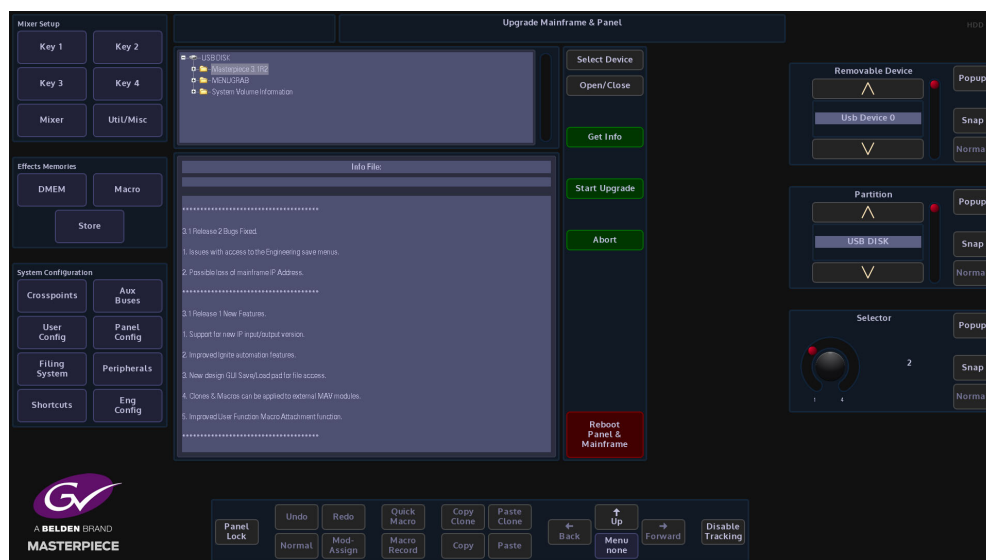
Note: **WARNING!** Caution is needed. This menu is used to format the internal disk drive!



To format the internal disk drive, touch the {Select} button and a button will appear allowing the user to format the system disk.

Upgrade (software upgrade)

This menu allows the user to upgrade the Mainframe and the Panel at the Grass Valley time.



To upgrade the software insert a USB memory device into one of the USB ports on the mainframe or control surface, then press the {Select Device} button. All the information on the memory device will be displayed as a filing system top left of the menu. Multiple versions of software can be Stored on the memory device, so the user needs to select the required version using the *Selector* parameter control. Touching the "+" next to the software folder will expand out the folder and display the contents.

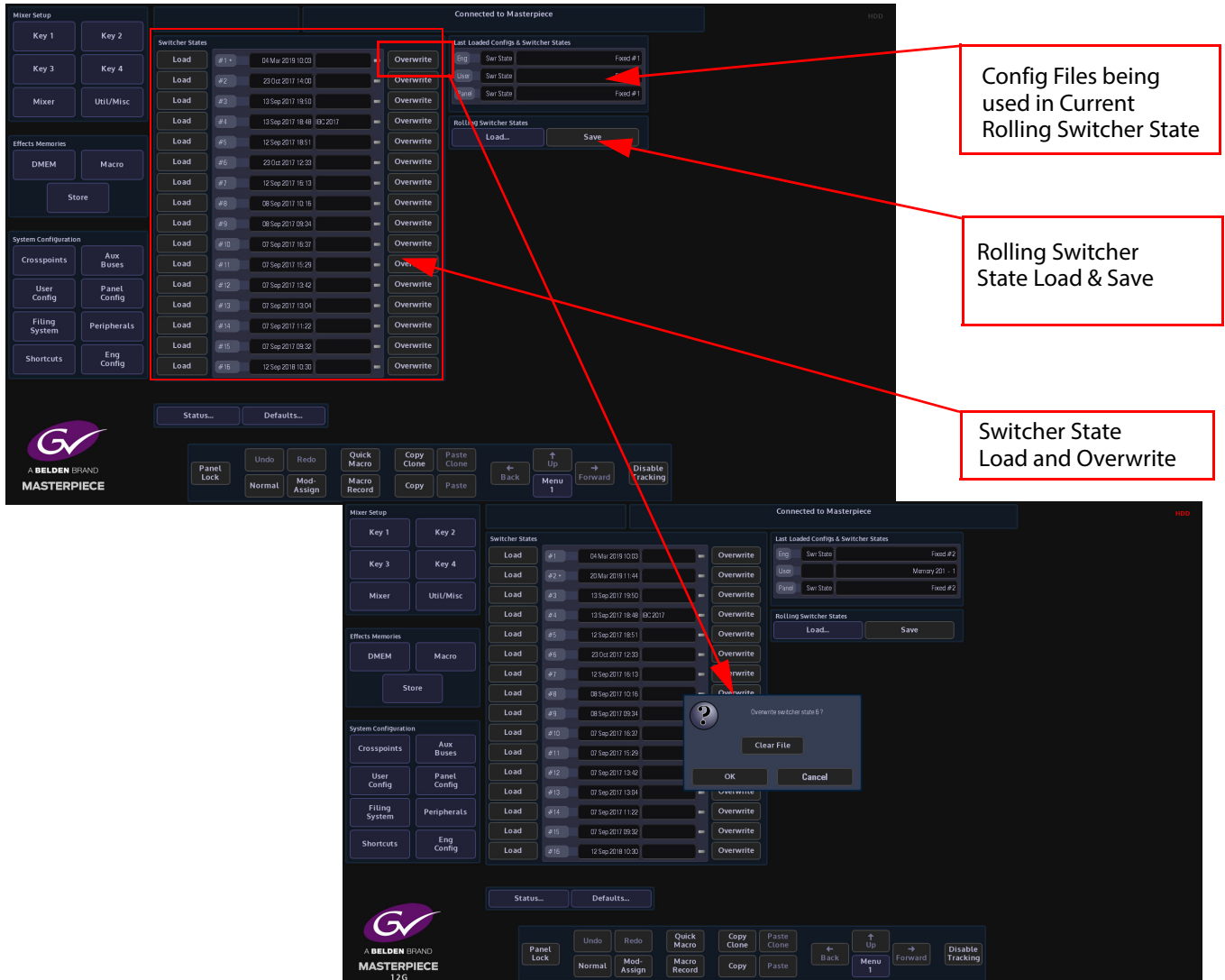
Next press the {Get Info} button and information related to the selected software will be displayed in the information area. When happy that the correct software has been selected, press the {Start Upgrade} button.

The software will take a few minutes to upgrade the system. When finished the user is prompted to Reboot Panel & Mainframe.

The system software upgrade is now complete.

Log into the System

Masterpiece is a "File" based system where the user sets up the User, Panel and Engineering Configuration files, and is then able to save the system setup to a switcher state. On logging into the Masterpiece system, the first menu to appear will be the Connected to..... menu. This menu allows the user to Load and Save Switcher States.

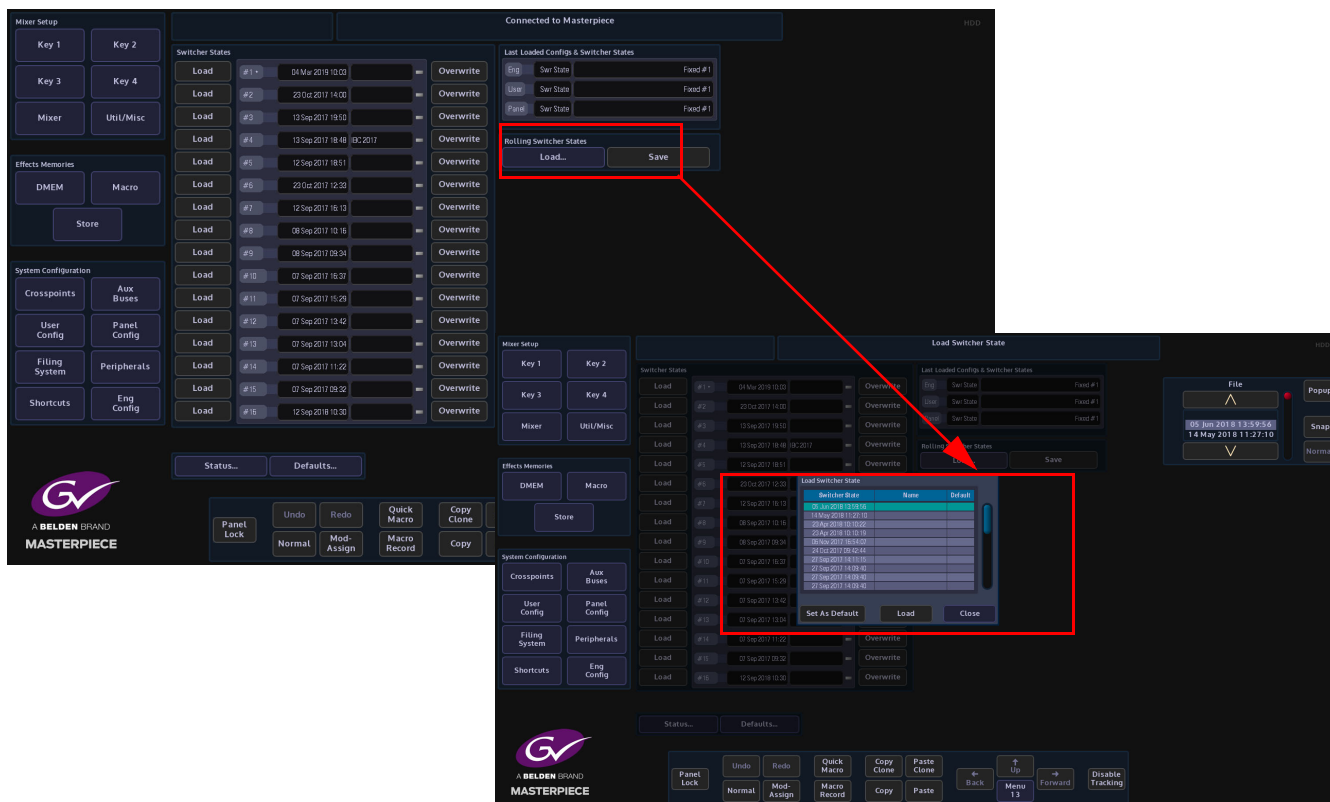


Switcher State - Overwrite and Load

In this menu, the user is able to Load or Overwrite 16 Switcher up to 8 times each as a one button press "Save Everything" function. Switcher State - Overwrite allows the user to save the current "Switcher State" at different points in time. This is very useful because the user may wish to keep the current original saved state, but may want to add newly created DMEMs or add Stores etc, which are saved in the Switcher State table. This is done by pressing the {Overwrite} button. The date and time that the Switcher State was saved (overwritten) is displayed in the list. By touching the boxed area next to the time and date, a name can be given to the Switcher State. Touch {Load} button to load the Switcher State.

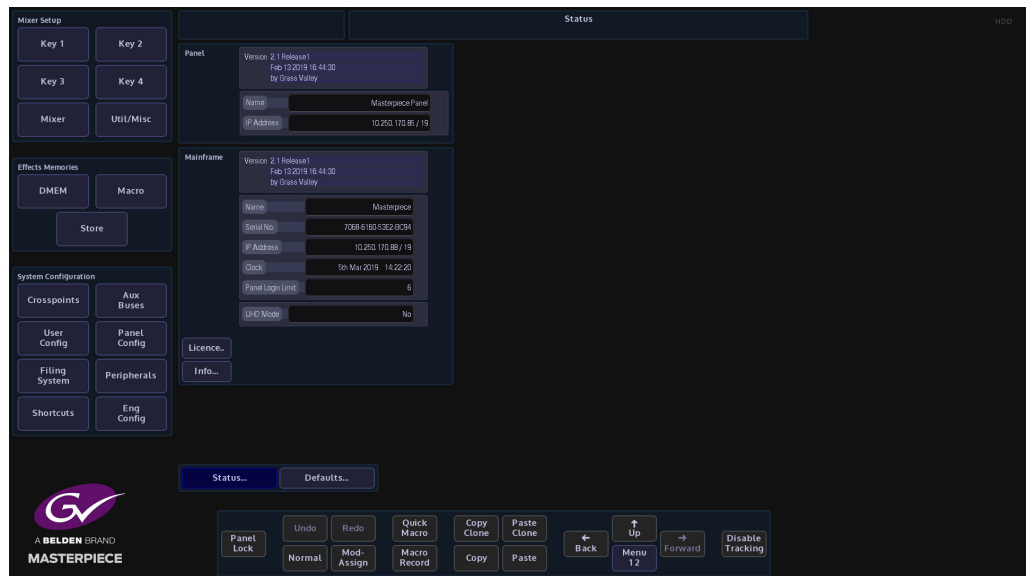
Rolling Switcher States

This allows the user to save up to 100 Switcher States in to a “Rolling List” of saved states. The “Rolling Switcher State” function is different to the Switcher State Overwrite mentioned above, because when the user touches the “Load” button, the menu will change to display a list of saved states. The user is able to scroll down the list to a saved state, then choose to select or deselect Stores, Panel, User and Eng Configs before loading the switcher state.

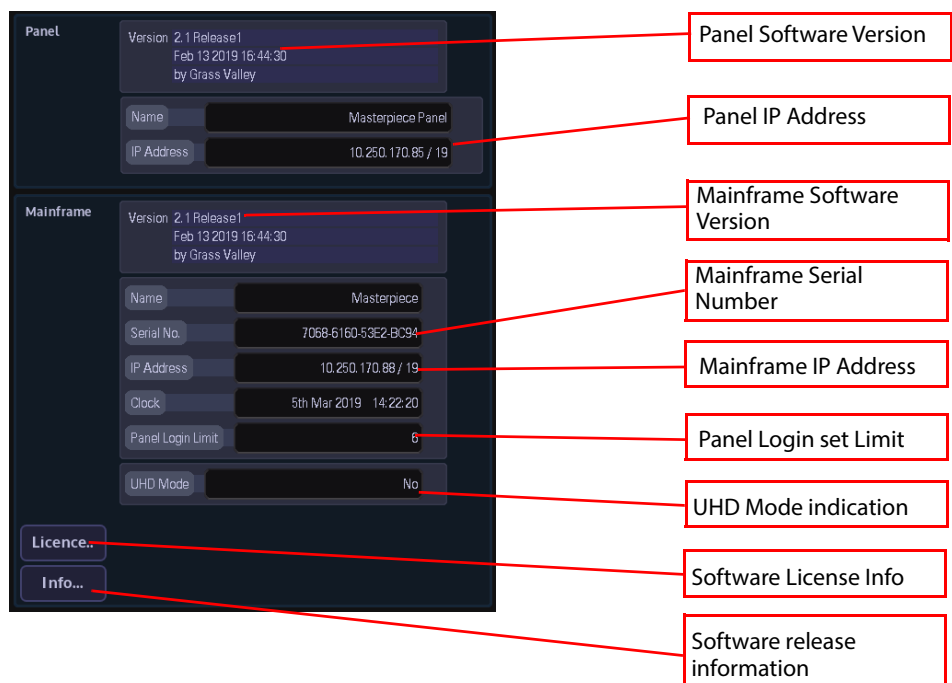


Status

In the Connected menu, press the {Status...} button to get to the Status menu.



This menu displays the current status of a Masterpiece system. The information includes, the GUI Panel and Mainframe software versions and IP address of the Panel and the Mainframe, the mainframe and panel names, the panels connected to the system and the time/day/date and also the mainframe serial number. It also displays information related to the software version.

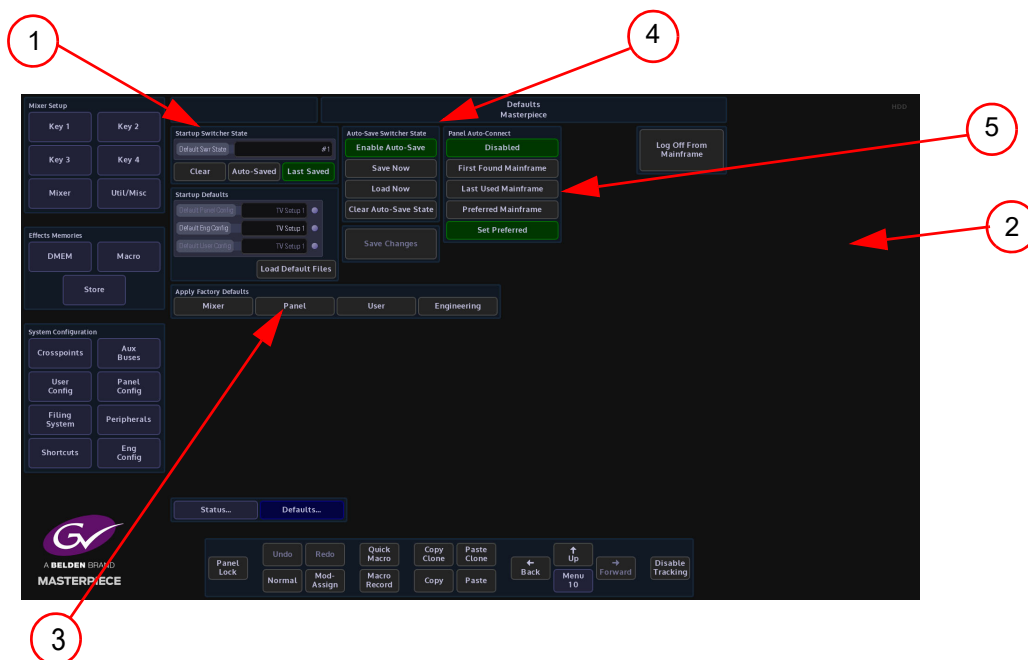


Press the {Info...} button and information relating to the specific software release.

Note: Press the [UP] button on the GUI to get back to the Connect menu.

Defaults

The Defaults menu is used to select either the Startup Switcher State or the User, Panel and Engineering Config files, to dictate the way the mainframe starts up after power-up and log-in. In this menu, the system can also be reset to a default configuration state.



The Default Startup State can be set in two ways:

- Using the Startup Switcher State - where the last saved switcher state can be used as the default startup.
- Using the Engineering, Panel and User Config files as the default startup.

The top left hand side of the screen (1) is the Startup Switcher State, this can be used as the default startup if the {Auto-Saved} allows you to enable loading of the current auto-save state when the mainframe boots and when a panel logs in. If this is enabled, it will inhibit the normal loading of the "Default" or "Last-Saved" switcher state.

If the {Last Saved} button is selected, the system will start up in the last saved switcher state. This as indicated will use the last saved switcher state as the default startup.

Touch the Setup Defaults attacher then using the parameters on the right hand side of the menu (2), select the startup config files. After making changes to the startup default parameters, press the {Load Defaults} button to load the new startup settings, then press the {Save Changes} action button to save the new Startup Defaults.

Pressing one of the menu buttons in the Apply Factory Defaults box (3), will cause the system to be reset to a factory reset configuration.

Pressing one of the Apply Factory Defaults buttons will not erase the startup files Stored in mainframe hard drive, it will only step out of the default startup files that are currently loaded. The pre-saved startup Config files may be accessed at any time.

Auto-Save Switcher State (4), performs an auto-save of the systems state. auto-save state is effectively like an extra switcher state which is saved outside the normal file system area. There are two copies of this data to avoid complete loss, if the system is turned off part way through saving a new state. The auto-save state is made up of the logical switcher, plus another part for each control panel. When auto-save is enabled, the mainframe will save a new copy of its state thirty seconds after a significant change occurs (a parameter is modified, a file is loaded, a panel logs out etc). Similarly, a control panel will save a new copy of its state thirty seconds

after a significant panel change occurs (a delegate is changed, a button map is loaded/unloaded, a panel config file is loaded etc).The control surface also saves its state before logging out.

There are three different states indicated with the “HDD” symbol:

- **Red HDD** = the hard disk is being written to
- **Green HDD** = the hard disk is reading
- **Orange HDD** = the hard disk is mounting

Touch the {Save Now} button and a dialog box is displayed asking if you want to “Create Auto Save Switcher State”.

Touch the {Load Now} button and a dialog box is displayed asking if you want to “Load Auto-Saved Switcher State. The dialog box also gives you the option to enable or disable Eng, User and Panel configs, DMEM and Stores.

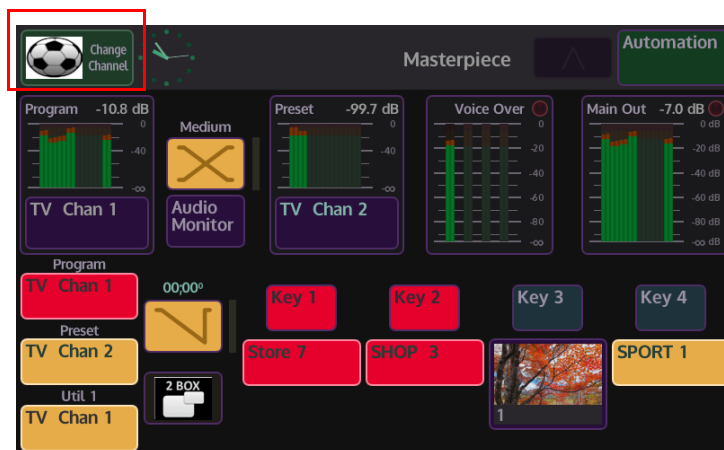
The {Clear Auto-Save State} button will clear the auto-save state buffer.

In the center of the screen is the Panel Auto-Connect box (5). From here the system can be set to automatically connect to a preferred mainframe each time the system is switched on and boots up. Press the {Preferred Mainframe} button. The next time the system is switched on, at boot up, the system will go straight to the Connected to menu. The {Last Mainframe} button sets the mainframe to start-up as the last mainframe that the system was being used as. Press the {Disabled} button to disable these functions.

Log Off

To log out of the current mainframe, touch the {Log Off From Mainframe} button. After log off, the “Connect” menu will appear.

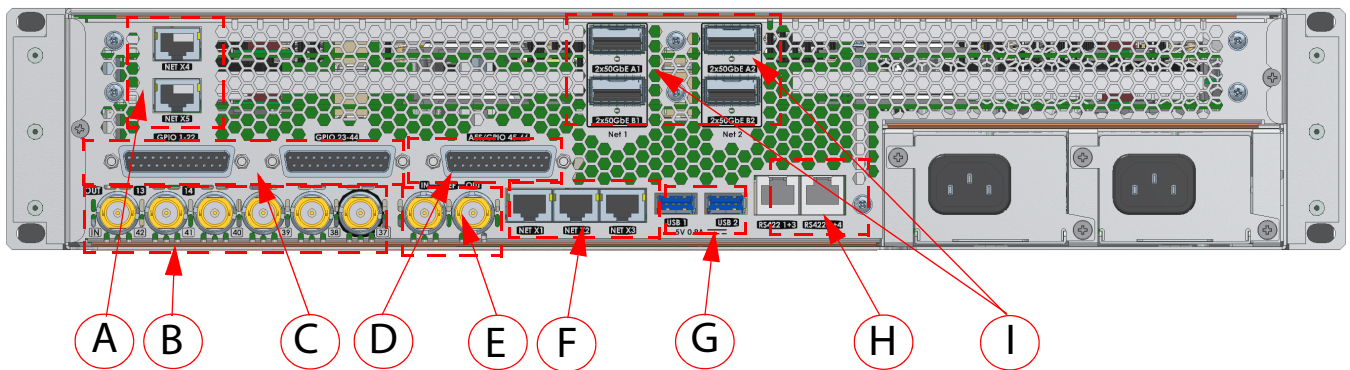
To log out of the system using the Masterpiece GUI, touch the {Change Channel} button, located in the top left of the menu.



3

Masterpiece Mainframe Rear Connectors

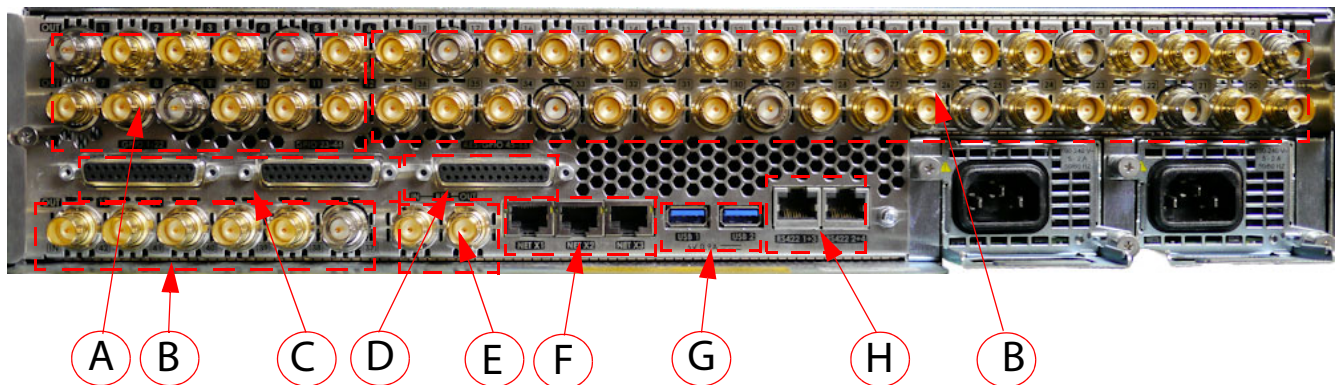
IP Mainframe Rear Connectors



IP Mainframe Connectors

Connectors	Description	Connector Information
A	Network (NOT for connection to Control Surface or LAN/WAN networks)	NET X4 and NET X5 are used for direct connection from a laptop or PC for software updates to the IP Fins via RollCall.
B	Input BNCs For inputs 37 to 42	6x HD/1080p (1.485Gbps / 2.97Gbps) Inputs. Serial digital interface As REC601/ SMPTE/292M / SMPTE424M via BNC connectors.
C	GPIO	44x GPI Tally/GPO Outputs Assignable GPI / GPO Isolated contact closures via 2 x 25 way D Type. Assignable as GPI or GPO.
D	AES/LTC	4 x AES inputs and 3 x AES outputs with 1 x LTC input. (AES formal name is AES3-2003). LTC is Linear (or Longitudinal) Timecode.
E	Reference	1x Ref In and 1x Ref out
F	Network	3x 10/100/1000 base T
G	USB	2x USB3 - for external memory device or hard drives
H	Serial	2X RJ45, 4 x RS422 serial ports
I	IP Inputs and Outputs (secondary Inputs/Outputs are for redundancy)	A1 (primary) 50GbE for Inputs 1 to 18 and Outputs 1 to 6 B1 (primary) 50GbE for Inputs 19 to 36 and Outputs 7 to 12 A2 (secondary) 50GbE for Inputs 1 to 18 and Outputs 1 to 6 B2 (secondary) 50GbE for Inputs 19 to 36 and Outputs 7 to 12

12G-SDI Mainframe Rear Connectors



12G-SDI Mainframe Connectors

Connectors	Description	Connector Information
A	Output BNCs	12x HD/1080p (1.485Gbps / 2.97Gbps) Outputs. Serial digital interface As REC601/ SMPTE/292M / SMPTE424M via BNC connectors. Including 3 x 12G-SDI (11.88Gbps SMPTE 2082) single link BNC connectors (silver BNCs)
B	Input BNCs For inputs 37 to 42	6 x HD/1080p (1.485Gbps / 2.97Gbps) Inputs. Serial digital interface As REC601/ SMPTE/292M / SMPTE424M via BNC connectors. Including 10 x 12G-SDI (11.88Gbps SMPTE 2082) single link BNC connectors (silver BNCs).
C	GPIO	44x GPI Tally/GPO Outputs Assignable GPI / GPO Isolated contact closures via 2 x 25 way D Type. Assignable as GPI or GPO.
D	AES/LTC	4 x AES inputs and 3 x AES outputs with 1 x LTC input. (AES formal name is AES3-2003). LTC is Linear (or Longitudinal) Timecode.
E	Reference	1x Ref In and 1x Ref out
F	Network	3x 10/100/1000 base T
G	USB	2x USB3 - for external memory device or hard drives
H	Serial	2X RJ45, 4 x RS422 serial ports

4 Control Surface

Overview

Note: This section of the manual is an overview of the control surface, further details related to button interaction and functionality will be explained in detail.

The Control Surface

The layout of the Masterpiece Control Surfaces is best explained by breaking down the control surface into sections. Moving around the control surface counter clockwise in the diagram below, each numbered item will be explained in this section of the manual.

Masterpiece Control Surface



Source Selection Crosspoint Buttons and Colored Mnemonics

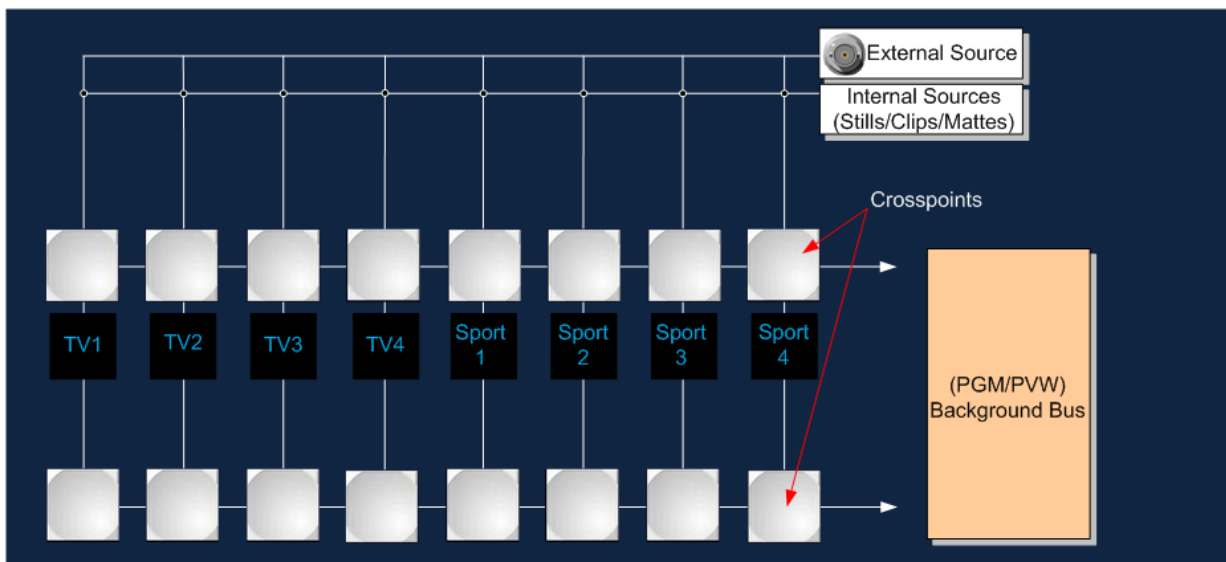
The Masterpiece Control Surfaces has two rows of source selection buttons, the top being the Program selection buttons and the lower being the Preview buttons (PGM/PVW).

A Bus button (crosspoint button) when pressed creates a matrix crosspoint, once setup correctly, the circuit tells the mainframe to route the source to an output. Masterpiece allows any physical input source, any Store or Matte to be mapped to any crosspoint button.

Example of Program/Preview Source Selection Buttons



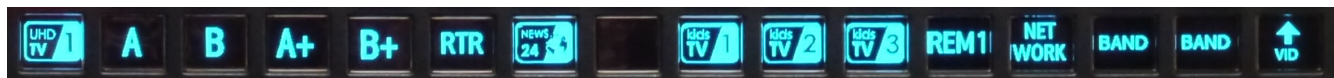
The source selection buttons for each function form a crosspoint bus which is fundamentally a switching matrix with the incoming signals forming the vertical parts of the matrix and the bus outputs the horizontal parts.



There is a row of Mnemonics between the key bus and program/preset (A/B) Bus buttons. This will display information relevant to the source allocated to each button. The mnemonics provide a display of 64 pixels wide by 48 pixels high for each column of buttons.

Mnemonics

Mnemonics on Masterpiece display the name or icon assigned to the source that is set for that crosspoint button. The mnemonics can be set to display either text or a basic image, this is done in the Crosspoint menu and will be explained in the Crosspoint section of this manual.



OLED User Function Buttons

The OLED User Function Buttons can have Macros, DMEMs or Snapshots assigned to them. The OLED buttons can have either text or color images assigned to them to accompany the assigned function.



Key Layer On/Off and Key Next Take

The top row of buttons turn On/Off Key layers 1 to 4. When selected the button will light up, when live to air, the button will be red. The source mnemonics display the name of the source assigned to the Key.

Key Next Take when selected (lit up), when the **[Take Next]** button is pressed, it will enable the Key On/Off button above.



Take Next

The Take Next function will enable a Wipe, Mix, Matte Mix, Reverse or Flip Flop transition between video sources and the currently selected audio sources (audio sources selected on the OLED buttons below the audio faders).

Note: If under Automation control, the "Take Next" button drives the automation system.



6

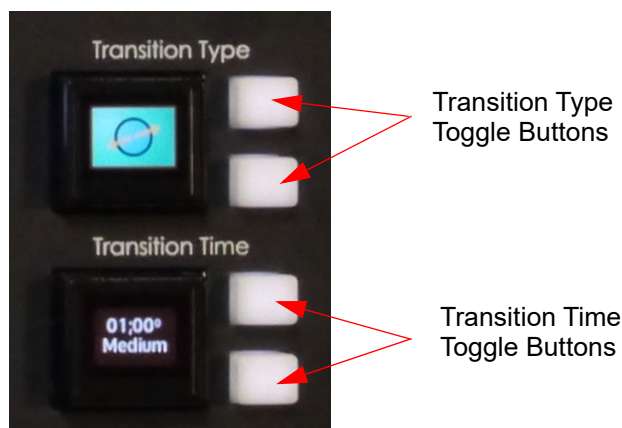
Transition Type and Transition Time

The Transition Type toggle buttons will toggle up and down through the available transition wipes. When the required transition type is reached, press the OLED button to confirm the selection.

Touching the OLED button a second time will display the "Macro" selection menu on the Masterpiece control surface GUI.

The Transition Time toggle buttons will toggle up and down through the Fast, Medium and Slow transition times. In their default state, "Fast" is an immediate transition (00.00) sec, "Medium" takes 1 second (01.00) to transition and "Slow" takes 2 seconds (02.00) to transition. Touch the OLED button to select the required transition time.

Touch the OLED button a second time and the Video Transition parameter menu will be displayed on the Masterpiece control surface GUI. Here you can set up a user defined transition time.



FTB/ATS

7

This is the Fade to Black/Audio to Silence (FTB/ATS) button. The button is protected with a flip up lid to stop anyone accidentally pressing the button. When pressed, the button will flash red and any video source going live to air will go black and any audio source going live to air will be silenced. The button will light up and activate the Fade to black and Audio to Silence transition.

Note: As detailed in the User Config - Mixer Outputs section.

Note: A second press of this button during the transition to black or back to a live picture will complete the transition.



8

PFL (Pre Fade Listen)



These buttons are for a future use.

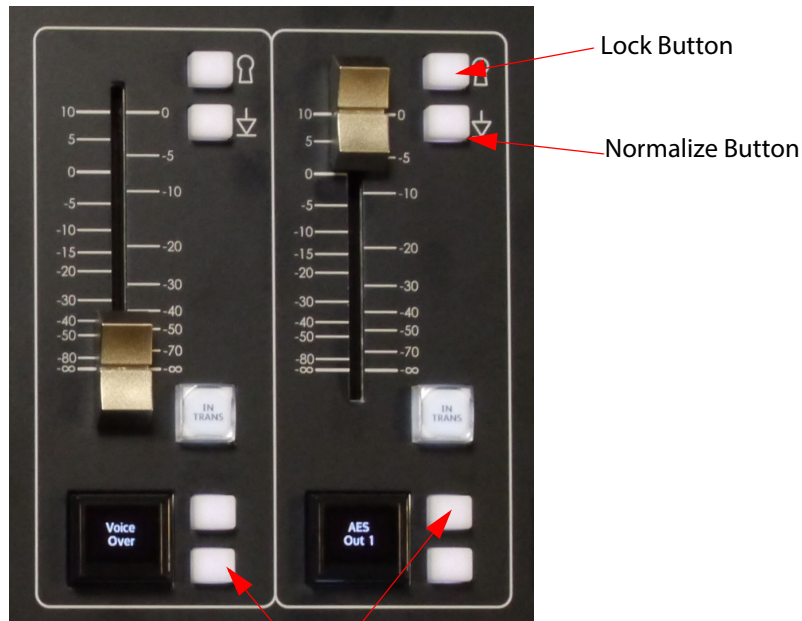
9

Assignable Motorized Faders

The Audio Faders are assigned to an audio function using the toggle buttons and OLED buttons below the faders. Once assigned, the faders will directly work with the on-screen faders on the Masterpiece control surface GUI.

The "Normalize" button when pressed, will automatically move the slider back to the default setting. The "Lock" button will lock out the set position of the slider, so that if the slider is moved, it will automatically go back to its position where the lock was added.

Note: The Normalize value is the value last set value by the automation.

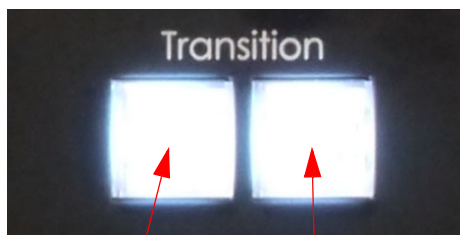


Use the Toggle buttons to scroll through the options

Break Away Video/Audio Transitions

10

This will enable/disable the ability to transition video or audio separately or both together. When the buttons are lit, you can transition, when they are not lit, a transition can not be done. You can transition video without audio, or audio without video.



Video Transitions

Audio Transitions

Touch Screen Graphical User Interface (GUI)

11

The touch screen GUI allows you to setup audio levels, audio and video transitions, setup stores and Key Layers.

Setup and Configuration is done using the external GUI.



5 Masterpiece Menu Operation

The Graphical User Interface

Masterpiece is controlled using two different GUIs. The GUI on the masterpiece control surface is mainly used for monitoring and operational tasks, such as; Audio Controls, Audio and Video transitions, Key selection and control and Store selection.



The large Touch screen GUI (customer supplied option) is used for all setup and configuration functions.



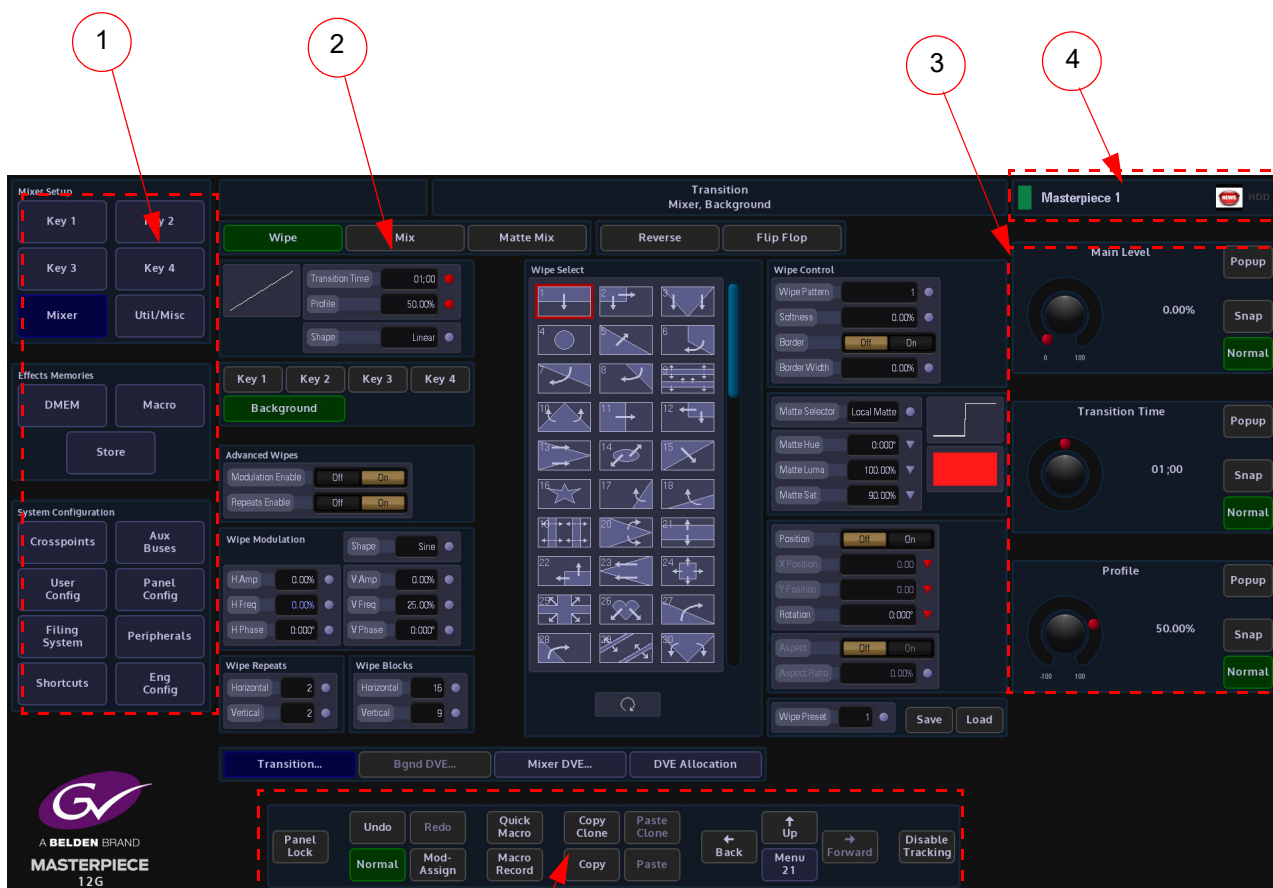
Touch Screen Monitor Menu Overview

Configuration and setup of a Masterpiece system is driven using the intuitive menu system on the touch screen or mouse pointer driven Graphical User Interface (GUI). The type of GUI monitor used is a customer selected option, but the menu structures will be identical. The menu structures are clear and allow the user to quickly move from menu to menu when setting up or using a Masterpiece production switcher.

GUI Menu Layout Overview

Setup, Effects and System Configuration menu selection is done using the buttons down the left side of the menu. Parameter controllers are on the right side of the menu and consist of on-screen rotary controls and sliders (these can be attached to the physical rotary controls and joystick on the control surface). Navigation, Copy & Paste, Undo/Redo, Macro Record and Modulation Assign buttons are situated at the bottom.

All the menu functions, options and parameters are displayed in the center area of the menu.

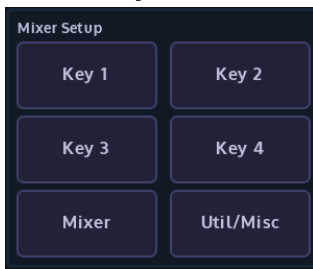


- 1 Menu Selection Buttons
- 2 Selected menu functions and options
- 3 On-screen Rotary and Slider Controls and Integer Buttons
- 4 Mainframe Identity - so the operator can see which switcher they are connected to at a glance on every menu.
- 5 Menu Navigation and Control

Menu Selection Buttons

The information below highlights the function of each button.

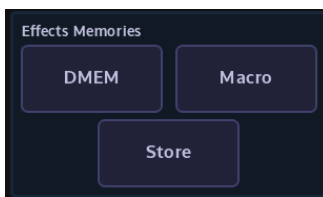
Mixer Setup



Mixer Setup:

These buttons are used to setup the Key Control Actions for Keys 1 to 4 Full, Linear, Luma and DVE setup. Mixer Transitions and Bgnd/Mixer DVE and DVE allocation. Mixer Bus Crosspoint Source Setup (Keys 1 to 4 and Program/Preset Video/Audio sources).

Effects Memories



Effects Memories:

The DMEM menu allows the user to quickly select and load effects memory files. The Macro button enters the main macro setup menu. The Store button enters the main Store setup menu.

System Configuration

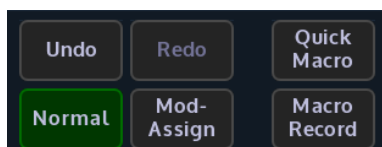


System Configuration:

As the name suggests, these are the main system configuration menus. Here the user is able to setup Crosspoints, Mixer Outputs, Aux setup, Button Maps, Control Surface and GUI Preferences, GPOs, Store Setup etc. The Filing System button enters a menu where the filing system information for all DMEMs, Config files, Snapshots etc. are kept. It contains the Import/Export of files menu where Stills, Clips and individual files are imported and exported, the menu also contains the Backup, ReStore and Media Management menus. The Shortcuts menus displays an on-screen number pad for saving and loading DMEMs.



Panel Lock The Panel Lock button as the name suggests, locks out all button functions on the Masterpiece control surface and the large touch screen GUI. When enabled, the button will turn orange. If you touch any button on the control surface or large touch screen panel, the {Panel Lock} button will flash red for a few seconds.
The panel lock button can also be accessed by touching the “Star” button on the control surface GUI, and then touching the “Panel Lock” button.



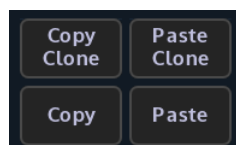
Normal A press and release of this button normalizes all the adjustable values in the current selected menu.

Mod Assign Assigns a modulation effect to a chosen parameter.

Macro Record Will record any button press sequences in **“Real Time”** to the macro function, which can then be setup within the **Macro** menus.

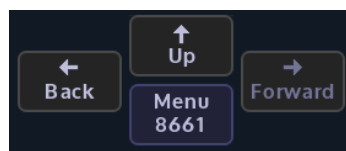
Quick Macro You can record a **Quick Macro** rather than using the normal 'Macro Record' button. The resultant macro is no different, but specifically does not 'Follow ME' and does not 'Use Delays'. More obviously, it facilitates the quick attachment of the macro onto a button without the need to manually save first.

Undo & Redo Incrementally undo or redo.



Copy Clone Paste Clone The **Copy Clone and Paste Clone** buttons are used to copy button functions from either the Masterpiece menus or from the control surface and allows the user to setup a system to their own operational preference.

Copy & Paste The **Copy & Paste** function enables the user to quickly and simply transfer values from one parameter to another. This function can be used to record and transfer one or two co-ordinates or even the detail of a whole Mixer.



Menu Navigation The menu navigation buttons will step through menus in the direction selected. Back will go back to a previously visited menu or menus. Up will either come out of a menu structure to the “Connected” menu or go to the top menu in a menu structure.



Direct Menu Jump The direct menu jump facilitates direct access to almost any menu. The implementation is slightly different between the large touch screen GUI and the Masterpiece control surface GUI. At a basic level (on the Masterpiece control surface GUI), the only level, you can discover/learn the unique numeric menu code (like a phone number) of any menu by navigating to it in the normal way. Once there, the menu number can be seen in one of two places, depending on the GUI in use. For the large touch screen GUI, it is shown on the **{Menu Jump}** button under the 'UP' button. On the Masterpiece control surface GUI, it is shown on the numeric keypad, accessed by touching the **"Star"** pop-up button.

In order to direct-jump to a menu, all you need to do is to bring up the pop-up keypad, type the number and touch the **{Enter}** button. The details are slightly different, depending on the GUI:

- On the Masterpiece control surface GUI, touch the **"Star"** button to show the **'Star pop-up'**. Use the **"Direct Menu Jump"** keypad to enter the menu number. The number is shown on the **"Enter"** button at the top of the keypad. Touch the green **"enter"** button to jump to the menu. This works for pop-up menus as well. Corrections can be made during number entry by using the **"backspace"** button. If the entered number does not match any menu, no jump will occur, and the Star pop-up menu will stay open. The **"enter"** button (still showing the entered number) will go **red** to indicate the problem. This can be corrected by backspacing, or by just entering a new number afresh (this replaces the previous number).
- On the large touch screen GUI menu, Touch the **'menu number'** button (the one labeled "Menu Jump" or with "Menu" followed by a number - just below the 'UP' button). This shows the 'Direct Menu Jump' pop-up. From the keypad in the center of the pop-up you can type the number for the required menu, and press enter to do the jump. Error handling is very similar, except the enter button flashes just briefly red to indicate a problem.

Jumps will always occur on the GUI they are requested on. There is a strong correlation of menu numbers between the GUIs, though due to menu differences not all numbers are available on both.

The large touch screen GUI menu, has two additional features:

- A 'scrolling' history is shown on the left of the pop-up. Any of the previous ten menus can be jumped to by pressing one of the buttons on the left. Note that a jump to a menu in this recent history will move that entry back to the top of the list, rather than add another instance of it.
- Also available is a **'Favorites'** menu system. This works like the preset buttons on your car FM radio. To use - once you're in a menu that you want to save as a **'Favorite'** - open the 'Direct Menu Jump' pop-up and press and hold one of ten buttons on the right (underneath the 'Favorites' label). After about 2 seconds, the title of the menu will appear in that button. Use is the Grass Valleye as the history buttons. Overwriting favorites is possible. Currently it is not possible to remove favorites.

They are saved in the Panel Config file.



Disable Tracking Disable Tracking - This is a one button press to disable all the tracking elements set in the "Panel Config-Preferences - Tracking Preferences" menu. When selected, Menu Tracking, Store Tracking, Layout Tracking, Mixer & Bus Tracking, Xpt Button Tracking and Crosspoint Tracking are all disabled.

Using the GUI Menus



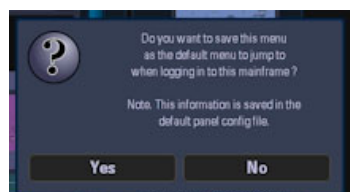
1. Title Bar
2. On-screen Rotary and Slider Controls and Integer Buttons
3. Attachers with Parameters

Title Bar

All menus have a title bar situated at the top of the menu, the title bar Shows the full title of the current menu. A second line in the title bar will indicate the mainframe the system is connected to, or that it is controlling a particular Background or Key.

Note: Touching the Title Bar at the top of the page will allow the user to return to the menu page's original state, as would be the case if leaving the menu and then re-entered it. Adjustments to attacher parameters remain unchanged; it just acts as a shortcut to the original combination of attacher boxes.

Note: Touching and holding the title bar will display a dialog box asking if the user wishes to save the menu as the default logging in menu.



On Screen Control

On the right hand side of the menu are the rotary and slider controls, these are linked to parameters within a selected attacher. The parameters can be adjusted using the on-screen rotary/slider controls, the physical rotary controls on the control surface. When active the parameter indicators will turn RED as shown below.

Examples of Attachers



Inactive Controls are Gray

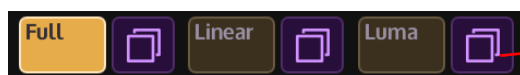


Active Controls are Red



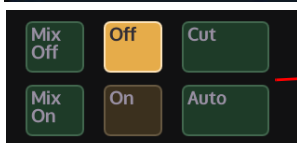
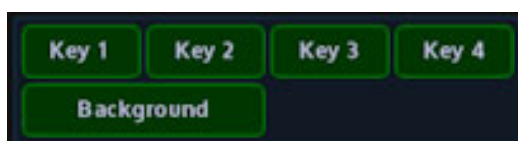
Name Attacher
Touch the Red oblong control twice and an on-screen keyboard will appear allowing the user to give the function a name

Other Menu Functions



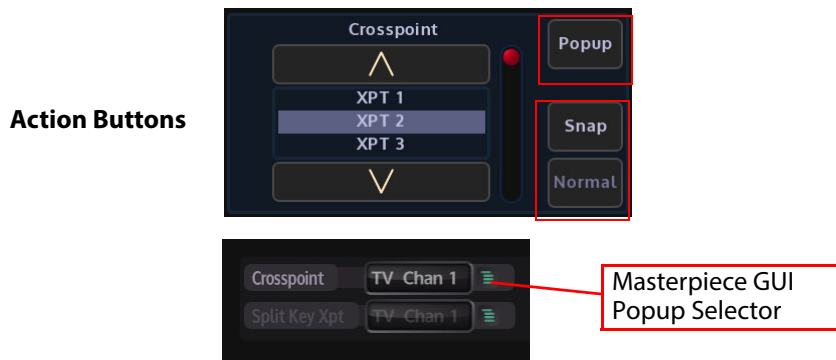
Masterpiece GUI
Menu Link Buttons

Menu Link buttons allow the user to enter a sub-menu, mainly shown at the bottom of menu's.



Masterpiece GUI
Action Buttons

Menu Link Buttons When pressed the Action buttons apply the selected action to a menu. The buttons go Green when active.



Pop-up List Selector

Popup - Touching this button will display an “options dialog box”. This allows the user quick access to all options available in the selected parameter, without having to use the rotary control to scroll through all the options.

Snap & Normal Buttons

Snap & Normal - The **Snap** button when pressed will jump a parameter to an incremental value. The **Normal** button has two states, when it is illuminated Green this indicates that the currently selected parameter is in its default state. When the rotary control is turned, the button will turn Orange, denoting that the currently selected parameter’s value has been changed, Press the button and the parameter will revert back to its original default state, the button will once again turn Green.

Time and Timecode Adjustments

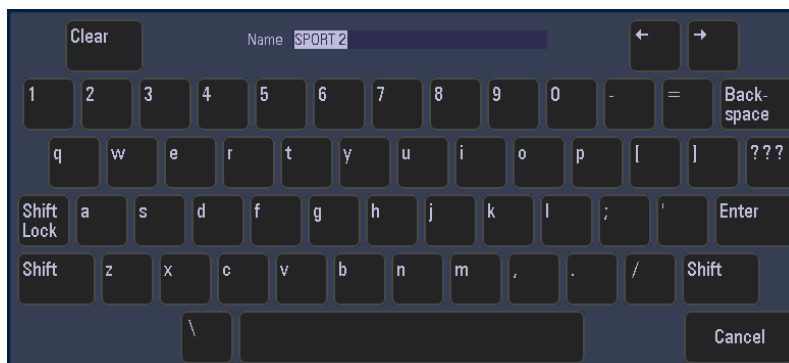


It is worth mentioning that some menus described in this manual will have the option of adjusting the duration of **Hours**, **Minutes**, **Seconds** and **Hundredths**, as shown in the diagram the adjustment can be made using either the parameter controls or using the numeric keypad (by touching the popup button).

This Example: - Transition Time: 01:07

This Shows the duration as, 01(second):7 (frames)

On-Screen QWERTY Keyboard



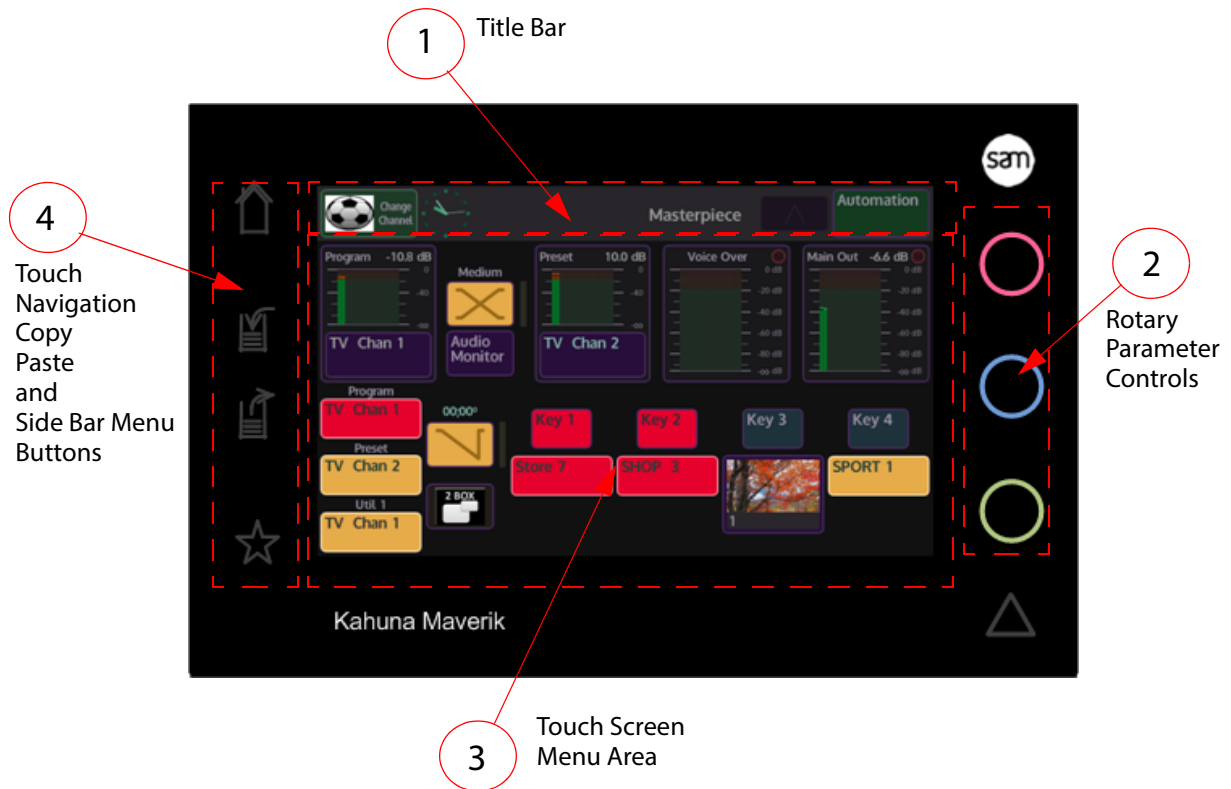
Some menus have name attachers, touching the red oblong twice will display an on-screen QWERTY keyboard that can be used to enter text.

Enter the chosen name (text entry is displayed at the top of the keyboard dialog box), then press **“Enter”**. To return to the original menu screen if no changes are made to a parameter, press the **“Cancel”** button on the keyboard.

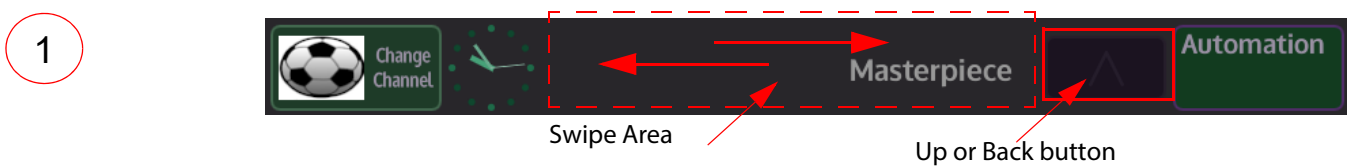
Text can also be typed into name attachers using a USB keyboard connected to the mainframe.

The Masterpiece GUI

The Masterpiece GUI is part of the physical control surface, it is mainly used for monitoring the status of the of Masterpiece; Key layers, Program/Preview outputs and Audio/Video transition setup



Information and Title Bar with a Swipe Function

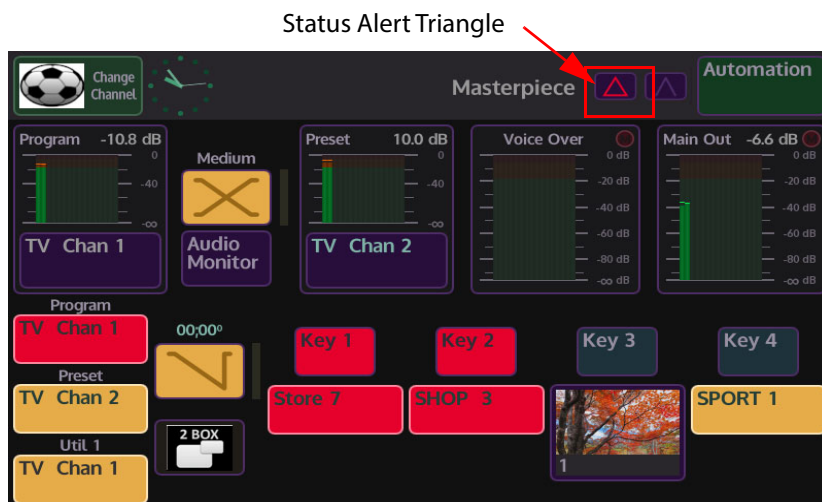


The Title Bar displays the name of the current menu. Swiping a finger in the "Swipe Area" in a left to right action will go back through the previous menus. If the user wishes to go forward then swipe in a right to left motion.

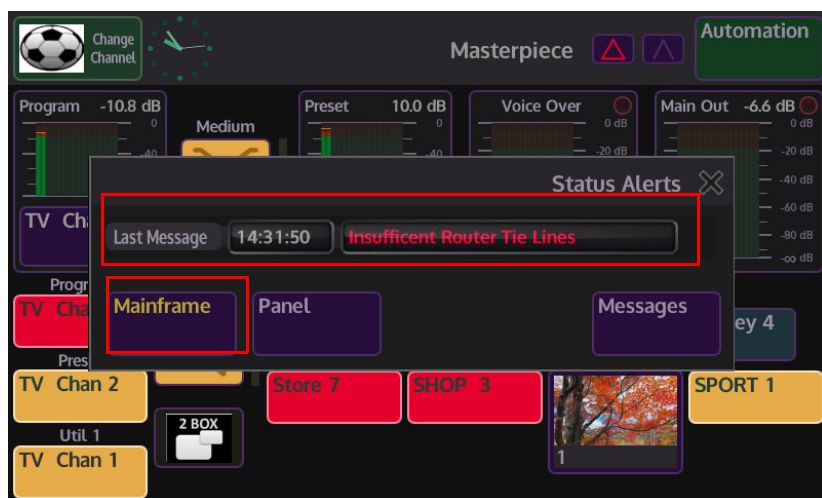
There is also an "Up" or Back button that will back to the previous menu.

Status Alert Triangle

An “Status Alert Triangle” may be displayed in the information bar, as shown below. This is to alert the user to a possible problem that may have occurred.



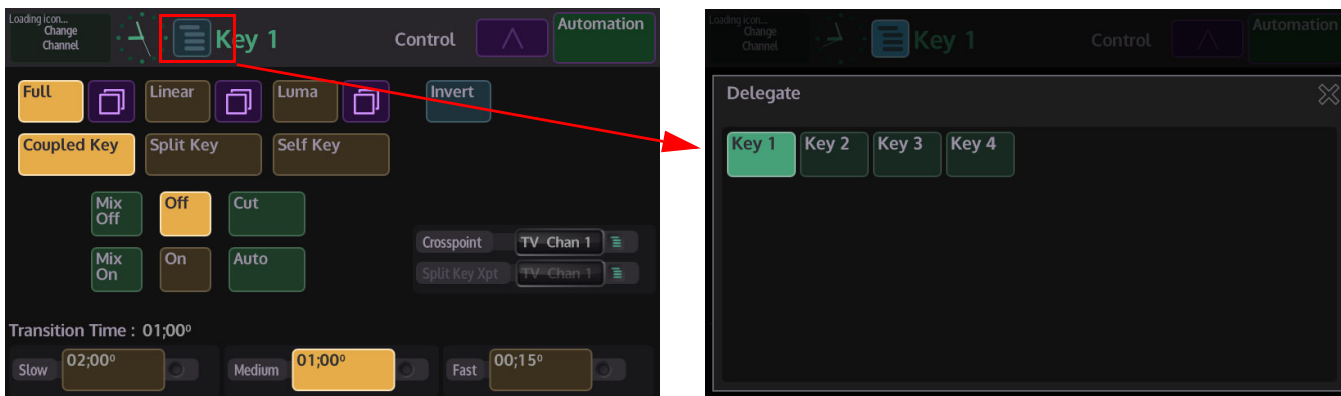
Touch the triangle and a “Status Alert” dialog box will appear. An alert message will be displayed in the center of the dialog box menu.



There are 3 menu link buttons in the menu, if the name text on the menu link buttons is a yellow color, it indicates that there is a problem within that menu. Touch the button to display the cause of the alert.

Delegates Menu Button

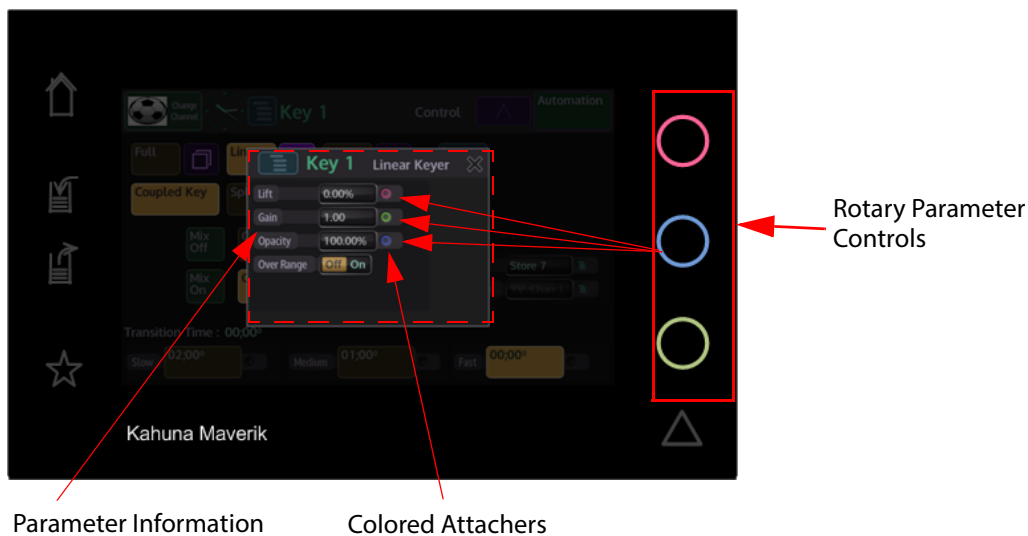
If the user touches the blue Delegate button at the top of a menu, then a **Delegates** menu will appear (in some menus) over the current menu. The Delegates menu gives the user selection options. In the example below, allowing you to select a different Key.



Rotary Parameter Controls

2

The rotary parameter controls adjust some parameters within menus. The colors are directly linked to the “Colored Attachers” displayed at the end of some parameters. Adjusting the rotary controls will adjust the parameter information.

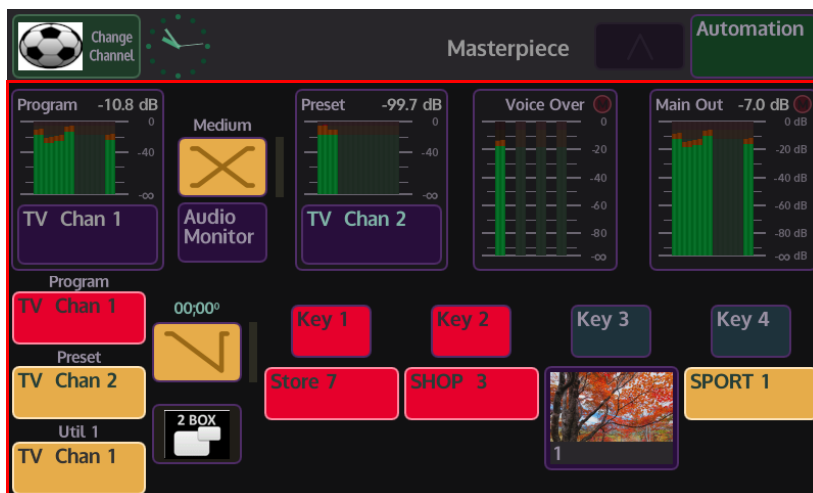


Note: The Colored Attachers will be explained in full later in this section.

3

Touch Screen Menu Area

This is the menu selection area (marked in red in the menu below), where the user selects which menu they require, turns functions On/Off, adjusts parameter controls or steps through to sub menus.



Note: How the menus work will be described in full later in the section.

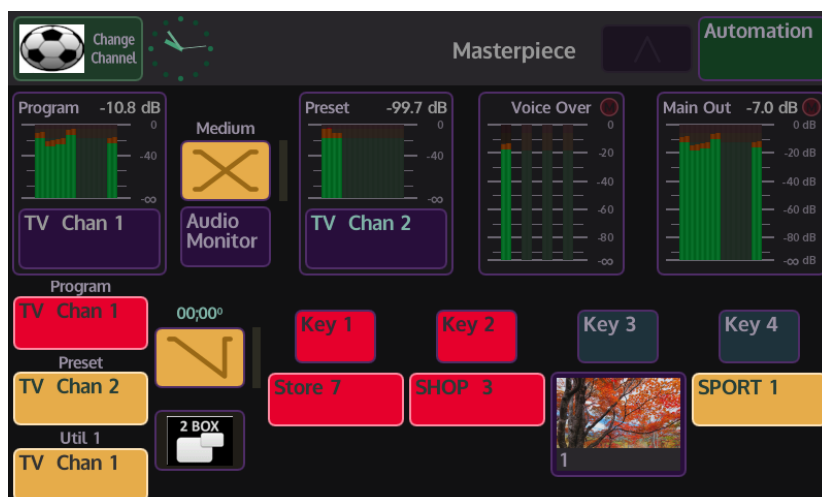
Touch Navigation Buttons

4



Home Navigation Button

The **Home** button - the button is blank until touched, when touched it will turn blue. When in any other menu than the Home menu, touching the Home button will switch back to the home menu (shown below).





Copy Navigation Button

The **Copy** button - the button is blank as a default, when touched the button will turn a purple color and flash, indicating that it is ready to copy. As an example, this allows the user to copy one buttons functionality (Wipe, Auto, Cut etc.) ready to be pasted onto a User Function button. Notice that the copy button on the Soft GUI is also flashing. When finished, the button will return to its default blank state.



Paste Navigation Button

The **Paste** button - the button is blank as a default, when touched the button will turn a purple color and flash, indicating that it is ready to paste the copied function. It allows the user to paste the copied functionality (mentioned above) onto a User Function button. Notice that the copy button on the Soft GUI is also flashing. When finished, the button will return to its default blank state.



Star Navigation Button

The **Star** button - the button is blank as a default. Touch and hold the button, the button will turn purple and a side bar menu will appear in the current menu (as shown below) with options which include: Macro Record, Normalize Values and set a Favorite menu. Touch and hold the lit star button and the side bar menu will close and the star button will go back to the default setting.

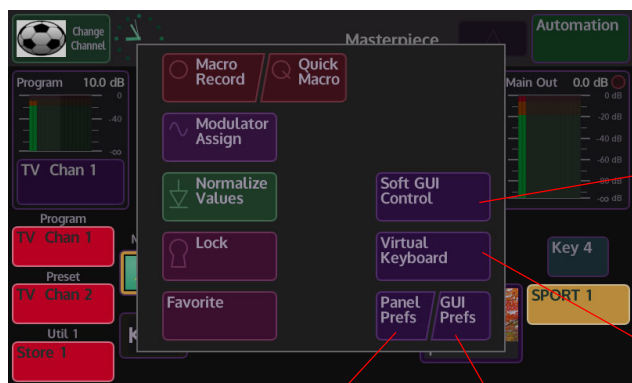
How to use Copy and Paste

There are several ways the user can copy and paste button functions, parameters etc. using the Masterpiece GUI or the Touch screen GUI.

The **“Copy Clone”** and **“Paste Clone”** function is used to copy button functions, almost any button function can be copied and cloned from the Masterpiece control surface. Button functions would normally be copied onto one of the OLED buttons, for example as quick access to a button function that may be in a menu away from the menu that was currently being used. Copying button function on Masterpiece is quick and easy and just takes a couple of seconds.

There are two ways to start the copy process, the user can either press the **“Copy”** button on the Masterpiece GUI (shown below left), or press the **{COPY CLONE}** button on the Touch screen GUI (shown below right).

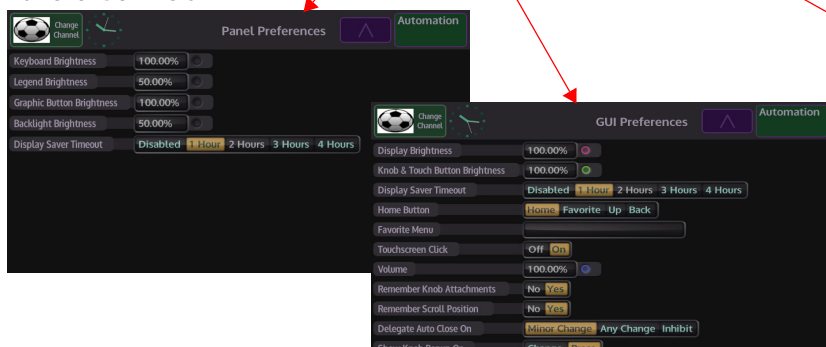
The buttons will flash until the **“Paste”** button on the Masterpiece GUI is pressed or the **{PASTE CLONE}** button is pressed, once again the buttons will flash. A dialog box will be displayed on the Touch screen GUI with a selection of Lamp options. Finally press the button that will have the clone function attached. The selected button will now have the cloned function attached.



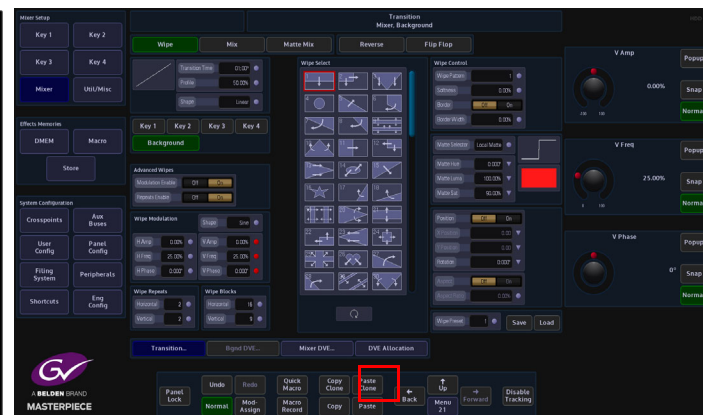
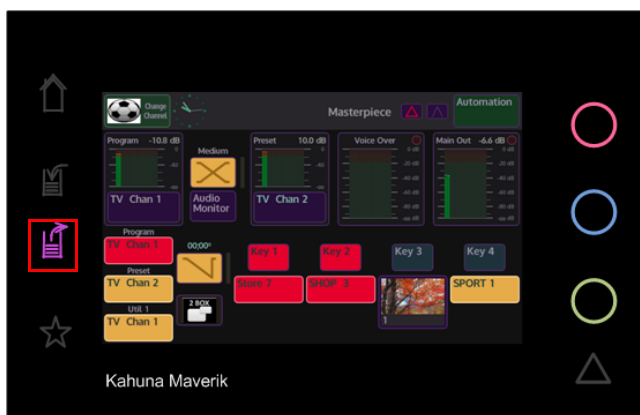
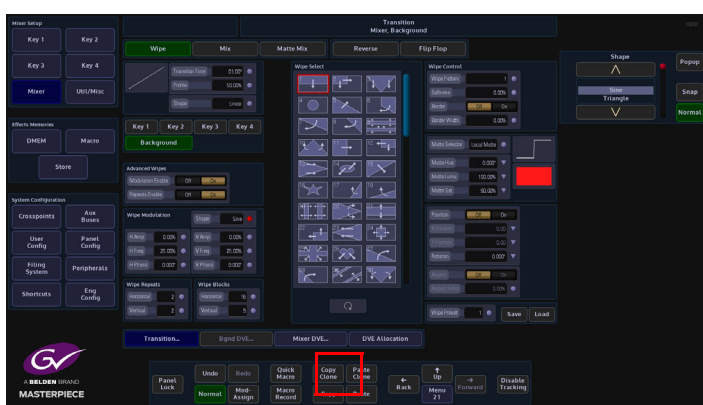
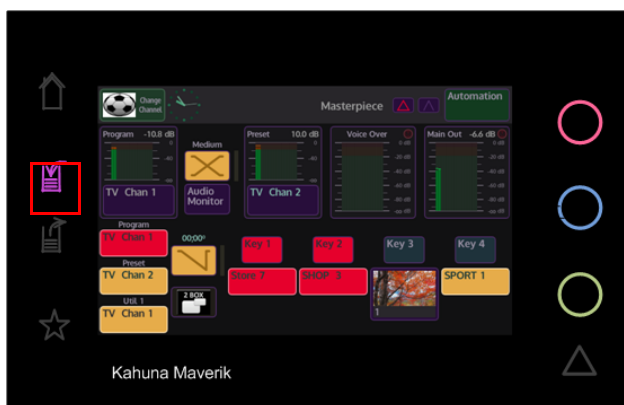
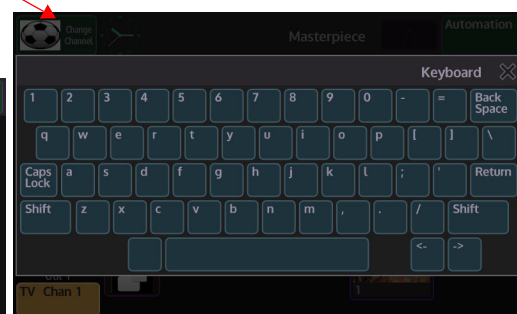
Soft GUI Control



Panel & GUI Prefs

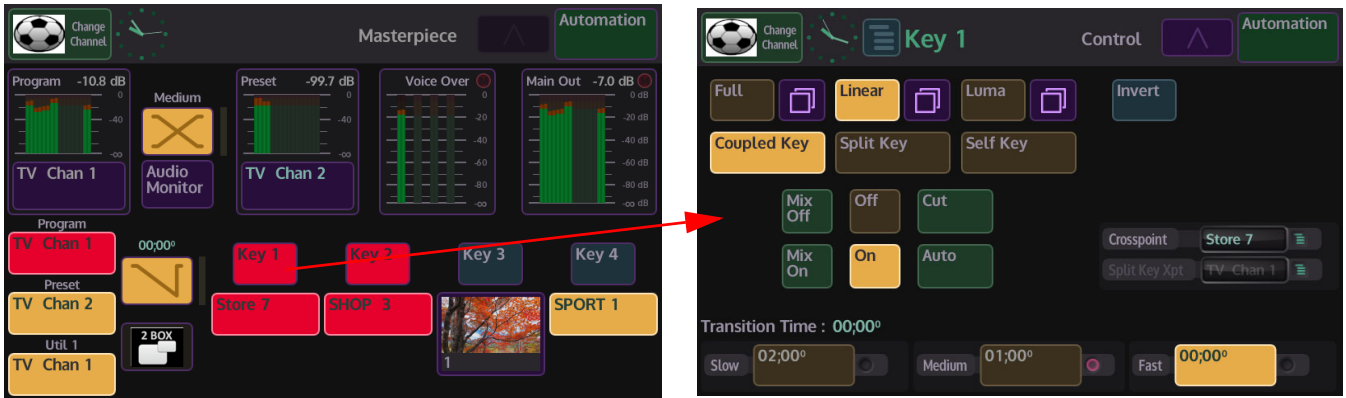


Virtual Keyboard



Masterpiece GUI Menu Controls and Buttons

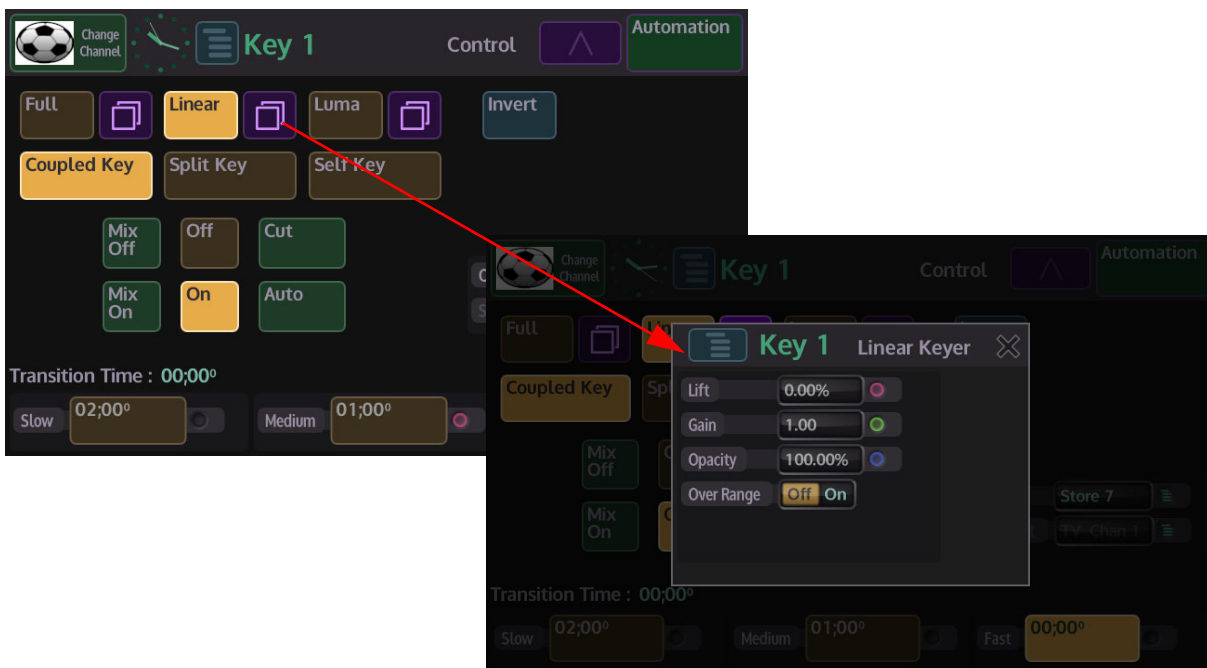
Buttons and controls within the Masterpiece GUI menus have to be explained, so the user is immediately aware of the state of a menu at a glance.



The way the colored buttons and attachers behave are all very important in understanding how to control and adjust functionality of Masterpiece.

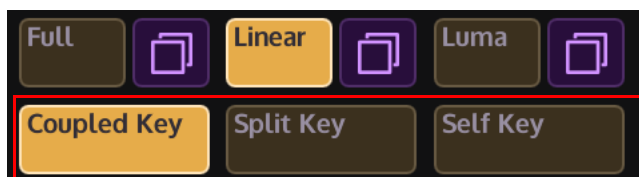
Menu Buttons, Controls and Gesture Controls

Menu Link/Menu Expander Buttons



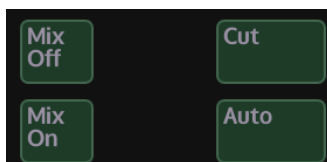
Menu Link buttons are a blue color, touching a menu link button will open a sub menu with more parameter options. There is no set location in the menu for these buttons and may be placed anywhere within a menu.

Action Buttons



Action buttons are brown color. When an action button is touched (selected), the button will turn an orange/yellow color.

Toggle Buttons



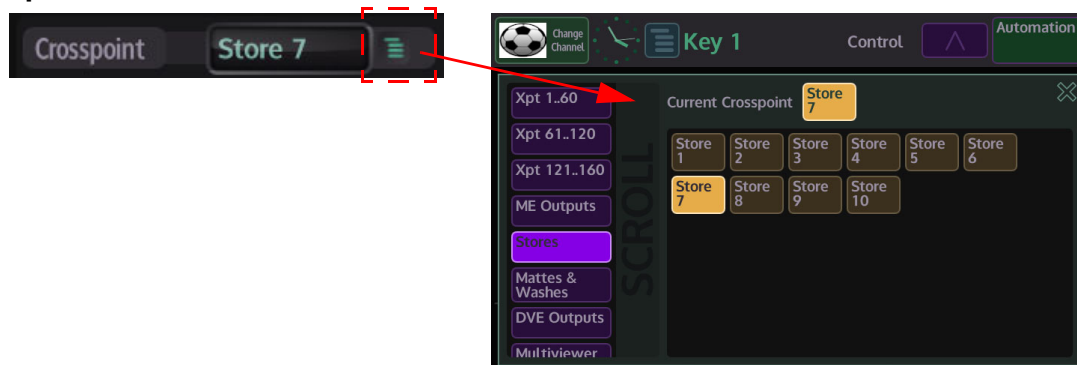
Toggle buttons will toggle **On** then straight away go **Off** when touched. The border around the button will light up a bright green color, and stay lit until the user's finger is taken off the button.

On/Off Buttons



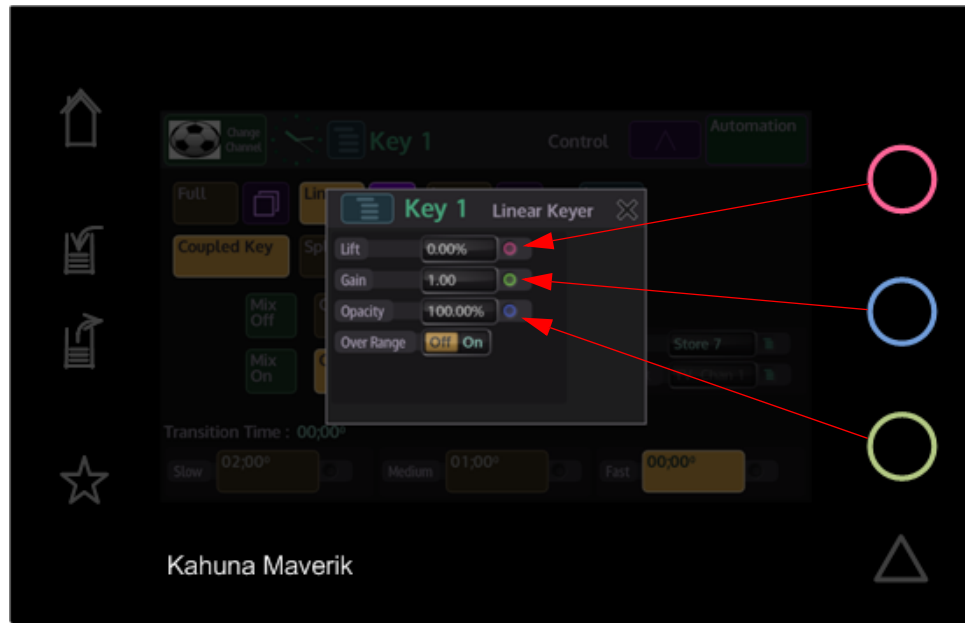
When pressed, these buttons will switch the selected function On or Off.

Option List Select Button



Some parameters will have a green **Option List Select** button at the end of the parameter. Touching this button will open an options menu, allowing the user to quickly select one of a number of options available to them.

Colored Attachers

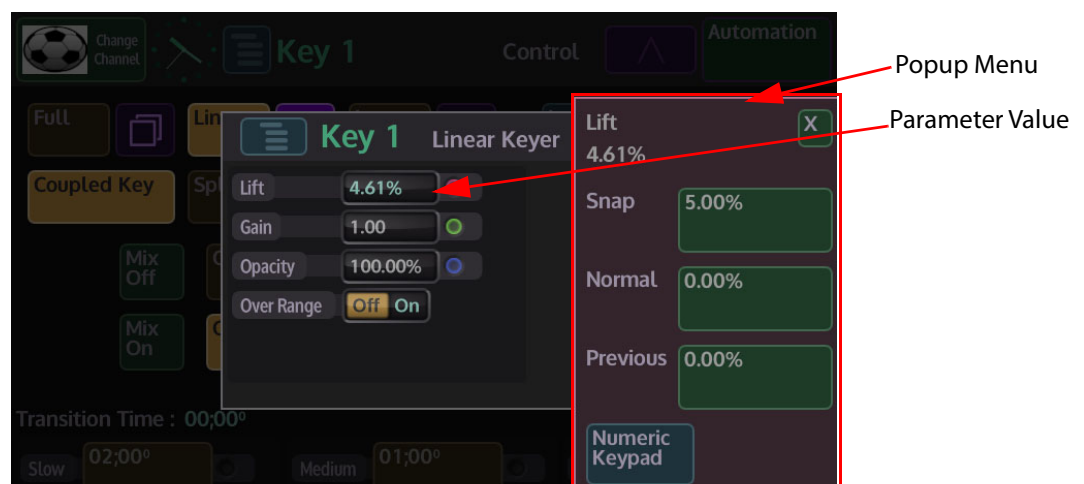


When a menu has parameters with colored attachers, it shows that a parameter can be adjusted using the rotary controls on the right side of the Masterpiece GUI. On entry to a menu, if the menu has only 1 colored attacher, it will be lit the Grass Valley color as the top rotary control, if there are 3 or more colored attachers the top 3 will be lit the Grass Valley color as the 3 rotary controls to show that they can be adjusted.

Any attachers that are not lit can be attached to the rotary controls by touching the first (top) unlit attacher and all 3 will light up the Grass Valley color as the rotary controls.

Popup Menu Controls

The rotary controls also have a "Popup Menu" feature, where an overlay menu will appear from the right hand side of the Masterpiece GUI display.



Pressing down on any of the rotary controls, then releasing will activate the popup menu, the popup menu will display parameters linked to the rotary control that was just depressed. The popup menu will always have the Grass Valley controls each time it appears; and contains the parameter value from the parameter attached to the rotary control (at the top).

Snap - when pressed, notice that the parameter has jumped to an incremental value, normally in steps of five or ten. The border of the button will turn red

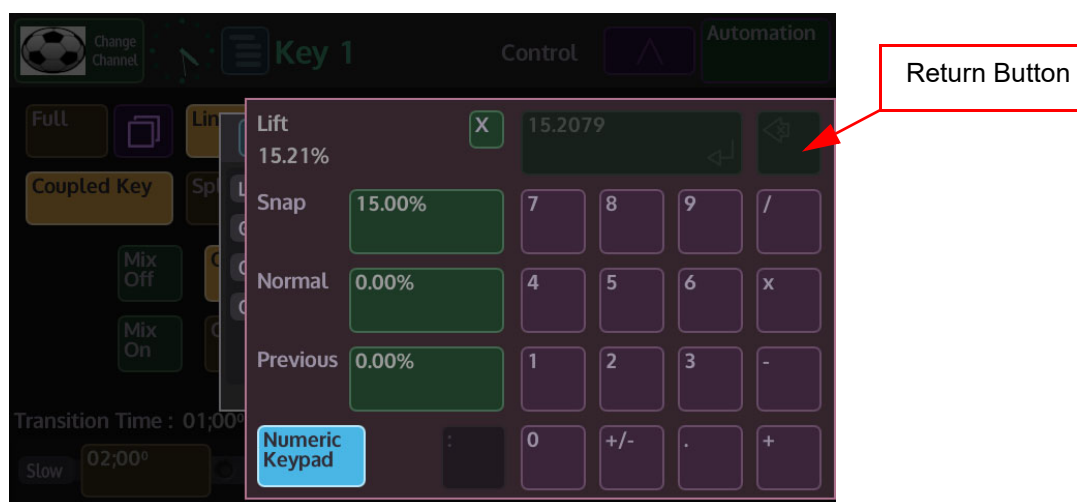
Normal - when pressed, the parameter will revert back to its original default state, the border of the button will once again turn Green.

Previous - this will return the parameter back to a previous user defined state.

Numeric Keypad

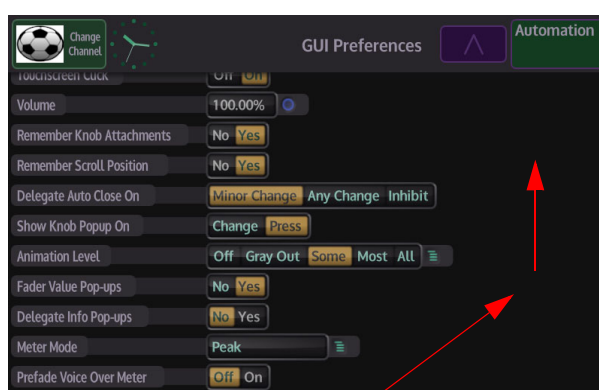
Pressing the **{Numeric Keypad}** button in the popup menu, will display the on-screen numeric keypad.

Note: To empty the numeric keypad display, touch and hold the "return" button.
To exit the numeric keypad, touch the "X" button.



The numeric keypad allows the user to directly enter values for the attached parameter. It also has a second function as a calculator.

Scrolling Gesture Controls



Touch menu and with the Grass Valley movement swipe upwards

Some menus are longer in length (have more parameters) than others, this means that the bottom of the menu will be below the viewing area of the Masterpiece GUI screen. Place a finger on a parameter and hold, whilst holding, scroll upwards, the menus can be “flicked” upwards or held and pushed upwards. Once the bottom of the menu is reached, the menu will “bounce” downwards slightly.

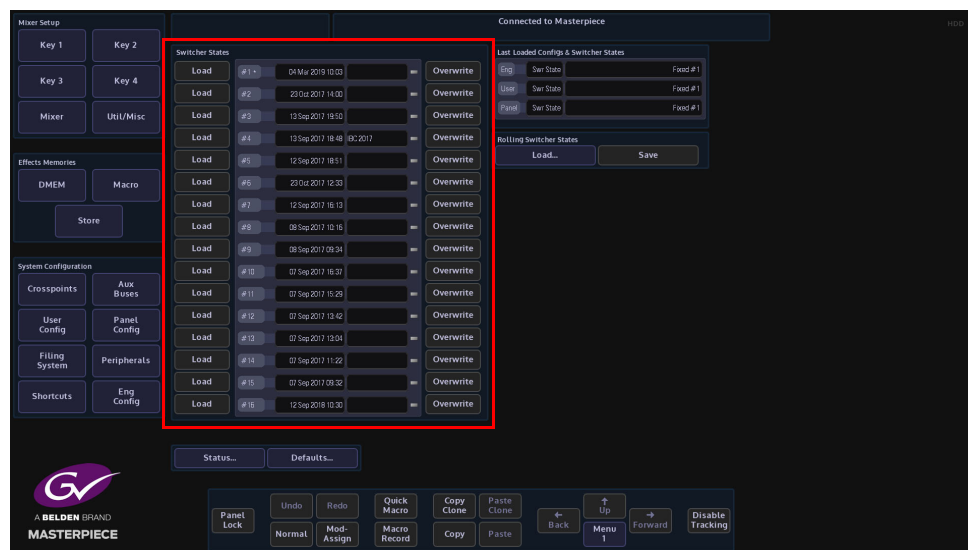
6 How to Save

Saving Files

Masterpiece is a very flexible system and gives you a number of options to Save. There are Switcher States, Rolling Switcher States, Effects Memory Recalls, individual Configuration Files and Snapshots. This sounds like a lot of options, but how they are applied will depend on what you want to do with the system.

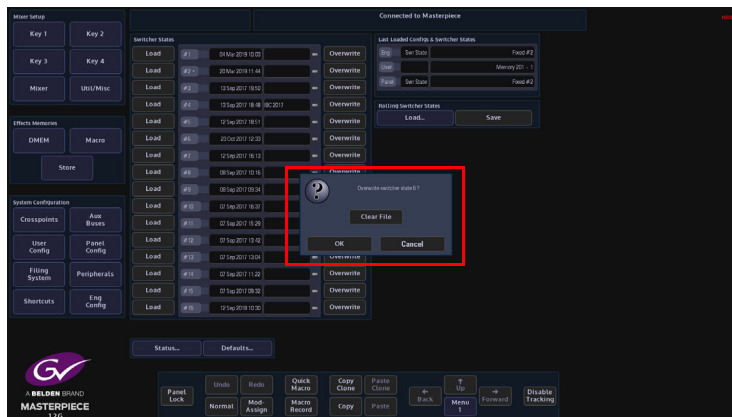
Switcher States

The fastest way to save the current system setup state is done by using the **“Switcher States”** Overwrite option. Touch the **“Up”** button to get to the **“Connected to...”** menu and the Switcher States table is displayed in the center of the menu.



The table of 16 fixed Switcher States are used as a one button press **“Save and Load Everything”** function that can be written to an unlimited number of times. Switcher State - Overwrite allows the user to save the current **“Switcher State”** at different points in time. This is very useful as you may want to keep the current original saved state, but may also want to add a newly created DMEMs or add Stores etc, which can be saved in one of the Switcher State slots.

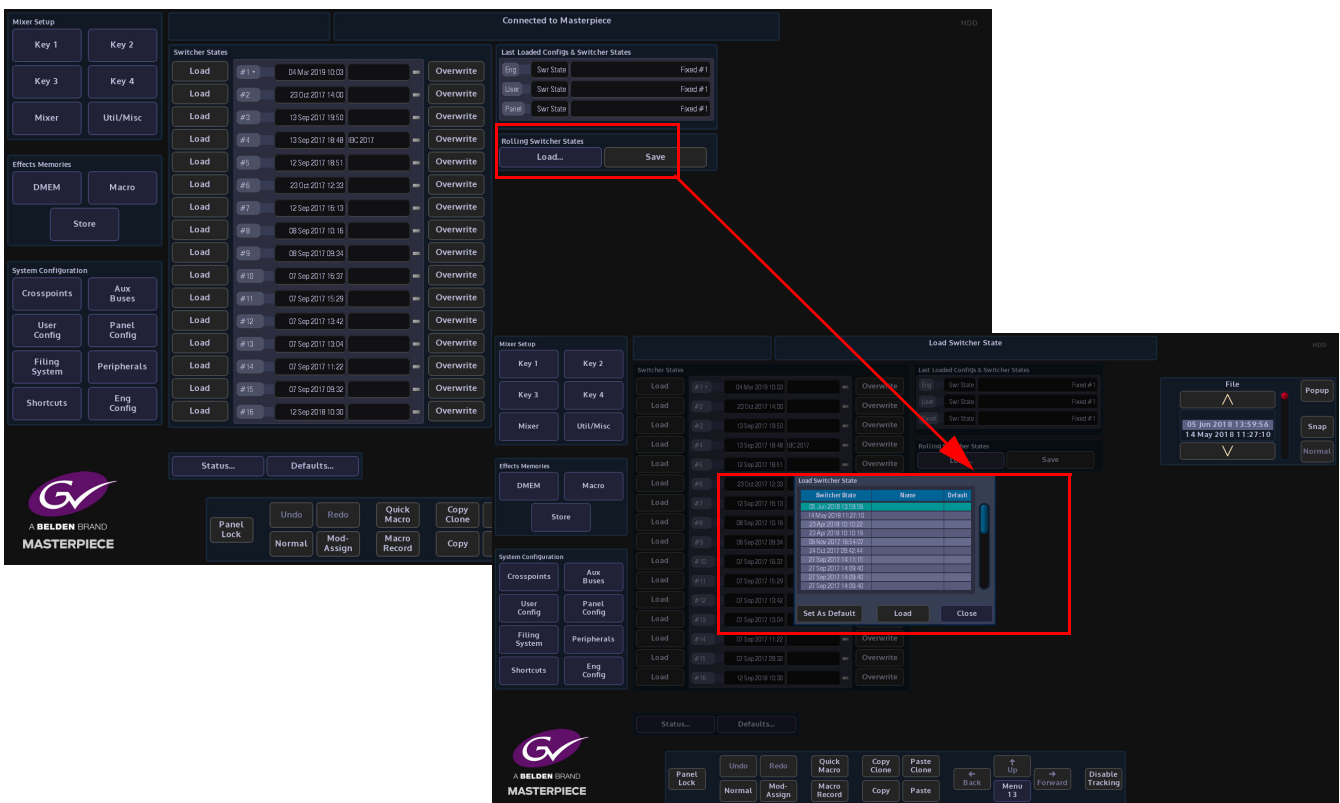
This is done by pressing the **{Overwrite}** button. The date and time that the Switcher State was saved (overwritten) is displayed in the list. By touching the boxed area next to the time and date, a name can be given to the Switcher State using an on-screen keyboard. Touch **{Load}** button to load the saved Switcher State.



When overwriting an already saved switcher state, a dialog box will be displayed, touch "OK" to proceed. **Caution!** - If you press the **{Clear File}** button, the switcher state will be erased.

Rolling Switcher States

Rolling Switcher States is the method of quickly saving the overall state of the system. This allows the user to save up to 100 Switcher States in to a "Rolling List" of saved states, which will keep rolling over after 100 states have been saved. The "Rolling Switcher State" function is different to the Switcher State Overwrite mentioned above, because when the user touches the "Load" button, the menu will change to display a list of saved states and the option to enable/disable Stores, Panel, User and Eng Configs and DMEM functions when loading a saved state. You can also set any one of the switcher states as the default startup state.



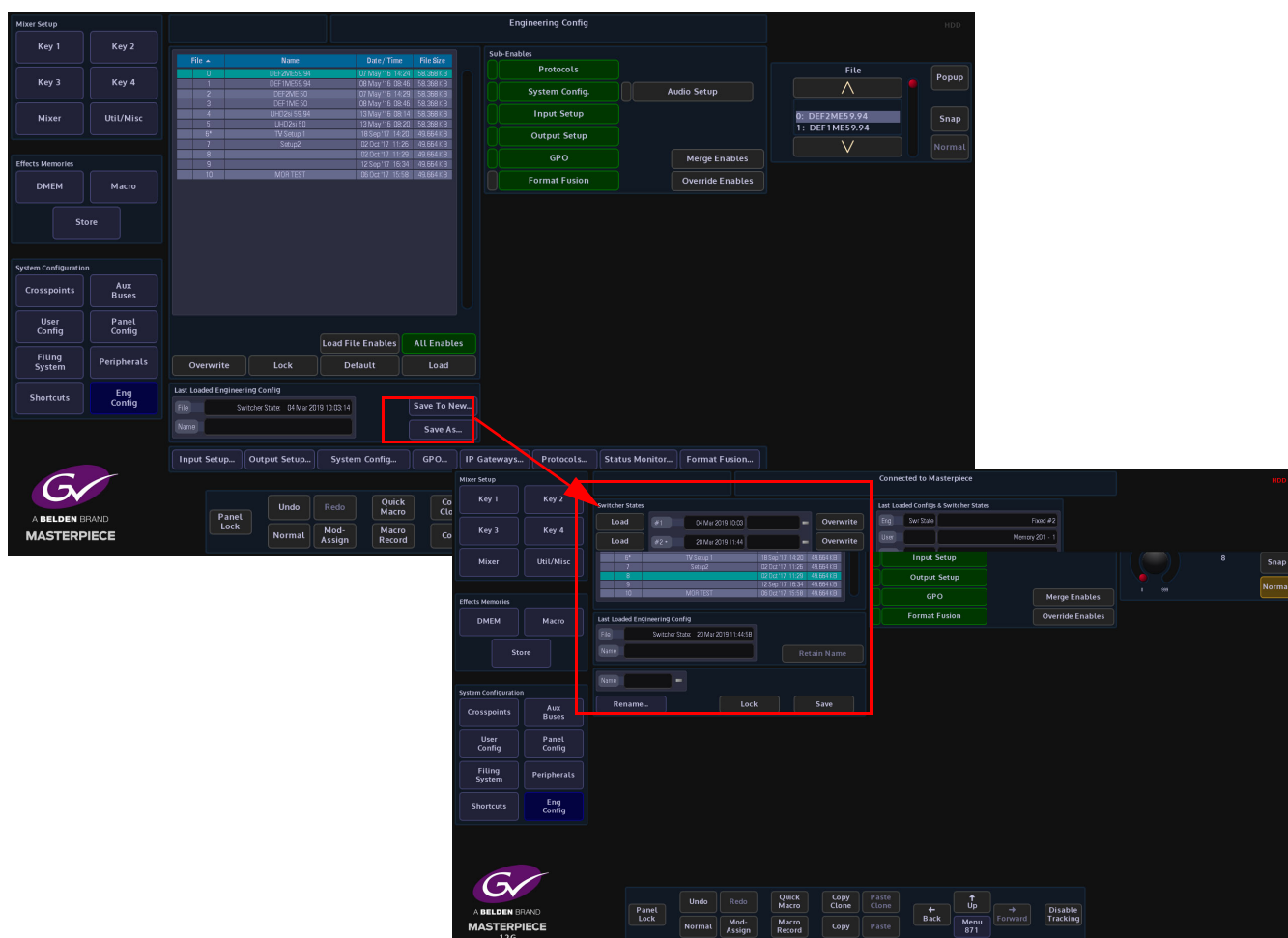
Each time the **{Save}** button is pressed a switcher state is saved into the rolling list.

Config Files - Saving and Loading

The User, Panel and Engineering Config files are very important when setting up a system and should be saved regularly so that your configuration state is not lost. User, Panel and Engineering Configs can have up to 1000 different config setup states each. When the config setups are saved, they are listed as files in a table in the menu, so that the user can easily see the time/date that a config was saved, allowing the file to be instantly loaded.

Note: This example will show how to save a Engineering Config file. Saving or Loading a User Config or Panel Config file is done in exactly the Grass Valley way.

The Configuration files are used to determine the startup state of the system and it is important to know what state the "Sub-Enables" within the config file are in, i.e. what is enabled/disabled when saving the config files, when creating DMEMs and Macros. The "**Sub Enables**" list of buttons, to the right of the config files table, allows you to select or de-select functions that will be saved within a file. If the tab next to the enables button is green, this means that the enabled function is included in the original saved file. If the tab is gray, the function is not included. If the enabled function is selected (green) when the config is saved, the function will be included in the saved config.



Saving a Config File

To save a configuration file, touch the **{Save As...}** button and a new menu will appear. The "**Engineering Config - Save As**" menu allows you to select a new slot in the table and save an Eng Config file. Use the "**Name**" attacher box to give the config file a name, touch the red oblong at the end of the "**Name**" attacher and an on-screen keyboard will be displayed. Type a name for the file, then when finished touch the **{Save}** button. There are 1000 slots available to

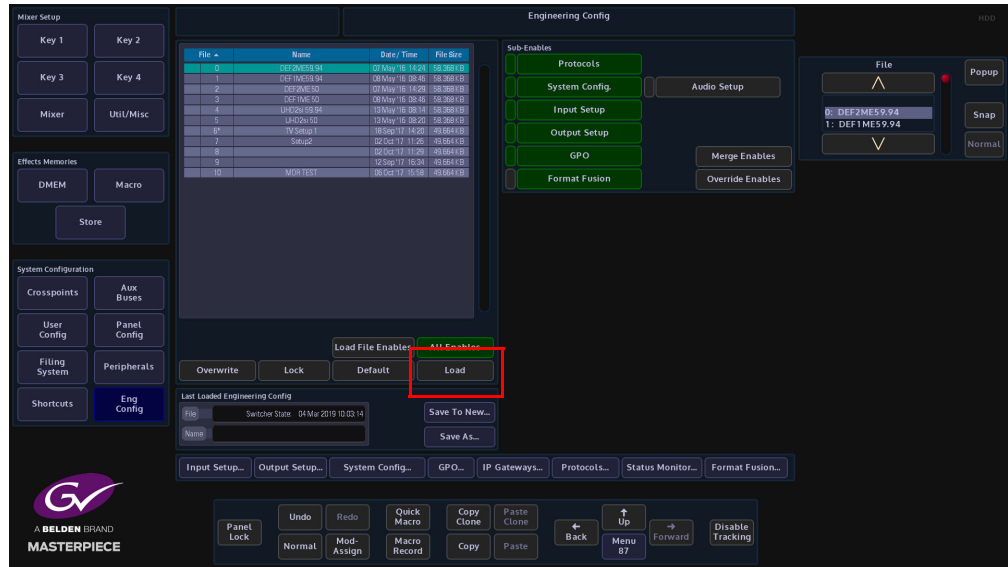
save to.

If you touch the **{Save As...}** button when an existing saved config file is selected, a dialog will be displayed asking the you if you want to proceed to save the file.

Loading a Config File

To load a config file, simply select a file by touching it in the config file table and then touch the **{Load}** button.

You can choose to enable or disable any of the **"Sub-Enables"** before touching the Load button.

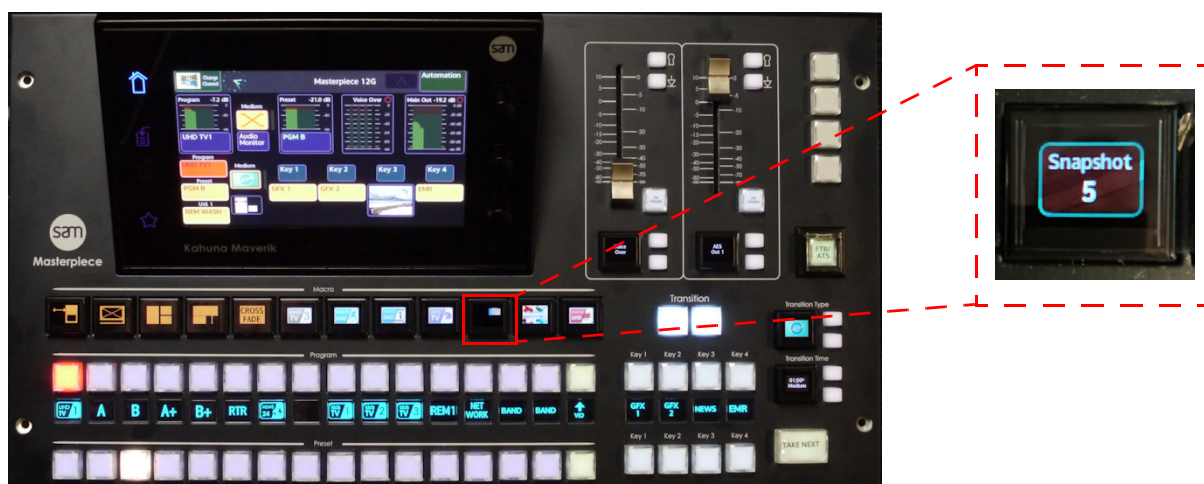


Snapshots

Snapshots as the name suggests will take a snapshot save of the current system setup. They are applied to one of the OLED buttons on the control surface and once they are saved, they are an instant recall of the saved system setup.

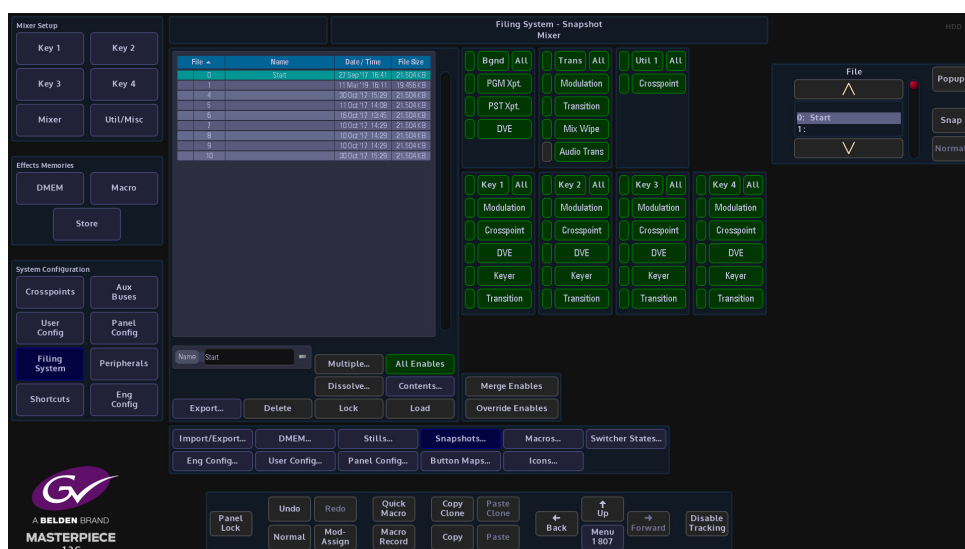
Saving a Snapshot

Snapshots are very easy to use, just press and hold one of the OLED buttons until an audible “beep” is heard. The button will display “Snapshot” and the snapshot file number. Up to 1000 snapshots can be saved.



In the Filing System menu, touch the **{Snapshots...}** button to open the Snapshots filing system menu.

The menu displays a table with all the snapshots taken. To the right of the table, the enables associated to the snapshot are displayed.

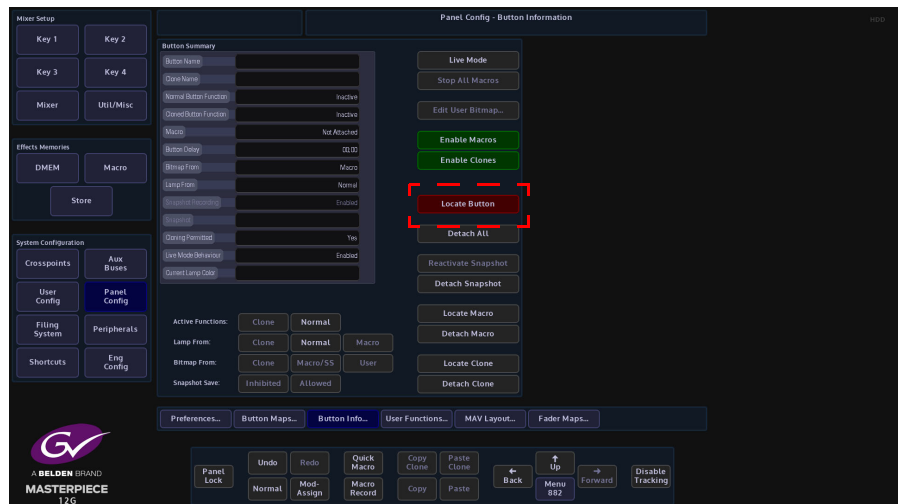
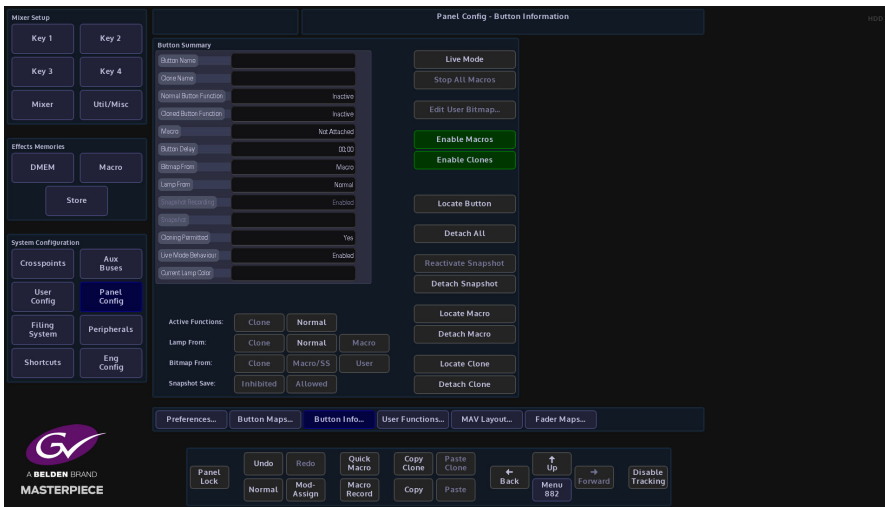


In this menu, Effects Dissolve can be added to an existing snapshot allowing you to make creative effects.

Note: How **Effects Dissolve** works with Snapshots will be explained in another chapter in this manual.

Detaching Snapshots

Snapshots are attached to the OLED buttons when saved, you can detach a snapshot from an OLED button, so that a new snapshot can be saved. This is done in the **“Panel Config - Button Info”** menu.



To detach a snapshot touch the **{Detach Snapshot}** button and the button will turn red, then touch the snapshot button and it will be detached.

Detaching a snapshot does not delete the snapshot from the system memory, the snapshot can be re-loaded by selecting the snapshot in the table in the **“Filing System - Snapshots”** menu, then touching the **{Load}** button.

DMEM's

What is a DMEM

A DMEM or Dynamic Memory, saves set-up information related to a single system setup, which may contain information such as:

- Bus set-up (Crosspoints, Keyers, Wipes, Transitions)
- Macros
- DVE moves
- Effects Dissolve (Key Layers and Stores)
- Masks, Crops, Borders

DMEMs are saved using the number pad in the "Shortcuts" menu. From this menu, you are able to save up to 1000 DMEMs into the DMEM filing system.

DMEMs can be attached to the OLED user function buttons on the control surface allowing you to quickly recall setup states with effects.

Saving a DMEM

There are two ways to save a DMEM, both are in the {Shortcuts} menu.

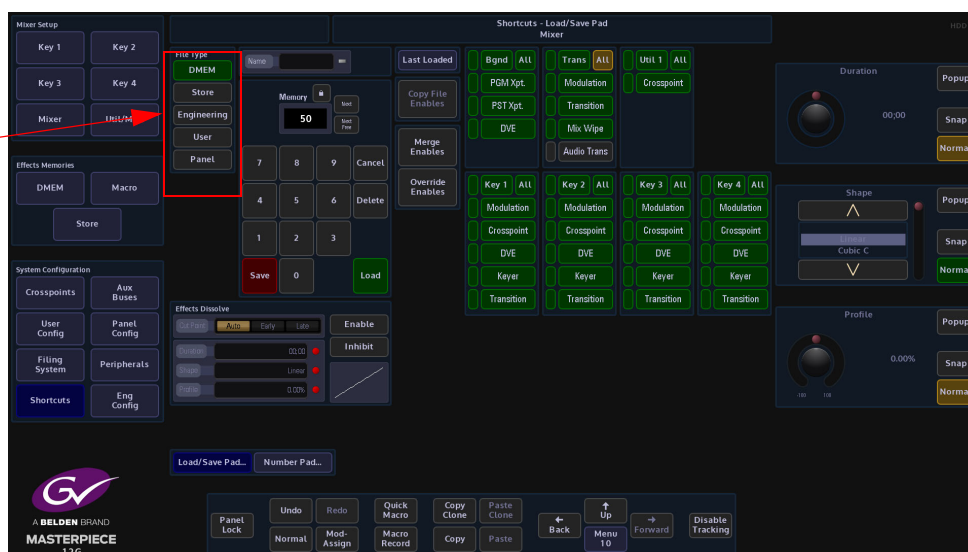
- Load/Save Pad - this menu allows you to save DMEMs and also save Stores and Engineering, User and Panel config files.
- Number Pad - this allows you to save DMEMs.

Note: How **Effects Dissolve** works with DMEMs will be explained in the Effects Dissolve chapter in this manual.

Load/Save Pad

The Load/Save Pad allows you to quickly setup and save or load files such as DMEMs, Stores and config files. The menu also allows the user to setup Enables to enable/disable functionality within the selected file type.

File Type:
DMEM
Store
Engineering
User
Panel



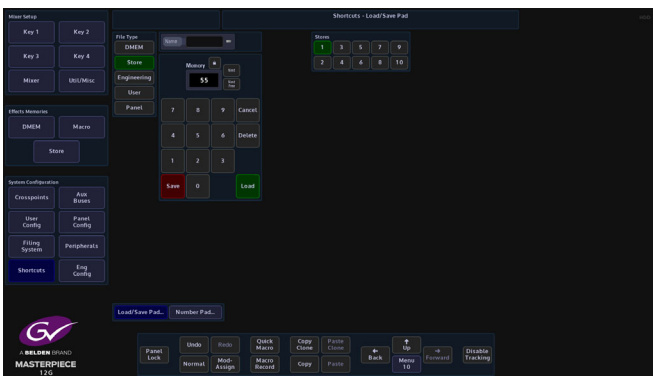
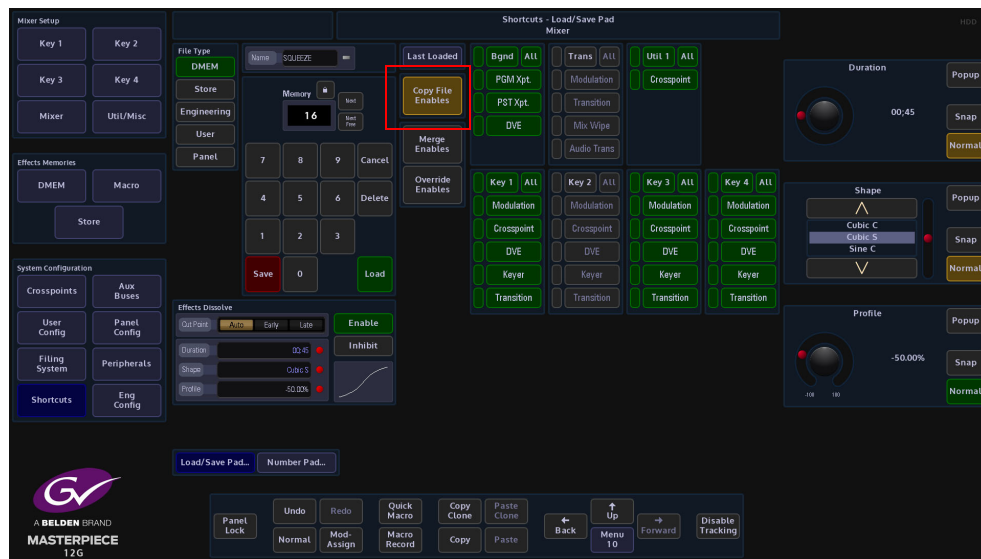
To use the Load/Save Pad, to save a file. First, select the file type that you want to load or save, then use the number pad to enter the file number.

The next step is to select the required enables. You can do this by either touching each required enable option (it will turn green when selected) or you have the option to copy enables from the current file and save them to a new file or to overwrite the existing file using the **{Copy File Enables}** button.

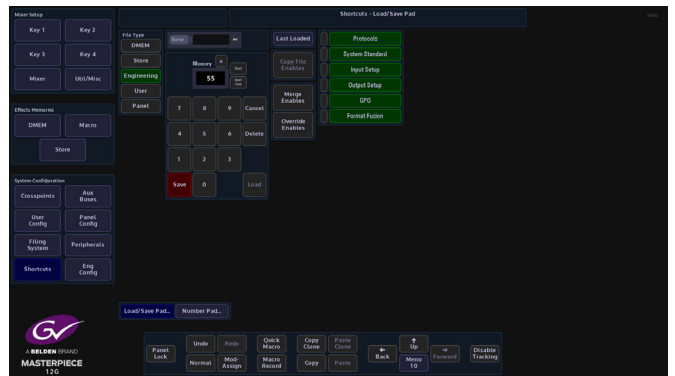
Note: there are two basic types of "Save" operation within the Load/Save Pad menu:

- Saving a new file
- Overwriting an existing file

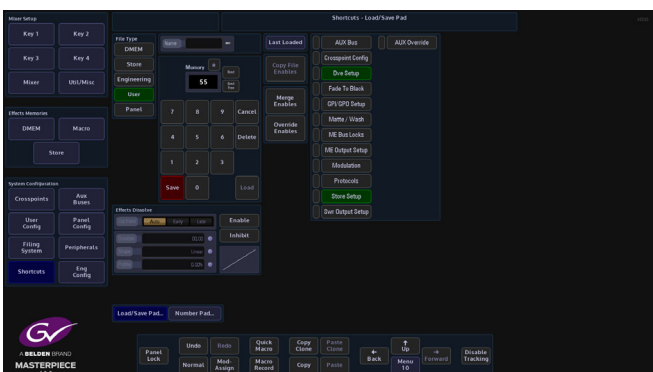
When saving a new file, the user would usually manually select which enables and sub-enables they require. When overwriting a file, the user would probably want to reuse the existing enables from the file, so would use the **"Copy File Enables"** function before touching the {Save} button.



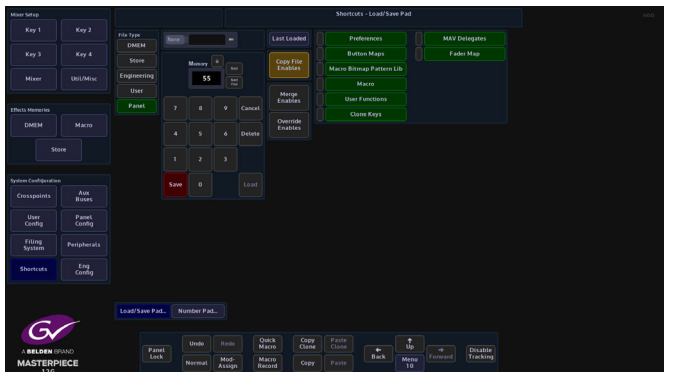
Store



Engineering



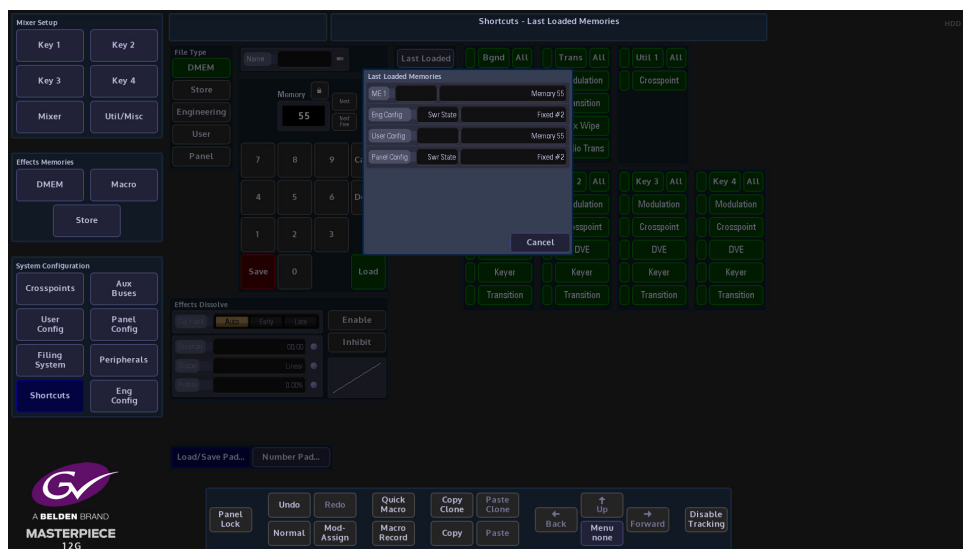
User



Panel

Last Loaded

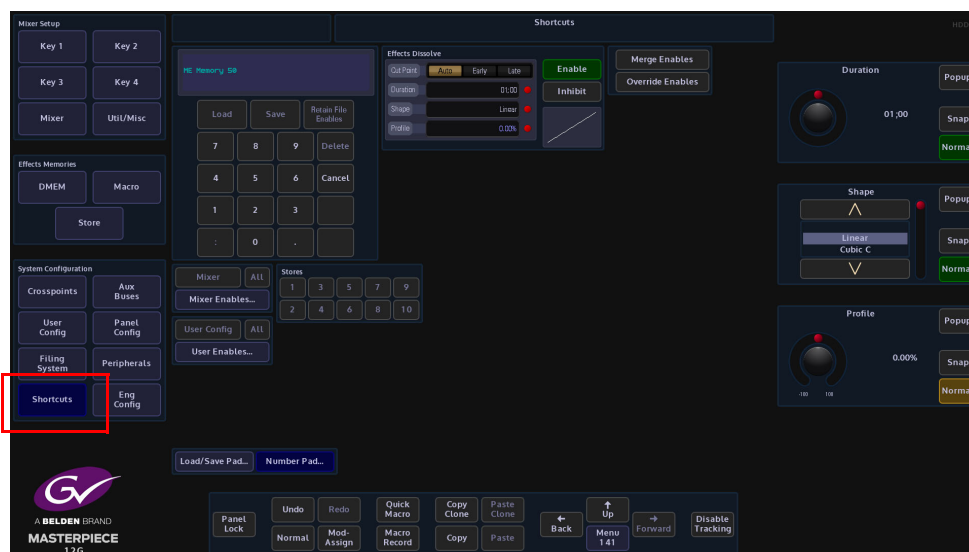
Touch the {Last Loaded} button to display last loaded memories information.



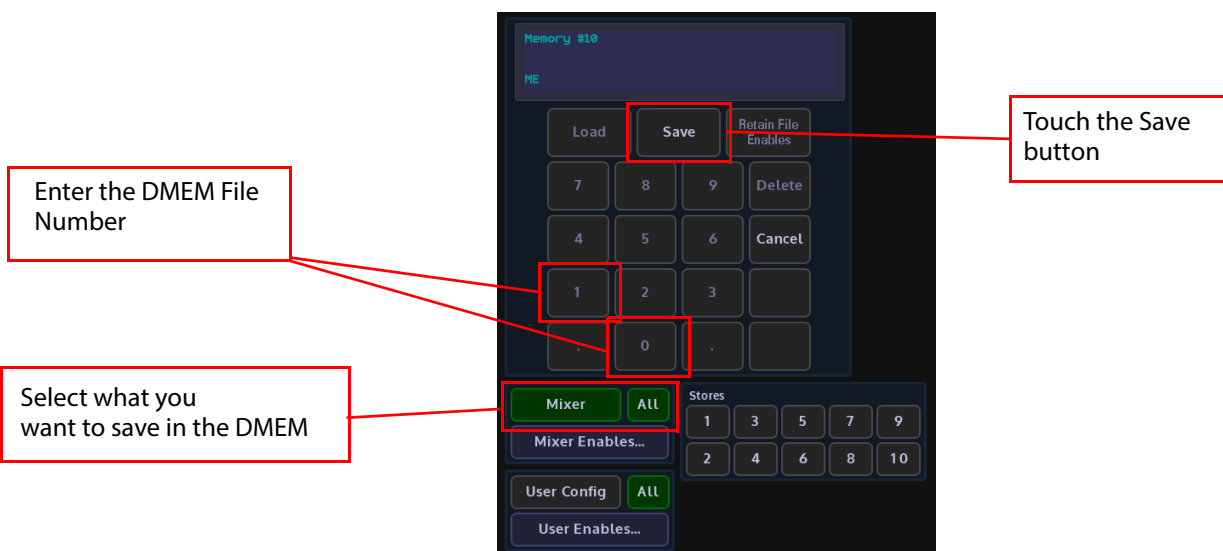
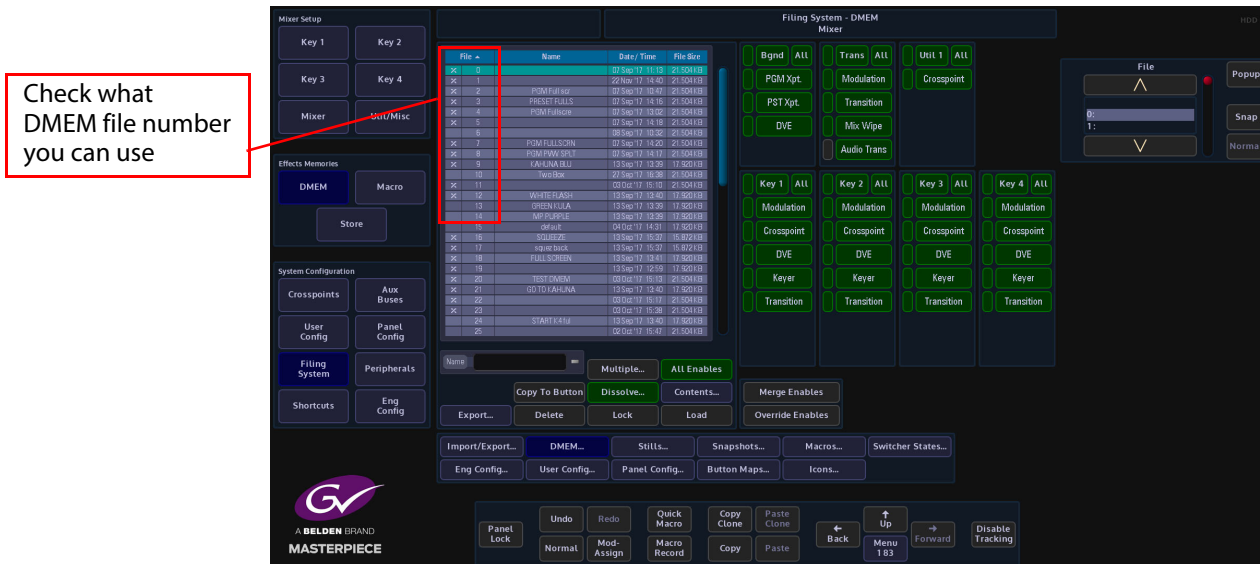
The popup menu displays the information from the last loaded memory file.

Number Pad

Touch the {Number Pad...} button to display the Number Pad menu. To save a DMEM using the “Number Pad” is a simple process used to enter the DMEM memory file number, then select the Mixer Enables, User Enables or Stores (you can only select one of them at a time) as part of the DMEM being saved.



When saving a new DMEM, look in the **"Filing System - DMEM"** menu, so that you can select a DMEM file number that is free.
Go back to the **"Shortcuts"** menu and enter the DMEM file number, then select what you want to save within the DMEM; Mixer, User Config or a Store.
If the information you have entered is valid, the **{Save}** button text will light up bright white.
Touch the **{Save}** button to save the DMEM.



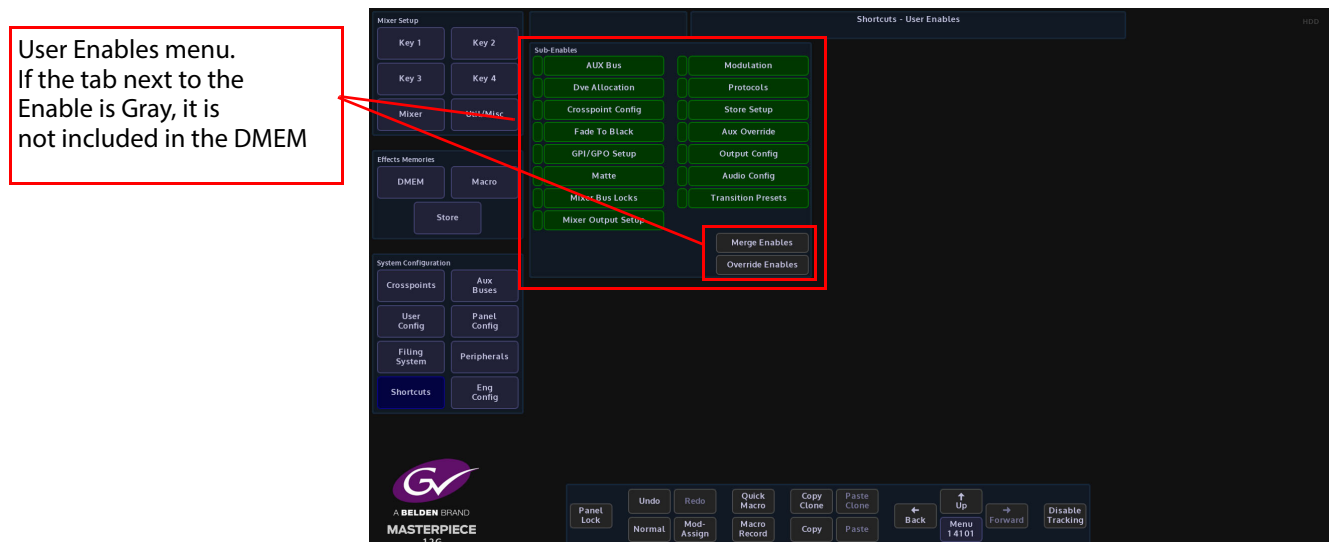
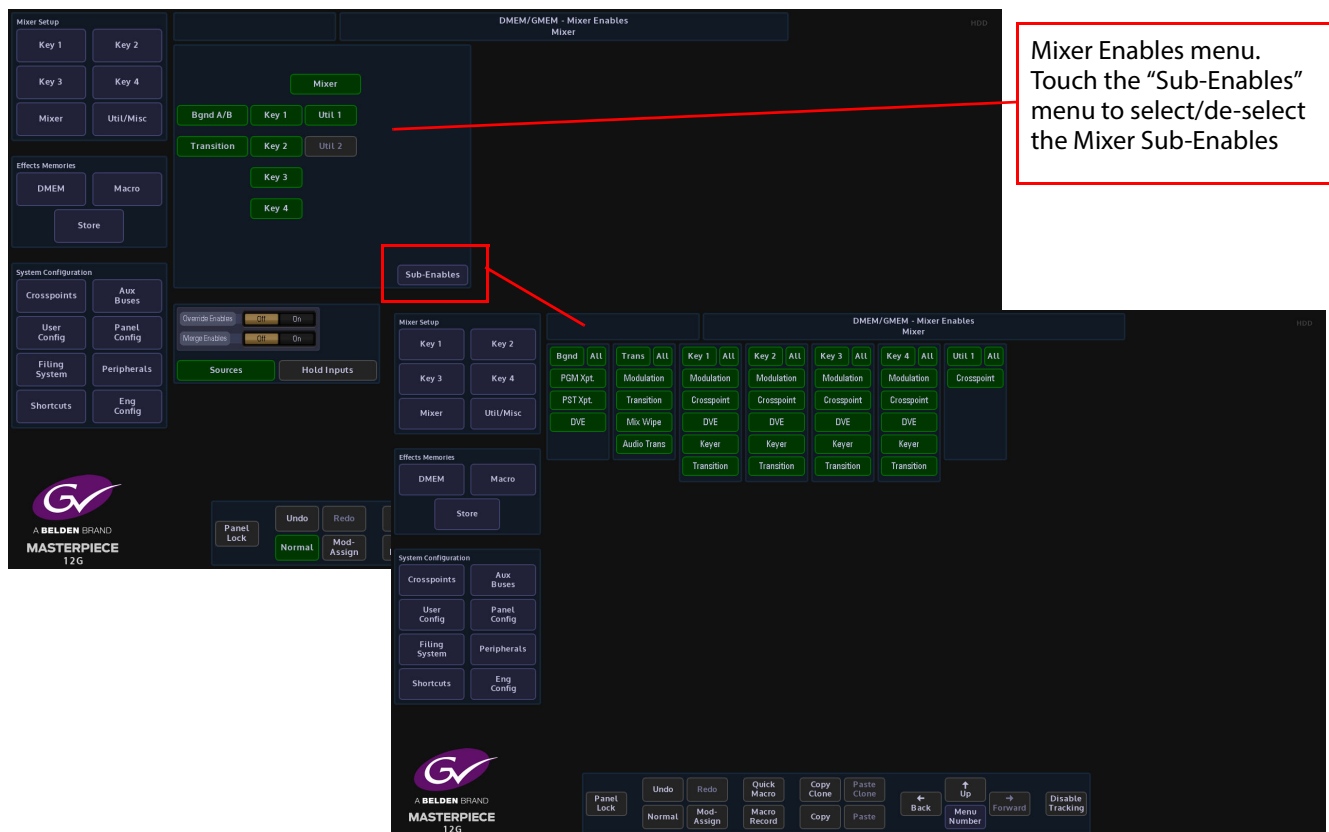
To update or add to an existing DMEM, again, if you are unsure of the DMEM file number, open the **"Filing System - DMEM"** menu and locate the DMEM file number.
Make the change required to the system and then open the **"Shortcuts"** menu. Use the number pad to enter the DMEM file number and touch the **{Save}** button. A dialog box will be displayed asking you if you want yo continue. Touch **"Yes"** to continue and **"No"** to leave the menu.

Note: Pressing **[CANCEL]** at any point before saving will cancel the entire operation

When **"Recalling"** a DMEM, simply enter the DMEM number and then touch the **{Load}** button.

Enables

In the Shortcuts menu, you are able to select or de-select the enables functions within a DMEM.



Mixer Enables:

Override Enables - will override any enables that have been de-selected and turn the enable on.

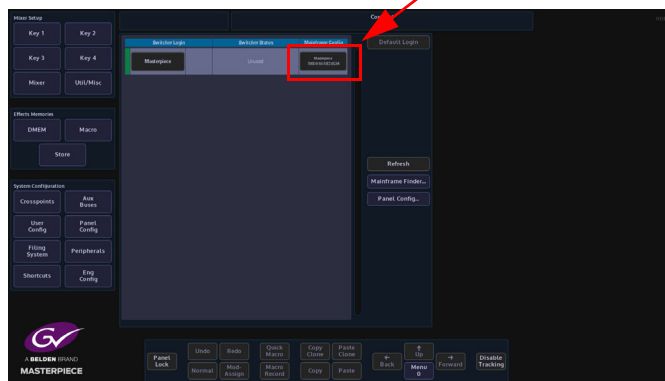
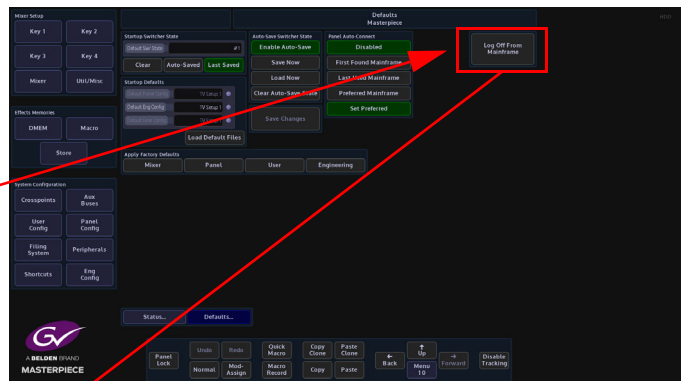
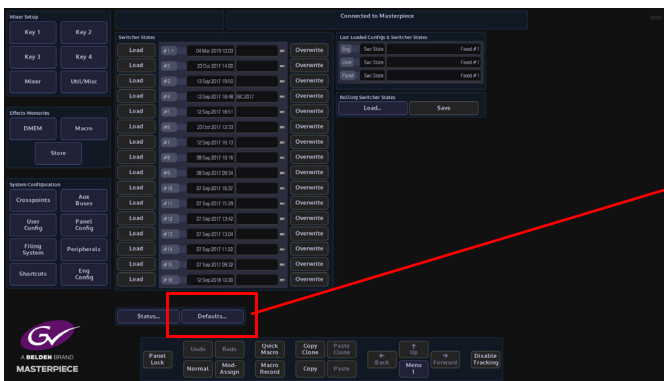
Merge Enables - this function merges the enables currently set in the switcher with the enables saved in the file that is being loaded (a 'logical OR' of the enables).

7 Video Setup

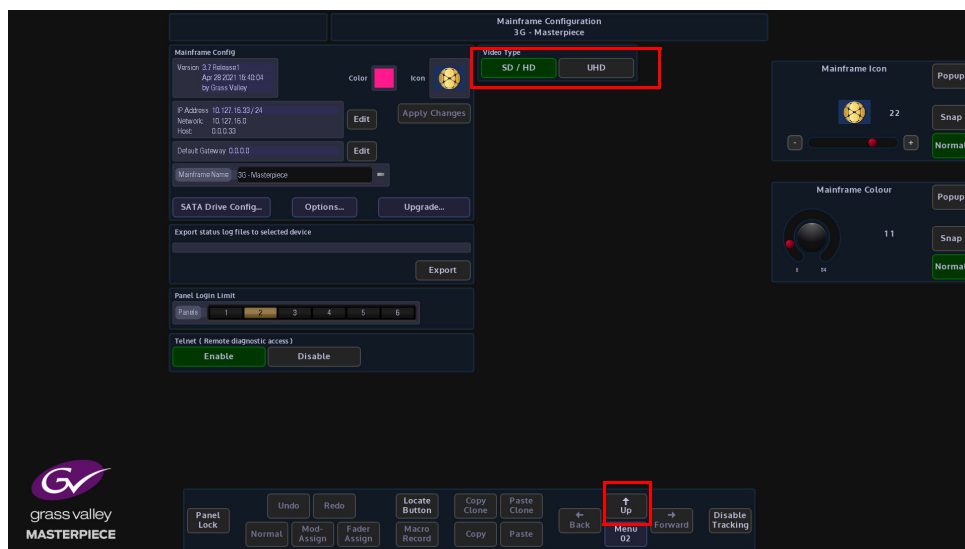
System Setup

This chapter is a guide to getting external and internal video sources through a Masterpiece mainframe quickly.

A good place to start is to decide what video format you want; either HD or UHD. In the **"Connected To..."** menu, touch the **{Defaults}** button, then in the **"Defaults"** menu, touch the **{Log Off From Mainframe}** button. Then finally, in the **"Connect"** menu, touch the **{Mainframe Config}** button.



In the “Mainframe Configuration” menu, you can select which “Video Type” you want to use; SD/ HD or UHD.



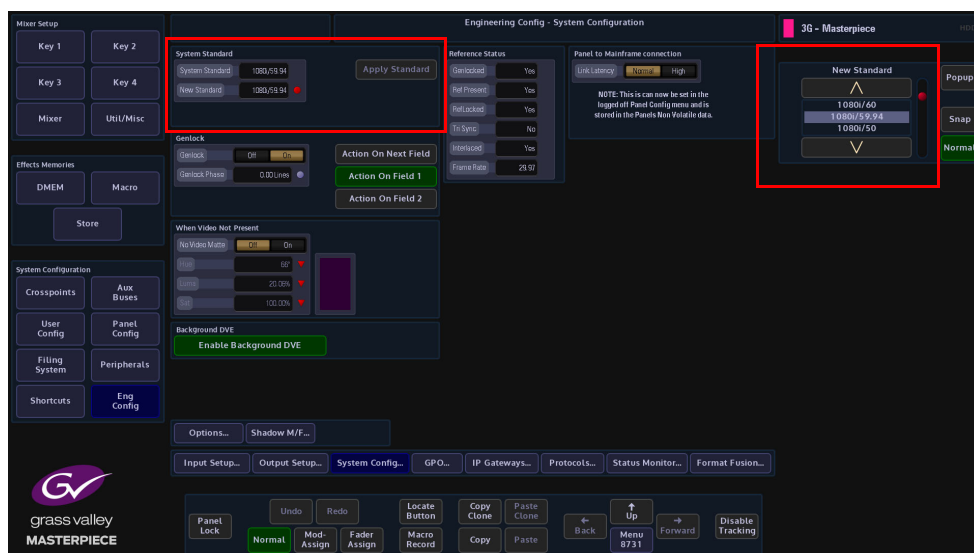
Touch the {Up} button to go back to the “Connect” menu then touch the {Switcher login} button to log back into the system.

The next section in this chapter will describe how to get a video signal through the system in SD / HD. Using the system in UHD mode is a little more in depth because you have to decide whether you want to use 12G-SDI, Quad Link or 2Si formats and there are a few considerations to make when connecting up inputs and outputs (please read the 12G-SDI and UHD chapters in this manual).

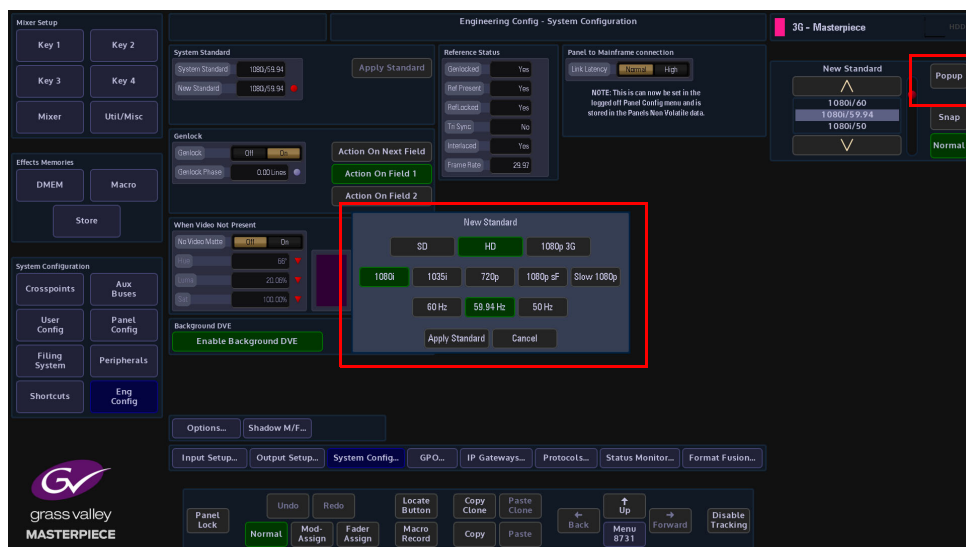
System Config

In the “**Eng-Config**” menu, touch the {**System Config...**} menu link button to enter the “System Configuration” menu.

Using the “**New Standard**” parameter, scroll through the video standards and set the required System Standard, then touch the {**Apply**} button.

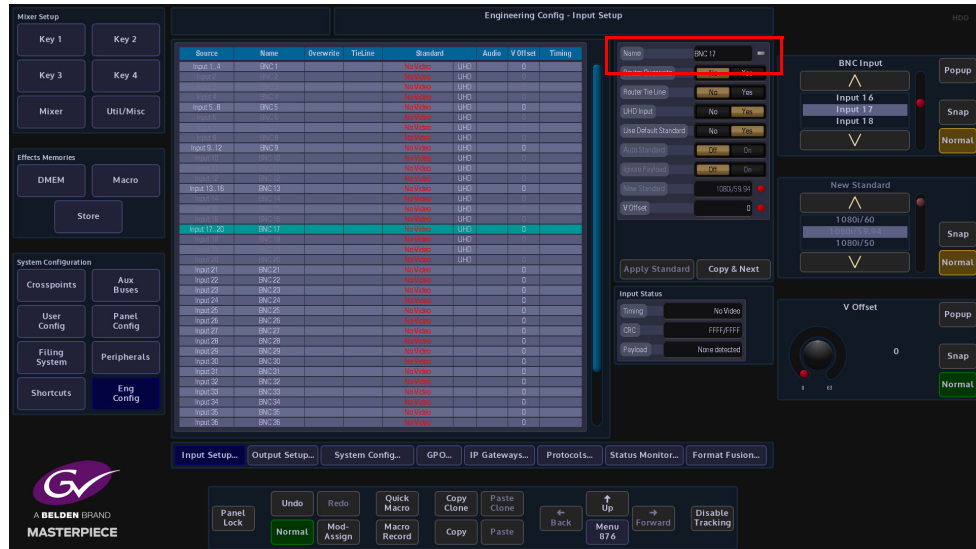


Using the “**Popup**” selector will display a dialog box that gives you a visual set of video standard options to choose from.



Inputs and Naming

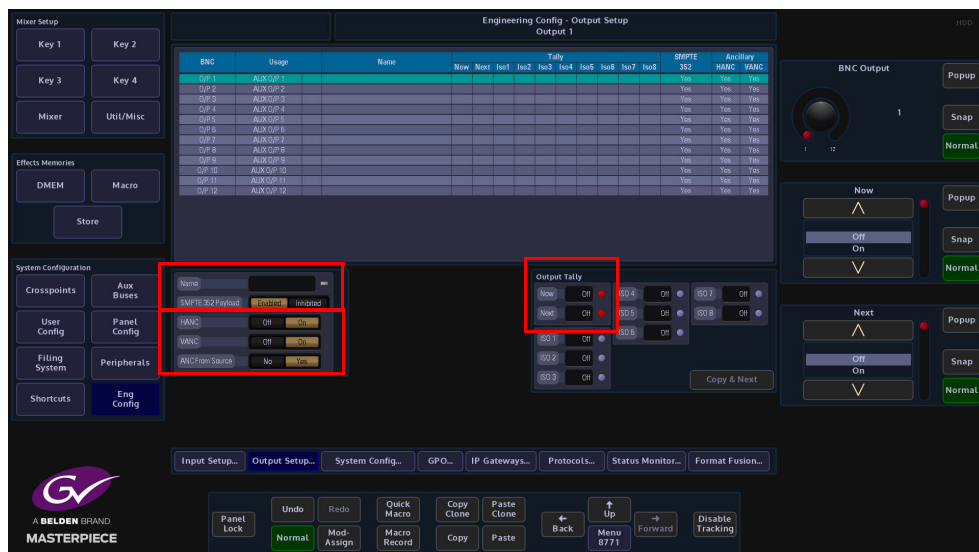
Signals to the system can be connected to one of the 40 available inputs on the mainframe. Touch the **{Eng Config}** button, then touch the **{Input Setup...}** menu link button.



Touch the **"Name"** attacher and give all the incoming sources a name for easy identification.

Outputs and Naming

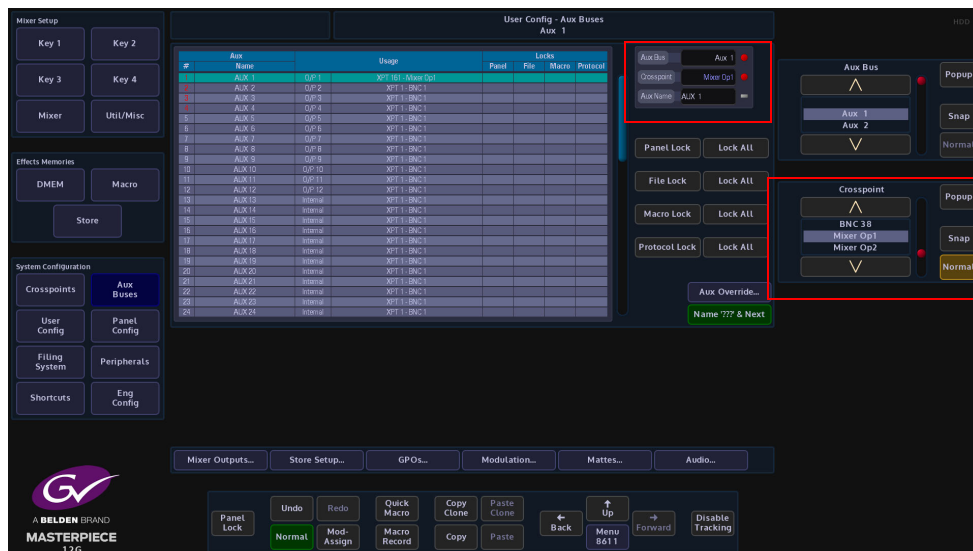
In the **"Eng Config"** menu, touch the **{Output Setup...}** menu link button. In the **"Output Setup"** menu, use the **"Name"** attacher to name each output, then use the **"Output Tally"** parameter to set **"Tally Now"** to the output that is the **"Program"** output, and **"Tally Next"** to the preview output. This will add a red tally light to the **"programme bus"** and anything that is contributing to the program output e.g. Key layers etc.



Make sure that all the outputs have **"HANC and VANC"** turned **On**.

Aux Buses

Touch the **{Aux Buses}** menu link button. Aux Bus 1 to 14 are the Grass Valley as Outputs 1 to 14 (HD video format only) at the rear of the mainframe. This menu is used to set the sources going to each output.



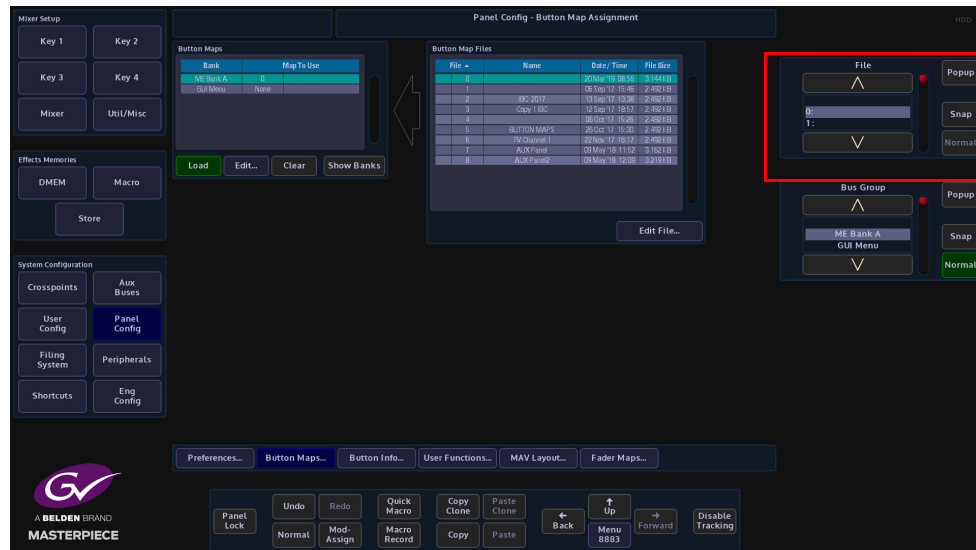
Use the **"Aux Bus"** and **"Crosspoint"** parameters to set the PGM, PVW and CLN outputs, Normally, in HD format this would be O/P 1, 2 and 3 at the back of the mainframe.

Use the **"Name"** parameter to give the outputs a name i.e. 1 = Pgm, 2 = Pvw and 3 = Cln
Touch the **"Crosspoint"** popup and in the popup window, touch the Mixer O/P button and then set **"Output 1 as "Mixer O/P 1"**, Output 2 as Mixer O/P 2 and Output 3 as Mixer O/P3.

You can now setup all other sources for the Outputs.

Button Maps

Touch the **{Panel Config}** button, then touch the **{Button Maps...}** menu link button. The **"Button Map Assignment"** menu will now be displayed. Button mapping allows you to map external and internal sources to the crosspoint buttons on the masterpiece control surface. Button maps are easy to setup and are the preferred way to setup crosspoints on a control surface.



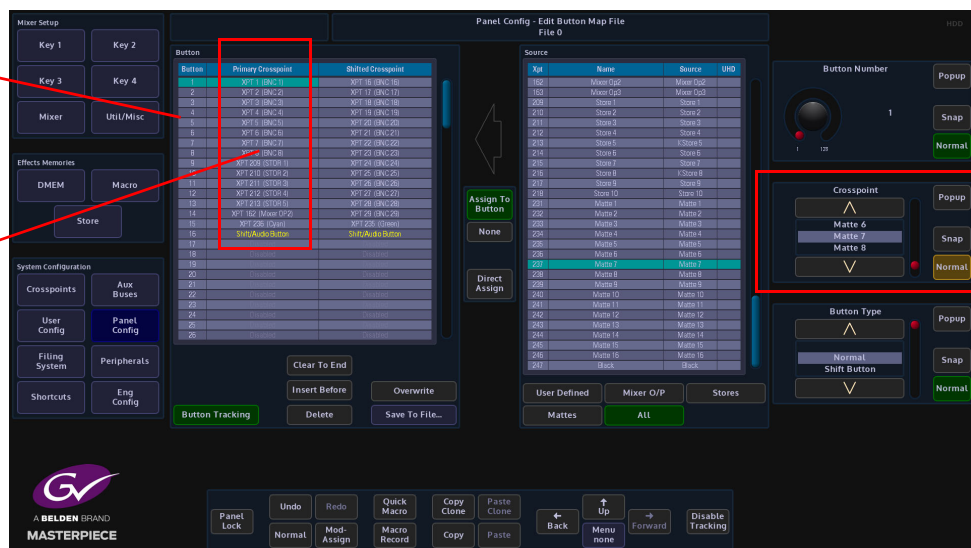
To create a New Button Map, first, select a **File position** where the new button map is going to be saved.

While still in the main menu, press the **{New...}** button and the **Edit Button Map** menu will be displayed.

Use the **"Crosspoint"** parameter to alter the button map. When satisfied with the setup, press the **{Save to File...}** button to save the new button map.

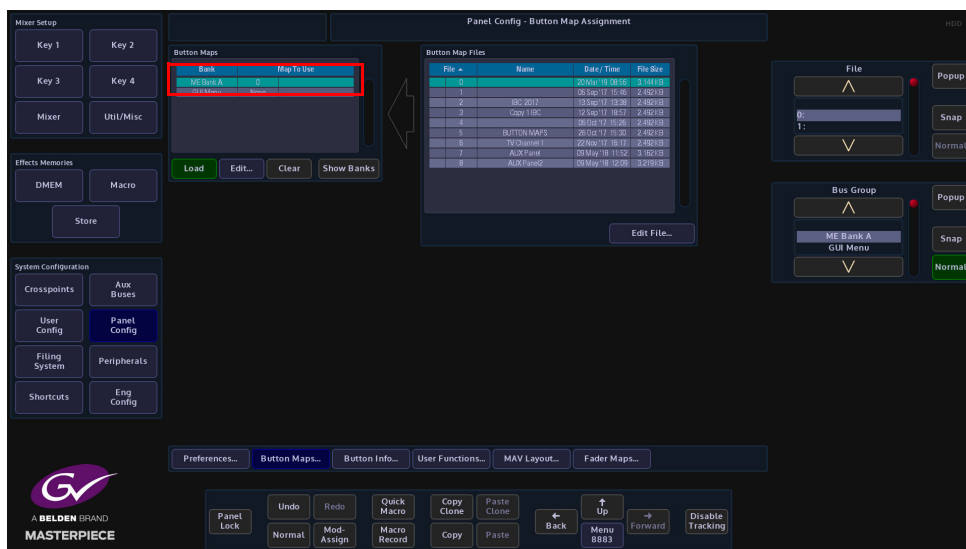
Button is the physical button on the control surface

Crosspoint is the existing Xpt setup



The new button map will now be saved into the selected file position. Up to 1000 button maps can be saved.

Once the **“Save to File”** button has been touched, the menu will change back to the **“Button Map Assignment”** menu.

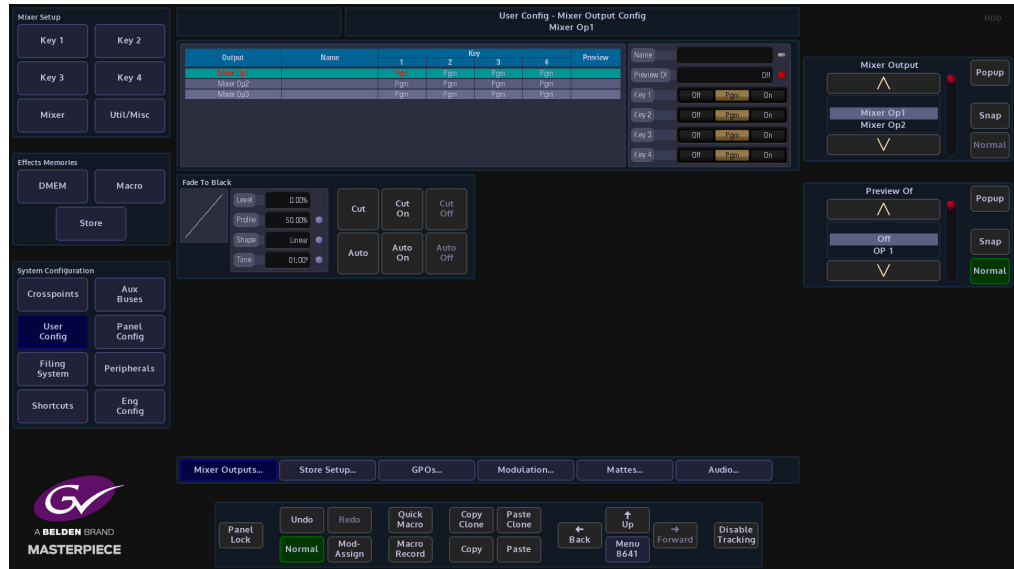


The saved button map will be displayed in the table at the top of the menu, and also displayed as **“Mixer Bank A”** in the bottom menu.

Touch the **{Load}** button to load the button map onto the control surface.

User Config - Mixer Outputs

Masterpiece has a maximum of 3x Mixer outputs, all of which are programmable. This means that you are not restricted and can assign any one of the outputs to be an Mixer outputs. All Mixer outputs are programmable which means that the outputs can be configured and their states changed; in this menu, to suit the your needs.



8 Audio Setup

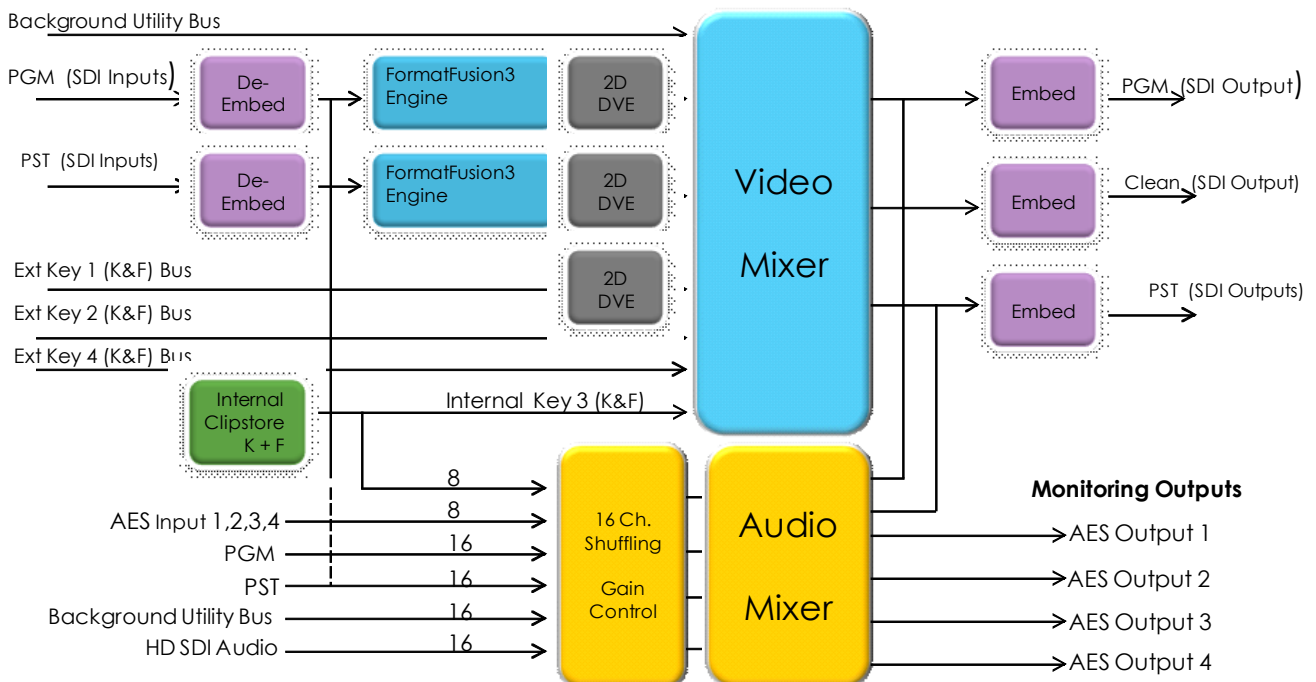
Audio Mixing Overview

Masterpiece includes an 80 x 56 out audio mixer and can execute the following:

- Audio lead and lag transition
- Break away audio transitions
- Voice-overs
- Pre-fade listen audio selection
- Audio Shuffles

The benefit of pre-fade listening to the audio before it goes live gives the operator confidence knowing that a channel's audio material and feeds are played out as scheduled. The audio mixer provides embedding and de-embedding audio processing. Any 16 embedded channels can be selected from any/all the incoming video sources. Audio channels can be shuffled for flexible alignment with in-house channel mapping.

Below is a simple block diagram of the audio paths through masterpiece. The AES In channels 1 to 4 and AES Out channels 1 to 4 are input and output via the 25Way AES/LTC connector at the back of the Masterpiece mainframe.



Getting Audio Into Masterpiece

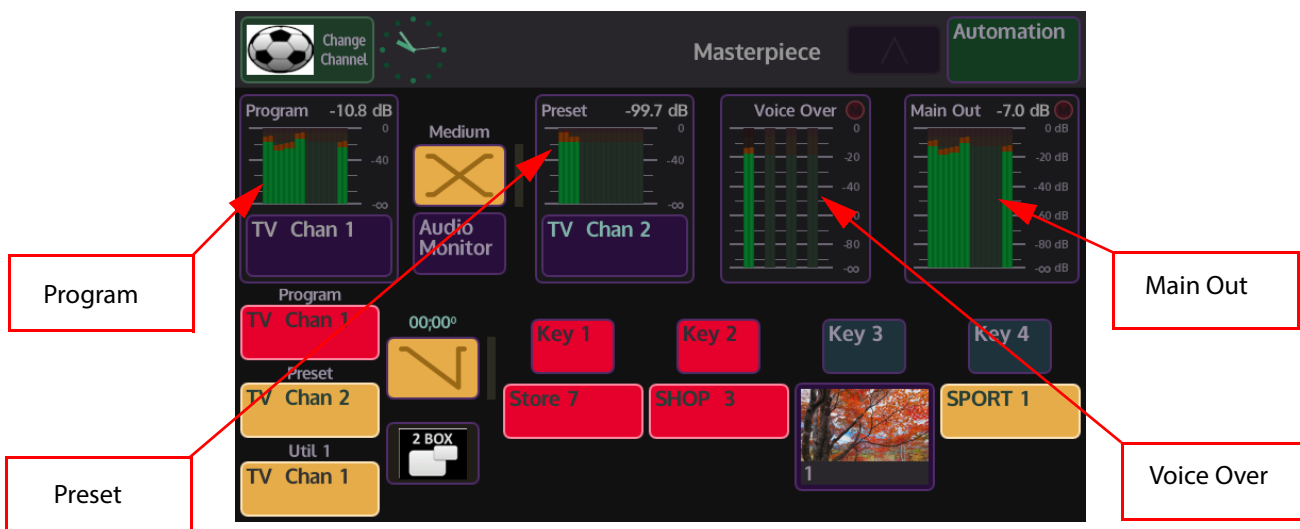
There are several ways to get audio into Masterpiece:

- 16 channels of Embedded audio via the 42 x HD/1080p SDI or 10x 12G-SDI inputs
- 8 channels of internal Audio via Clipstores
- Internal audio via the Util Bus
- 25 Way AES/LTC audio connector at the rear of the mainframe

In most cases audio will be input into Masterpiece via the SDI inputs in the form of 16 channel AES audio and mixed with audio from the Clipstore or voice over.

The basic example of an audio path going through Masterpiece is where a source containing AES audio is input via SDI into Masterpiece, the AES audio will be de-embedded, follow the video through the video mixer stages to an embedder on the output.

Once the system has been configured and sources are assigned to the crosspoint buttons on the Masterpiece control surface, if a source containing audio is selected on the "Program" Bus for example, the audio levels are displayed via the audio meters on the Masterpiece GUI screen. The Masterpiece GUI home menu will constantly display up to 16 channels of; Program Audio Levels, Preset Audio Levels, Main Out Audio Levels and 8 channels of Voice Over Audio Levels (as shown below).



Audio Shuffler

The Audio Shuffler matrix allows you to build up to 50 audio shuffle profiles using the 16 channel AES audio matrix map (shown in the menu below). The shuffle profiles can be assigned to Crosspoints (XPT) in the XPT main menu or the AES Inputs 1 to 4 in the Audio Shuffle menu.

With no audio shuffle a XPT selected on a Bus will pass the 16 channels of audio out the mixer in the Grass Valley order they arrived. Applying a shuffle map on the XPT allows that order to be changed to whatever you want. This could be to move the 1st 8 channels to the last 8 channels, or indeed just to disable all the channels to create a mute

The basic setup for the audio shuffle menu is 16 channels of AES Audio In/Out on a 1 to 1 basis, i.e. channel 1 In to channel 1 Out, through to channel 16 In to channel 16 Out.

Audio shuffling is useful for example, when the incoming audio feed has multiple languages, with each language consisting of a channel pair (In 1 & 2). By mapping the channels, you ensure that the proper languages make it onto the Program live to air path, and that the other languages can be muted or removed from the live to air path.

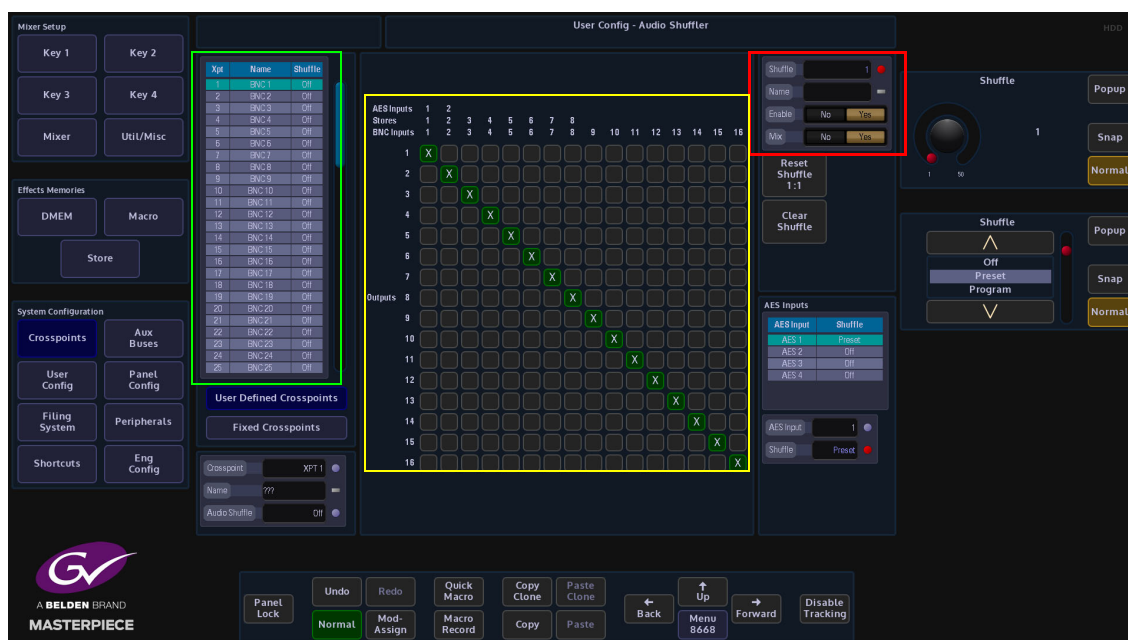
There are 50 Audio shufflers available to configure, these can then be assigned to a crosspoint or an AES input. Each shuffler has 16 Output channels and 16 Input Channels

Note: AES Inputs 1 to 4 only have 2 Inputs channels each.

There are a number of default shufflers available:

- Program (default 1:1), but can be overridden by Morpheus automation
- Preset (default 1:1), but can be overridden by Morpheus automation
- AES to 1&2 - input channels 1 & 2 are assigned to output channels 1 & 2
- AES to 3&4 - input channels 1 & 2 are assigned to output channels 3 & 4
- AES to 5&6 - input channels 1 & 2 are assigned to output channels 5 & 6
- AES to 7&8 - input channels 1 & 2 are assigned to output channels 7 & 8

The yellow area is where you edit and create maps. The green area is where you assign a map you created in the yellow area to an actual XPT. Once you have created maps they are saved in the User Config, if you don't save them and you reboot, the maps and their XPT assignment will be lost!

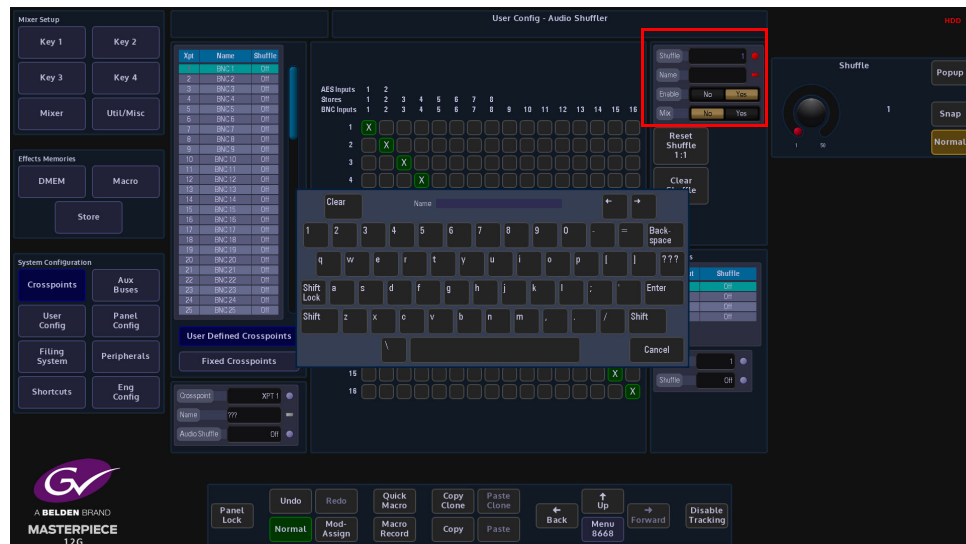


How to Build a Shuffle Profile

To build a shuffle profile, turn “Enable” and “Allow Mix” On, (allowing mixing will give you the option to mix multiple inputs to the Grass Valley output. It has the effect of summing the signals together). In its default state, all the green shuffle indicator squares are in a one to one state; Input 1 to Output 1 through to Input 16 to Output 16. Notice that once enabled, the green shuffle squares now have a white “X” in them.

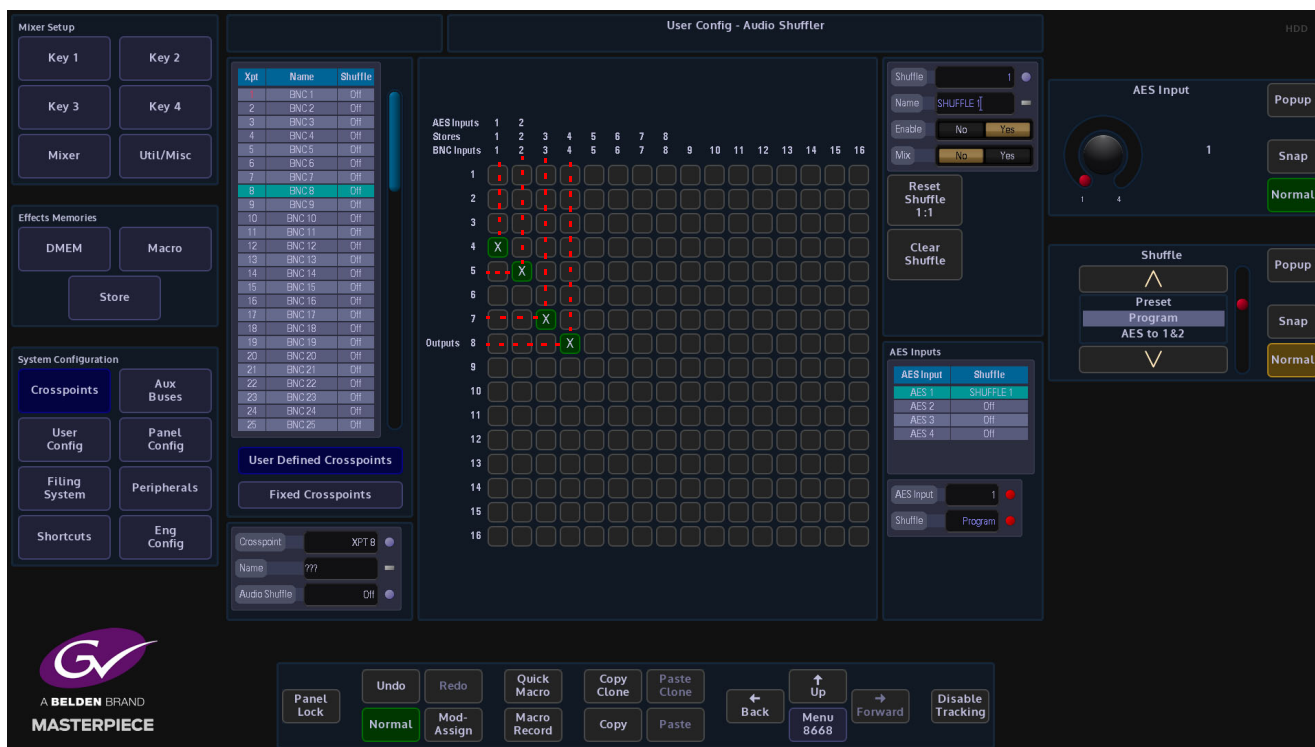


Using the “Audio Shuffle” parameter to select a Shuffle Profile number (1 to 50). Use the “Name” parameter to give the shuffle profile a name.



To make a new Shuffle Matrix, just touch the matrix square where you want the new input to output channels. The following menu diagram (on the next page) has had 12 inputs removed, so that only 4 channels or 2 stereo pairs are being shuffled.

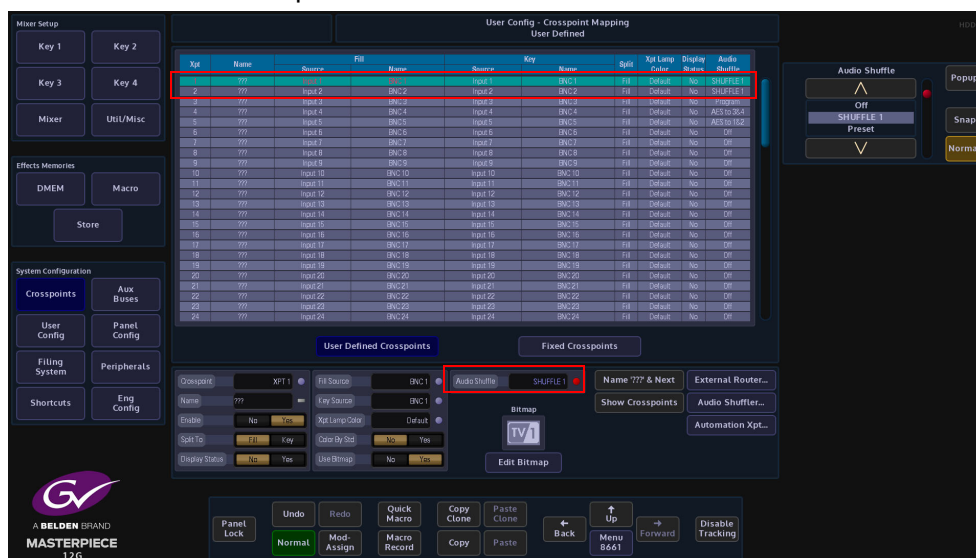
The menu below displays an audio shuffle on input channels 1 & 2 and 3 & 4. Their default state was Inputs 1 & 2 to outputs 1 & 2 and Inputs 3 & 4 to Outputs 3 & 4.



Input audio channels 1 & 2 are now moved to be Output on channels 4 & 5 and Input channels 3 & 4 are moved to be output on channels 7 & 8. This is now Audio Shuffle 1 and named "SHUFFLE 1"

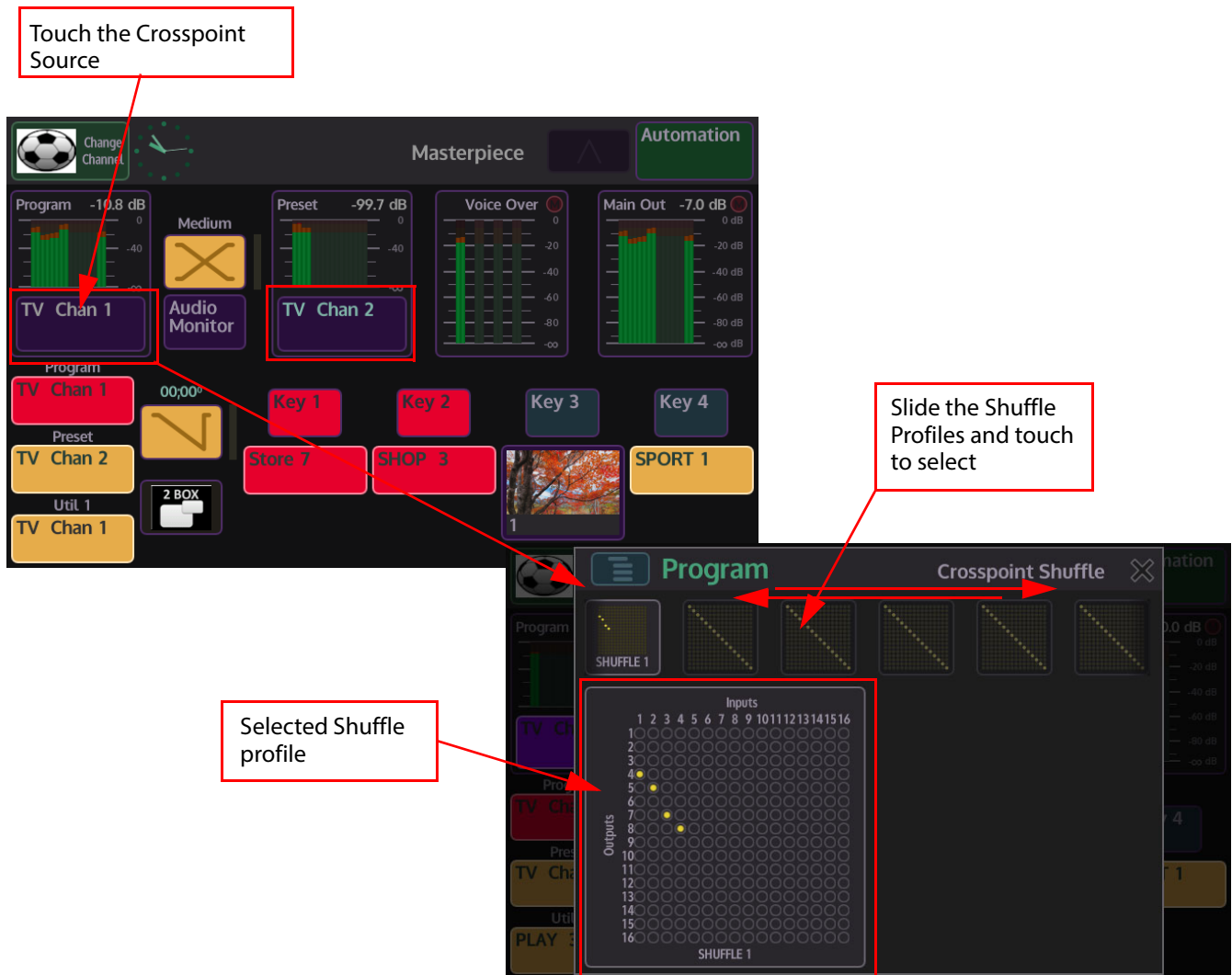
Note: The red dotted lines have been added to highlight the audio shuffle profile created. They are not part of the original menu.

The Shuffle Profile can now be assigned to a crosspoint. In the "Crosspoint Mapping" menu, select the required crosspoint, then touch the "Audio Shuffle" parameter, use the parameter control to select "SHUFFLE 1". The shuffle profile is now added to the audio source that is associated with the crosspoint.



The shuffle profile is saved when the User Config is saved and when the Switcher State is saved.

You can also assign Shuffle profiles to crosspoint sources on the Masterpiece GUI. In the home menu, below the Program and Preset audio level meters, the current crosspoint source is displayed (highlighted below). If you touch the crosspoint source menu link button, a "Crosspoint Shuffle" option menu is displayed.

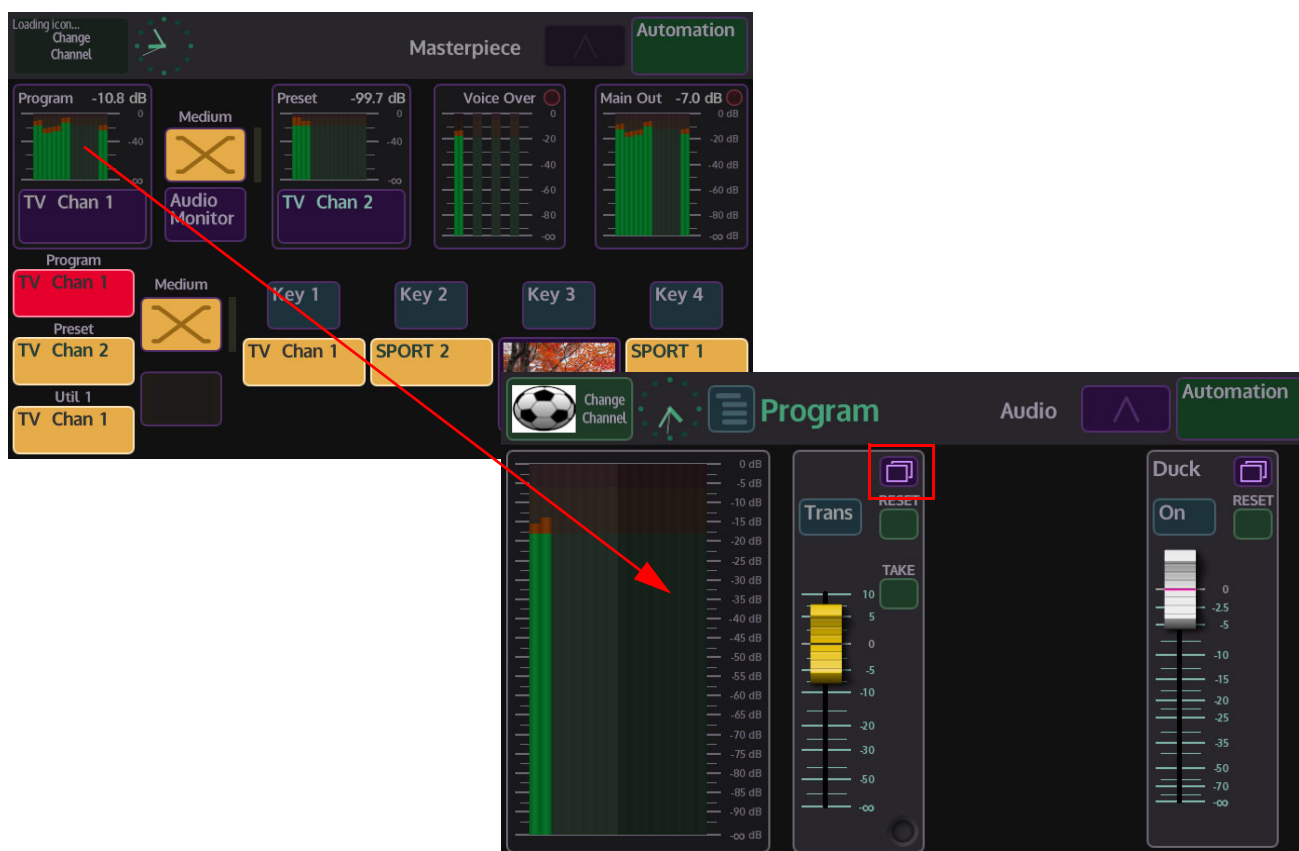


In the Crosspoint Shuffle menu, the 50 Shuffle profiles are displayed in a bar across the top of the menu. Touch and slide left/right to find the required profile and then touch the profile to select it.

The Shuffle profile is then displayed below the Shuffle profile bar. The selected profile is now assigned to the Program or Preview crosspoint. To confirm this, look at the "Crosspoint Mapping" menu, you will see that the assigned Shuffle profile name is displayed in the "Audio Shuffle" column.

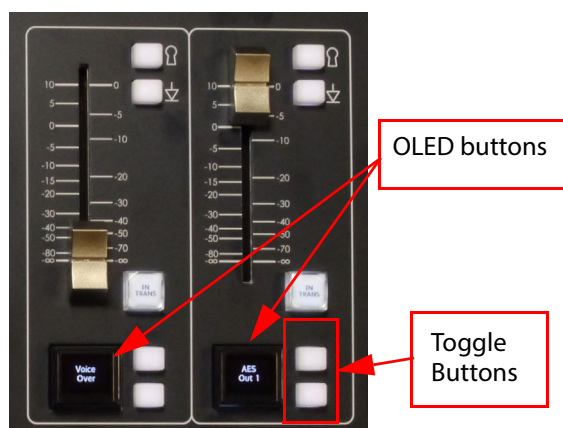
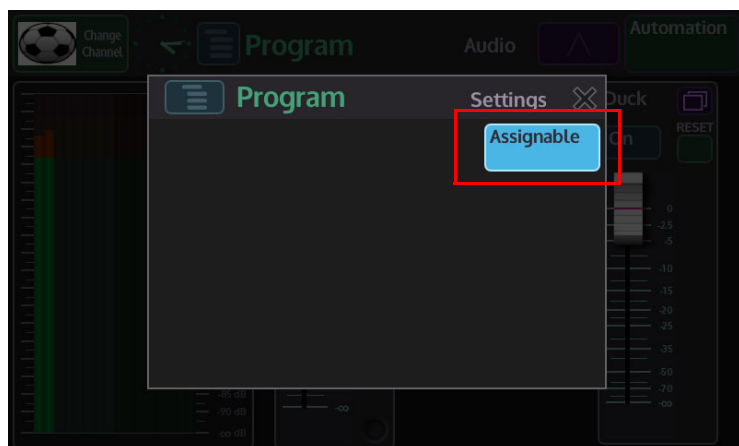
Understanding the Masterpiece GUI Audio Menus

As mentioned earlier, the Masterpiece GUI home menu displays the Program, Preset, Voice Over and Main Out audio metering. If for example you touch the “Program” audio meter, the “Program” audio menu will be displayed.

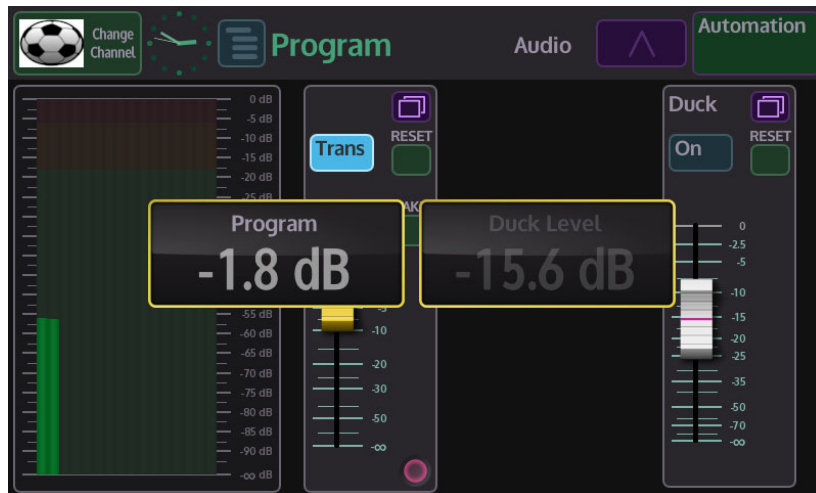


This menu displays a more detailed menu with “soft” audio faders that can be assigned to the physical faders on the Masterpiece control surface. You can see which soft fader controls are currently assigned to the control surface by using the toggle buttons to scroll through the assigned function list.

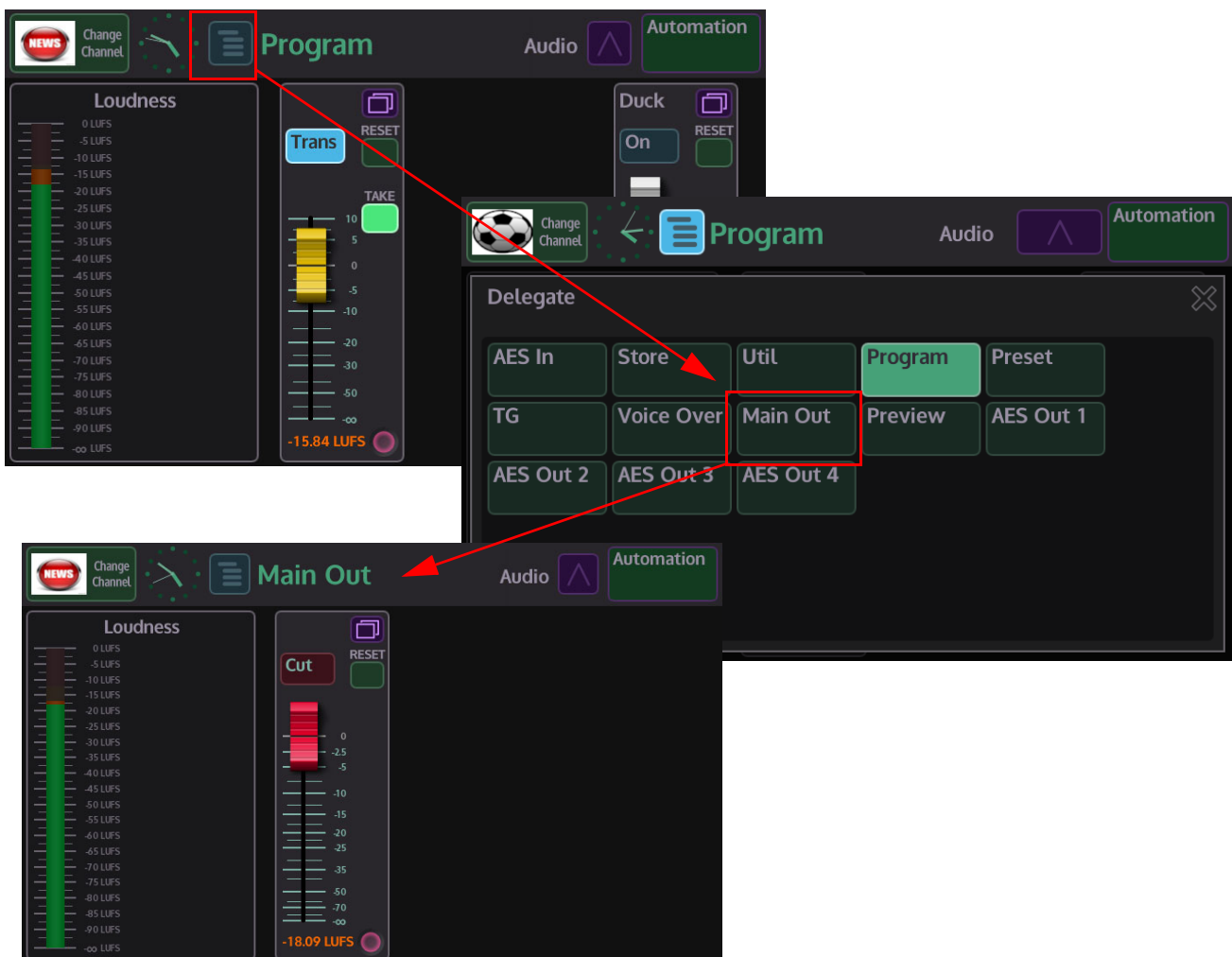
To assign a slider to the function list, touch the menu expander, then when the settings dialog box appears, touch the **{Assign}** button. The button will light up “light blue” (as shown below). The function will be displayed when scrolling through the function list. To enable the function touch the OLED button.



When the soft fader is moved up/down if the audio function is selected on the OLED button, the physical fader on the control surface will move in unison with the soft slider. As you move the fader on the control surface, notice that the fader level information is displayed in the menu.

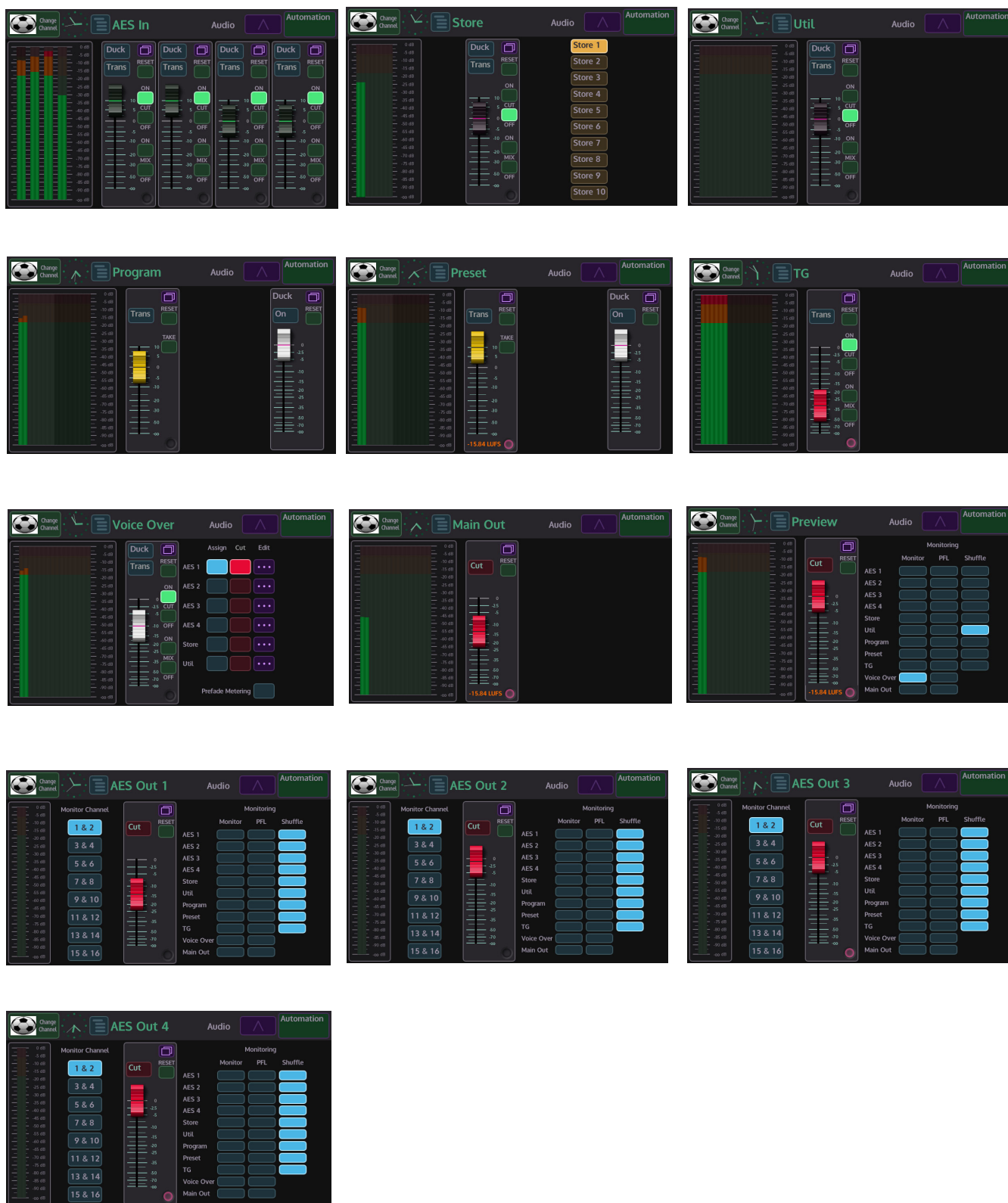


Touching the “Delegate” button in the “Audio” menu (shown below), will display a list of audio function controllers. Touching one of the buttons will display the relevant audio control menu. All of the audio function controllers in the “Delegate” menu can be assigned to the “Assigned Function” list and controlled using the physical audio faders on the control surface.



Masterpiece GUI Audio Menus

The diagram below displays all the available audio function menus.



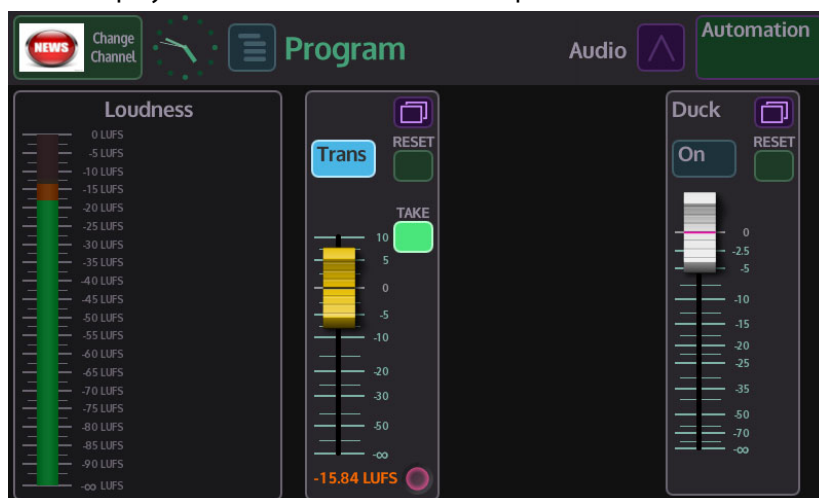
Using Masterpiece GUI Audio Menus

Program, Preset and Main Out

The **Program Preset** and **Main Out** audio menus are the most critical to the to the output of Masterpiece as these control the audio that is going live to air and the audio that will be going live to air next. With a Button Maps created and the Crosspoints set up on the Masterpiece control surface, the audio menus on the Masterpiece GUI can now be used.

Program Audio

The **Program Audio** menu displays the level of audio for the currently selected source going live to air. The audio level indicators in the menu display the level of audio from the source, it is a visual display to confirm that there is audio present.



The soft fader control has no control over this level, the fader control adjusts the audio to the Main Out. The fader provides some gain +10dB and attenuation (0dB to -Inf).

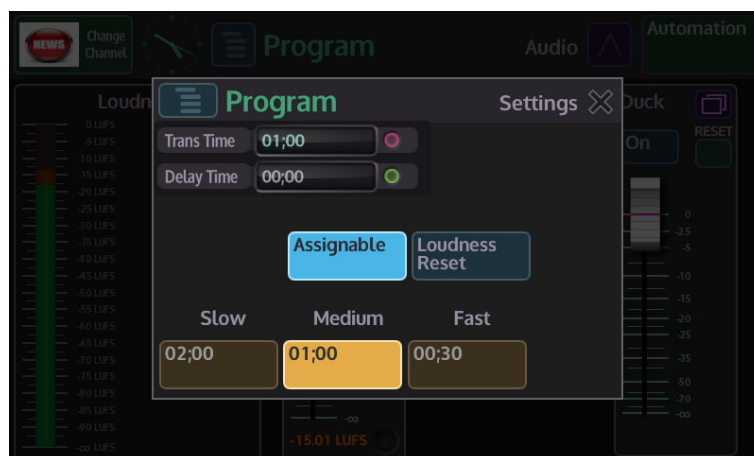
Buttons:

Trans - selection will push the Program Audio into the main audio transition

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Take - selection will push the Program Audio to transition when the [**Take Next**] button is pressed.

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue" (as shown below). The function will be displayed when scrolling through the function list. To enable the function touch the OLED button.

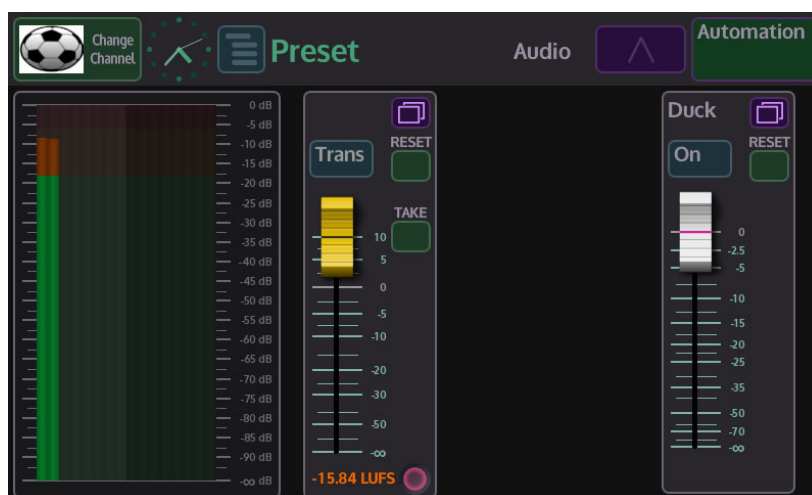


Duck - selects whether a duck Level is applied to the "Program" when the Program goes to air. In ducking, the level of one audio signal is reduced by the presence of another signal. For example this can typically be achieved by lowering (ducking) the volume of a secondary audio source when the primary audio source starts, and lifting the volume again when the primary audio source is finished.

A typical use of this effect is for creating a voice-over: a foreign language original source is dubbed (and ducked) by someone reading the translation. Ducking becomes active as soon as the translation starts.

Preset Audio

Preset Audio, like Preset video is the audio that will go live to air when a transition or Take Next is made. Preset audio can be monitored so that you will know that the audio source is the correct one.



As with the Program menu, the audio meter is the level of audio for the selected Preset source. The audio level is not affected when using the fader control. The audio level can be monitored as an AES output and the level set using the fader control. When a transition is made or a Take Next is done and the Preset video/audio becomes the Program video/audio going live to air, the audio level is output at the level set by the fader. The fader provides some gain +10dB and attenuation (0dB to -Inf).

Buttons:

Trans - selection will push the Preset Audio into the main audio transition

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

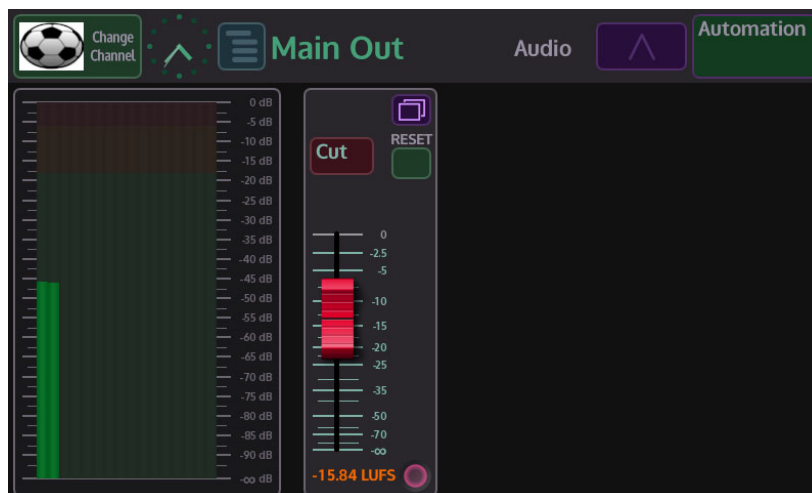
Take - selection will push the Preset Audio to transition when the **[Take Next]** button is pressed.

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

Duck - selects whether a duck Level is applied to the "Program" when the Program goes to air. In ducking, the level of one audio signal is reduced by the presence of another signal. For example this can typically be achieved by lowering (ducking) the volume of a secondary audio source when the primary audio source starts, and lifting the volume again when the primary audio source is finished. A typical use of this effect is for creating a voice-over: a foreign language original source is dubbed (and ducked) by someone reading the translation. Ducking becomes active as soon as the translation starts.

Main Out Audio

Main Out, this is the main audio output from Masterpiece and controls the audio level for the program output. By default, the audio level is set to 0dB and any adjustments using the audio fader will reduce the audio output from Masterpiece.



As you adjust the audio fader down the audio meter level indicator will also fall with reduction in audio output.

Buttons:

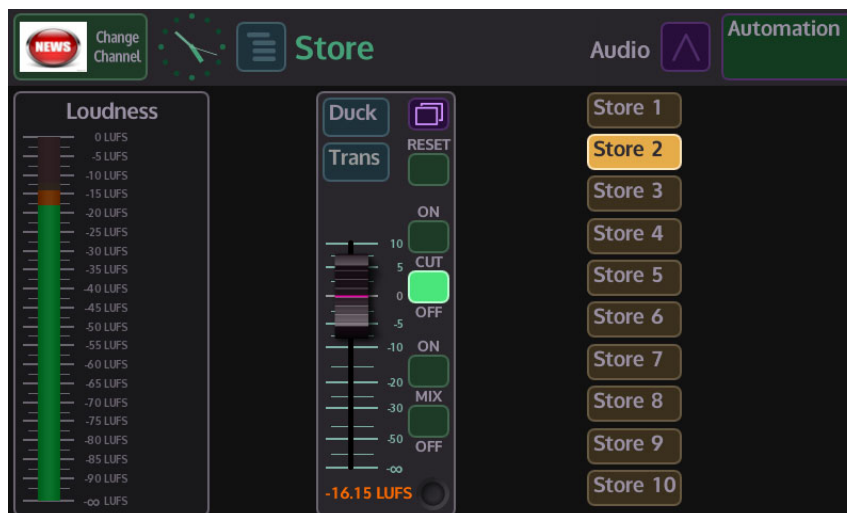
Cut - this will cut the audio output On/Off

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

Stores (internal audio source)

Stores provide an internal audio source via the “Clipstore” function. Clipstores are pre-configured clips of either just audio or audio with a bug/video clip. There are 10 internal stores that can be used as a source to a crosspoint or provide a source for a squeeze back macro.



The audio fader controls the audio level for the selected store. Touch one of the “Store” buttons on the right to select the store that this menu will control. If the store is selected on a crosspoint for example, adjusting the audio in this menu will adjust the audio level to the Main Out only, the audio meter displays the audio level at the source and will not increase or reduce when adjusting the audio fader. The fader provides some gain +10dB and attenuation (0dB to -Inf).

Buttons:

Duck - selects whether a duck Level is applied to the selected Store. For the Store Audio channel to have an effect on the program output attenuation level, when the Store Audio goes to air, select the “Duck” assignment button.

Trans - selection will push the Preset Audio into the main audio transition

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

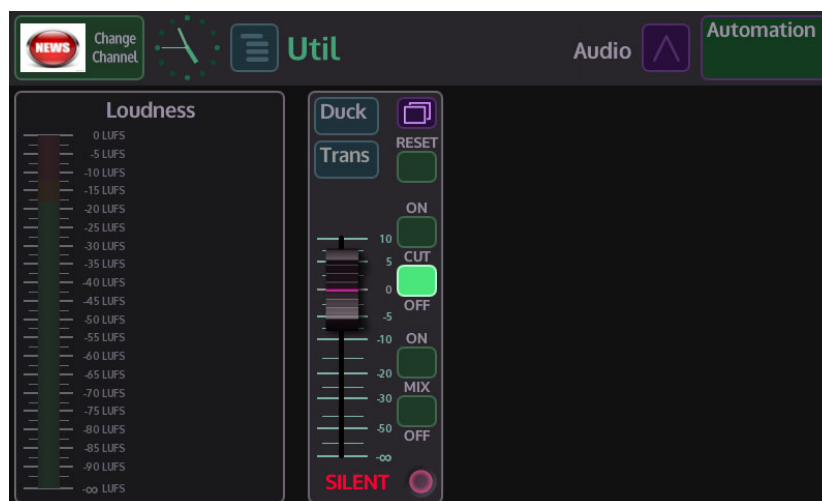
Cut On/Off - turn audio On/Off

Mix On/Off - mixes audio On/Off

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up “light blue”. The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

Util Audio

This adjusts the audio for sources assigned to the Utility Bus. The audio is routed from one of the 16 AES stereo pairs from either the SDI inputs or the AES inputs from 25 Way AES/LTC connector.



The audio fader controls the audio level on the Util Audio channel. Adjusting the audio in this menu will adjust the audio level to the Main Out only, the audio meter displays the audio level at the source and will not increase or reduce when adjusting the audio fader. The fader provides some gain +10dB and attenuation (0dB to -Inf).

Buttons:

Duck - selects whether a duck Level is applied to the Util audio output. For the Util Audio channel to have an effect on the program output attenuation level, when the Util Audio goes to air, select the "Duck" assignment button.

Trans - selection will push the Preset Audio into the main audio transition

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

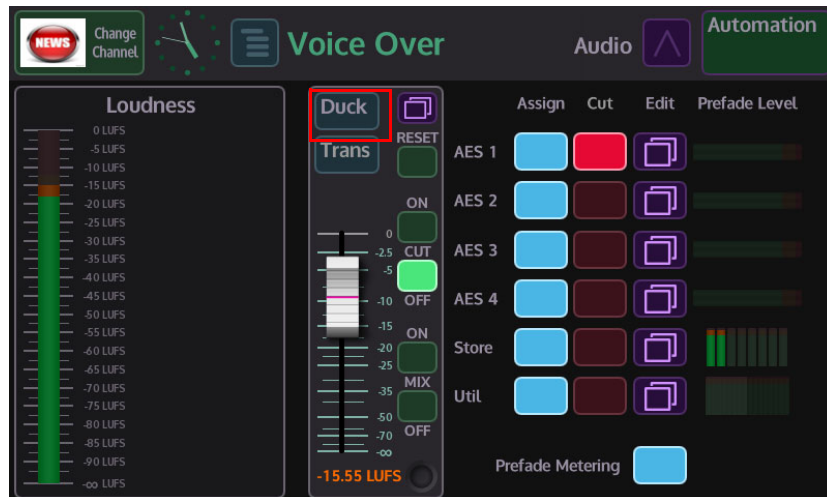
Cut On/Off - turn audio On/Off

Mix On/Off - mixes audio On/Off

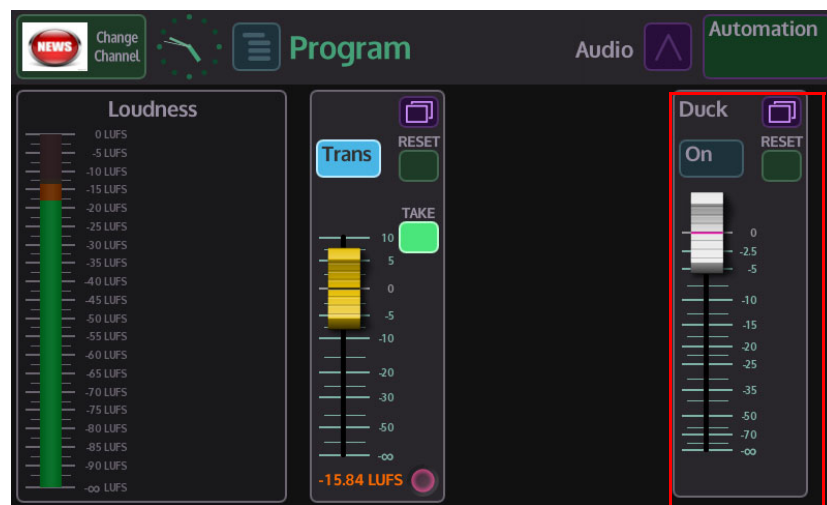
Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

Voice Over Audio

The voice over channel is actually a group channel, where by a number of input channels can be assigned to the group (voice over). As shown below the Inputs available for assignment are AES 1, AES 2, AES 3, AES 4, STORE and UTIL.



For the voice over channel to have an effect on the program output attenuation level, when the voice over goes to air, select the "Duck" assignment button.



The Duck level is applied whenever the Voice Over is on air (if duck select button assigned), so does not necessarily need to be in the transition.

Another behavior of the Voice Over's Duck assign property is when the Duck level is being applied, the Duck attenuation is applied as a range to voice over fader level. So manually altering the Voice Over fader level will have an effect on the program attenuation. (i.e Voice Over level is at 0db, Duck attenuation range is applied between -inf and 0db, so at -inf no Duck level applied and 0db full Duck level applied).

Touching the **{Edit}** button takes you to each of the input channel menus where you can set the levels etc. for each channel you've assigned.

For example, if you assign AES 1 to the voice over. The attenuation level of the voice over is applied to AES 1 (providing the AES channel has been switched On).

Note: The **Cut - On** lamp behavior is determined from Panel Config - Preferences- Audio Mixer Lamp Mode.

The Voice Over "**Prefade Metering**" displays the voice over metering before the voice over attenuation level has been applied.

Trans - selection will push the Preset Audio into the main audio transition

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Cut On/Off - turn audio On/Off

Mix On/Off - mixes audio On/Off

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

AES In Audio (1 to 4)

The four AES Input stereo pairs are routed from the 25 Way AES/LTC connector, they are inputs 1&2, 3&4, 5&6 and 7&8. Each fader controls an AES Input (channel pair 1 & 2) level providing some gain +10dB and attenuation (0dB to -Inf).



The audio level indicators in the menu display the level of audio from the source, it is a visual display to confirm that there is audio present. The soft fader control has no control over this level, the fader control adjusts the audio to the Main Out when applied to Program/Preset.

Buttons:

Trans - selection will push the AES into the main audio transition

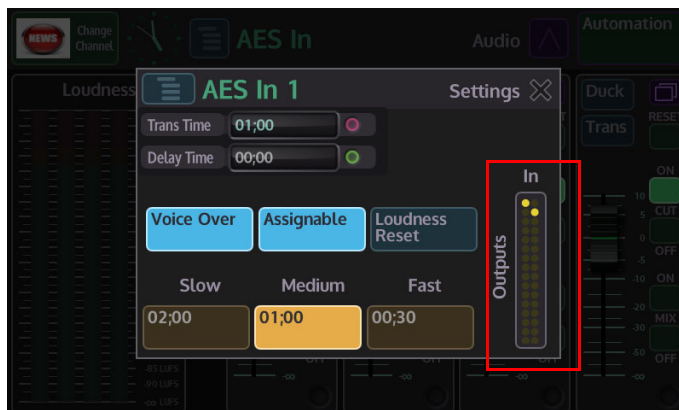
Duck - selects whether a duck Level is applied to the Program/Preset when the AES goes to air

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Cut On/Off - turn audio On/Off

Mix On/Off - mixes audio On/Off

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

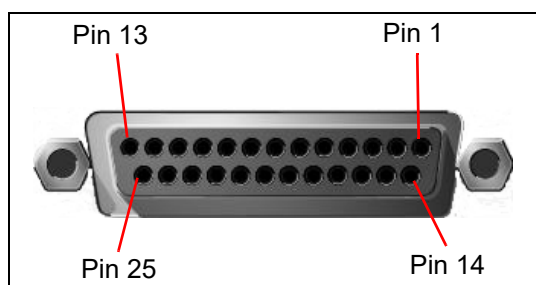


In the dialog box above, you are able to setup the audio on "AES In 1" to work with an audio transition without having to go into the main audio transition menu. With the {Trans} button selected in the AES In main menu, you can set how the transition behaves.

The default settings in the “Slow”, “Medium” and “Fast” transition options can be adjusted using the “Trans Time” parameter. Touch the Slow, Medium or Fast option and it will turn yellow indicating that it is selected, then adjust the Trans Time parameter as required. The “Delay Time” parameter will place a delay on the audio if the sync is out with the video. Enabling the “Voice Over” is the Grass Valley as enabling AES In 1 in the Voice Over Audio menu. The In/Outputs display the “Shuffle” for 16 channels of AES, the profile displayed is for AES In 1.

25 Way AES/LTC Connector In/Out Pin Configuration

The diagrams below display the single 25 Way D-type AES/LTC connector at the rear of the Masterpiece mainframe and the pin-out configuration with signal information for each pin.



AES/LTC Pin-outs

AES/LTC 45 - 66	
Pin	Signal
1	LTC (+)
2	GND
3	Out 5/6 (-)
4	Out 3/4 (+)
5	GND
6	Out 1/2 (-)
7	In 7/8 (+)
8	GND
9	In 5/6 (-)
10	In 3/4 (+)
11	GND
12	In 1/2 (-)
13	NC
14	LTC (-)
15	Out 5/6 (+)
16	GND
17	Out 3/4 (-)
18	Out 1/2 (+)
19	GND
20	In 7/8 (-)
21	In 5/6 (+)
22	GND
23	In 3/4 (-)
24	In 1/2 (+)
25	GND

Audio Monitoring

Preview Audio

Preview Audio allows you to listen to any of the audio input stages as well as the Main Out stage before the audio is used. You can select the audio that you want to preview by touching one of the "Monitor" channels, only one channels at a time can be monitored.



The audio fader controls the audio "Preview" level for the selected monitor channel only, not the selected channel audio input level.

Pre Fade Listen or PFL is also a monitor function, PFL allows you to listen to the channel's audio at a point before the fader for that audio channel takes effect.

Shuffle will allow you to monitor the selected audio channel with any shuffle profiles that have been assigned to an audio input stage (see the Audio Shuffler section of this chapter).

Buttons:

Cut - this will cut the audio output On/Off

Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

AES Audio Out 1 to 4

The AES Audio Out 1 to 4 menus are used to monitor any of the input stages including the Main output stage. Each menu does the Grass Valley function for its AES output. The Monitor Channel are used to select the 2 audio outputs, AES outputs are limited to 2 output channels and allows you to monitor any of the 16 channels into the audio mixer.



The **Monitor** column of buttons selects the where the audio to be monitored comes from. **Pre Fade Listen** or PFL is also a monitor function, PFL allows you to listen to the channel's audio at a point before the fader for that audio channel takes effect.

Shuffle will allow you to monitor the selected audio channel with any shuffle profiles that have been assigned to an audio input stage (see the Audio Shuffler section of this chapter).

Cut - this will cut the audio output On/Off

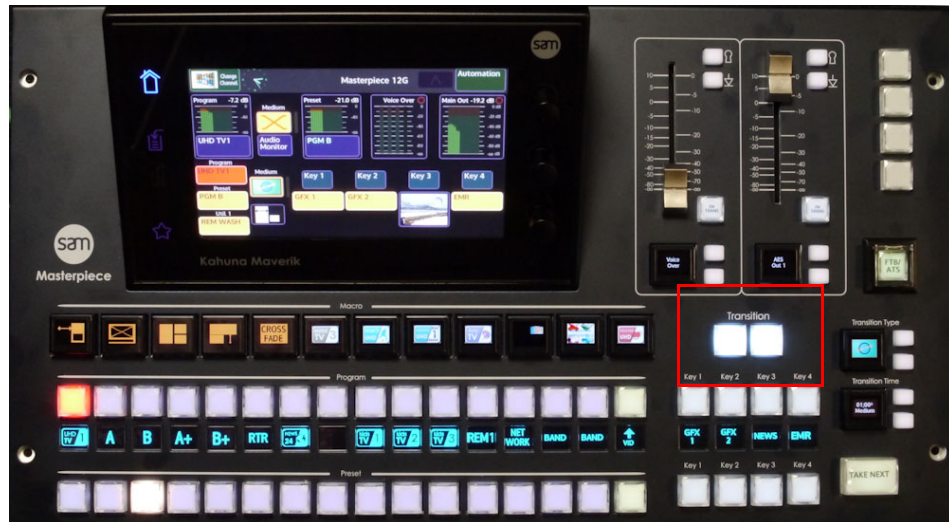
Reset - resets the fader to 0dB (can be overridden by Morpheus automation)

Touching the menu expander will open the settings dialog box. Touch the **{Assign}** button, the button will light up "light blue". The function will be displayed when scrolling through the function list using the toggle buttons. To enable the function touch the OLED button.

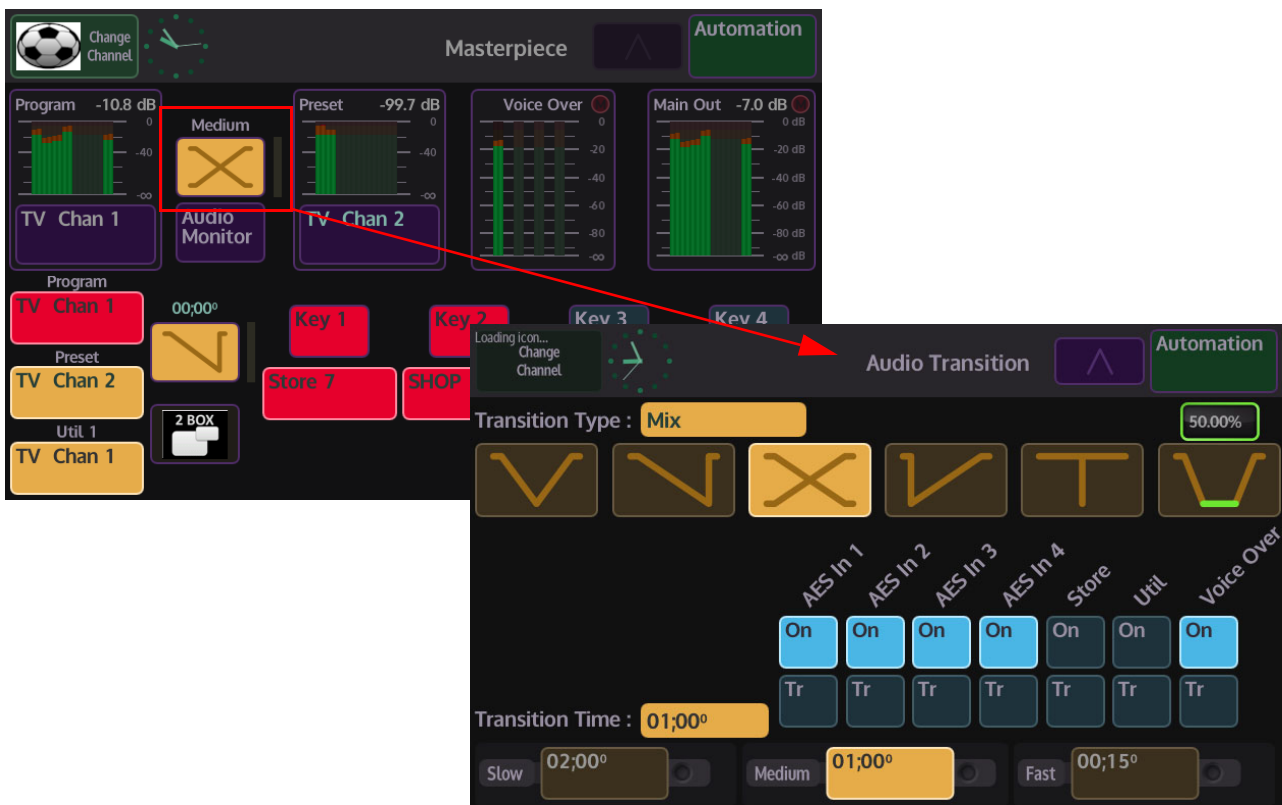
Audio Transitions

Audio transitions in normal use would transition with the accompanying video between Program and Preset sources. Masterpiece is also able to transition audio independently of video and allow other input audio sources to be transitioned with a Program/Preset transition.

Before starting to use the Transition menus, make sure that the **[AUDIO TRANS]** button is selected and illuminated light blue.



The main menu on the Masterpiece GUI is basically spit in half horizontally, the bottom half is deals video functionality and the top half is audio. Touch the yellow button above the **{Audio Monitor}** button and the "Audio Transition" menu is displayed.



Audio Transition Menu

In the Audio Transition menu you can setup the type of transition you want for the audio. Touch one of the Transition Type buttons (the button will turn yellow when selected) at the top of the menu to set the type of transition you require.



V-Fade - this button will perform a V-Fade transition. When the “Take Now” button is pressed, this option will take the Program source to silent, then raise the audio up to the Preset source level.



Fade and Take - this button will “Fade” the audio from one source down to silent and then cut (the audio will instantly go back up to the full preset source level).



Mix - this performs a “Cross Fade”. When the “Take Next” button is pressed the audio from one source will gradually fade out and at the Grass Valley time the second source will gradually fade in.



Take and Fade - this button will perform a cut to silent, then fade from silent up to the next source level.

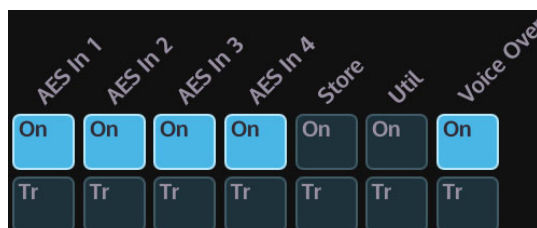


Cut - this button will perform a cut transition from one source immediately to the next.



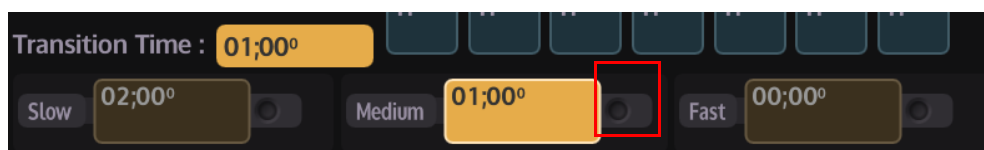
50.00% - this will fade down to silent pause and then fade back up to the next source level.

The “Transition/On” buttons are used to select a second audio source that will contribute to a live to air transition.



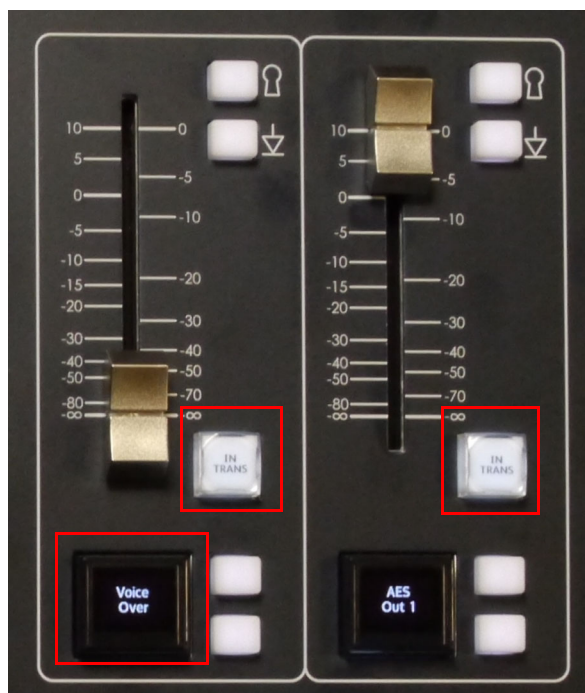
Like the “Key Layer” buttons, when the “**On**” button is illuminated, the audio source of the selected function will contribute to the on air output. If the “**Tr**” button is illuminated and the “On” button is not illuminated, when the “Take Next” button is pressed, the source will transition on air with the Preset audio source going to Program on air.

There are 3 default quick select buttons in the “Transition Time” area of the Audio Transition menu.



As can be seen in the above menu, you have 3 options to select, by default “Slow” will take 2 seconds to transition, “Medium” will take 1 second and “Fast” is an instantaneous cut. All three options can be adjusted by touching the rotary control attacher (it will turn red) and then adjusting the rotary control. As the transition time is adjusted, the selected time attacher will go brown and the time in the box will increase/decrease. Touch the time attacher (it will turn yellow) and the “Transition Time” will change to reflect. Audio transitions will now transition at the new set time.

If the “In Trans” Buttons; at the bottom of the audio faders on the Masterpiece control surface are selected, when a “Take Next” transition is made, the faders will move to reflect the selected Audio Transition Type.



If for example the “Voice Over” fader on the control surface is set to minimum and a “Fade and Take” transition is selected, when the “Take Next” button is pressed the fader on the control surface will move to maximum at the end of the transition.

9

Engineering, User & Panel Configuration

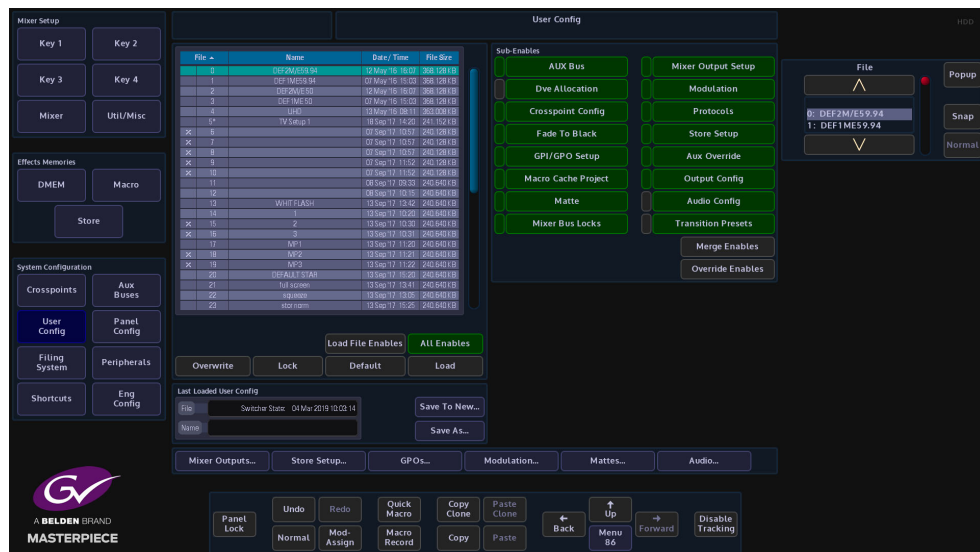
Saving Files

Before describing the Configuration menus, it is a good idea to explain how to save a config file.

Saving a Config File

The Engineering, User and Panel Config files are used to save up to 1000 different config setup files. They are very important and while setting up a system, should be saved regularly so that no configuration state is lost. When the config setups are saved, they are listed as files in a table (as shown in the menu below), so that the user can easily see the time/date that a config was saved, allowing the file to be instantly loaded.

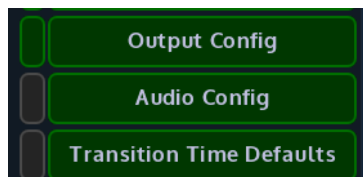
Note: This example will show how to save a User Config file. Saving an Engineering Config or Panel Config file is done in exactly the Grass Valley way.



Sub Enables

The “**Sub Enables**” list of buttons, to the right of the config files table, allows the user to select or de-select functions that can be saved with a file.

If the tab next to the enables button is green, this means that the function was included when the file was originally saved. If the tab is gray, the function is not included when the file was originally saved. If an enabled function is selected (green), when the config is saved, the function will be included in the saved config (shown below).



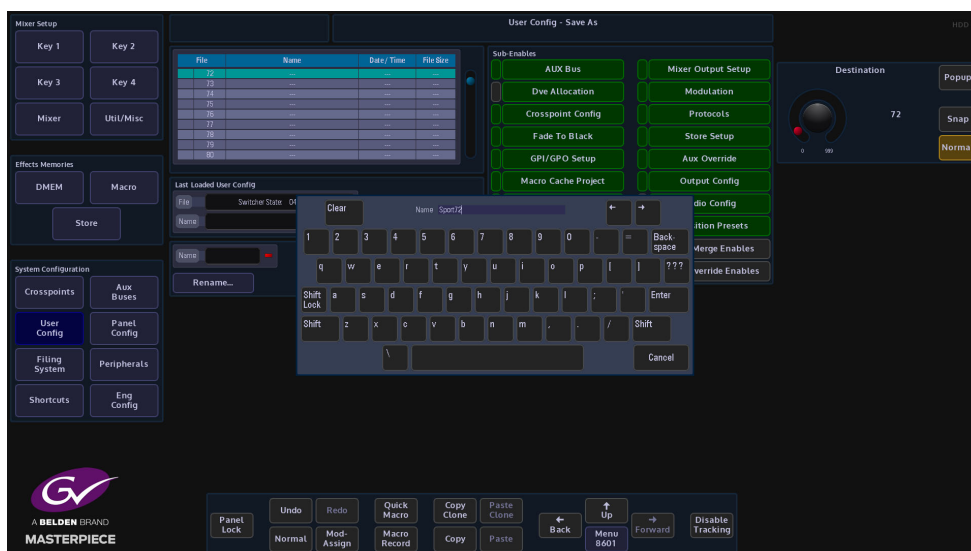
Enables and Sub Enables buttons are found in the in the Engineering, User and Panel Config menus as well as the Filing System menus.

Merge Enables - this merges enables currently set in the switcher with the enables saved in the file being loaded (a “logical OR” of the enables).

Override Enables - will override any enables that have been de-selected and turn the enable On.

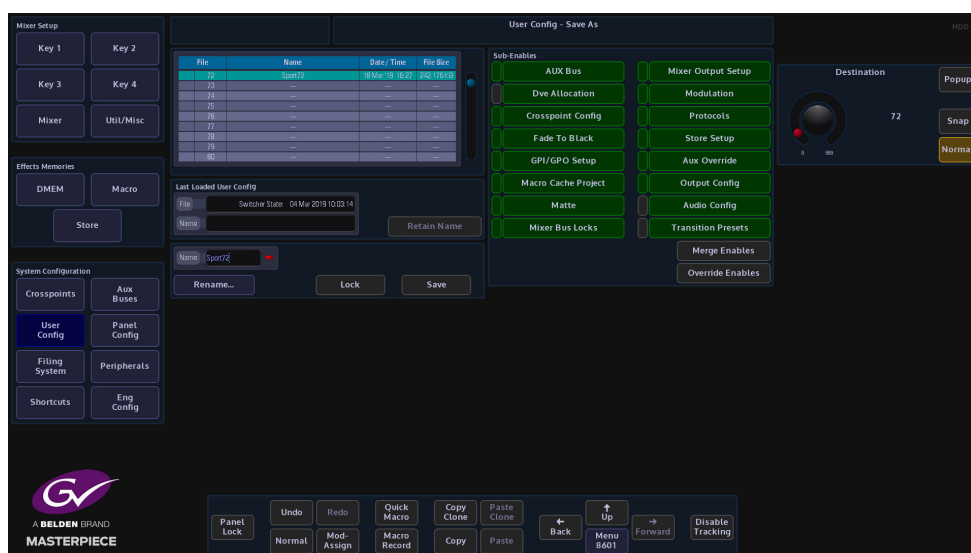
How to save a Config

In the User Config main menu, press the **{Save As}** button and a new config file table will be displayed. In the table, select a slot where the file will be saved using the **"Destination"** parameter, or just touch the slot in the table, there are 1000 slots to choose from. When selected the row will be highlighted, then double touch the red oblong in the **"Name"** attacher and an on-screen keyboard will be displayed.



Type out a name for the config file and press **{Enter}**.

Finally, press the **{Save}** button and the new config file is saved into the table.

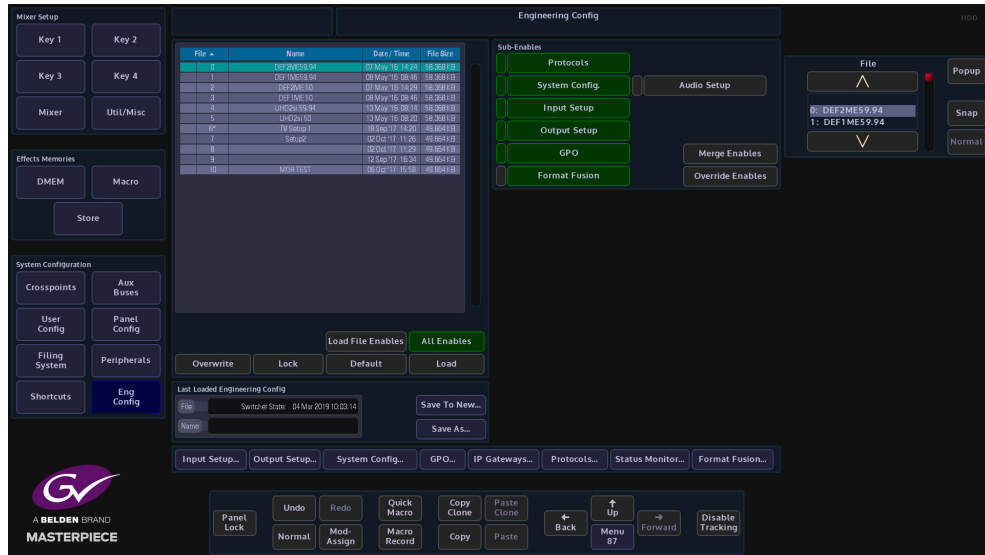


Each file can be overwritten, locked so that they cannot be saved to, or deleted from the table.

Note: Remember: Any changes that need to be kept..... Save the Config File

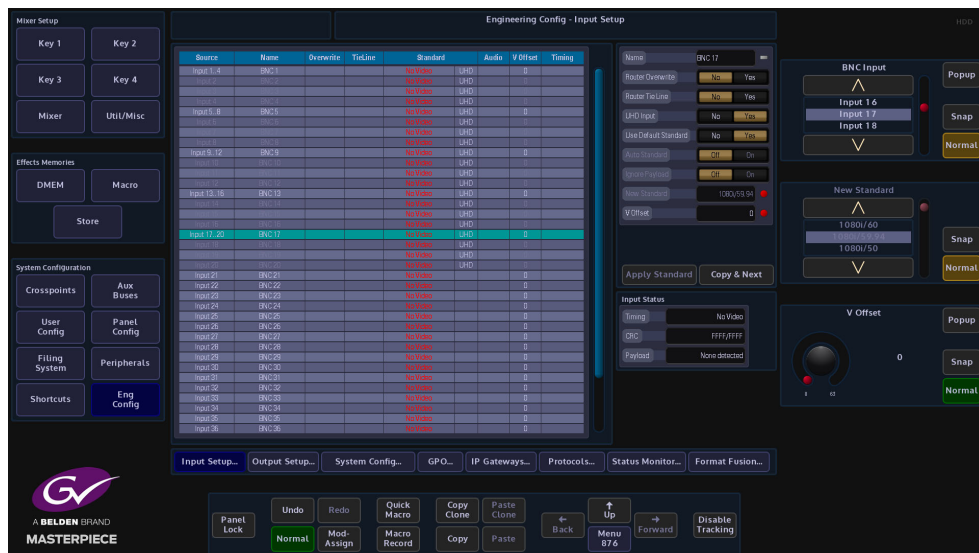
Engineering Configuration

To get to the **{Eng Config}** button to open the **“Engineering Configuration”** menu. In this menu you can setup the Inputs, Outputs and System Standard which are the main setup.



Input Setup

The Input Setup menu has several main configuration functions integrated into one to allow the user to quickly configure an input to the mainframe. The user can give a name to the input source and apply a video standard.



The selected Input is displayed by a light blue bar in the table. The table columns display the setup state of each input to the mainframe, which includes the input number, BNC number or name if the input had been named, Router Overwrite and Tile Lines, the Video Standard, Audio On/Off and timing information. The **BNC Input** parameter is used to select an input and will scroll down the table. You can also touch the **“Pop-up Selector”** which will show all the available inputs.

Parameter Controls

The **Name** attacher allows the user to give the selected input a name and a description; using the on-screen keyboard.

The **Router Overwrite** parameter when set to **{Yes}** will allow an externally connected router to rename a source.

Router Tie Line - allows the input to a Tile Line input which expands the number of sources coming into the mainframe using an external router

UHD Input - when UHD is selected in the **“Mainframe Configuration”** (in the Logged Off state), selecting UHD Input will tie Inputs 1 to 4 together. There will be 4x inputs for every UHD source input to the mainframe, which consist of Input 1 (top left), Input 2 (top right), Input 3 (bottom left) and Input 4 (bottom right). Select Input 1, then touch the **“UHD Input” {On}** button.

The **Use Default Std** parameter will force the input source to use the default mainframe video standard which is set in the **Eng Config - System Standard** menu. The Default Standard can be changed using the **New Standard** parameter. Use the Up/Down scroll buttons to select the required standard, then touch the **{Apply}** button.

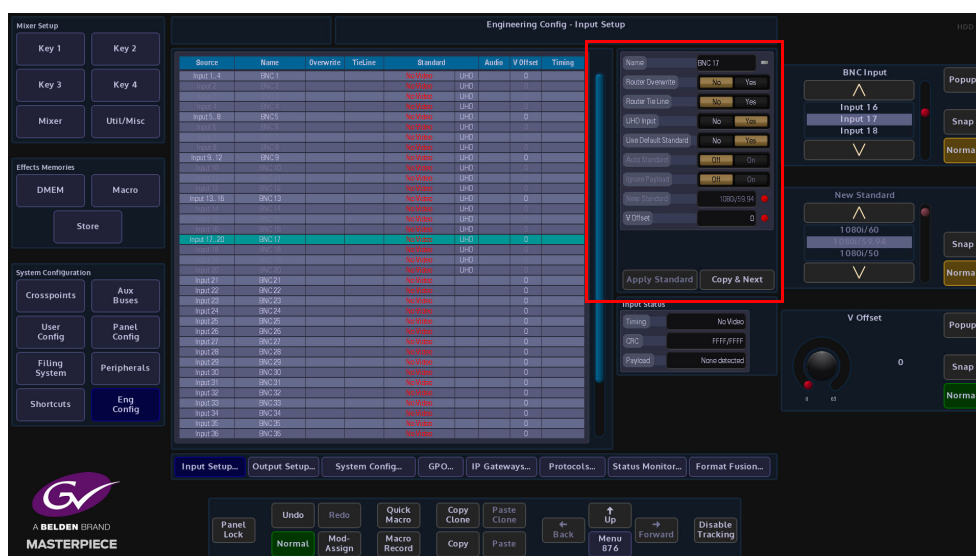
If a new default standard is selected press the **{Apply Standard}** button for the new video standard to be set.

Auto Standard - with the User Default Standard set to **“No”**, setting the **“Auto Standard”** to **“On”** The input will automatically be set to the incoming video standard if **“FormatFusion”** has been applied to the selected input.

New Standard parameter, use the Up/Down scroll buttons to select the required standard, then touch the **{Apply}** button.

The **V Offset F1/F2** parameters are used to adjust to the point where active video reaches the

The **{Copy & Next}** button is a quick shortcut function forcing the switcher to take the name from the current Source, and then jumps on to the next Source in the list - this makes naming all of the sources much easier and quicker.



The "**Timing**" parameter indicates the Offset in Micro seconds (or Milli Seconds) between the Reference input and the selected source. To Clean switch or avoid a Line offset (e.g. a vertical shift) the Timing has to be within +/- half a line of the current standard. e.g. for 1920x1080i59.94 +/-14uS).

Note: All Sources have to be within this window. Any sources outside this window can be corrected by using FormatFusion.

To Adjust this timing window go to the "**Eng Config/System Standard**" menu and adjust the Genlock phase. NB adjustment of the Gen Lock Phase will also adjust the Video Outputs to have a Phase offset from the incoming reference. The Output Offset is +2 Lines from the Reference + Genlock Phase.

The **CRC** (Cyclic Redundancy Check) field shows the CRC for the current Frame. e.g. In general this will be a changing number for a moving picture and a static number for a still.

Output Setup

This menu is where each BNC output from the Masterpiece mainframe is setup, within these menus the user is able to:

- Setup 12G-SDI operation
- Name and give a Description to each BNC output
- Setup ISO Tally's for each BNC output

Note: The menu below displays features for a system setup in HD mode. This menu will have more options when the system is setup in UHD mode. (set in the logged out Mainframe Config menu)

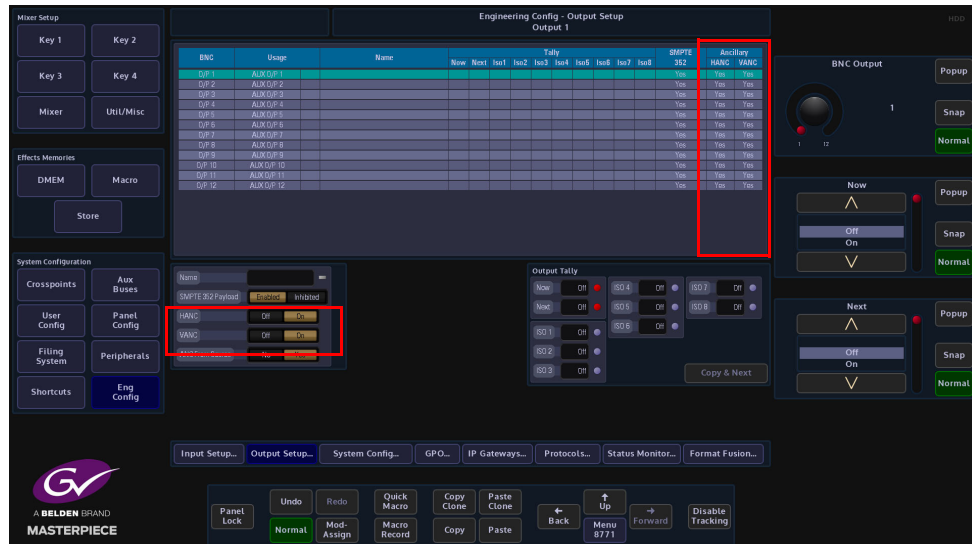
The screenshot displays the 'Engineering Config - Output Setup' menu. The main area contains a table with the following columns: BNC, Usage, Name, Tally (Now, Next, Iso1, Iso2, Iso3, Iso4, Iso5, Iso7, Iso8), SHAPPE 352, HANC, and Auxiliary. The table lists 12 outputs (DIP 1 to DIP 12), all currently set to 'AUX O/P'. Below the table is a configuration panel for the selected output, showing fields for Name, SMPTE 352 Format (Enabled/Inhibited), HANC, VANC, and AWC From Source. To the right is a 'BNC Output' control panel with a rotary knob and buttons for 'Now', 'Off', and 'Next', each with 'Popup', 'Snap', and 'Normal' options. At the bottom, there is a navigation bar with buttons for 'Input Setup...', 'Output Setup...', 'System Config...', 'GPO...', 'IP Gateways...', 'Protocols...', 'Status Monitor...', and 'Format Fusion...'. The Belden logo and 'A BELDEN BRAND MASTERPIECE' are visible in the bottom left corner.

The default setting for all outputs is as an Aux output, this can be user-defined by the ability to change any of the outputs.

Parameter Controls

Name - A user-defined name can be given to each output for reference.

SMPTE 352 Payload - This parameter specifies a “payload packet” which can be included in a serial stream as ancillary data. This indicates such things as the video standard, picture rate, aspect ratio etc. of the video signal that stream carries. The button turns it on and off on each output.



HANC/VANC - Ancillary Data can be output from any BNC output on the mainframe. These buttons are used to either pass or block the ancillary data on each individual output.

The Masterpiece is able to receive Ancillary Data and pass the ancillary data out from any BNC outputs from the mainframe.

The ancillary data is part of the horizontal and vertical blanking portion of the video signal and is known as **HANC (Horizontal Ancillary Data)** and **VANC (Vertical Ancillary Data)**. The portion of the ancillary data we are interested in is **Embedded Audio**.

The embedded audio will usually be in the **HANC** portion of the video signal, and is the most likely way that embedded audio data is received. There can also be other forms of information embedded in the HANC data; such as, SMPTE 352 Payload identifier or SMPTE 2051 two-frame marker.

VANC is also able to carry embedded audio in the form of Dolby E™, VANC also carries other ancillary data; such as video standard, aspect ratio, content name etc.

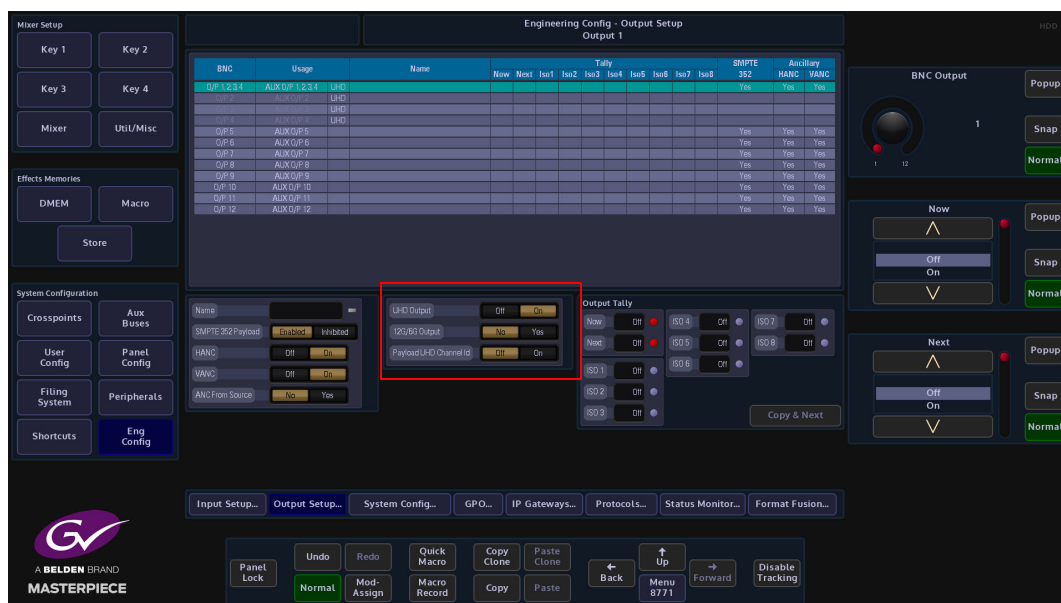
ANC From Source - when output is from a MIXER output:

- **Yes:** The ancillary data will just follow PGM or PST, with cuts at the end of transitions. NOTE: if the background DVE is enabled ANC is blanked!
- **No:** The Ancillary data (HANC & VANC) will come from the audio mixer, also adding DVE delay compensation when the background DVE is enabled.

When an output is directly from a source:

- ANC From Source has no effect and the ANC data will be directly from the source.

Note: The menu below displays a system setup in UHD mode.



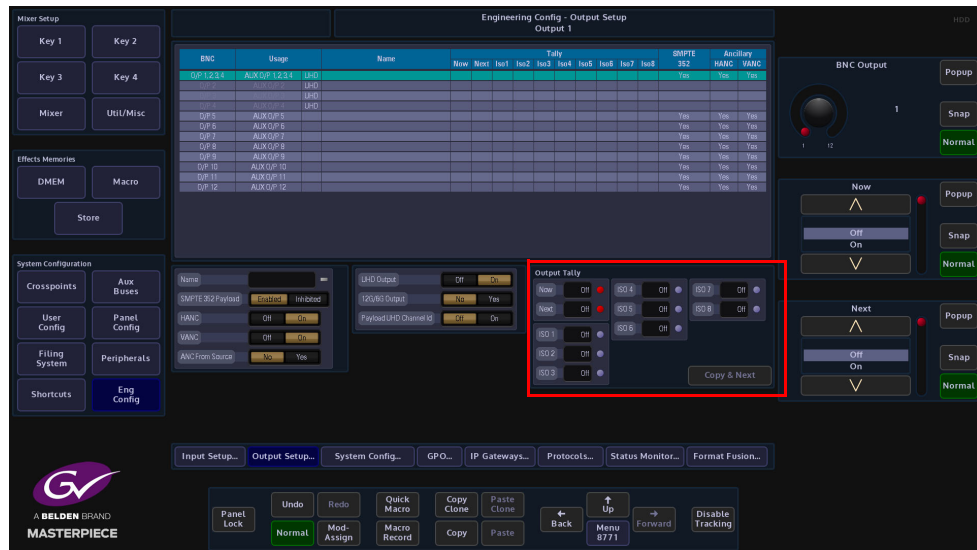
UHD Output - Like the UHD Inputs, when UHD is selected in the “Mainframe Configuration” (in the Logged Off state), selecting UHD Output “**On**” will tie Outputs 1 to 4 together. There will be 4x Outputs for every UHD source input to the mainframe, which consist of Output 1 (top left), Output 2 (top right), Output 3 (bottom left) and Outputs 4 (bottom right). Select Output 1, then touch the “UHD Output” **{On}** button.

12G/6G Output - this parameter allows 12G-SDI (2160p 60) and 6G-SDI (2160p 30) when set to “**Yes**” sets the first 12G-SDI BNC output 1 (silver BNC). As the other outputs are setup as UHD outputs in the outputs table, the 12G Output parameter can be set to “**Yes**” for outputs 1, 5 and 9 (the silver BNCs).

Payload UHD Channel ID - this parameter when set to “**Yes**” adds “Channel ID data” in UHD mode. This provides data that allows downstream external equipment to identify the 4 UHD channels.

Output Tally

The GPO Tallies can be set to provide up to 8 further output Tallies ISO1 to ISO8. These can be used to Tally outputs that are being used as ISO (isolation) Feeds.



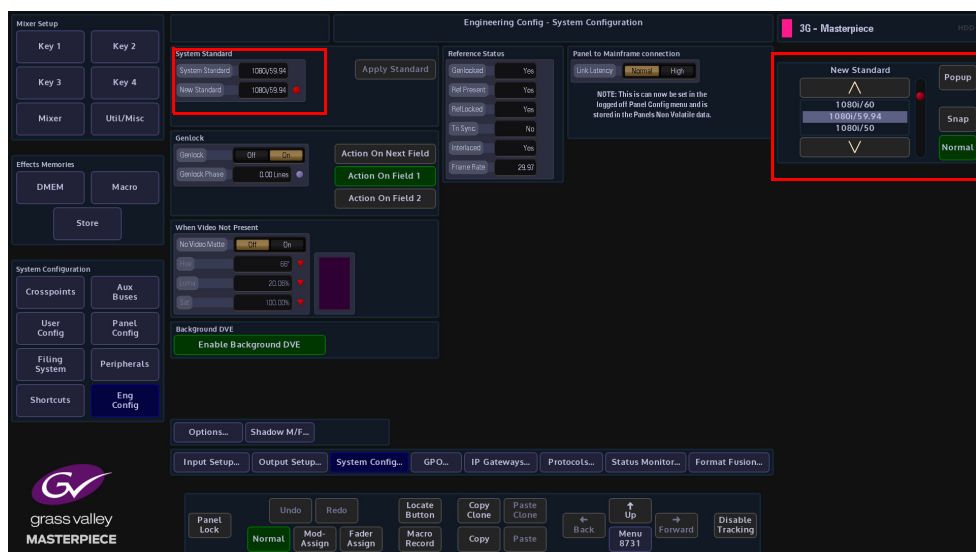
Tally Now sets the tally for the on-air Sources (red). Set this for the PGM output.

Tally Next - This sets the Tally for the next on-air source. Set this for the PVW Output.

In addition to the on-air source tally lights, you can set additional tally lights called ISO. ISO is the abbreviation for "isolated", and indicates that the video signal is isolated and recorded separately. The ISO Tally's can be used for example in a studio situation where studio cameras are recording live and/or live to disk or tape.

System Standard

The system standard menu; as the name suggests, is where the default video standard is set for the Masterpiece system.



The system standard is set to a default, to change the standard use the “New Standard” parameter to scroll up/down through the list of video standards. When the required standard is reached, notice the **{Apply Standard}** button has turned orange, press the “Apply Standard” button and a new system standard is set.

Genlock - switch Genlock On, if the standard set for the selected Reference Input is not compatible with the system standard.

Genlock Phase sets the timing of the input router cut point relative to the genlock reference.

Reference Status - The information refers to the analogue Ref input.+

- **Genlocked** - Yes = genlocked
- **Tri Sync** - Yes = horizontal/vertical sync detected
- **Interlaced** - Yes = interlaced, No = Progressive.
- **Frame Rate** = frame rate in Hz

The mainframe will not genlock if the standard of the reference is incompatible with the system standard. (Compatible means Grass Valley 1/2 or 2x).

Action On Next Field: all actions on next TV field.

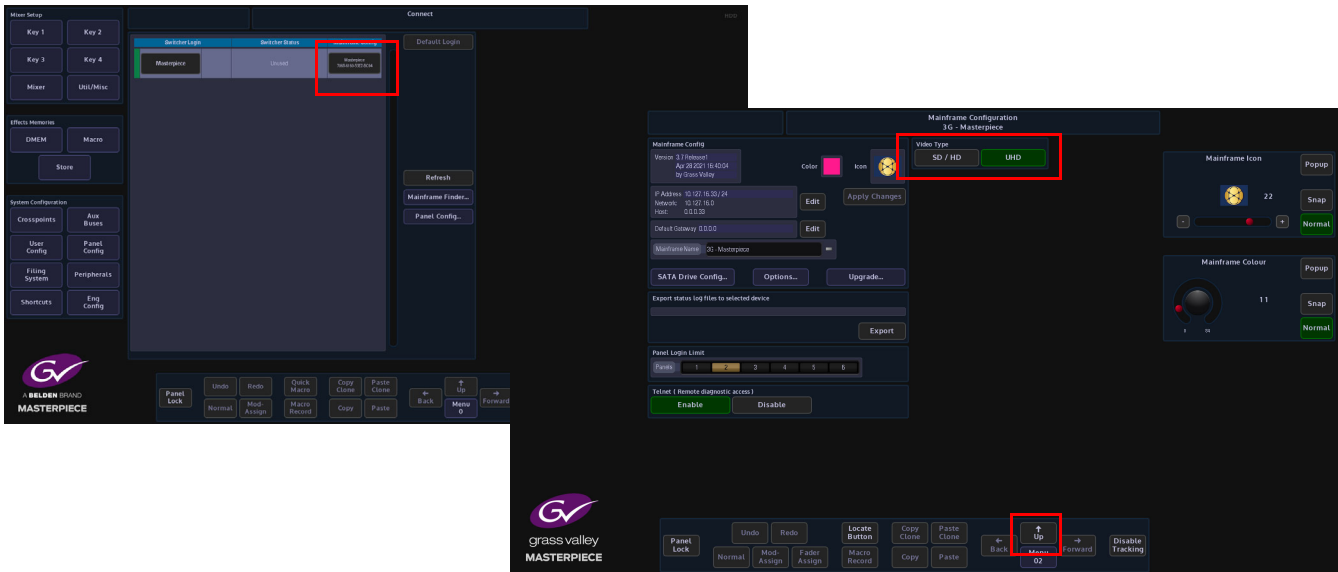
Action On Field 1: sources cut on field 1 only, all other actions on next field.

Action On Field 2: sources cut on field 2 only, all other actions on next field.

System Standard - UHD Mode

The first step in enabling UHD is in the “Mainframe Config” menu, in the logged out state in the connect menu.

Touching the **{Mainframe Config}** button will open the “Mainframe Configuration” menu.



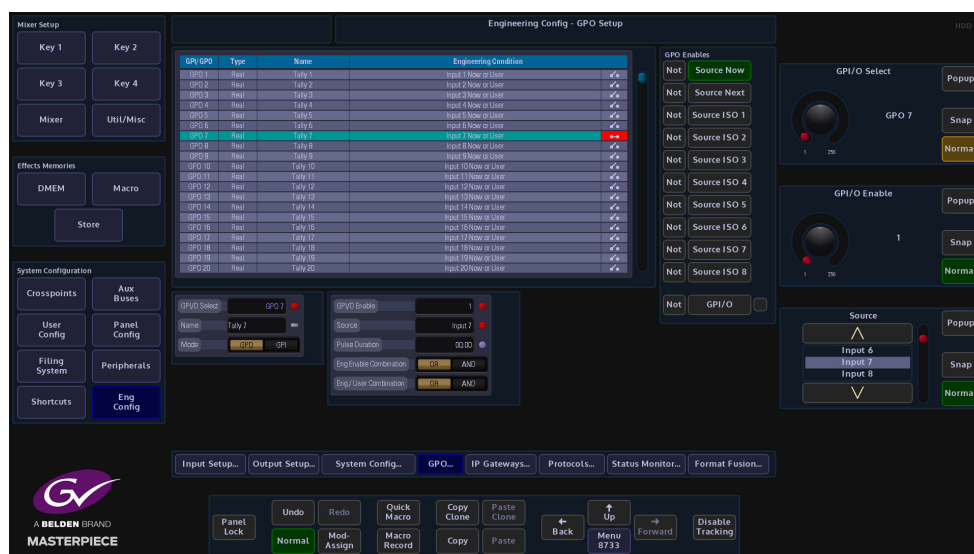
Touch the **{UHD}** button to select UHD mode, then press the **{Up}** button to go back to the “Connect” menu, then touch the **{Switcher Login}** button to log back into the Masterpiece operational menus.

The System Standard menu can be set to “**UHD Mode - Quadrant**” or “**UHD Mode - 2SI**”, however the user can choose between the UHD standards by touching the “**Popup**” button top right to reveal a “**New Standard**” dialog box. From the dialog box the user can select what type of UHD standard the system is set to, as shown below.



GPO

This is a “source” based GPO setup menu, meaning that it is used to tally on sources coming into the Masterpiece mainframe.



GPI/O Select is used to scroll down the table through the individual GPI/O/Tally's, the **Name** parameter allows the user to re-name the tally if required. The default table is a one-to-one connection; Tally to Input.

Source - parameter is used to assign a tally to another input as required

GPO Enables:

Source Now - This sets the GPO to be a tally for On Air Sources.

Source Next - This sets the GPO to be a Tally for the next on air source. Source next is determined by which sources are just one transition away.

Source ISO/ISO8 - This sets the GPO to be an ISO (Isolated) tally for On Air Sources.

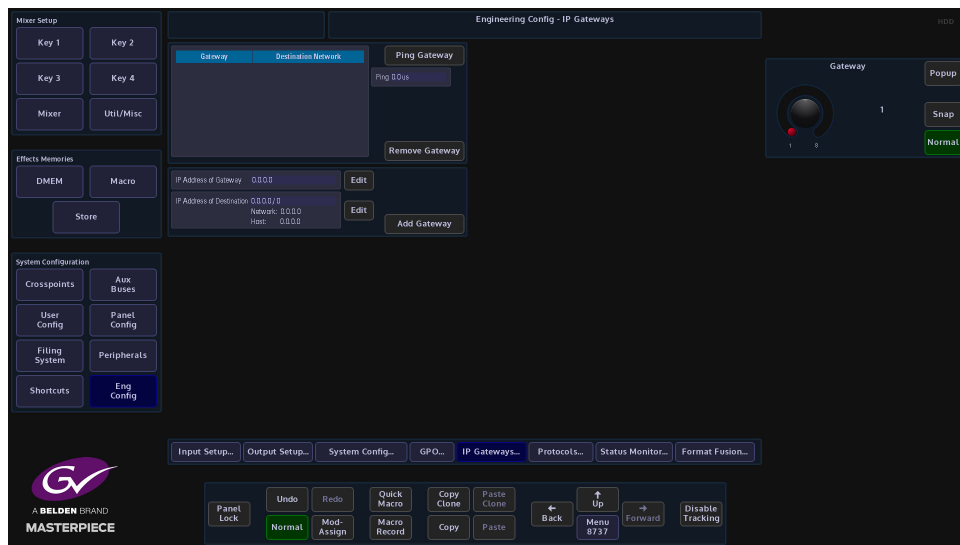
Red Indicator - If GPO 1 is set to look at a Source and its State is Closed the light for GPO 1 will be Red.

Note: The GPO Enables have to be set for each GPO for the parameter to be actually used.

Eng Enable and Eng/User Combine OR/AND - Performs a logical 'ANDing' or ORing' of the GPO Enables. This defines the combined event, which will trigger a GPO and GPI.

IP Gateways

The **Engineering Config - IP Gateway** menu allows the user to add a route to a destination network through a local IP Gateway.



Touch the **IP Address of Gateway** attacher and set the four **New Gateway** parts of the address (A) (e.g. 172.28.1.6). Note. The network part of this address must exactly match the network part of the panel's IP address.

Next press the **IP address of Destination Network** attacher and set the four parts of the destination network address (e.g. 172.23.0.0) and set the number of bits of the Netmask for the destination network.

Finally, press **Add Gateway** to add the new gateway to the list at the top of the menu. This has now told the panel how to send a message onto network 2, but not where it should go when it gets there.

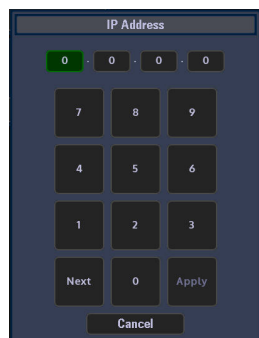
To check that the gateway is attached to the network and is responding, press the **{Ping Gateway}** action button. The box below the button should show the ping round-trip time for a few seconds followed by:

"Good" **"Fair"** may give occasional "Lumpy" controls

"Poor" may have excessive lumpy controls and cause a loss of comms, **"Failed"** no link at all.

Press **{Remove Gateway}** then make the required changes to the five parameters, then press **{Add Gateway}** to put the modified entry back into the list.

Pressing either of the {Edit} for the Gateway or destination IP addresses will display a number entry pad. Enter the required IP address and the touch the **{Apply}** button.



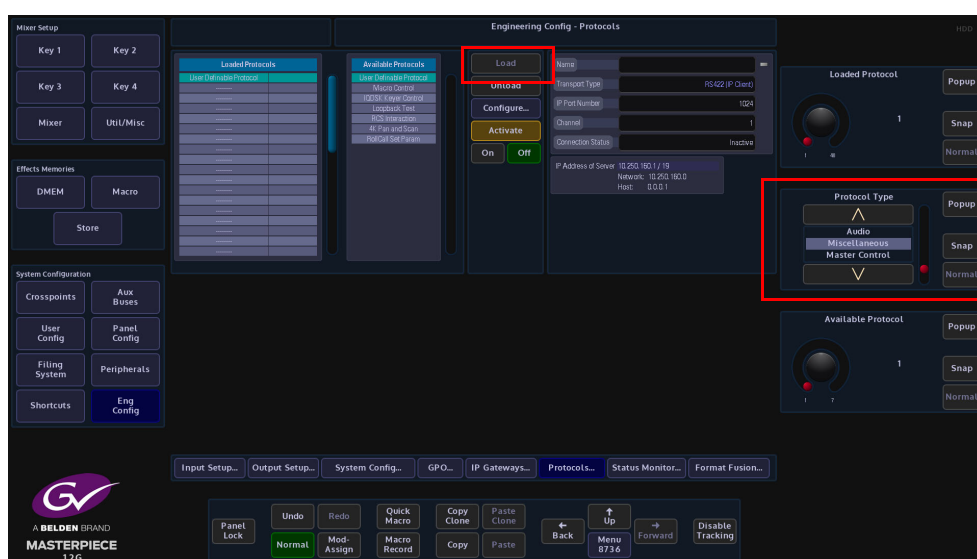
Protocols

The Protocols menu is used to set parameters for bi-directional communication with external devices either by one of the RJ45 RS422 ports or selecting one of the IP protocol connections. Protocols have to be setup in this menu before the Peripherals functions can be used.

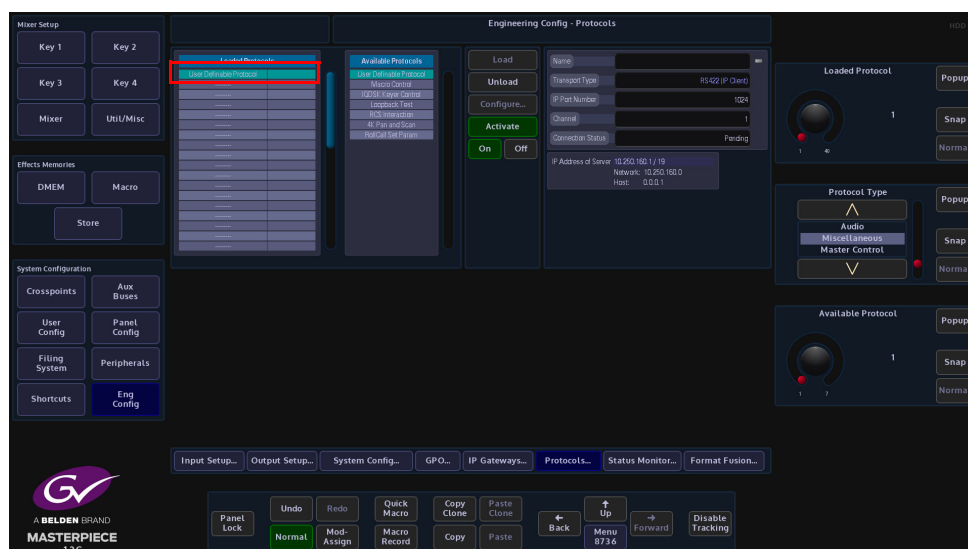
There are 8 Protocol Types to choose from; Tally & UMD, Router, Playout, Editor, Camera, Audio and Miscellaneous. Each protocol type has a number of available sub-protocols to choose from, that allows the users to connect to a large number of different types of external equipment.

Selecting and setting up a Protocol

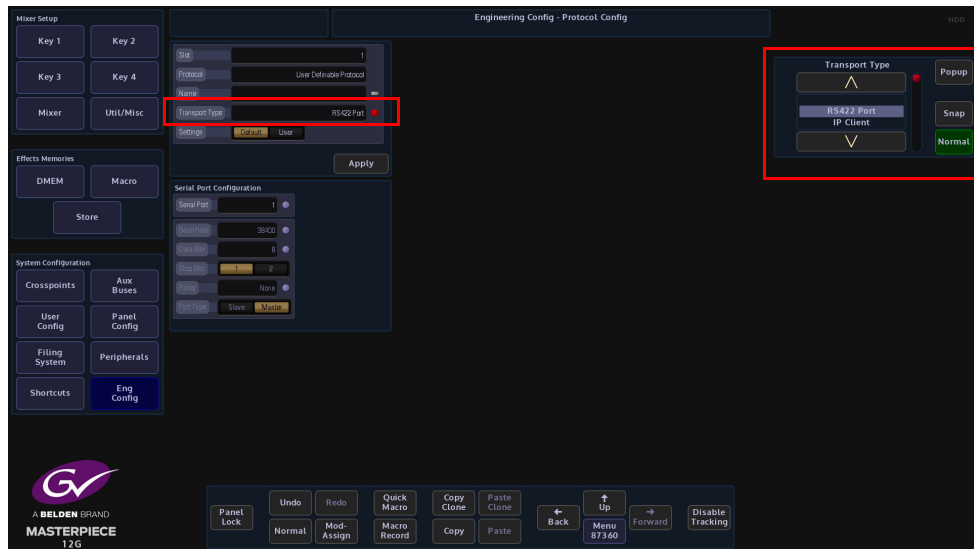
Using the Loaded Protocol parameter, select a free row in the Loaded Protocols table, then use the **Protocol Type** parameter is used to scroll through the protocol sets.



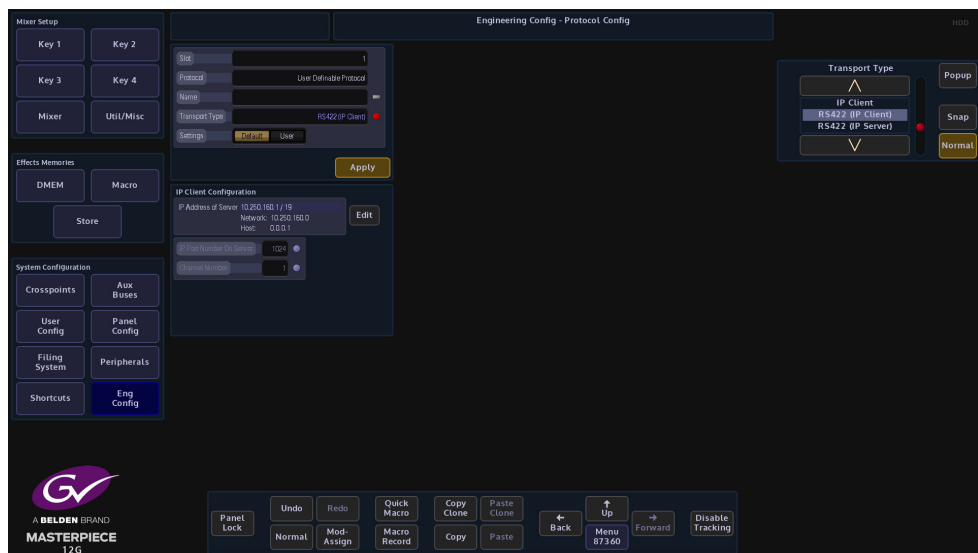
Once the required Protocol Type has been selected, use the **Available Protocol** parameter to scroll to the required protocol and then touch the **{Load}** button.



After the Load button was touched, the selected protocol is placed in the **Loaded Protocols** table, touch the **{Configure}** button to enter the **Protocol Config** menu.

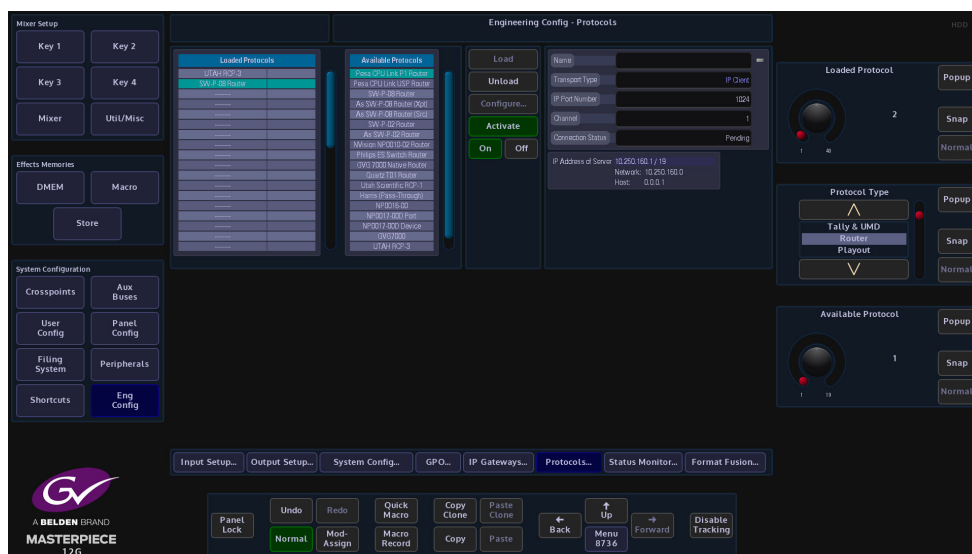


The user is able to select the type of connection that is required **"Transport Type"** i.e Serial or IP, and also set user-defined parameters for the protocol. The **Settings - Default** as the name suggests is the default setup to communicate with an external device (normally this would default to "RS422 Port"). If a specific setup is needed, press the **{User}** button in the **Settings** parameter, the user is now able to setup the protocol as required.



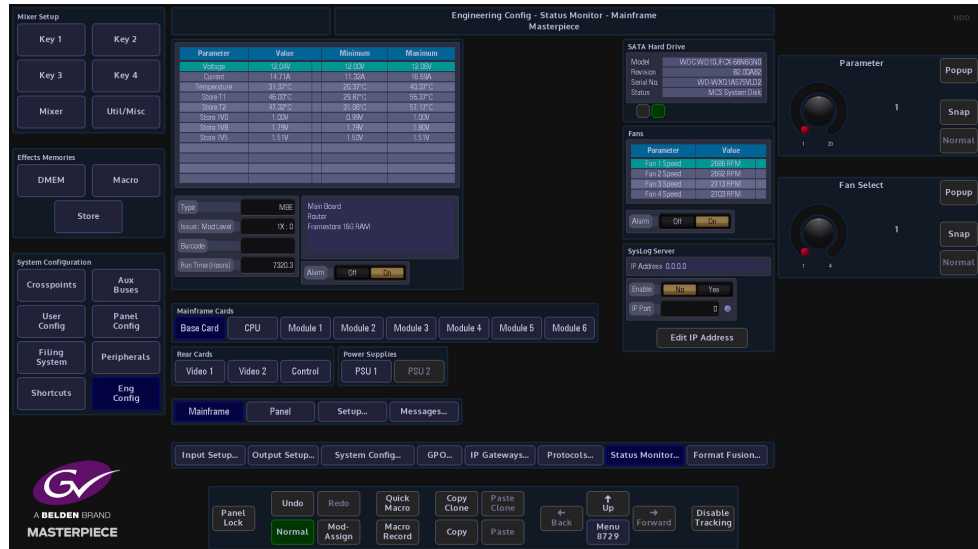
When the parameters have been set correctly press the **{Apply}** button. The menu will now return to the main Protocols menu.

The **{Activate}** button will be yellow, if happy with the setup, touch the **{Activate}** button. The protocol setup information is displayed on the right side of the menu.



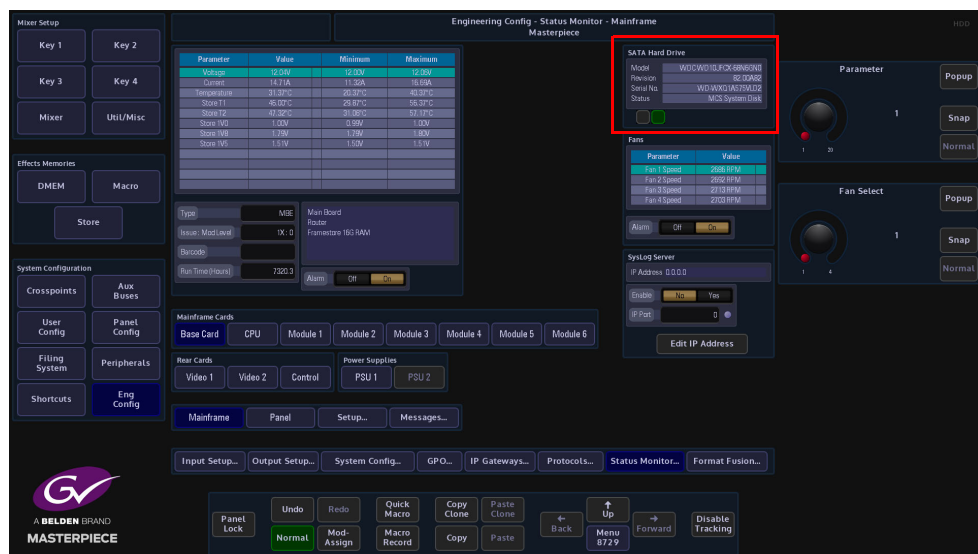
Status Monitor

The Status Monitor function monitors the overall health of the mainframe allowing the user to easily see any problems in the unlikely event that the Masterpiece mainframe should have a fault.



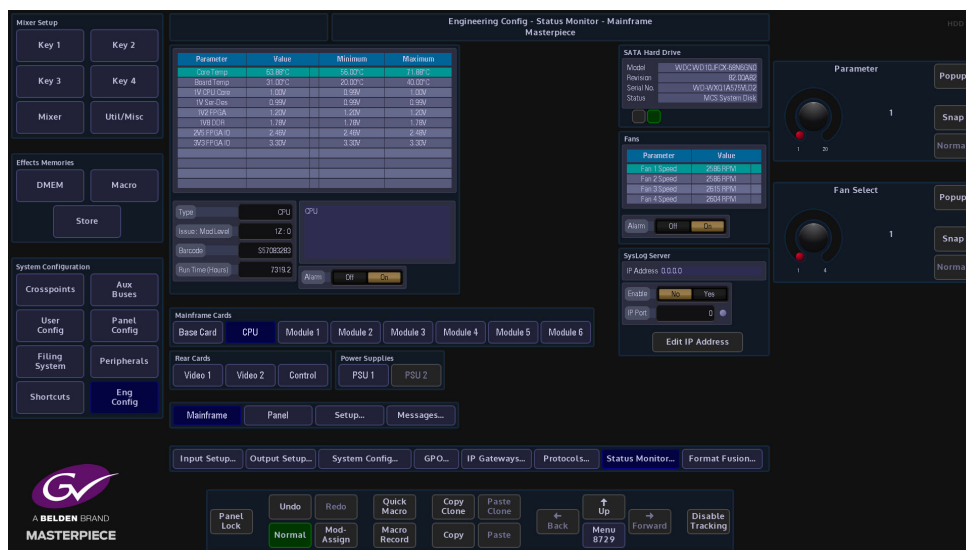
The main status monitor menu displays all the internal cards in the mainframe, the power supplies, fans and Rear Cards.

The **Mainframe Cards - Base Card** menu displays the voltage and current on the card, the table displays the operating voltage and current at the present time, and the max/min. values that have been reached during the boards working life. The **Alarm** is set to On so that if the voltage or current goes over a value specified by the factory then the alarm will go off and the warning box at the top left of the menu will have a warning note. The warning will be displayed in all menus while using the system until something is done to sort the problem out.



Top right of the menu, information related to the SATA hard drive is also displayed, and below, the fan speed of the 4 fans at the front of the mainframe.

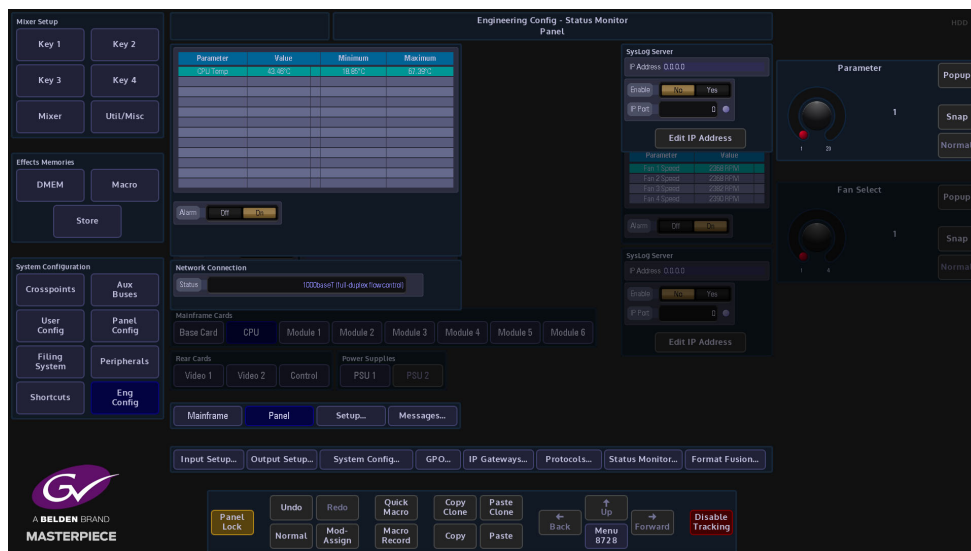
Pressing the **{CPU}** button in the menu will display the current operating temperature of the CPU, the board temperature and all the voltages related to the CPU.



The other monitor menus within status monitor all work in a similar way all giving similar information to the user.

Panel

The Status Monitor - Panel menu allows the user to monitor the CPU temperature in the control surface.



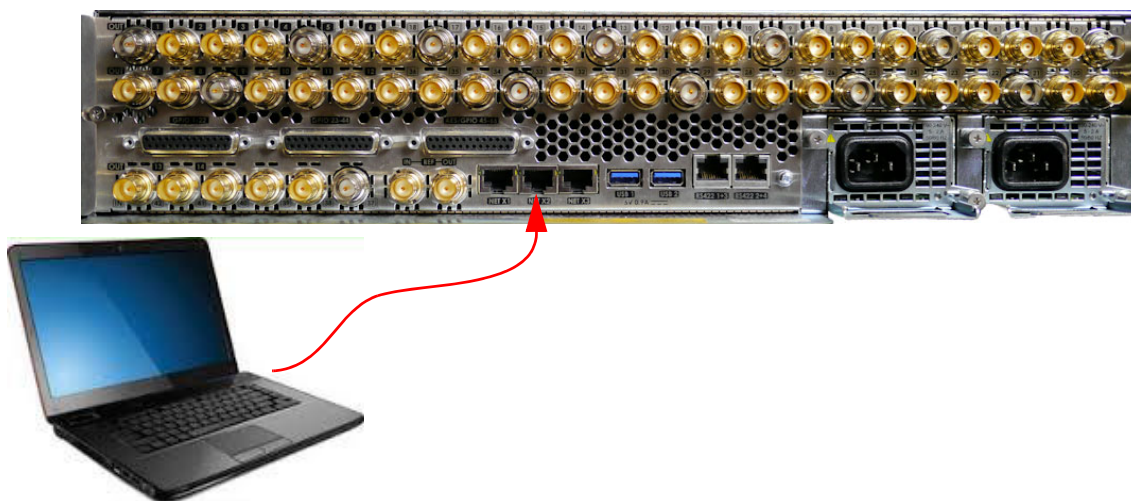
The user is also able to setup the SysLog Server IP address so that an external PC running SysLog Server software can monitor Masterpiece. (please read the next section of this manual).

Status Monitor Panel - SysLog Server

The Masterpiece mainframe and control panel is capable of using an external Syslog server to save its diagnostic output. In the unlikely event of there being a problem with a Masterpiece system, Syslog can be used to display error log files.

Connection

To use Syslog, a computer needs to be connected to the Masterpiece mainframe via one of the network ports (as shown below).



IP address

The next thing to find out is the IP address of the computer being used. If the IP address is not static, then open a Command Prompt.

If using a WindowsTM operating system for example, in the command prompt window type:
>Ipconfig /all

In the message list look for:

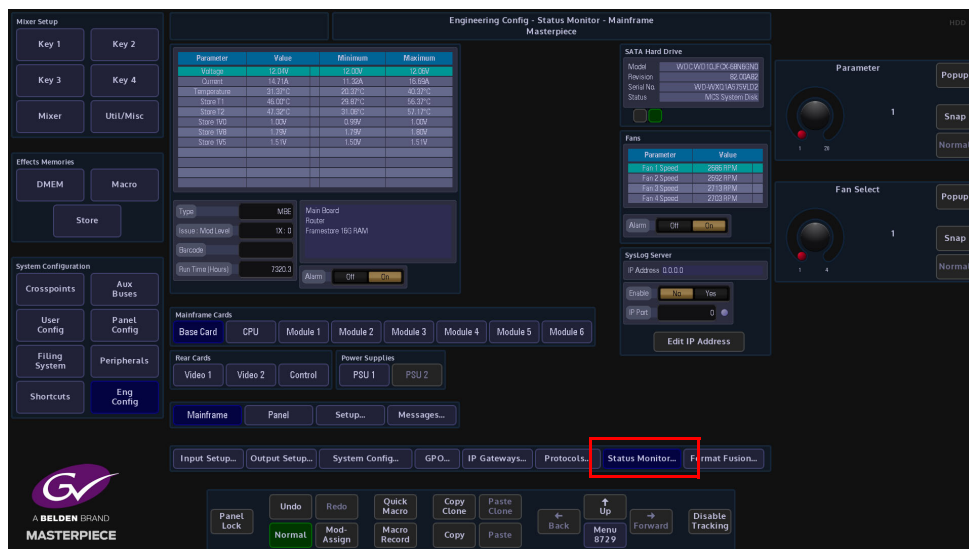
"Ethernet adapter Local Area Connection"

Then look for "IPv4 Address" It will show (for example) 192.28.7.7

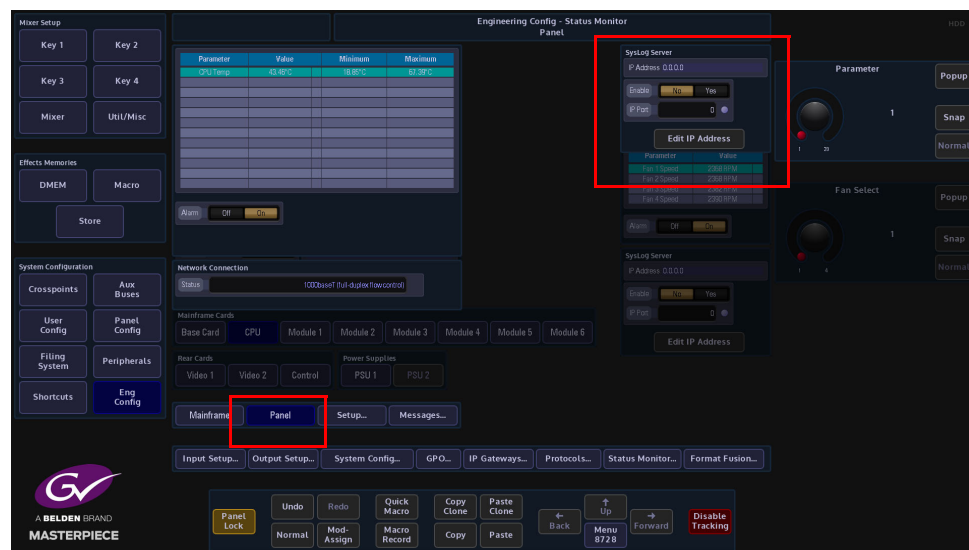
Make a note of this address.

Masterpiece Setup

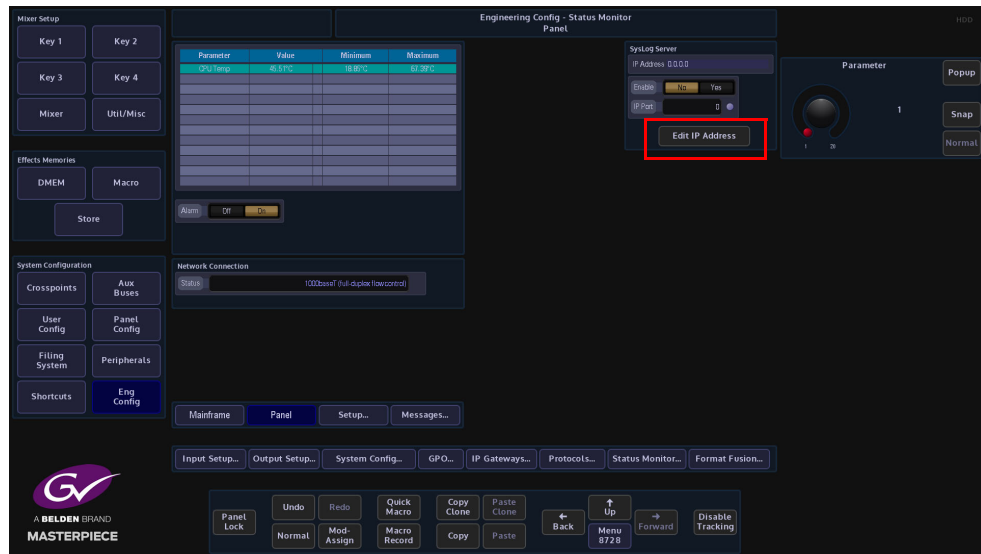
The next, setup the connection between the computer and the Masterpiece mainframe. Touch the **{ENG CONFIG}** menu link button, then touch the **{Status Monitor...}** menu link button.



Then in the "Status Monitor" main menu touch **{Panel}** menu link button where the **SysLog Server** parameter controls are displayed.



Touch the **{Edit IP Address}**, then enter the IP address of the computer.

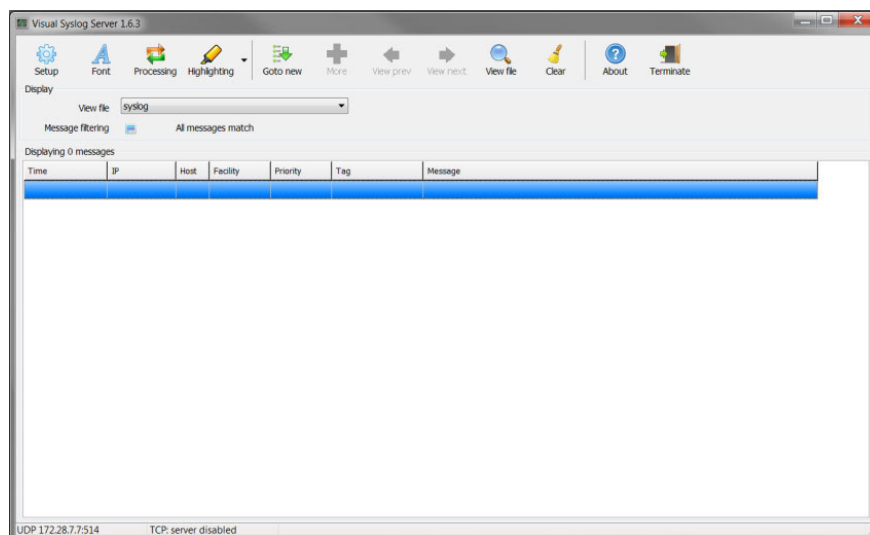


In the menu, use the **"IP Port"** parameter to set the port number. It is set to **"514"** as a default, but it can be changed to a user defined number. Set the **"Enable"** parameter to **"Yes"**.

Syslog Application

There are many Syslog servers available on the Internet, they are suitable for a variety of platforms (Windows, Linux, OS etc).

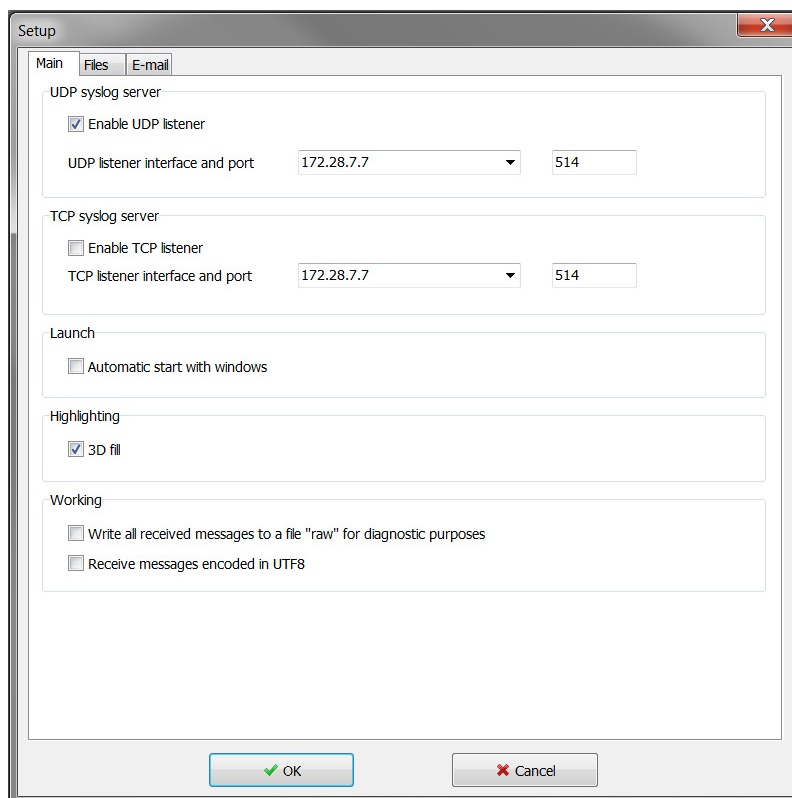
This example uses a generic Syslog Server application. Once installed open the Syslog application.



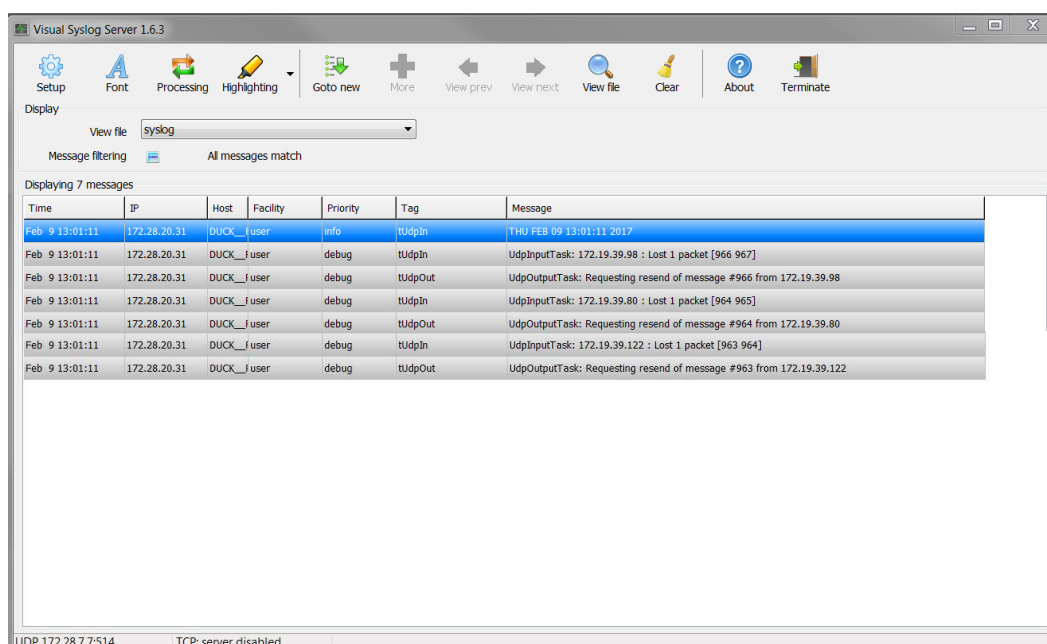
Select setup.

Enable UDP Listener, then set the IP Address to be that of the computer. Set the port number to be 514 (or what ever it was set to on Masterpiece).

Note: Usually, Syslog servers will use UDP port #514, although they will offer the ability to change this port, allowing the Grass Valley machine to run multiple Syslog servers simultaneously.



Click on **{OK}** and the Syslog software should now start receiving messages from Masterpiece.



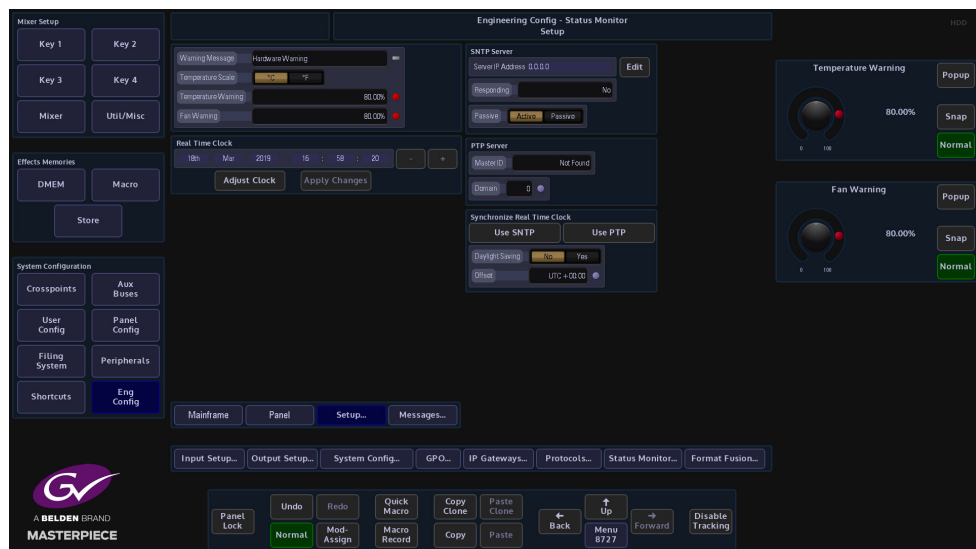
The job of a Syslog server is to open up a network port and log all Syslog format messages that are received at the port; in this example from Masterpiece. Usually, messages are recorded continuously into a file or files on the disk.

The log file may be restricted to a maximum size and can either be used as a circular-buffer or a new file can be started when the maximum size is exceeded or when a time duration has passed (e.g. start new file each week or if the file exceeds 10Mbytes).

Logged messages can be color-coded by severity. They can also be filtered and sorted by who sent them, their severity, time stamp etc.

Setup Menu

The **Status Monitor - Setup** menu allows the user to set the maximum values for temperature, voltage and fan warnings before the alarm status is reached.



The default setting for all the alarms is set to 80% of the factory maximum limit. The warning message can be changed to what ever is needed; the temperature scale can be changed and the real time clock set.

Synchronize Real Time Clock

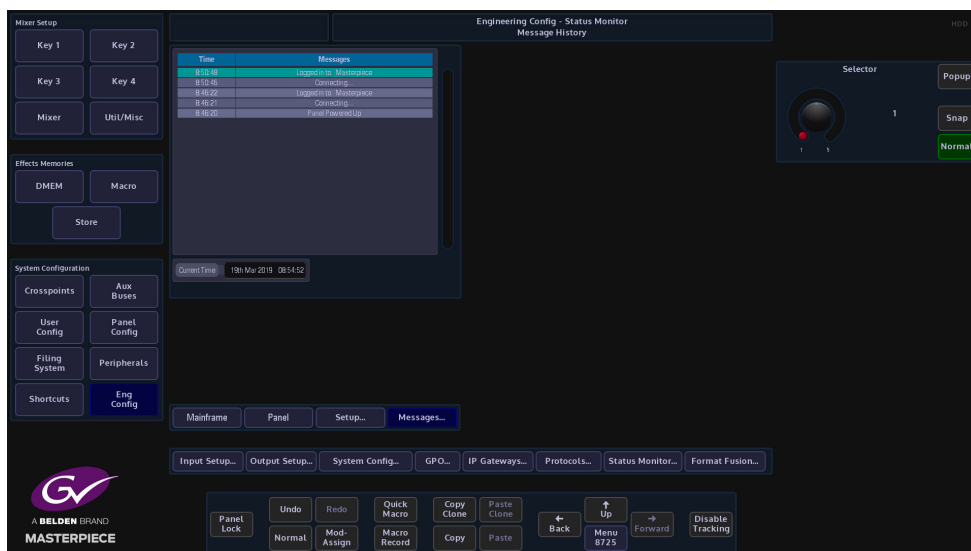
The **Precision Time Protocol (PTP)** is a protocol used to synchronize clocks throughout a computer network. On a local area network, it achieves clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.

Simple Network Time Protocol (SNTP) is a simplified, client-only version of NTP. SNTP can receive only the time from NTP servers; it cannot be used to provide time services to other systems. SNTP typically provides time within 100 milliseconds of the accurate time, but it does not provide the complex filtering and statistical mechanisms of NTP. In addition, SNTP does not authenticate traffic, although you can configure extended access lists to provide some protection.

Messages

The Status Monitor - Message History menu will display a history of any significant events or hardware warnings with the time and date against them.

In the unlikely event of a problem, this menu can be used as a high level review of any possible failures. For more detailed information please use the **Export Status Log Files** option in the **Mainframe Configuration** menu.



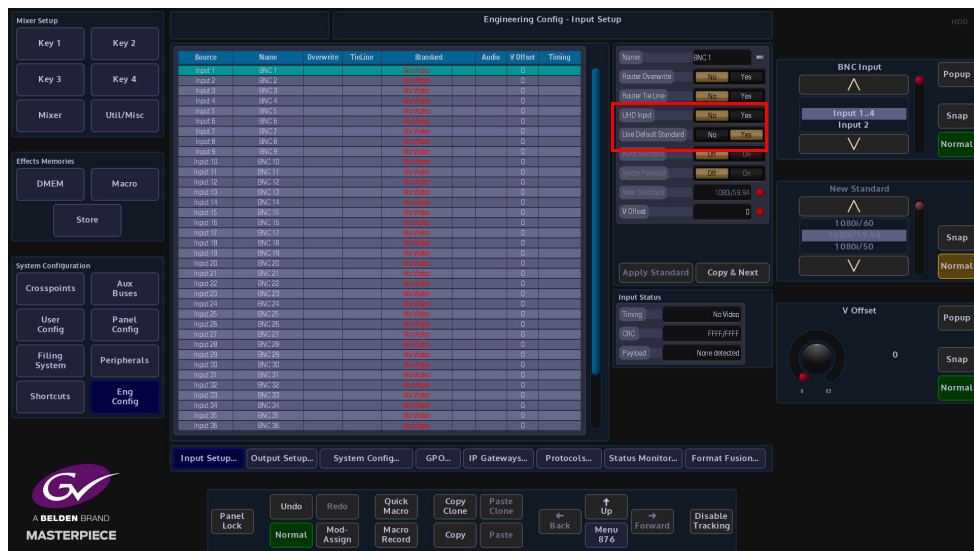
FormatFusion3™

The FormatFusion3™ parameters allow the user to control or change the aspect of an input source, or crop an oversized source.

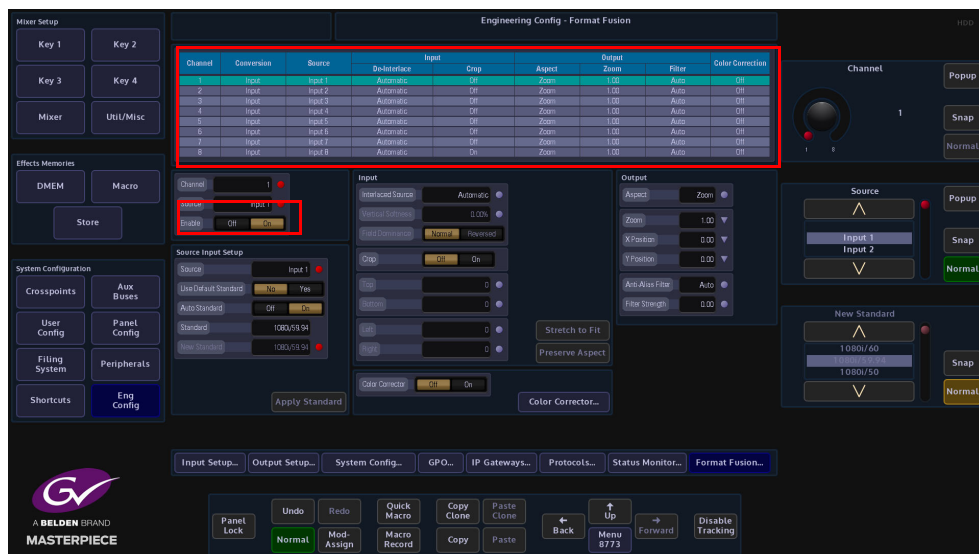
FormatFusion3 would mainly be used to convert a HD source to a UHD source.

Input FormatFusion3 Inputs and Channels

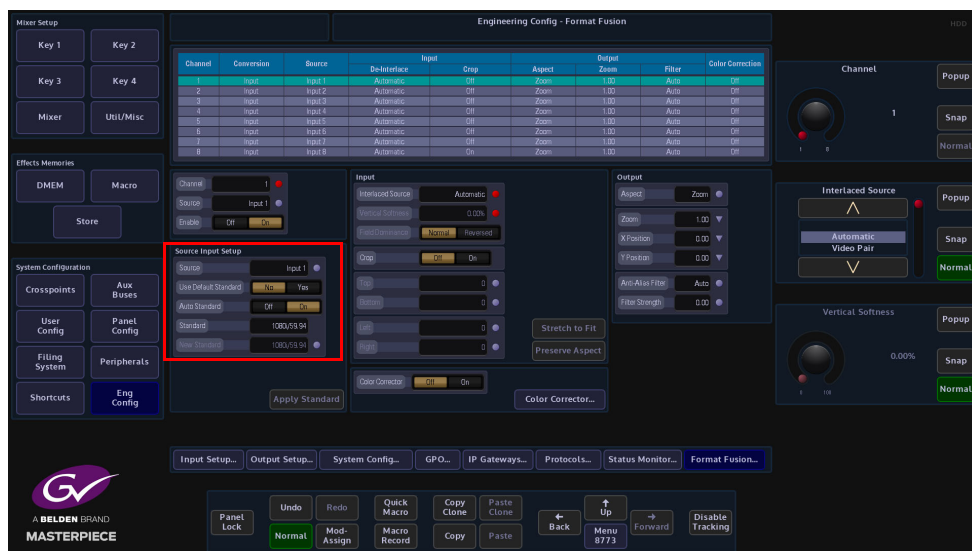
To use FormatFusion3, touch the **{Input Setup...}** button, then in the menu, select an input by touching an input row or use the **"BNC Input"** parameter. Once selected, set the **"User Default Standard"** parameter to **"No"** and set the **"Auto Standard"** parameter to **"On"**. This must be done for each input that requires FormatFusion3.



In the Engineering Config menu, touch the **{FormatFusion3...}** button to open the menu. The table at the top of the menu displays the available channels of FormatFusion3.



Each of the channels of FormatFusion3 in the table are individually enabled by setting the "Enable" parameter to "On".

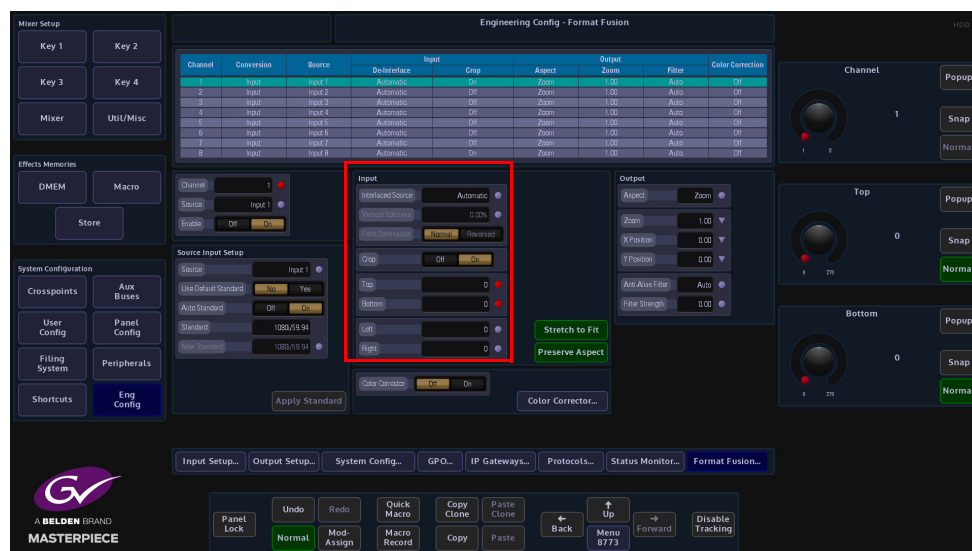


Source Input Setup

Source - This selects the BNC Input.

Use Default Standard - This parameter will force the input source to use the default mainframe video standard which is set in the **Eng Config - System Standard** menu. The Default Standard can be changed using the **New Standard** parameter, use the Up/Down scroll buttons to select the required standard, then touch the **{Apply}** button.

Auto Standard - The video standard for the incoming source can be set to the default mainframe video standard or changed to a new standard using the **{Auto Standard}** button which will allow the system to “auto detect” the incoming source video standard and will keep the original video standard of the incoming source.



Input

Interlaced Source - This has 4 parameter settings, these settings are listed below:

Automatic is the default setting for Interlaced Source it is the most suitable mode for live program making. When creating the current field/frame, the automatic setting will use the current input field and a percentage of both the previous and next input fields. Typically used when the output of a camera is fed to the switcher as a continuous stream of footage.

Video Pair is used when creating the current field/frame, will use the current input field and a percentage of either the previous or next field to maintain 1-2 or 2-1 pairing. This could be used for pre-prepared material with cuts on known field boundaries to prevent possible subtle

artifacts appearing at cut points.

Film Pair is used when creating the current field/frame, will directly combine the current input field and either the previous or next field. This mode should only be used if the fields are temporarily matched, e.g. PAL film based sources or some animation.

Single Field is used when creating the current field/frame, will only use the current input field. The **Field Dominance** control selects which field comes first. The **Normal** setting is the default field setting for the input standard, the **Reversed** setting should only be used to correct sources that have incorrect field order (swapped fields). Swapped fields will manifest as very jittery motion.

The **Vertical Softness** control, this feature allows the user to visually “soften” the source on the selected input. Generally, this control is not required and should be set to 0% for the best de-interlacing quality. It is de-activated in Automatic mode, the function will work in Video Pair, Film Pair and Single Field modes.

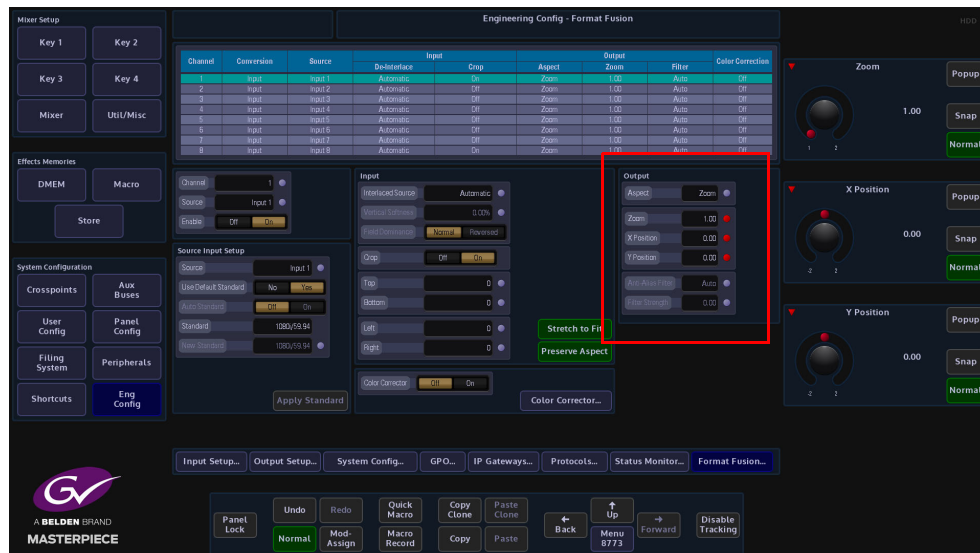
Note: Field Dominance and Vertical Softness can only be used with selected Interlaced Source settings.

The **Crop** adjustments allow the user to crop areas of the image that may need to be hidden from view. Adjustments can be made to the **Top, Bottom, Left** and **Right** of the image.

When the **Stretch To Fit** parameter is enabled the cropped picture content will be stretched to fill the 16:9 area.

With the **Preserve Aspect** parameter is enabled, this will maintain the aspect ratio of the image e.g. If you crop left and right the image will zoom vertically to compensate. If a source has become very distorted or stretched, this function will adjust the source outwards from the center in all directions creating a 'zoom in' effect.

Note: This may cause a very small amount of the source material around the edge of the source to be lost.



Output

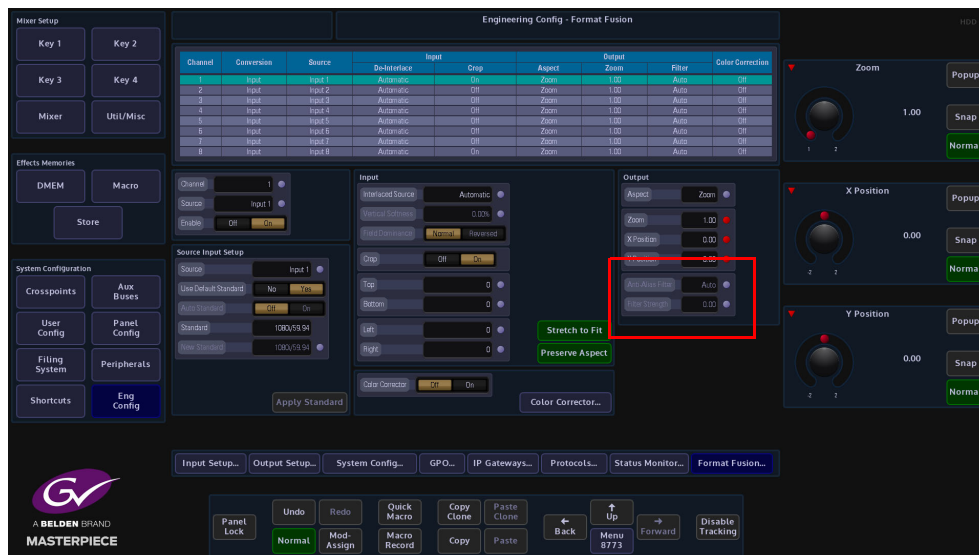
Aspect Mode has 3 settings: **Zoom, Full Width** and **Full Height**. The **Zoom** parameter allows the source to be zoomed out to fill the 16:9 aspect, when the source is zoomed to 16:9; it will appear slightly larger. The zoom function will not work if the aspect is set to Full Width or Full Height.

The **Full Width** parameter changes the aspect so that the full width of the 16:9 aspect is filled,

in this setting a letter box effect is seen where there are bars at the top and bottom of the image.

The **Full Height** parameter will change the aspect so that the full height of the 16:9 aspect ratio is filled, leaving bars either side of the image.

Zoom, X and Y Position - Will allow the source to be re-positioned within the 16:9 space.



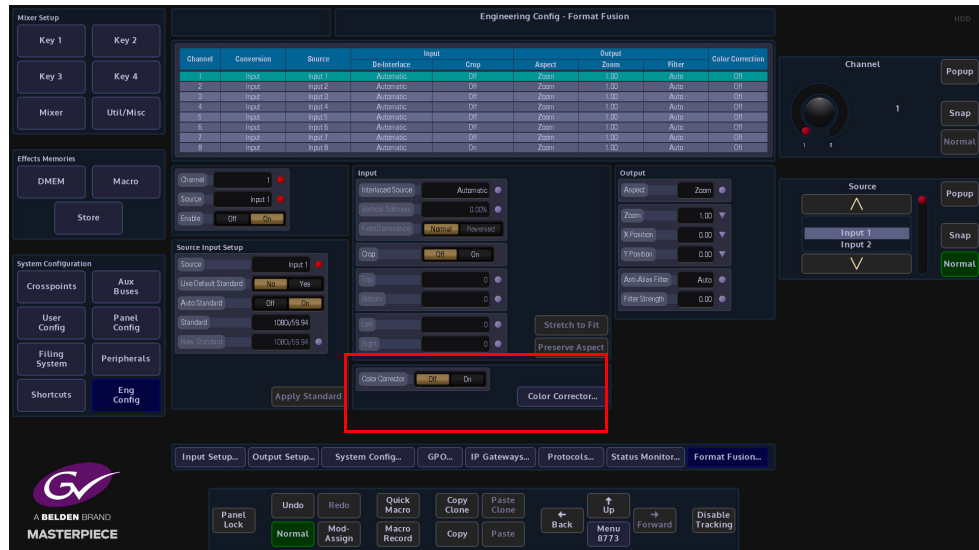
Anti-Alias Filter - is used to vertically soften interlaced outputs. This will reduce line 'twitter' and 'jaggies', replicating the vertical filtering that would normally happen in an interlaced camera.

- **Off** - will never apply the filter.
- **Auto** - will apply the filter when the output is interlaced and not the Grass Valley standard as the input.
- **On** - will always apply the filter.

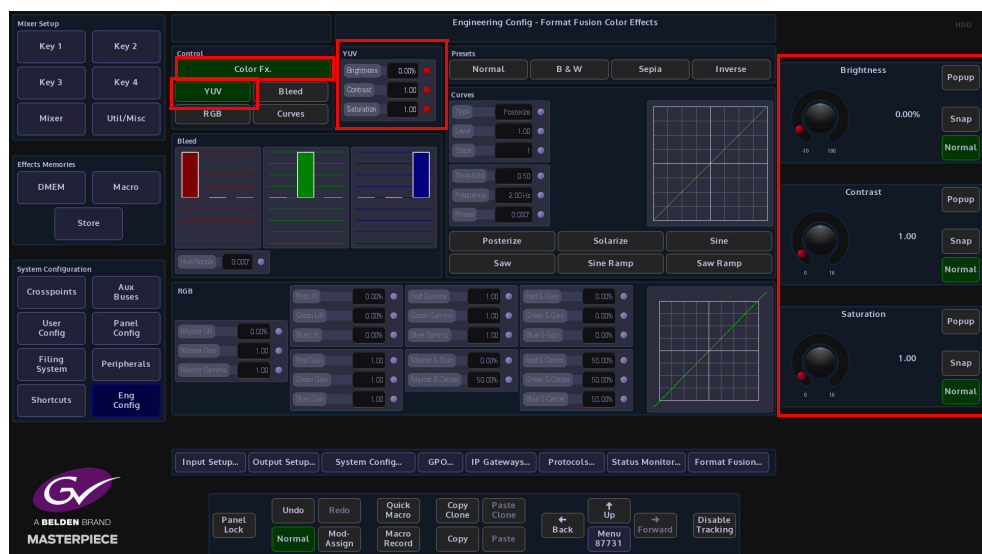
Filter Strength - 0.0 is the normal amount of filtering but the user can choose a bit more or a bit less than this if required.

Color Correction

Input FormatFusion3 color correction allows the user to color correct a selected Channel/Input. To use Color Correction, turn **"On"** the Color Correction parameter and touch the **{Color Correction...}** menu link button.



In the Color Effects menu, make sure that the **"Color Fx"** button is selected, from here the user can select the type of color correction required.

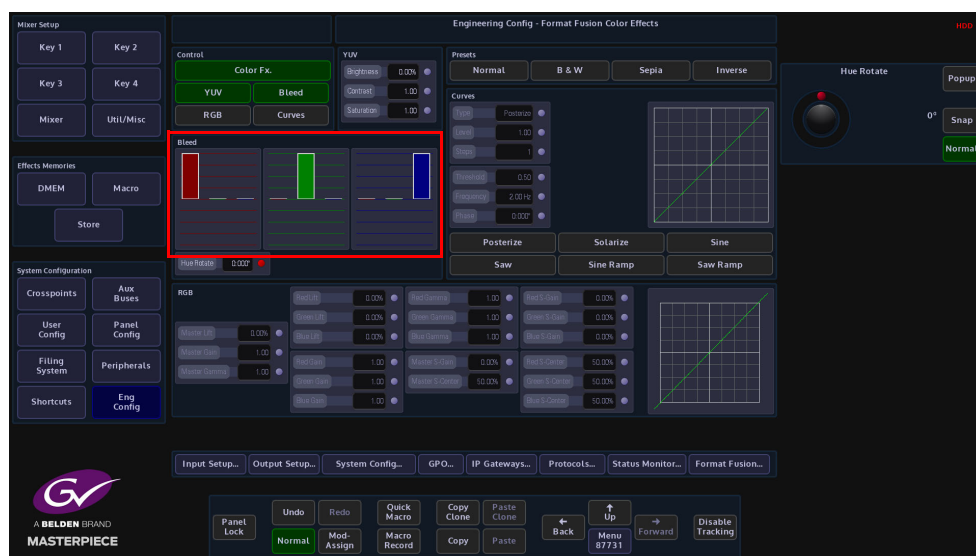


YUV

Touch the **{YUV}** button to enable the parameter controls. Touch the **YUV Control** attacher and by changing the parameters, the Brightness, Contrast and Saturation of the channel can be adjusted.

- Brightness default value is 0.00%, and the range is from -10% to 100%
- Contrast default value is 1.00%, and the range is from -0% to 16%
- Saturation default value is 1.00%, and the range is from -0% to 16%

As each of the above are adjusted notice that the percentage of adjustment is shown in the YUV attacher.



Bleed

Color bleed is a situation where a single color will over power the other colors in the RGB signal. By using the bleed function the stronger color can be softened to make the color output more natural, or adjusted to suit a specific need.

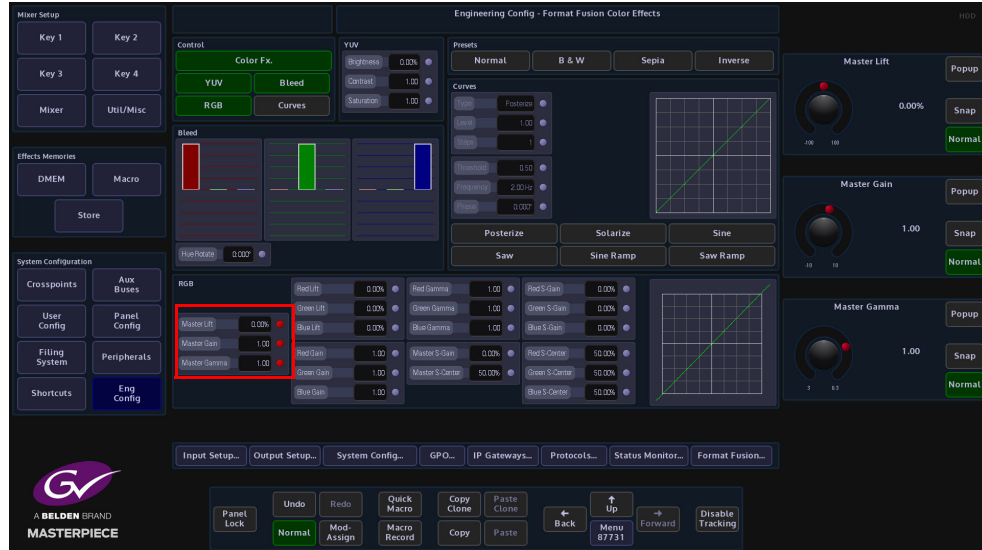
The initial menu has a default state where a single adjustment for each parameter menu is active; this will allow the adjustment of the main RGB bleed parameters:

- Red into Red
- Green into Green
- Blue into Blue

Touch one of the Bleed color blocks to enable all the options for that color. This will allow a detailed adjustment for each of the R, G and B bleed settings. The adjustments are measured on a -100% to a +100% scale. Each parameter menu will adjust a single color, i.e. red into red, green into red and blue into red. These changes are also reflected graphically in the RGB bar graphs above the parameter sets.

RGB

Touch the “RGB” button to enable the parameter controls. The initial menu is set to a default condition, which Shows the Master adjustment parameters. This will give an adjustment of Master Lift, Gain and Gamma. Each of these adjustments will alter all three elements of the RGB signal at the Grass Valley time.



When one of the master parameters is altered, notice that the RGB curve profile changes in the graph situated center of the menu.

Touching one of the attachers allows a more accurate adjustment to the RGB components where the:

RGB Lift - parameters adjust the images Black Level, working on Black or shadow areas.

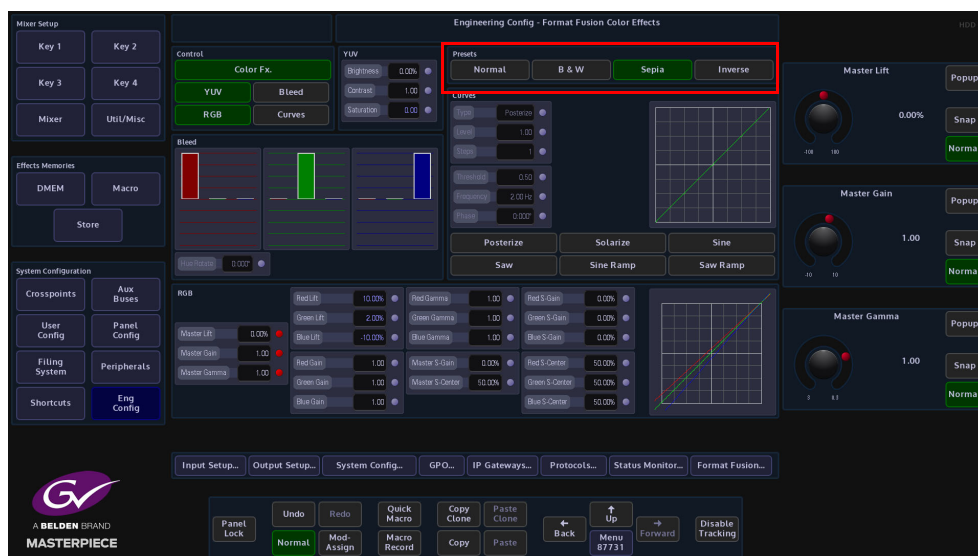
RGB Gamma - parameters adjust the levels between dark/shadow and the mid tones, where the mid tones become brighter or darker; depending on the adjustment made.

RGB Gain - parameters control the White level or highlights, where brighter colors become brighter or darker; depending on the adjustment made.

RGB S Gain and S Center - the parameters adjust the gain mid tone levels of the S curve and the center point levels of the s curve.

Presets

Presets allow the user to quickly select commonly used preset color options for the crosspoint source, or quickly revert back to the original input source color levels.



Normal - Is the original color levels of the input source; without any color correction adjustments.

B & W - Sets the chroma saturation to zero removing the chroma content, making the signal black and white.

Sepia - Sets the chroma saturation to zero removing the chroma content, then adds positive portions of Red and Green and a negative portion of Blue to make-up a sepia appearance.

Inverse - Inverts the video signal making the picture a negative of its correct colors.

If the **Normal** preset option is selected, then all color correction controls are Grayed out preventing any adjustments. This is to make sure that the original crosspoint source can be recalled.

If **B&W, Sepia** and **Inverse** are selected, the preset levels can all be color corrected.

Curves

The Curves function is used to artistic type effect to the selected FormatFusion3 channel. The user can select preset effects such as Solarize and Posterize, and then adjust them to give a user-defined effect.



The user can select from 6 Preset Curve options by touching the button or use the **Type** parameter to select from a list of options.

Touch the top attacher, the **Level** parameter changes the level of effect on the selected channel, from a normal looking source to an extreme manipulation effect with full effect.

The **Type** parameter as mentioned above selects the type of Curve effect.

When the **Steps** parameter is adjusted, the more steps there are in an effect, the less extreme the effect will appear.

In the bottom attacher there are 3 parameters that can be used to modify a selected preset curve, not all of the parameters work with all of the preset curves.

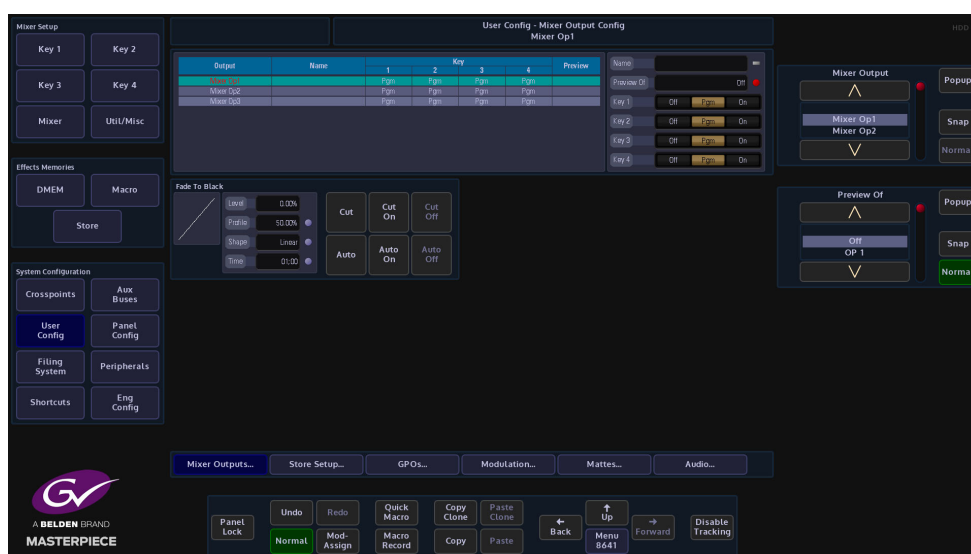
Threshold is used to change the shadow and highlight values of the selected preset curve, **Frequency** determines the number repeated occurrences are applied to the effect. The final parameter is **Phase**, this adjusts the effect starting point within the Step cycle.

User Configuration

Mixer Outputs

Masterpiece has 3 fixed Outputs, Mixer Op1, Mixer Op2 and Mixer Op3. For ease of use, the outputs should be setup as follows:

- Mixer Op1 - Program Out
- Mixer Op2 - Preset Out
- Mixer Op3 - Clean



The Table:

Output - The number of Mixer outputs.

Name - This is the user assigned name for the Mixer output

Key1 to Key4 - These columns determine what Keys will appear on the Mixer output.

Off = This Key will NOT appear on this output

Program = The Key is available on this output as determined by the transition status on the main panel

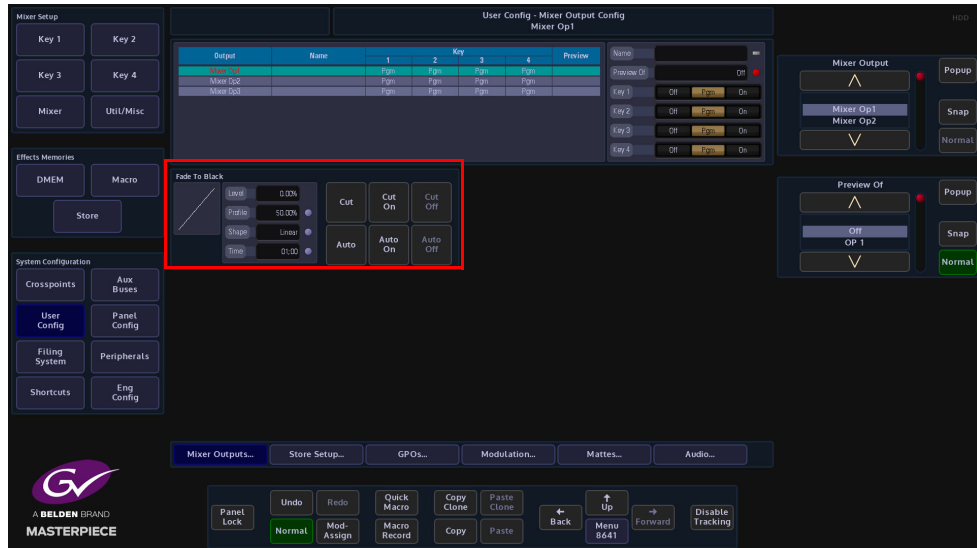
On = The Key will always be present on this output. The main transition will NOT be able to remove it.

Preview Of - This sets this output to be a Preview for the Mixer output you select. Previews can be re-entered but there will be no tally. Once you have selected this option all options to the right of this will have no effect.

Fade To Black

The Fade To Black function is normally needed when a live broadcast has a problem, it would be used to take the program output to “Black”.

To use fade to black, enable FTB by selecting Fade To Black - “Pgm”.



The above parameter controls alter the FTB profile and transition timing.

Profile - The Profile parameter control will adjust the FTB transition curve profile. Changing the curve profile will make the transition accelerate or decelerate at a specific moment in the FTB transition period. The curve profile can only be used to change the Cubic S/Sin S and Cubic Curve/Sin Curve profiles, which are selected using the Shape parameter control. The Linear profile cannot be adjusted.

Shape - Selecting one of the Shape options will depict the type of profile curve, this will alter the acceleration rate for a FTB transition.

Linear - constant transition, no change in transition acceleration

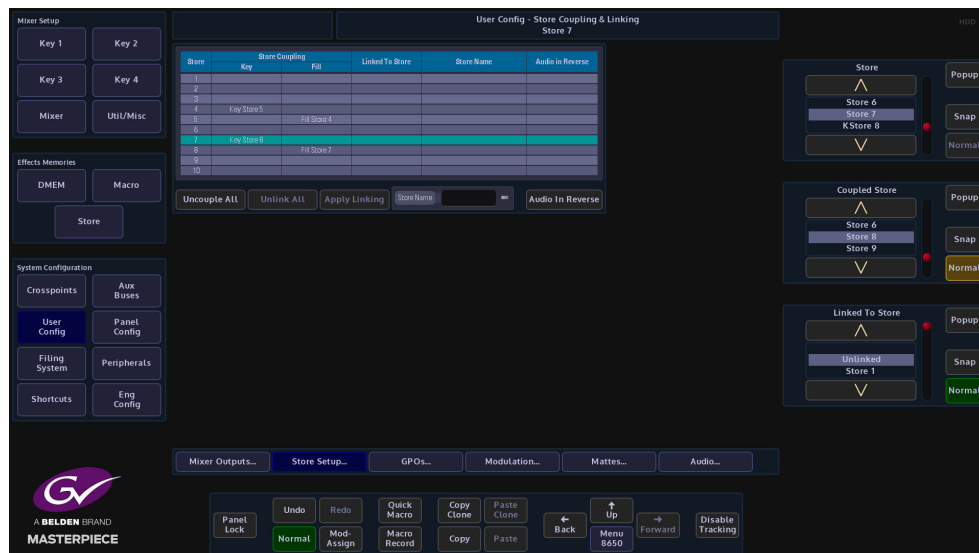
Cubic C and Sin C - these profiles are similar to each other, the default transition will have a fast acceleration at the start and slowdown towards the end.

Cubic Curve and Sin Curve - these profiles are also similar to each other, the default transition will accelerate at the start slow down towards the mid point and accelerate again.

Time - this parameter alters the amount of time that it takes for the FTB to transition. The parameter adjusts the minutes/seconds, frames and fields. FTB works with the “Cut

Store Setup

The Store Setup menu allows the user to setup the way the Stores are coupled when using a clip. The allocation of time to each Store can also be setup in this menu and the Stores can also be given names.



Coupling & Linking

The **Coupling & Linking** menu allows the user to setup Stores which contain video clips or “Bugs”, which are for example Keyed over a background where the Key source can be made to be transparent.

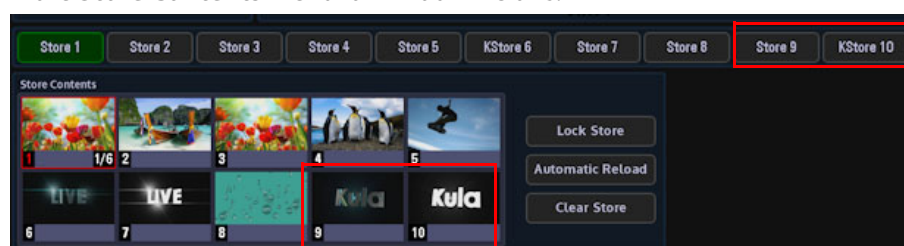
To do this the clip has to have a Key and Fill source coupled together over 2 Stores, this is done in the **Store Coupling & Linking** menu.

Store	Store Coupling		Linked To Store	Store Name	Audio in Reverse
	Key	Fill			
1					
2					
3					
4	Key Store 5				
5		Fill Store 4			
6					
7	Key Store 8				
8		Fill Store 7			
9					
10					

In the table above, Stores 1 - 10 can be seen.

Store Coupling - the Key column is the Key Store that is coupled to the Fill Store. The Fill column is the Fill Store that is coupled to the Key Store.

For example, in the table above, **Store 9** has a Key that is **Key Store 10** coupled to **Fill Store 9**. In the **Store Contents** menu it will look like this:



Store 9 is coupled to KStore 10, as can be seen in the minipics 9 and 10.

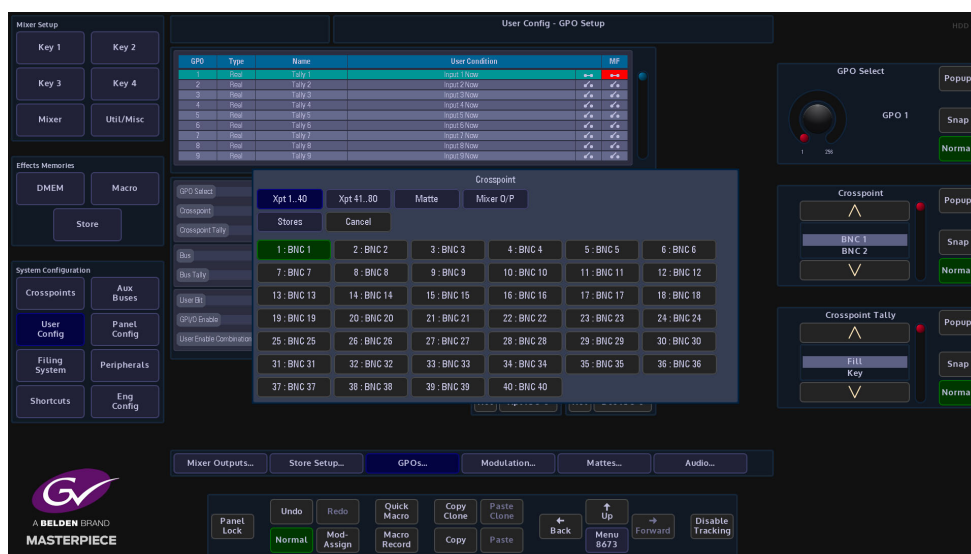
Linked To Store - this will display any Stores that are linked to each other.

Store Name - this is the user-defined name given to a Store, using the "Store Name" parameter.

Audio in Reverse - to select "**Audio In Reverse**", select a Store in the table and then touch the **{Audio In Reverse}** button. The selected row will display "**Yes**". This means that when a clip is played in reverse, if the clip has an audio file associated with it, the audio will still play when the clip is played in reverse, but the audio will not be played in reverse.

GPO Setup

This GPO Setup menu is used to tally Crosspoint based, Bus based and User BIT functions. The default setup state allows the user to tally GPO's 121 to 256 which are the physical and internal GPO's and are comprised of:
 GPO 121 to GPO 132 and GPO 133 to GPO 144 are the physical Ref Fin GPO's, again at the rear of the mainframe. These GPO's are system setup dependant; GPO 121 to GPO 132 Ref Fin A, GPO 133 to GPO 144 Ref Fin B.
 GPO 145 to GPO 256 are Internal GPO's (but the configuration could be GPO 133 to GPO 256 if only 1 Ref Fin is fitted).
 The Internal GPO's are used to trigger internal function such as Macro's or any internal function that can be switched On or Off.



This menu allows the user to trigger a GPO or GPI when for example a crosspoint is setup to trigger a GPO, or an Aux is setup to trigger a Bus tally.

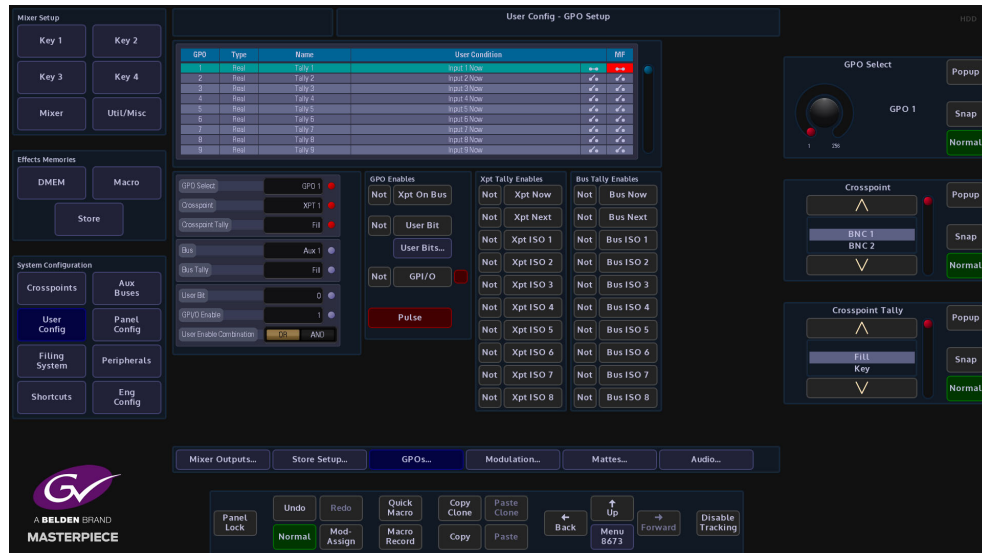
Touch the attacher below the GPO table and the parameters will change allowing the user to setup a GPO trigger.

For a crosspoint tally for example, use the **GPO Select** parameter to the required GPO, use the **Crosspoint** parameter to select the crosspoint that will trigger the GPO, and then select the **Crosspoint Tally**. In the **GPO Enables** button area of the menu, press the **{GPO}** button and each crosspoint trigger will only trigger a GPO, or touch the **{Xpt Now}** button, then when the selected crosspoint button (as shown in the menu above) is pressed the GPO will be triggered.

Note: Touch the popup selector (blue square) in the Crosspoint parameter and a greater selection of GPO trigger options will be displayed.

Crosspoint Options

When selecting the type of GPO or GPI trigger, as mentioned previously, press the popup attacher to easily access the other Crosspoint options.



Modulation

Overview

The modulation function enables the user to add modulation effects to transitions, wipes, borders and DVE. The type of modulation applied to a function is selectable and can be added to many different parameters, whether it is Global, Bus, I/O, DVE or User related.

The modulators are sorted into relevant Groups, determined by their subject matter:

Global Modulators - are used to modulate multiple parameters in a fixed relationship.

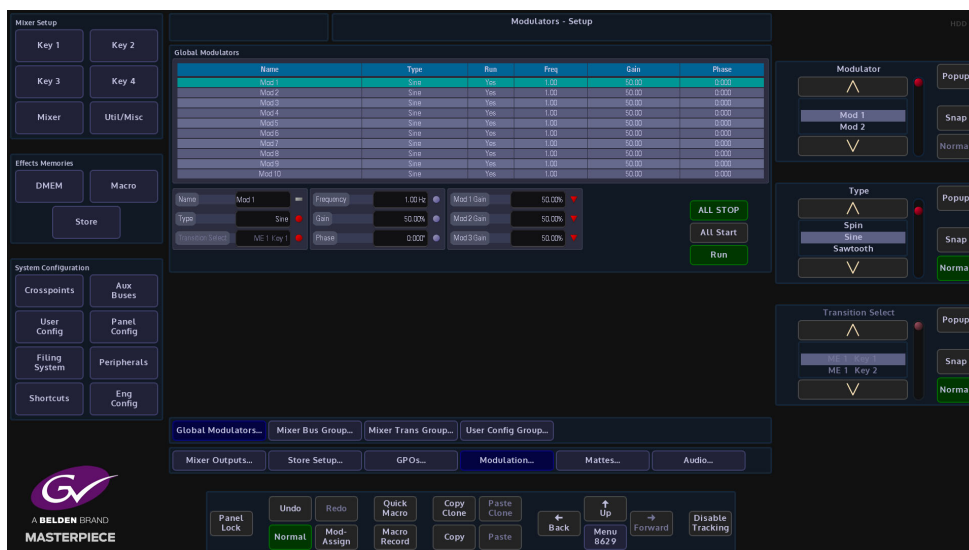
Mixer Bus Group - displays modulator parameters within a Bus function, such as Transition of a Keyer.

Mixer Trans Group - displays the modulates parameters within the Transition functions.

User Config Group - displays modulated parameters within a User function, such as Mattes.

Global Modulators

Global modulators, as mentioned earlier are used to run modulators globally across the logical switcher.



An example could be a DVE effect modulation that would affect all Keys globally.

Global Modulators - Parameter Controls

Name - there are 10 individual modulation setup options in this column, each one can be given a unique name, by selecting the required row using the Modulator parameter, then typing the name into the Name attacher.

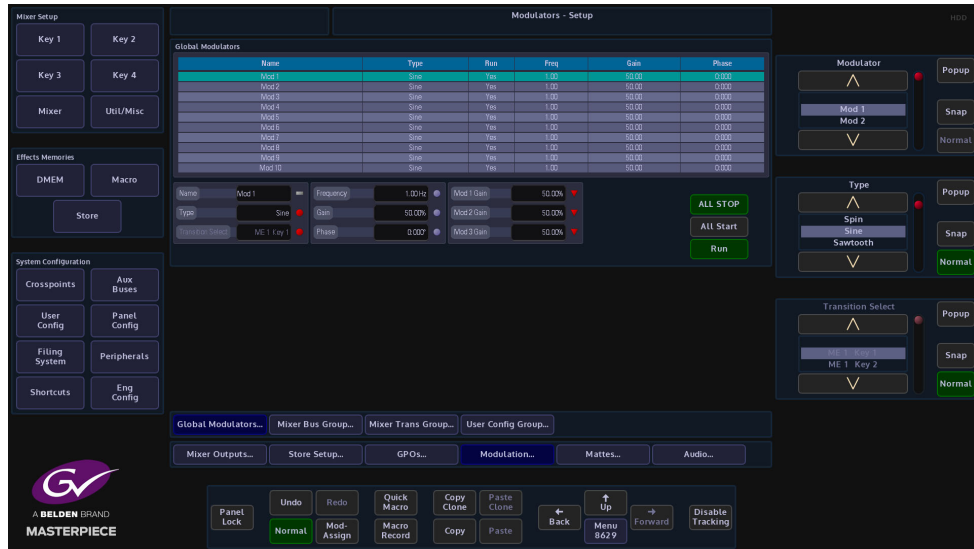
Type - this is the modulation effect used, either Spin, Sine, Sawtooth, Triangle, Square, Shake, Linear Drift and Cubic Drift, Static, Bounce and Transition. Preset to start with a Sine wave modulation.

Run - allows the modulation to run.

Frequency - adjusts the frequency of the modulation, range from 0Hz to 30Hz. Preset to start at 1Hz

Gain - adjusts the gain of the modulation, range from -100% to +100%. Preset to start at +50%.

Phase - changes the phase of the modulation, range 360° plus complete turns, i.e. 5:180° this is 5 complete turns plus 180°.

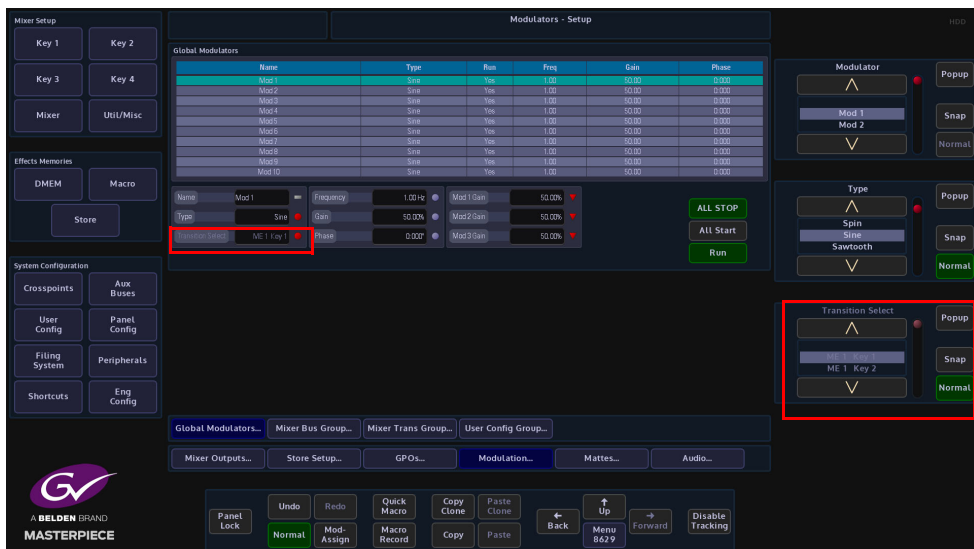


An individual modulator setup can be switched **On**, by selecting an individual modulation using the Modulator parameter. Next, touch one of the On/Off buttons in the **Frequency, Gain** or **Phase** parameter displays.

Notice that "Yes" has now appeared in the Run column of the table.

All the modulator setups in the table can be started by pressing the **{All Start}** action button, or stopped by pressing the **{ALL STOP}** button.

The **Transition Select** allows the use of the transition engines to control the level of other parameters. Using the Transition modulator type it is possible to use the AUTO and T Bar to control the level of a particular parameter.



If a Transition type Modulator is attached to a 'Store Pan H position' for example, the Store is then used as a Utility Wipe Border; when the Bgnd Transition takes place the transition moves the picture within the Store at the Grass Valley time as the wipe edge.

By determining a Bgnd or Key Bus the modulation will only take effect when that Bgnd or Key bus is selected in the transition.

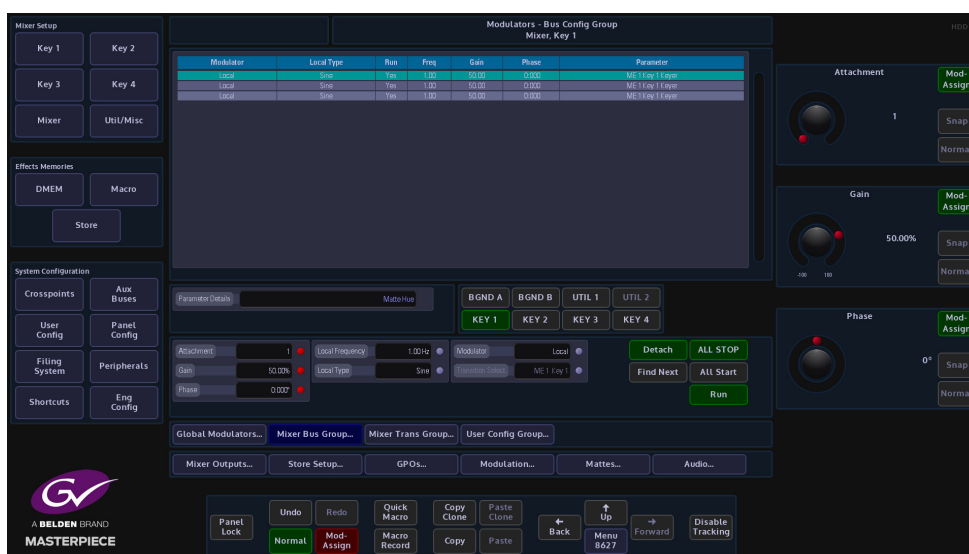
The modulator Gain can be used to adjust how much effect the transition engine has on the modulated parameter. Global Modulators as well as Bus and User Config group modulators can all use the Transition type modulator.

When using the transition modulator, the transition type needs to be selected (e.g. Mixer Key1, Mixer Background A etc.) this is the parameter that will be controlled by the modulator.

Bus Config Group

This is a modulation applied to a parameter that will affect a Bus e.g. transition wipe, Bus color and Keyer parameters, and is for example applied to a Key on the Mixer.

Touch the **{Bus Config Group}** menu link button to enter the **Modulators - Bus Config Group** menu.



The table in this menu displays the modulation setup:

Modulator - this column will show if the modulation is Local to the Bus Config group or if it is attached to a **Global Modulators** setup (displayed as Mod 1 - 10 or named if setup in the **Global Modulators** menu).

Touch the **Modulator** attacher box (center of the menu), three parameters will appear. Use the Attachment parameter to scroll through and select a modulator setup in the table, then use the Modulator parameter to select if the modulation is "Local" to the Bus Group or attached to a **Global Modulators** setup. The **Transition Select** allows the use of the transition engines to control the level of other parameters.

Local Type - this is the type of modulation effect, notice that when the Modulator parameter is changed from Local to a Global Modulation the text in the Local Type, Run and Freq columns turns Gray and will not have any affect in the Local setup.

Run, Freq, Gain and Phase - these parameters have the Grass Valley effect on a modulation setup as described on the previous page.

Local Frequency and Local Type parameters will only affect a modulation setup in the Bus Config Group.

Parameter - this column displays the Bus that the modulation effect is attached to.

Parameter Details - this named box displays the actual function that the modulation is attached to for the selected Bus modulation in the table.

All Start/ALL STOP - as described on the previous page, this function will set all the modulation setups in the table to run or stop.

Detach - this will delete a selected modulation setup in the table.

Mixer Trans Group

These are modulators set to work with function in the Mixer Transition menu. As can be seen below, modulators have been assigned to the “Wipe Modulation” H Amp, H Freq and H Phase attachers. Modulators within this group can also be assigned to work within the Bgnd DVE and Mixer DVE functions.



User Config Group

The menu below works in exactly the Grass Valley way as the Bus Config Group. They all have a “Local” type modulation setup or can be attached to a Global Modulations setup.

The User Config Group modulators are attached to parameters within the User Config menus; such as “Profile” in the User Config - Mixer Output Config - Fade to Black menu and the “Attachment, Gain and Phase” within the Modulator - User Config Group menu.



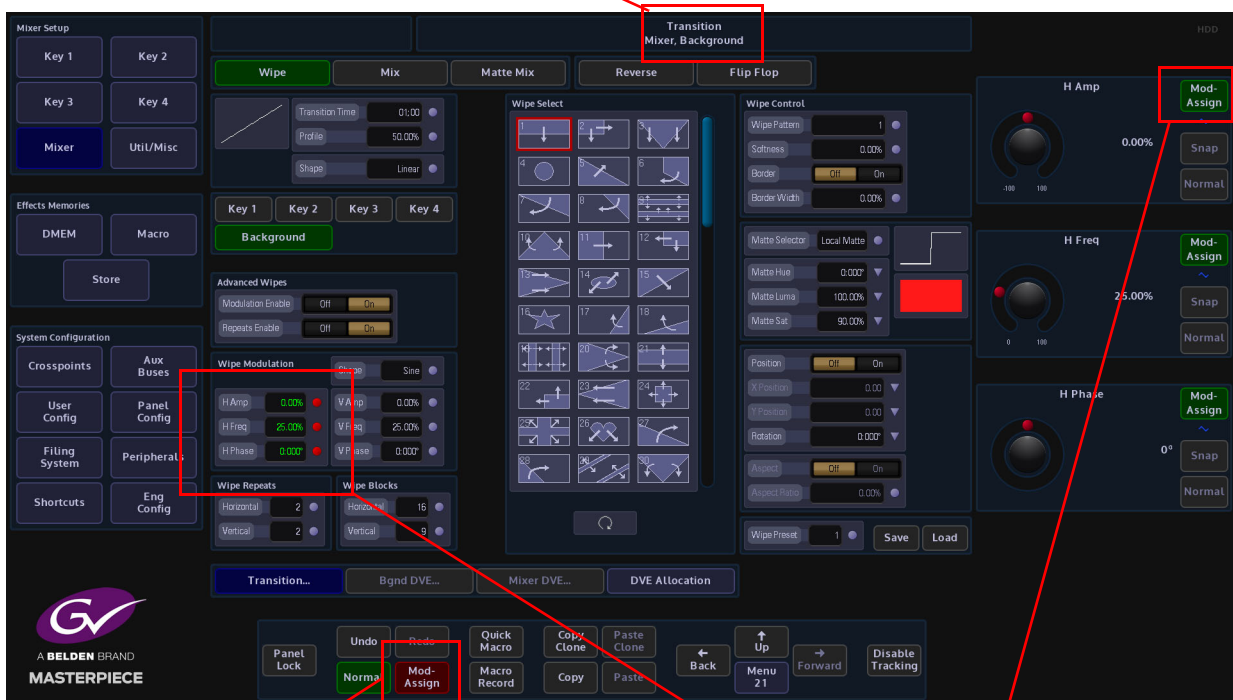
Basic How to Use Modulators

How to Use the Modulator Function

The setup sequence will follow these easy steps:

1. Turn On Mod-Assign
2. Select the function the modulation is going to be attached to
3. Select the parameter that the modulation will be attached to
4. Attach the modulator.

2. Select the Function



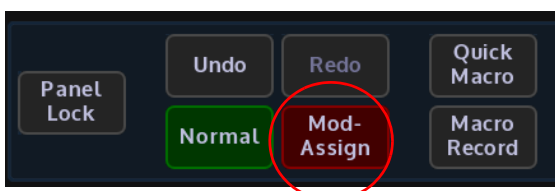
1. Turn On Mod Assign

3. Select the Parameter

4. Attach the Modulator

Select the function the modulation will affect, then select the parameter the modulation will be attached to.

Touch and hold the **[Mod Assign]** button on the GUI, the button will turn red. Select the parameter that the modulation will affect and touch the green **[Mod Assign]** button in the parameter. Notice that the selected parameter display now has a blue sinewave symbol below the Mod-Assign button.

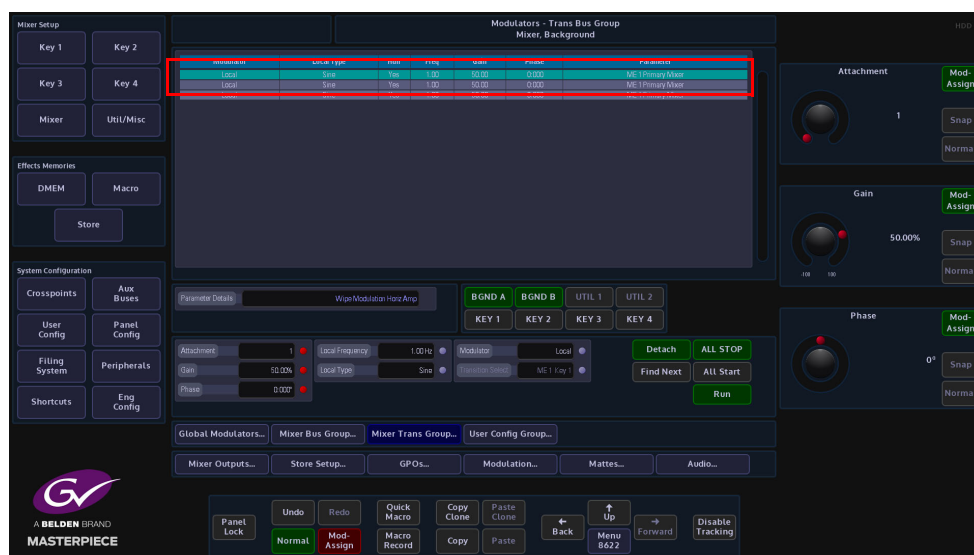


Also notice that the attacher that displays the parameter settings has turned green as shown below.



Once the **[MOD ASSIGN]** and **[SNAP NORM]** buttons are released the GUI display will jump to the assigned modulator menu and highlight the attached parameter function in the table and Parameter Function display box.

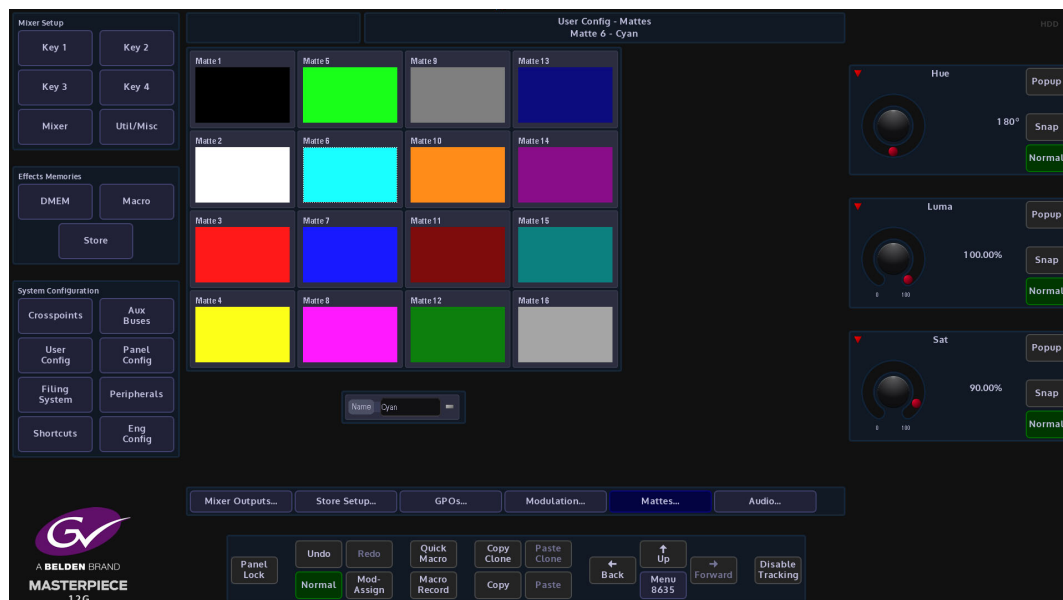
The specific modulator setup can now be adjusted.



If a parameter is selected and a modulator cannot be attached to, the **{Mod-Assign}** button will not function and the blue sinewave symbol will not appear.

Mattes

This menu allows you to adjust the color of the internal Mattes. The mattes can be used as internal sources for crosspoints, Transition Matte Mixes, Key Matte Fill and DVE Border Fill.

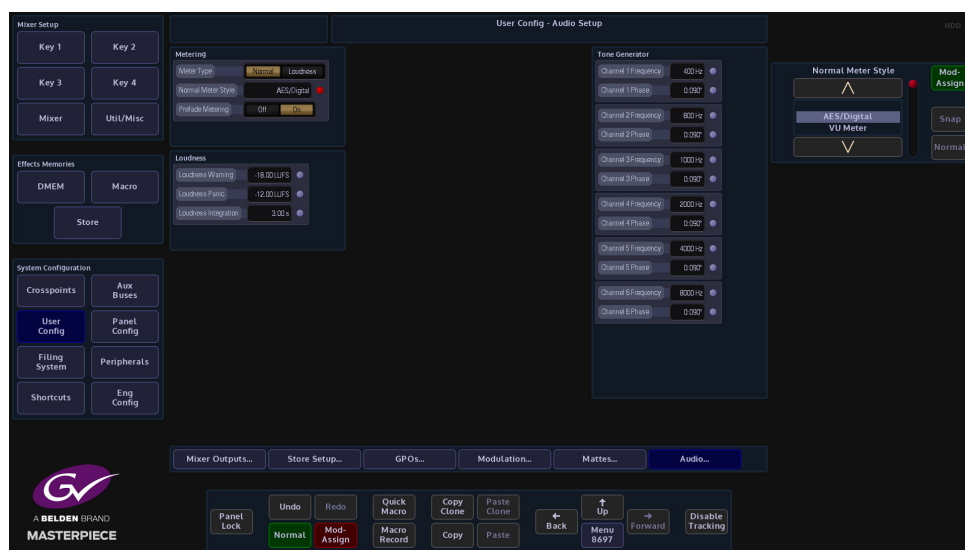


The Matte colors in the above menu, represent the default matte colors.

To adjust a matte, touch one of the matte colors and a set of parameters will be displayed. Use the parameters to adjust the selected matte color.

Audio

This menu allows you to select the type of metering you want to have on the Masterpiece control panel. Select the Loudness thresholds, and set the 6 tone generators



Meter Type - select between AES/Digital (or what ever is set by the “Normal Meter Style” parameter) or Loudness for the metering on each meter visual display on the control surface.

Normal Meter Style - this sets the “Normal” metering style. Select from:

- AES/Digital
- VU Meter
- EBU TECH 3205-E
- DIN/Nordic
- Peak

Prefade Metering - this sets the metering On/Off

Loudness - threshold levels for Loudness warning and panic lamp indicators with an integration window setting.

Tone Generator - a 6 channel tone generator where each frequency and phase can be setup

Panel Config

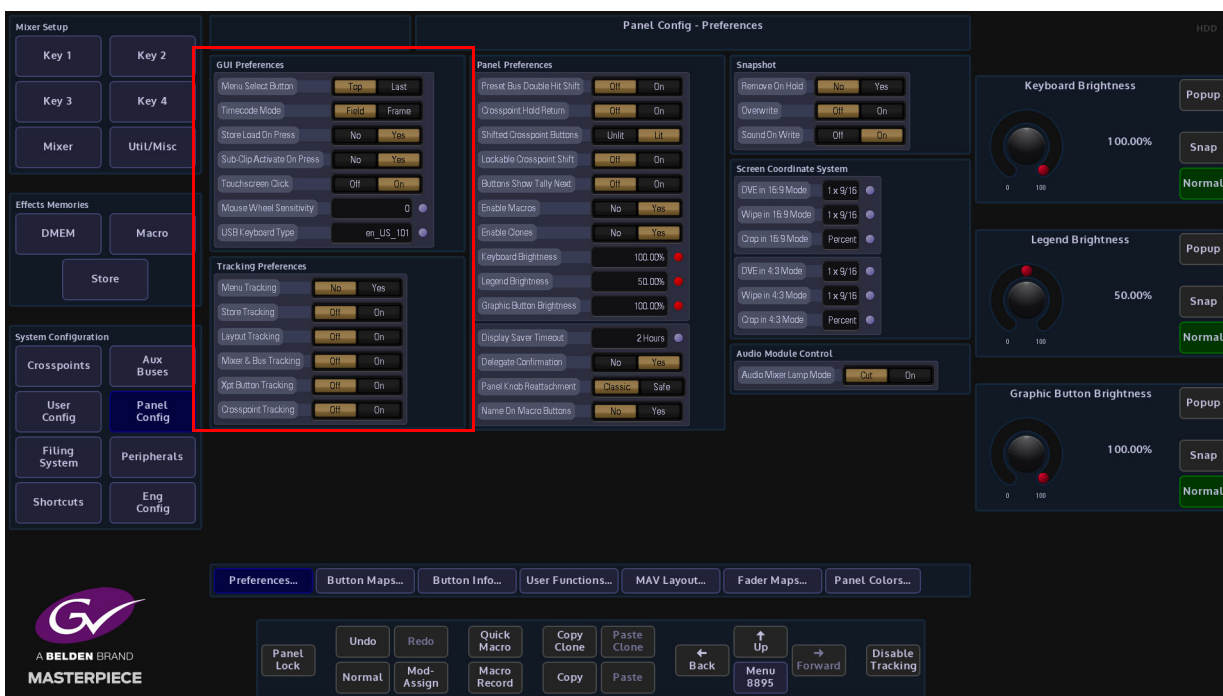
Preferences

Preferences menu allows the user to enable/disable functions on the GUI and Control Surface.

Note: Panel and GUI Preferences can also be accessed on the Masterpiece GUI (information at the end of GUI and Panel Preferences in this section).

GUI Preferences

GUI Preferences are a set of options that are designed to help the user access or control functions within the GUI more quickly and efficiently.



Menu Select Button - This menu allows the user the choice of two styles of menu navigation.

- **Top** is used when traveling between different menus using the GUI panel buttons the system enters via the 'Top' menu, or front page of that 'menu tree'.
- **Last** is used when the GUI records the last menu the user was in before leaving that menu tree.

Timecode Mode - this sets timecode increments to be set to the nearest Frame or Field.

Store Load On Press - this gives the option to load a still when pressing a minipic in the Store menu, or by selecting "No", allows the user to select a still but not actually load until the **{Load}** button is pressed. This allows the user to clone the still selection by "Copy, Copy" pressing a minipic and "Paste, Paste" the action onto a User Function button. The still will not load into the selected Store until the User Function is pressed. The selected Still can also be loaded into the selected Store by pressing {Load Selected Still} in the Shortcuts menu.

Sub-Clip Active On Press - this will load a sub-clip into a Store when touched in the Store - Sub-clips menu.

Touchscreen Click - when set to "On", an audible click can be heard when touching the soft MLC GUI.

Mouse Wheel Sensitivity - allows fine adjustment for the mouse wheel.

USB Keyboard Type - the user can now select between 22 different types of USB keyboard preferences, US, UK, French, German, Spanish and Latin American etc. Use the parameter control to scroll through the keyboard type options. This option is saved in the EEPROM of the Panel and not in the Panel Config.

Tracking Preferences:

Menu Tracking - when the user selects a function on the control surface i.e. **[KEY 1]** and presses the button twice, with **Menu Tracking** turned **On**, the GUI screen will switch to the Key 1 menu. So as the function suggests, the GUI menus will track a function selected on the control surface.

Store Tracking - When a Store is selected on the control surface, the Store menu will follow the selected Store.

Layout Tracking - this allows button press actions on one Mixer on the control surface to be tracked on all other Mixer

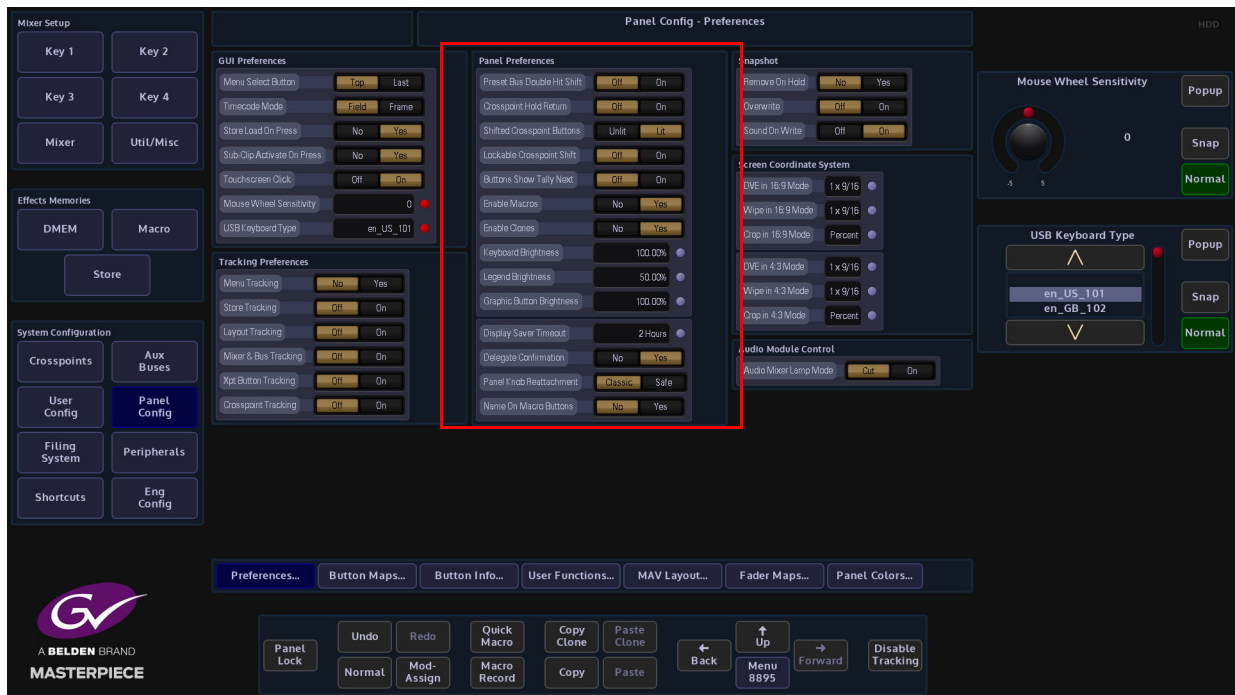
Mixer & Bus Tracking - any Key or Mixer delegates selected on the control surface, **Mixer & Bus Tracking** causes the GUI Delegate buttons to follow.

Xpt Button Tracking - this allows Xpt button tracking in the GUI menus.

Crosspoint Tracking - causes the menus that are crosspoint oriented to update their crosspoint selector to track any crosspoint selections on the control surface.

Panel Preferences

Panel Preferences are a set of options that are designed to help the user access or control functions on the Control Surface more quickly and efficiently.



Preset Bus Double Hit Shift - when turned On, if a Preset Bus button is pressed twice quickly, the Preview monitor and mnemonic will display the source and name of the “shifted” crosspoint. The panel will reflect this by either lighting the SHIFT ARROW and the XPT button or just the SHIFT ARROW. This is determined by the user preference Shifted Crosspoint Lit/Unlit.

Crosspoint Hold Return On/Off - this allows the user to hold down crosspoint button 'A' and then additionally press button crosspoint button 'B'. Pressing 'B' will select that crosspoint until 'B' is released, at which point the crosspoint selection returns to that for 'A'

Shifted Crosspoint Buttons - This function when set to LIT, will light both the crosspoint button and the **{Shift}** button of a shifted source. When set to UNLIT, the actual crosspoint button for the shifted source will not be lit until the **{Shift}** button is pressed.

Lockable Crosspoint Shift - this will allow the locking of the shift function to display the shifted Xpts continuously.

Buttons Show Tally Next - this is used in conjunction with the **User Config - GPO Setup** and allows the tally function to show what is being tallied on.

Enable Macros -

Enable Clones -

Keyboard Brightness - this adjusts the brightness of all the buttons on the Masterpiece control surface.

Legend Brightness - this adjusts the brightness of the mnemonic displays on the Masterpiece control surface.

Graphic Button Brightness - this adjusts the brightness of the OLED user function buttons.

Display Server Timeout - This causes the touch screen GUI to go into sleep mode after a designated amount of time. Default is 2 hours, maximum On time is 4 hours, can also be disabled so the GUI is on constantly.

Delegate Confirmation - Not applicable to this product.

Panel Knob Reattachment - this function has 2 modes:

- **Classic** - the Key Control functions that work in conjunction with the Assignable Controls will behave in the normal way.
- **Safe** - when using the Key Control functions in conjunction with the Assignable Controls for Resize, Border, Mask and Bus Color, pressing the function button in the Key Control area will make the button go Green, and the Assignable Controls will reflect and adjust the selected function.
If a different function is selected, the previous function button used in the Key Control area will remain Green, this allows the user to step back and forth between the selected functions.

To switch the function off, press and hold the button, and the Green light will go off.

Name On Macro Buttons -

Snapshot

Remove On Hold - Touch and hold a "Macro" OLED button to create a snapshot. With the "Remove On Hold" parameter set to "Yes", touch and hold the OLED button again and the snapshot is removed.

Note: If you hold and remove the snapshot from the button, it also deleted the snapshot from the Filing System.

Overwrite - when a snapshot has been attached to a button, with this parameter set to "On" you can press and hold the button and the original snapshot will be overwritten.

Sound On Write - when holding a OLED button down, the control surface will "bleep" to indicate that a snapshot has been written.

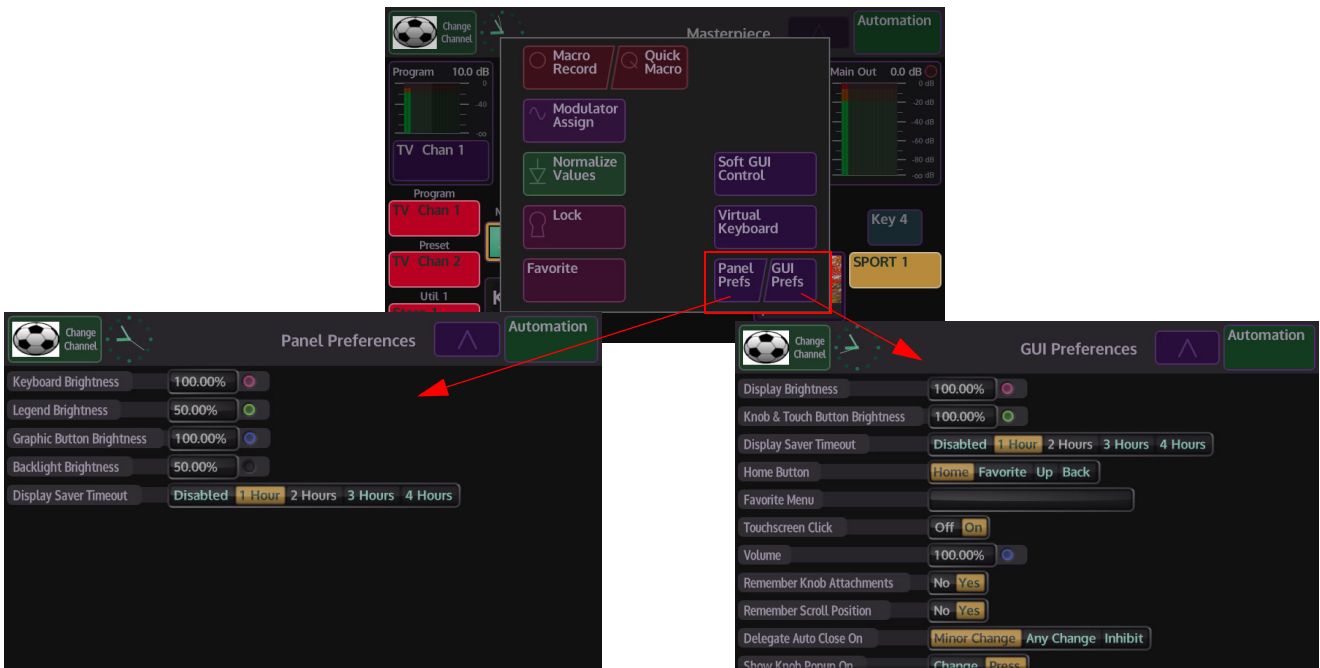
Screen Coordinate System

The Screen Co-ordinate System is a tool by which the user can adjust the display of co-ordinates on the GUI screen; co-ordinates that relate to the Resize engine, Mask areas and Wipe positions.

Crop: The ability to set the crop positions into Screen Grid mode (as per Wipe/masks) to allow the copying of Positions and Crops. To copy parameters "press and hold" the **{Copy}** button on the GUI and select the parameter using the **{Normal}** button associated with that parameter. Multiple parameters can be copied while copy button is held down, next go to the parameters you want to paste these values too, hold down **{Paste}** and press the **{Normal}** button associated with that parameter. The default mode for the Crop grid is percent.

Panel and GUI Preferences on the Masterpiece GUI

To get to the Panel and GUI Preferences touch the “Star” navigation button on the Masterpiece GUI and a sub menu will be displayed.



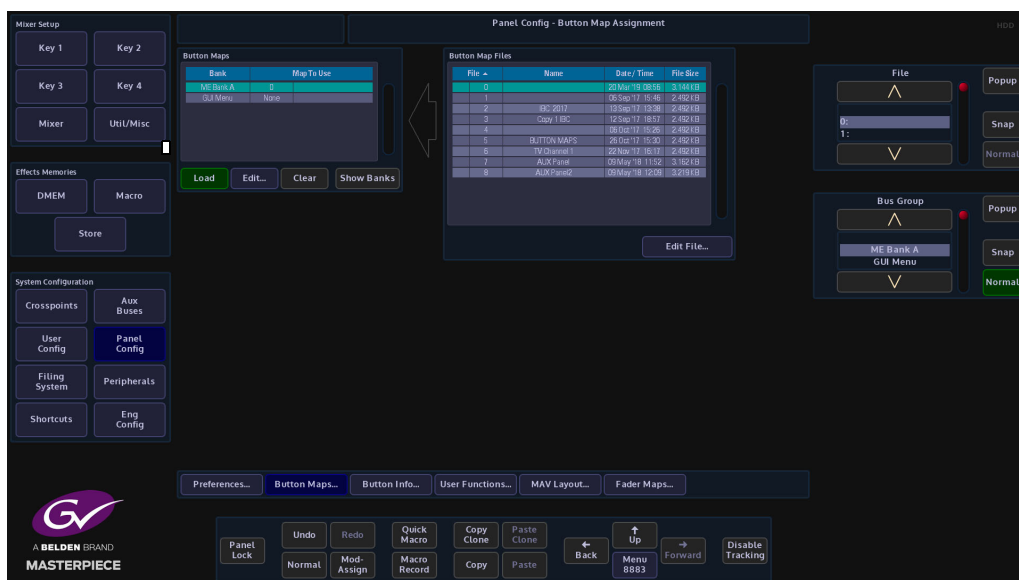
Touch the Panel or GUI Prefs buttons to access the menus as shown above.

Button Maps

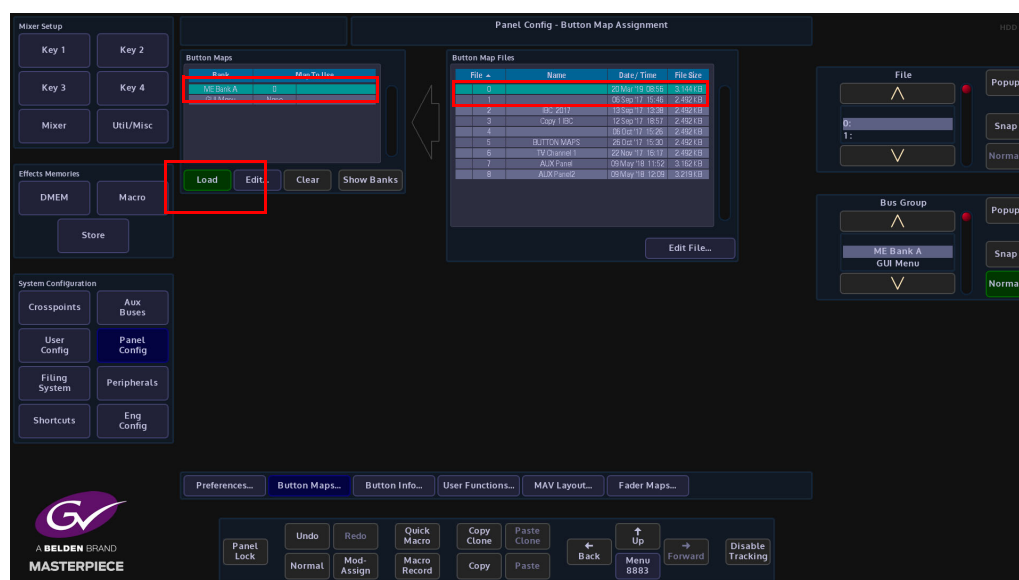
Buttons on the Crosspoint Bus can have any source assigned to them using a Button Map. This can be done by saving and loading Button Map Files, or by creating Custom maps.

Button Maps Main Menu

The main menu allows you to load a button map file from the “**Button Maps Files**” table, directly into the Mixer.



To load an existing Button Map onto the Mixer, firstly select the required file in the Button Map Files table. That file is then loaded into the Mixer by touching the **{Load}** button. The **{Load}** button turns green and the file is displayed in the “Map To Use” column (as shown below).



Editing a Button Map

Touch one of the **{Edit}** buttons to get to the **"Panel Config - Edit Button Maps"** menu. When the menu opens you can see that there are two tables, **"Button"** and **"Source"**; any changes made on this page will happen in real time on the Mixer buttons.



The **"Button"** table is split into two columns, on the left are the **"Primary"** (unshifted) button functions and on the right are the **"Shifted"** button functions.

The **"Source"** table is where the sources for the crosspoints are selected. The parameter controls on the right are used to scroll through the buttons and to select the Primary and Shifted crosspoints.

Button Number - this scrolls down the button numbers in the Button table.

Crosspoint - this scrolls through the **User Defined** and **Fixed Crosspoints** as displayed in the Crosspoint Mapping menu. Touch the "Popup" button to quickly select a crosspoint option (as shown below).



The **Button Type** parameter is used to select the overall function of the Bus button and has 3 options:

- **Normal** - the button selects the assigned primary and secondary sources.

- **Shift** - The button is now used to select between shift and un-shift for the whole bus of buttons. Traditionally this is placed at the far right of the bus.
- **Bus Lock** - pushing this locks the operation of the entire bus. Pushing a second time cancels this.

To assign a source to a particular button/crosspoint, touch a Primary or Shifted crosspoint and it will highlight in blue, then select a source from the source table. The source crosspoints are broken down into separate groups which are selectable using the set of buttons below this table.

Having selected both the button and the source crosspoint, touch the **{Assign to Button}** button to complete the action. At this point both the button table and source table automatically advance one entry. This enables you to assign consecutive sources quickly. Pushing the **{All}** button selects one complete scrollable list of all the available crosspoints.

None - assigns no source to the selected button.

Direct Assign - when this is selected the assignment is made as soon as the source is selected in that table without you needing to push the **{Assign to Button}** button. This mode cancels as soon as you navigate away from that menu.

Clear to End - this clears all buttons beyond the selected button. Note, this will not clear shift or lock buttons.

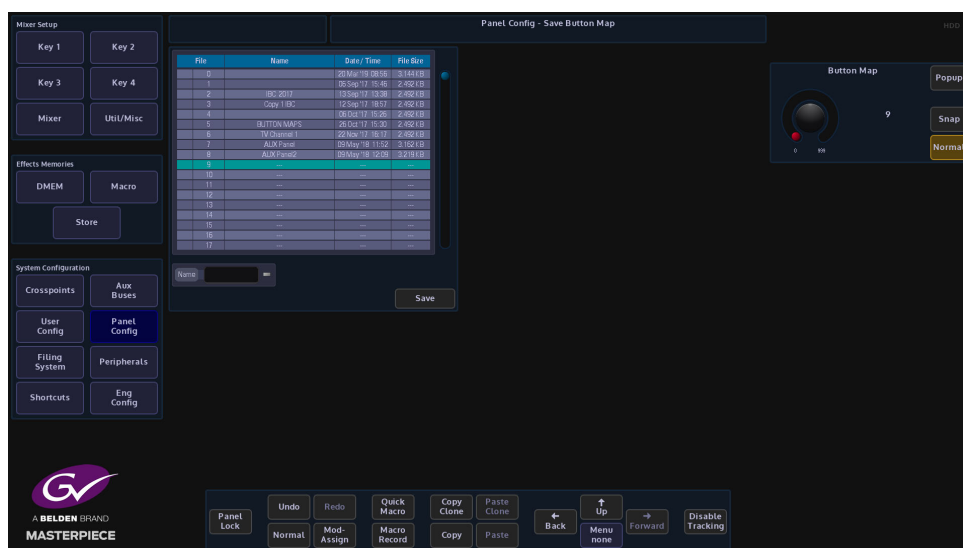
Insert Before - inserts a blank button and moves all subsequent buttons on one position. Note, shift and lock buttons will not move.

Delete - removes the selected source and moves all subsequent buttons back one position. Note, shift and lock buttons will not move.

Save to File - the edited button map can be saved to a file.

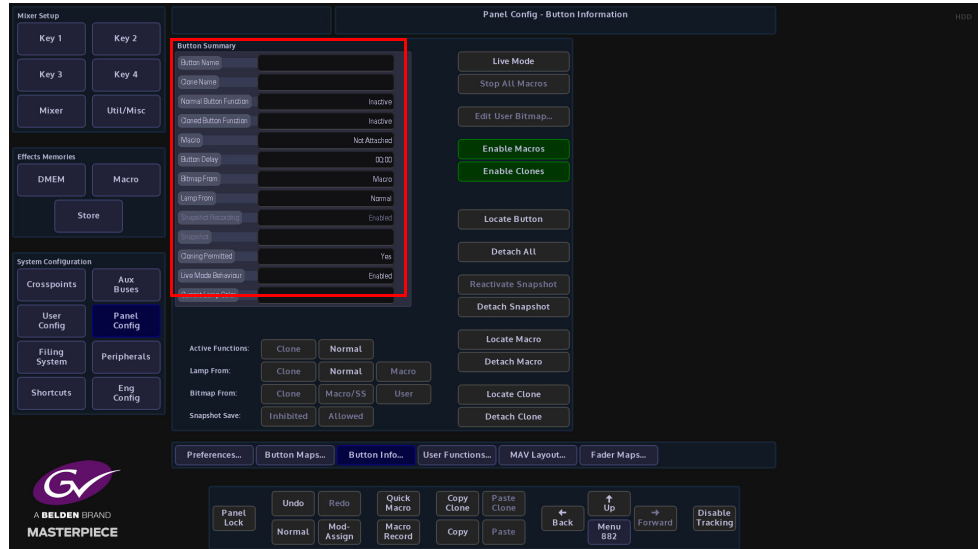
Saving a Button Map

When the **{Save to File}** button is pressed, the "Save Button Map" menu is displayed. The menu displays all the saved button map files. Select a free slot in the table and then touch the "Name" attacher red button twice to display the on-screen keyboard. Give the button map a name and then press the **{Save}** button to save the button map to the file list.



Button Information

The **Panel Config - Button Information** main menu displays information about Clone button functions and Macro buttons. The Button Summary table displays all the information related to a selected button.



Button Summary

Button Name - the normal button function.

Clone Name - the clone function attached to a button.

Normal Button Function - displays if the normal button function is active.

Cloned Button Function - displays if the cloned button function is active.

Macro - displays if a macro is attached to the button

Button Delay - this displays the delays attached to a macro function

Bitmap From - display where a bitmap is derived from, when cloned to a User Function button

Lamp From - displays lamp from cloned function or from the normal function

Snapshot Recording - inhibits the user function buttons ability to record a snapshot.

Cloning Permitted - if a function can be cloned, this parameter will display Yes

Live Mode Behavior - Shows "Enabled" if Live Mode can be set on this function.

Current Lamp Color - this displays the default or any user-defined lamp color that has been applied to a button.

Button Functions

These buttons are used to locate and disable Clones or Macros associated to a button.

Live Mode - will turn Live Mode On or Off

Stop All Macros - will stop all macros running

Locate Button - this will allow the current function of any button to be summarized in the table. Buttons with Clones and/or Macros attached will light Green when the Locate Button is Active. To locate a button Press the "Locate Button", it will go Red and the panel will only light up Normal Button (e.g. Clones, Macros attachments and Button that have had their Normal Functionality Disabled), the Table will then Display the current Information about that button. The Locate button will then return to Gray.

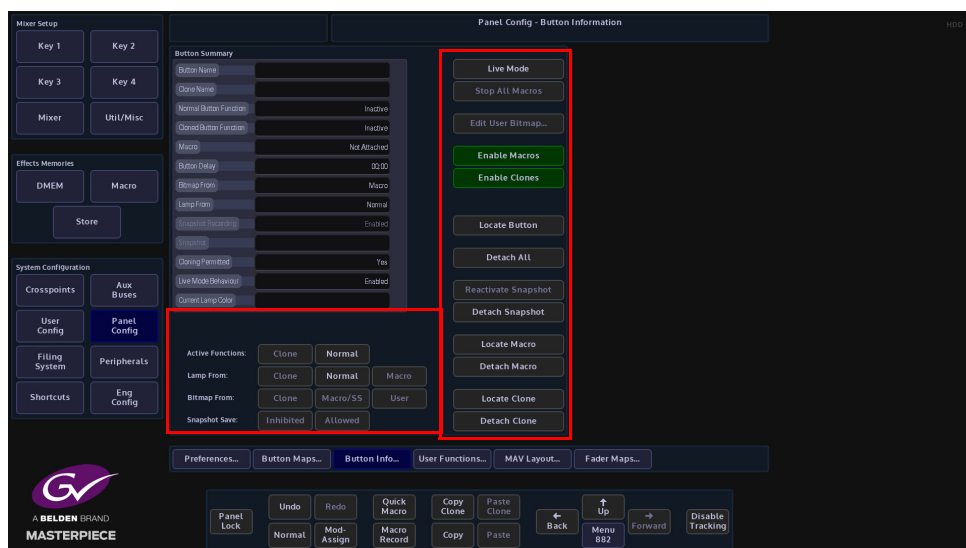
Detach Snapshot - this will detach a Snapshot from the selected button

Locate Macro - works in the Grass Valley way as Locate Clone, and locates a Macro function button

Detach Macro - detaches a macro function from a button

Locate Clone - locates the clone button by turning off all the lamps on all the buttons on the control panel and GUI except the clone button which will turn Red.

Detach Clone - detaches the clone function from a button.



When a button is selected, this menu can be used to enable/disable functions listed below.

Active Functions

Clone - switches the clone function On/Off

Normal - switches the normal function of a button On/Off.

These can be selected together so that both functions are active.

Lamp From:

Clone - will set the button lamp to light up the Grass Valley as the cloned function, i.e. if live to air the button will turn Red.

Normal - switches the lamp between its normal Green color and the Red cloned color

Macro - this will allow a lamp to be lit from a macro assignment

Bitmap From

Clone - displays a bitmap from the cloned function

Macro/SS - by default, a User Function Button would be blank normally, however the button can also have a bitmap from a macro or snap shot.

User - displays a bitmap from the User Function, Edit Button Bitmap menu.

Snapshot Save

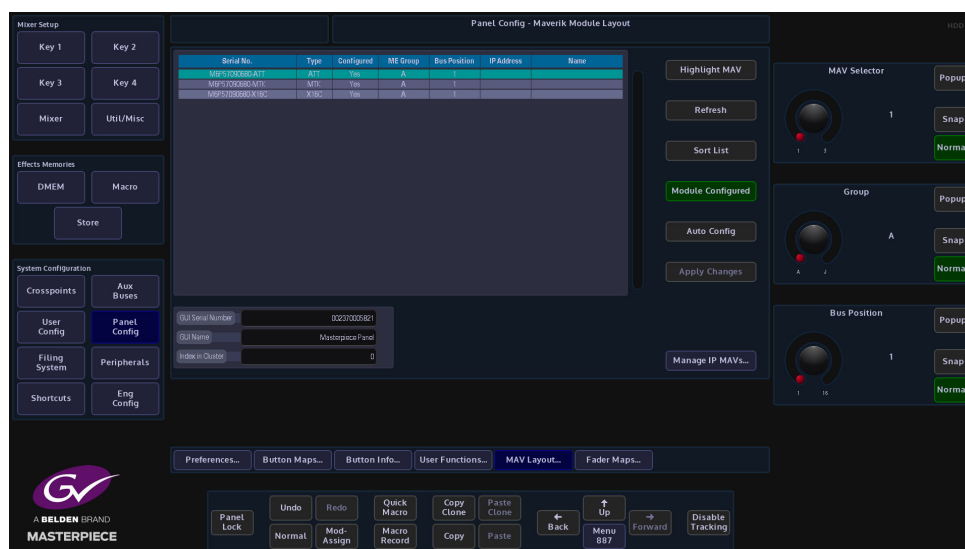
Inhibited - inhibits the user function buttons ability to record a snapshot.

Allowed - allows a user function button to save a snapshot

MAV Layout

The MAV Layout menu displays the control surface individual components connected together to make up the Masterpiece control surface. These are fixed and should not be altered or the control surfaces may not work correctly.

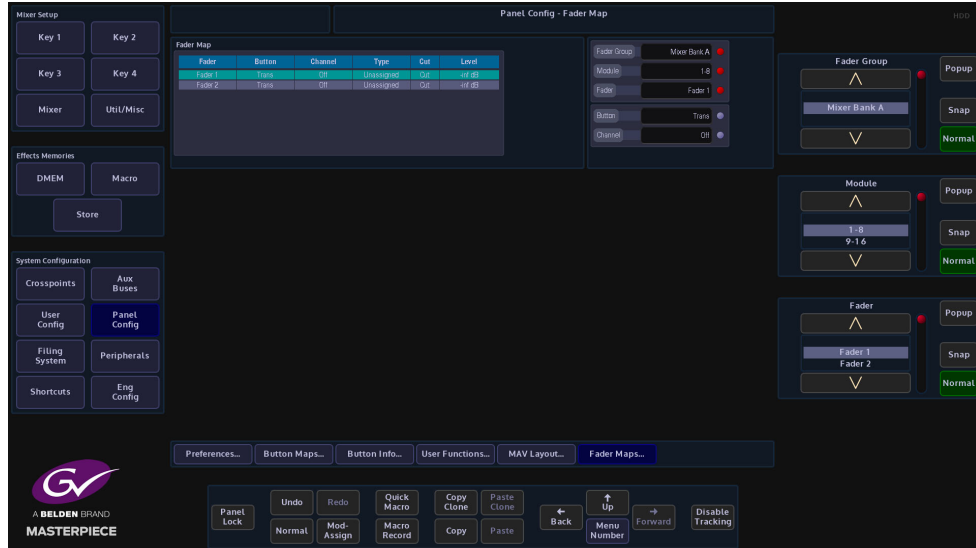
Note: When the system has booted up, if the control surface doesn't light up as expected, touch the **{Masterpiece Auto Config}** button to make sure that the Masterpiece control surfaces are configured properly.



If an extra MAV Modules such as the MAV-AUX module have been added to the system and the you need to configure the MAV module to work with the control surface, touch the **{Auto Config}** button and the control surface will be configured correctly. Use the MAV Selector parameter to scroll to the MAV module. Use the ME Group parameter to set the MAV Module into the correct ME group. Finally touch the **{Apply Changes}** button.

Fader Maps

The Fader Map menu allows you to setup how the two faders work on the Masterpiece control surface. The menu can also be used to setup any external MAV-FADER modules connected to the control surface.



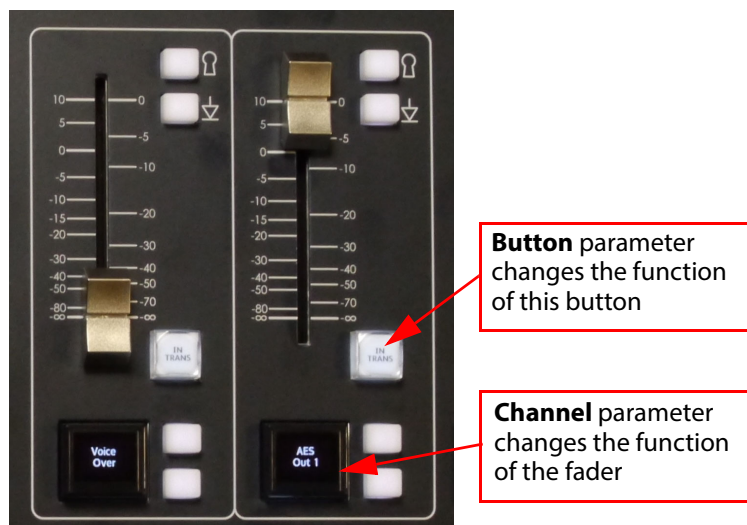
Fader Group - this is used to select any external fader module bank groups

Module - selects the button groups for the external fader modules

Fader - this selects the Faders 1 or 2 on the control surface or faders on external Fader Modules.

Button - changes the function of the button at the bottom of the fader.

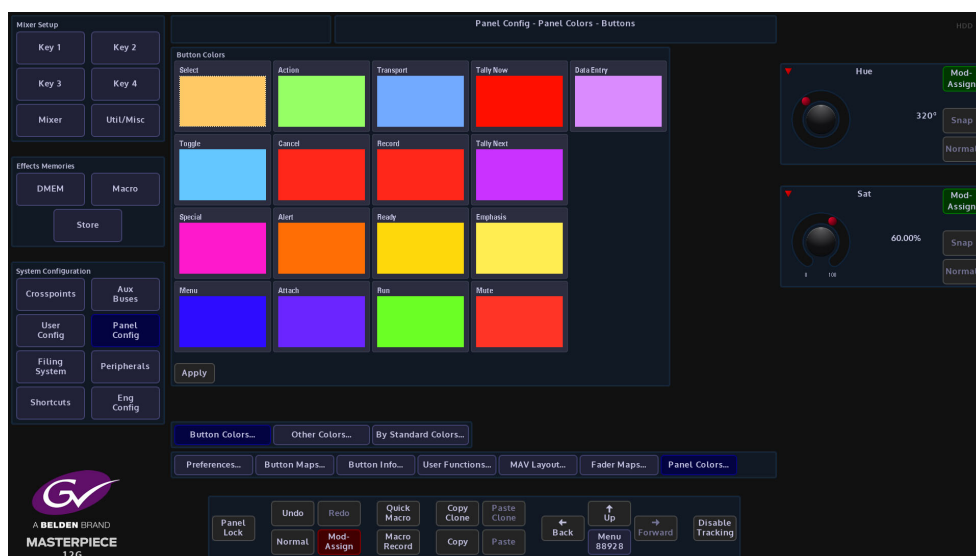
Channel - this sets the function of the fader i.e. Program, Preset, Voice Over, Main Out etc. Select the fader using the "Fader" parameter, then as you step through the "Channel" functions, the functions will change on the OLED button like using the toggle buttons.



Panel Colors

Button Colors

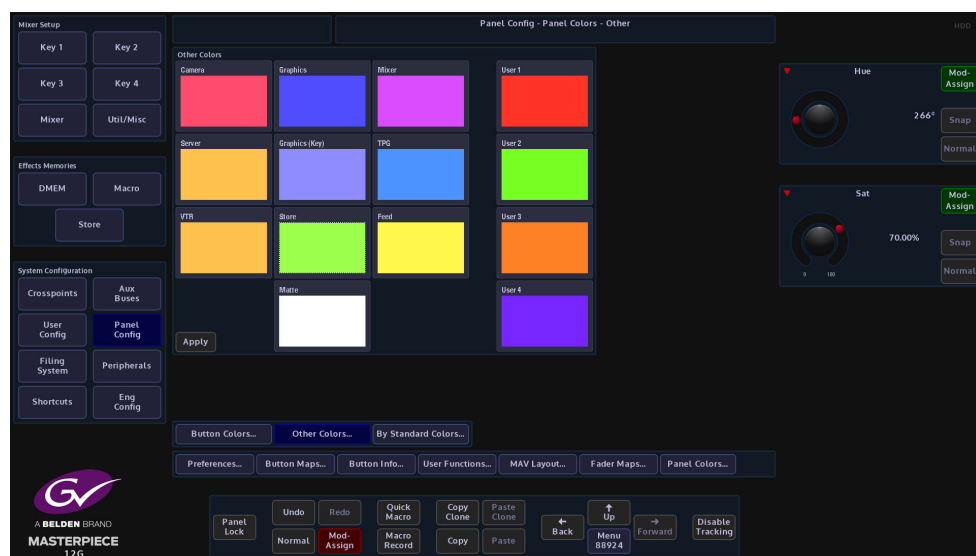
This menu allows the user to set user defines color schemes to specific buttons on the control surface and changes color schemes for actions and alerts.



All of the buttons on the control surface can have their default color schemes changed in this menu. The diagram above Shows an example of the Tally Now adjustment menu. touch one of the items in the main menu and an adjustment menu will appear. The default color can be changed by adjusting the Hue and Saturation parameters.

Other Colors

The Other Colors menu allows the user to change the preset color scheme of the Masterpiece color crosspoint buttons.

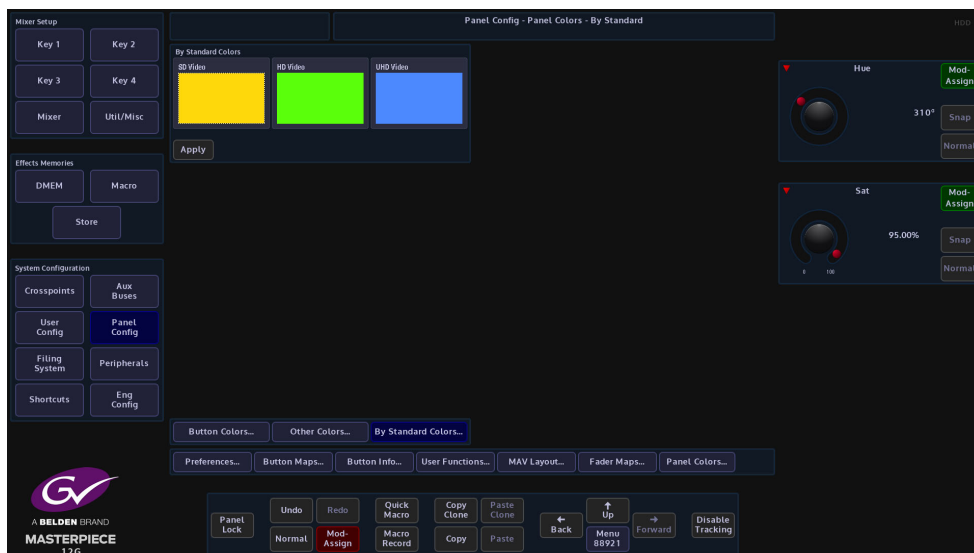


In the **Crosspoint Mapping** menu on the **GUI**, the user can select crosspoint in the table and then use the **Xpt Lamp Color** parameter to set a preset color scheme for the selected crosspoint.

The Other Colors menu allows the user to select and change the preset colors in the Color list. Touch one of the colors and then use the Hue and Saturation parameters to adjust to the desired color, then press the **{Apply}** button.

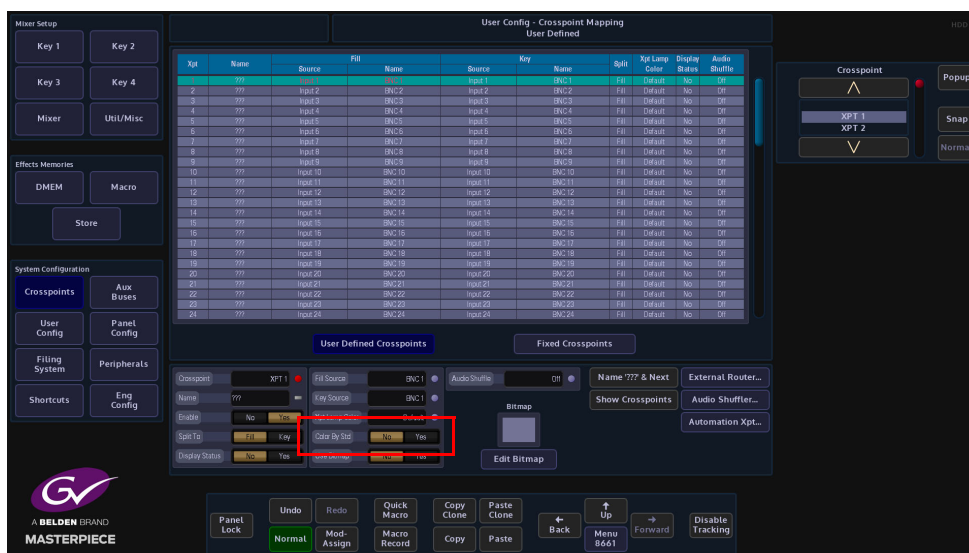
By Standard Colors

This menu allows the you to set crosspoint button color for the video standard for the source assigned to that crosspoint. So that the crosspoint buttons will display different color schemes for video standards on the control surface.



You can keep the default color scheme for the video standards or touch one of the colors to select it and then use the Hue and Sat parameters to alter the color.

When done, touch the **{Crosspoints}** button and then touch and select a crosspoint in the table that you want to set a video standard color to.



Then set the “Color By Std” parameter (shown above) to “Yes”. An asterisk “*” is displayed next to the lamp color name in the “Xpt Lamp Color” column.

10

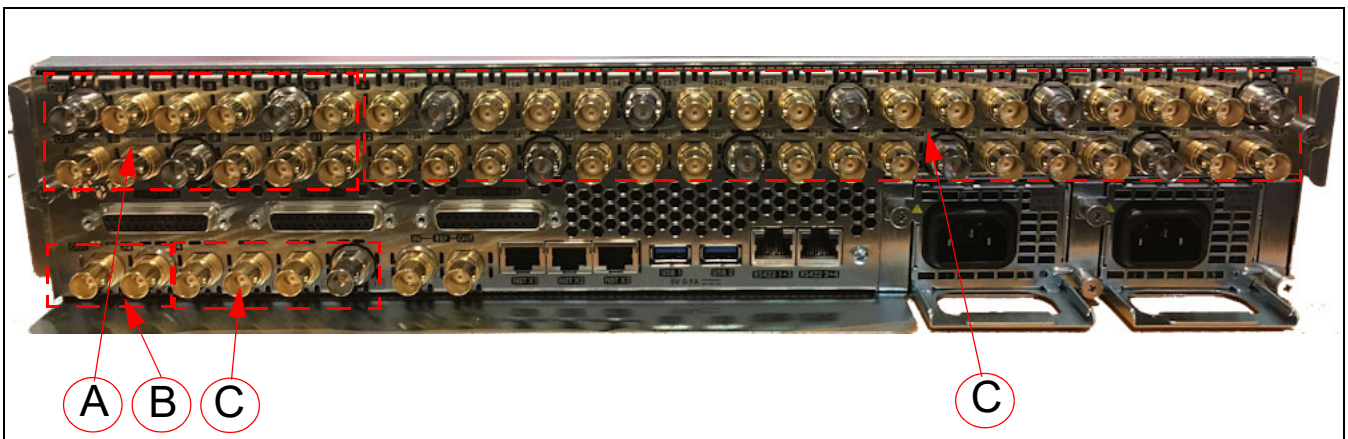
12G-SDI Setup and Operation

Overview

Unlike Masterpiece SD/HD, Masterpiece 12G-SDI is engineered with a single link 12G-SDI infrastructure. Masterpiece 12G-SDI offers 12G-SDI BNCs for UHD connectivity, as well as 3G BNCs for Quad link signals; HD sources are also available. Whilst using the Masterpiece mainframe in UHD mode, the user is now able to have a single link UHD input or output using the 12Gbps BNC connectors, the system does not have to have Quad link signals anymore.

The Masterpiece 12G-SDI mainframe has:

- 40x Inputs, 10x of those inputs are 12G-SDI BNC connectors (silver in color).
- 14 outputs (UHD mode), 3x of those outputs are 12G - SDI Connectors (silver in color).



- A** = Outputs
- B** = In UHD mode these can also be used as outputs.
- C** = Inputs

Masterpiece 12G-SDI features include:

- UHD processing
- A single link SDI connection
- Keying for channel branding
- A video mixer
- Includes Grass Valley's FormatFusion3 for multi-format work flows
- A DVE for functional squeeze backs and effects
- Audio embedding, de-embedding and shuffling
- An audio mixer for mixing voiceover and voice-under
 - Automation and manual control
 - A dedicated panel for easy operations

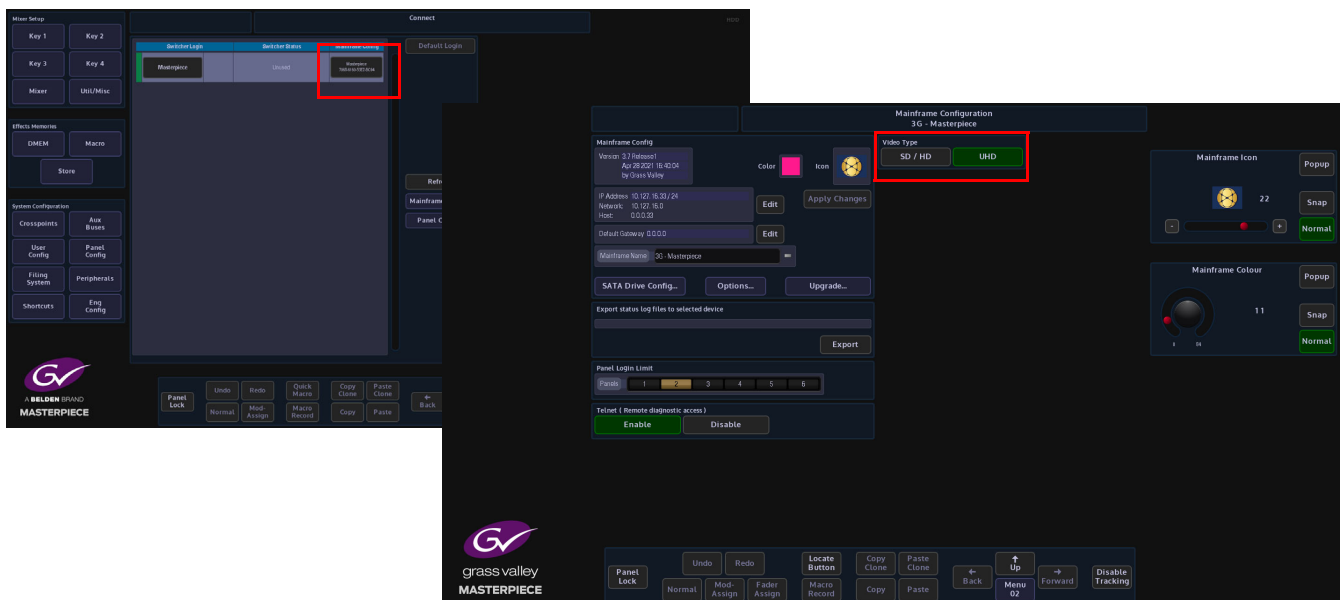
- FormatFusion3 for multi-format operations supporting HD, 1080p and UHD
- UHD supports Quad Link and 2SI
- Internal Stores
- 12G over SDI single link.

Note: The “silver” BNCs on the Masterpiece Mainframe shown on the previous page, these are the 12G-SDI Inputs and Outputs.

Set the System up in UHD Mode

As mentioned earlier, to use the 12G-SDI BNCs as UHD inputs and outputs, the mainframe has to be placed into UHD mode. The first step in enabling UHD mode is to put the GUI into the logged out state in the “Connect” menu.

Touching the **{Mainframe Config}** button will open the “**Mainframe Configuration**” menu. In



the “**Mainframe Configuration**” menu, touch the **{UHD}** button to select UHD mode, then press the **{Up}** button to go back to the “**Connect**” menu. Finally, touch the **{Switcher Login}** button to log back into the Masterpiece operational menus.

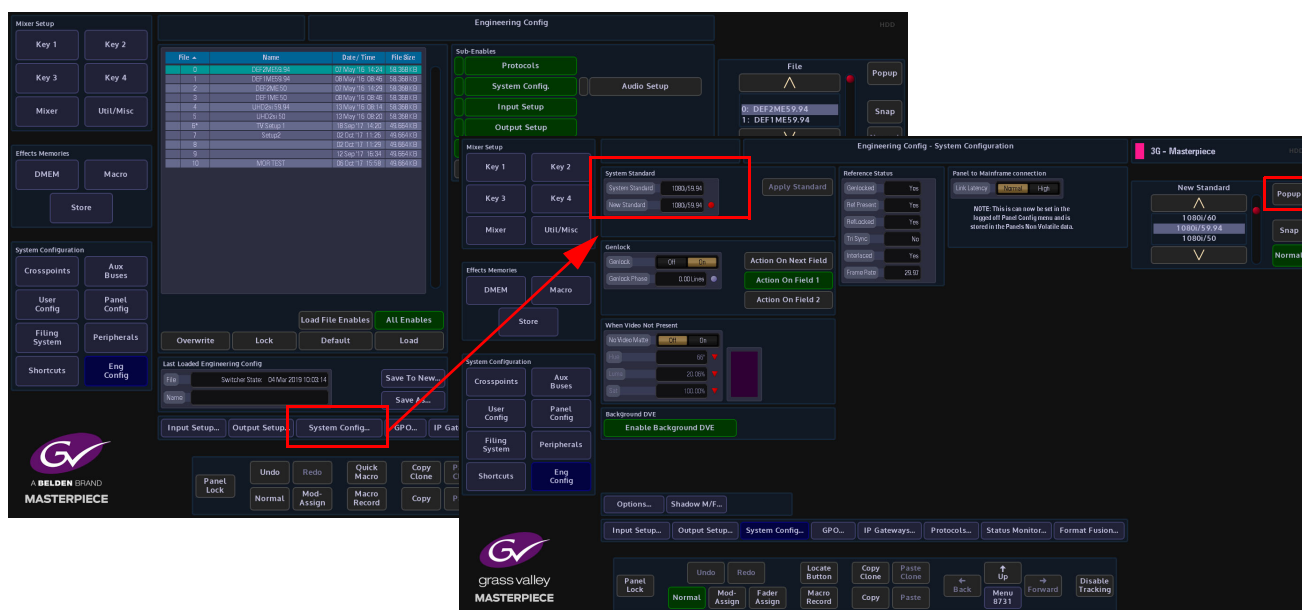
Note: Notice that when a touch screen GUI is connected to a Masterpiece 12G-SDI mainframe, the logo in the bottom left corner of the menu has “12G” under the Masterpiece name.

Once back in the “Connected to Masterpiece Mainframe” menu, the user has two choices when setting up UHD, either touch one of the preset UHD Shows at the top of the menu and UHD will be setup ready to use or the user can manually setup UHD by following the information through this section.

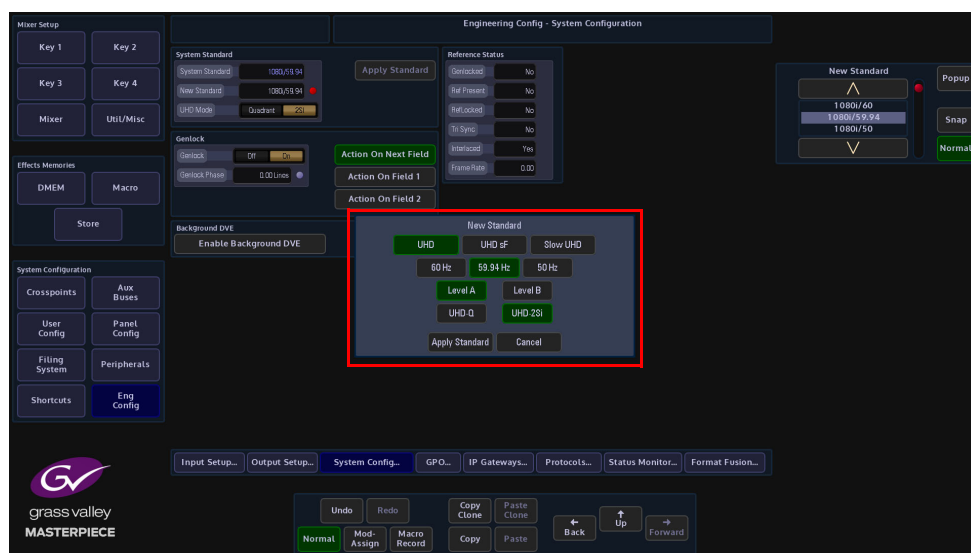
Touch the **{Engineering Config...}** button.

UHD Engineering Config Setup

In the **Engineering Config** main menu, touch the **{System Standard...}** button to enter the System Standard menu.



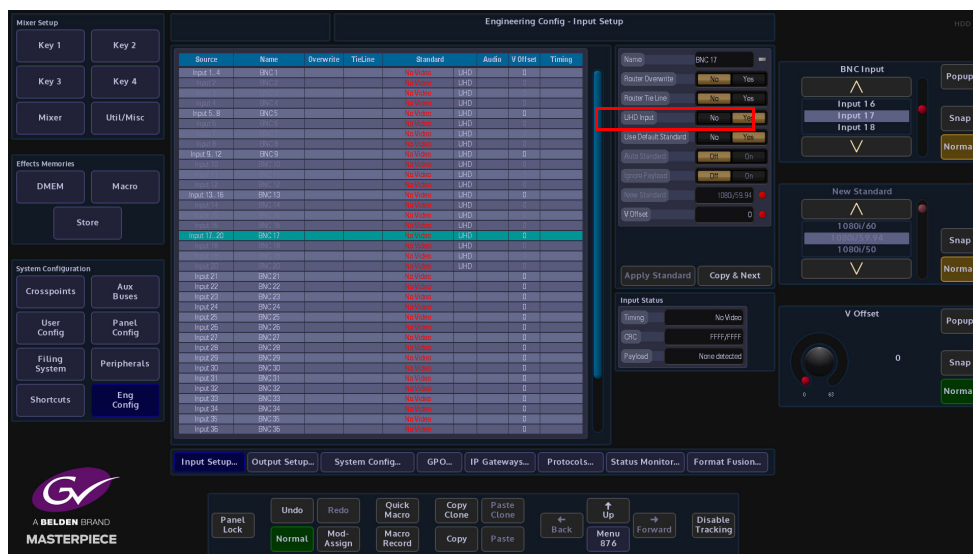
The System Standard menu can be set to “UHD Mode - Quadrant” or “UHD Mode - 2SI”, however the user can choose between the UHD standards by touching the “Popup” button top right to reveal a “New Standard” dialog box. From the dialog box the user can select what type of UHD standard the system is set to, as shown below.



Select between UHD-Q or UHD-2SI, the frequency and the type of UHD required - UHD Segmented Frame or UHD Slow, then press the **{Apply Standard}** button. The next thing to do is to setup the Inputs and Outputs.

12G SDI Input Setup

Touch the **{Input Setup...}** button, in this menu the user will setup all the UHD inputs to the mainframe.



As stated at the start of this chapter, in UHD mode, there will be 4x inputs for every UHD source input to the mainframe, which consist of Input 1 (top left), Input 2 (top right), Input 3 (bottom left) and Input 4 (bottom right). Select Input 1, then touch the **“UHD Input” {Yes}** button. Notice that Inputs 1 to 4 are now ganged together as Input 1 (shown below).



The next input to select is Input 5, then touch the **“UHD Input” {Yes}** button, then inputs 5 to 8 are ganged together. This can be repeated up to another 8 times, allowing ten UHD sources input to the mainframe.

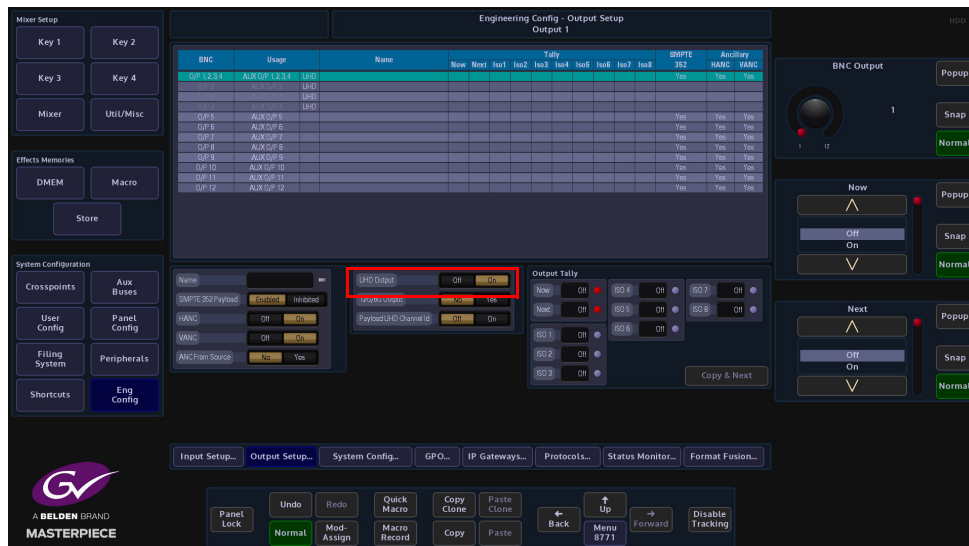
Note: Please note that there are no parameter adjustments in the Input Setup menu for setting up 12G-SDI, it is automatically set once the inputs are set to “UHD Input”.

As each UHD input is selected in the inputs table, 12G-SDI sources to the mainframe can now be connected to the following BNC inputs as required: 1, 5, 9, 13, 17, 21, 25, 29, 33 and 40 (the silver color BNCs).

12G-SDI Output Setup

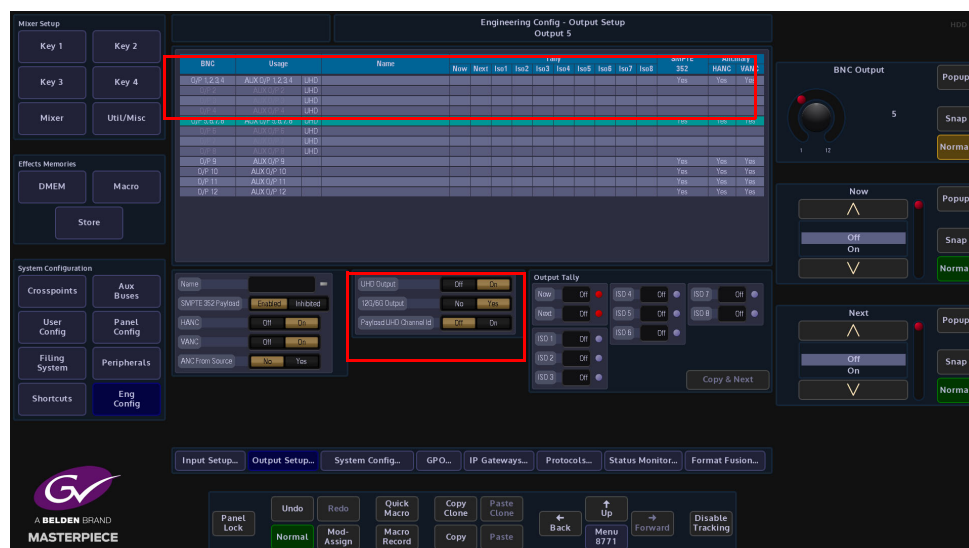
Setting up the UHD outputs on Masterpiece is very similar to setting up the inputs, where the outputs are grouped in fours.

Touch the **{Output Setup...}** button and the menu will look like the one below.



Touch the OP1 row to select it, then set the **“UHD Input”** to **{Yes}**, the first 4 outputs are now ganged together (see below), in the Grass Valley way as the inputs, so now Outputs 1 to 4 make up the first UHD-quad output.

Note: **12G-SDI setup** - Notice that there is a parameter control called **“12G Output”**. This has to be set to **“Yes”** for each of the 12G-SDI outputs.



Set the **“12G Output”** parameter to **“Yes”** and the first 12G-SDI BNC can be connected to output 1 (silver BNC). As the other outputs are setup as UHD outputs in the outputs table, the 12G Output parameter can be set to **“Yes”** for outputs 1, 5 and 9 (the silver BNCs).

11

IP Connectivity and Operation

Overview

Many broadcasters and media organizations have taken the step forward and embraced new IP infrastructures into their production work flows. More are looking to work with real-time audio and video transport over a 50GbE IP network. Several real-time protocols such as uncompressed SMPTE ST 2022-6, SMPTE ST 2022-7 and VSF TR03/SMPTE ST 2110 now exists to stream and enable intra operability between equipment supporting the master control and playout operations.

Grass Valley, a Belden Brand, has a rich history in helping media organizations deliver content on time, on budget and to the right audience across whatever distribution mechanisms are appropriate. Building on our world firsts in deploying IP solutions technologies we are introducing Masterpiece IP, which is a new market-defining master control switcher for the IP environment.

Whatever your channel genre, whether it's sports, news or live entertainment and whatever your distribution — a single over-the-air (OTA) channel, multichannel content distribution or real-time streaming.

IP Connectivity

Duplex, signals supported over RTP streams via 2x QSFP 28 (Transceivers QSPF28)

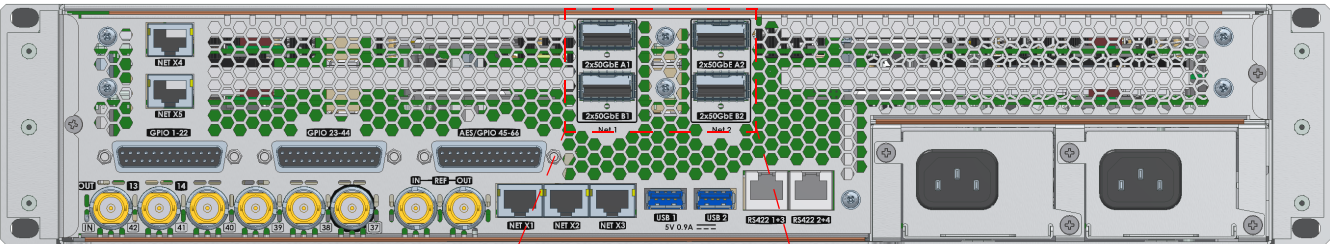
SMPTE ST 2022-6, SMPTE ST 2022-7, VSFTR-03, VSFTR-04, SMPTE 2110

Up to 10 inputs – 1.485 Gb/s format sources

Up to 10 inputs – 2.970 Gb/s format sources

Up to 12 outputs – 1.485 Gb/s format sources

Up to 12 outputs – 2.970 Gb/s format sources



IP Connector A1 (primary)

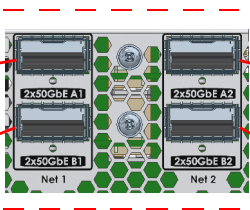
Inputs - 1 to 18

Outputs - 1 to 6

IP Connector B1 (primary)

Inputs - 19 to 36

Outputs - 7 to 12



IP Connector A2 (secondary)

Inputs - 1 to 18

Outputs - 1 to 6

IP Connector B2 (secondary)

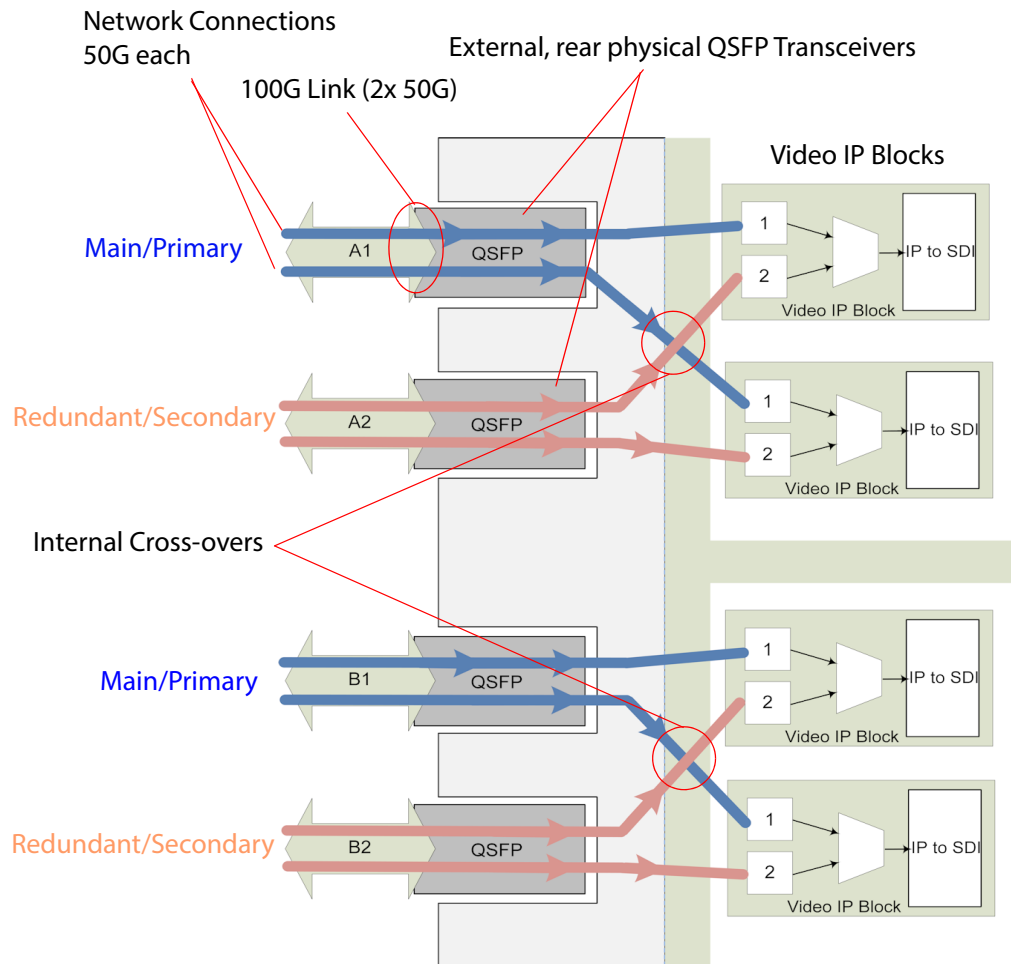
Inputs - 19 to 36

Outputs - 7 to 12

IP Architecture

The physical media network link uses QSFP cages on the rear of the unit ('Link A1'...'Link B2') and are 100G Ethernet links that are each configured for 2x 50G operation. When fitted, QSFP transceivers are internally connected to the Video IP blocks via a hard-wired network 'cross-over' arrangement (which can remove the need for external break-out cables in some cases).

Example of Video IP Blocks



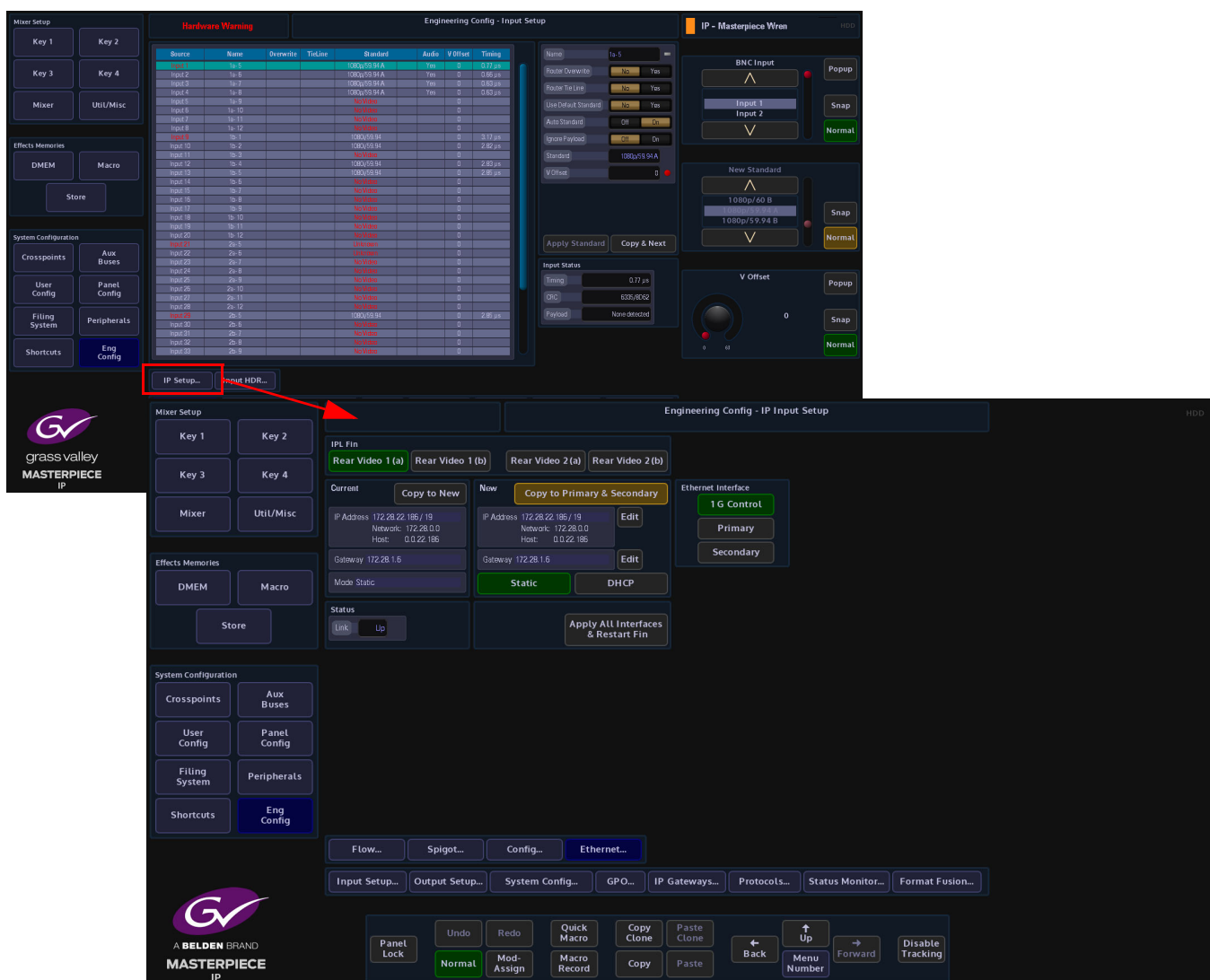
Thus, one rear physical rear media network 'link' feeds two Video IP blocks.

Video input IP streams for inputs 1 to 18 can be carried either in network link 'Link A1', or in 'Link A2', or in both links for redundancy.

The second Video IP card is similarly connected but via 'Link B1' and Link B2', which carry the video IP streams for video inputs 19 to 36.

IP Input Menus

To get to the IP input menu, in the Input Setup menu, touch the **{IP Setup...}** menu link button.



Ethernet Menu (above)

At the top of the menu are the IPL Fin selection buttons. These buttons correspond to the IP inputs at the rear of the mainframe.

The **Ethernet** menu is used to setup the IP addresses for the following:

- 1G Control - this is the IP address for the RJ45 network port on the IP Fin
- Primary - this is the QSFP cage number A1/B1
- Secondary - this is QSFP cage number A2/B2

The IP addresses have to be setup for each Ethernet Interface set (1G Control, Primary and Secondary) for each IP Video Rear. Once the IP address has been set for the (as shown above) 1G Control, touch the **{Copy to Primary & Secondary}** will copy the IP information to the Primary and Secondary sets. After using copy, it is necessary to modify the Primary and Secondary IP addresses to make sure that they are different. Typically, these are incremented by 1.

If an existing IP address exists, the user can touch the **{Copy to New}** button and the IP address info will be copied across to the "New" IP address box.

Once the IP addresses are set, touch the **{Apply All Interfaces & Restart Fin}**, this has to be done to restart the IP Fin.

Flow Menu

The Flow menu allows you to setup each individual “Spigot” IP address, Source IP address. Each Flow needs to have a Multicast IP address and Port as well as the IP address and Port of the source.



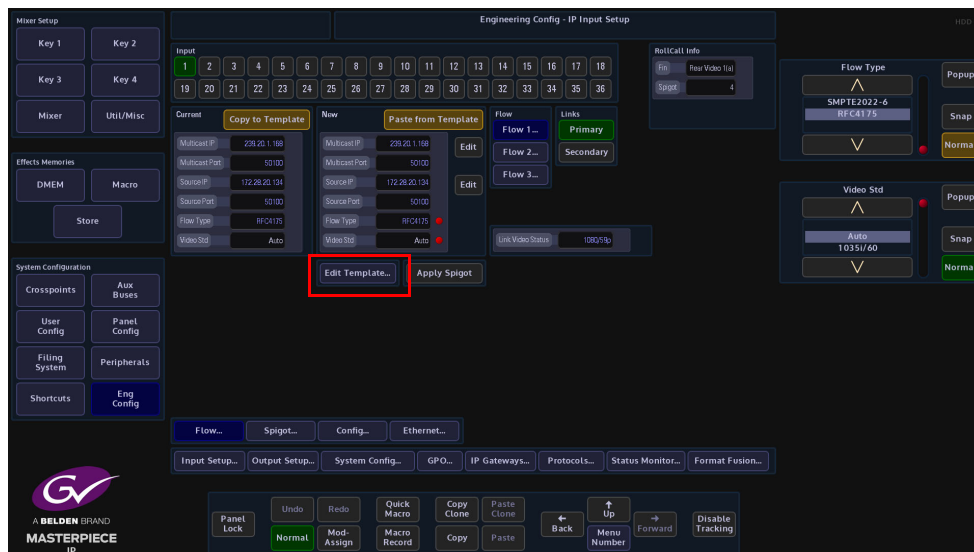
The number of Spigots that are available as inputs are restricted to the type of “**Flow Type**” that is selected. This will display the number of inputs available to the selected Fin.

- **Flow 1** - This is used for **Video**
- **Flow 2** - This is used for **Audio**
- **Flow 3** - This is **Metadata**

The “**Links**” “**Primary**” and “**Secondary**” buttons allow separate data to be added for the Primary and Secondary Links.

The IP addresses, Port numbers and Flow Types can be entered manually, but there is a template tool which can be used to speed up the setup process. Once the information is entered into the “**New**” data field, these settings are set as “**Current**” by touching the **{Apply Spigot}** button.

The IP input Flow Template, allows the user to set the Multicast IP address (this is user specific). The Source IP is the IP address of the incoming source.



When the information is input into the IP Input Flow Template, set the “Multicast Increment” to increment by “1”, the Template tool allows an address or port number to be incremented each time the **{Paste from Template}** button is touched.

For example enter the Multicast IP address - 120.14.10.01, then setting the increment to 1, then when the **{Paste from Template}** button is pressed, the Multicast IP address will increment by 1 automatically. This is handy and less time consuming if the user is setting up a lot of spigots.

This has to be done for each Flow for each Spigot.

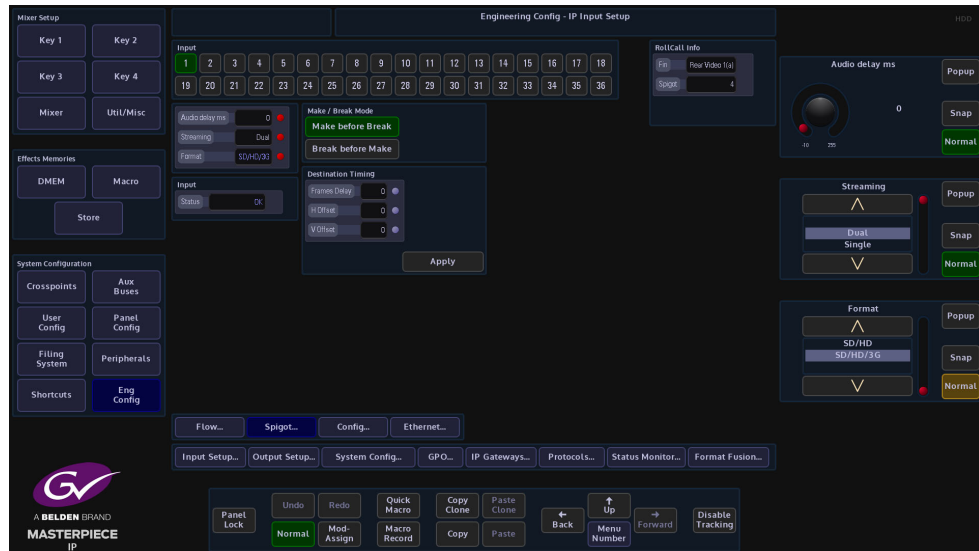
These have to be setup for each spigot.

It is recommended “**Video Standard**” parameter is set to “**Auto**”, which as suggested will automatically select the video standard for the selected spigot.

The “**Link Status**” window displays the incoming video standard.

Spigot Menu

In the Spigot menu, the user is able to set the video standard for individual Spigots (inputs) using the **“Format”** parameter. By touching one of the Spigots, setting this parameter will allow more or less spigots to be used, depending on the type of format that is selected for the spigot.



The **“Streaming”** parameter will set whether there are **“Dual”** or **“Single”** QSFP cages being used on the selected IP Fin.

The **“Audio Delay”** parameter can be adjusted, if for instance the **“Lip Sync”** is out between audio and video signals.

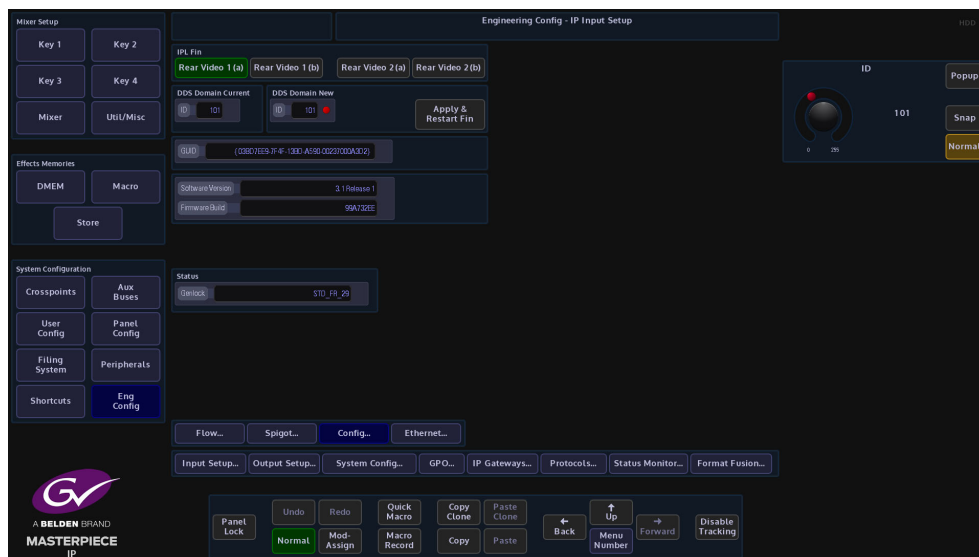
Make before Break - this sets up the new flow before breaking the old one. It should be noted that this will use extra bandwidth as the new flow is established.

Break before Make - this simply breaks the old flow before setting up the new one. This will not result in a clean cut but will not use anymore bandwidth.

Config Menu

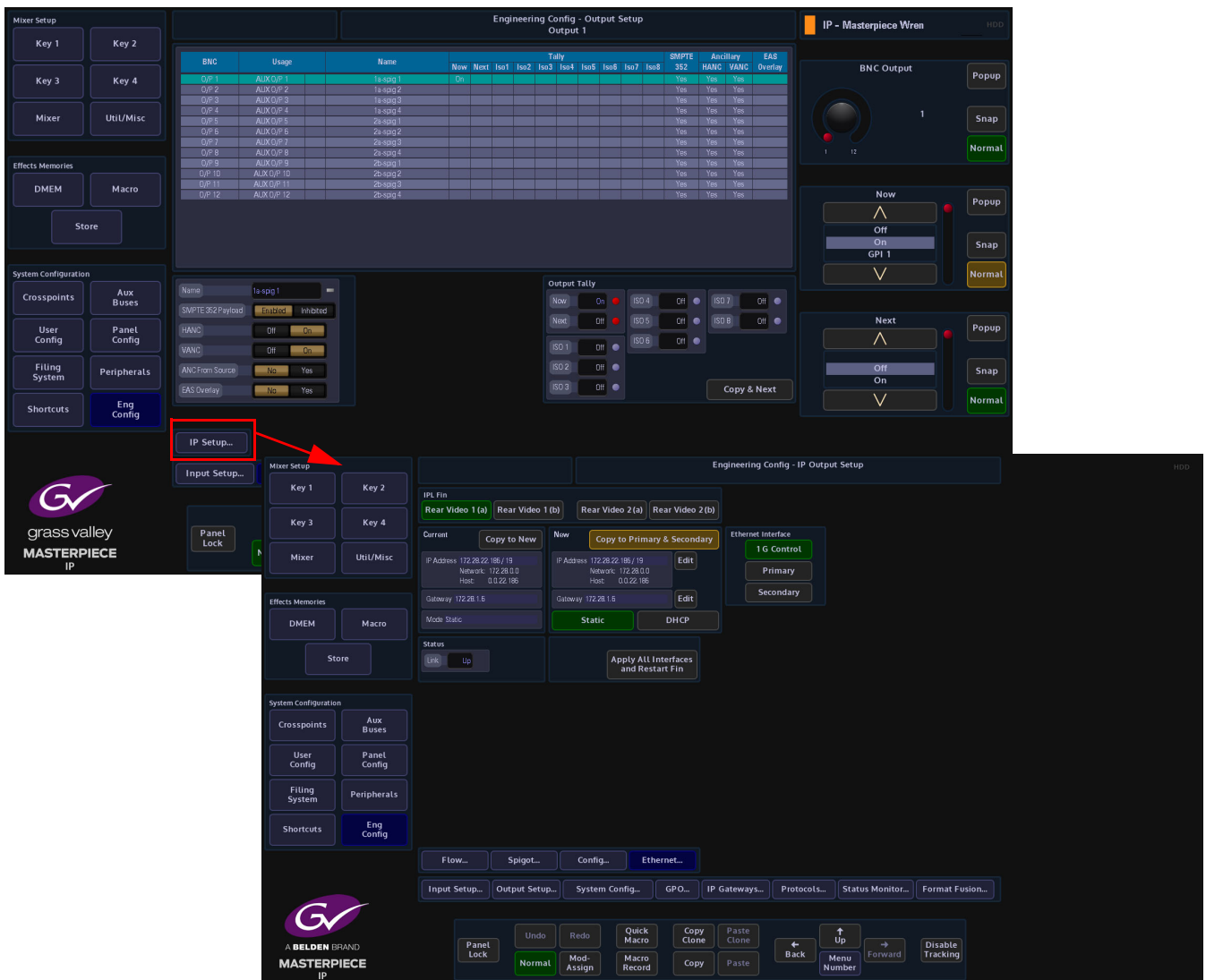
The Config menu only allows the user to change the current “DDS Domain ID”.

Note: The software on the IP Input Fin has to be updated through RollCall directly to the IP Input FIN via the RJ45 Network port.



IP Output Menus

To get to the IP Setup menus, go to the **“Eng Config - Output Setup”** menu and then touch the **{IP Setup...}** menu link button.



Ethernet Menu (above)

At the top of the menu are the IPL Fin selection buttons. These buttons correspond to the IP QSFP cages at the rear of the mainframe.

The **Ethernet** menu is used to setup the IP addresses for the following:

- 1G Control - this is the IP address for the RJ45 network port on the IP Fin
- Primary - this is the QSFP cage number A1/B1
- Secondary - this is QSFP cage number A2/B2

The IP addresses have to be setup for each Ethernet Interface set (1G Control, Primary and Secondary) for each IP Video Rear. Once the IP address has been set for the (as shown above) 1G Control, touch the **{Copy to Primary & Secondary}** will copy the IP information to the Primary and Secondary sets. After using copy, it is necessary to modify the Primary and Secondary IP addresses to make sure that they are different. Typically, these are incremented by 1.

If an existing IP address exists, the user can touch the **{Copy to New}** button and the IP address info will be copied across to the “New” IP address box.

If an existing IP address exists, the user can touch the **{Copy to New}** button and the IP address info will be copied across to the “New” IP address box.

Once the IP addresses for the IP Output Fin are set, touch the **{Apply All Interfaces & Restart}**, this has to be done to restart the IP Output Fin.

Flow Menu

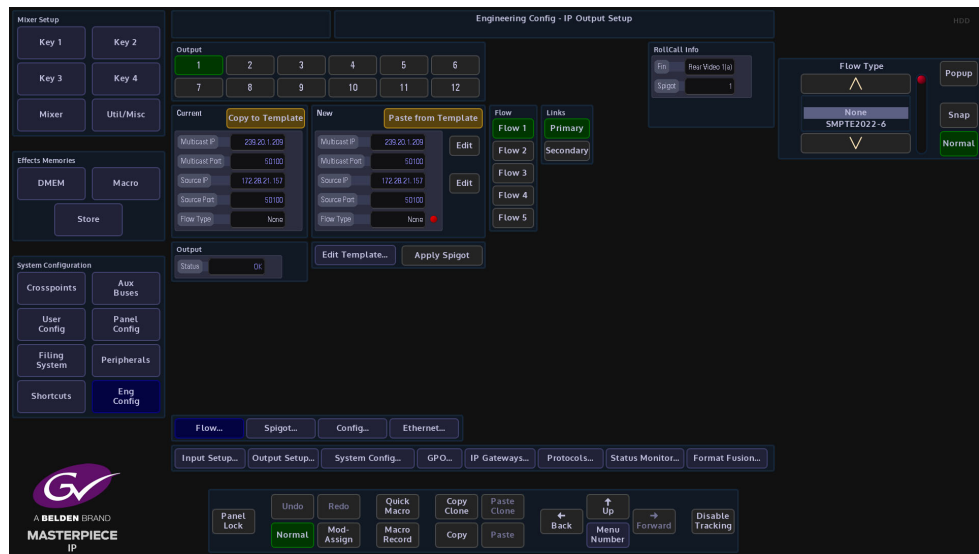
The Flow menu allows the user to setup each individual “**Spigot**” IP address, Source IP address. Each Flow needs to have a Multicast IP address and Port as well as the IP address and Port of the source.



The number of Spigots that are available as outputs are restricted to the type of “**Flow Type**” that is selected. When selecting a Flow Type settings, refer to the number of channels listed in the “**Number of IP Outputs**” tables, as listed earlier in this section.

The “**Links**” “**Primary**” and “**Secondary**” buttons allow separate data to be added for the Primary and Secondary Links. The IP addresses, Port numbers and Flow Types can be entered manually, but there is a template tool which can be used to speed up the setup process. Once the information is entered into the “**New**” data field, these settings are set as “**Current**” by touching the **{Apply Spigot}** button. This has to be done for each Flow for each Spigot

The IP Output Flow Template allows the user to set the Multicast IP address (this is user specific). The Source IP is the IP address of the incoming source.



When the information is input into the IP Output Flow Template, set the “Multicast Increment” to increment by “1”, the Template tool allows an address or port number to be incremented each time the **{Paste from Template}** button is touched.

For example enter the Multicast IP address - 120.14.10.01, then setting the increment to 1, then when the **{Paste from Template}** button is pressed, the Multicast IP address will increment by 1 automatically. This is handy and less time consuming if the user is setting up a lot of spigots.

This has to be done for each Flow for each Spigot.

Note: The configuration of the Spigot dictates the type of signal carried on each of the Flows.

The “Spigot Status” window displays the incoming video standard.

The “Current” and “New” allow the user to copy the Multicast IP address etc. to the “Edit Template” menu from the “Current” area and paste from the “Edit Template” menu to the “New” area.

- **Flow 1** - this is SMPTE 2022-6
- **Flow 2** - this is RFC 4175
- **Flow 3** - this is Audio
- **Flow 4** - This is Metadata

Spigot Menu

In the Spigot menu, the user is able to set the video standard for individual Spigots using the **“Format”** parameter. Setting this parameter will allow more or less spigots to be used, depending on the type of format that is selected for the spigot.



The **“Streaming”** parameter will set whether there are Dual or Single QSFP cages being used on the selected IP Fin.

The **“Audio Delay”** parameter can be adjusted, if for instance the “Lip Sync” is out between audio and video signals.

The **Test Pattern** attacher is able to output a Color Bar signal test pattern on the selected Spigot.

Video Caption - allows the user to place text onto the test pattern.

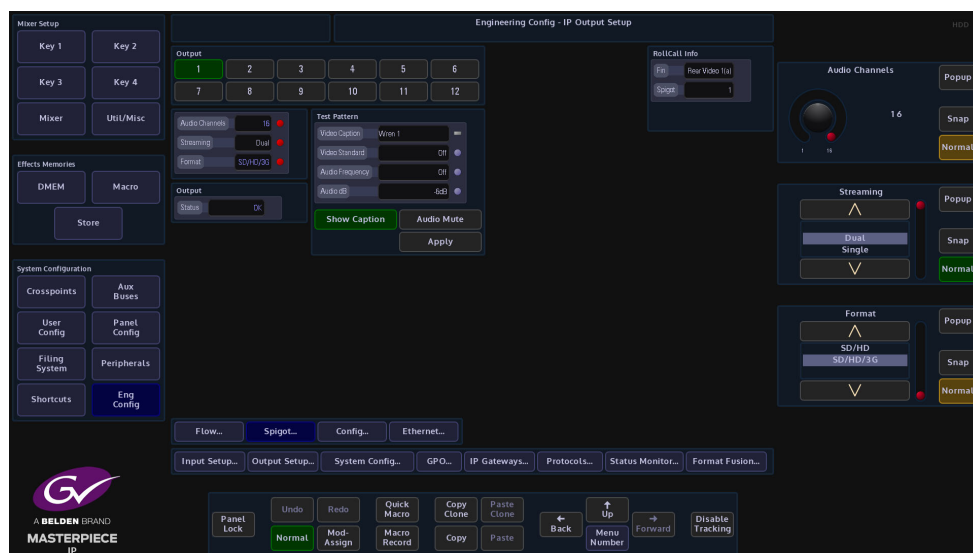
Video Standard - allows the user to set the video standard of the test pattern.

Audio Frequency - sets the audio frequency of the test signal.

Config Menu

The Config menu only allows the user to change the current “DDS Domain ID”.

Note: The software on the IP Output Fin has to be updated through RollCall directly to the IP Output FIN via the RJ45 Network port.



12

UHD Setup and Operation

UHD Quad and UHD 2SI

Working in UHD with Masterpiece, including Masterpiece SD/HD, is as simple as working in any other video format, the user can select between UHD-Quadrant mode or UHD-2SI mode. The setup menu structure is easy and intuitive and will allow the user setup UHD with just a few button presses. UHD demonstrates the power and flexibility of Masterpiece, where the 2x UHD Key Layers and 1x DSK are available, transitions are easy, a UHD Keyed source such as Clip transitions or UHD graphics can be keyed over the full UHD screen.

Connecting UHD to the Inputs and Outputs

The first step to understand when using UHD with Masterpiece is how to correctly connect a UHD source to the inputs and outputs of the mainframe.

Inputs to the Switcher Mainframe

There are 42 inputs on the mainframe, this will give the user 10x - UHD inputs (10 groups of 4 BNC inputs). The 4 quadrants of the UHD source have to be connected to consecutive BNCs so that the **Input Setup** menu can be setup correctly (this will be explained in the following sections).

The 4x UHD quadrants have to be connected in the following order, for example; Input 1 (top left), Input 2 (top right), Input 3 (bottom left) and Input 4 (bottom right), then the next source Inputs 5, 6, 7 and 8 following the Grass Valleye quadrant order. So, the first quadrant of each UHD source is connected to Inputs 1, input 5 and the next Input 9 etc.

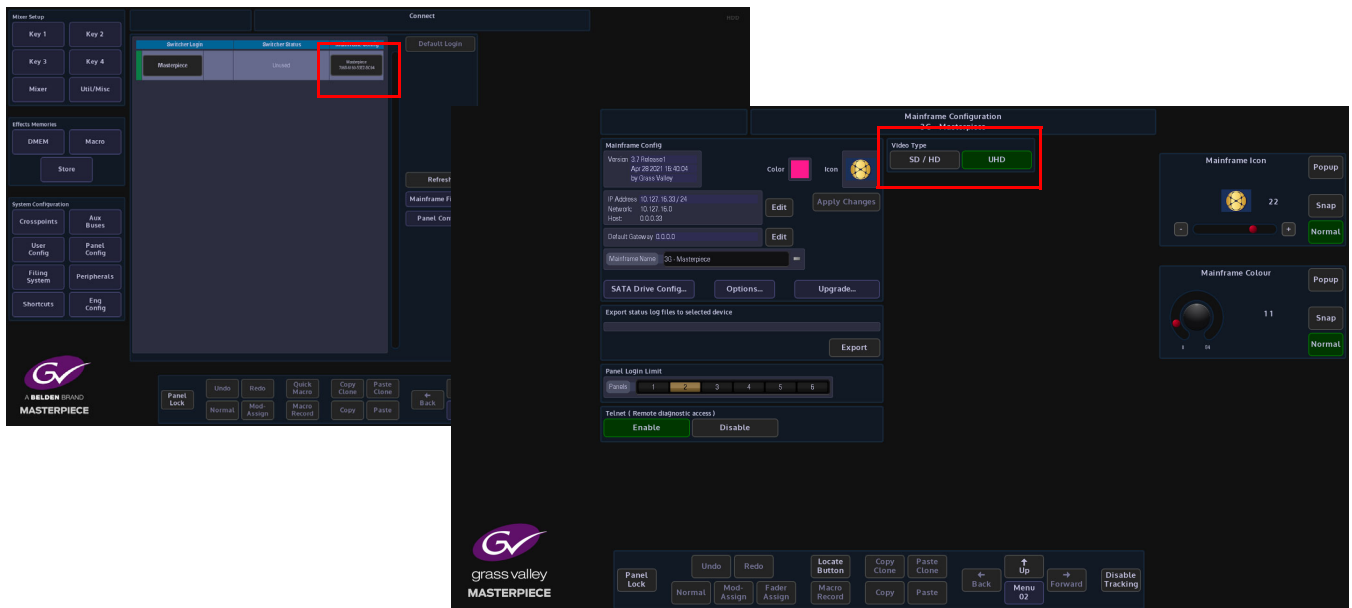
Outputs from the Switcher Mainframe

There are 12 outputs from the mainframe, this will allow the user to have 3x - UHD outputs, PGM (program), PVW (preview) and Clean. Once again, the 4 quadrants of the UHD source have to be connected to consecutive BNCs so that the **Output Setup** menu can be setup correctly. As with the input setup, the UHD quadrants have to be connected in the following order, for example; Output 1 (top left), Output 2 (top right), Output 3 (bottom left) and Output 4 (bottom right), then the next source Output 5, Output 6, Output 7 and Output 8. So, the first quadrant of each UHD source is connected to Output 1, Output 5, Output 9. The first quadrant **cannot** start at Output 2 or Output 6.

UHD Initial Setup

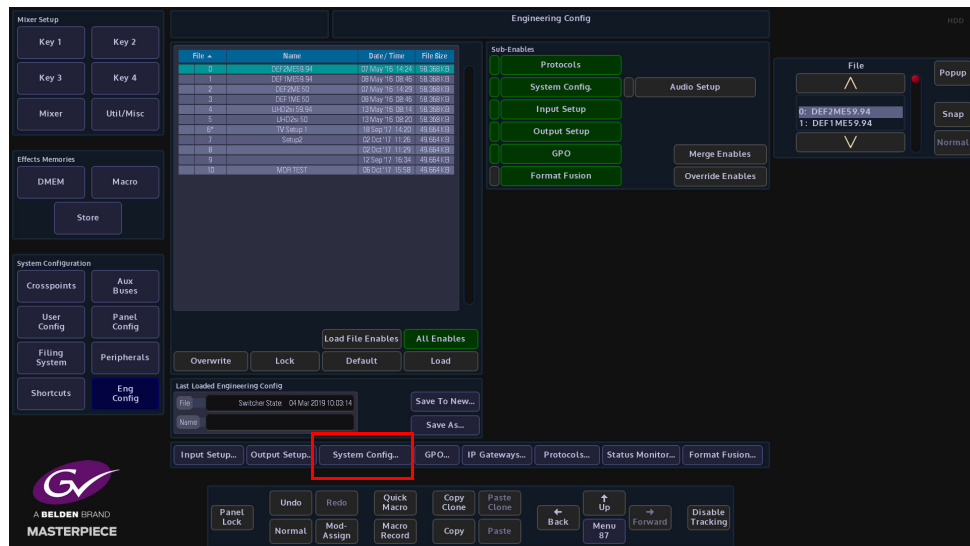
The first step in enabling UHD is in the “Mainframe Config” menu, in the logged out state in the connect menu.

Touching the **{Mainframe Config}** button will open the “Mainframe Configuration” menu.



Touch the **{UHD}** button to select UHD mode, then press the **{Up}** button to go back to the “Connect” menu, then touch the **{Switcher Login}** button to log back into the Masterpiece operational menus.

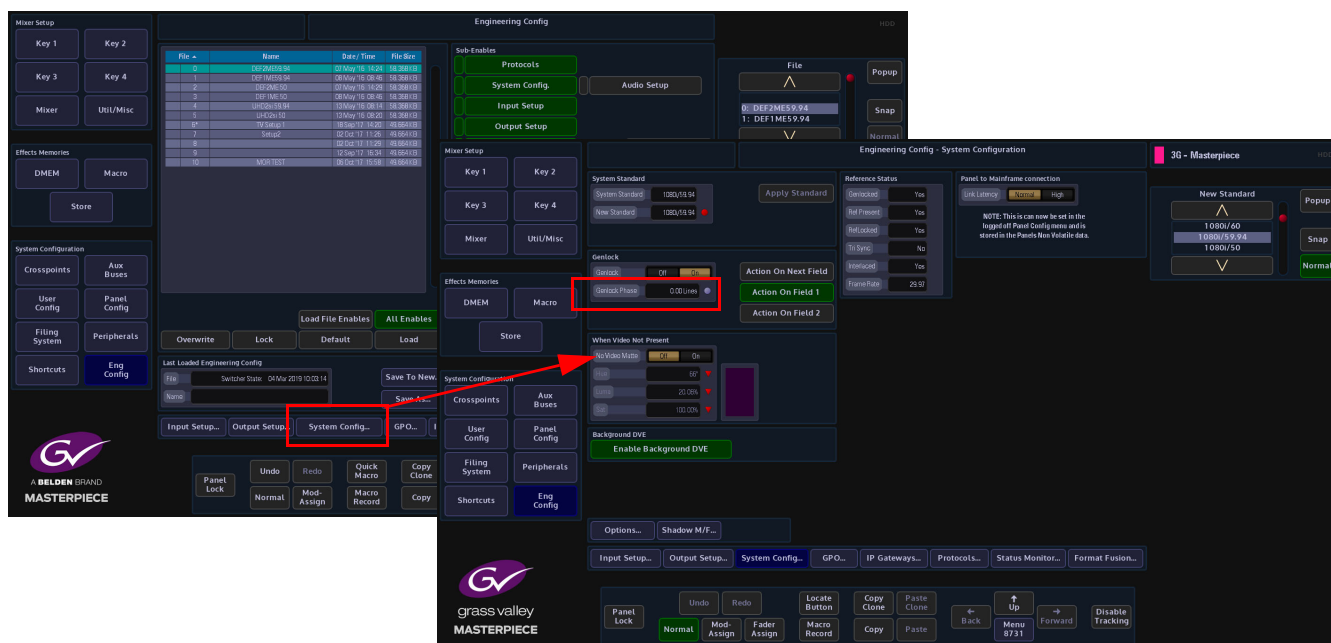
Once back in the “Connected to Masterpiece Mainframe” menu, touch the **{Engineering Config...}** button.



The Engineering Config menu is where the user will enable UHD mode and setup all the UHD inputs and outputs.

UHD Engineering Config Setup

In the Engineering Config main menu, touch the **{System Standard...}** button to enter the System Standard menu.



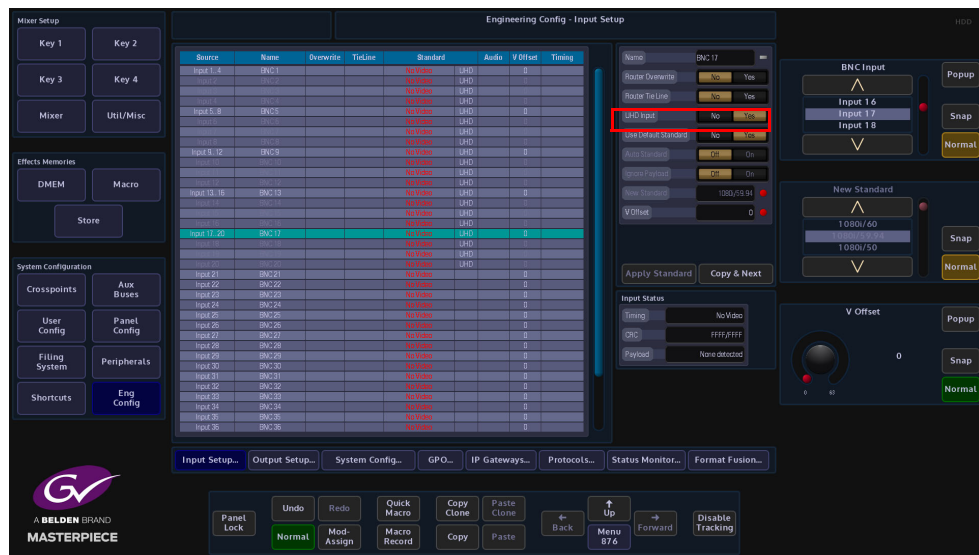
The System Standard menu can be set to “UHD Mode - Quadrant” or “UHD Mode - 2SI”, however the user can choose between the UHD standards by touching the “Popup” button top right to reveal a “New Standard” dialog box. From the dialog box the user can select what type of UHD standard the system is set to, as shown below.



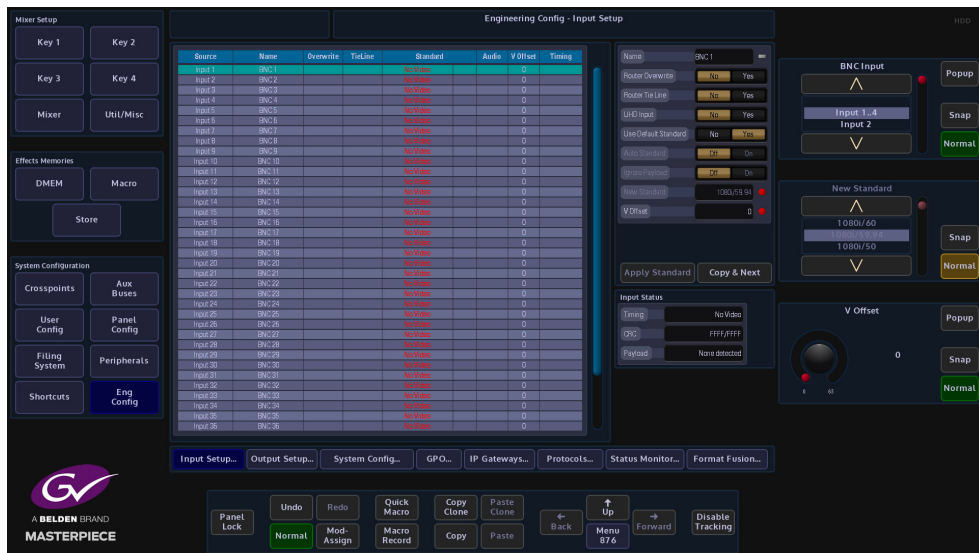
Select between UHD-Q or UHD-2SI, the frequency and the type of UHD required - UHD Segmented Frame or UHD Slow, then press the **{Apply Standard}** button. The next thing to do is to setup the Inputs and Outputs.

UHD Input Setup

Touch the **{Input Setup...}** button, in this menu the user will setup all the UHD inputs to the mainframe.



As stated at the start of this chapter, in UHD mode, there will be 4x inputs for every UHD source input to the mainframe, which consist of Input 1 (top left), Input 2 (top right), Input 3 (bottom left) and Input 4 (bottom right). Select Input 1, then touch the “UHD Input” **{Yes}** button. Notice that Inputs 1 to 4 are now ganged together as Input 1 (shown below).

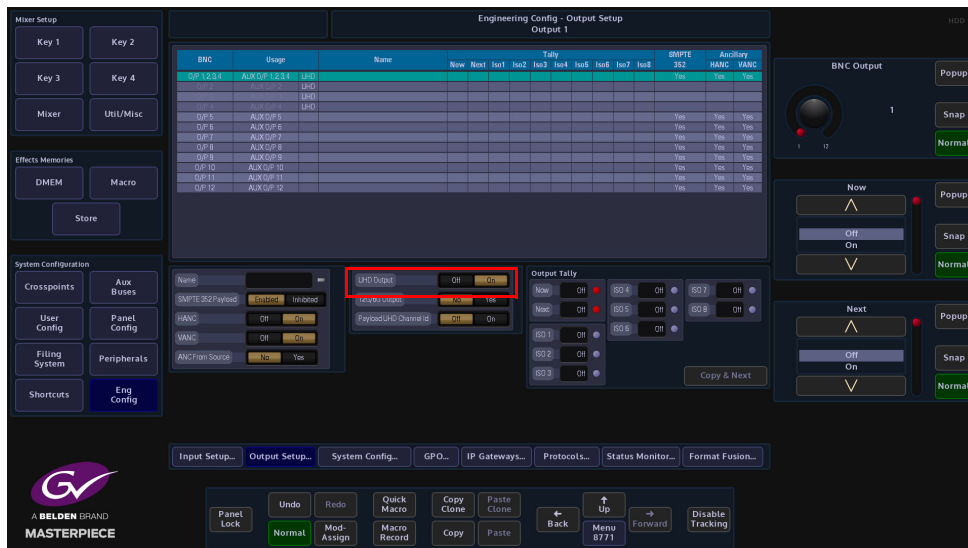


The next input to select is Input 5, then touch the “UHD Input” **{Yes}** button, then inputs 5 to 8 are ganged together. This can be repeated up to another 8 times, allowing ten UHD sources input to the mainframe.

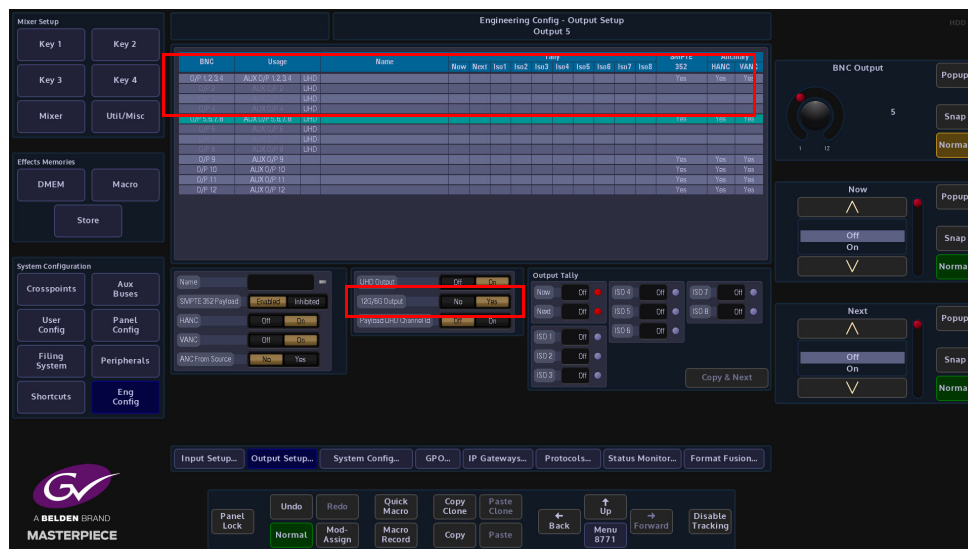
UHD Output Setup

Setting up the UHD outputs on Masterpiece is very similar to setting up the inputs, where the outputs are grouped in fours.

Touch the **{Output Setup...}** button and the menu will look like the one below.



Touch the OP1 row to select it, then set the “UHD Input” to **{Yes}**, the first 4 outputs are now ganged together (see below), in the Grass Valley way as the inputs, so now Outputs 1 to 4 make up the first UHD-quad output.

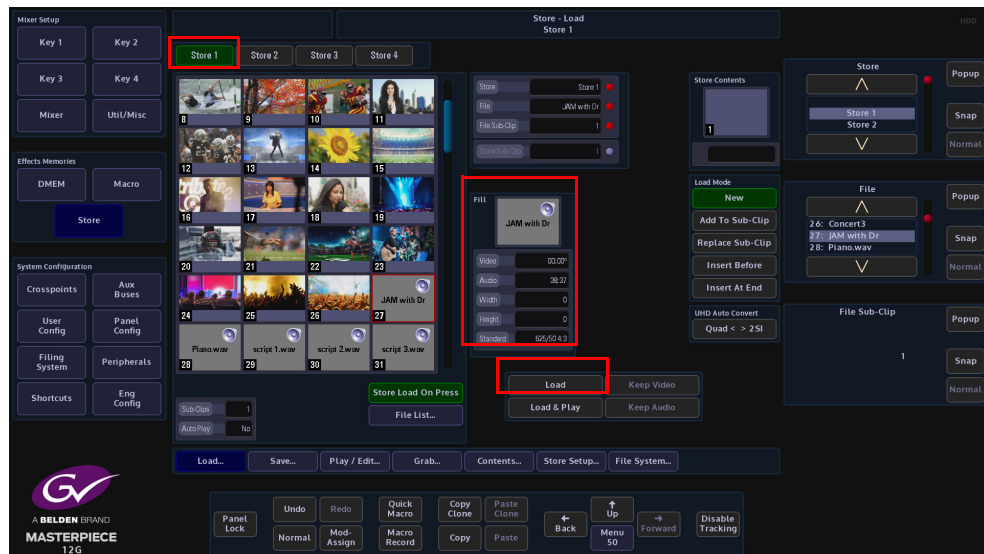


As can be seen above, the first UHD-quad output has been named PGM, now select Output 5, and turn on “UHD Output” and once again outputs 5 to 8 will be ganged, use the “Name” parameter to call the second UHD-quad output PVW.

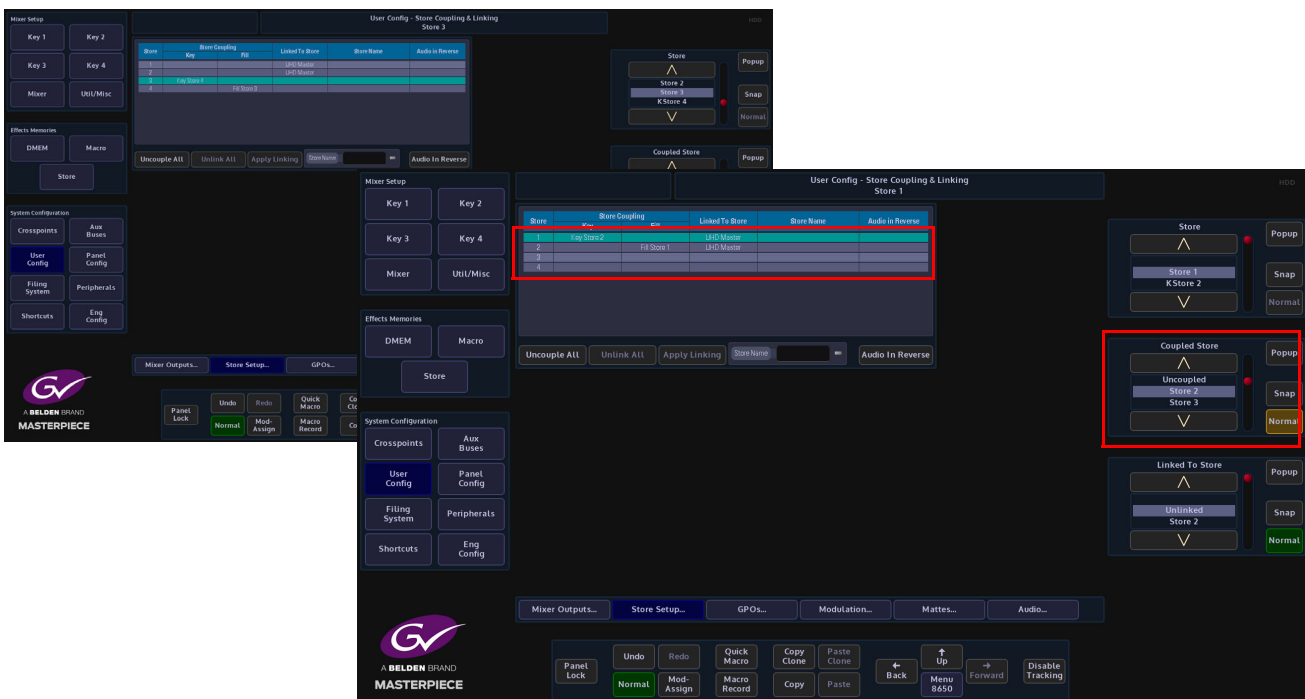
Payload UHD Channel Id - Adds the Channel ID data when in UHD such that downstream equipment can identify the 4 channels.

UHD Stores

There are two UHD Stores and two 1080p Stores available to use in the Store menu in UHD mode. With the system set to UHD mode, touch the **{Store}** button to open the “**Store - Load**” menu.



As can be seen in the menu above, there are 4 Stores available to use, Stores 1 & 2 are the UHD Stores, Stores 3 & 4 are the 1080p Stores. To load a UHD still into a Store, select **Store 1** for example and then touch the **{Load}** button. The video standard, aspect ratio, video clip duration and audio clip duration is displayed in the “Fill” area in the center of the menu.



If a UHD Store has Key and Fill layers, then the two layers will need to be coupled. Touch the **{Store Setup...}** button, then select Store 1 in the table and then touch the “Coupled Store” parameter, the Key and Fill between Store 1 & 2 is now coupled and ready to key over a background image.

UHD Transitions and Wipes

Transitions and Wipes in UHD mode, works exactly the Grass Valley way as using Masterpiece in any other video format. All of the wipe patterns, wipe controls, border fill and border position all work in exactly the Grass Valley way.



Note: For further information about setup and using the Transition function, see the “Operator Information” chapter in this manual.

13

Keying and DVE Operation

Keying

Keying Theory

Keying is the process of inserting a specific part of one video signal (Key signal) into another video signal (background) to create a third signal. The Key signal has two jobs and may be one signal or two. It has to cut a hole into the background and Fill that hole with a picture, or a matte.

Where two signals are used one, the Key Cut, cuts the hole in the background and the other, the Key Fill, Fills that hole. The Fill has to be shaped to match the hole.

Where one signal is used it both cuts and Fills the hole. This process of Keying with a single signal is known as a self Key or video Key.

There are two types of Keying available with Masterpiece; they are Luma Keying and Linear Keying.

Linear Keying

Linear Keying is used where the Key signal is already Keyed, i.e., the area outside the required video is at black level. It is also used where there are separate Key Cut and Key Fill signals. The Key signal(s), (Cut and Fill) are usually anti-aliased (soft edged) shaped signals created by a character generator or graphics system.

Luma Keying

Luma Keying is a Keying system that is typically used on sources that are not pre-Keyed, such as those from a camera. The Key Cut signal is generated from the video signal using lift and gain controls. The portions of the signal that is lower in luminance than the lift level cut the hole in the Key Layer.

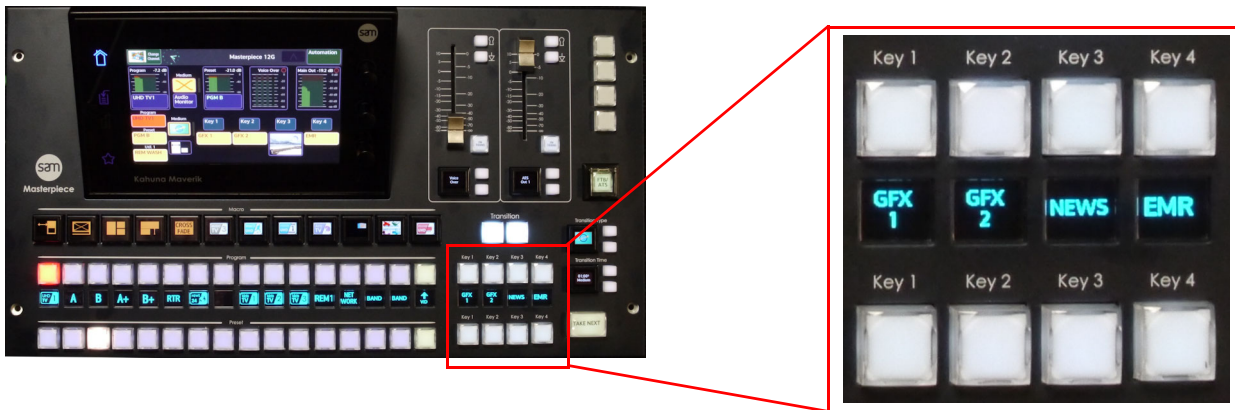
The Key lift and gain levels are user adjustable.

The Fill may be the Grass Valley source as the Cut or from a different source, or matte generator. When only one source is used for both Key Fill and Key Cut the Key is called a Self Key or a Video Key.

Accessing Keys on the Control Surface.

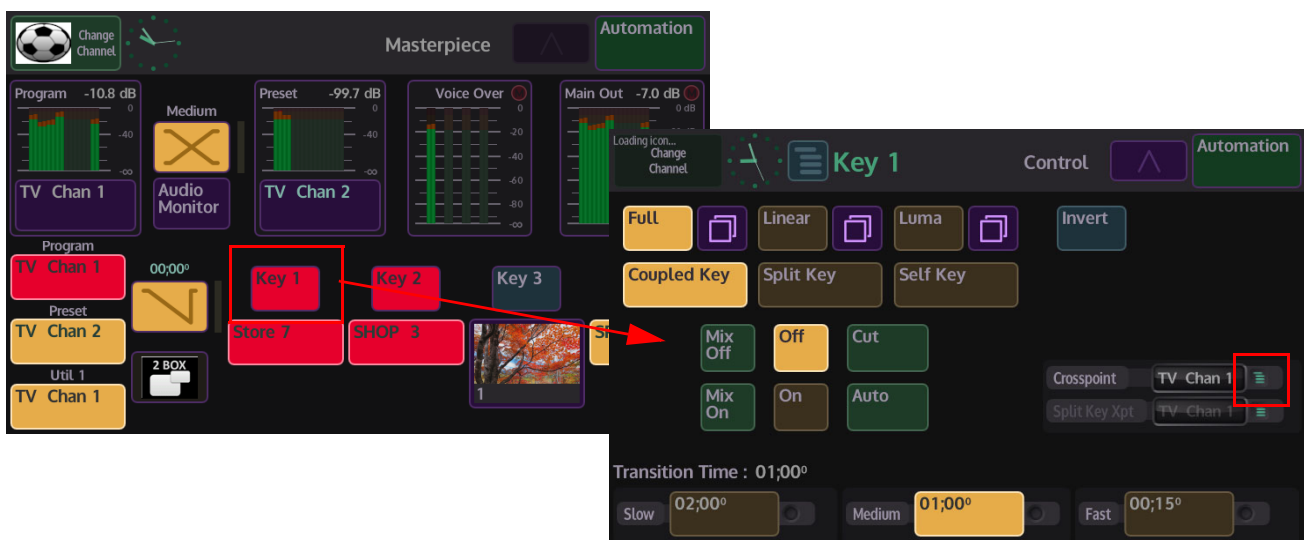
The Masterpiece has 4 Key buttons on the control surface. The top row of buttons (Key 1 to Key 4) cut the Key layer On and Off, the bottom row will place the selected Key onto the Preset background ready for when the next transition takes place.

A Key can also be used in “Dual Tile” mode when working in the Key DVE menu. This will create an extra Key layer tile from one Key, meaning that the original 4 Key Layer tiles are now 8 key layer tiles in Dual Tile mode (explained later in this section).



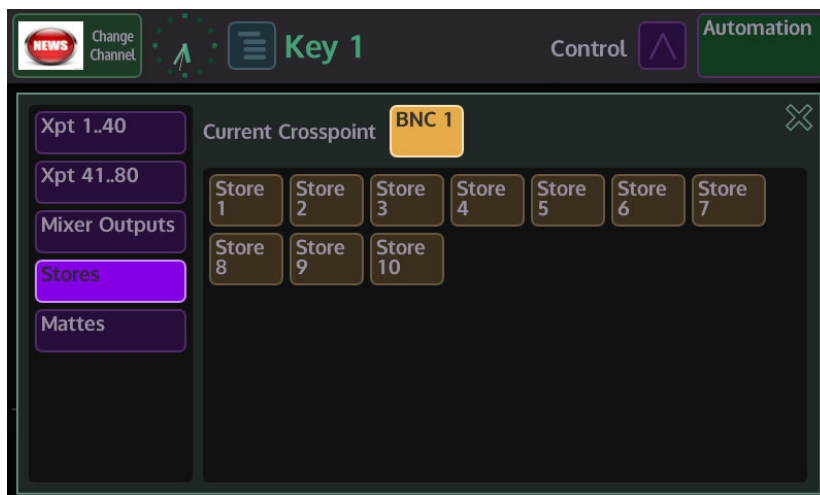
Placing a Key Layer onto a Background

The first step is to select a source for the Key. On the Masterpiece GUI, in the home menu, touch the Key (1 - 4) that you want to place on the background. The Key Control sub menu will be displayed.

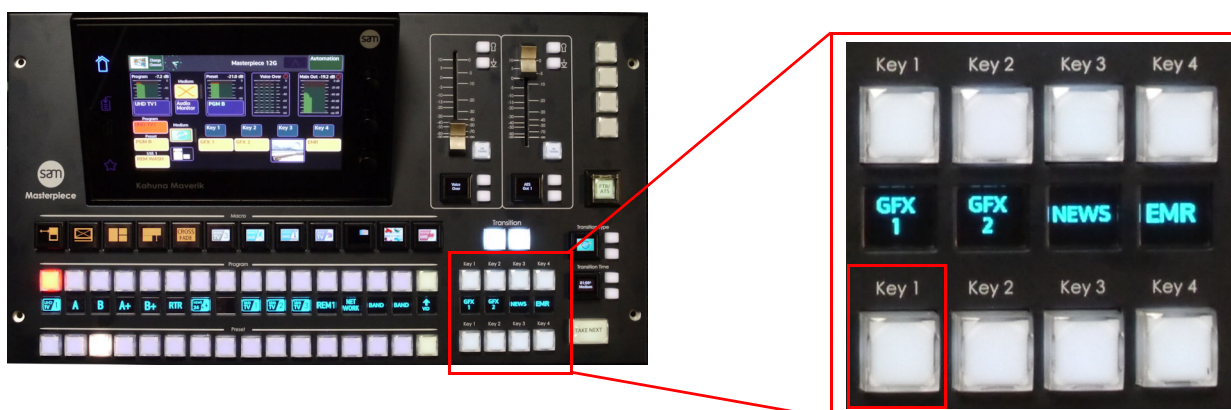


Use the “**Crosspoint**” parameter to select the source for the selected Key by touching the option list select button. This will open a list of sources that can be assigned to the Key layer.

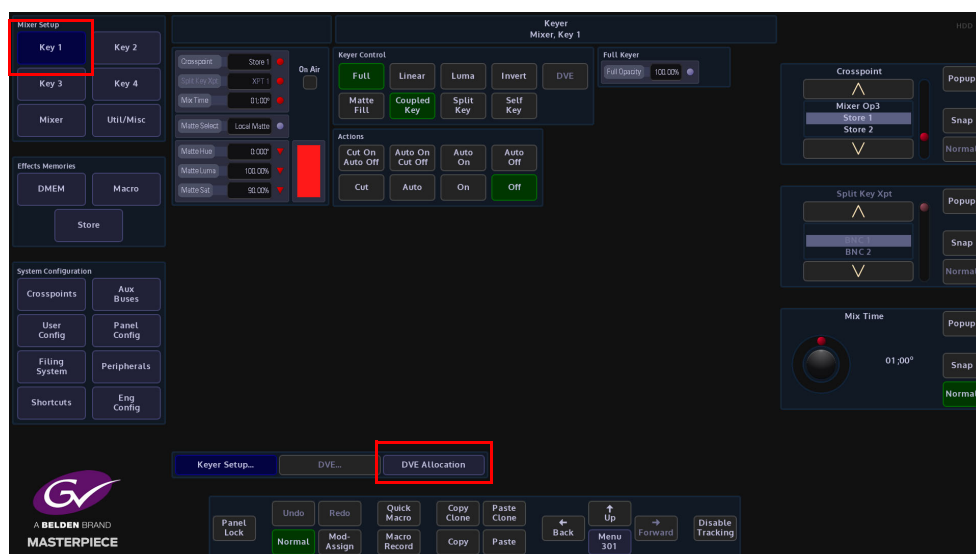
In the example below, the source for the Key layer is selected from the Stores list and “**Store 7**” is selected. You can select sources form Crosspoints (Xpts), Mattes, Stores etc.



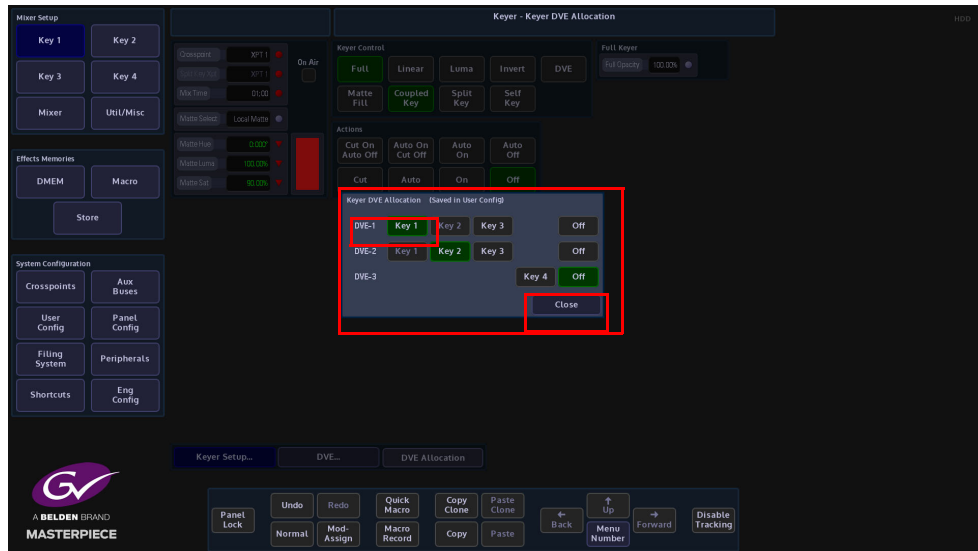
As mentioned earlier, touch the bottom Key selection button and the Key layer is displayed on the Preset monitor, by default, the Key layer is full size over the background.



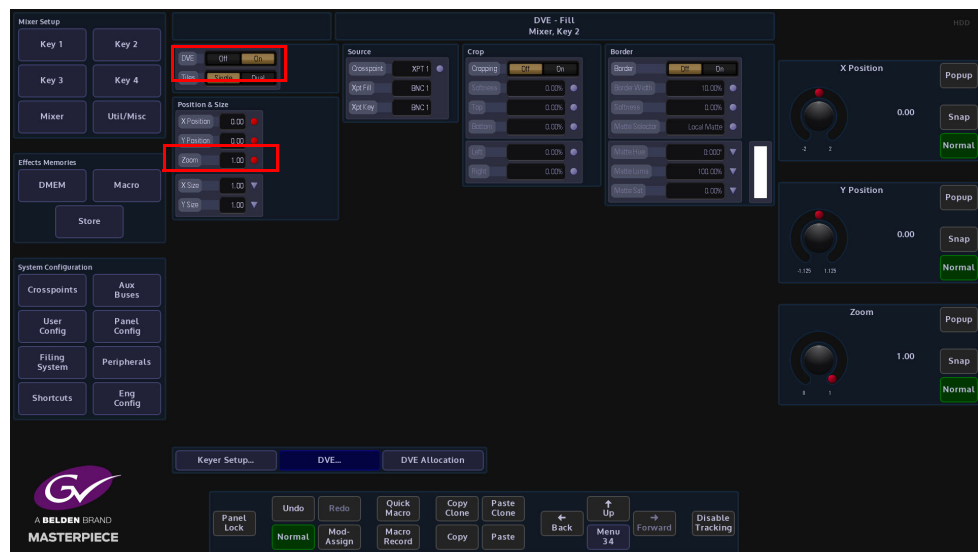
To zoom the Key layer down, touch **{Key 1}** button, top left of the menu on the large touch screen monitor. This will open the “**Mixer, Keyer 1**” menu.



Then touch the **{DVE Allocation...}** button, which is towards the bottom of the menu. The **“Keyer DVE Allocation”** menu will open.



In this menu, you can select which Key has DVE functionality applied. As the example in the menu shows, DVE-1 has Key 1 selected. Touch **{Close}** and the DVE parameters are displayed.



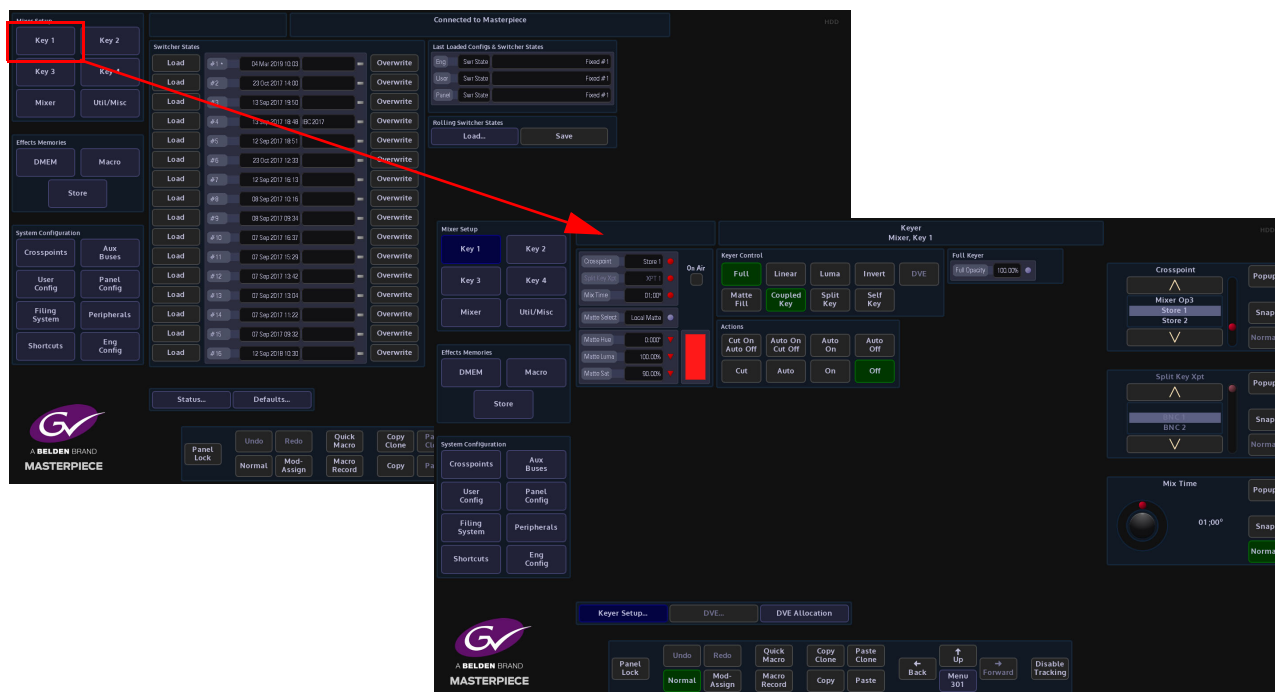
Turn the DVE function **“On”** and then use the **“Zoom”** parameter to zoom the Key layer down. You can now see the background behind the Key layer. Zoom and X/Y position the layer as required.

The Key buttons toggle On/Off when pressed. With no Key Layer selected the buttons are unlit, when pressed the button will either light white/blue or tallied red. The Key Layer can now be seen on the monitor.

Note: White = off air, Red = tallied on air and contributing to the program output

Keyer Operation

To get to the Keyer menus, touch one of the **“Key”** buttons {**Key 1**} (in this example) button in the top left corner of the menu. The **“Mixer, Key 1”** menu is displayed as shown below:



Crosspoint - this parameter is used to select the source for the selected Key.

Split Key Xpt - this parameter is used to select the Key source when using “Split Key” mode.

Mix Time - sets the time where a Matte-mix source passes through the Matte color before reaching the selected signal.

Matte Select - (when “Matte Fill” is selected) selects between Local Matte or Mattes 1 to 16.

Matte - Hue, Luma Sat - (when “Matte Fill” is selected) adjusts the color of the Local Matte only. The Local Matte color adjustment is displayed as the color bar next to the parameter controls.

Using Keyer Control and Actions

The type of Keying required is selected using the buttons below.



Full - The Fill is a full layer over the background hiding it completely.

Linear - Selects a Linear Key (see the first section of this chapter).

Luma - Selects a Luma Key (see the first section of this chapter).

Invert - Inverts the Key signal so that the parts, which were Keyed off, become Keyed on and vice versa.

DVE - this will turn the DVE functionality "On/Off" if the Key is selected in the DVE Allocation menu.

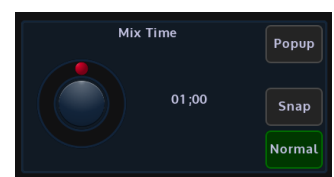
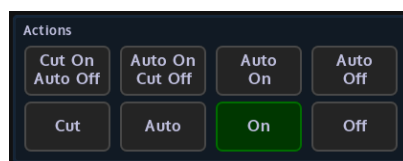
Matt Fill - when this function is selected the Key layer is filled with a Matte. The color of the matte is determined by the Matte Select parameter.

Coupled key - (Latching) Uses the Fill and Key sources allocated to the crosspoint.

Split Key - (Momentary) Allows the Fill and Key sources to be split across two different crosspoints. The Fill is selected on the Key bus in the normal manner. The Key source is that allocated to the crosspoint selected on the Key bus with the Split Key button pressed and held down. When in Dual Tile Mode the Xpt selection for each tile can either be done using the Split key button.

Self Key - (Latching) In Coupled Key mode Self Key causes the Key, as well as the Fill, to be derived from the Fill source allocated to the crosspoint, also known as a Video Key. In Split Key mode Video Key causes the Key to be derived from the Fill source of the crosspoint used as the split away.

The "**Actions**" buttons determine the actions of a Key layer when using Key Transition.



Cut On Auto Off - this will immediately cut the Key layer On, then "Mix" the Key layer off depending on the time set by the "Mix Time" parameter.

Auto On Cut Off - this will "Mix" the Key layer On depending on the time set by the "Mix Time" parameter, then cut the Key layer Off.

Auto On/Auto Off - this will "Mix" the Key layer On/Off depending on the time set by the "Mix Time" parameter.

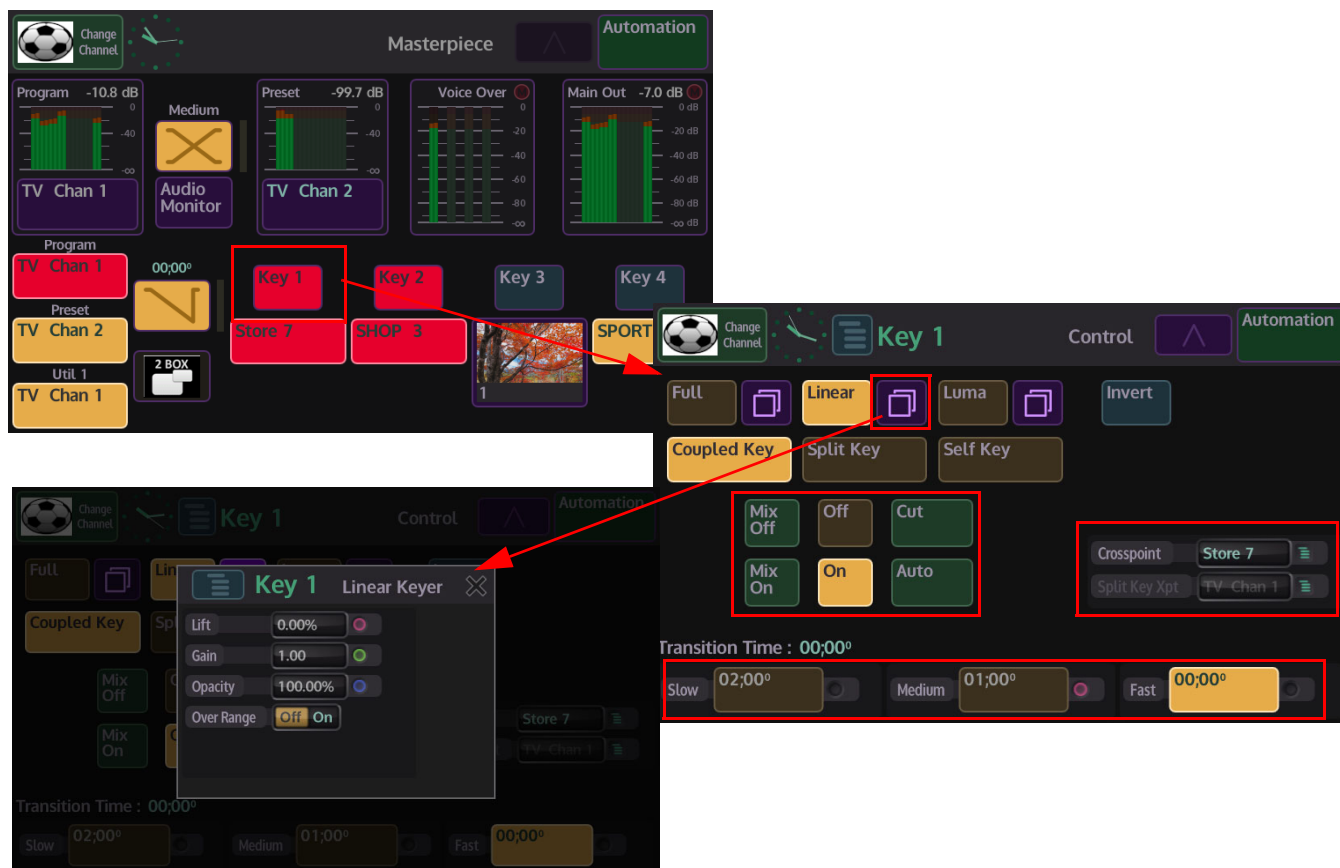
Cut - this will cut the Key layer On on the first touch, then Off on the second touch.

Auto - this will "Mix" the Key layer On on the first touch, then Off on the second touch depending on the time set by the "Mix Time" parameter.

On/Off - this will turn the Key layer On or Off. Like touching one of the top row of Key buttons on the control surface.

Keyer Functions on the Masterpiece GUI

You can setup a Key layer with many of the main parameters as explained in the previous section using the Keyer menus on the Masterpiece GUI

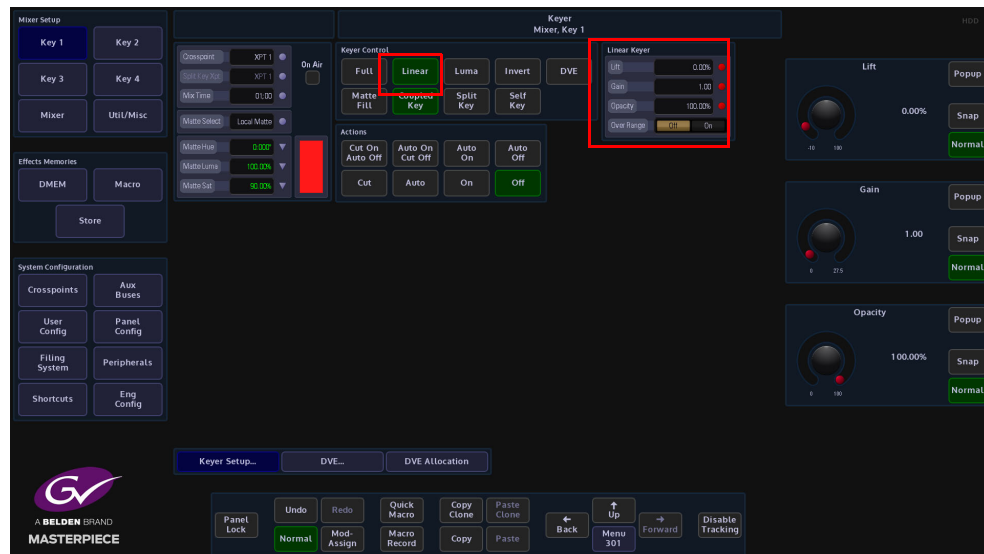


In the home menu, touch one of the Key menu link buttons and the “Key Control” menu will be displayed. When selecting the Full, Linear or Luma options, touch the menu expander button to further control options.

Auto Mix functions can also be setup with the Transition Time parameters. Sources for Key layers can also be selected.

Linear and Luma Keying

The Linear and Luma Keyer menus look similar. They each have independent sets of lift level, gain and opacity controls. The exception being the Shaping parameter in the Luma Keyer.



Lift - sets the Linear level at which the Key operates.

Gain - affects the sharpness of the lift point.

Opacity - controls how transparent the Key is.

Over Range - Masterpiece expects a video range Key of 64 to 940, the video range Key is used internally throughout the system.

If an external CG Key generator is providing a "full range" external Key of 4 to 1019, this would be classed as technically illegal video.

In this situation, the Over Range parameter can be used to bring the full range of a Key back within the video range Key levels.

When using sources that are not pre-Keyed, such as those from a camera, the Key cut signal is generated from the video signal using lift and gain controls. The portions of the signal that are greater in luminance than the lift level cut the hole in the background.

The Key lift and gain levels are user adjustable. The Fill may be the Grass Valley source as the Key or from a different source, or matte generator.

Note: When only one source is used for both Fill and Key, the Key is sometimes called a Self Key or a Video Key.

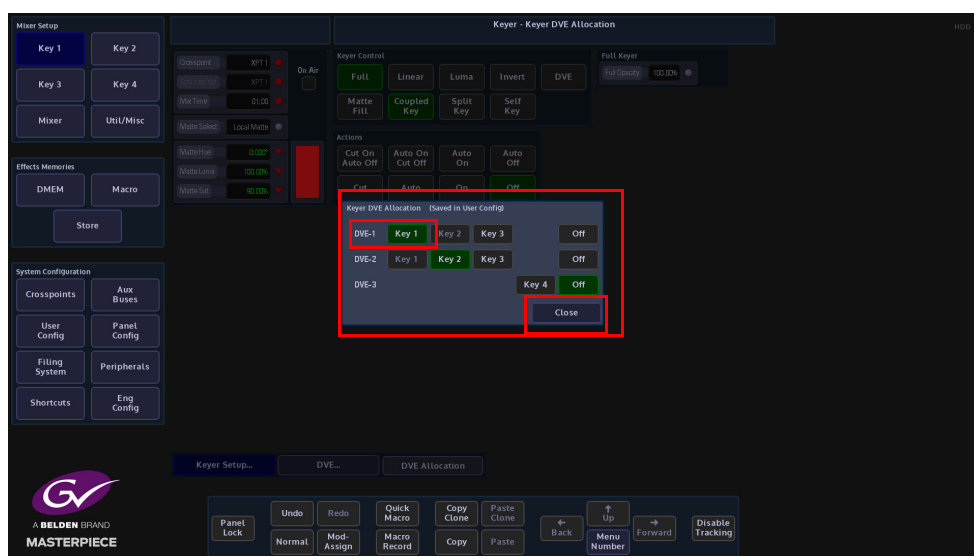
Key DVE Operation

The DVE parameters allow the user to position and size a Key Layer, add a Border around a Key Layer or Crop a Key Layer.

When enabled the DVE can be set to manipulate a Single or Dual Tile (which will be explained later in this section).

You can choose which source they wish to manipulate using the “Crosspoint” parameter. Touch the PopUp button to select Xpt, Matte or Stores.

To use the DVE functions with key layers, you will first have to allocate Keys to the DVE channels. Touch the **{DVE Allocation...}** button, which is towards the bottom of the menu. The “**Keyer DVE Allocation**” menu will open.

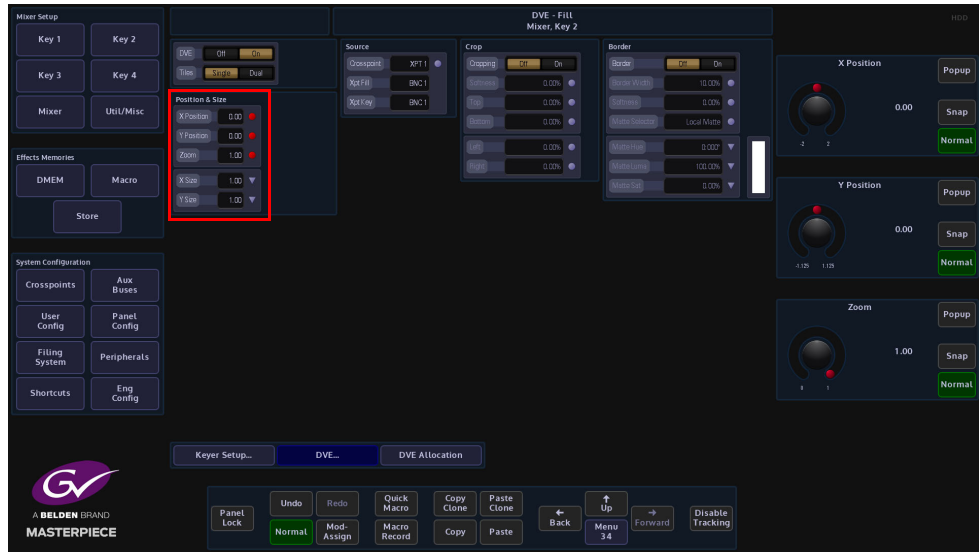


In this menu, you can select which Key has DVE functionality applied. As the example in the menu shows, DVE-1 has Key 1 selected. Touch **{Close}** and the DVE parameters are displayed.

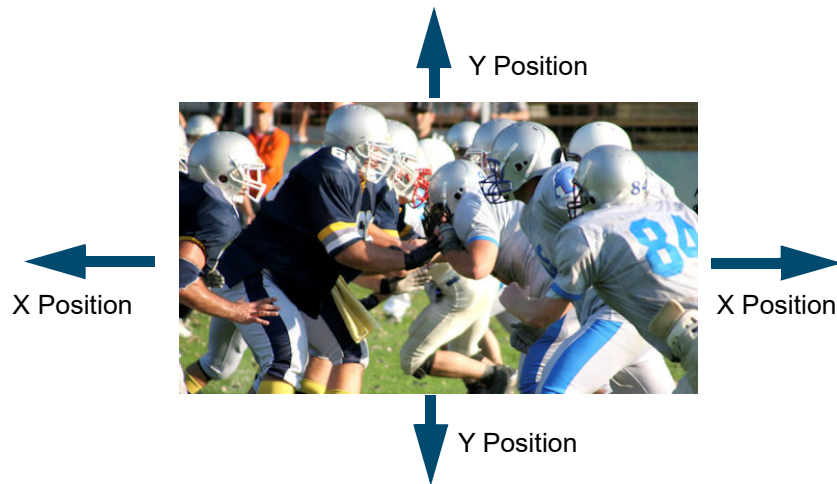
You can now start to use the DVE functions on Key layers.

Position & Size

Make sure that the DVE function "On". The **Position & Size** attacher area, allows the you to move a Key Layer around the screen and to zoom in/out.



X/Y Position - Parameters are used to move the position of the Key Layer around the monitor screen as shown below.

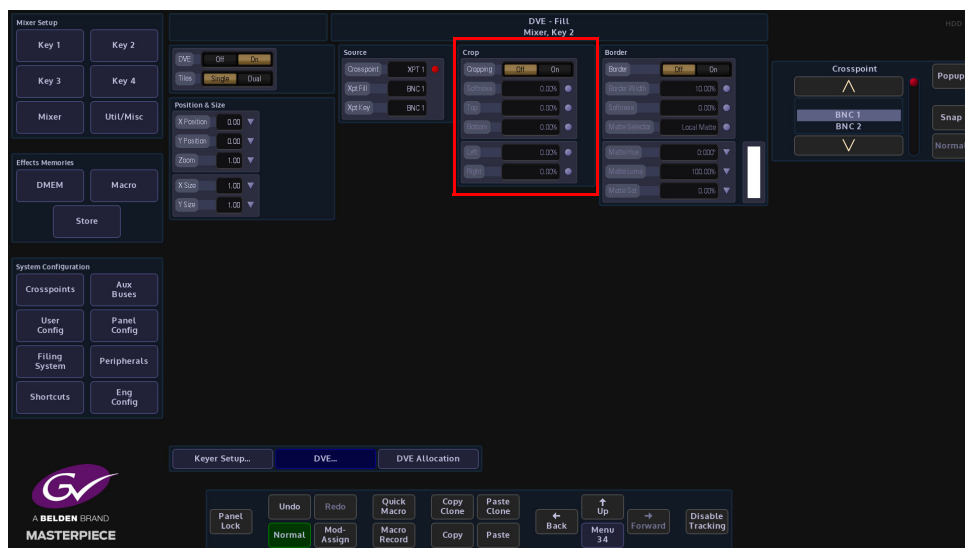


Zoom - Parameter is used to zoom the Key Layer in and out.



Crop

The crop menu as it suggests allows the user to crop the Key Layer, and also allows the user to apply soft edges.



Cropping On/Off - Switches the crop facility On or Off,

Top, Bottom, Left and Right - Crops the Fill edges



Original Key Layer



Right Crop



Bottom Crop



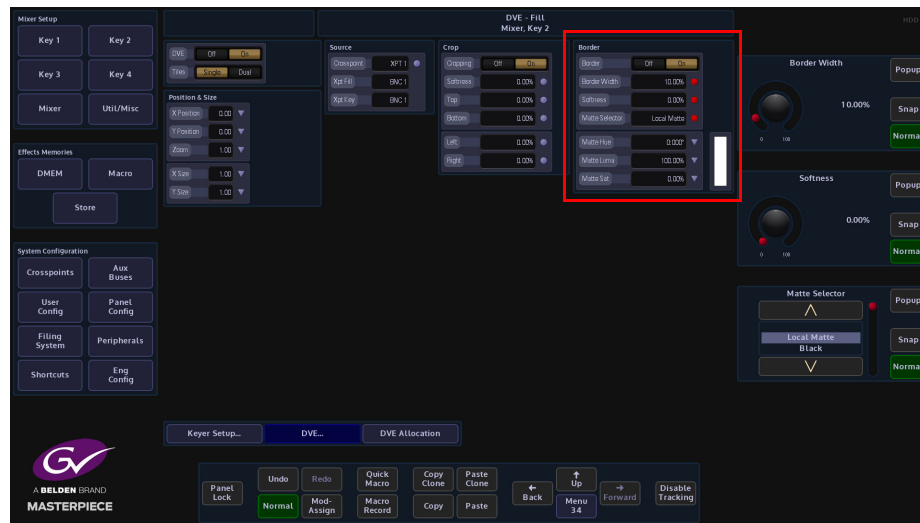
Left Crop



Top Crop

Border

This function allows the user to apply a border and effects around a Key Layer.



Border On/Off - Switches the Border On or Off

Border Fill - Selects source for the border fill from a Matte selected using the Matte Selector parameters, Util 1 or Util 2

Border Width - Adjusts the overall width of the border

Softness - Softens the outside edges of the border



Original Key Layer



Border Applied



Border Width Adjusted



Changed Border Fill

The **Matte Selector** and **Hue, Luma and Sat** parameters are used to adjust the color of the border around a Key Layer when the option is selected in the Border Fill parameter. The user is able to select one of 16 preset Mattes, or create a user-defined color for the border using the Hue, Luma and Sat parameters.

Matte Selector - Selects the preset Mattes 1 to 16 or a Local Matte that allows the user to create a their own border color.

Matte Hue, Luma and Sat - These parameters allow the user to adjust the Hue, Luma and Saturation levels of the Local Matte. The user is able to create their own unique border color around a Key Layer.

Dual Tile

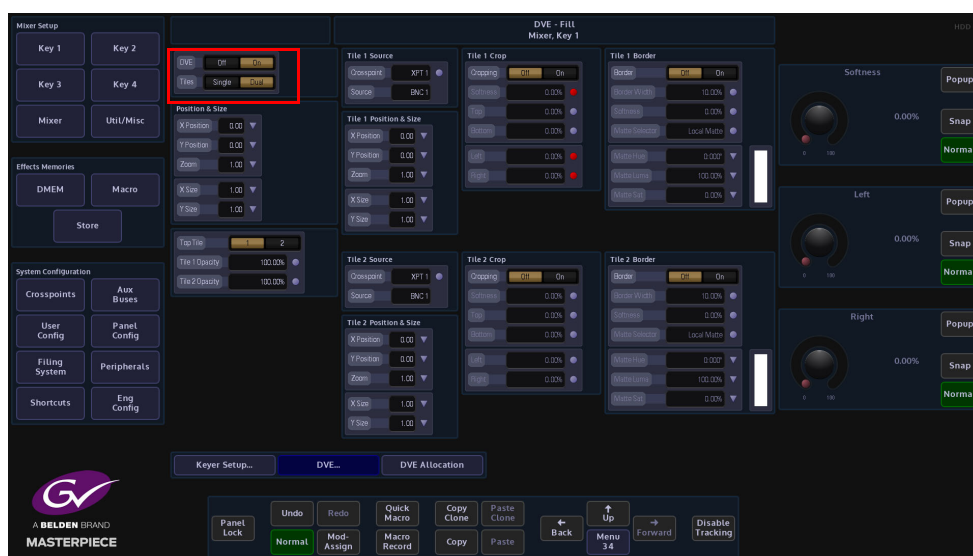
This function allows you to take an existing Key Layer and create 2 Tiles (Key Layers) that can be independently resized (Zoom), moved along the XY axis, and cropped.

The Dual Tile mode will now give:

- 4 Keys can now be used as 8 Tiles

The Dual Tile mode is easy to setup and easy to use. To use this function, bring a Key Layer onto a monitor and use **“Dual Tile”** On, then select **“Tile 1”** in the Key Control area of the control panel to Zoom down the Key Layer.

Note: When in Dual Tile Mode the Xpt selection for each tile can be done using the **{Split Key}** button.



Key 1 Over
a background

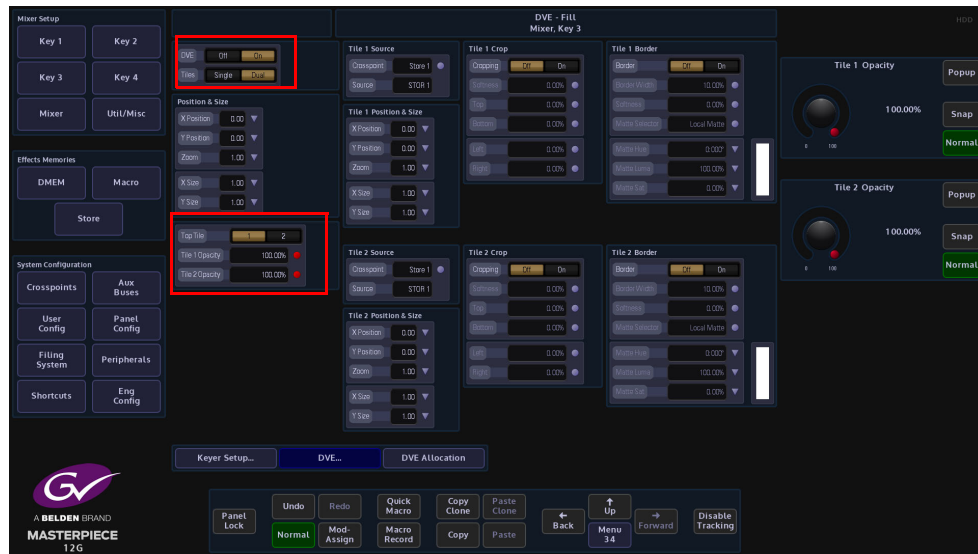
Dual Tile Menu

With a Key Layer on the monitor, make sure that the “DVE” parameter is turned “On” and then select “Tiles” Dual. Notice that the menu is split in two “Tile One” and “Tile Two”.

Note: At this point you will only be able to see one tile, the other is underneath.

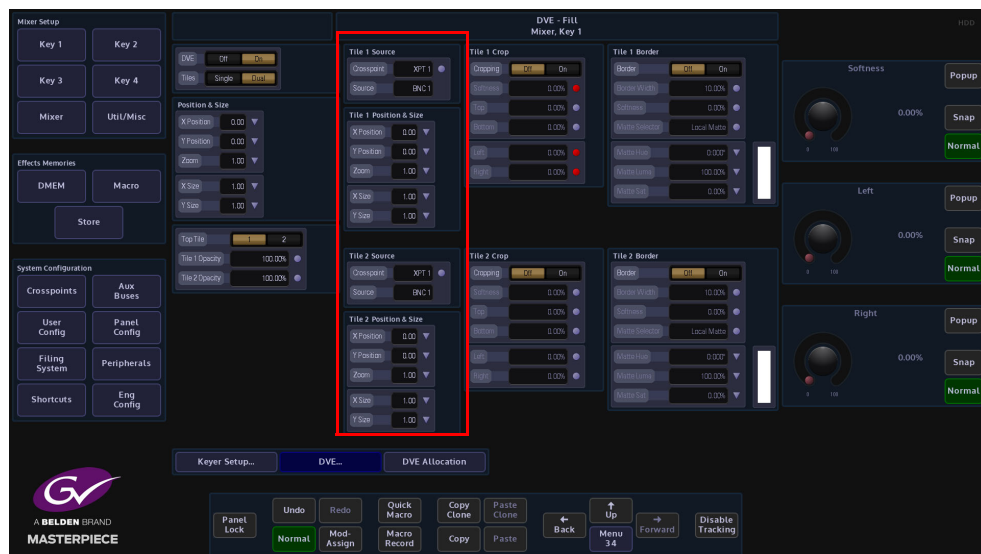
Use the “Top Tile” parameter to swap around the tile priority, the bottom tile becomes the top. The parameter controls for Tiles 1 and 2 are exactly the Grass Valley. The parameters for Tile 1 will be described in this section.

Use the “Crosstoint” attacher to select the source for Tile 1. This can be a Xpt source, Matte or Store.



Tile 1 Position & Size

The **Position & Size** attacher area, allows the user to move a Key Layer around the screen and to zoom in/out.user-defined

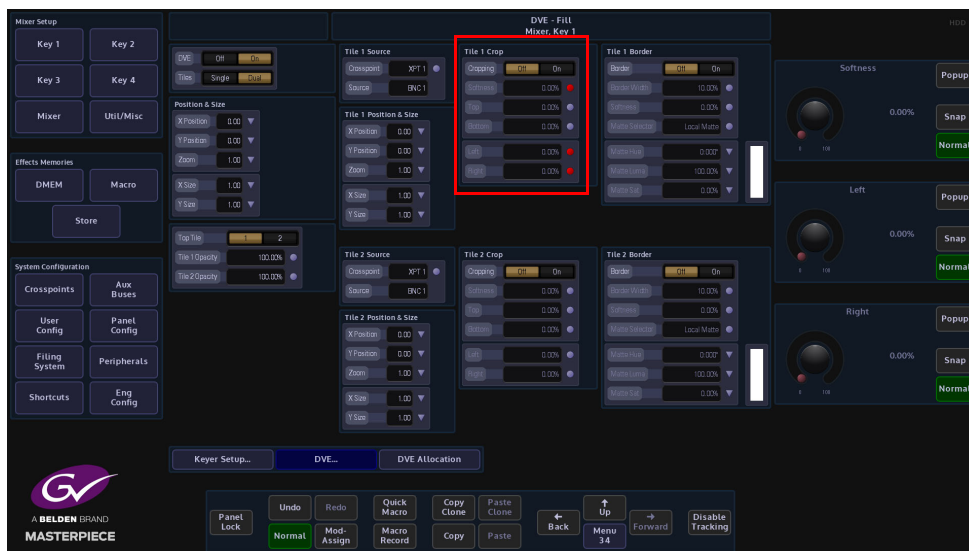


X/Y Position - Parameters are used to move the position of the Key Layer around the monitor screen.

Zoom - Parameter is used to zoom the Key Layer in and out.

Tile 1 Crop

The crop menu as it suggests allows the user to crop the Key Layer, and also allows the user to apply soft edges.

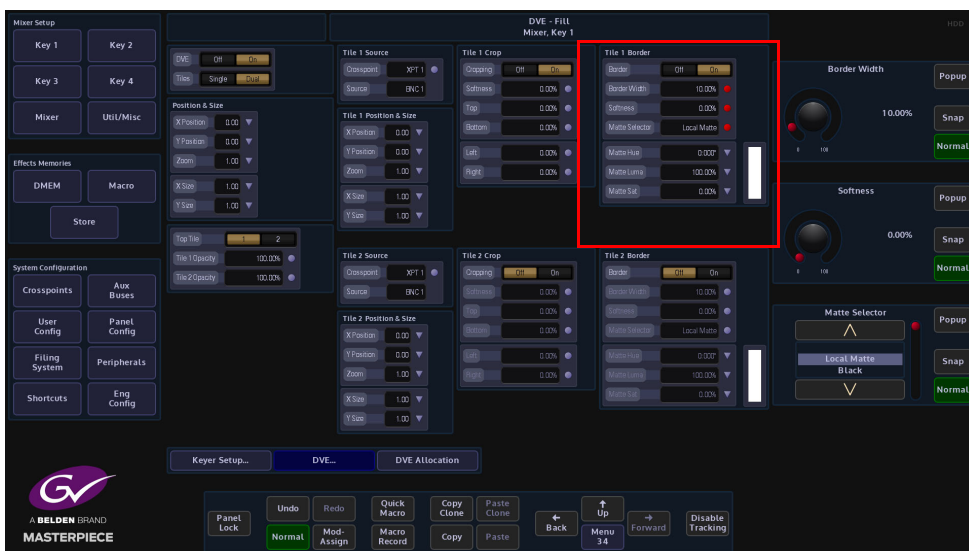


Cropping On/Off - Switches the crop facility On or Off, press the On/Off buttons in the parameter control area of the menu.

Top, Bottom, Left and Right - Crops the Fill edges

Tile 1 Border

This function allows the user to apply a border and effects around a Key Layer.



Border On/Off - Switches the Border On or Off

Border Fill - Selects source for the border fill from a Matte selected using the Matte Selector parameters, Util 1/Util 2.

Border Width - Adjusts the overall width of the border

Softness - Softens the outside edges of the border

The **Matte Selector** and **Hue, Luma** and **Sat** parameters are used to adjust the color of the border around a Key Layer when the option is selected in the Border Fill parameter. The user is able to select one of 16 preset Mattes, or create a user-defined color for the border using the Hue, Luma and Sat parameters.

Matte Selector - Selects the preset Mattes 1 to 16 or a Local Matte that allows the user to create a their own border color.

Matte Hue, Luma and Sat - These parameters allow the user to adjust the Hue, Luma and Saturation levels of the Local Matte, the user is able to create their own unique border color around a Key Layer.

Moving the two tiles so that both can be seen

The two tiles are controlled using the Tile Position & Size parameters. Using the XY parameters for Tile 1, the tile will move as expected and move away from Tile 2.



Note: If you use the "Main" Position & Size; XY or Zoom parameters, both of the tiles will move together.

14

Mixer and Transitions

Types of Transition

The three main types of transition that will be described in this section of the manual. These are:

- Background Transitions
- Key Transitions
- Audio Transitions



Setting Basic Transitions

Independent transitions can be set for the Background, for each of the Key Layers.

Basic Background Mix Transition

On the control surface select one source on the Program Bus and a different source on the Preset Bus and make sure that the [VID TRANS] button is selected. Touch the {Mixer} button, then in the Transition menu, touch the {Background} button to enable the background for transitioning, select "Mix" and then press the [TAKE NEXT] button. Notice that a transition is made between the selected crosspoint sources on the Background A/B.

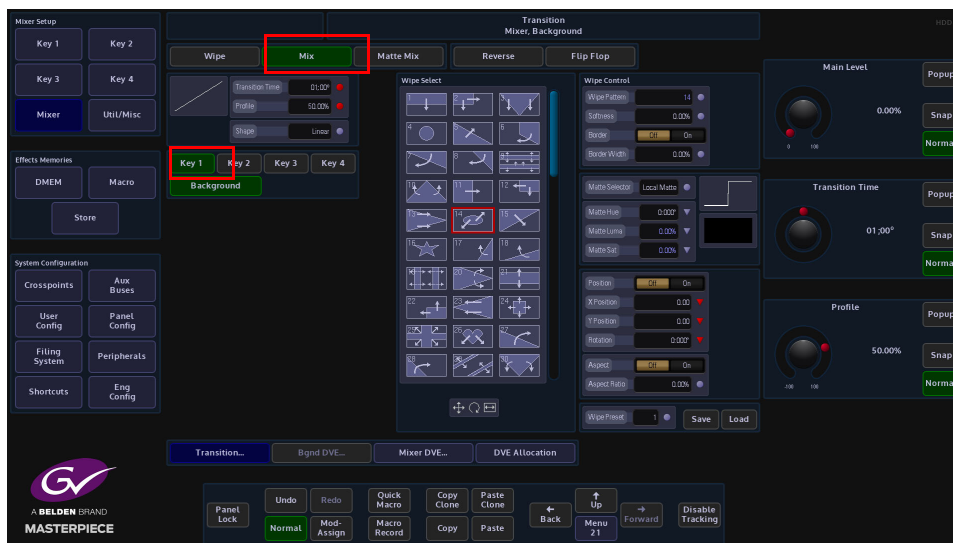


Basic Background Transition with a Wipe

On the control surface select one source on the Program Bus and a different source on the Preset Bus and make sure that the [VID TRANS] button is selected. Touch the {Mixer} button, then in the Transition menu, touch the {Background} button to enable the background for transitioning, select "Wipe" touch one of the wipe patterns in the center of the menu and then press the [TAKE NEXT] button. Notice that a transition is made between the selected crosspoint sources on the Background A/B with a wipe pattern as the transition happens.



Basic Key Transitions



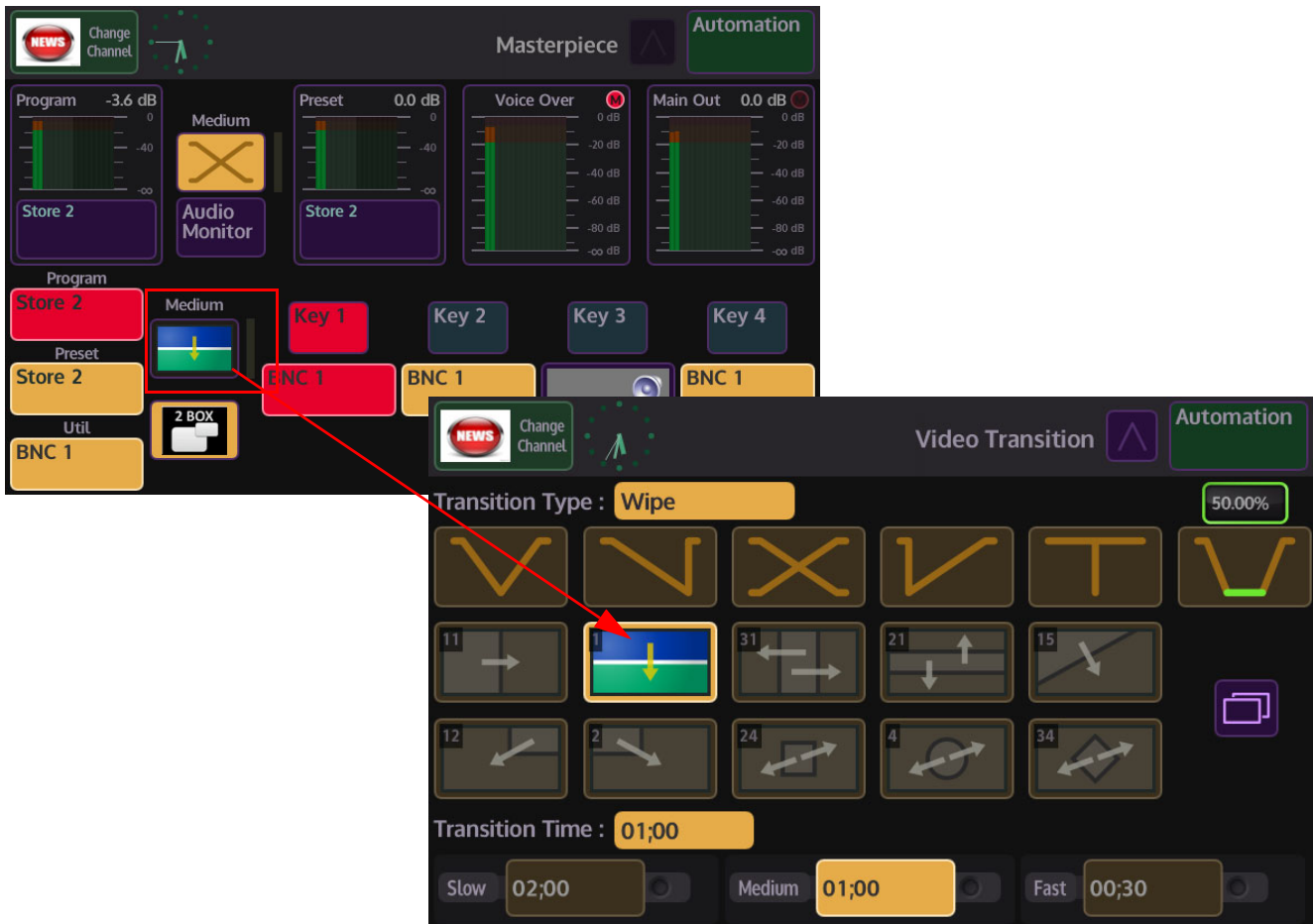
Select the Key or Keys in the Transition or in the menu, then in the Transition menu, touch the {Mix} button and then press the [TAKE NEXT] button. Notice that the Key Layer will now transition over the A/B background.



If a Wipe transition is required, touch the {Wipe} button in the Transition area of the control surface, or in the transition menu, The type of transition wipe required can be selected using the "Wipe Pattern" parameter, use the associated rotary control to scroll through the wipe patterns. Then press the [TAKE NEXT] button. Notice that the Key Layer will now transition with a wipe pattern over the A/B background.

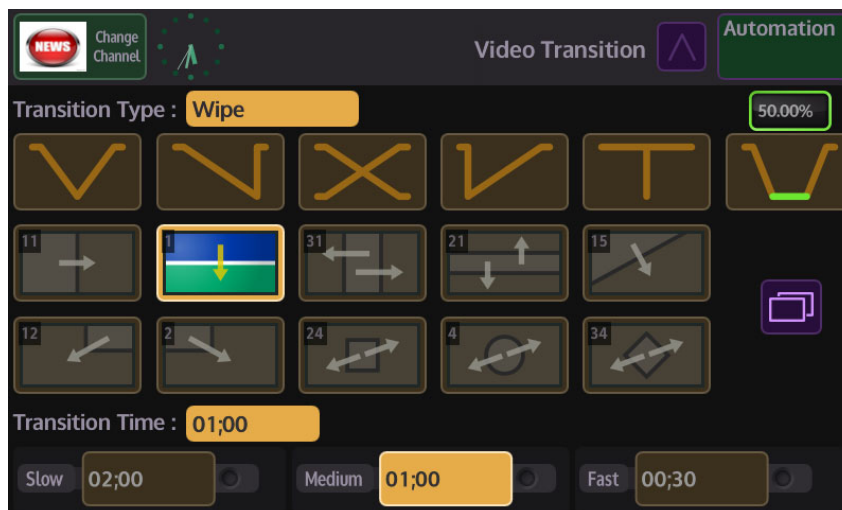
Transition Control Button Functions

The main menu on the Masterpiece GUI is basically split in half horizontally, the bottom half is deals video functionality and the top half is audio. Touch the yellow (shown in the menus below) and the “Video Transition” menu is displayed.



Video Transition Menus on the Masterpiece GUI

In the Video Transition menu you can setup the type of transition you want. Touch one of the Transition Type buttons (the button will turn yellow when selected) at the top of the menu to set the type of transition you require.



Mix Parameters



V-Fade - this button will perform a V-Fade transition. When the “Take Now” button is pressed, this option will take the Program source off, Preset source level.



Fade and Take - this button will “Fade” from one source off and then cut the next source instantly back on to the monitor.



Mix - this performs a “Cross Fade”. When the “Take Next” button is pressed one source will gradually fade out and at the Grass Valleye time the second source will gradually fade in.



Take and Fade - this button will perform an instant source cut to Off, then gradually fade the next source back in.

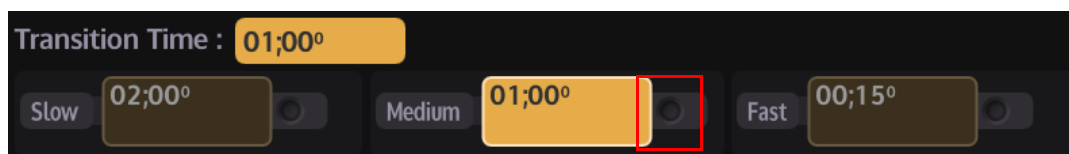


Cut - this button will perform a cut transition from one source immediately to the next.



50.00% - this will fade down to black pause and then fade back up to the next source.

There are 3 default quick select buttons in the “Transition Time” area of the Video Transition menu.

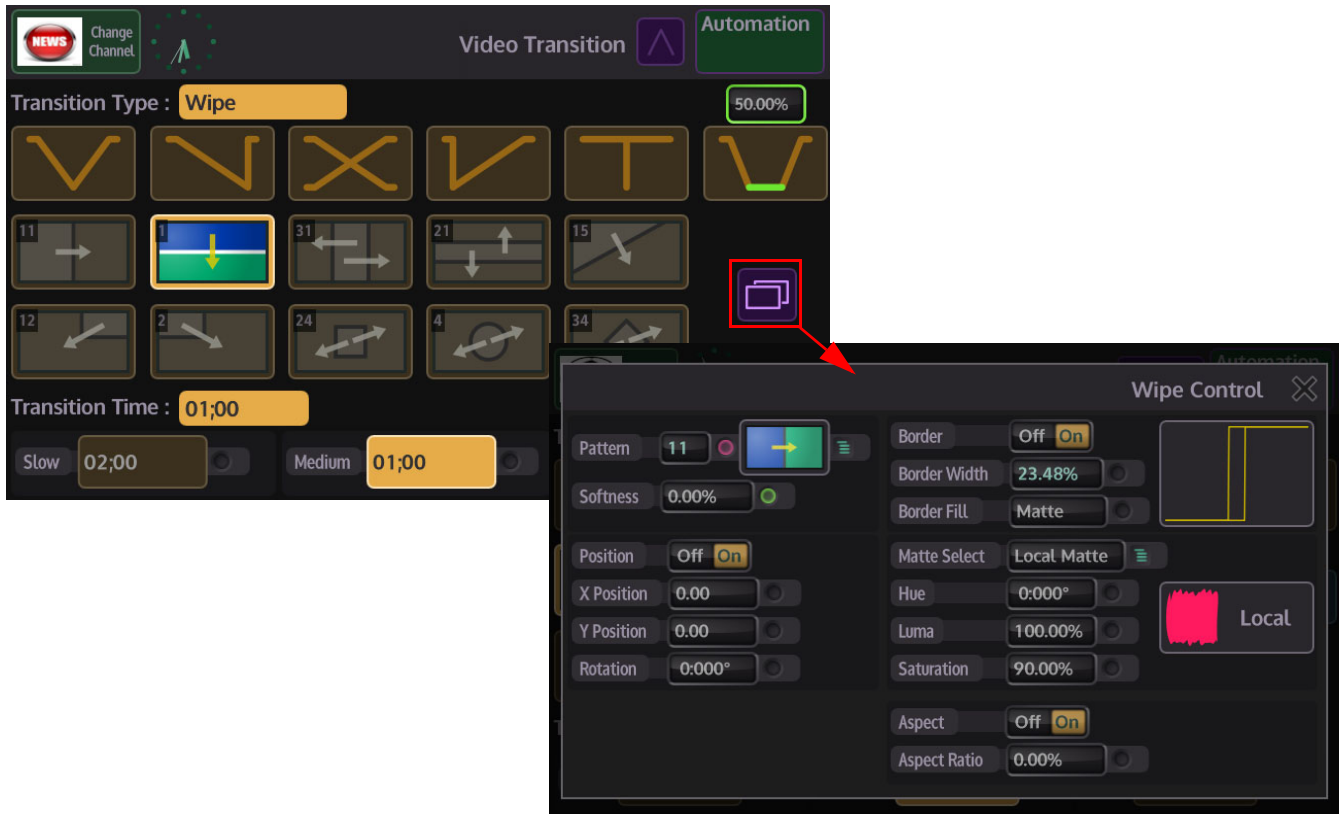


As can be seen in the above menu, you have 3 options to select, by default “Slow” will take 2 seconds to transition, “Medium” will take 1 second and “Fast” is an instantaneous cut. All three options can be adjusted by touching the rotary control attacher (it will turn red) and then adjusting the rotary control. As the transition time is adjusted, the selected time attacher

will go brown and the time in the box will increase/decrease. Touch the time attacher (it will turn yellow) and the "Transition Time" will change to reflect. Video transitions will now transition at the new set time.

Wipe Parameter

In the Video Transition menu, there are 10 quick select wipe patterns touch one of the wipe patterns, then when the [TAKE NEXT] button is pressed the selected wipe pattern will wipe between Program and Preset backgrounds. Touch the menu link button to open the "Wipe Control" menu.



This menu allows you to access the Grass Valley parameter controls that are displayed in the "Mixer - Transition" menu on the touch screen GUI.

To scroll through the list of available wipe patterns, either touch the rotary control selector next to the wipe number and scroll through the list, or touch the "Option List" selection button and a full list of wipe patterns is displayed.



Wipe Control Parameters

Pattern - Adjust to select the required wipe pattern. There are a number of individual wipe patterns available. The number of available wipe patterns will vary depending on whether the background or Key is selected.

Softness - This parameter adjusts the softness of the leading edge or edges of the selected wipe pattern. 0% is the default setting which Shows a hard clean edge and 100% blends the edge into the background making it barely visible until the transition is complete.

Position - Touch any one of the On/Off buttons in the parameter controls. This will set all the buttons to the On position if they are currently off.

X Position Y Position - The wipe start position can be adjusted to start anywhere on-screen by changing the parameters in the X/Y Position attacher box. Touching any of the On/Off buttons will activate all three parameter boxes. Notice that the Red indicators in the parameter boxes are triangles denoting that the parameters can be adjusted using the rotary controls or by using the joystick on the control panel.

Rotation - This will rotate the wipe pattern clock-wise or counter clock-wise in increments.

Border - This turns the border function On/Off

Border Width - If a border has been selected for example on a square wipe which starts from the center of the screen, the width of the border in relation to the edge of the wipe can be adjusted.

Border Fill - Select the border Fill from either a Matte or one of the two Util Buses, as described in the Mix menu structure.

Matte Selector - Select the required Matte from the options or Local Matte. Hue, Luma and Saturation will only affect the Local Matte setting.

Hue - sets the actual Matte color. The rotary control operates a 360 degree color wheel where:

- 0 = Red
- 60 = Magenta
- 120 = Blue
- 180 = Cyan
- 240 = Green
- 300 = Yellow

Luma - The Luminance or brightness control affects the selected Matte Hue. The parameter adjusts from 0 to 100% where 0% is no luminance or Black and 100% is maximum brightness.

Sat - The saturation control affects the selected Matte Hue. The parameter adjusts from 0 to 100% where 0% is no saturation or no color i.e. only shades of Gray and 100% is fully saturated or maximum color.

Aspect Ratio - Touch the On/Off button to activate the aspect ration function. As the name suggests, this function changes the aspect ratio of a wipe pattern, 0 to -100% will change the vertical ratio and 0 to +100% will adjust the horizontal ratio.

Note: Aspect ratio will only adjust a limited number of the wipe patterns.

When scrolling through the wipe patterns, notice the wipe pattern adjustment indicator box at the bottom of the wipe menu. When a wipe is selected this box will display parameters that denote how the wipe can be adjusted. Touch this box and a set of adjustment parameters will appear on the right of the menu. These are X,Y Position, Rotation and Aspect Ratio, depending on the wipe selected.



Transition Parameters

When the {Transition} button is touched the initial default Transition menu appears with the main Transition Time and Profile parameters active, this will allow you to make basic adjustments to a background or key transition.



Wipe Parameters

This will describe the initial default transition menu functions and parameters.

Note: Transition Time, Profile and Shape parameter are the Grass Valley for Wipe, Mix and Matte Mix menus.

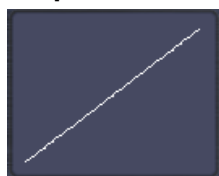
Transition Time - This sets the time that it takes for a transition to take place. The user can control the transition time by touching the {Popup} button in the Transition Time parameter and key in the time using the on-screen number pad. Once the transition time is set, press the [TAKE NEXT] button on the control surface and the transition will take place to the set time.

Profile - This parameter control will adjust the curve profile in the display box under the Main heading. Adjusting the curve profile will make the transition speed up or slowdown at a specific time in the transition period.

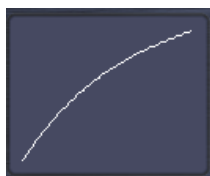
Shape - Selecting one of the Shape options will depict the type of profile curve; this will alter the acceleration rate for a transition.

- **Linear** - constant transition, no change in transition acceleration
- **Cubic C and Sin C** - these profiles are similar to each other, the default transition will have a fast acceleration at the start and slowdown towards the end.
- **Cubic S and Sin S** - these profiles are also similar to each other, the default transition will accelerate at the start slow down towards the mid point and accelerate again.

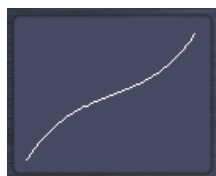
Shapes Parameters



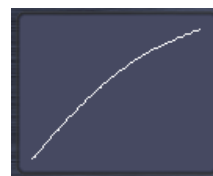
Linear



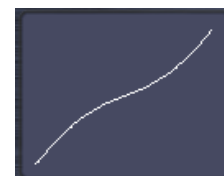
Cubic C



Cubic S



Sine C



Sine S

Note: The following parameter are the Grass Valleye for Wipe, Mix and Matte Mix menus.



Wipe Pattern - Adjust to select the required wipe pattern. There are a number of individual wipe patterns available. The number of available wipe patterns will vary depending on whether the background or Key is selected.

Softness - This parameter adjusts the softness of the leading edge or edges of the selected wipe pattern. 0% is the default setting which Shows a hard clean edge and 100% blends the edge into the background making it barely visible until the transition is complete.

Border - This turns the border function On/Off

Border Width - If a border has been selected for example on a square wipe which starts from the center of the screen, the width of the border in relation to the edge of the wipe can be adjusted.

Border Fill - Select the border Fill from either a Matte or one of the two Util Buses, as described in the Mix menu structure.



Matte Selector - Select the required Matte from the options or Local Matte. Hue, Luma and Saturation will only affect the Local Matte setting.

Matte Hue - sets the actual Matte color. The rotary control operates a 360 degree color wheel where:

- 0 = Red
- 60 = Magenta
- 120 = Blue
- 180 = Cyan
- 240 = Green
- 300 = Yellow

Matte Luma - The Luminance or brightness control affects the selected Matte Hue. The parameter adjusts from 0 to 100% where 0% is no luminance or Black and 100% is maximum brightness.

Matte Sat - The saturation control affects the selected Matte Hue. The parameter adjusts from 0 to 100% where 0% is no saturation or no color i.e. only shades of Gray and 100% is fully saturated or maximum color.

Position - Touch any one of the On/Off buttons in the parameter controls. This will set all the buttons to the On position if they are currently off.

X Position Y Position - The wipe start position can be adjusted to start anywhere on-screen by changing the parameters in the X/Y Position attacher box. Touching any of the On/Off buttons will activate all three parameter boxes. Notice that the Red indicators in the parameter boxes are triangles denoting that the parameters can be adjusted using the rotary controls or by using the joystick on the control panel.

Rotation - This will rotate the wipe pattern clock-wise or counter clock-wise in increments.



Aspect Ratio - Touch the On/Off button to activate the aspect ratio function. As the name suggests, this function changes the aspect ratio of a wipe pattern, 0 to -100% will change the vertical ratio and 0 to +100% will adjust the horizontal ratio.

Note: Aspect ratio will only adjust a limited number of the wipe patterns.

When scrolling through the wipe patterns, notice the wipe pattern adjustment indicator box at the bottom of the wipe menu. When a wipe is selected this box will display parameters that denote how the wipe can be adjusted. Touch this box and a set of adjustment parameters will appear on the right of the menu. These are X,Y Position, Rotation and Aspect Ratio, depending on the wipe selected.



Advanced Wipes

The Advanced Wipe parameters offer additional wipe patterns that are created by combining the main wipe patterns. For example if a straight edge primary wipe is combined with a secondary circle wipe, the resulting wipe edge will now have a bowed effect, as shown in the example below.



In the Advanced Wipes area of the menu, there are 2 parameters; “Modulation Enable” and “Repeats Enable”. The first thing to describe is the Modulation Enable.

Modulation Parameters

With Modulation Enable turned On, the modulation function enables the user to add different modulation effects to the transition wipe effects.

Shape - selects the type of modulation effect

HAmp - controls the horizontal amplitude (peak to trough distance) of the modulation

HFreq - controls the horizontal frequency (number of peaks per centimeter) of the modulation

HPhase - controls the start point of the of the modulation and thus the relative position of the peaks and troughs to the horizontal edge of the wipe

VAmp - controls the vertical amplitude (peak to trough distance) of the modulation

Mix

This allows a Background or a Key source to mix during a transition.



Matte Mix

Matte Mix Profile - The Matte Mix Profile is where the output passes through the Matte mix color between the two transition sources. This will cause the transition to go from the first source through a selected matte color to the second source.



Fill Level - This is the amount of Matte added to the mix. 100% is the full amount of Matte added.

Bias - This adjust the point that the Matte is introduced into the transition i.e. more Matte at the start of the transition and less at the end of the transition, or the other way around.

Width - This will override the bias parameter and introduce a full Matt throughout the transition at 100%.

Fill - This function selects the type of source that will be used as a Matte. The options range from Matte, Util Bus 1 and 2. The Util Bus Fill is setup in the Util Bus menu. Touch the {Util/Misc} button on the GUI to see which crosspoint the Util Bus's are set to reference.

Matte Selector - Select the required Matte from the options Local Matte or MAT 1 to MAT 16. Hue, Luma and Saturation will only affect the Local Matte setting.

Matte Hue - sets the actual Matte color, the rotary control operates a 360 degree color wheel where:

- 0 = Red
- 60 = Magenta
- 120 = Blue
- 180 = Cyan
- 240 = Green
- 300 = Yellow

Matte Luma - The Luminance or brightness control affects the selected Matte Hue, the parameter adjusts from 0 to 100% where 0% is no luminance or Black and 100% is maximum brightness.

Matte Sat - The saturation control affects the selected Matte Hue, the parameter adjusts from 0 to 100% where 0% is no saturation or no color i.e. only shades of Gray and 100% is fully saturated or maximum color.

15

Effects Dissolve and Squeeze Effects

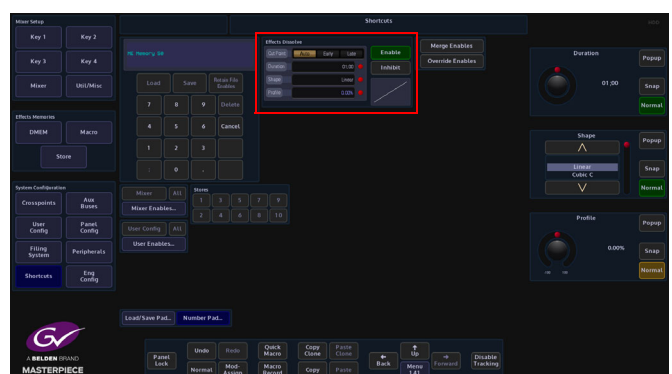
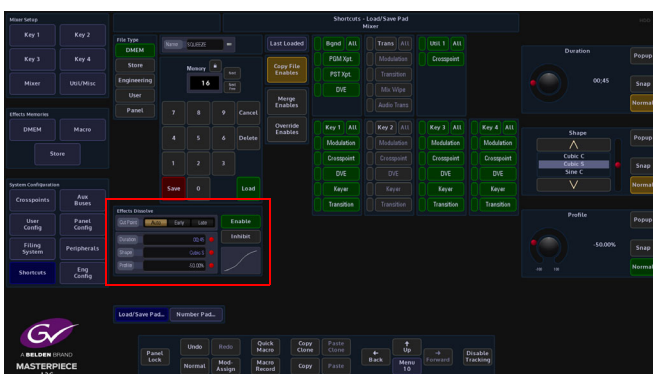
Effects Dissolve

Effects Dissolve gives you a means of creating a smooth transition from one memory state to another by interpolating any variable values (i.e. size, position, border width, etc.). Any state-change variables (e.g. button pushes) can be set to change at the start or end of the dissolve and provides a simple way of creating a two key-frame effect.

The Effects Dissolve function can be used on DMEMs and Snapshots.

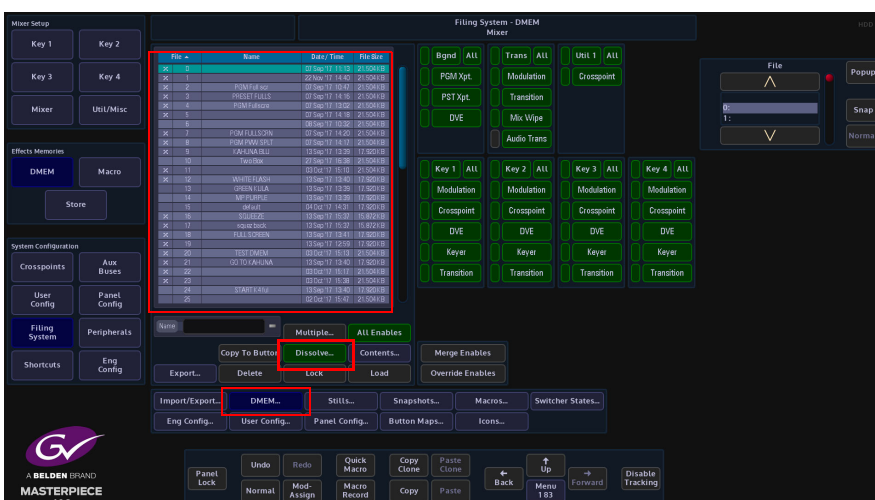
An Effects Dissolve can be applied to an existing saved memory file, or to a memory file as it is saved with a new effect, using the "Shortcuts" menu. Editing an existing memory file in the Filing System (e.g. DMEM and Snapshots). The effects that can be made are only limited to the creativity of the user.

Used when creating a Dissolve Effect



The menus above are in the "Shortcuts" menu
You can use either to create a Dissolve effect

Filing System used when editing an existing file to create a Dissolve Effect



Saving an Effects Dissolve with a DMEM

This example explains how to save a Dissolve effect with a DMEM.



Create an effect; for example a one box key layer On then Off. In the “Shortcuts” menu, enter a DMEM memory number using the number pad and then touch the **{Mixer}** button. Touch the “Effects Dissolve” **{Enable}** button, you can now adjust the Effects Dissolve Duration, Shape and Profile by touching the Effects Dissolve attacher, then use the parameter controls on the right. Finally press the **{Save}** button to save the DMEM

When the DMEM is recalled, the dissolve effect will dissolve the Key layer on and off. The DMEM load sequence can then be recorded to a Macro and attached to one of the Macro buttons on the control surface.

As the Dissolve Effect runs, the top corner of the menu (marked in the menu above), will display a Dissolve “percentage”. The percentage number from will run from 0% to 100% for each dissolve effect created. A **{Stop}** button next to the percentage number, cause the current running dissolve effect to stop.

Dissolve Effects Parameter Controls

Cut Point

- **Auto** - the switcher determines the most useful point for state-change variables to be changed, i.e. at the start or end of the dissolve. States which are switching on will change at the start of the dissolve and those which are switching off will change at the end of the dissolve.
- **Early** - Changes the state of all state-change variables at the start of the dissolve
- **Late** - Changes the state of all state-change variables at the end of the dissolve

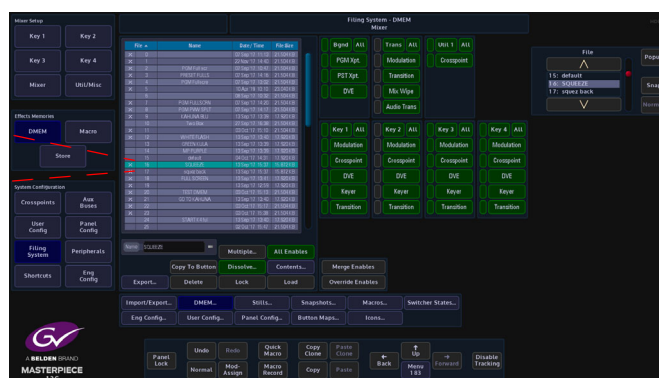
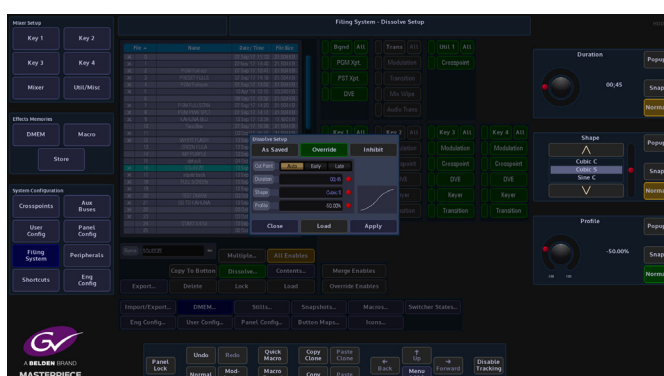
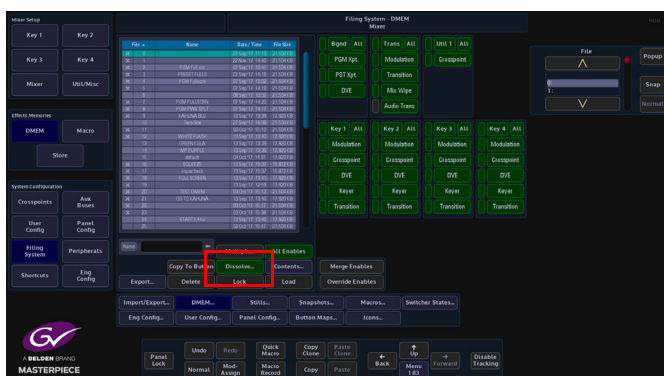
Duration - Sets the overall duration of the dissolve

Shape - Controls the shape of the chosen dissolve profile

Profile - Sets the profile of the dissolve path allowing a linear change or smooth acceleration / deceleration (among other options). A graphical illustration of the dissolve path is shown at the bottom of the pop-up and shows the selected shape and profile.

Applying a Dissolve Effect to an existing DMEM

If a dissolve is required on a memory which has not already been set as a dissolve, this can be achieved by switching on the Dissolve button.

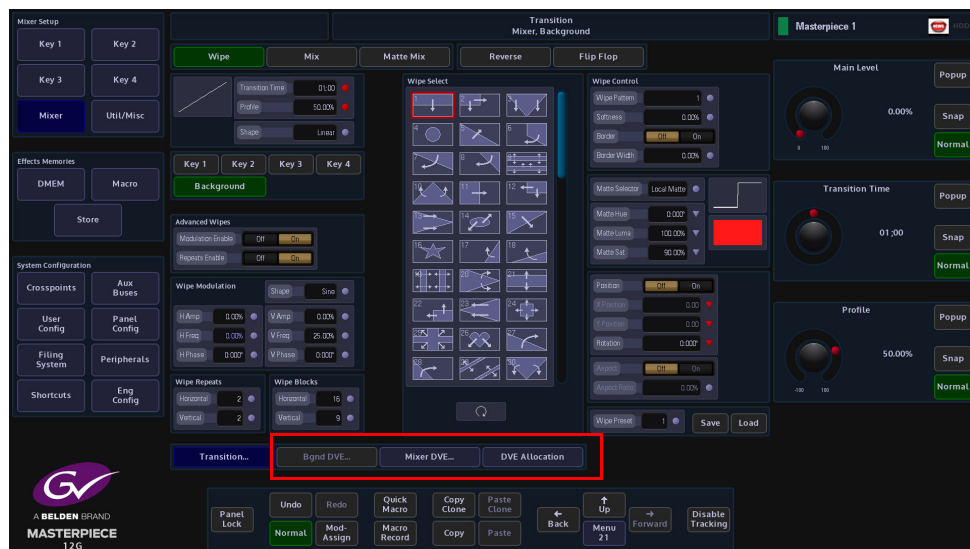


Select an existing DMEM from the file list, then touch the **{Dissolve}** button. The Effects Dissolve dialog box will appear, so that the user can set the type of effect required. When finished, touch the **{Apply}** button.

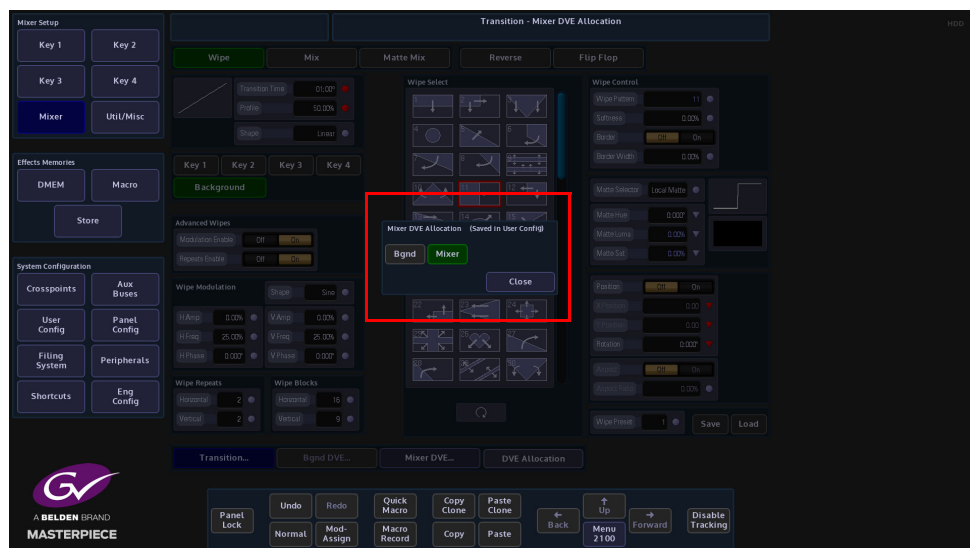
Notice that the file now has an "X" next to the DMEM number to signify that it has a dissolve effect applied.

Bgnd DVE and Mixer DVE

In the "Mixer" menu there are two kinds of DVE; "Bgnd DVE" and "Mixer DVE".
The Mixer DVE resizes the OUTPUT of the background mixer over the Util Bus, so background wipes and mixes from Program to Preset (A to B) are all within the resized tile. Also the preview output will show the transition next state resized over the Util Bus. This would be typically used for Background transitions in a resized box.
The Bgnd DVE resizes Program (A Bus) and the Preset (B Bus) independently, typically Program over Preset over Util Bus. When using DVE in this function there are NO background mixes or wipes. Bgnd DVE would typically be used for squeeze type effects, squashing and/or moving program and sliding on resized preset in the corner etc.



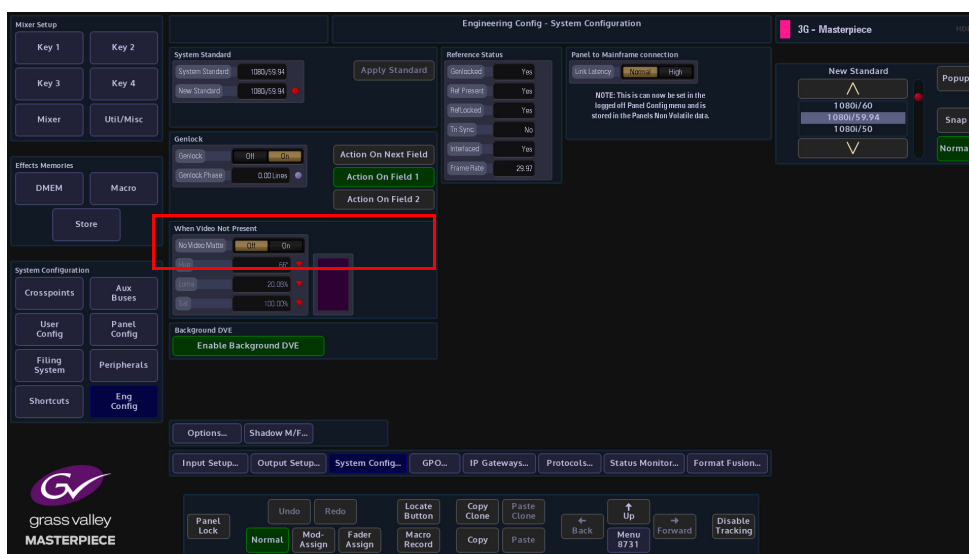
If the "Bgnd DVE" and the "Mixer DVE" buttons are grayed out and you touch the {DVE Allocation} button, a dialog box will appear with the following message:



This tells you that the Background DVE is not enabled. You have to go to the **Eng Config - System Config** menu to enable the Background DVE.

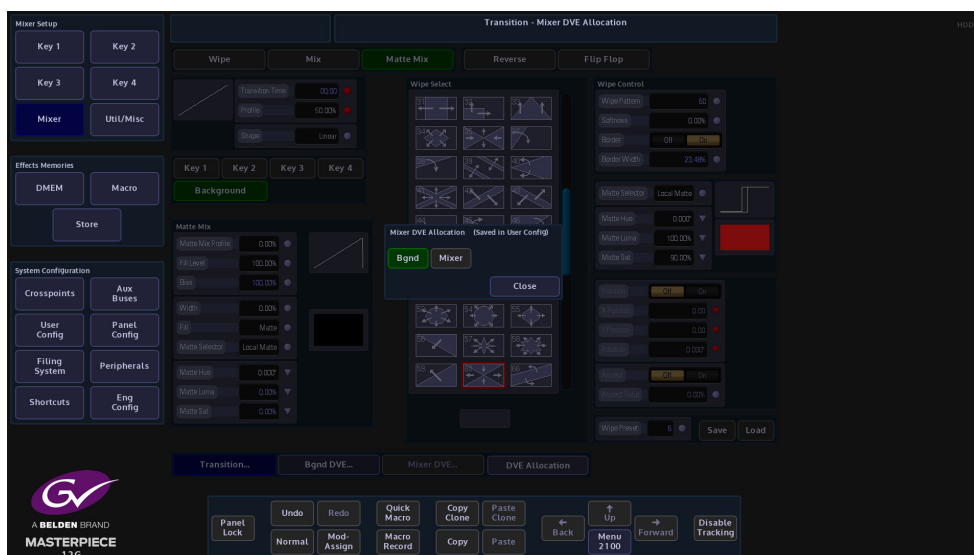
Touch the **{Eng Config}** button and then in the Eng Config main menu touch the **{System Config...}** menu link button.

Touch the **{Enable Background DVE}** button (it will turn green); you can now use the Bgnd DVE and Mixer DVE functions.



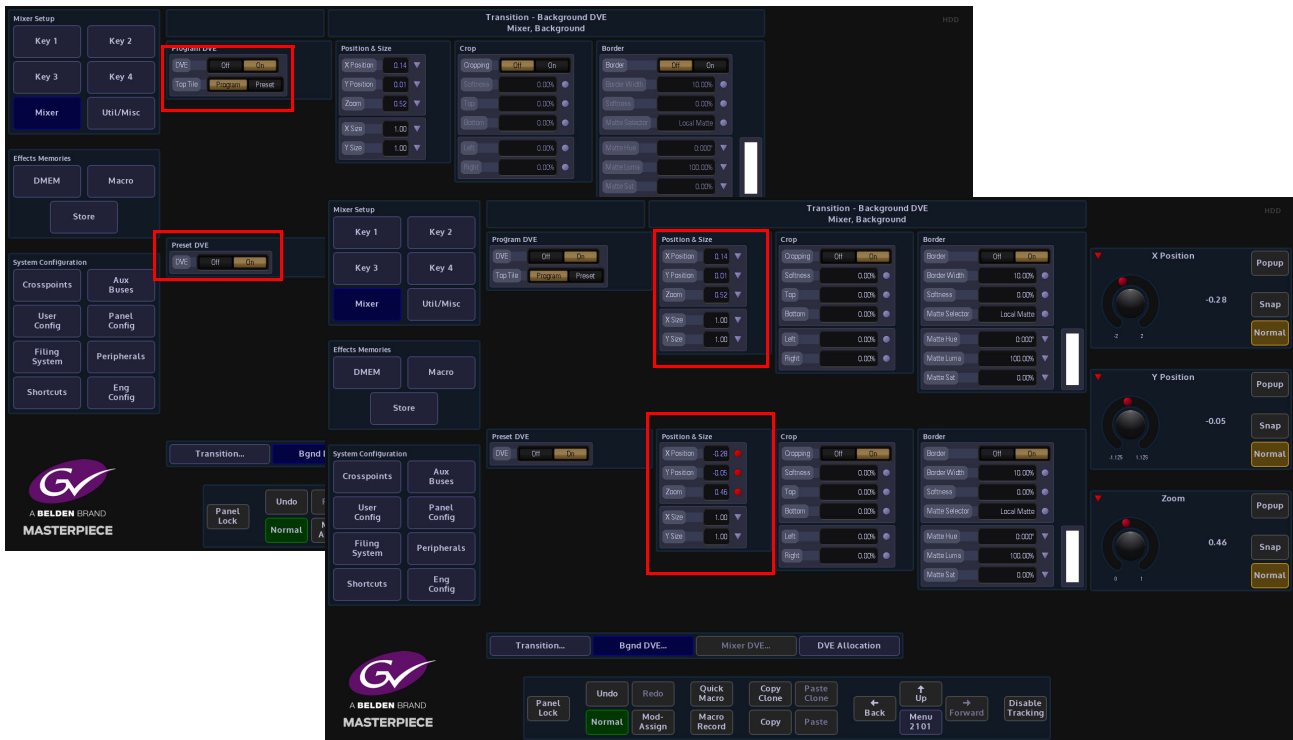
Bgnd DVE

Go back to the Mixer main menu and you are now able to select the Bgnd DVE. Touch the **{DVE Allocation}** button and a dialog box will be displayed allowing you to select Bgnd or Mixer.



When Bgnd is selected, you can now touch the **{Bgnd DVE...}** menu link button to open the **Trans - Background DVE** menu.

The default state of functions in this menu are Off, turn “On” the “Program DVE” and the “Preset DVE” and you will notice that you will still see the program output displayed full size on the monitor.



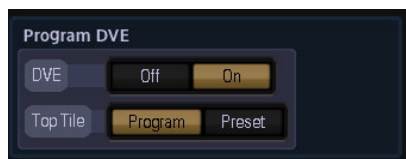
Touch the “Position & Size” parameter and “Zoom” down the Program tile and use the “X/Y Position” to position the tile, you will start to see the Preset tile being revealed. Do the Grass Valley for the Preset position & size parameter and as you Zoom down the preset tile the Util Bus source is displayed as the background. The monitor output will look something like the diagram below:



As mentioned earlier, the Bgnd DVE would typically be used for “Squeeze Backs” this would be done by using the “Position & Size” parameters to size the Program and Preset Tiles and saving the setup as a DMEM as explained in the following section.

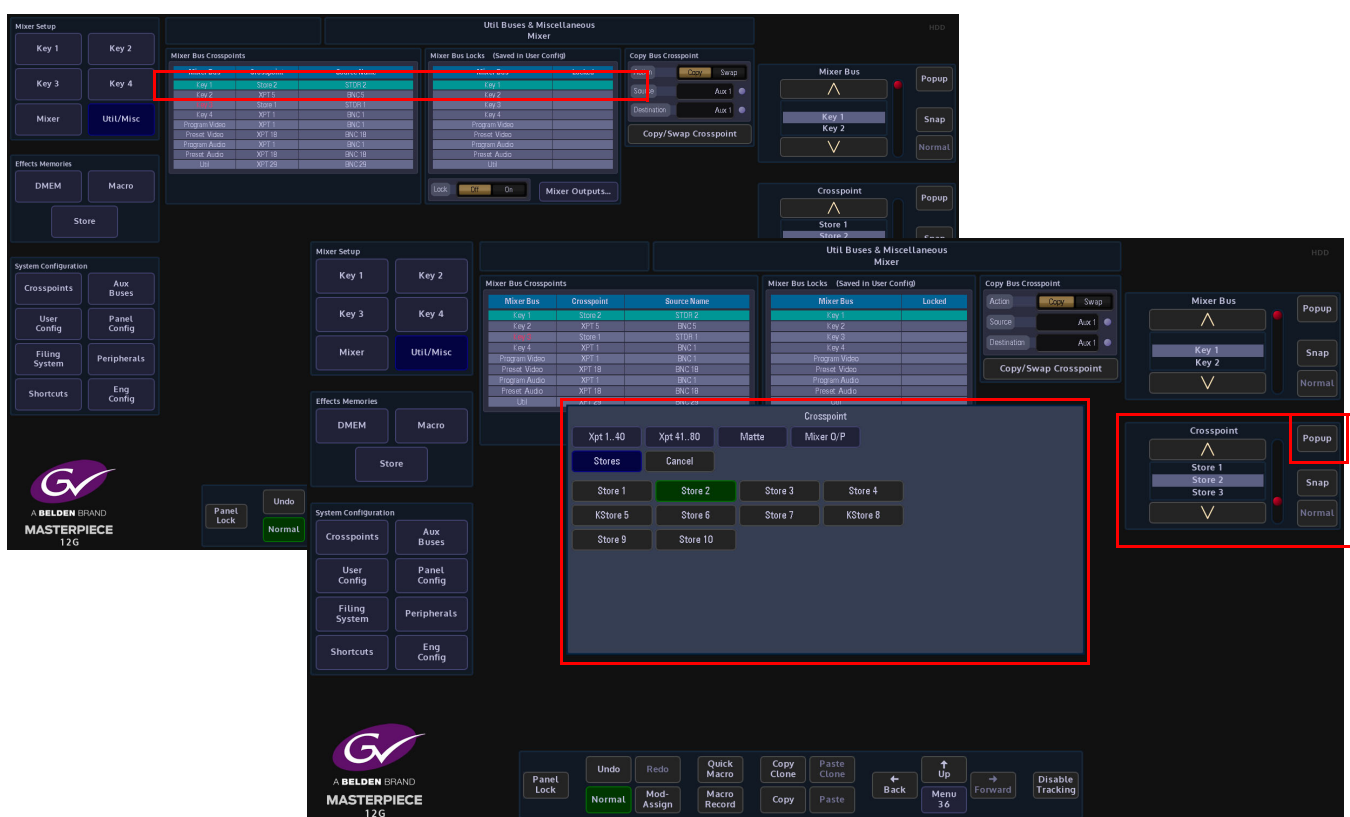
Note: The Utility Bus background cannot be zoomed or moved.

The Program tile by default is set on top or over the Preset tile. This can be changed using the “**Top Tile**” parameter, select Program or Preset to be the top tile.



Setting the Utility Bus Background Source

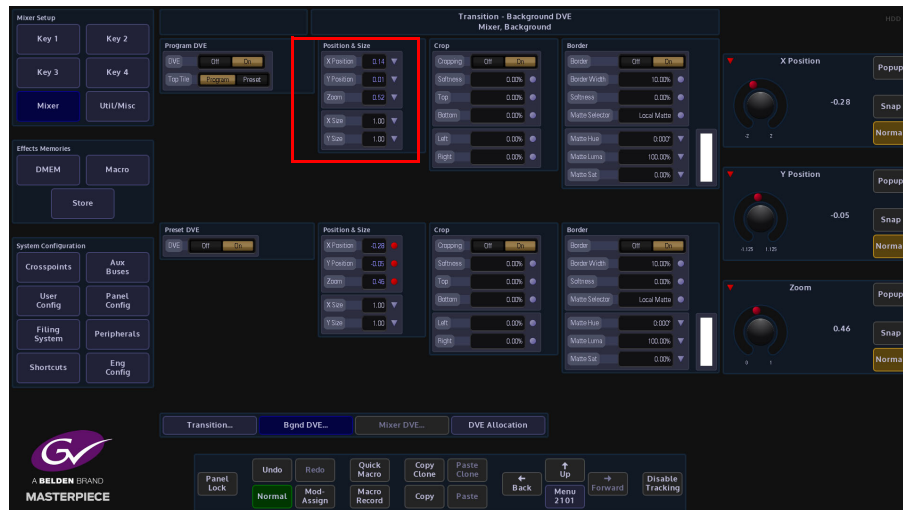
The **Utility Bus** background source is set in the “**Util Buses and Miscellaneous**” menu. Select the Util Bus at the bottom of the Mixer Bus Crosspoints table, then use the “**Crosspoint**” parameter popup to select a source for the Util Bus (shown below).



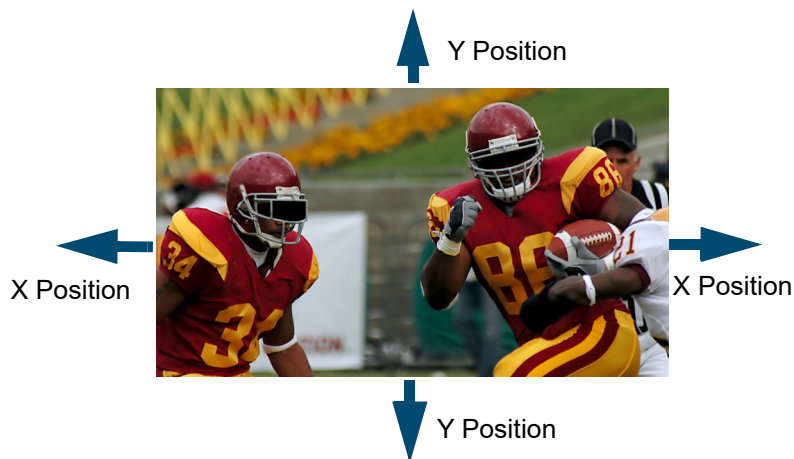
Position & Size

Note: This example will go through the "Program DVE" parameters. The Preset parameters work in exactly the Grass Valley way.

Make sure that the Program DVE function "On". The **Position & Size** attacher area, allows the you to move a Tile around the screen and to zoom in/out.



X/Y Position - Parameters are used to move the position of the Tile around the monitor screen as shown below.

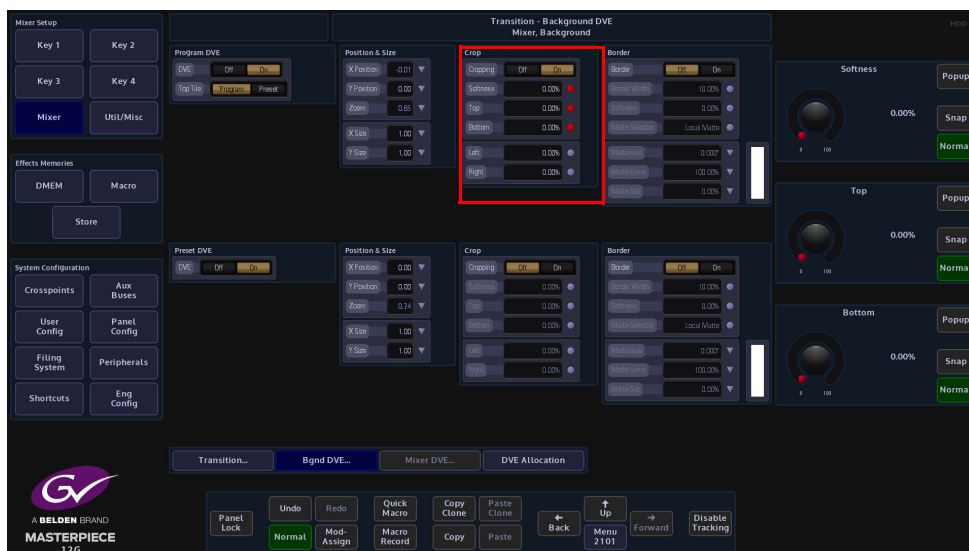


Zoom - Parameter is used to zoom the Tile in and out.



Crop

The crop menu as it suggests allows the user to crop the Tile, and also allows the user to apply soft edges.



Cropping On/Off - Switches the crop facility On or Off,

Top, Bottom, Left and Right - Crops the Fill edges



Original Key Layer



Right Crop



Bottom Crop



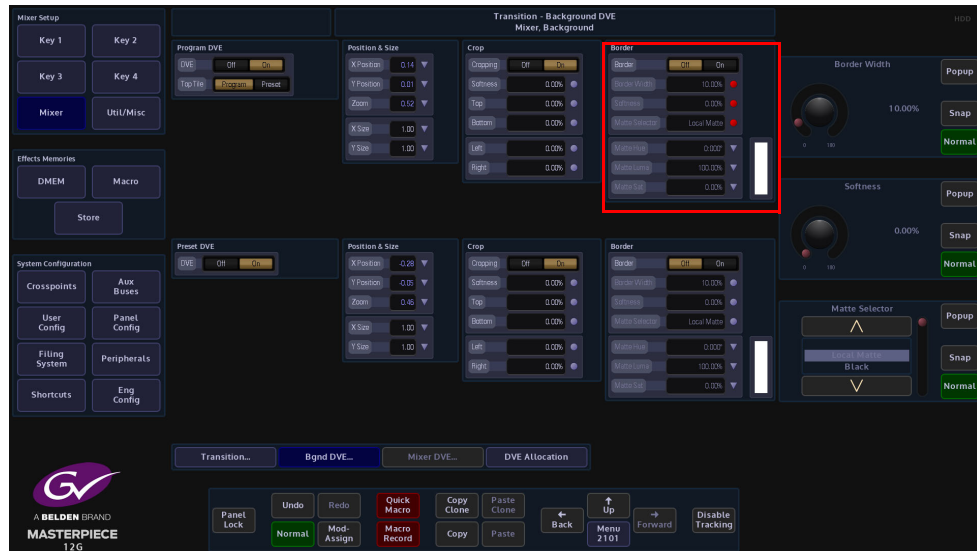
Left Crop



Top Crop

Border

This function allows the user to apply a border and effects around a Tile.



Border On/Off - Switches the Border On or Off

Border Fill - Selects source for the border fill from a Matte selected using the Matte Selector parameters, Util

Border Width - Adjusts the overall width of the border

Softness - Softens the outside edges of the border



Original Key Layer



Border Applied



Border Width Adjusted



Changed Border Fill

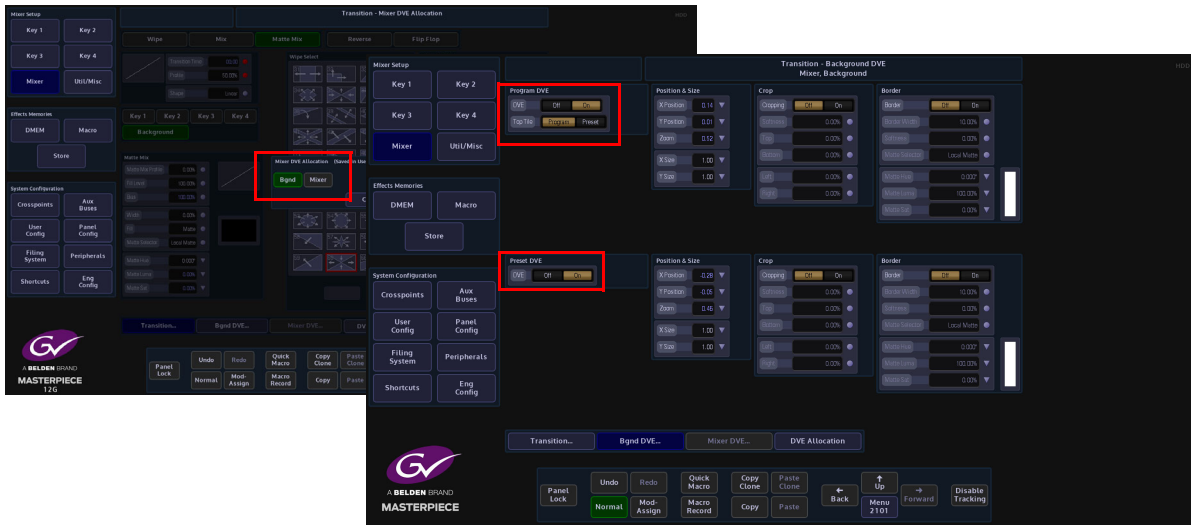
The **Matte Selector** and **Hue**, **Luma** and **Sat** parameters are used to adjust the color of the border around a Tile when the option is selected in the Border Fill parameter. The user is able to select one of 16 preset Mattes, or create a user-defined color for the border using the Hue, Luma and Sat parameters.

Matte Selector - Selects the preset Mattes 1 to 16 or a Local Matte that allows the user to create a their own border color.

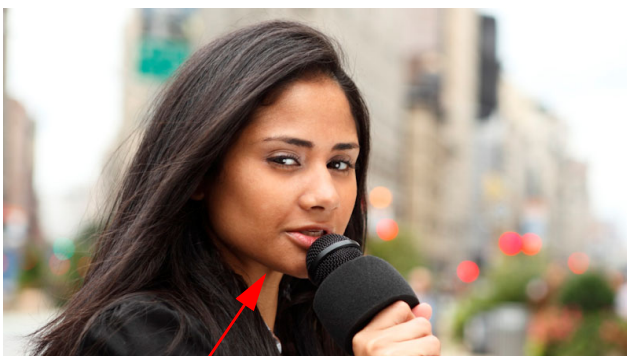
Matte Hue, Luma and Sat - These parameters allow the user to adjust the Hue, Luma and Saturation levels of the Local Matte. The user is able to create their own unique border color around a Tile.

Setting up a Squeeze Effect

With the **"Bgnd DVE"** enabled and the Program and Preset parameters turned On, You can now use the Position & Size to re-position the Program tile.



Position and zoom the program tile to the position required for the squeeze effect. Then open the **"Shortcuts"** menu and save the move as a DMEM.



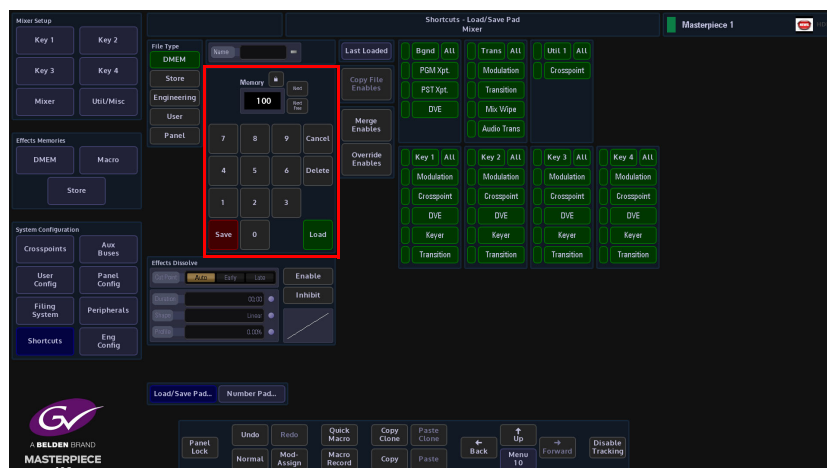
Program Tile



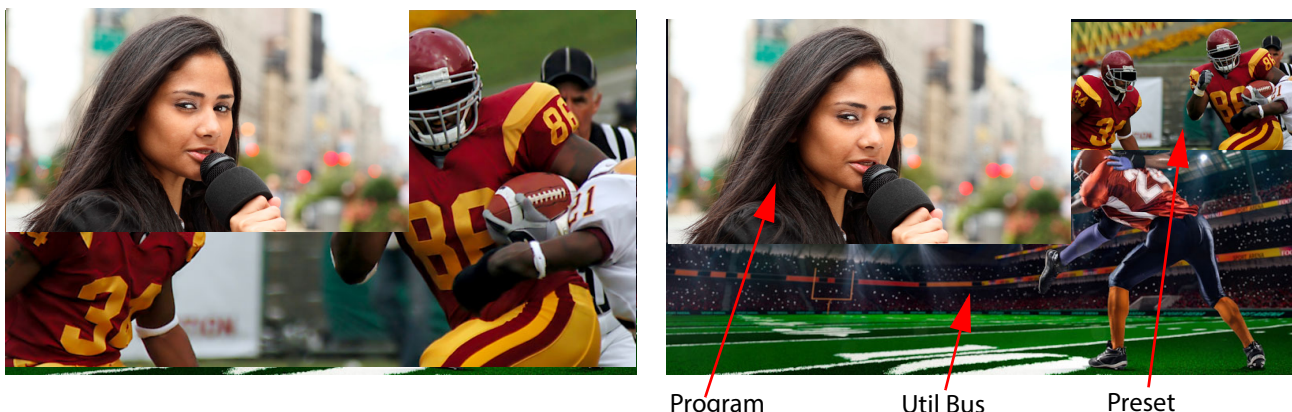
Program Tile

Preset Tile

Use the number pad to save the current state of the system as a DMEM, by entering a memory number and saving the memory file e.g. enter "100" as the memory file, then select the **{Mixer}** button below the number pad and then **{Save}**. You can use the **Effects Dissolve** at this point but in this example Effects Dissolve will be setup in the DMEM menu to the saved file.



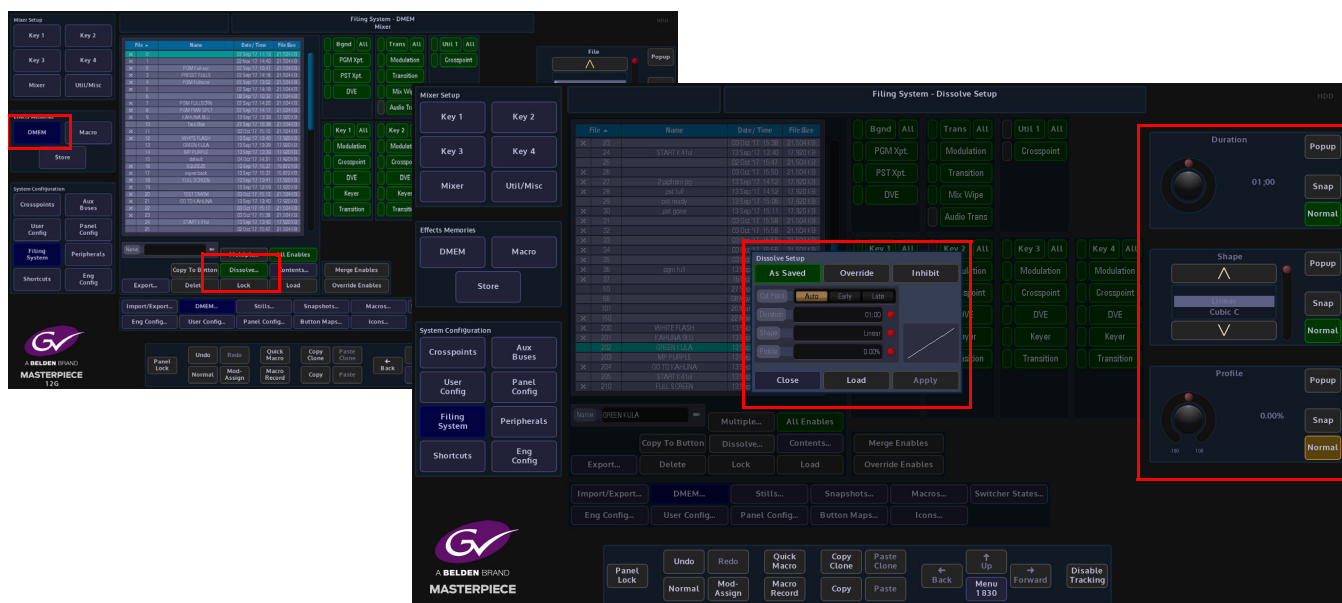
Next zoom and position the Preset tile to the required position this will also reveal the Util Bus background. Again, open the “Shortcuts” menu and save the action as a DMEM, e.g. enter “101” as the memory file, then select the **{Mixer}** button below the number pad and then **{Save}**.



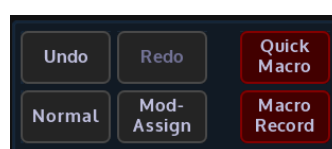
Finally, turn Off the Program DVE and Preset DVE so that the Program source is displayed fully over the monitor and save that state as a DMEM, e.g. enter “102” as the memory file, then select the **{Mixer}** button below the number pad and then **{Save}**.

Touch the **{DMEM}** button then in the DMEM menu, select the first saved memory file (100) and then touch the **{Dissolve}** button. The “Dissolve Setup” sub menu will be displayed. Touch the **{Override}** button then set the Duration, Shape and Profile parameters as required, then touch the **{Apply}** button.

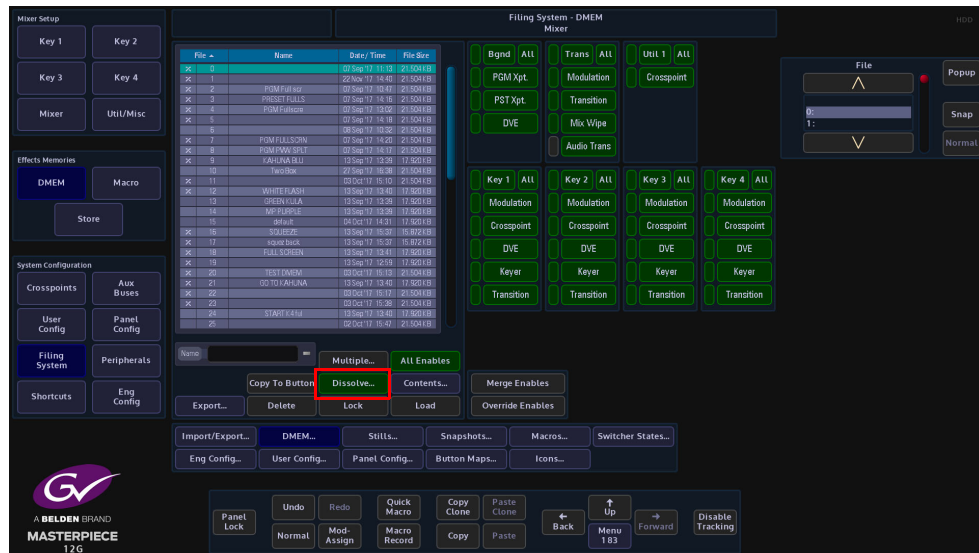
Notice that there is an “X” next to the file number in the table, this indicates that Effects Dissolve has been applied to the memory file.



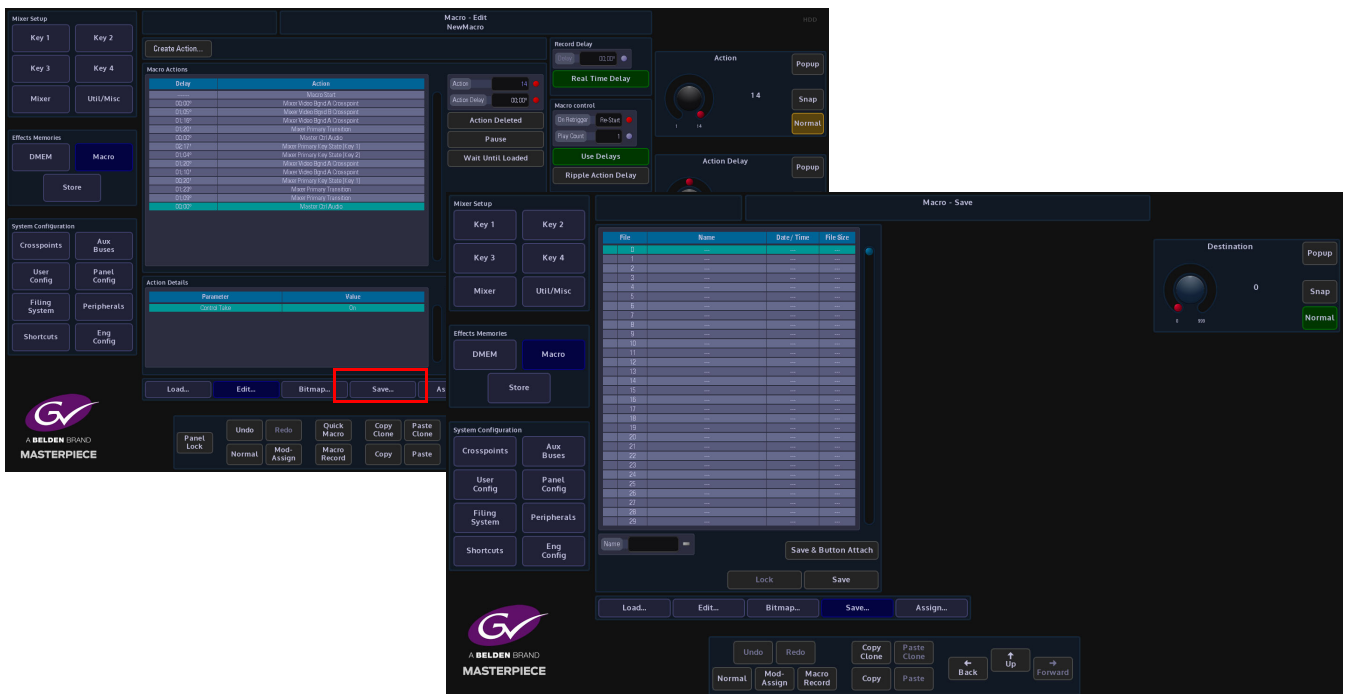
Follow the Grass Valley process for the second memory file saved (101). The final part of this setup is to create macros for all three memory files. Touch the **{Macro Record}** button it will turn green ready to start recording. On the next button press the macro will start recording and the button will turn red.



Touch the first memory file created (100) in the DMEM menu and then touch the **{Load}** button (shown below). As the first DMEM loads, touch the next memory file (101) to select it ready for loading. When DMEM 100 finishes loading, touch the **{Load}** button again for DMEM 101. Then finally touch the **{Record Macro}** button again to stop the macro recording.

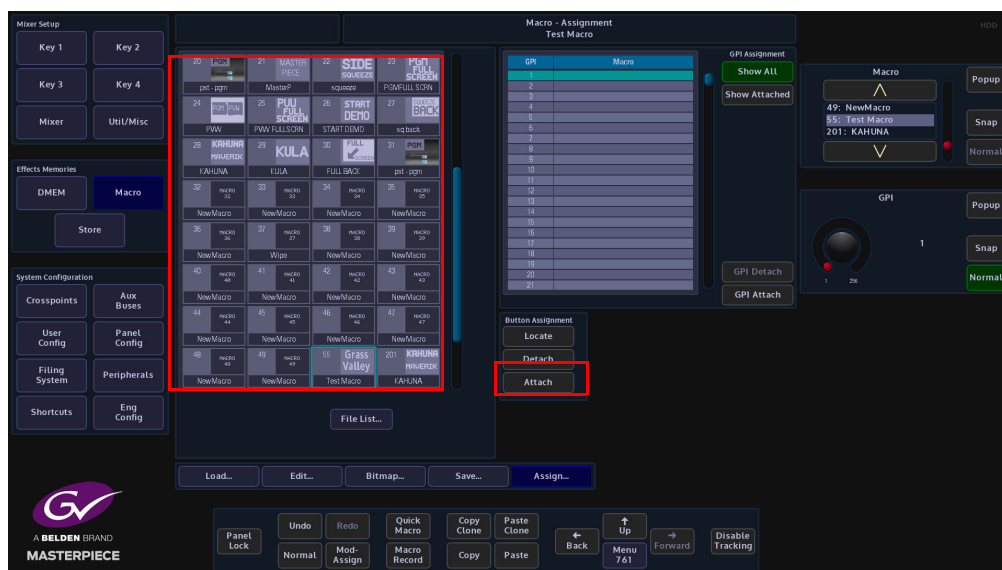


Touch the **{Macro}** button and the “Macro Edit” menu is displayed. The recorded DMEM load actions can be seen in the “Macro Actions” table. You test the recorded macro by touching the **{Test Macro}** button. When satisfied with the macro, touch the **{Save...}** menu link button.



Select a free slot in the Macro Save table, give the macro a name using the **{Name}** attacher and on-screen keyboard and then touch the **{Save}** button. In the Macro Save menu, touch the **{Assign...}** menu link button.

In the **Macro Assign** menu, touch the saved macro file in the table and press the **{Attach}** button, this will make the macro ready to attach. Finally, touch one of the free OLED button the Masterpiece control surface and the macro is attached. If you touch the OLED button the macro with the “**Squeeze**” effect will run.



For memory file 102, that takes the system back to normal. Once again touch the DMEM memory file ready to touch the DMEM **{Load}** button, then touch the {Macro Record} button. Touch the **{Load}** button and when the DMEM has loaded, touch the {Macro Record} button to stop the macro from running.

In the **Macro Edit** menu, test the macro to make sure that it works as required, then save the macro and attach the macro to an OLED button as just described.

The two macros attached to the OLED buttons will now have the squeeze effect action on one button and the back to normal action on the other.

Mixer DVE

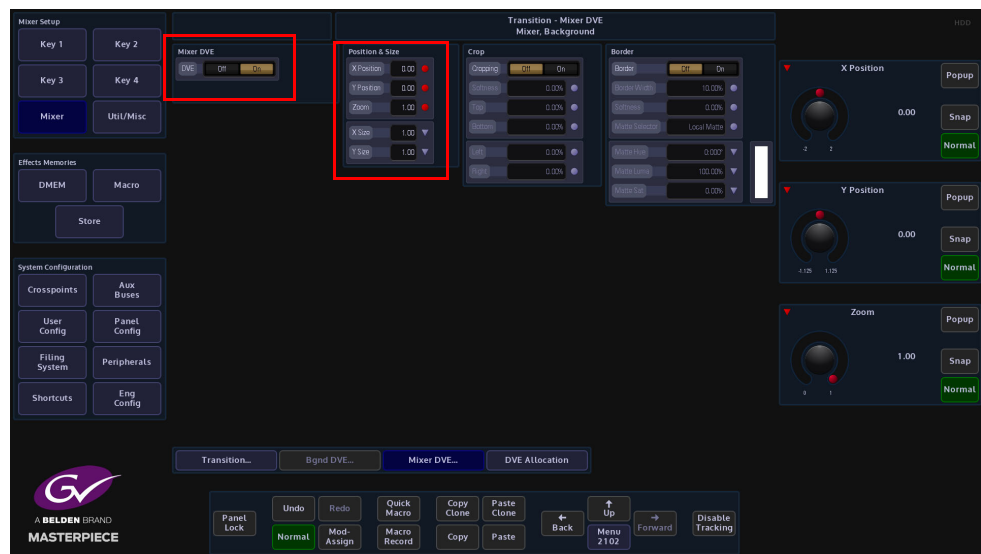
In the "Mixer" menu there are two kinds of DVE; "Bgnd DVE" and "Mixer DVE". The Mixer DVE resizes the OUTPUT of the background mixer over the Util Bus, so background wipes and mixes from Program to Preset (A to B) are all within the resized tile. Also the preview output will show the transition next state resized over the Util Bus. This would be typically used for Background transitions in a resized box.

Go back to the Mixer main menu and you are now able to select the Mixer DVE. Touch the **{DVE Allocation}** button and a dialog box will be displayed allowing you to select Bgnd or Mixer.



When Bgnd is selected, you can now touch the **{Mixer DVE...}** menu link button to open the **Trans - Mixer DVE** menu.

The default state of functions in this menu are Off, turn "On" the "Mixer DVE" and you will notice that you will still see the program output displayed full size on the monitor.



Touch the "Position & Size" parameter and "Zoom" down the Program tile and use the "X/Y Position" to position the tile, you will start to see the Util Bus source displayed as the background. The monitor output will look something like the diagram below:

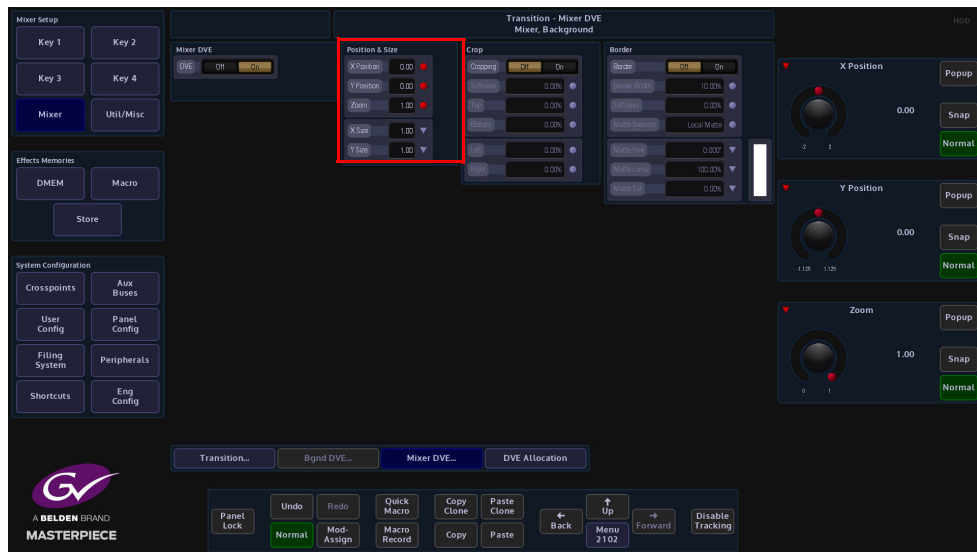


As mentioned earlier, the Mixer DVE would be typically used for Background transitions in a resized box. This would be done by using the "Position & Size parameters to size the Program Tiles and using the **{Take Next}** button to Mix or Wipe between Program and Preset sources.

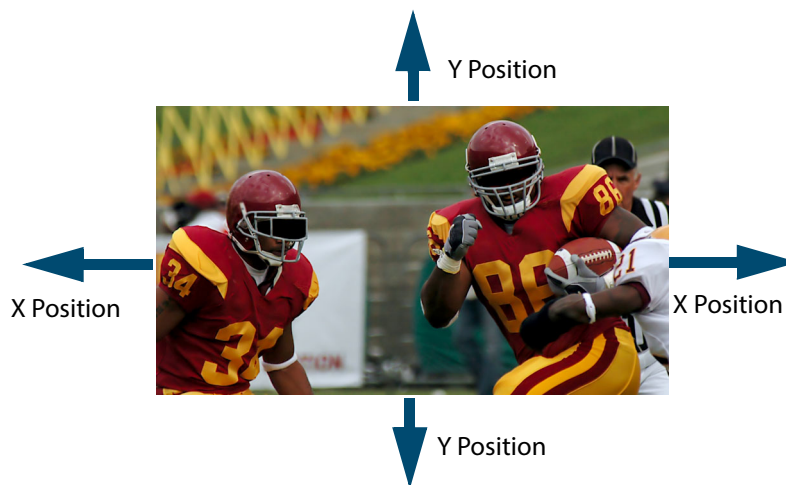
Note: The Utility Bus background cannot be zoomed or moved.

Position & Size

Make sure that the Mixer DVE function "On". The **Position & Size** attacher area, allows the you to move a Tile around the screen and to zoom in/out.



X/Y Position - Parameters are used to move the position of the Tile around the monitor screen as shown below.

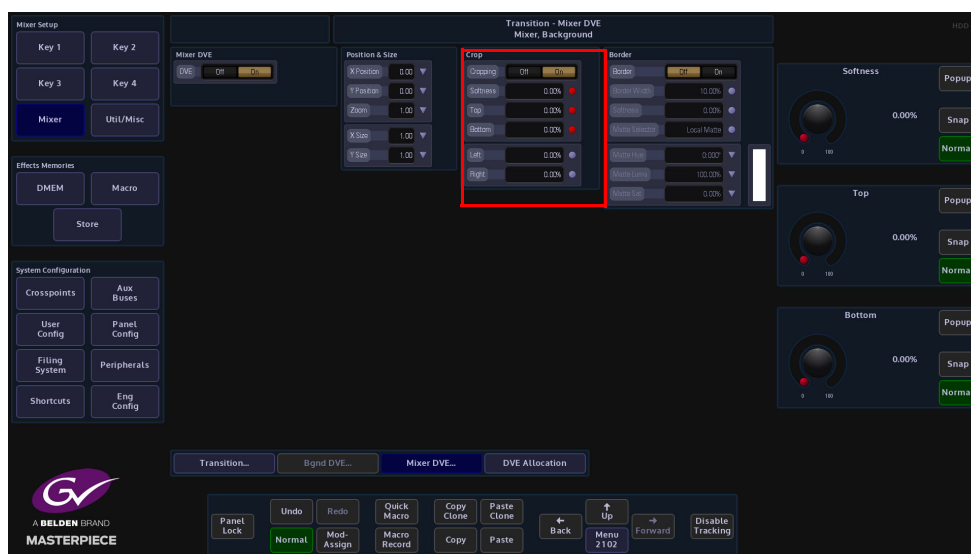


Zoom - Parameter is used to zoom the Tile in and out.



Crop

The crop menu as it suggests allows the user to crop the Tile, and also allows the user to apply soft edges.



Cropping On/Off - Switches the crop facility On or Off,

Top, Bottom, Left and Right - Crops the Fill edges



Original Key Layer



Right Crop



Bottom Crop



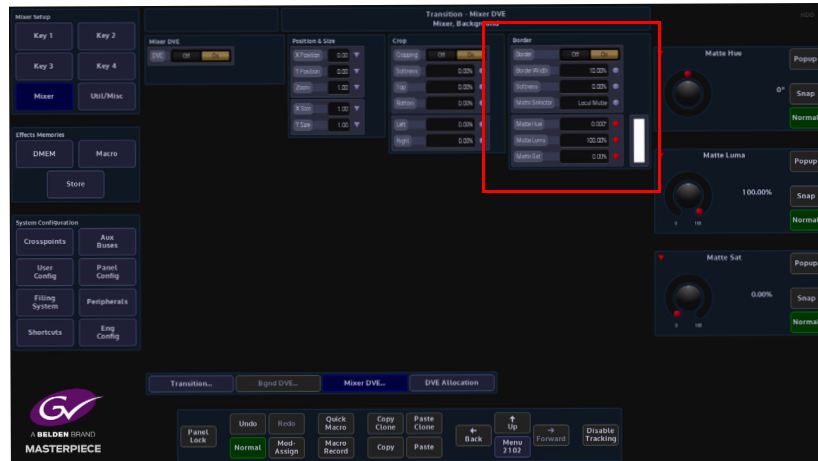
Left Crop



Top Crop

Border

This function allows the user to apply a border and effects around a Tile.



Border On/Off - Switches the Border On or Off

Border Fill - Selects source for the border fill from a Matte selected using the Matte Selector parameters, Util

Border Width - Adjusts the overall width of the border

Softness - Softens the outside edges of the border



Original Key Layer



Border Applied



Border Width Adjusted



Changed Border Fill

The **Matte Selector** and **Hue, Luma** and **Sat** parameters are used to adjust the color of the border around a Tile when the option is selected in the Border Fill parameter. The user is able to select one of 16 preset Mattes, or create a user-defined color for the border using the Hue, Luma and Sat parameters.

Matte Selector - Selects the preset Mattes 1 to 16 or a Local Matte that allows the user to create a their own border color.

Matte Hue, Luma and Sat - These parameters allow the user to adjusts the Hue, Luma and Saturation levels of the Local Matte. The user is able to create their own unique border color around a Tile.

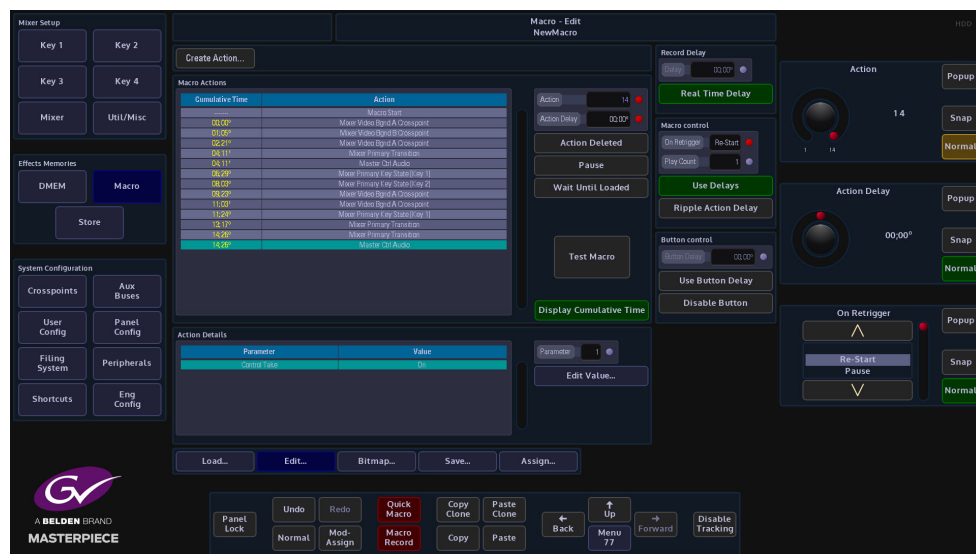
16 Macros

Overview

Macros can be assigned to any button on the control surface. When macros are assigned to the Macro Buttons on the control surface they can have an associated “bitmap” added to the OLED button display.

Masterpiece macros are recorded in real time. This means that macros record functions behind buttons, rather than just the button press. This allows creation of simple multi-button operations to complex effects and transitions, which include; Pbus, GPOs and DMEM loading, clip playing and VDCP.

Setting Up Macros



Macros are saved within the **Filing System**. The buttons functions are assigned within the Panel Config. Although the macros themselves are run and activated in the mainframe the buttons are associated with the Panel Config.

As mentioned earlier, macros are recorded as a sequence of button presses in real time, which in turn are translated into a sequence of actions. The delay between these functions (button presses) can be tested and edited once the recording is completed. Once a macro is running if it is run a second time halfway through the macro run sequence, it will instantly start from the beginning.

Note: A Menu Operation is not recorded as a macro but any direct action within menus will be (e.g. a Pbus trigger).

Macro Record



Macro Ready
To Record

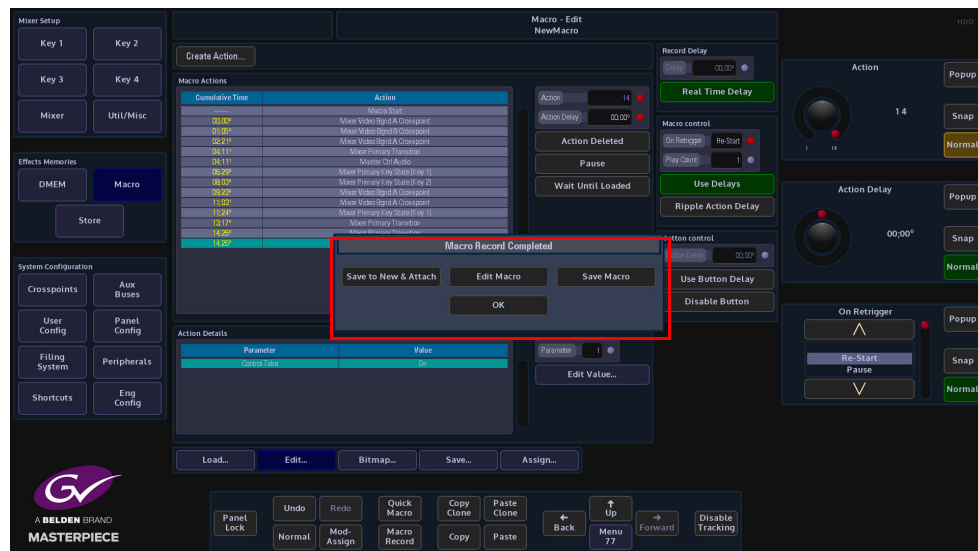


Macro
Recording



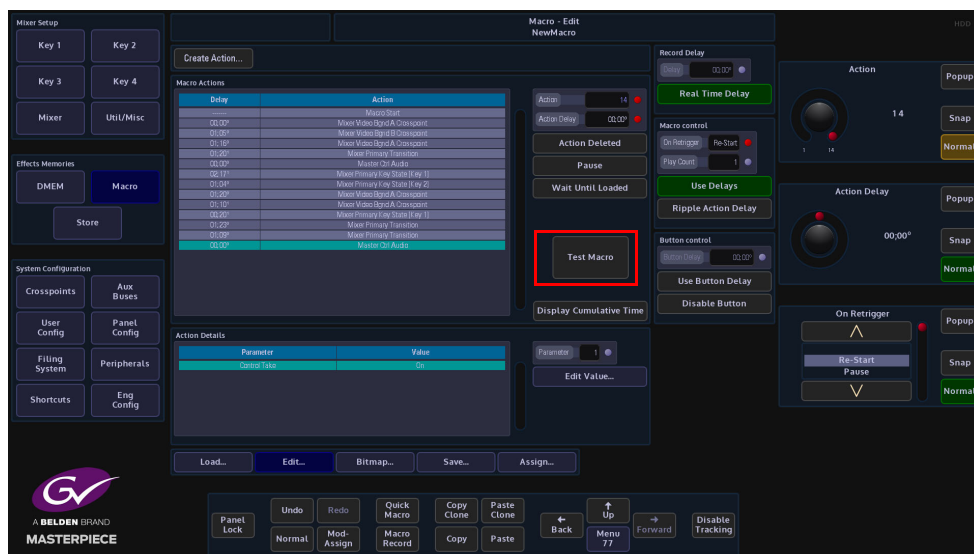
Macro
Paused

To start recording a macro press **{Macro Record}** button on the GUI panel. This button will now go Green indicating a macro is ready to start recording. The macro recording and button delays will only be activated after the first function (button press) has been entered. Once the macro recording has started the **{Macro Record}** button will go Red. While recording a macro different menus on the GUI can be entered to gain access to any menu-related functions. Once the macro is completed press the **{Macro Record}** button again and this will end the macro and the button to an unlit state.



When the Macro has stopped recording a dialog box will appear with options to:

- **Save to New & Attach** - this will save the macro to the next available free slot in the saved macro table (this can be seen in the "Macro Save" menu). When this button is touched, the control surface goes dark (the Grass Valley as using the "Attach" function in the "Macro Assign" menu), and allows you to attach the macro to one of the OLED buttons. The OLED button will display the macro file number, when attached, the Macro Save menu will open and the saved macro file is highlighted in the saved macro file table.
- **Edit Macro** - this will allow you to edit the macro in the Macro Edit menu.
- **Save Macro** - this saves the macro into the next available free slot in the saved macro table (this can be seen in the "Macro Save" menu). The Macro Save menu will open and the saved macro file is highlighted in the saved macro file table.
- **OK** - this will also go back to the Macro Edit menu where the macro can be edited before saving.



Once a macro has been recorded, the button press sequence that was recorded is displayed in the Macro Actions table (shown above). Press the **{Test Macro}** button to test the macro just recorded.

Pausing a Macro Record Sequence

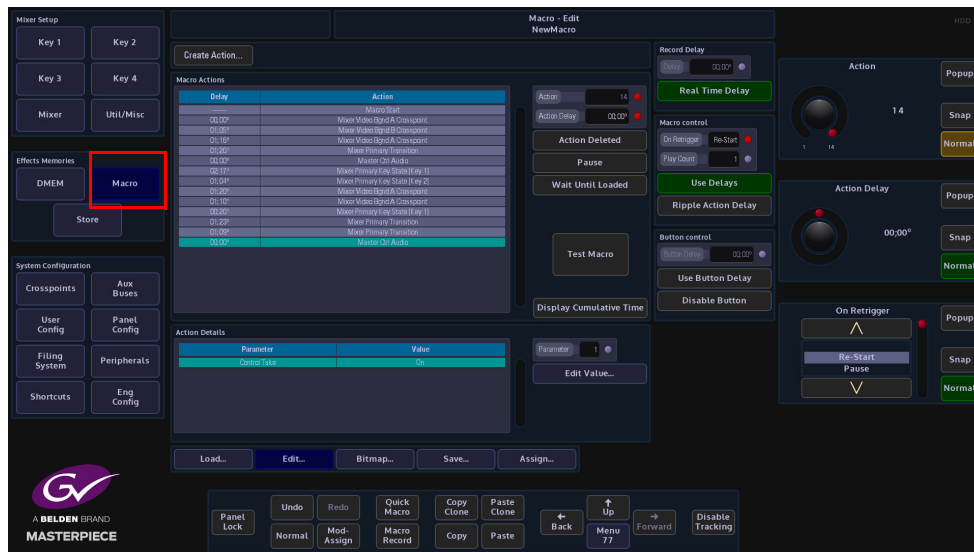
A Macro can be paused once a record sequence has started. Whilst a Macro is being recorded the **{Macro Record}** button is Red. Press and hold the **{Macro Record}** button and it will turn Orange indicating that it is Paused. At this point the Button Delay timer is also paused. Press the **{Macro Record}** button once. The button will turn Red and the record process will start once again.

Note: While a macro is paused, Masterpiece can still run multiple other macros at the Grass Valley time

Appending more Macro Actions to a Macro Sequence

Additional macro actions can be added to a previously recorded macro sequence. In the **{Edit...}** menu, move the highlight bar to the position above where the action is going to be inserted, and then press and hold the **{Macro Record}** button. Again the button will turn Red and the record sequence will start. When finished press the **{Macro Record}** button again to stop recording, and the macro sequence will be added below the highlight bar.

Macro Test and Edit



Test Macro

Once the macro has been recorded, to test and edit the actions, press the **{Macro}** button to enter the **Macro - Edit** menu. If a macro has just been recorded, the functions/actions that have just been recorded are displayed in the **Macro Actions** table. To replay/test a macro, press the **{Test Macro}** button.

Pause Macro

A macro action sequence can be paused at any selected point, There are two ways to do this. Either use the Action parameter to select a specific point in the action sequence and press **{Pause}**, or press the **{Test Macro}** button to run the macro sequence and then press **{Pause}**, at the required point. The next time the **Test Macro** is run, the macro will pause when it reaches the chosen point.

Wait Until Loaded

Wait Until Loaded function will make the macro pause until the file operation is complete. 'Wait' can only be turned on for file operations. Waiting macros which get a re-trigger will behave exactly as if they were paused (i.e. they will stop waiting).

Ripple Action Delay

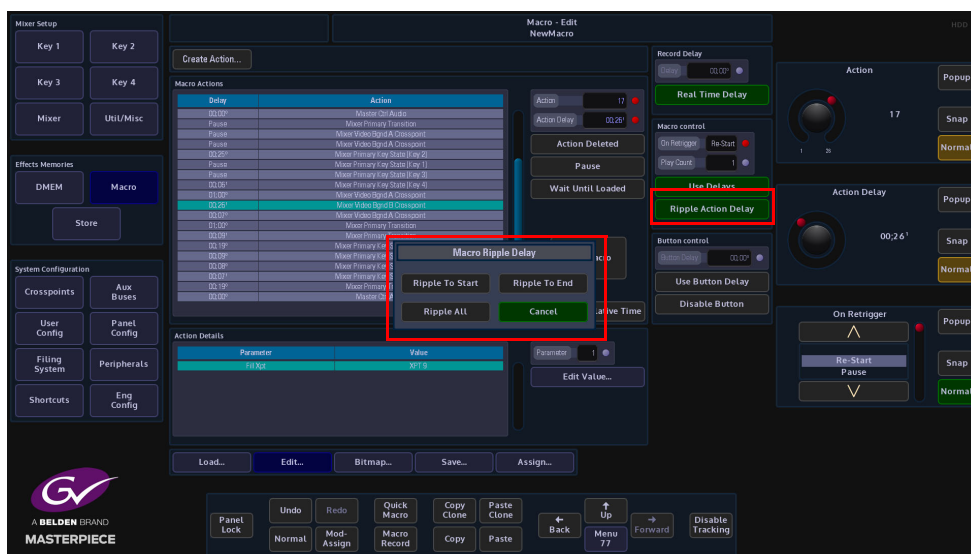
Allows an **Action Delay** that has been set, to be “Rippled” through all Actions in the table from that point onwards.

Pressing the **{Ripple Delay}** button will pop up a Macro Ripple Delay dialog box.

Ripple To Start button will ripple the current delay value to all previous Actions up as far as the first Action in the table

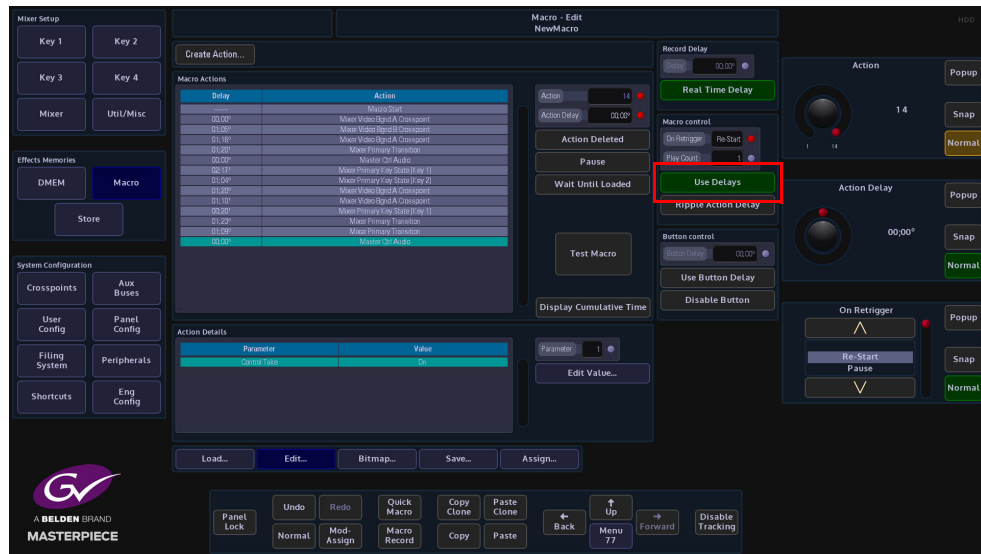
Ripple To End button will ripple a delay from current action to all Actions until the last action

Ripple All button will set all Actions to current delay, and Cancel will cancel the Ripple delay request.



Attacher and Parameter Controls

Use Delays - this function turns the real-time button press delays On or Off.



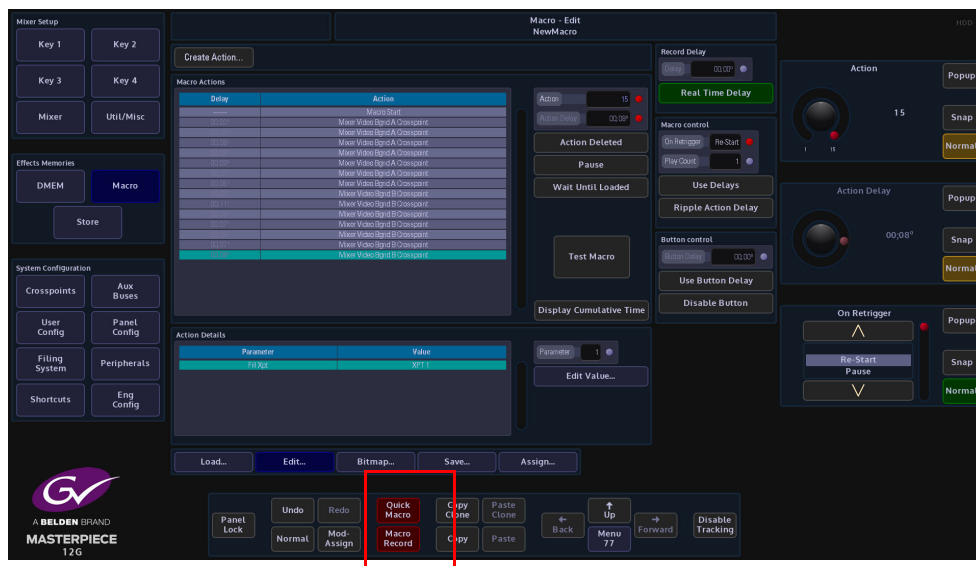
Action Deleted - this will delete a selected Macro Action.

Use Button Delay - this will allow a delay to be added to the Normal function of the button, so the macro will act and then the Normal function will take place.

Disable Button - this option will disable a button's original function and only allow the button to enable the macro that is assigned to it.

Quick Macro

You can record a Quick Macro rather than using the normal 'Macro Record' button. The resultant macro is no different, but specifically does not 'Follow ME' and does not 'Use Delays'. More obviously, it facilitates the quick attachment of the macro onto a button without the need to manually save first.



When the recording is complete, touch and hold the **{Quick Macro}** button. The 'touch' part will automatically save the macro into an unused slot in the current file, and clear the macro edit buffer. The 'hold' part will put the panel into Button Attach mode. This is now indicated by a pulsating effect (note this effect is now also used for other assign/attachment operations like clone attach and live mode). Prior to releasing the 'Quick Macro' button, the target button for the attachment should be pressed and released. This will record the attachment and cancel the Button Attach mode. The 'Quick Macro' button may now be released.

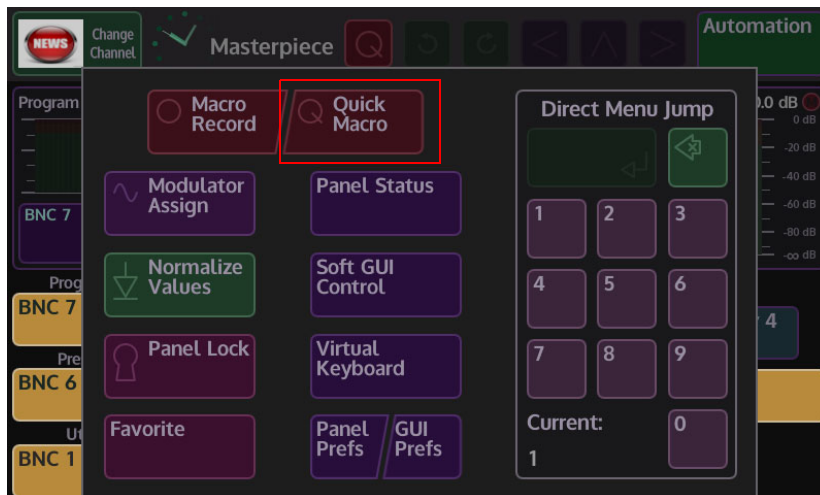
You can still pause during recording by holding down the normal **{Macro Record}** button until it changes color. Recording is resumed when either button (regular or 'Quick') is pressed again.

Additional attachments (of the Grass Valley macro) can be made by pressing and holding the 'Quick Macro' button. This will trigger the attachment stage again.

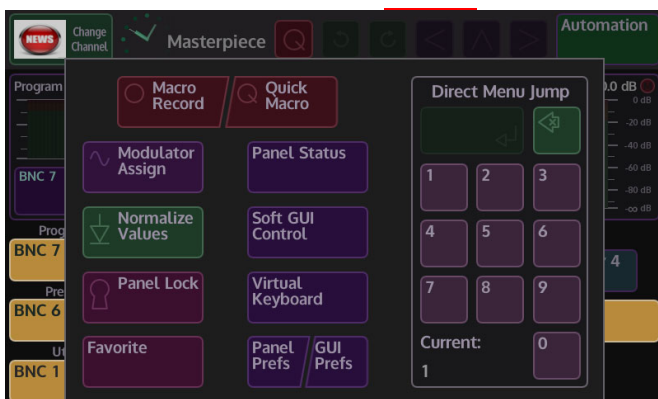
The Quick Macro button on the GUI can be cloned and copied onto a physical button which means you can create, save and attach a macro without resorting to a GUI at all.

Using Quick Macro on the Masterpiece GUI

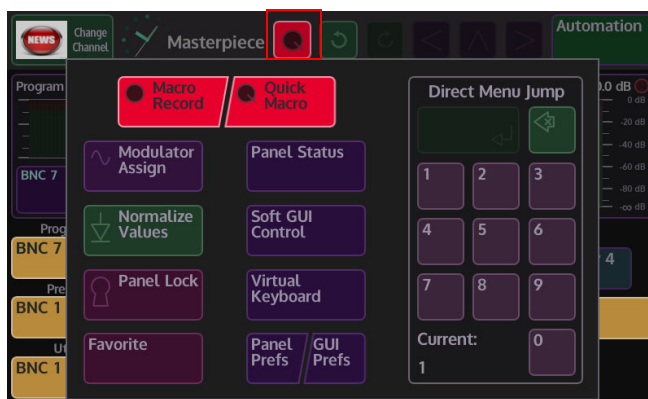
The Quick Macro function can also be accessed on the masterpiece GUI. Using the navigation buttons down the left side of the Masterpiece GUI, touch the "Star" navigation button and a sub menu will be displayed.



The operation of Quick Macro works in exactly the Grass Valley way as described on the previous page, where you touch the {Quick Macro} button to start the record process and the sub menu will close displaying the main menu with the red Quick Macro button displayed at the top of the menu. The Quick Macro button is bright red indicating it is ready to record, after the first button press of the macro record sequence, the Quick Macro button has a black circle in its center.



Quick Macro
Ready to Record



Quick Macro
Recording

To stop the record process, touch the Quick Macro button once more and the button will turn dark red.

Quick Macro is saved in the Grass Valley way as described on the previous page.

Offline Macro Editor

The offline macro editor is a clear, simple and quick way to create new macros or edit existing macros whilst the production switcher control surface is being used to produce a show. The offline macro editor has an intuitive menu structure with all the elements at hand to build the most complicated macros, without having to go through other menus or having to record button presses on the control surface, all within one menu. Once a macro has been created, the delay between the macro actions, pauses and ripple delay can be edited then tested.

Offline Macro Edit Menu

As mentioned above, the Macro Edit menu is the only menu that the user needs to use to create new macros or edit existing menus offline (while the control surface is being used). The diagram below highlights the main offline macro editor functions in red.

These buttons will be explained in detail while working through the Macro functions.

The screenshot shows the 'Macro Edit' window with several callouts:

- Create Action pull down menus, popup elector Insert and Cancel buttons.** (Red box pointing to the top menu bar)
- Macro Action Sequence area.** (Blue box pointing to the central table)
- Button for "Ripple Delay" dialog box** (Blue box pointing to the 'Ripple Action Delay' button)
- Edit Value parameter Edit Value menu link** (Red box pointing to the 'Edit Value...' button)
- Macro Action delays** (Blue box pointing to the 'Action Delay' field)

Delay	Action
00:00	Move Primary View
00:00	Move Primary View

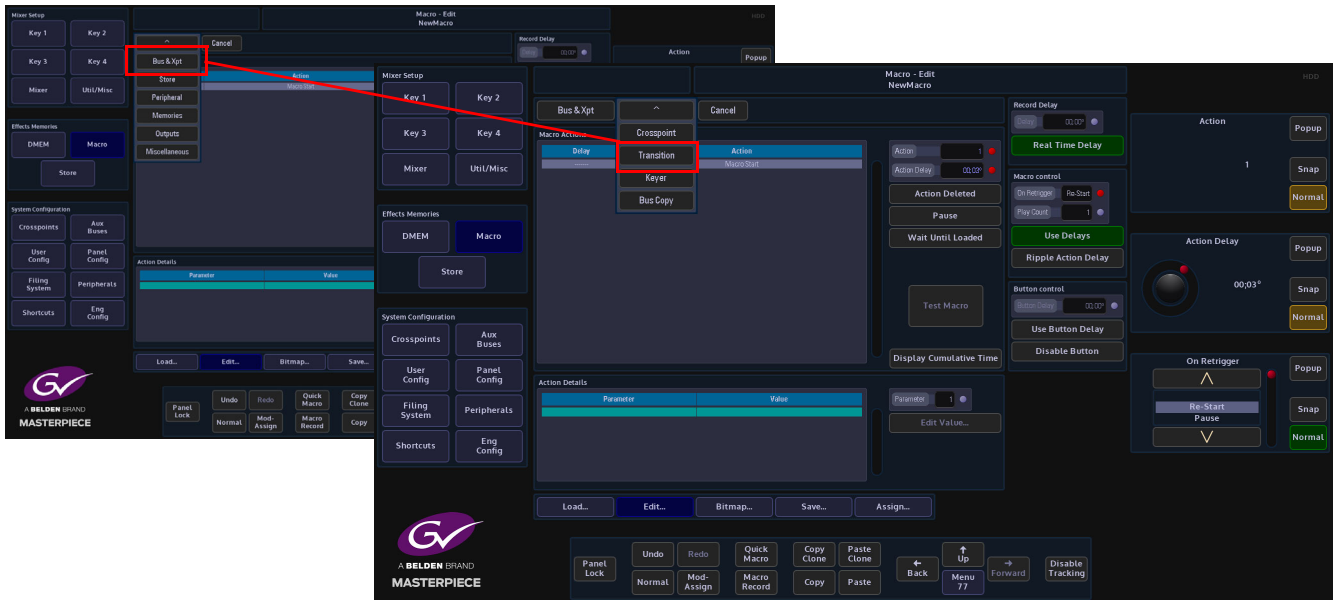
Parameter	Value
WashScales	0.00%

Creating a Macro "Offline"

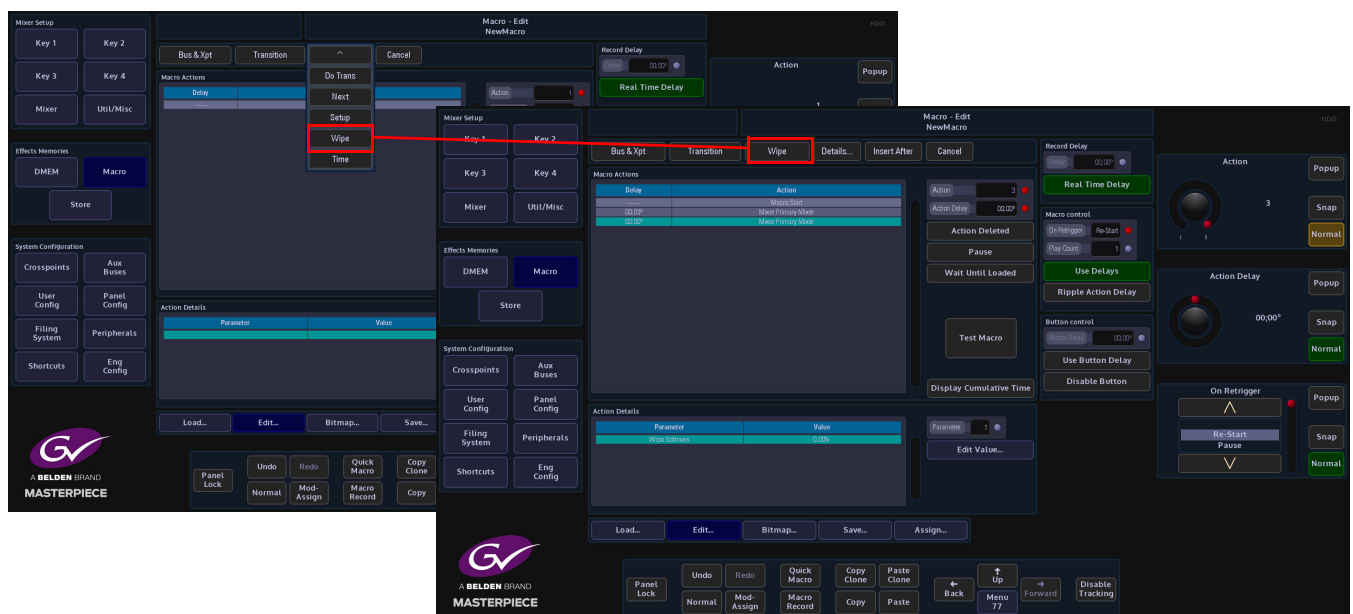
The following example will go through the steps of making an "Offline" macro for a simple wipe transition.

Open the Macro Edit menu, then touch the "Create Action" drop down menu, the menu will go dark and 6 options will appear; Bus & Xpt, Store, Peripheral, Effects, Options and Miscellaneous. These will be the base for all offline macros.

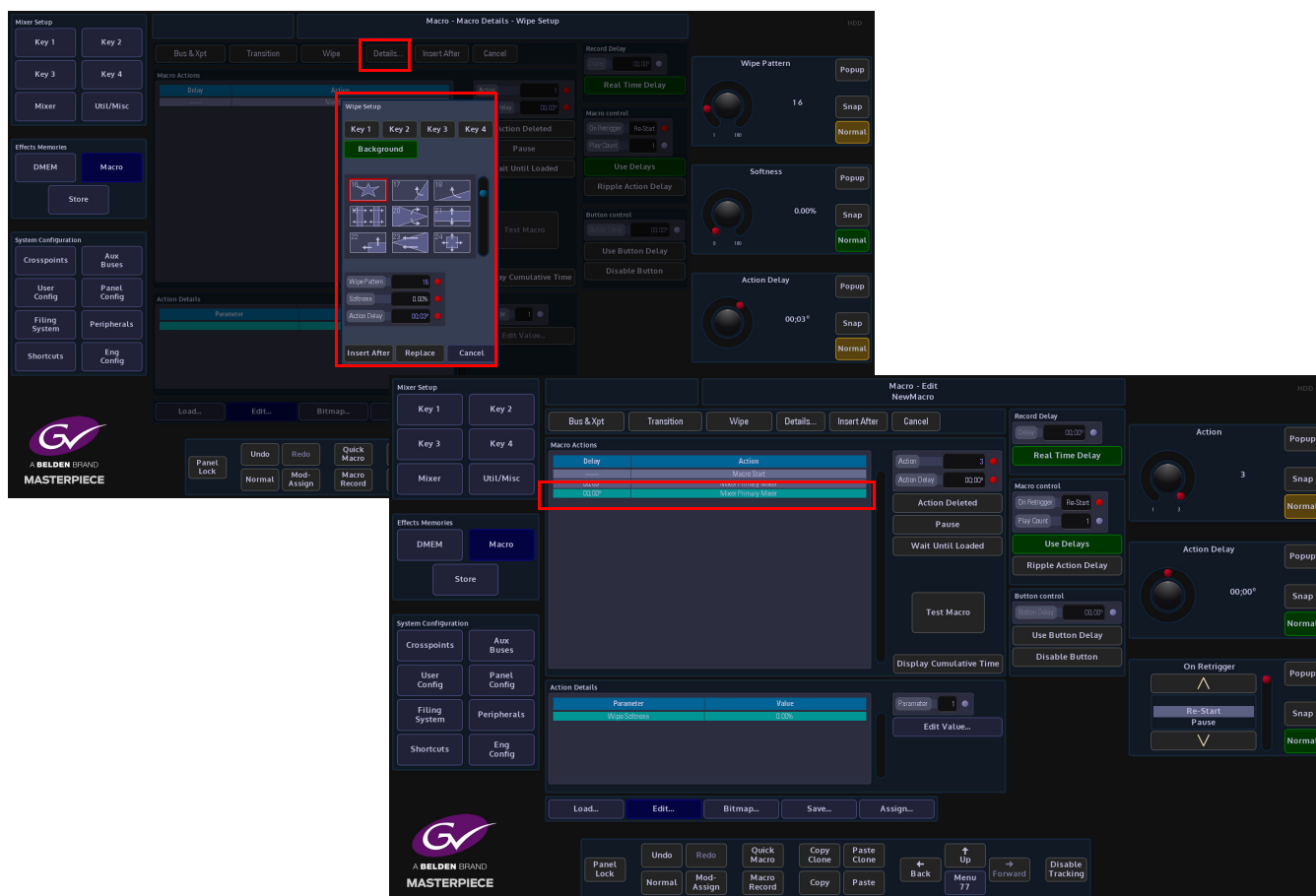
Touch the **{Create Action}** button to start creating a new macro.



Select **Bus & Xpt - Transition - Wipe**, the menu will return to the Macro Edit main menu.



Touch the **{Details}** button and a dialog box will open with “Wipe Setup” options (the dialog box options will depend on the type of macro action being inserted). Select if the transition will be a Key or Bgnd transition wipe, and then select the type of wipe from the wipe table. Finally touch **{Insert After}** to insert the action. The action can now be seen with the macro information in the **“Macro Action”** table below.



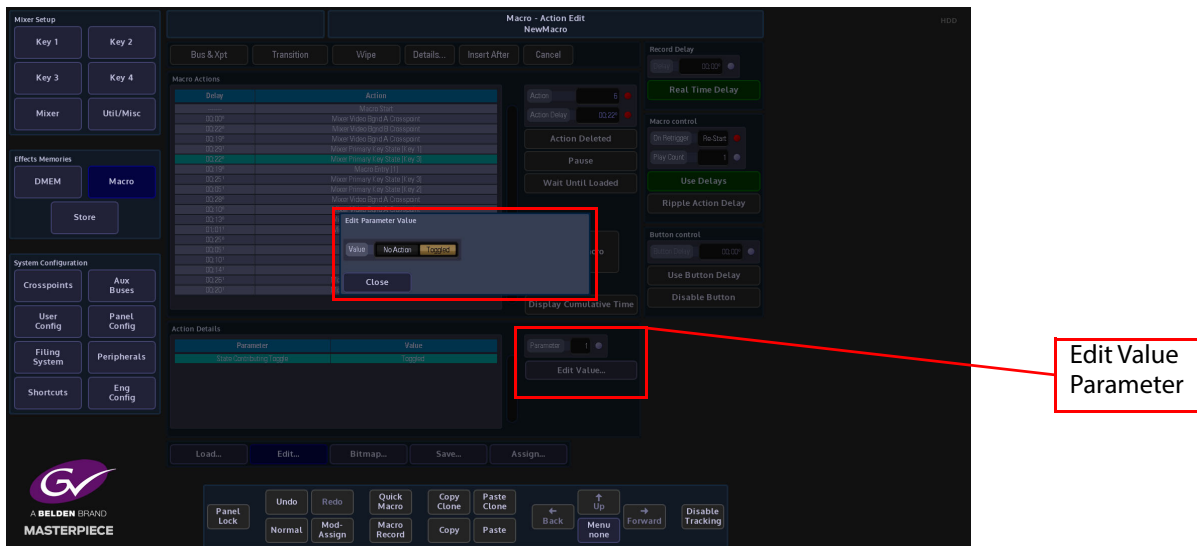
Remember to **“Save”** the macro when done.

Note: Actions can be inserted into an existing macro using the Grass Valley method. Just by selecting where the new action is going to be inserted then using the “Create” offline macro editor to create a new action and insert it into the existing macro.

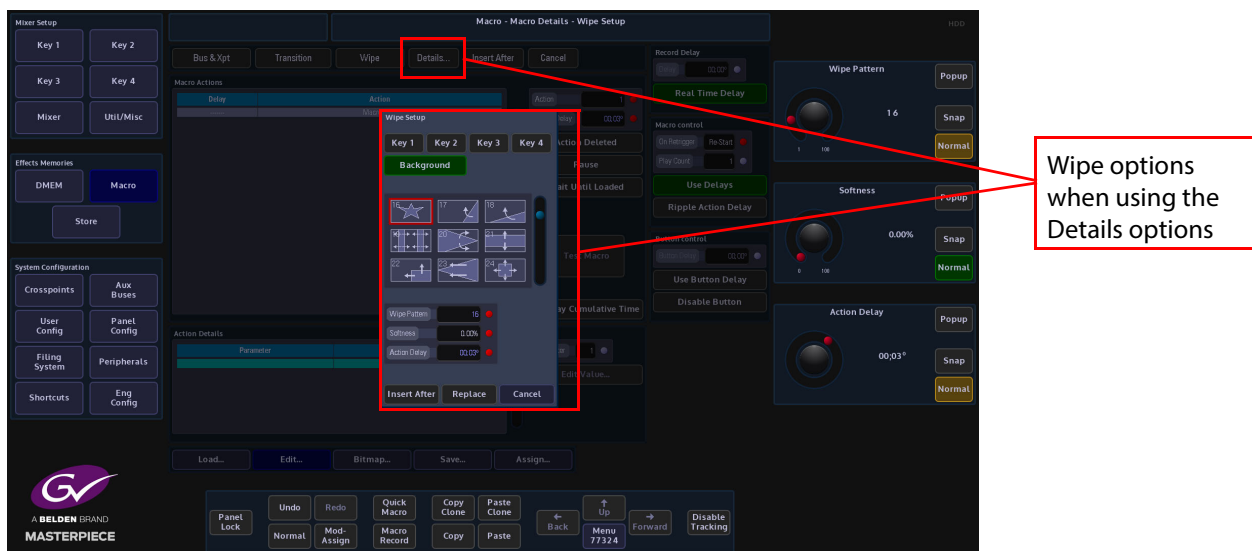
Edit an existing Macro using the Using Value and Details Parameters

There are two ways to edit a macro, the first is to change the value of a recorded action, this means that the user can select an action in the recorded macro list and use the **“Edit Value”** parameter to change the action of the macro.

For example, if a background crosspoint button was pressed as the macro action, the user can use the **“Edit Value”** parameter to change the action to a different background crosspoint.



The second way is to use the **Details** menus which will display a different set of options depending on the action selected; Do Trans, Next, Setup, Wipe and Time. These options allow you to select a completely different action, i.e. change from selecting a background crosspoint to selecting a Key within the selected control, time delays transitions, wipes etc.



The **“Value”** parameter and the **“Delegate”** options can be used to change actions within any previously save macros in any file. This is done by simply selecting the File and Macro and loading the macro within the **“Macro Load”** menu.

Bitmap

If a macro is going to be assigned to a macro button mnemonic display on the Masterpiece control surface, on a MAV-UFBPAD module or on a MAV-AUTO module, a bitmap can be generated that can be associated with the recorded macro and displayed in the mnemonic display above the macro button or on an OLED button.

In the macro main menu, touch the **{Bitmap...}** menu link button.



A bitmap can be derived from several places within the Macro Bitmap menu. The first areas are the **Preset Library** and the **User Library**.

The Preset Library has a range of pre-installed icons. Touch the “**Preset Library**” attacher and then use the “**Preset Library**” parameter to scroll through the icons.

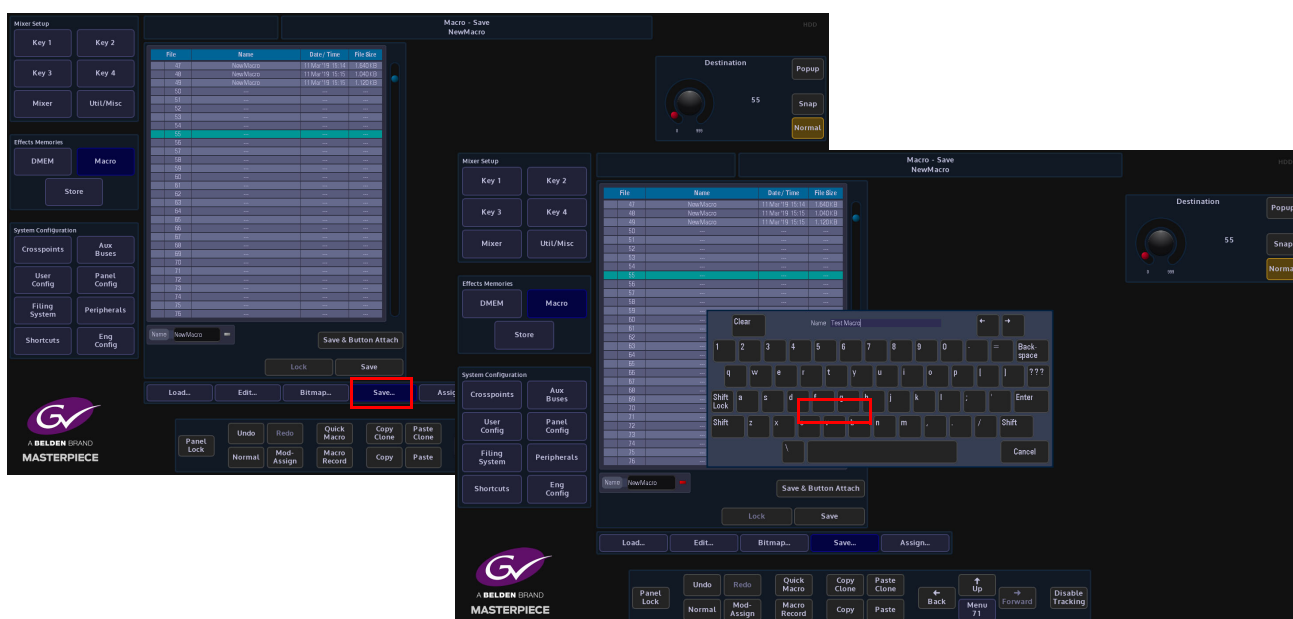


As the user scrolls through the icons, when the required one is found, touch the **{Grab from Library}** button under the icon. The selected icon will now be displayed in the grid.

Once the icon has been selected, the user needs to save the icon with the already saved macro, so that it can be attached to the mnemonic display or OLED button. Touch the **{Assign...}** menu link button and the selected icon is displayed just above the menu link buttons (see below left). Touch the icon and the **"Macro-Load"** menu is displayed. This is only for associating the icon with the macro.



Touch the **{Save...}** menu link button and the **Macro - Save** menu is displayed. Touch to select the required macro in the table and touch the **{Save}** button, a dialog box will appear asking the user if they wish to overwrite the saved macro, touch **{Yes, Overwrite}**. The icon is now displayed in the mnemonic display or OLED button.



The User Library is basically the Grass Valley as the Preset Library in the way that it is used, the only difference is that the icon library will have been created by the user. The user can create their own icon using the “Pen” function or “Text” function.



Scroll through the list of icons in the User Library using the parameter control and then touch **{Grab from Library}**. The icon can be attached to a mnemonic display or OLED button in the Grass Valley way as described above.

The “**Brush Size**” parameter is used to adjust the line thickness when creating an icon for the User Library. Touch the **{Pen}** button, then touch the grid area and the user can now start creating their own icons.



Touch the **{Clear Edit}** button to clear the grid and start again.

As displayed in the menu above, the two hand drawn names have different thickness brush sizes. By touching **{Save to Library}** will save the created icon to the User library.

To create an icon, select **Pen** from the **Draw Mode** parameter and the user can create their own icons by drawing in the large grid area. To delete any mistakes in the grid, select **Eraser** in the **Draw Mode** parameter and rub out the mistake in the grid.

When happy with the icon press the **{Save to Library}** button and the icon will be saved to the User Library.

The **“Text”** function allows the user to type letters into the grid area using the on-screen keyboard.

The **“Font”** parameter gives the user a selection of font choices when typing text using the on-screen keyboard. Touch the {Text} button and a cursor is displayed in the grid. The cursor can be moved to the required position in the grid by simply touching the cursor with a finger then sliding it around the grid.

Touch the {**Keyboard**} button to display the on-screen keyboard and type text into the grid. If the text is not in the correct position in the grid touch the {**Move**} button and use a finger to slide the text around the grid to the correct position.

The **“Store”** attacher is used to select an internal Store or a Sub-Clip. This allows the user to grab the image from the store and use it as an icon. In this attacher, the user can also select an Icon from the icon library



Use the **“Store”**, **“Sub-Clip”** or **“Icon”** parameters to select an image and then touch the {**Grab from**} button to place the image into the grid.

If the grabbed image is going to be used in a mnemonic display, set the **“Full Color Bgnd”** to **“No”** because the mnemonics are mono color. Set to **“Yes”** if the image is going to be used for an OLED button.

The “**Colors**” attachers change the color and brightness of the macro buttons on the control surface.



The “**Ready**,” “**Running**” and “**Pause**” parameters allows the user to change the default color of the buttons after they have been attached to a macro. The “**Brightness**” parameters are also used to change the brightness of the different states of the macro buttons. The “**Foreground**” Color and Brightness parameters are used to change the default state of an OLED button.

Quick Text

Entering text into the bitmap grid can take a little time to get the text into the correct position with the right font size. The “Quick Text” menu allows you to quickly place text into the gray bitmap square and whilst typing, the text automatically size itself within the boundaries of the bitmap grid.

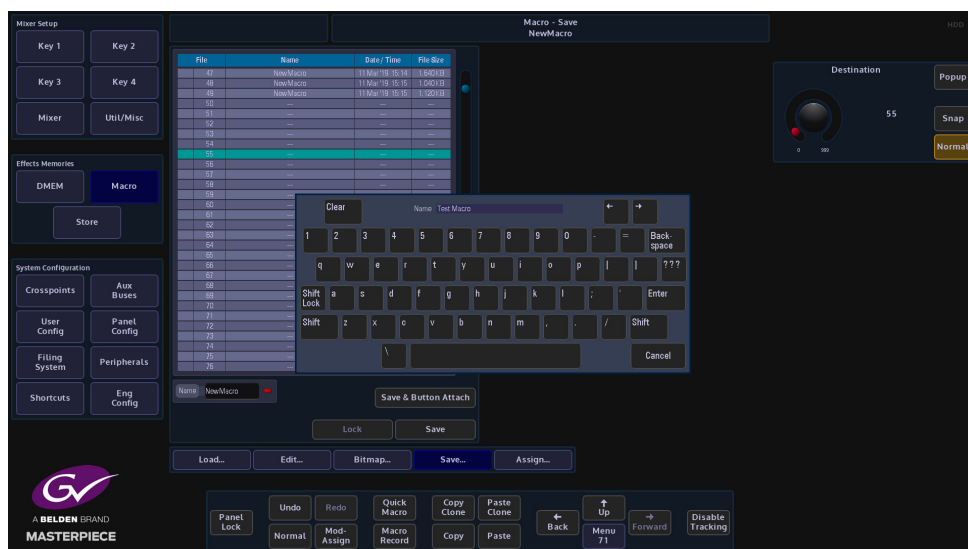


Touch the **{Quick Text}** button and the “Quick Text” menu will be displayed. Turn the “Auto Font Size” parameter to “On” and then start typing the text with the on-screen keyboard. As more text characters are added the font will auto size itself the size of the quick text box grid. Text can also be aligned more accurately using the “Alignment” buttons. After finishing entering the text, touch the **{Apply}** button.

Saving a Macro

Once the macro has been setup, configured and a bitmap has been chosen, the next step is to "Save" the macro.

Press the **{Save...}** menu link button to enter the Macro - Save menu, then using the parameter controls, select a **Current File** and a **Destination** within the **Macro Save** table.



A Name and Description of the macro can also be added by touching the Red attacher button twice, and entering the required name and description using the on-screen or USB keyboard.

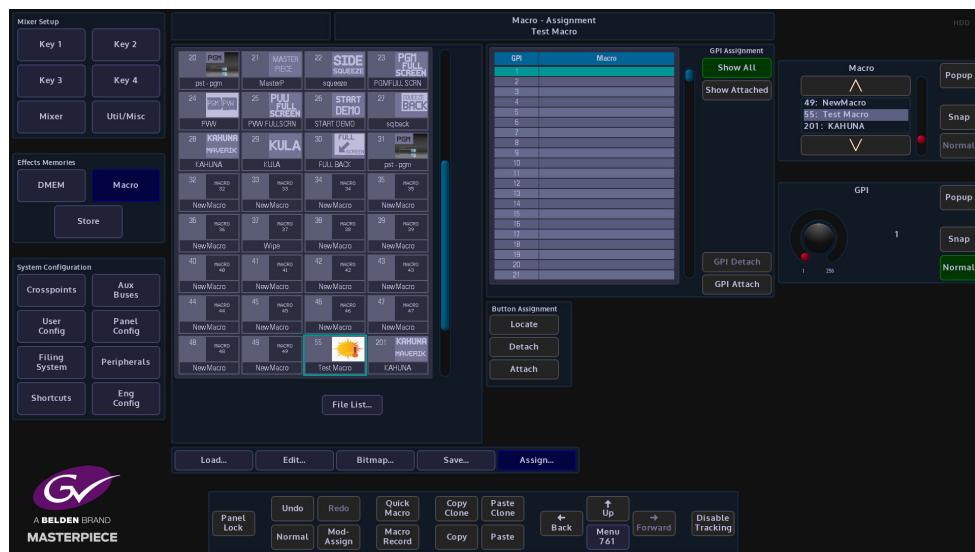
Finally, press **{Save}** and the macro will be saved to the Hard Disk along with any associated Bitmap, Store image or Icon image.

If the user then assigns the macro to a button, the bitmap image from the grid is also assigned to the button.

Note: Up to 1000 macros can be saved in a single File.

Assigning Macros to buttons

Press the **{Assign...}** menu link button. The Macro Assignment menu will then open. This menu has a table that displays a list of macro's that are saved within Files.



To attach a macro to a button on the control surface, first select a File using the Current File parameter and then select a macro within that File.

Press the Button Assignment **{Attach}** button and the button will go Red. All the control surface buttons will now go out ready for the user to select a button; buttons with macros already assigned will go Green. If the selected macro is already assigned to a button it will be lit Red.

Note: The Grass Valleye macro can be assigned to as many buttons as required.

Press the button on the control surface where the selected macro is going to be attached. The panel will return to the normal configuration and the macro will be attached to the button.

To detach a macro from a button on the control surface, press the **{Detach}** button. Once again the button will go Red. The control surface lights will go green for buttons with macros attached and any button which has the currently selected macro in the table will be lit Red. Press the button you want to detach the macro from. The control surface will now return to its normal configuration. The **{Detach}** button in the menu will go Gray and the macro will no longer be associated with that button.

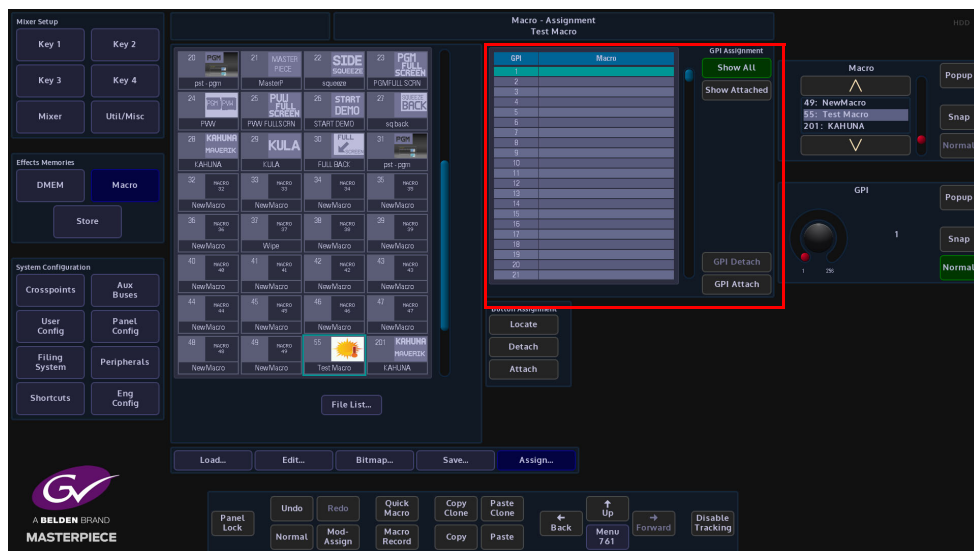
Note: The macro is not deleted the from the File, just removed from the button it was attached to.

To find out which macros are attached to buttons, press the **{Locate}** button on the GUI. Any button on the panel with a macro associated with it will either be lit Green or Red as described above.

Pressing a button on the control surface which has a macro attached will highlight the macro in the table. This will work in reverse as well. To find the particular macro, touch on it in the macro table, then press the **{Locate}** button. Any button with that macro attached will light Green.

GPI Assignment

This function allows an external device to control a saved macro. The GPI parameter control selects the GPI pin that the external device is connected to. The selected GPI pin and attached macro are displayed in a table in the GPI Assignment area.

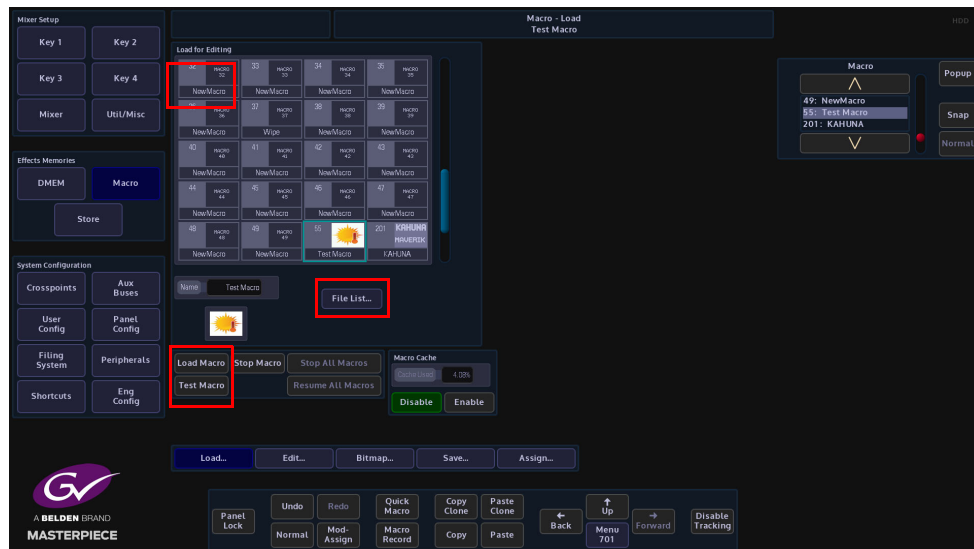


To attach a macro to a GPI pin, select the macro in the macro file table, and then use the GPI parameter to select the required GPI. Once the correct GPI pin has been selected, press the **{GPI Attach}** button to attach the external device to the macro. The table next to the Attach/Detach buttons displays the GPI pin and the attached macro.

To Detach a macro from a GPI, select the GPI/Macro in the table and then press the **{GPI Detach}** button. This will detach the GPI pin from the external device.

Macro Load

The macro load menu will load a Macro into the active buffer ready to use. The macro can then be attached to a button on the control surface.



There are two ways to view the saved macros:

- As a list of macros in a table
- As a list of Icons that have been attached to the macro.

Select a **File** using the File parameter control. Notice that if a File has any macros attached they are listed in the Load for Editing table.

Once a File has been selected, a macro can then be selected using the Macro parameter control. The File and the macro are also listed in the Name/Description information bars below the table.

{Load Macro} - will load the selected macro into a buffer ready to use once attached to a button the control surface.

{Test Macro} - will run the macro function.

{Stop All Macros} - will stop all running macros.

{Resume All Macros} - when a macro is running this button light Orange. If a macro has had a pause inserted, the macro will run until it reaches the pause and will stop. The Resume All Macros button will flash along with the **{Test Macro}** button. Press the Resume All Macros button to start the macro running once again.

If a macro has a bitmap associated with it, this will be displayed in the Gray bitmap display next to the Test Macro button.

Cache Used is an indicator to show how much memory is used.

Apply Cache Change - will apply any change to the Cache File number.

Note: If it is updated as the parameter is changed many files would load/unload as each File was passed!

17 Stores

Overview

Stores are one of the most important functions within a Masterpiece system. They are used as internal sources and are globally available throughout the system for Crosspoints, Keys, Util Bus and Auxes etc. Stores are comprised of **Still** images or **Clips** of video and **Audio** files called **ClipTrax™**. The Stills, Clips and Audio that can be either imported into the mainframe via the Filing System menu, or “grabbed” into the internal memory from any source connected to the up to 36 inputs to the Masterpiece mainframe.

Stills and Clips and Audio are individual files that are saved into user-defined files. Up to 1000 stills and clip files can be saved.

Note: When loading video clips into Stores, Masterpiece will automatically allocate the correct amount of time (memory) to the Store to allow the clip to play once loaded, up to the maximum amount of memory in the mainframe. The amount of video storage available will also be affected by the type of video standard set by the user.

Before still images, video clips or audio can be imported into the Masterpiece mainframe, the files have to be processed through a software application called **K-Manager**; which converts the original file format into the Masterpiece native.sws format.

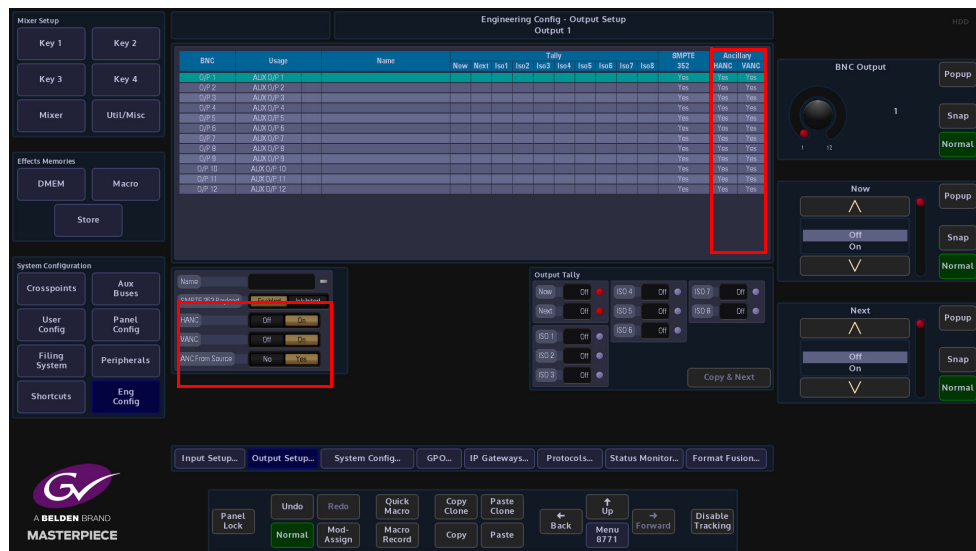
Note: K-Manager is a free software application that comes as an accessory with a new system, or can be downloaded from the **Grass Valley** website (see the contact details at the rear of this manual).

ClipTrax™ - overview

A unique feature to Masterpiece is that the Stores functionality is now capable of storing audio as well as video, the Audio Store function is known as “ClipTrax “. The audio and video data in an individual Store are kept in separate areas of memory and can be manipulated independently of each other (described later in this section).

ClipTrax can be used for example as an Audio accompaniment on a general background, or as a voice over.

Audio can be output to any of the up to 12 outputs as “Embedded Audio” this is setup in the **Eng Config - Output Setup**, where the user turns the “HANC/VANC” function On for an output to pass audio.



Also make sure to enable the “ANC From Source” parameter, this will allow ancillary data to be passed through the system for the original source material.

The audio information is output as AES 8 channel audio with video, which is output as SDI. The ancillary audio can also be passed via the Store functionality, which is the ClipTrax option, the embedded ClipTrax audio can then be passed to the mainframe outputs.

The audio or audio and video can be grabbed from an imported Clip, and then placed in one of the available Stores. Here the audio and video can be manipulated separately to build a clip or the audio can be combined with video in another Store to build a clip.

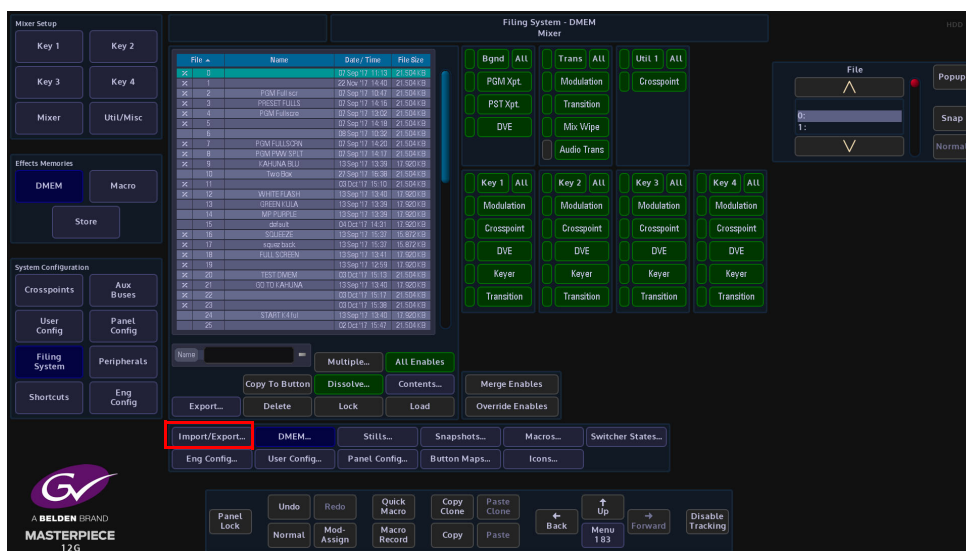
Audio can be imported using the Filing System Import/Export option, from a memory device, and placing the imported audio.

If imported using a memory device, the file format must be a.WAV file with the following rules applied: 48kHz, 24 bit, that can contain up to 8 channels of audio.

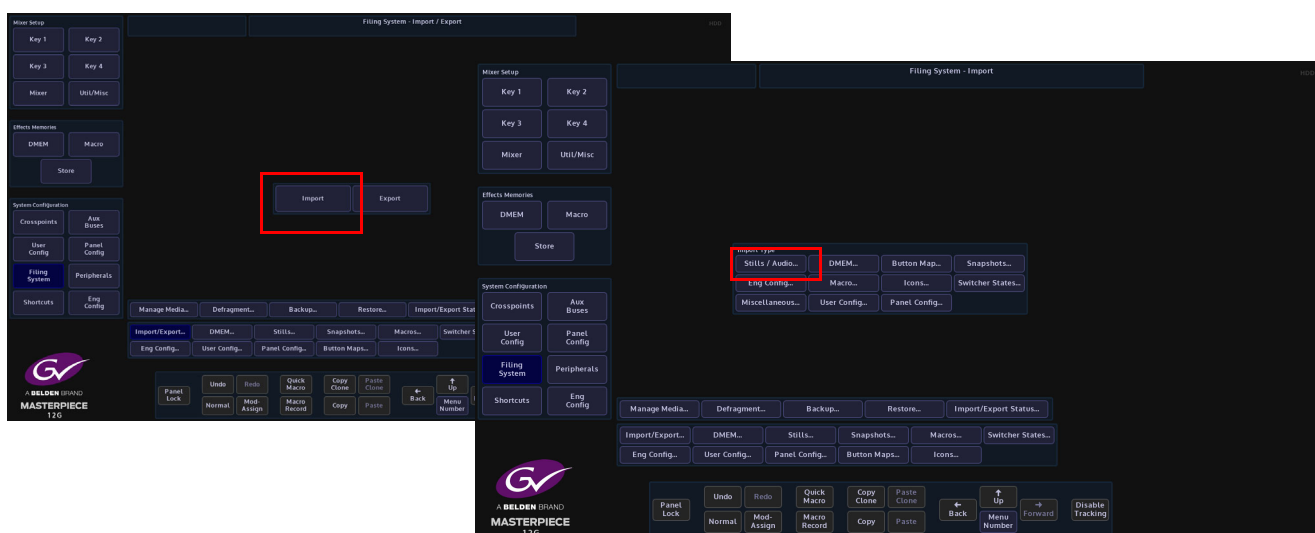
The files can be can loaded or saved maintaining the Audio or Video in a Clip.

Importing Stills and Clips

It is important to understand how to get Stills and Clips into the Masterpiece mainframe before using the Stores menus. As mentioned earlier, Stills and Clips can be imported into the mainframe via the **Filing Sys** menu; through one of the USB ports on the mainframe. To do this, connect the hard disk drive or memory device to the mainframe and then press the **{Filing System}** button on the GUI.



Press the **{Import/Export...}** button and then in the Import button area, press the **{Stills...}** button.

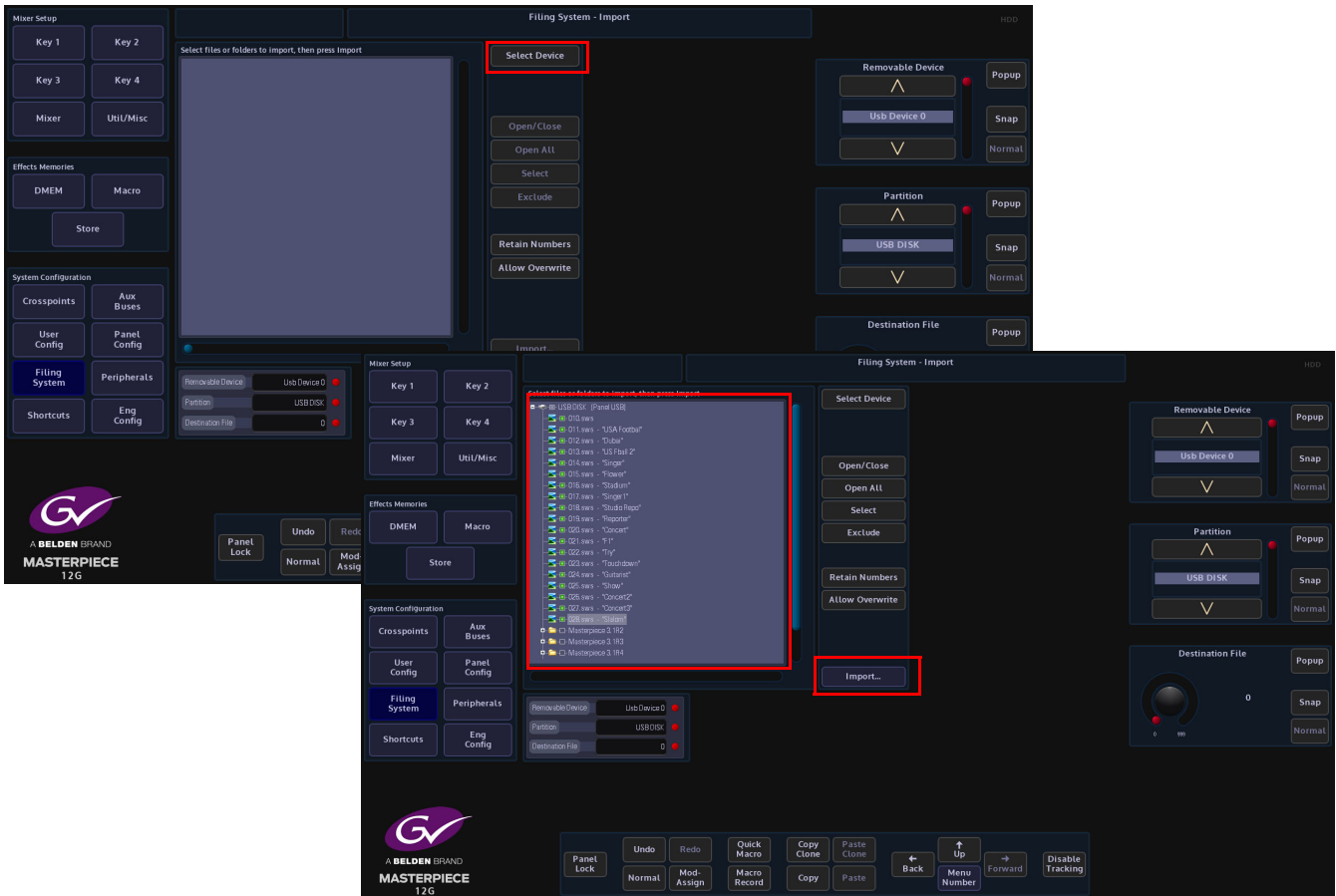


Use the **Removable Device** parameter to select the memory device containing the stills or clips and press the **{Select Device}** button. The contents of the memory device will be displayed in the gray area, left hand side of the menu. Use the **Destination File** parameters to select where the files will be imported to.

Using the **Selector** parameter and **{Open/Close}** button, navigate to the files that are going to be imported. Again use the **Selector** parameter and the **{Select}** button to select the required files and then press **{Import...}**.

The files will now be imported to the selected File destination ready to use.

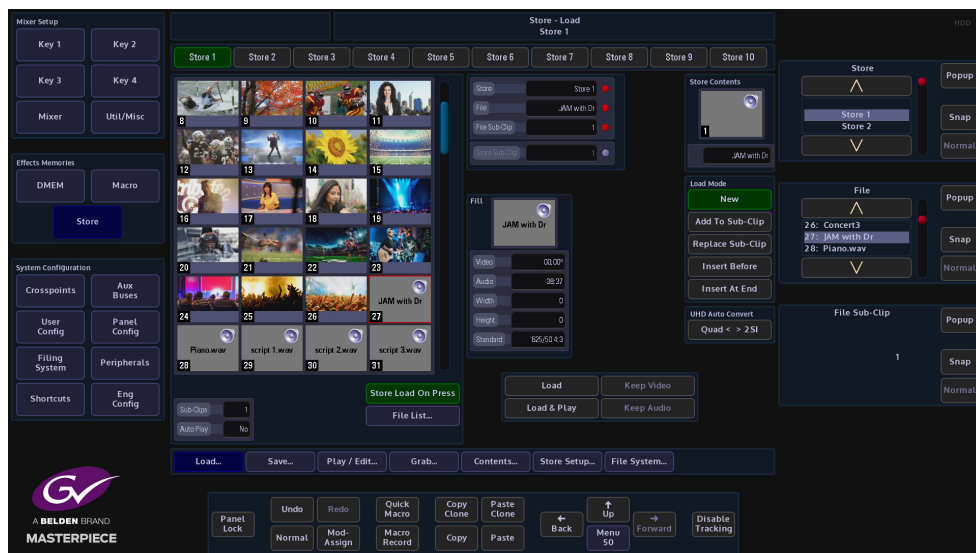
Going back into the filing system main menu, the imported files can be found in the **{Stills...}** menu as shown below. In this menu a new name and description can be given to a selected file using the on-screen keyboard.



Store Load Menu

The **Store Load** menu as the name suggests is where **Stills** and **Clips** are loaded into Stores. To get to the **Stores** menu, in the Home menu, press the **{Stores}** menu link button from the list of **Global** functions.

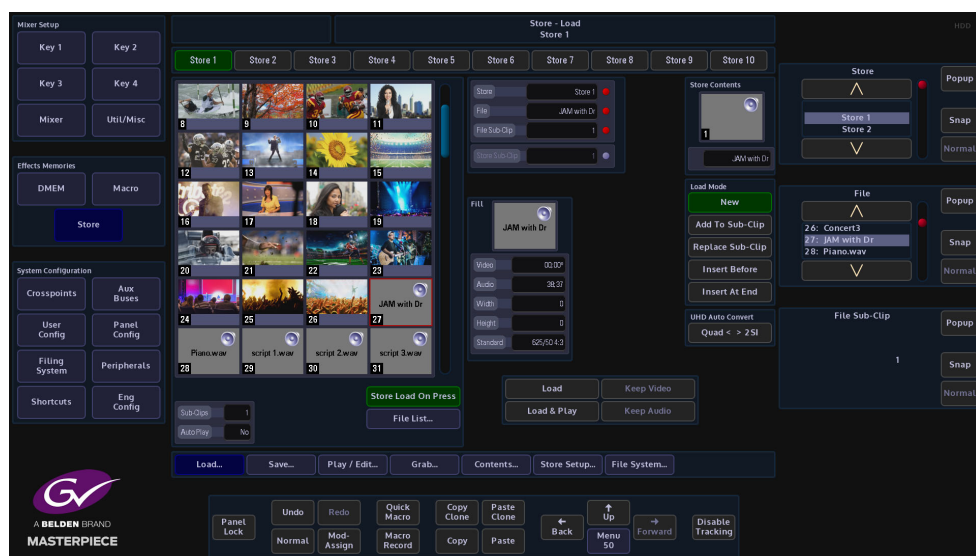
The first menu that will appear is the **Store - Load** menu.



Using Store Load

When the user imports Stills and Clips files into a Masterpiece mainframe, they are all imported into the "Stills" filing system in the Filing System menu. To find the stills and clip files, use the **File** parameter to scroll through the Files "mini pics" change to reflect what is in each File.

Note: Notice that there is a number in the bottom left corner of the minipic. This is the.sws number given to the still or clip when converting it in the K-Manager software.



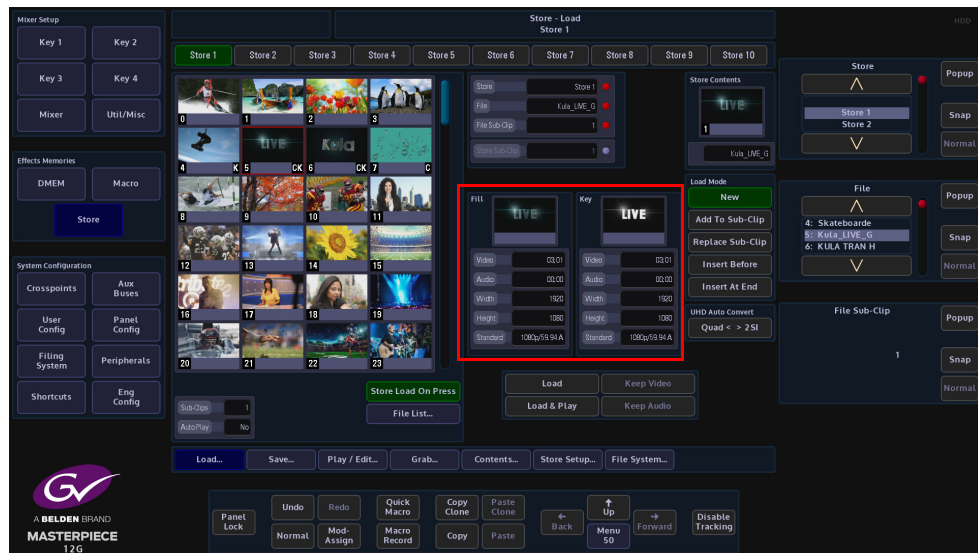
In the **Store Load** main menu, the Stills, Clips and Audio Clips are sequenced in numerical order. This number appears on the bottom left of the mini pic starting with 0 and ending at 999 depending on the number given to the still or clip in the K-Manager software.

The minipic is generated from a still or the center frame of a Clip. The bottom right hand corner will display "C" if the image is a Clip.



A "K" in the bottom right corner indicates that the Still or Clip has a Key saved with it. The Key will be loaded into the Coupled Store. A "CK" identifies the clip as having a Key associated, and would be used when keying over a background. A speaker in the top right corner signifies that the Store contains audio content.

The two minipics in the middle of the menu depict the currently selected Still, Clip, Audio file or Fill and Key portions of the file.

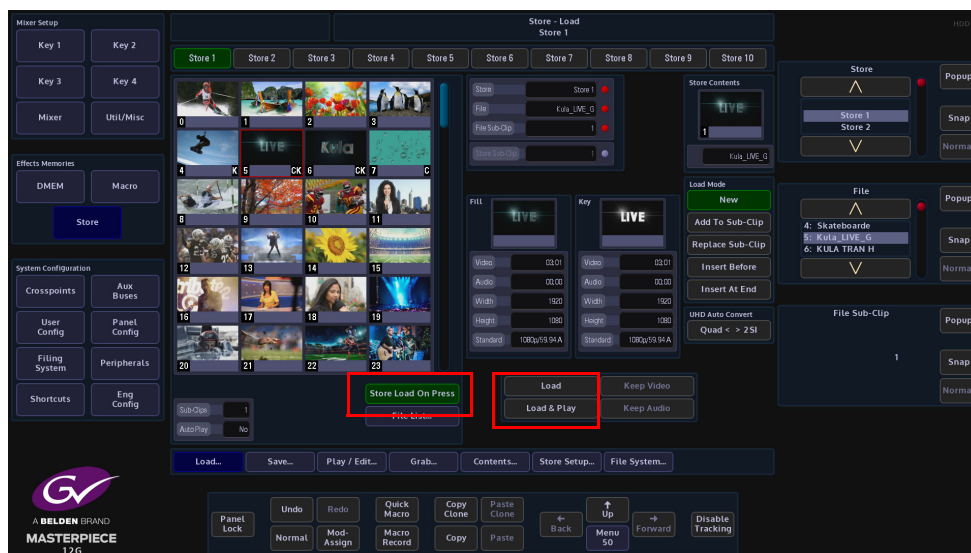


Notice in the diagram above that the Fill portion of the file is on the left and the Key portion is on the right. Below the minipics displays the details of the currently selected still or clip file.

Loading a Still or Clip into a Store

Touch the Store that the Still or Clip file is going to load into. Then press the **{Load}** button to load the image into the selected Store. If the **{Store Load on Press}** button is selected, touching a still will automatically load it into the store.

When loading a clip into a Store, the Load button will light up green and stay lit until the clip is loaded. The process may take a few seconds depending on the size of the clip, especially if the clip is in a 1080p video format and a few seconds long.



When selecting a clip, press **{Load & Play}** and the clip will load into the Store and play for the duration of the clip.

If the original Fill Store is an audio only file, and the user wants to keep the audio content as part of a new Still or Clip, by pressing the **{Keep Audio}** button the audio content will remain as part of the new Fill Store. This could be used for example in a Clip Transition.

This option is the Grass Valley when an audio file is loaded and the “Keep **Video**” function is used.

Note: This function will only work when the **Load Mode** parameter is set to **Replace Sub-Clip** (as described below) the Keep Video and Keep Audio buttons will be grayed out if Load Mode is on any other setting.

Load Mode Parameter

New - Allows the user to load new stills and clips into a Store.

Note: Any stills or clips in the selected Store will be over written.

Add To Sub-Clip - This will send a still or clip to the Sub-Clip folder of a selected Store, each time a still or clip is selected by touching the miniclip or pressing **{Load}** the still or clip will be sent to selected Store as a sub-clip. In the Append To Sub-Clip mode, if a different still or clip is loaded into sub-clips, the original still/clip will be over written.

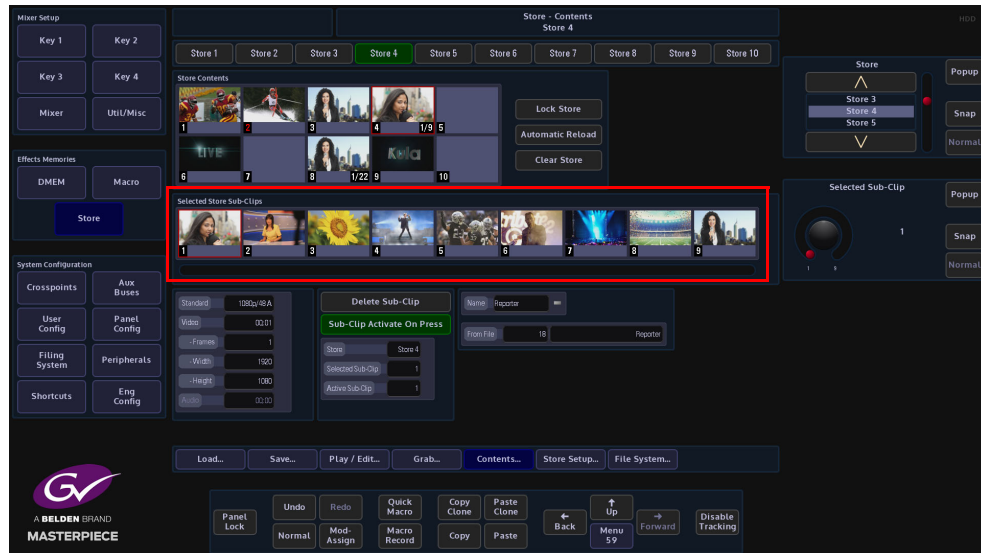
Replace Sub-Clip - This will replace a still/clip in the selected Store Sub-Clip.

Insert Before - If a number of stills/clips have been loaded into the **Sub-Clip** folder, using the **Store Sub-Clip** parameter to move to a defined point within the sub-clip line-up, a still/clip can be instead before the selected still/clip in the sub-clip line-up.

Insert At End - Allows the user to insert a still/clip at the end of the Sub-Clip lineup, to the point at where the sub-clip folder is full.

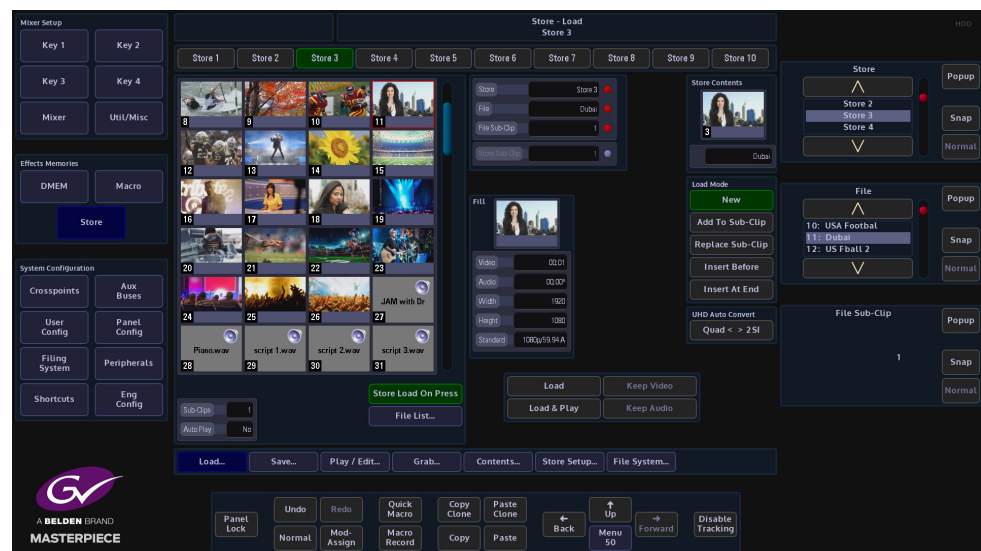
Sub-Clips

Sub-Clips is a function that allows up to 31 stills and clips to be loaded into a single Store. This allows quick and easy access to stills and clips without having to load each Store when it is needed.



Creating Sub-Clips

As mentioned earlier, Sub-Clips are multiple stills and clips that have been loaded into a single Store. Sub-Clips are created in the **Store Load** menu, using the **Load Mode** parameter.



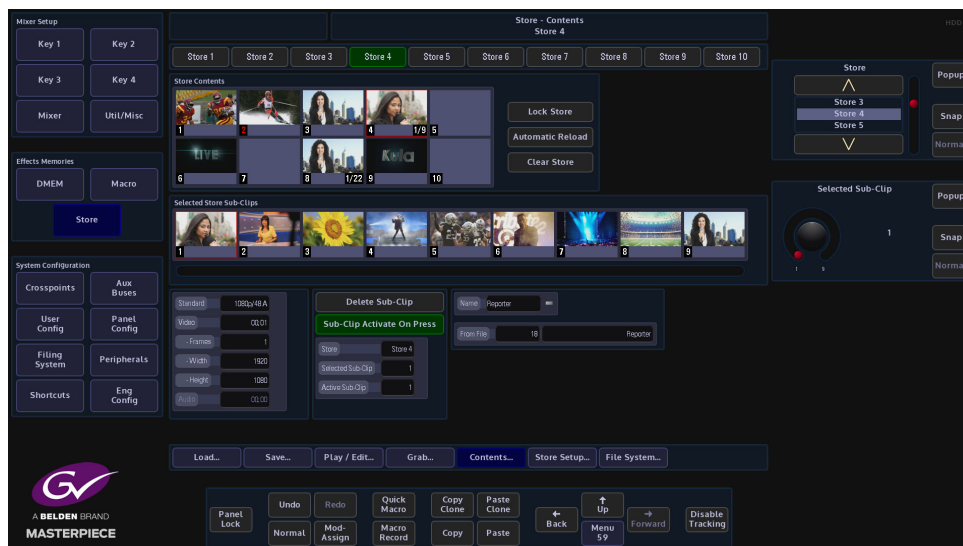
Use the **"File"** parameter to select a still or clip.

Use **"Store"** parameter to delegate the Store that will contain the sub-clips, then use the menu expander in the **Load Mode** parameter set to **"Append To Sub-Clip"** to start entering stills/clips.

Touch a minipic and it will be added as the 1st sub-clip in the selected Store. Look at the **File Sub-Clip** parameter and it will have "1" highlighted. Set the **Load Mode** parameter to "Insert At End" and then each minipic that is touched will load a still/clip into the Store as a sub-clip.

Up to 31 stills/clips can be entered into sub-clips for each Store. In the Store Contents menu, the Store that contains the sub-clips will have the number of stills/clips loaded at the bottom right of the minipic (as shown above in the right hand side menu).

To see the Sub-Clips that were just loaded, enter the **Store - Contents** menu. The selected Store that contains the sub-clips should have a yellow box around the Store. Use the top rotary control to scroll through the loaded the sub-clips.



Next, enter the **Contents** menu, then using the **“Selected Sub-Clip”** parameter to scroll through the list of sub-clips. Information regarding the video standard, length of clip etc. is displayed in the left side of the menu.

The loaded sub-clips are displayed along the bottom of the menu. The user can use Sub-Clip parameter to scroll through them or use their finger to slide the list horizontally left/right to get to the desired sub-clip.

On the Masterpiece control surface, if the crosspoint that the Store containing the sub-clips is selected, then what ever sub-clip is selected will be displayed on a monitor.

Delete Sub-Clip - will delete the selected sub-clip still/clip out of the Store

Clear Store - will clear all sub-clips out of the selected Store.

Automatic Reload - when set to Yes this causes the still or clip to be automatically reloaded from the hard disk whenever the original file location is updated. If the Store contains something that was grabbed rather than loaded, then this has no affect.

Lock Store - will lock the Store down and not allow any sub-clips to be deleted from or any changes made to the selected Store.

Store Play/Edit

This menu allows the user to play or edit a selected clip.

Touch the **{Play/Edit}** menu link button to open the **Store Play/Edit** main menu (as shown below).



Transport Controls



1 Play/Rev - plays a clip forwards and in reverse at standard speed

2 Stop - stops a clip

3 Steps to Start or End - steps to the end or the start of the clip

4 Frame Step - steps a clip forward and backward by one frame

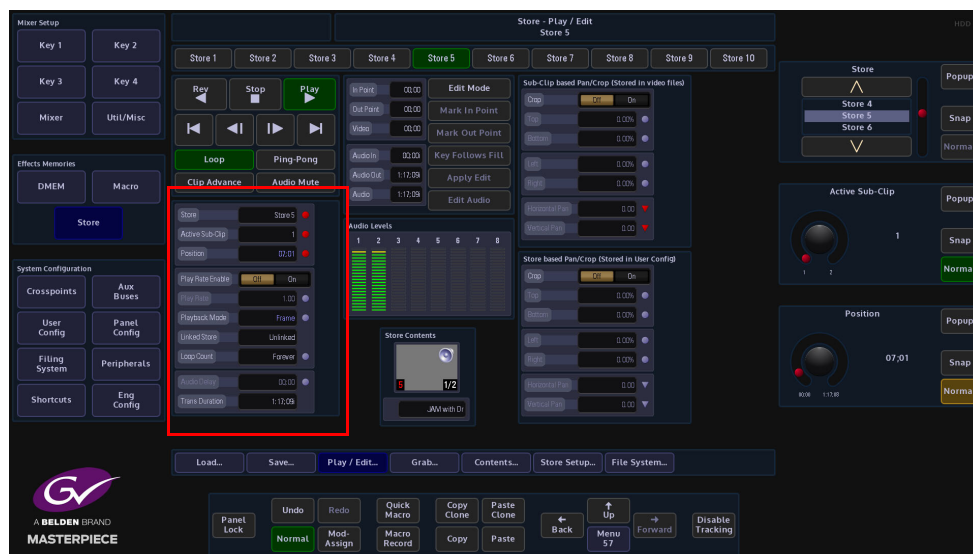
Loop - will make the file loop from start to finish indefinitely.

Ping-Pong - will make the file run from start to finish then finish back to the start again constantly.

Clip Advance - will automatically go to the next clip in the Store when the previous clip is finished playing.

Audio Mute - will mute any audio that a clip may contain when playing a clip

Parameter Controls



Active Sub-Clips - this displays the number of sub-clips within the selected Store.

Position - displays the current run time of the selected clip

Play Rate - this can be used increase or decrease the play rate of a clip. It has to be “Enabled” for this function to work. The default is set to “1.00” which is normal speed.

Playback Mode - The user has the option to play back Clips in **Field** or **Frame** mode, or **Field 1 Only** or **Field 2 Only** using the **Playback Mode** parameter control.

This feature can be used if a Clip is made from a sequence of individual Stills. If each Still is a Frame in duration the user can Play/Position the Still and in the Stop state, both fields (Full resolution) will be displayed. If the material is Field-based then in Frame mode the user will risk seeing flickering images from two different fields.

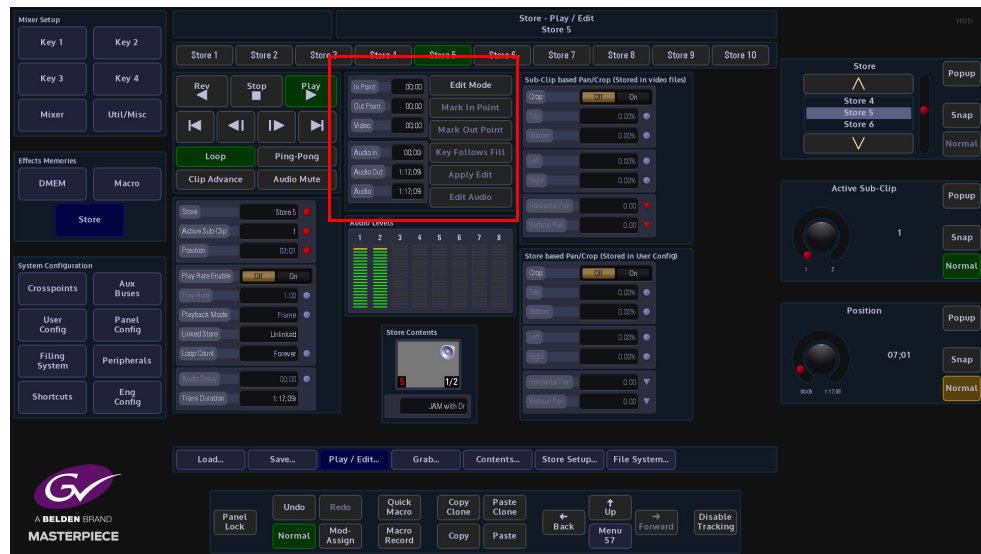
Loop Count - this parameter selects how many times a clip is played back in a loop. When set to “0” the clip will play until stopped. The parameter can be adjusted from 1 to 100 loop counts.

Audio Delay - if the audio needs to start later than the video, the Audio Delay parameter can be adjusted.

When set to 0% (default) the audio and video will start at the Grass Valley time, +100% the audio will start after the video finishes. -100% the video starts after the audio has finished.

Trans Duration- this parameter displays the current Transition Duration time. The user is able to use this information when setting up an audio/video clip to be used in a clip transition.

Using Edit Mode



Press the **{Edit Mode}** button, then using the **Position** parameter control, the user can setup “in” and “out” points on the Audio/Video Clip.

Position the start point of the Clip as required and then press the **{Mark In Point}**. “In Point” button. A numeric keypad is displayed that allows the user to enter a time. It is the method for the **{Mark Out Point}**.

Press the **{Apply Edit}** button and the changes will be applied to the selected clip

Come out of **Edit Mode** by pressing the **{Edit Mode}** button. When the **{Play}** button is pressed, the Clip will only Play, Loop or Ping-Pong, from the set In Point and set Out Point. This new Clip can now be saved.

Follows Fill - If editing a clip that has an associated Key signal, Key Follows Fill is will also mark the selected In and Out Points for the Key signal in the coupled Key Store.

Edit Audio - this allows the user to edit and audio clip in the Grass Valley way as editing a video clip as described above.

Audio Levels

As mentioned earlier, clips can contain up to 8 channels of AES audio, so the audio information is output as AES 8 channel audio with video, which is output as SDI. The ancillary audio can also be passed via the Store functionality, which is the ClipTrax option, the embedded ClipTrax audio can then be passed to the mainframe outputs. The audio levels are displayed in the center of the Store Play/Edit menu (as shown above).

The audio or audio and video can be grabbed from an imported Clip, and then placed in one of the available Stores. Here the audio and video can be manipulated separately to build a clip or the audio can be combined with video in another Store to build a clip.

Audio can be imported using the Filing System Import/Export option, from a memory device, and placing the imported audio.

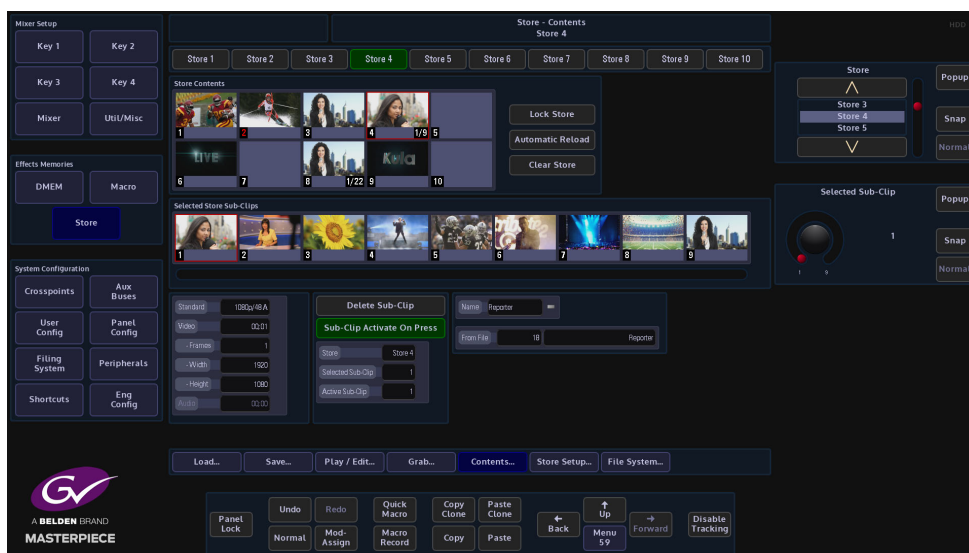
If imported using a memory device, the file format must be a.WAV file with the following rules applied: 48kHz, 24 bit, that can contain up to 8 channels of audio.

Store - Contents

The **Store - Contents** menu Shows a set of mini pics of stills and clips that are currently loaded into Stores.

Touch the **{Contents}** menu link button to open the **Contents** main menu (as shown below). The menu is only used to display the stills, clips, audio files and sub-clips which have been loaded into each Store.

If a Store has sub-clips loaded, the Selected Sub Clip rotary control can be used to scroll through the sub-clips.



Sub-Clips - If a Store contains Sub-Clips, the bottom right of a minipic will display the number of stills/clips contained within the Store and the Sub-Clips parameter will also display the number of stills/clips contained within the Store.

Standard - displays the video standard of the selected clip

Video - displays the length of the selected clip

Frames - displays the length of a Clip

Width & Height - displays the number of horizontal and vertical pixels (aspect ratio)

Audio - displays the length of the selected audio file

Name - is the short name given to the selected still, clip or audio file. The name is user definable and can be changed using a USB keyboard. Touch the keyboard symbol and a cursor will flash in the Name box, enter a name and press the return key on the keyboard.

Delete Sub-Clip - will delete a selected sub-clip from the selected Store

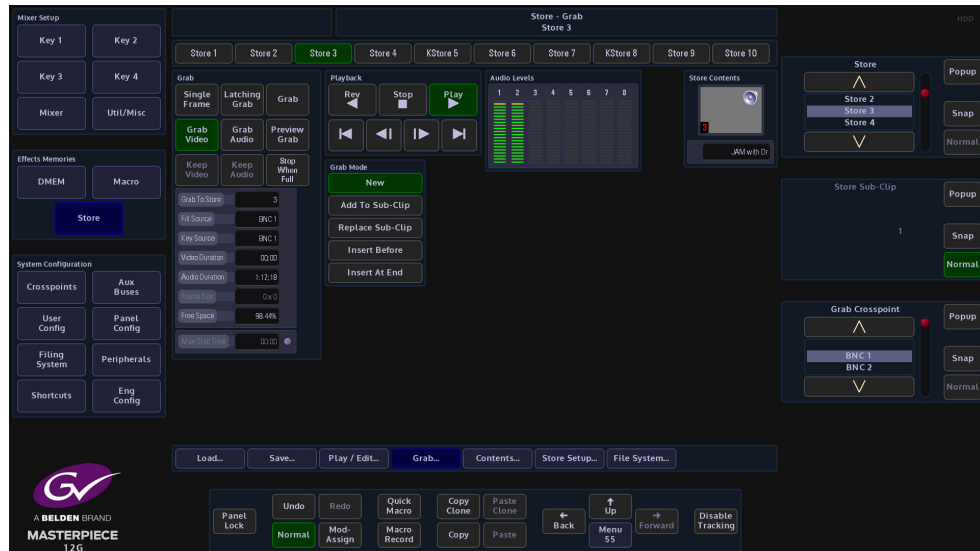
Lock Store - this will set a lock on the selected Store in the **Store Contents** menu. The Store will display a padlock symbol top right corner of the minipic (shown above). If the user tries to change the Store once it is locked, a dialog box will appear with options.

Automatic Reload - when set to Yes this causes the still or clip to be automatically reloaded from the hard disk whenever the original file location is updated. If the Store contains something that was grabbed rather than loaded, then this has no affect.

Clear Store - will clear all contents for the selected Store including all sub-clips

Store - Grab

Another option to generate a Still or Clip is the **Store - Grab** option; this allows the user to grab images, video or audio clips from a Crosspoint, Mixer Output, Matte or from another Store. Touch the menu link button in the menu bar to display the list of **Store Menus**, then touch the **{Grab}** button to open the **Grab** main menu (as shown below).



Taking a Grab

This example is taking a grab using the most simple method. Using the **Grab Crosspoint** parameter (or pop-up selector), select the required still or video source that contains the images or video content, then using the **Grab To Store** parameter, select the Store into which the grabbed information will be placed and press the **{Grab Video}** button. If the information that is grabbed is coupled with another Store for a Key, the Grab function will grab the Key as defined in the crosspoint mapping into the coupled Store. The minipic at the bottom of the menu will display what is currently grabbed, which will be a still, or the center frame of a clip.

Grab Options

Single Frame - used to grab a single frame into the Store on press.

Latching Grab - this will latch the grab function and allow the grabbing of Clips. This option is best used with the Stop When Full to end the grabbing once the Store is full i.e. once all the available frames in the Store have been used.

Latching Grab is best used for grabbing Video or Audio files. Pressing the **{Grab Video}** button, which turns the button green, then pressing latching grab for the required grab time will grab video only. Pressing the **{Grab Audio}** button, which turns the button green, then pressing latching grab for the required grab time will grab will Audio only. With both buttons green, Video and Audio will be grabbed.

Note: This is part of the ClipTrax function. **Grab Mode** has to be set to **“Replace Sub-Clip”** for this function to work.

Grab - This will continue to grab while the button is pressed. This will also respect the Stop When Full.

Preview Grab - This will place a preview of the grabbed image or video into the minipic at the bottom of the screen.

Playback Transport Controls



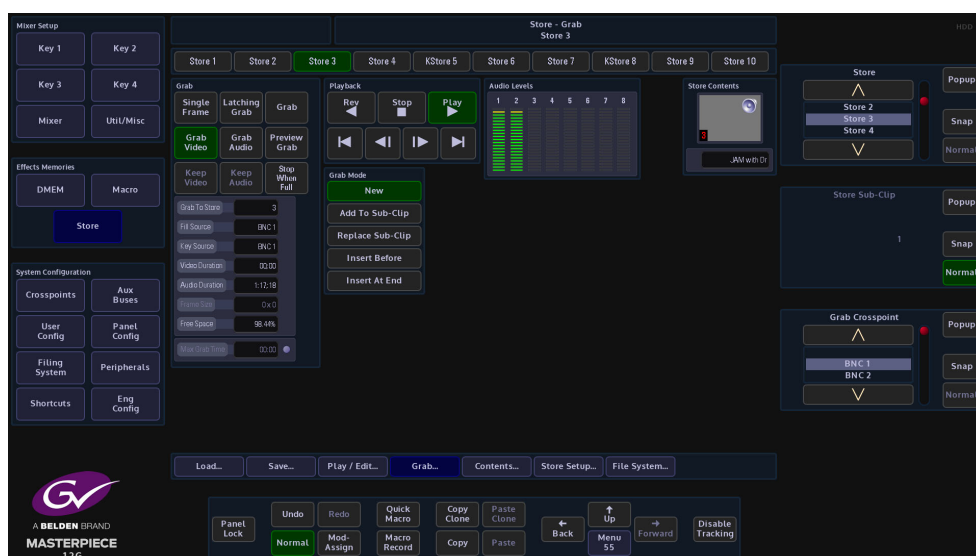
1 Play/Rev - plays a clip forwards and in reverse at standard speed

2 Stop - stops a clip

3 Steps to Start or End - steps to the end or the start of the clip

4 Frame Step - steps a clip forward and backward by one frame

Grab Mode Parameter



New - Allows the user to grab new stills and clips into a Store.

Note: Any stills or clips in the selected Store will be over written.

Append To Sub-Clip - This will send a grabbed still or clip to the Sub-Clip folder of a selected Store, each time a still or clip is selected by touching the miniclip or pressing **{Load}** the still or clip will be sent to selected Store as a sub-clip. In the Append To Sub-Clip mode, if a different still or clip is loaded into sub-clips, the original still/clip will be over written.

Replace Sub-Clip - This will replace a still/clip grab in the selected Store Sub-Clip.

Insert Before - If a number of stills/clips have been grabbed into the **Sub-Clip** folder, using the **Store Sub-Clip** parameter to move to a defined point within the sub-clip line-up, a still/clip can be inserted before the selected still/clip in the sub-clip line-up.

Insert At End - Allows the user to insert a grabbed still/clip at the end of the Sub-Clip lineup, to the point at where the sub-clip folder is full.

Grab Parameters



Grab Store - the Store the video/audio grab will be saved in.

Grab Crosspoint - displays the source the Video/Audio is taken from.

Video Duration - length of the video clip

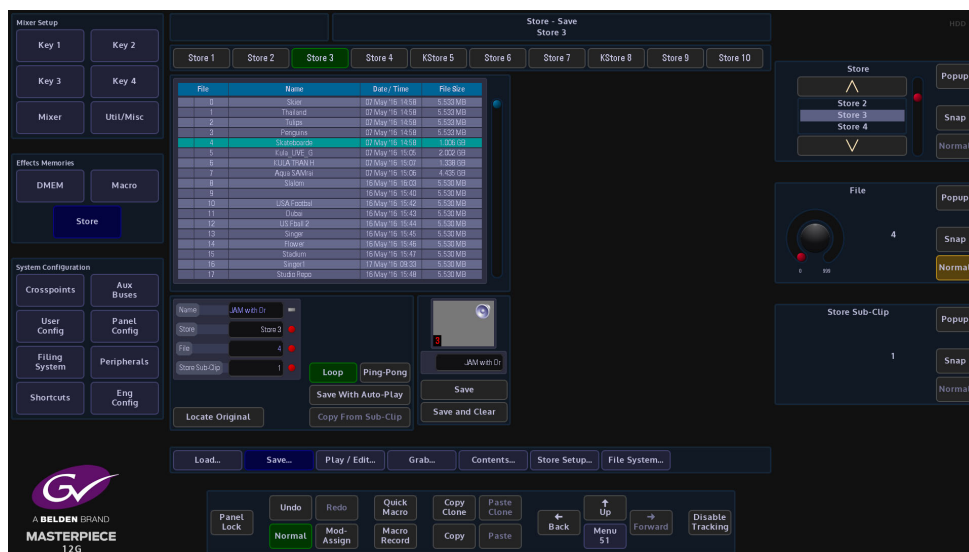
Audio Duration - length of the audio clip

Free Space - the amount of memory left in the system

Max Grab Time - use this parameter to set the maximum length of grab time for an audio or video clip.

Store - Save

As the menu suggests this is where stills and clips are saved into Files.
Touch the **{Save}** menu button to open the **Save** main menu (as shown below).



This menu will show a mini pic of the Store that is about to be saved (as shown above right).

Use the “File” parameter to select the file number, this is where the still or clip will be saved. Determine if the file is going to be saved with **Save With Auto Play** - On or Off. A name can be given to the file. Once the selections have been made, press the Gray Save button to save the file.

Using the **Store Sub-Clip** parameter, the user is able to select stills and clips within selected Stores, as the **Sub-Clip** parameter is adjusted the individual stills and clips are displayed in the minipic.

18 Crosspoints

Overview

The crosspoint mapping menu displays all the physical inputs to the mainframe and all the internal sources are mapped to the Crosspoints in the crosspoint mapping table. The crosspoint map has been setup in a factory default state from new. In the User Defined Crosspoints map you can setup crosspoint functions like the Key and Fill ready for coupling Stores, and set up Mattes/Washes etc. Fixed Crosspoints cannot be changed. In the Crosspoint Mapping menu you can also setup Audio Shuffle profiles that are used to setup AES audio channels. If external or internal sources contain up to 16 channels of audio, they can be re-mapped “shuffled” between inputs and outputs in any order you require.

Note: The User Defined Crosspoints can be setup in any way you wishes. The Fixed Crosspoint cannot be changed.



User Defined Crosspoints - these allow you to set sources to crosspoints on the control surface. Using the “Fill Source” and “Key Source” parameter controls, you can map any of the physical input sources or internal sources, change the Key and Fill associations, setup the Xpt Lamp Colors which allows you to set up groups of colored Xpt buttons on the control surface and re-name the crosspoints.

Fixed Crosspoints - as the name suggests the crosspoints cannot be changed and are factory set. The sources on these crosspoints can still be mapped to any crosspoint but cannot be changed in any way.

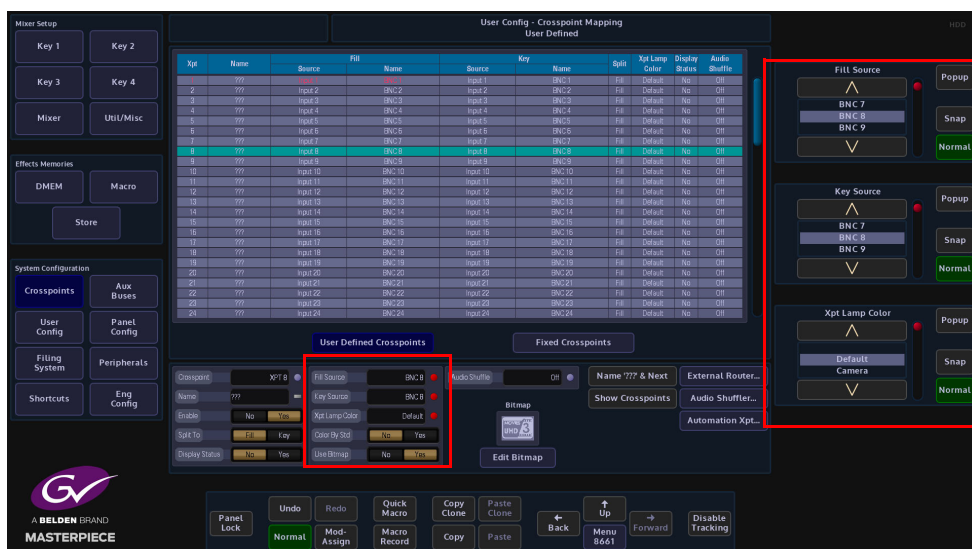
Parameter Controls

Xpt - crosspoint 1 to 80 are **User Defined Crosspoints** and crosspoints 81 to 247 **Fixed Crosspoints**. Use this parameter to scroll down the list of crosspoints.

Name - This column is for a crosspoint name that the user can set using the on-screen keyboard. When giving a name to the crosspoint, up to 11 characters can be entered, the characters font will vary in size and height depending on how many characters are typed in, that means characters 11 maximum.

Enable - this function enables/disables the selected crosspoint. When disabled, the crosspoint "Name" will display as "Disabled" and the panel mnemonic is left blank.

Split To - this function is used when the user wants to use a Fill or a Key source to give you a key signal for the Key Layer. Split to Fill/Key means that the setting on the crosspoint the user has "Split", will determine a Key signal for the Key Layer. When Fill is selected, the Fill signal of the crosspoint is used for the Key signal of a Split Key. When Key is selected, the Key signal of the crosspoint is used for the Key signal of a Split Key.



Fill Source / Name - This column is used to set the Fill Source, which is the signal that provides the Fill when selected on a Key bus or provides the source for the background buses.

Key Source / Name - This column selects the Key Source which provides the Key (hole cut) signal when selected on a Key bus. It has no effect when selected on a background bus.

Xpt Lamp Color- This sets a color to the selected Xpt. There are a range of preset colors that can be selected for a Xpt, using the Xpt Lamp Color parameter.

Note: More Xpt color options can be selected in the **Panel Config - Panel Colors** menu

Color By Std - in the Panel Config - Panel By Colors menu, there is a "By Standard Colors" menu, allowing you to set up a crosspoint button color by source standard i.e. Xpts sources that have 1080p standard and be set as one color and Xpts that UHD sources can have a different color on a crosspoint by crosspoint basis.

Use Bitmap - using the “**Edit Bitmap**” function in this menu, you can set up text or an icon to be displayed on the mnemonic displays on a crosspoint by crosspoint basis. In the “**Crosspoint Mapping**” main menu, select a crosspoint row in the table and then touch the {**Edit Bitmap...**} menu link button and the Crosspoint Bitmap menu is displayed.



A bitmap can be selected from a Preset shapes library, an icon library, User library from shapes or text created by the user, from a Store minipic or from text entered from an on-screen keyboard.

Which ever method you use, the gray grid area in the menu will display a monochrome image, which is previewed top right of the menu.

To use “**Grab from Store**”, touch the bottom attacher where “**Store**” is the first parameter, then use the “**Store**” parameter to scroll through the Stores. As you scroll through the stores, a minipic is displayed above the “**Grab from Store**” button. When you reach the required store, touch the “**Grab from Store**” button. The store minipic is displayed in the bitmap grid.

The above method is used for Icons, User and Preset Libraries. To apply the selected bitmap to a crosspoint mnemonic, touch the {**Apply Changes**} button.

Quick Text - Entering text into the bitmap grid can take a little time to get the text into the correct position with the right font size. The “**Quick Text**” menu allows you to quickly place text into the gray bitmap square and whilst typing, the text automatically size itself within the boundaries of the bitmap grid.

Touch the {**Quick Text**} button and the “**Quick Text**” menu will be displayed. Turn the “**Auto Font Size**” parameter to “**On**” and then start typing the text with the on-screen keyboard.

As more text characters are added the font will auto size itself the size of the quick text box grid. Text can also be aligned more accurately using the “**Alignment**” buttons.

After finishing entering the text, touch the {**Apply**} button.

{**Name '???' & Next**} - this button is a quick short cut. It puts '???' into the current Source Name and then jumps on to the next Source in the list, forcing the switcher to take the Name from the Source itself. This helps to make naming all sources quicker.

{**Show Crosspoints**} - this button when pressed will go Green. This will cause the mnemonic display on the control panel to change and show the crosspoints in their “unnamed” form, i.e. XPT1, XPT2, XPT3 etc. Press again to go back to the user specific crosspoint setup.

External Router

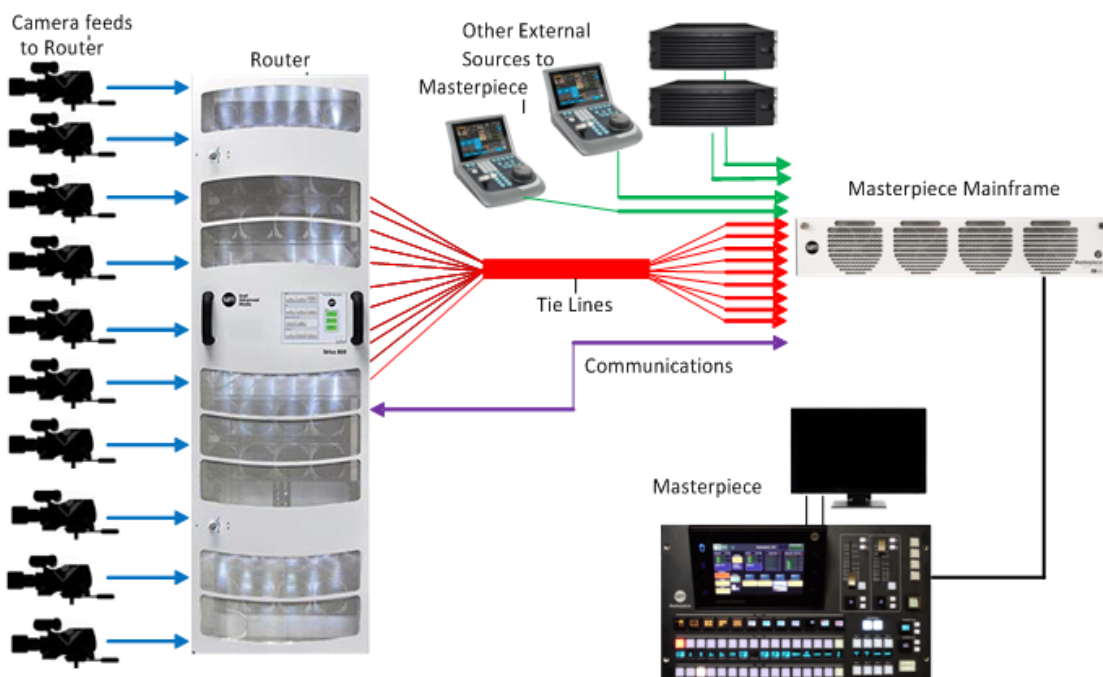
Masterpiece has the mechanism to expand the number of sources coming into the mainframe using an external router. This is primarily due to a system setup running in UHD. Using this new feature, the number of sources to be used with the Masterpiece, are expandable up to the size of the upstream router.

Masterpiece Intelligent Tie Line Concept

Masterpiece deploys an intelligent “Tie Line” approach, the desired external router outputs (destinations) are connected to Masterpiece inputs. These inputs on the Masterpiece and destinations from the Router are treated as “Tie Lines”. Each Tie Line acts as a floating video bus between the router and Masterpiece, they are intelligently assigned and used as required.

Source selection on any Bus is transparent to the operator, regardless form where the Xpt is being made, i.e. in the external router, or in the Masterpiece itself.

The Masterpiece software knows what physical inputs / Tie Lines are allocated and what are not being used on a bus. Masterpiece then assigns the Physical input /Tie Line to the desired Bus upon a source selection. Masterpiece updates the upstream router's destination /Tie Line with the selected source.



Source selection on any Bus is transparent to the operator. Once setup, the operator sets the desired router source by selecting the appropriate router XPT on the required bus. The selection on the external router and the Tie Line path into the Masterpiece is automated.

How many Tie Lines?

How many Masterpiece inputs do you need to convert to Tie Lines? This is entirely dependent on a few external factors, such as:

How many inputs available on the Masterpiece (max number shown below):

- HD = 40 Tie Lines
- UHD = 10 Tie Lines
- How many router destinations are available.
- How many router sources need to be selected on Masterpiece at any one time.

For example:

If you want to select different external router sources on the A and B buses this would require 2 Tie Lines.

For HD this would require 2 router destinations and 2 Masterpiece inputs.

For UHD this would require 8 router destinations and 8 Masterpiece inputs.

If you require external router sources on the A and B bus plus Key 1 and Key 2, this would require 4 Tie Lines.

In summary: Each different external router source selected simultaneously requires a Tie Line. Each Tie Line requires one router destination and Masterpiece input in HD, or 4 router destinations and 4 Masterpiece inputs in UHD.

Note: If at all possible, it is recommended that the user creates more Tie Lines than are actually required. This gives some redundancy and reduces the risk of the system running out of available Tie Lines.

Note: External Router setup and configuration is in the Peripherals menu.

Audio Shuffler

The Audio Shuffler matrix allows you to build up to 50 audio shuffle profiles using the 16 channel AES audio matrix map (shown in the menu below). The shuffle profiles can be assigned to Crosspoints (XPT) in the XPT main menu or the AES Inputs 1 to 4 in the Audio Shuffle menu. With no audio shuffle a XPT selected on a Bus will pass the 16 channels of audio out the mixer in the Grass Valley order they arrived. Applying a shuffle map on the XPT allows that order to be changed to whatever you want. This could be to move the 1st 8 channels to the last 8 channels, or indeed just to disable all the channels to create a mute

The basic setup for the audio shuffle menu is 16 channels of AES Audio In/Out on a 1 to 1 basis, i.e. channel 1 In to channel 1 Out, through to channel 16 In to channel 16 Out.

Audio shuffling is useful for example, when the incoming audio feed has multiple languages, with each language consisting of a channel pair (In 1 & 2). By mapping the channels, you ensure that the proper languages make it onto the Program live to air path, and that the other languages can be muted or removed from the live to air path.

There are 50 Audio shufflers available to configure, these can then be assigned to a crosspoint or an AES input. Each shuffler has 16 Output channels and 16 Input Channels

Note: AES Inputs 1 to 4 only have 2 Inputs channels each.

There are a number of default shufflers available:

- Program (default 1:1), but can be overridden by Morpheus automation
- Preset (default 1:1), but can be overridden by Morpheus automation
- AES to 1&2 - input channels 1 & 2 are assigned to output channels 1 & 2
- AES to 3&4 - input channels 1 & 2 are assigned to output channels 3 & 4
- AES to 5&6 - input channels 1 & 2 are assigned to output channels 5 & 6
- AES to 7&8 - input channels 1 & 2 are assigned to output channels 7 & 8

The yellow area is where you edit and create maps. The green area is where you assign a map you created in the yellow area to an actual XPT. Once you have created maps they are saved in the User Config, if you don't save them and you reboot, the maps and their XPT assignment will be lost!



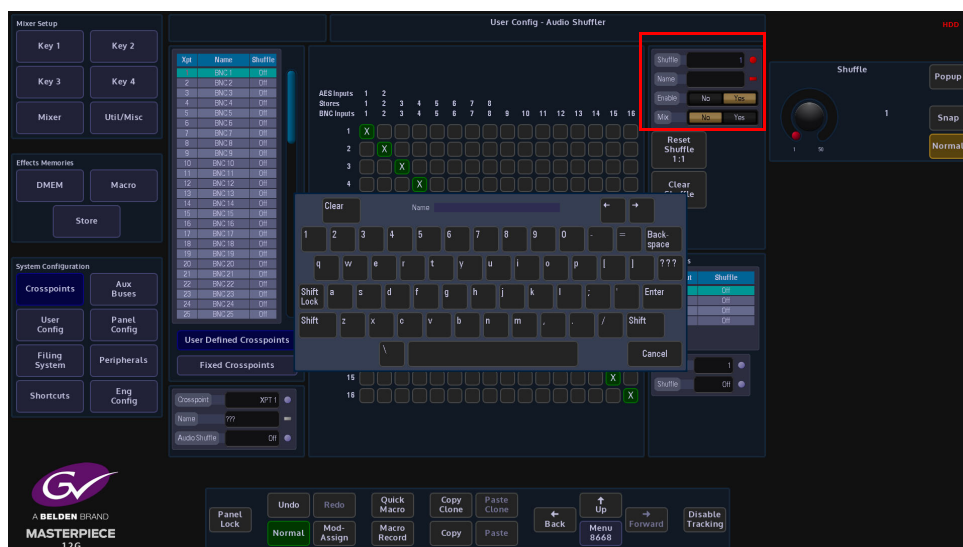
How to Build a Shuffle Profile

To build a shuffle profile, turn “Enable” and “Allow Mix” On, (allowing mixing will give you the option to mix multiple inputs to the Grass Valley output. It has the effect of summing the signals together). In its default state, all the green shuffle indicator squares are in a one to one state; Input 1 to Output 1 through to Input 16 to Output 16.

Notice that once enabled, the green shuffle squares now have a white “X” in them.

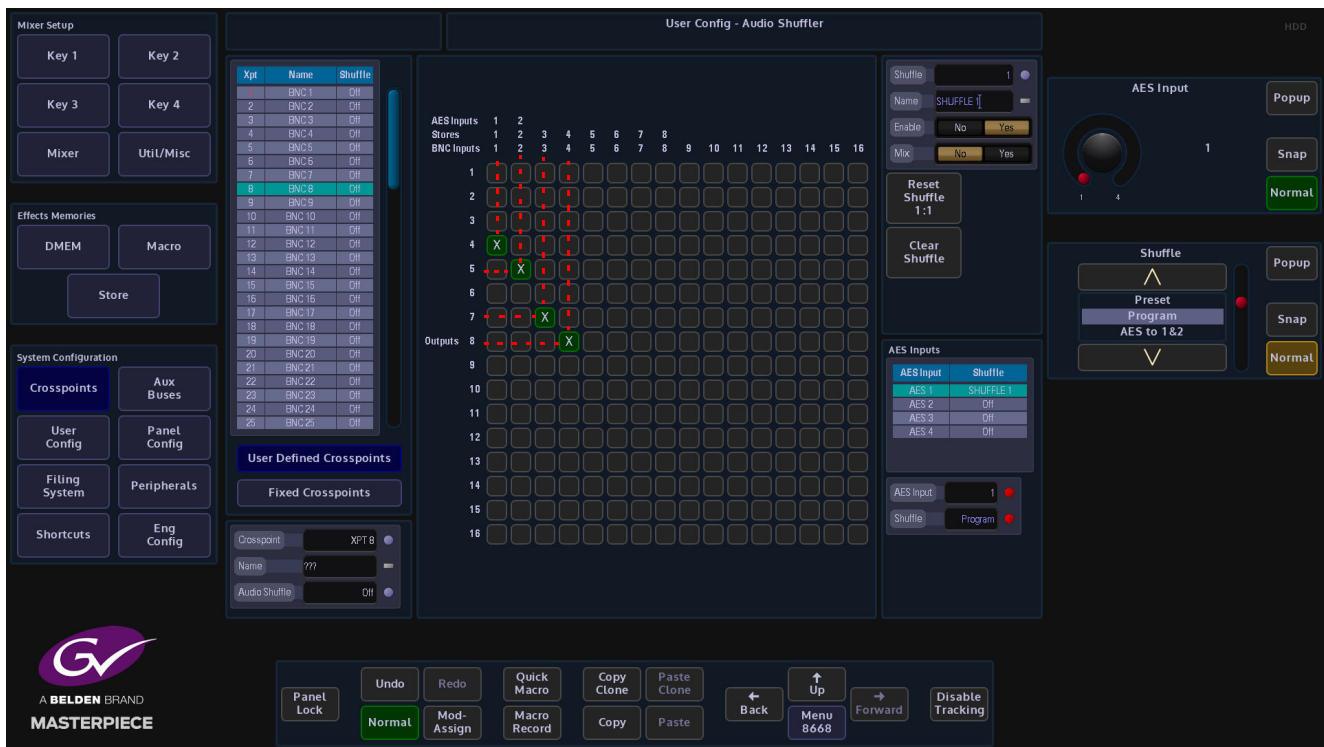


Using the “Audio Shuffle” parameter to select a Shuffle Profile number (1 to 50). Use the “Name” parameter to give the shuffle profile a name.



To make a new Shuffle Matrix, just touch the matrix square where you want the new input to output channels. The following menu diagram (on the next page) has had 12 inputs removed, so that only 4 channels or 2 stereo pairs are being shuffled.

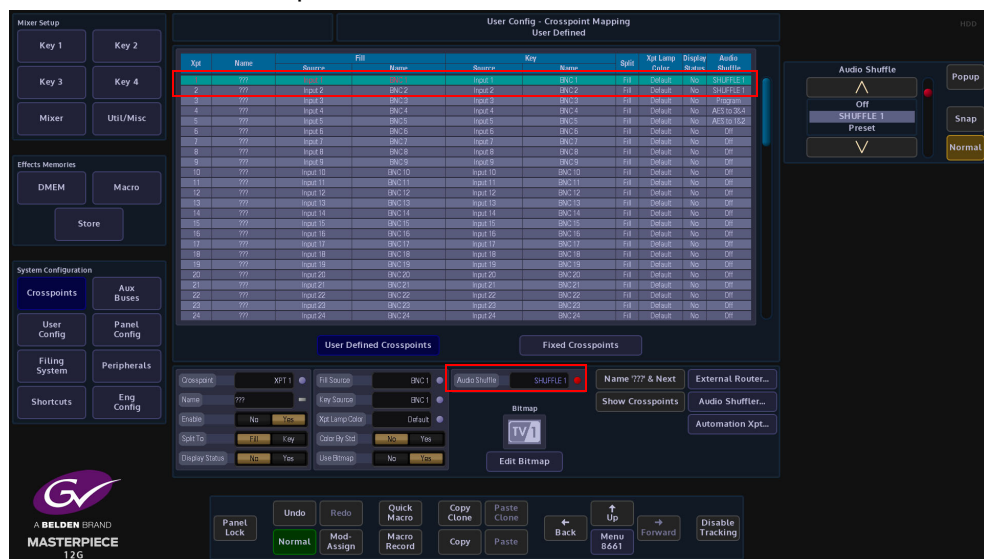
The menu below displays an audio shuffle on input channels 1 & 2 and 3 & 4. Their default state was Inputs 1 & 2 to outputs 1 & 2 and Inputs 3 & 4 to Outputs 3 & 4.



Input audio channels 1 & 2 are now moved to be Output on channels 4 & 5 and Input channels 3 & 4 are moved to be output on channels 7 & 8. This is now Audio Shuffle 1 and named "SHUFFLE 1"

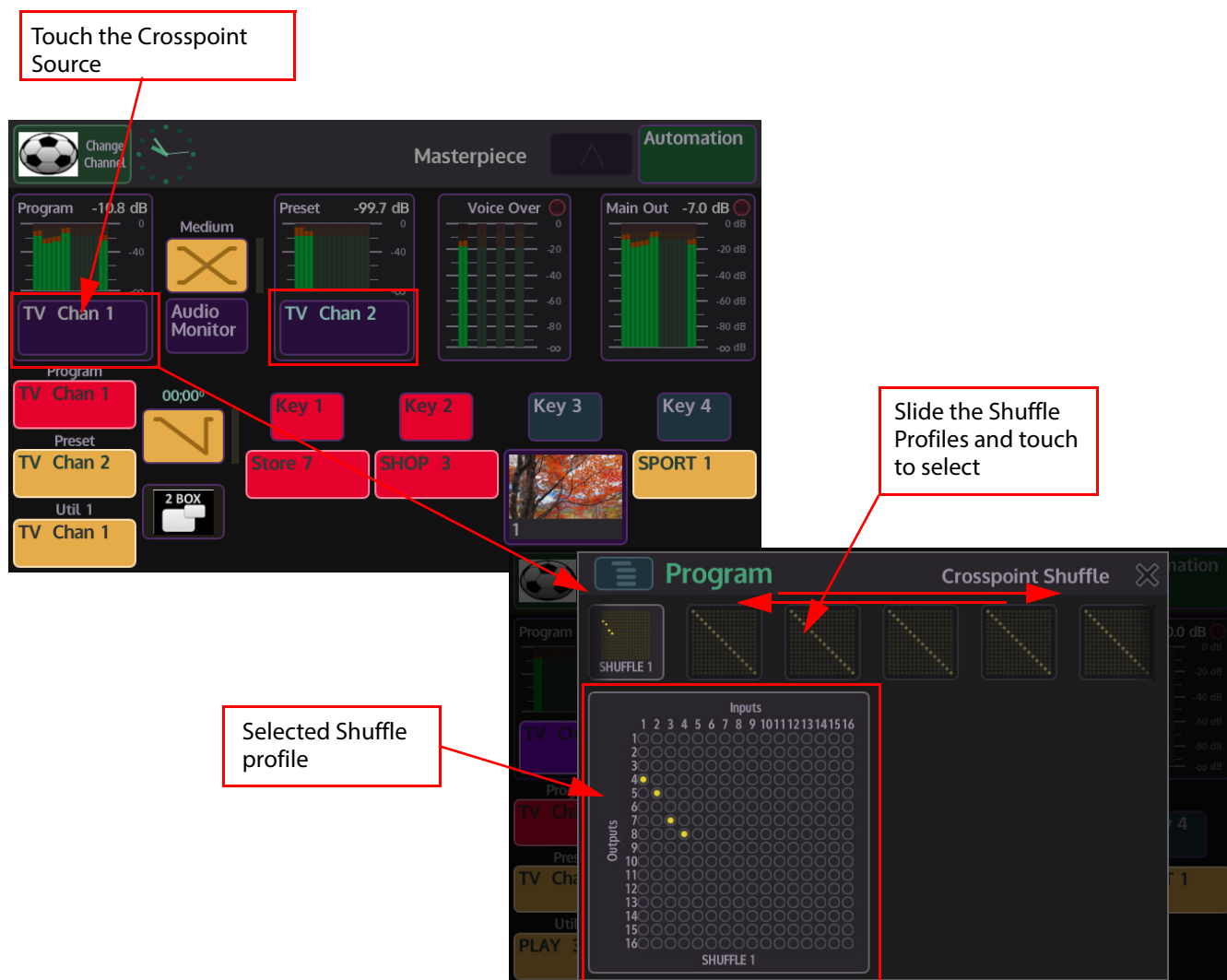
Note: The red dotted lines have been added to highlight the audio shuffle profile created. They are not part of the original menu.

The Shuffle Profile can now be assigned to a crosspoint. In the "Crosspoint Mapping" menu, select the required crosspoint, then touch the "Audio Shuffle" parameter, use the parameter control to select "SHUFFLE 1". The shuffle profile is now added to the audio source that is associated with the crosspoint.



The shuffle profile is saved when the User Config is saved and when the Switcher State is saved.

You can also assign Shuffle profiles to crosspoint sources on the Masterpiece GUI. In the home menu, below the Program and Preset audio level meters, the current crosspoint source is displayed (highlighted below). If you touch the crosspoint source menu link button, a "Crosspoint Shuffle" option menu is displayed.

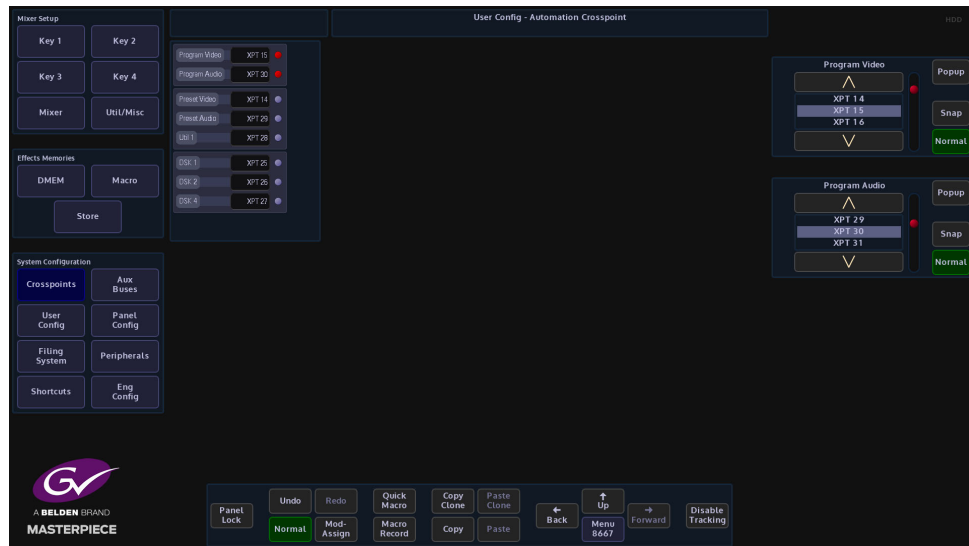


In the Crosspoint Shuffle menu, the 50 Shuffle profiles are displayed in a bar across the top of the menu. Touch and slide left/right to find the required profile and then touch the profile to select it.

The Shuffle profile is then displayed below the Shuffle profile bar. The selected profile is now assigned to the Program or Preview crosspoint. To confirm this, look at the "Crosspoint Mapping" menu, you will see that the assigned Shuffle profile name is displayed in the "Audio Shuffle" column.

Automation Xpt

In this menu you can assign crosspoints to each bus when Masterpiece is under automation control.



When the automation system sets a video/audio source on a Bus, Masterpiece will change the Fill source of the automation crosspoint for that Bus. If the bus uses sources from an external router, the user needs to go to the "External Router" menu to setup the router type, slot, matrix and level. And make sure "External" is on. If "External" is off, the bus will use internal sources. If the automation system sets a bad/incorrect source on a Bus, the user can manually override this crosspoint. Masterpiece will reassign the automation crosspoint to the bus for the next event. Each bus should have its own automation crosspoint.

19

Aux Buses

Aux Bus Overview

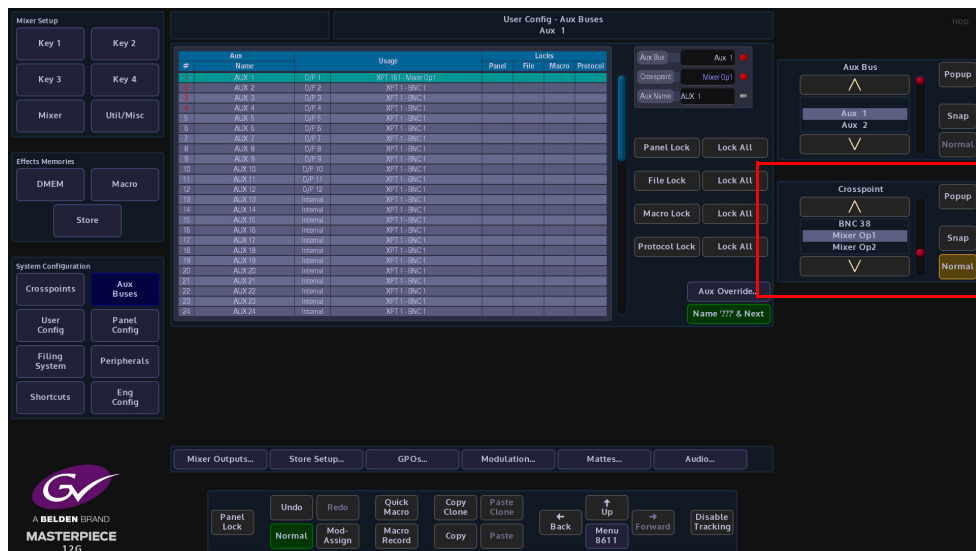
In this menu, the exact setup for each individual Output and Aux Bus is setup. The center of the menu screen Shows a table, which contains each Aux Bus details. The attacher boxes at the bottom of the screen contain the individual parameters controls.



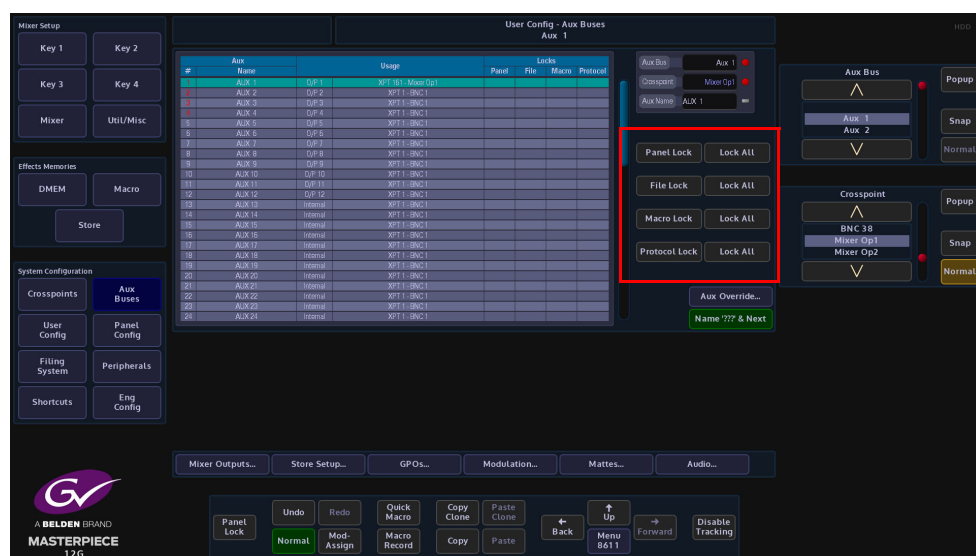
The Masterpiece mainframe has freely assignable outputs; which means that any output can be assigned to be either an Mixer Output or Aux Output. The table in the center of the menu displays the setup of the Aux Buses and the sources that are assigned to them. Sources for the Aux Buses can be Mixer output Xpts, Store Xpts or any of the sources from the User Defined crosspoints or Fixed Crosspoints.

Setup an Aux Bus

To setup an Aux Bus, use the **Aux Bus** parameter to select the required Aux and the **Crosspoint** parameter to select the source for the Aux Bus or use the pop-up list selector to quickly select the required source. This sets the source that goes on each of the available outputs 1 to 14. You can use the "Aux Name" parameter to give the output or Aux Bus a name.



The Lock parameters are used to lock out specific functions on an Aux panel.



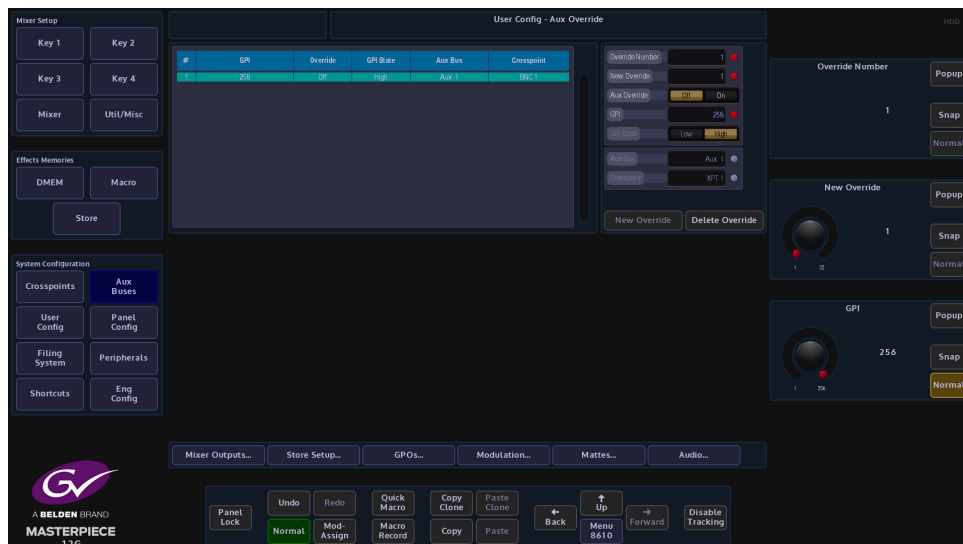
The **Panel Lock**, lock out the selected crosspoint assigned to the Aux Panel so that when the button is pressed, the crosspoint does not operate.

File Lock stops the user from loading a file.

When a Macro is attached to a crosspoint, the **Macro Lock** parameter disables the crosspoint so that the attached macro cannot be triggered to run.

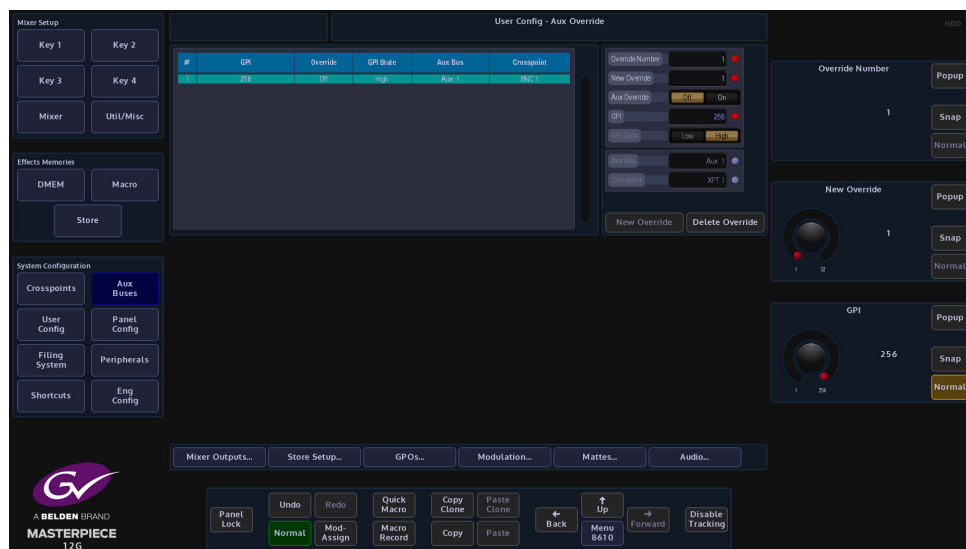
Aux Override

Aux Override is a mechanism that allows a GPI to override the crosspoint on an Aux Bus. When enabled, a GPI can override the Aux Bus crosspoint for the duration of the GPI being active, this for example allows a camera joystick or similar device to override the crosspoint on an Aux Bus. Once the GPI is released, the aux bus will return to its previously selected crosspoint.



The Aux Override menu allows you to set up override enable, GPI active state, Aux Bus and crosspoint for each available GPI on the Masterpiece system. Overrides can be set up for both external and internal GPIs.

The Aux GPI Override setting data is part of the User Config data, and may be saved to and loaded from the User Config file the saved file will be displayed in the User Config file Enables list called Aux Override.



The above menu displays a scrollable table of the override setting for each of the GPIs available. The controls allow the user to edit each of the following settings for any of the GPIs.

Aux Override - this displays the state of aux override, enabled for the specific GPI (enable On or Off)

GPI - this is the GPI that triggers the override

GPI State - the state of the GPI at which the override function will be active (High or Low)

Aux Bus - the aux bus that the GPI will override

Crosspoint - the crosspoint that the selected Aux Bus will be set to during the override.

If the Aux Override value is set to Off then the GPI State, Aux Bus and Crosspoint setting are greyed out. The state of Aux GPI overrides is indicated in a column to the right of the Crosspoint column, shown in the menu below. If aux override is enabled for the specific aux bus, then a Green square is displayed. If an override is active on the specific Aux Bus, then an Orange square is displayed.

Overview of Aux Override Active States

When an Aux GPI Override is activated by the external equipment controlling the GPI state, the crosspoint of the selected aux bus is changed to the "override crosspoint" state. When the GPI is deactivated the crosspoint of the selected Aux Bus returns to its original state.

If there is more than one override set to act on the Grass Valleye aux bus, and one of those overrides is activated whilst another is already active then, the previous override will be deactivated and the new override will take over. When the last override to be activated is released then the aux bus will revert to its previous crosspoint state.

If the Crosspoint setting is changed whilst an override is active, then the original override will drop out and the Aux Bus will go to the new crosspoint setting.

If the Override Crosspoint setting is changed whilst the override is active, the crosspoint on the overridden Aux Bus will change to the new value. When the override is deactivated the aux bus will revert to its previous crosspoint setting.

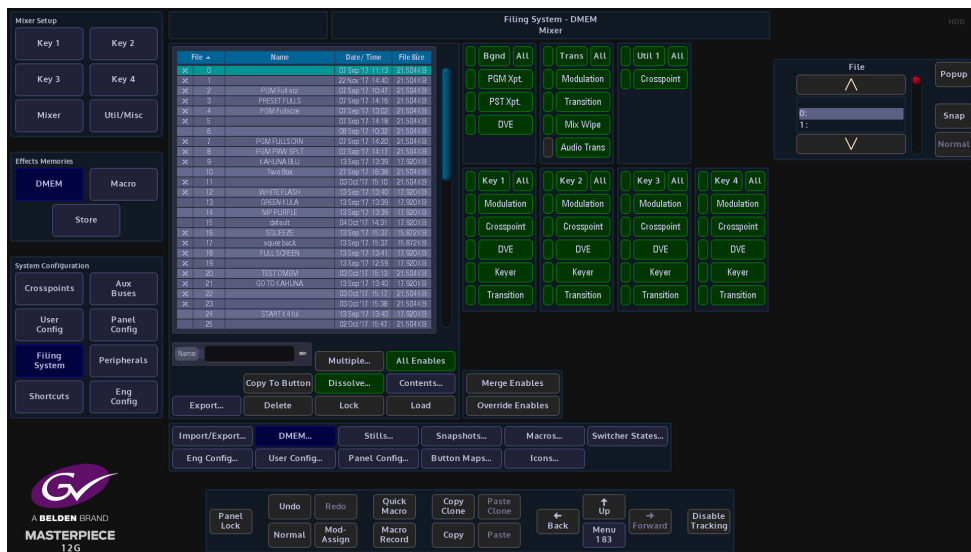
If an Aux Bus has its crosspoint locked, an active override on that aux bus will change the crosspoint to the override setting. The aux bus will revert to its original setting when the override is deactivated. It is not possible to change the crosspoint setting whilst the locked crosspoint is overridden.

Filing System - DMEM, Stills, Snapshots, Button Maps, Macros and Icons

The following explanation is an example of how to use the DMEM menu. As stated previously, the Stills, Snapshot, Button Maps, Icons and Switcher States menus basically all work in the Grass Valley way, there is only a slight variation in options for Macros.

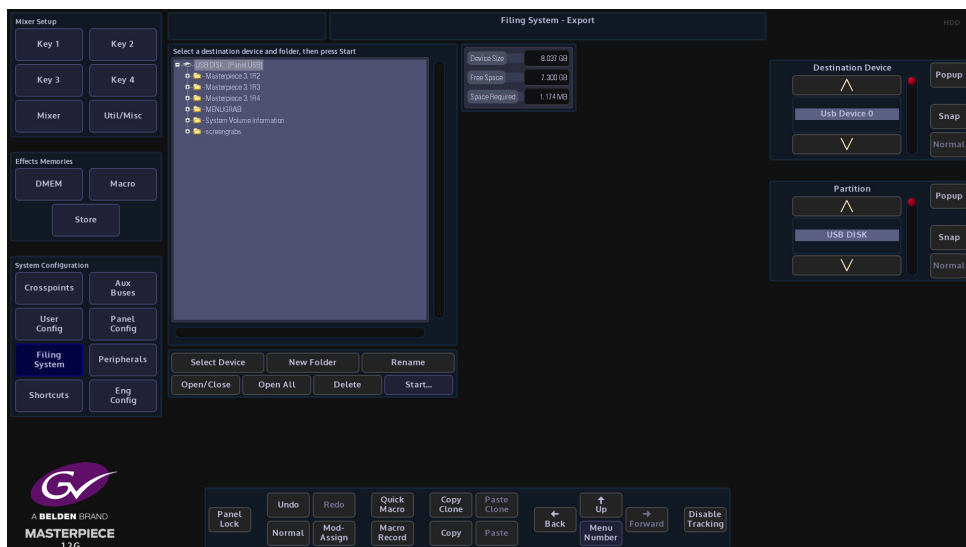
DMEM

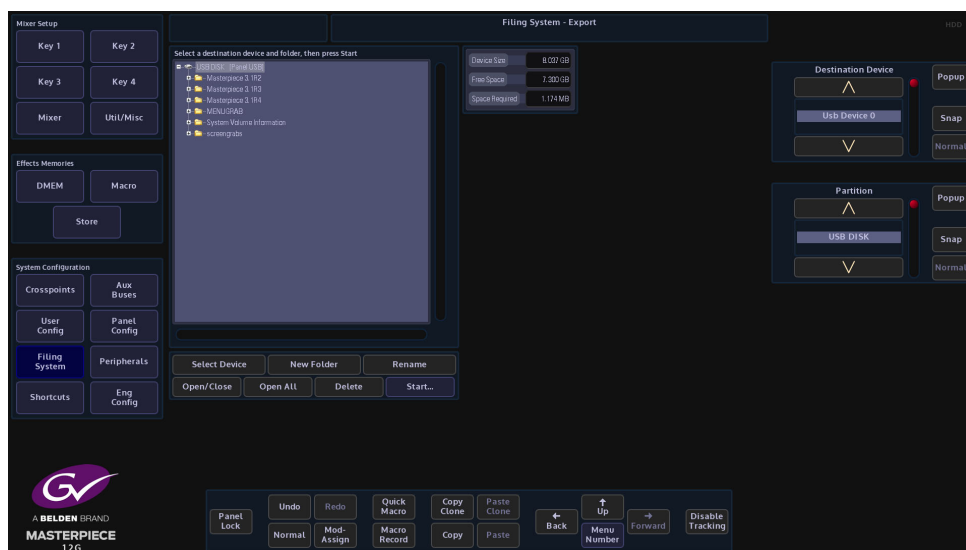
The DMEM filing system menu displays all the saved DMEM files. The table displays the memory file number, the name given to a DMEM, the time and date the file was saved and the file size.



Export DMEM

The Export menu allows the user to export selected or all DMEM's to an external hard drive or memory device. Press the **{Export}** button. Use the **Selector** parameter to scroll down to the required file and press **{Select}**. Selected files will have a small Green square next to the file number. Press **{Open/Close}** to expand and will now display the individual files. Scroll down to the required file and press **{Select}**.





Use the **Destination Device** parameter to select the memory device and press **{Select Device}**. The menu will now display the contents of the device.

Select a folder where the DMEM file or files will be exported to, or press the **{New Folder}** and a **New Folder** will be created on the memory device. Press the **{Rename}** button and the on-screen keyboard will appear allowing the user to give the "New Folder" a name.

Finally, press **{Start}** and the selected information will be placed on the memory device.

Copy to Button - is a quick way to copy a DMEM to one of the OLED buttons

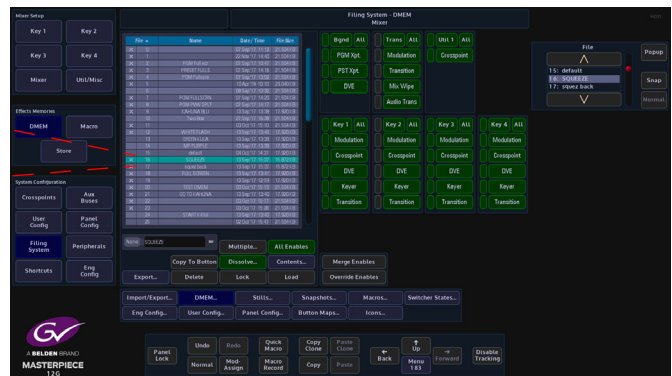
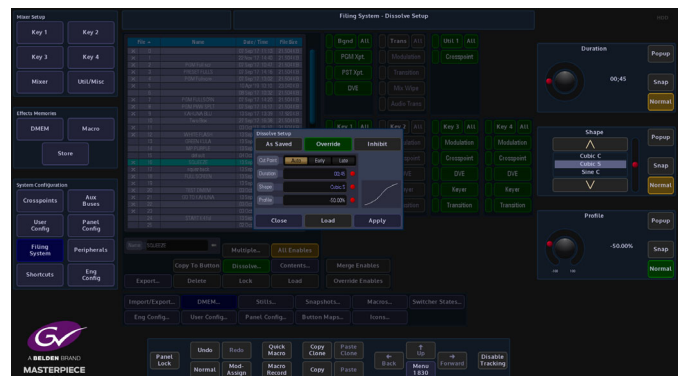
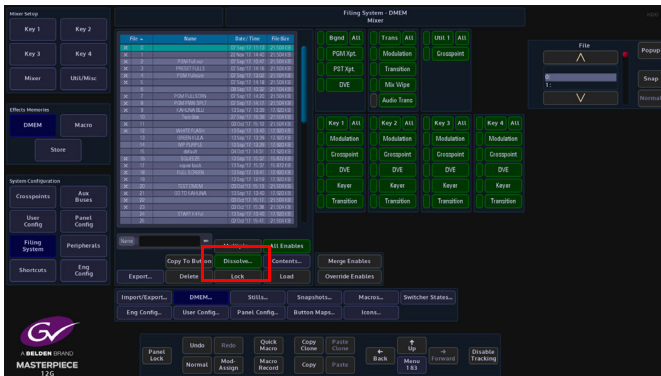
Delete - to delete a DMEM, use the **File** parameter to select the DMEM, then press **{Delete}**. A dialog box will appear asking if the user wishes to Continue or Cancel.

Lock - each DMEM can be locked to prevent them from being over-written or deleted. This is indicated by the Pad Lock symbol next to the DMEM.

Load - the **{Load}** button is used to load a selected DMEM.

Applying a Dissolve Effect to an existing DMEM

If a dissolve is required on a memory which has not already been set as a dissolve, this can be achieved by switching on the Dissolve button.

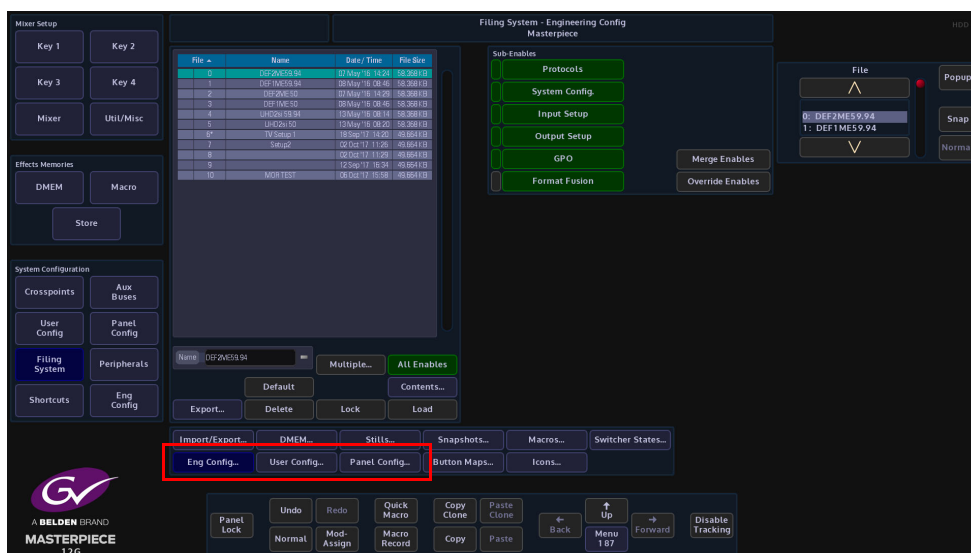


Select an existing DMEM from the file list, then touch the **{Dissolve}** button. The Effects Dissolve dialog box will appear, so that the user can set the type of effect required. When finished, touch the **{Apply}** button. Notice that the file now has an "X" next to the DMEM number to signify that it has a dissolve effect applied.

Filing System - Config Filing System

The Eng Config, User Config and Panel Config menus all have exactly the Grass Valley functionality, so for this example the Eng Config will be used.

Note: The Eng, User and Panel Configs are saved within their own menus. The Filing System menu is used to Export, Delete, Load, set Enables and make Default.

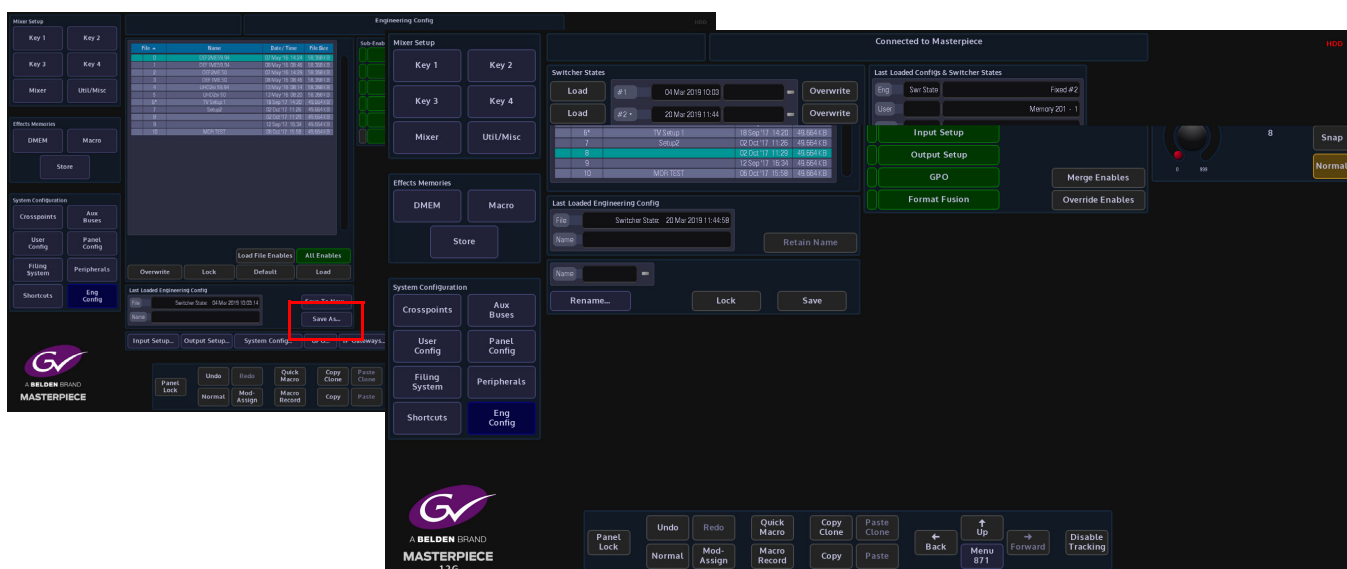


Overview

All Configs are saved as individual files within their own folder structures; meaning that if a specific Eng Config setup is created by a user before the file can be saved, the user has to go into the Eng Config main menu.

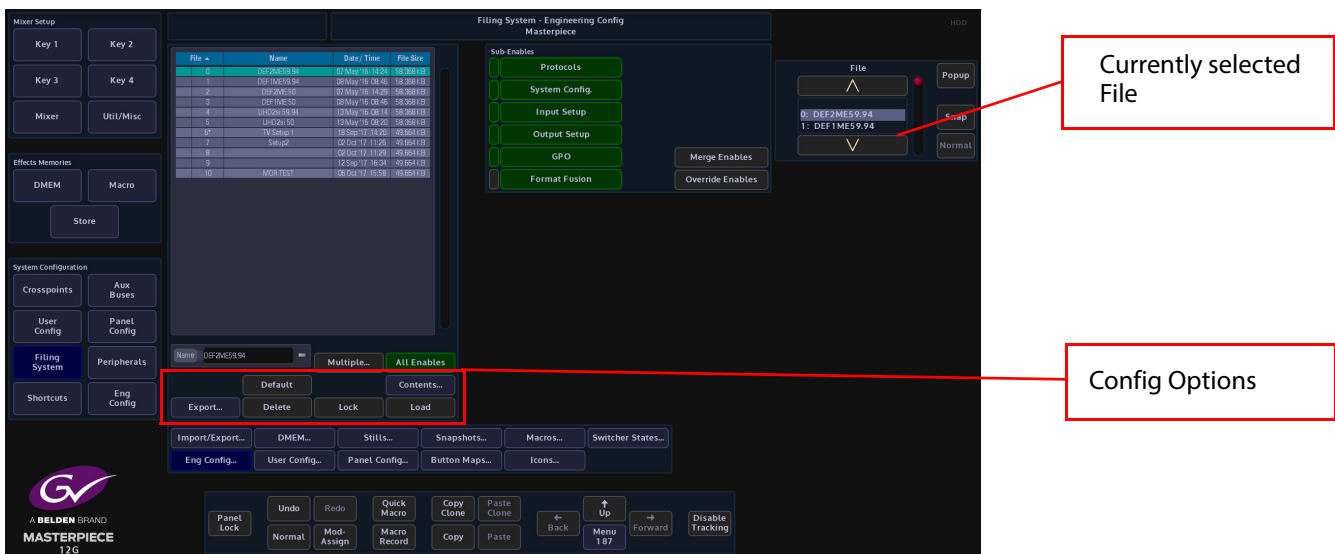
Saving and Engineering Config File

In the Eng Config main menu, touch the **{Save As...}** button. In the Eng Config - Save As menu, use the **Destination** parameter to create a new Eng Config file position, use the **"Name"** attacher and the on-screen keyboard to give the file a name and description and finally press the **{Save}** button.



The Eng Config Filing System

In the Filing System menu, you can make an Eng Config file the “Default” startup file, Load files, Delete and Lock file and Export files to external memory devices.



Default - select an Eng Config file in the table and touch the {Default} button, this will make the file a “user defined” default file startup file. When made default, an “*” asterisk symbol can be seen next to the file number in the table.

Lock - will lock the file out so that it cannot be changed or updated in any way.

Load - will load the selected Eng Config file.

Merge Enables - this merges enables currently set in the switcher with the enables saved in the file being loaded (a “logical OR” of the enables).

Override Enables - will override any enables that have been de-selected and turn the enable On.

Export

The Export menu allows you to export selected or all Eng Configs to an external hard drive or memory device. Press the **{Export}** button.

Use the Selector parameter to scroll down to the required file and touch **{Select}**. Selected Files will have a small Green square next to the File number. Press **{Open/Close}** to expand, select the ENGSETUP folder and press **{Open/Close}** again to expand the engineering setup folder which will now display the individual Eng Config files. Scroll down to the required file and press **{Select}**.

Pressing the **{Exclude}** button will exclude the selected file from being exported. The file number will have a small Red square next to the file number.

Pressing the **{Open/Close}** button will expand the contents of the selected file, allowing individual Eng Config files to be selected.

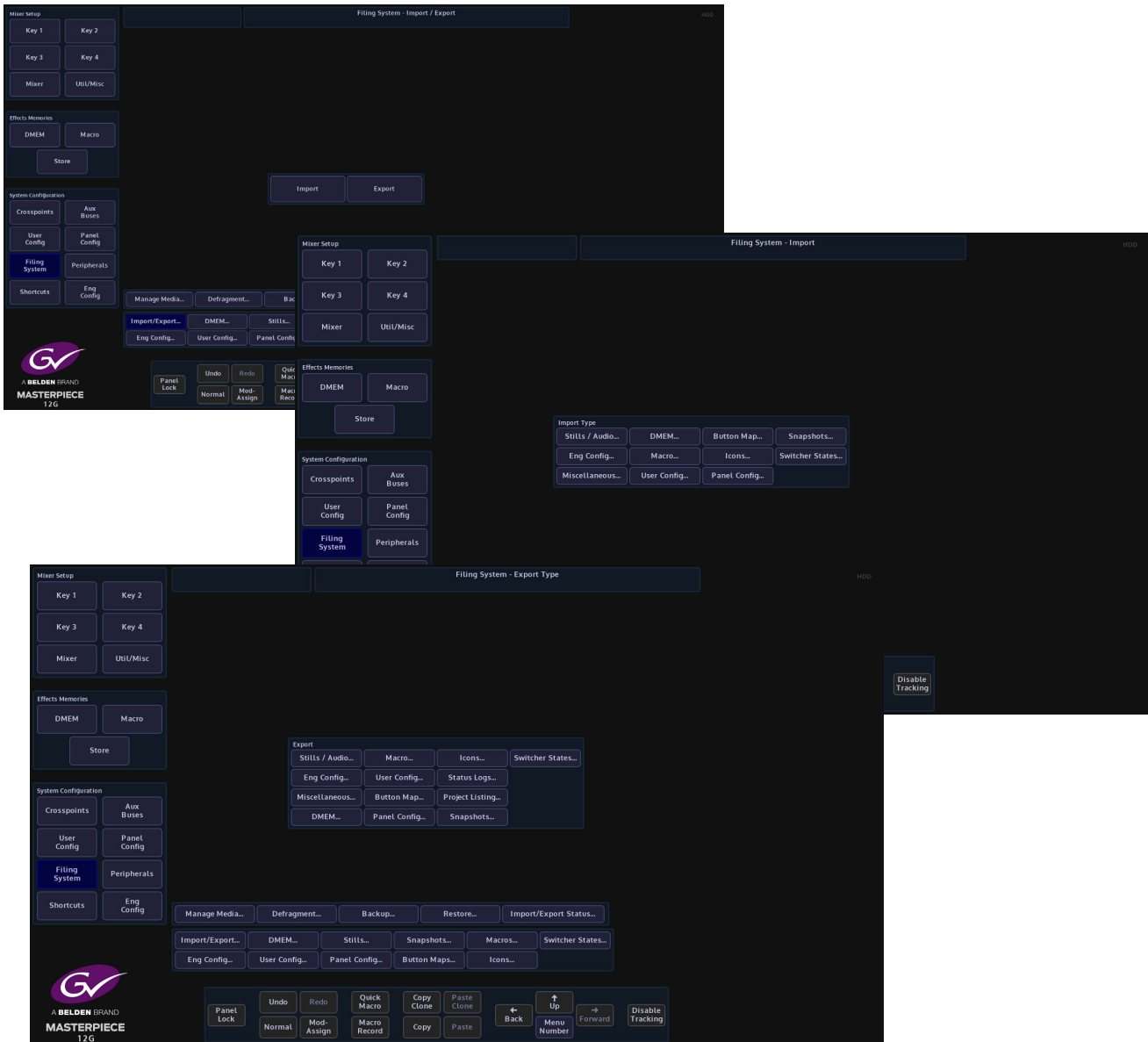
Press **{Next}** and a menu will open that allows the user to select a device to export the Eng Config file.

Use the Destination Device parameter to select the memory device and press **{Select Device}**. The menu will now display the contents of the device. Select a folder where the Eng Config file/s will be exported to, or press the **{New Folder}** and a **New Folder** will be created on the memory device. Press the **{Rename}** button and the on-screen keyboard will appear allowing the user to give the “New Folder” a name.

Finally, press **{Start}** and the selected information will be placed on the memory device.

Import/Export

This menu is used to import/export Stills/Audio, DMEMs, Button Maps, Snapshots, Macros, Icons, Switcher States and User, Panel and Eng Config files to and from a USB memory device.

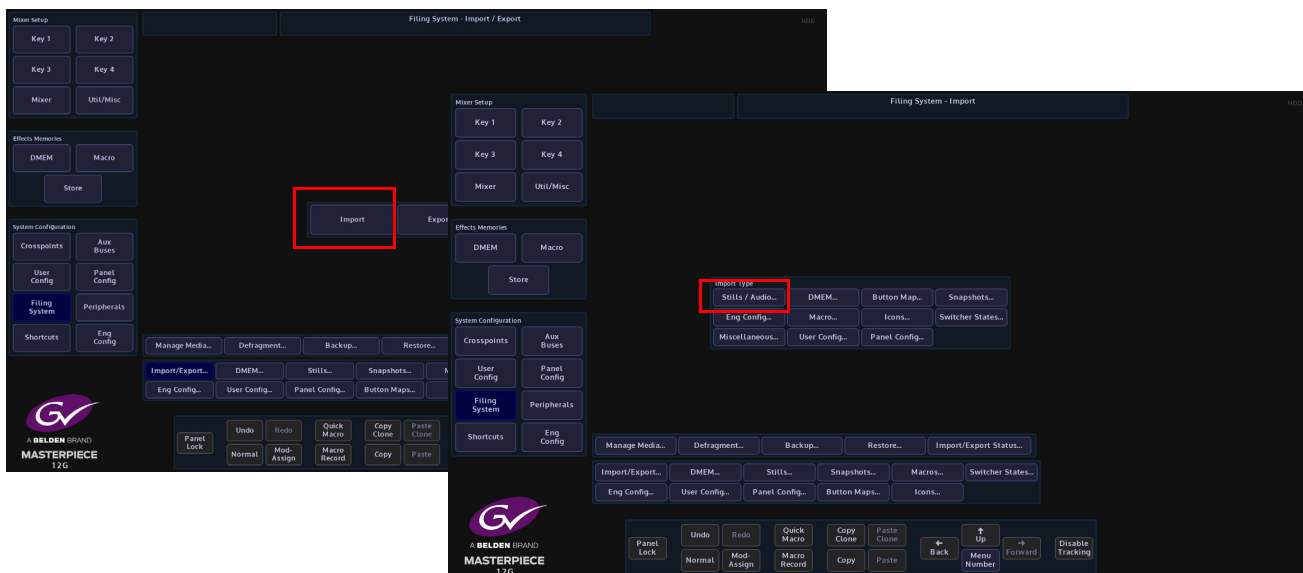


The Import and Export menus all work in the Grass Valley way where the user will select a number of files or individual files to import or export. The menu displays a familiar folder structure which is easy to navigate and use.

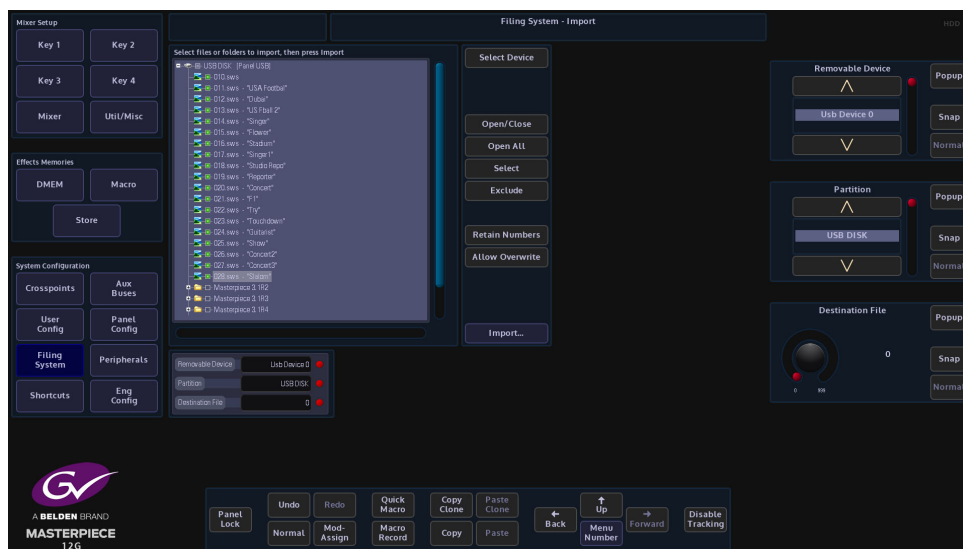
Importing

Importing Files into the Masterpiece is a similar process to exporting as explained on the previous pages. The import process is done via one menu. The example below describes importing Stills.

Press the **{Import/Export...}** button and then in the Import button area, press the **{Stills/Audio...}** button.



Use the **Removable Device** parameter to select the memory device containing the stills or clips and press the **{Select Device}** button. The contents of the memory device will be displayed in the gray area, left hand side of the menu. Use the **Destination File** parameters to select where the files will be imported to.



Using the **Selector** parameter and **{Open/Close}** button, navigate to the files that are going to be imported. Again use the **Selector** parameter and the **{Select}** button to select the required files and then press **{Import...}**.

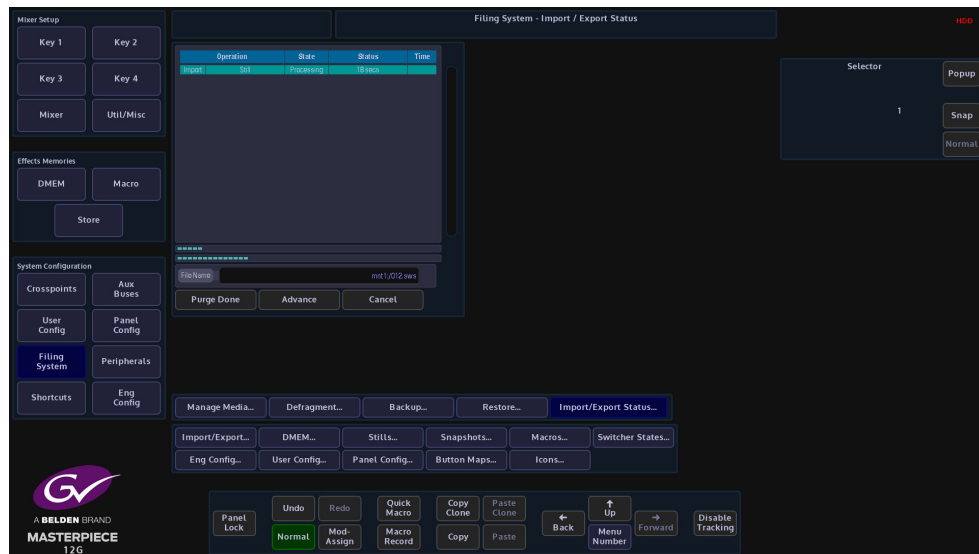
The files will now be imported to the selected File destination ready to use.

Going back into the filing system main menu, the imported files can be found in the **{Stills...}** menu as shown below.

In this menu a new name can be given to a selected file using the on-screen keyboard. Use

Import / Export Status

This will as the menu suggests, allow the user to check up on the status of any files being imported or exported.



If a file is being imported/exported accidentally and it is not required, scroll to the file with the **Selector** parameter and press the **{Purge Done}** button. The file will be deleted from the list.

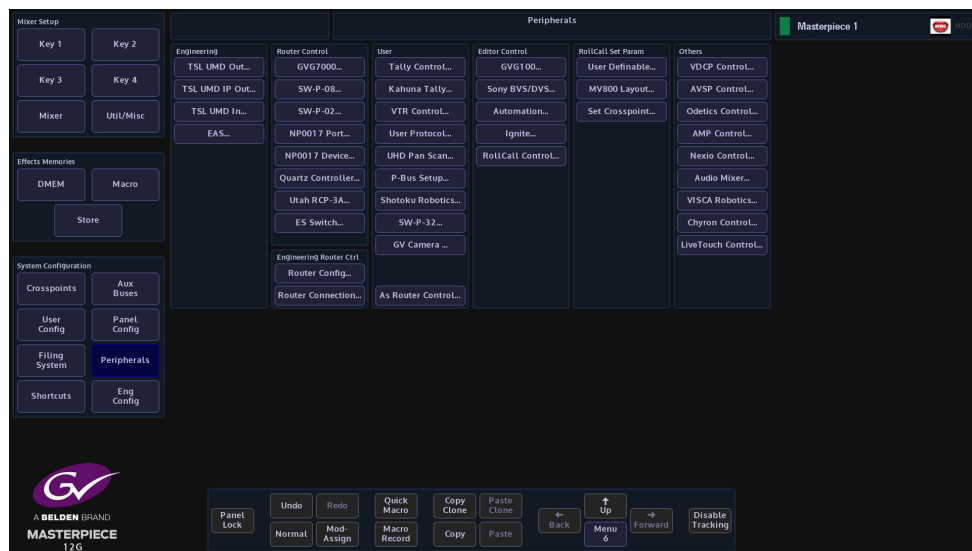
The **{Advance}** button will advance the import/export process to the next selected file to be imported/exported.

21 Peripherals

Peripherals Overview

The Peripherals menu is used to control various external equipment; such as VTRs, Video disks, Routers, Audio Mixing Desks, Automation etc.

Touch the **{Peripherals}** button on the GUI to enter the Peripherals main menu.



Note: Before using any of the Peripheral menus it is important to understand how the Protocols are setup and assigned. See the next page.

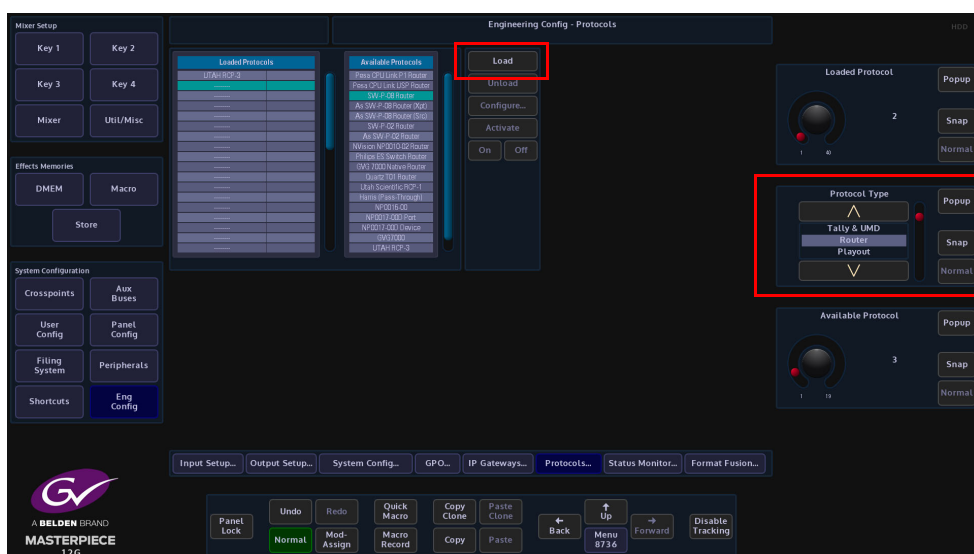
How to Setup Protocols

The Protocols menu is used to set parameters for bi-directional communication with external devices either by one of the RJ45 RS422 ports or selecting one of the IP protocol connections. Protocols have to be setup in this menu before the Peripherals functions can be used.

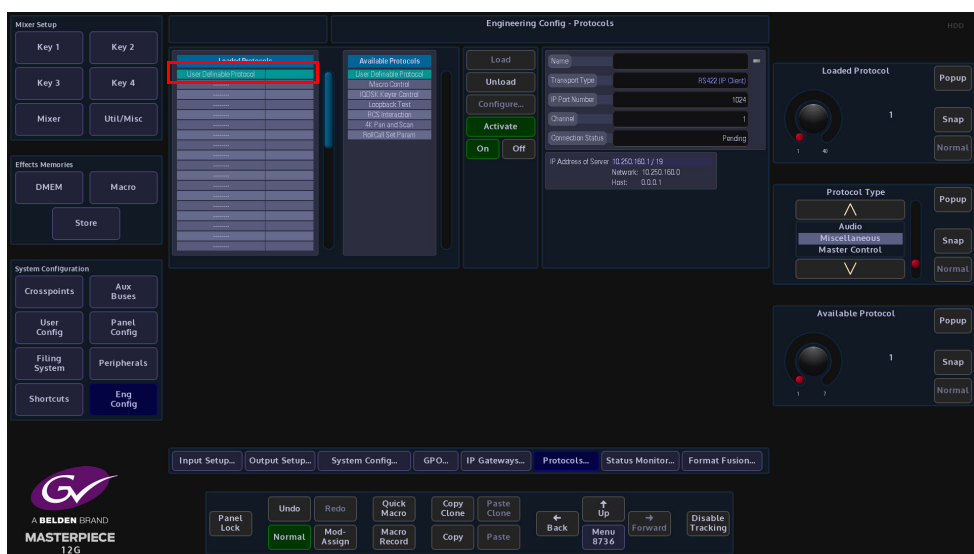
There are 8 Protocol Types to choose from; Tally & UMD, Router, Playout, Editor, Camera, Audio, Miscellaneous and Master Control. Each protocol type has a number of available sub-protocols to choose from, that allows the users to connect to a large number of different types of external equipment.

Selecting a Protocol

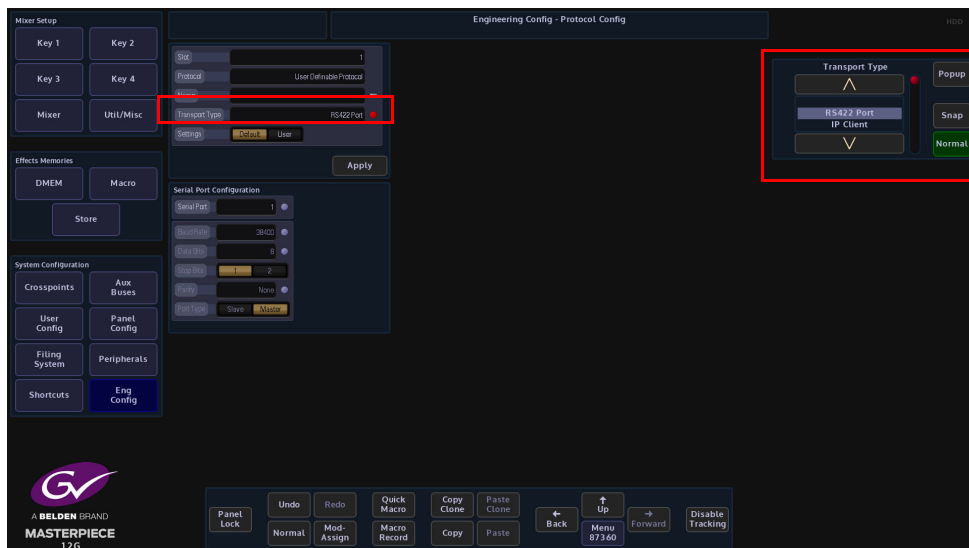
Using the Loaded Protocol parameter, select a free row in the Loaded Protocols table, then use the **Protocol Type** parameter is used to scroll through the protocol sets.



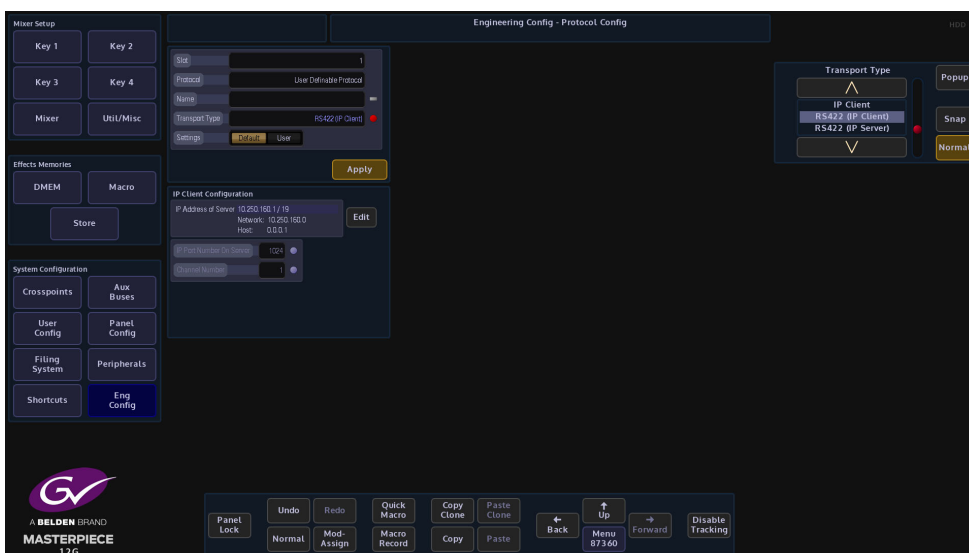
Once the required Protocol Type has been selected, use the **Available Protocol** parameter to scroll to the required protocol and then touch the **{Load}** button.



After the Load button was touched, the selected protocol is placed in the **Loaded Protocols** table, touch the **{Configure}** button to enter the **Protocol Config** menu.

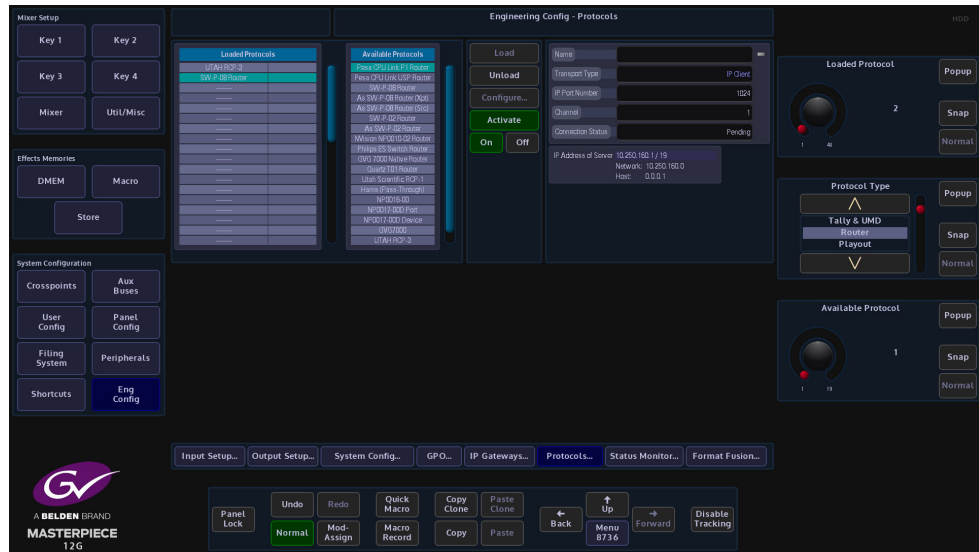


The user is able to select the type of connection that is required **"Transport Type"** i.e Serial or IP, and also set user-defined parameters for the protocol. The **Settings - Default** as the name suggests is the default setup to communicate with an external device (normally this would default to "RS422 Port"). If a specific setup is needed, press the **{User}** button in the **Settings** parameter, the user is now able to setup the protocol as required.



When the parameters have been set correctly press the **{Apply}** button. The menu will now return to the main Protocols menu.

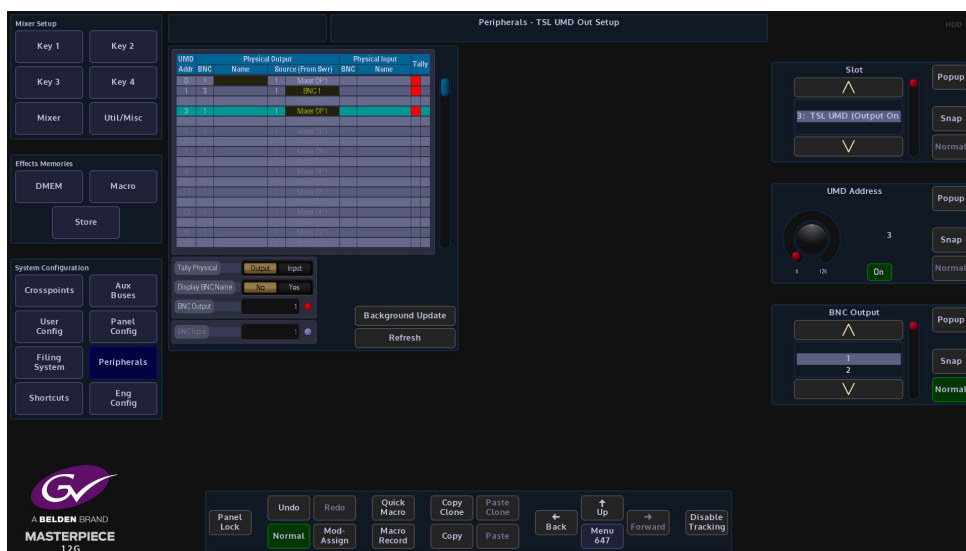
The **{Activate}** button will be yellow, if happy with the setup, touch the **{Activate}** button. The protocol setup information is displayed on the right side of the menu.



Peripherals - Engineering

TSL UMD Output Only

This peripheral is used to control and send information displayed in the Under Monitor Displays used in galleries and Multiviewers.



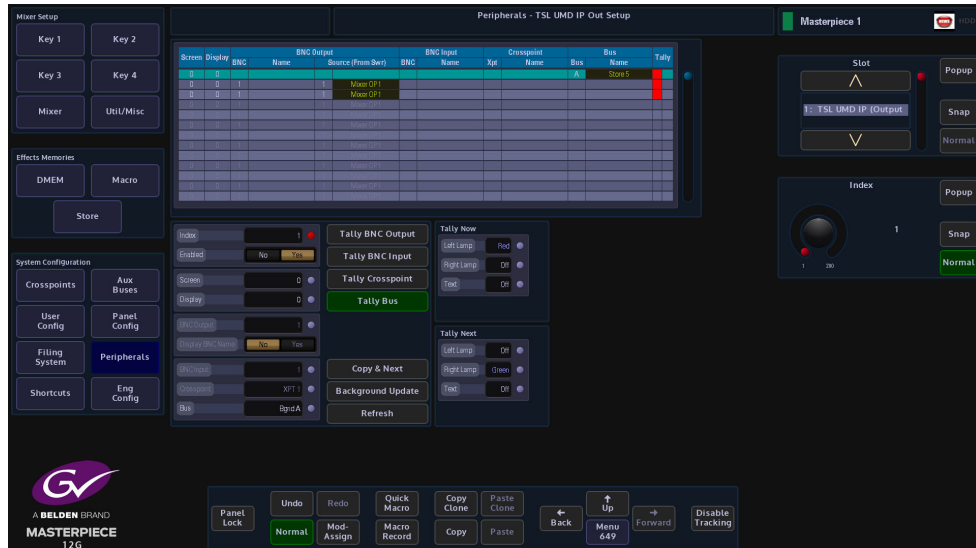
The protocol is connected to Masterpiece by one of the RS422 ports.

Select the UMD address, then select the BNC output from the Masterpiece mainframe, the user can then select if they wish to display the output name from the Masterpiece system to be displayed on the under monitor display.

A tally is also displayed if the source to the under monitor display is on air.

TSL UMD IP Output Setup

This is very similar to the TSL UMD Output, but is used on IP systems. The peripheral is used to control and send information displayed in the Under Monitor Displays used in galleries and Multiviewers.



The protocol is connected to Masterpiece over a network via IP Client or IP Server .

The menu has the ability to have Bus Tally as an Option for the A and B, Buses. thus allowing for the Automation XPT to always show the correct BNC name on Air (for example) when using the Automation XPT system.

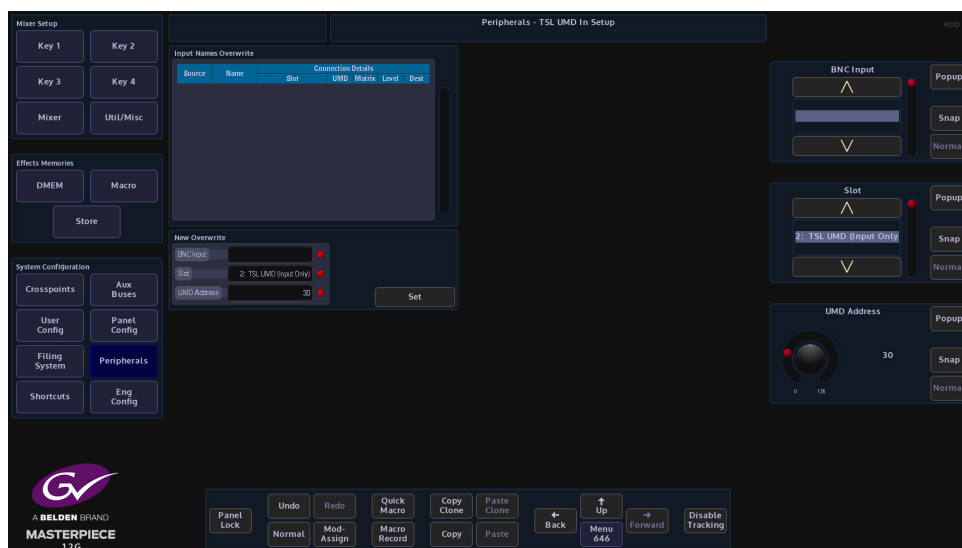
This will also show the correct name when you override the Automaton from the panel by selecting XPT's manually.

Select the UMD address, then select the BNC output from the Masterpiece mainframe, the user can then select if they wish to display the output name from the Masterpiece system to be displayed on the under monitor display.

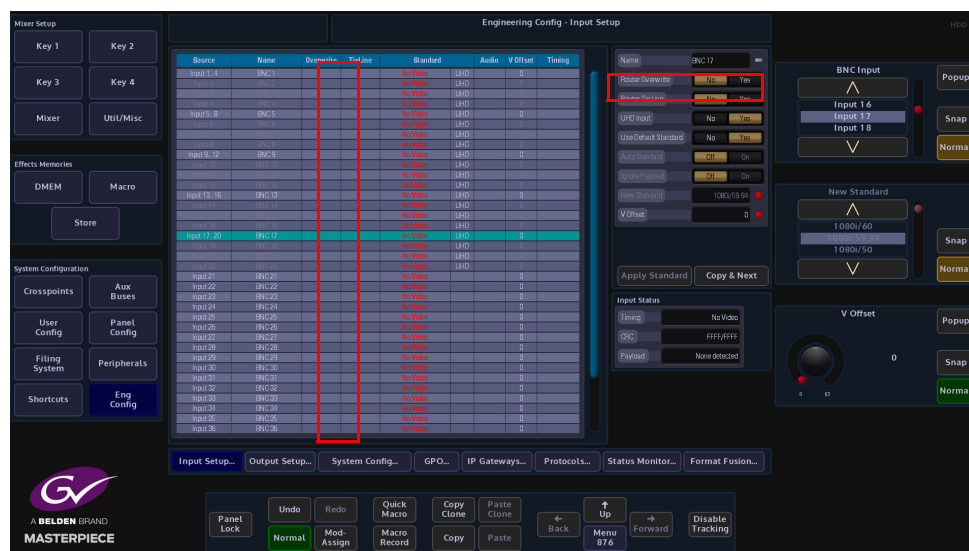
A tally is also displayed if the source to the under monitor display is on air.

TSL UMD In

This protocol allows Masterpiece to receive source names from external devices (for example a Router) **Eng Config - Input Setup** menu allows Masterpiece to use the source names.



The protocol is setup in the **Eng Config - Protocols** menu, this will allow the Masterpiece mainframe to communicate with the external device. Masterpiece is able to receive source name information from the external device via the RS422/IP connection or the BNC, each source name is mapped to a UMD address. From the menu above, assume a source called VTR87 is mapped to UMD address 87 and it is feeding Masterpiece input 3, the name "VTR87" will overwrite the default name "BNC3"



Using the **Router Overwrite** parameter in the **Eng Config - Input Setup** menu, Masterpiece is able to receive UMD information from any of the BNC inputs. This information will then be displayed in the input menu's and can also be used for the mnemonic displays on the control surface for selecting sources.

EAS (Emergency Alert System)

Overview

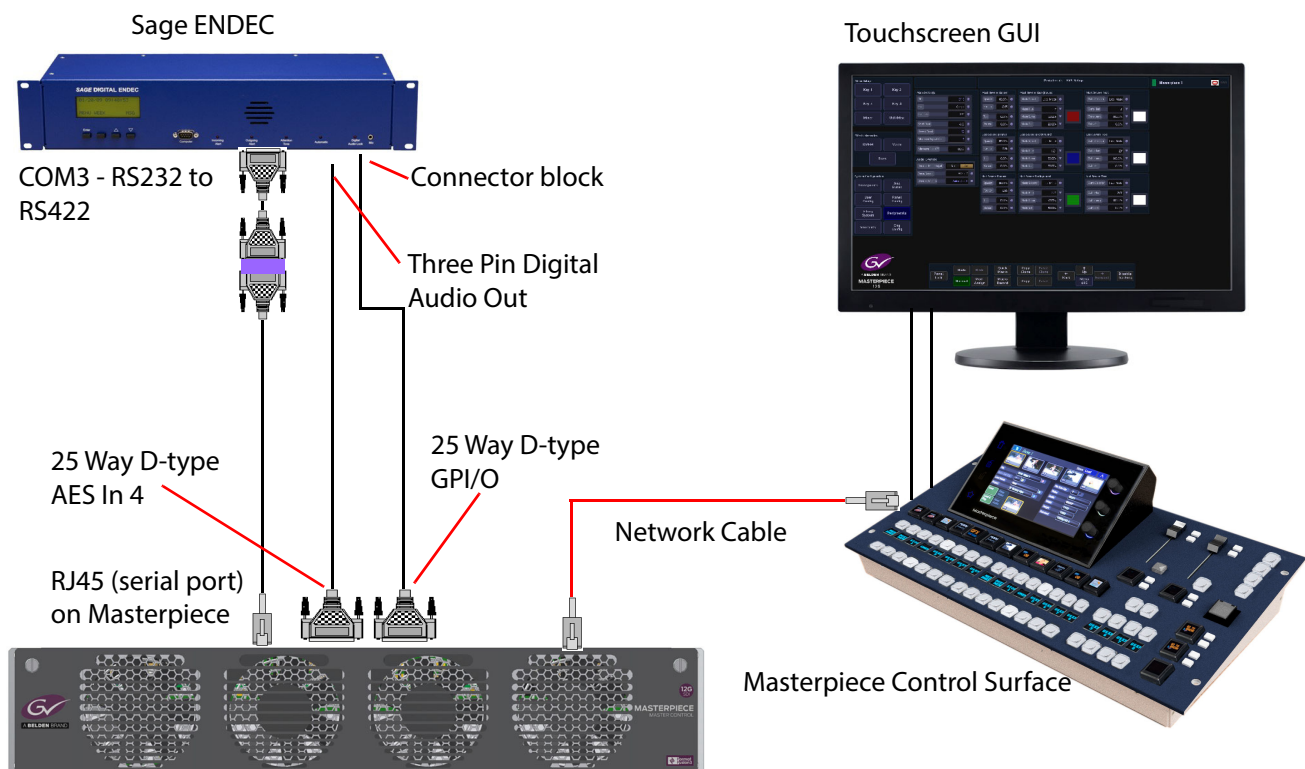
The Emergency Alert System (in this example for the United States of America) is a national public warning system that requires TV and radio broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service providers, direct broadcast satellite service providers and wireline video service providers to offer to the U.S. President the communications capability to address the American public during a national emergency. The system also may be used by state and local authorities to deliver important emergency information such as AMBER (missing children) alerts and emergency weather information targeted to a specific area.

The FCC works with the Federal Emergency Management Agency and the National Oceanic and Atmospheric Administration's National Weather Service to implement the EAS at the national level.

The EAS allows participating providers to send and receive emergency information quickly and automatically, even if their facilities are unattended. If one link in the system for spreading emergency alert information is broken, members of the public have multiple alternate sources of warning. EAS equipment also provides a method for automatic interruption of regular programming, and in certain instances is able to relay emergency messages in languages other than English.

Setup

The EAS system used was a Sage ENDEC connected to the Masterpiece mainframe via RS232/RS422 to RJ45.

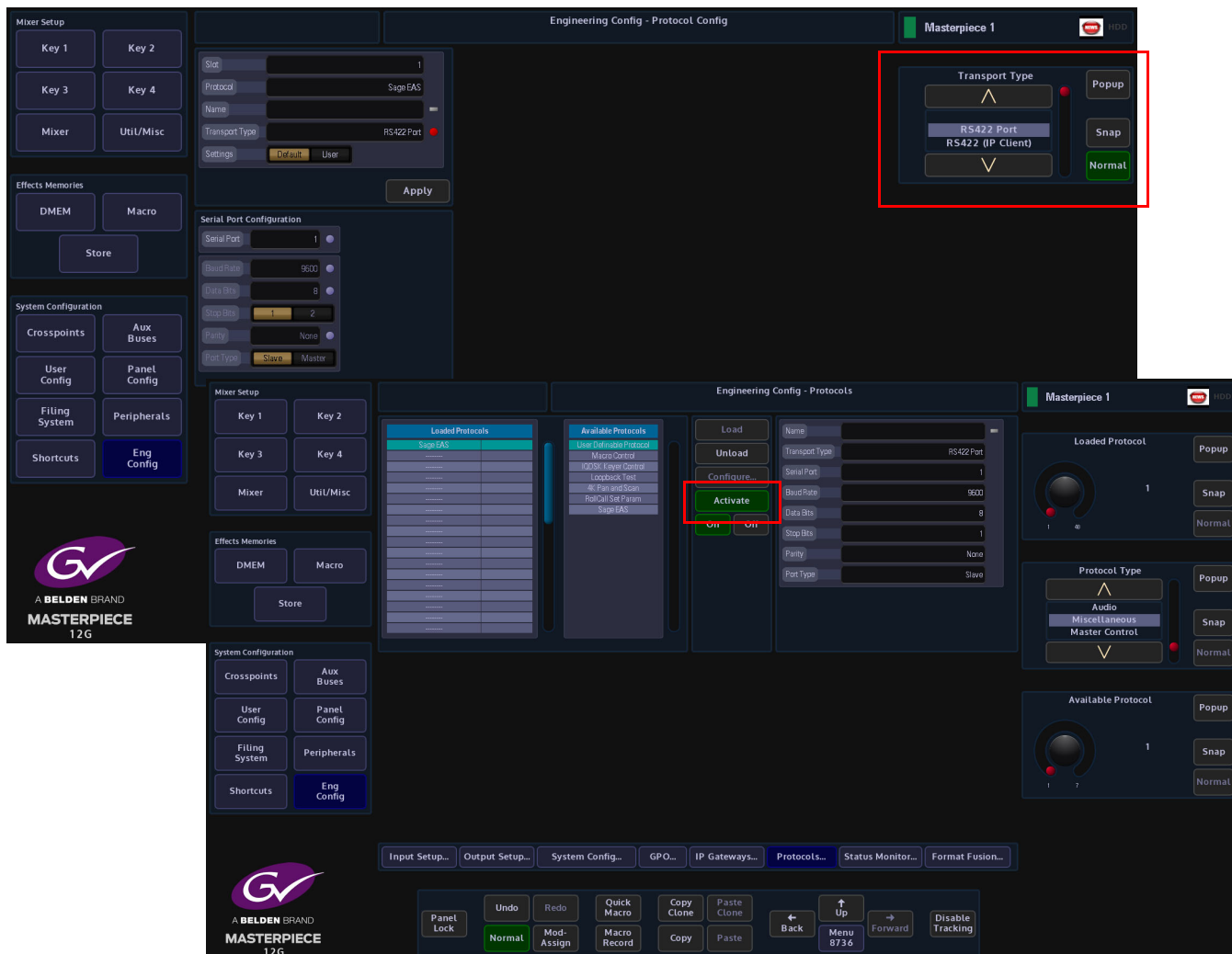


The Masterpiece system has to be running V3.2r1 software or greater.

Masterpiece Setup

In the Masterpiece “Eng Config - Protocols” menu select “Miscellaneous” in the “Protocol Type” parameter.

In the “Available Protocols” table, select “Sage EAS”; select a clear row in the “Loaded Protocols” table and then touch the **{Load}** button.

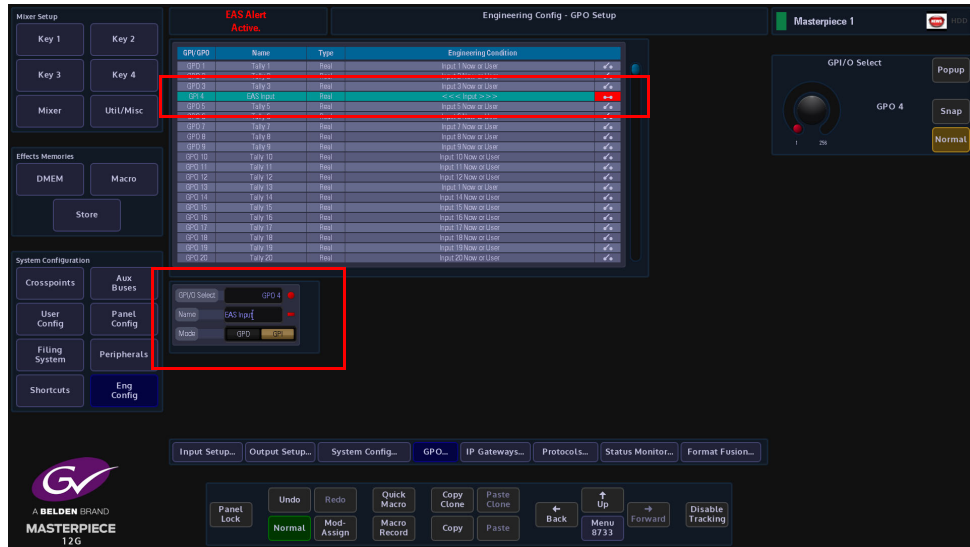


Touch the **{Configure...}** button and then in the “Protocol Config” menu, set the “Transport Type” as RS422 Port, the “Baud Rate” should automatically be 9600, the Sage ENDEC baud rate can also be set to 9600. Finally back in the Protocol menu, touch the **{Activate}** button.

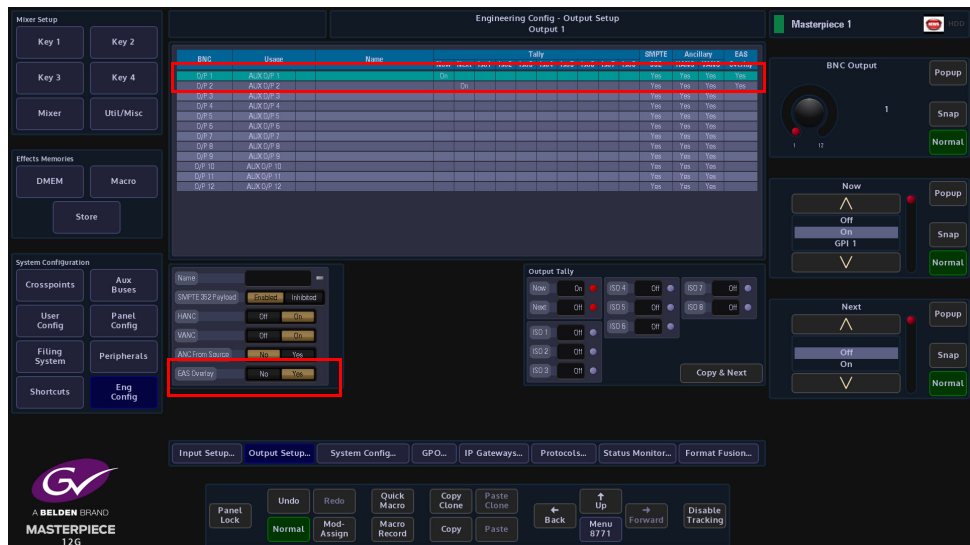
Note: As the EAS triggering is received and defined by the Masterpiece as a “Warning State” internally, Masterpiece is able to send data to the SysLogServer (if set-up at the facility), the SysLogServer data will include: EAS Start Event + Timestamp, the EAS Characters, and then EAS End Event with Timestamp.

GPI and Output Setup

In the Eng Config menu, setup the GPI that will receive the EAS alert (as shown below). When the alert is received, the GPI switch will close enabling the EAS service.

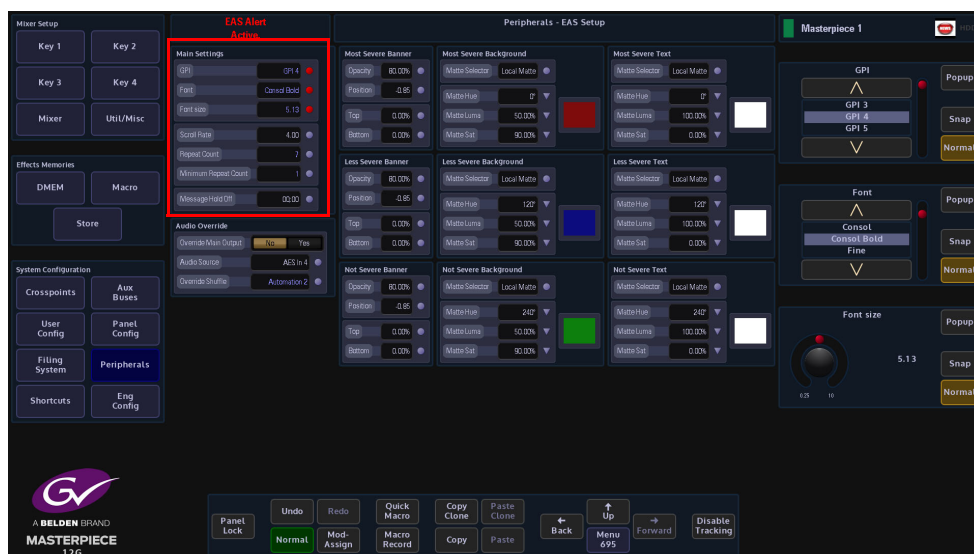


In the "Eng Config - Output Setup" menu, the "Pgm Output" or the designated output has to have the "EAS Overlay" set to "Yes" (as shown below). This sets the emergency alert to be displayed on the program and selected outputs.



EAS Peripheral

Touch the **{Peripherals}** button, and in the “Engineering” column, you will see the **{EAS...}** menu link button.



This is where you will setup the visual appearance; background, text color etc. of the incoming EAS alert.

In the “Main Settings” parameter controls, select the “**GPI**” that receives the incoming EAS alert. The EAS system (e.g. Sage ENDEC) generates closed contact relay event when an EAS alert is received. This main GPI can be input into the Masterpiece system and can be used to define when an alert is in progress and to display the Character Generator, and the Audio. When the GPI is in the closed state a warning (EAS Alert Active) flashes in the top right corner of the Masterpiece MLC GUI. The alert will flash in every selected menu.

There are 3 levels of severity determined by the incoming information from the Sage ENDEC system, the incoming information into Masterpiece will override whatever is being broadcast on the selected output. The visual information being displayed by Masterpiece is setup in the EAS Setup menu. Visual information being the background color and the color and size of the text being displayed as a warning message.

Font and Font Size - determines the font used and size of the font to generate the EAS Character stream.

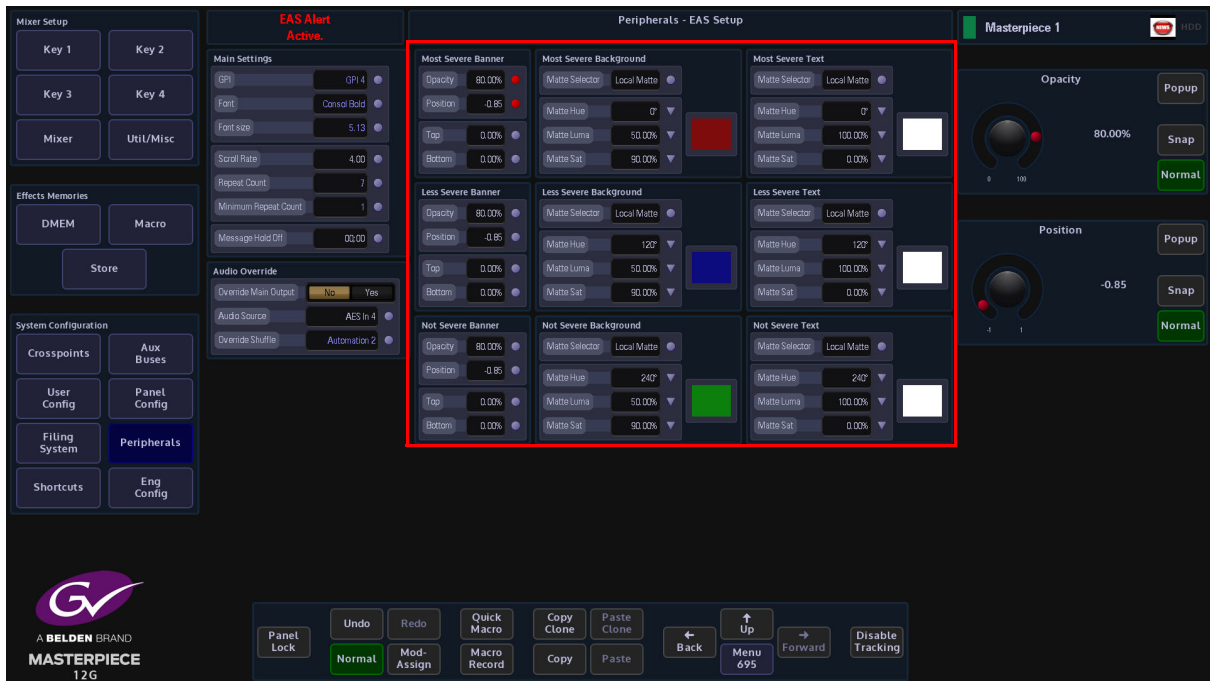
Scroll Rate and Repeat Count - determines the rate of the crawl and the number of times it should be repeated. If you have selected a GPI the crawl will be removed when the GPI clears. Please note that at least one complete crawl will be completed regardless of GPI and repeat count.

By law the Character crawl has to be displayed at least twice. This can be set by minimum repeat count 2.

Note: If the Repeat Count is set to "for Ever or greater than 2" the message will repeat until the repeat count has been reached or the main GPI associated with the EAS Alert is removed.

EAS Character set contains a severity level 1, 2 or 3 from the EAS decoder (e.g. Sage ENDEC). This severity level will be used to determine the color of the background of the crawl and/or the Text color.

The “Banner” which is the banner the text runs on, the “Background” which is the background behind the banner and text and the “Text” which is the text on the banner are all adjusted in the menu below. The user can set where the banner is positioned (top/bottom), and the colors for each severity level.

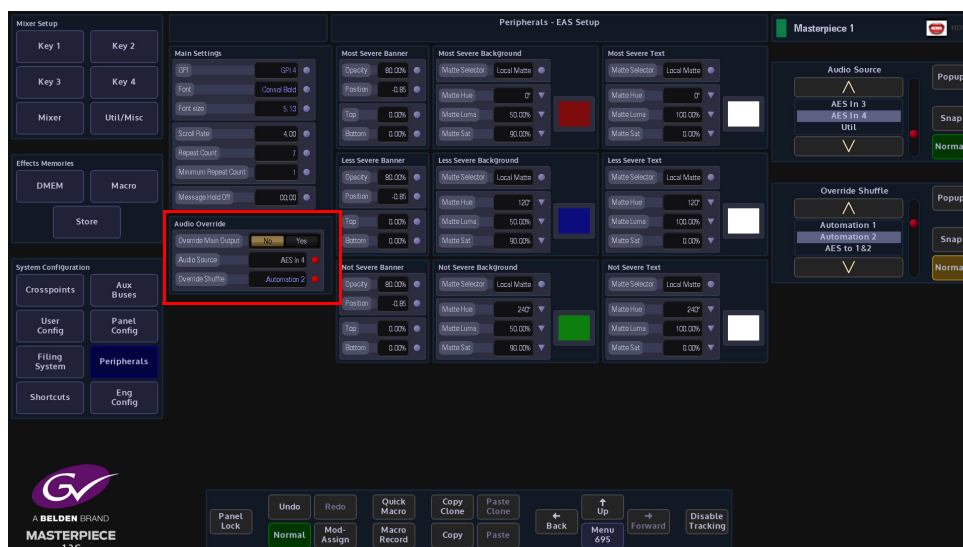


The EAS crawl is effectively the final Down Stream Key, this will automatically be displayed and cannot be adjusted (not available any other way on Masterpiece), and will be placed on top of the any program output video source.

Note: The outputs where EAS will appear are determined in the Eng Config - Output Setup menu, where the “EAS Overlay” is set to “Yes”. This needs to be applied to any output that is being used, even set to overlay Fade to Black.

The crawl background width can be manually set (by default it will be oversized with respect to the font size), as such can cover the entire screen. This is set per Severity. This is split into 2 parts above and below the text. The crawl Background “Opacity” and “Color”, and “Text Color” is set per severity level.

Audio Override



Override Main Output - “Yes”. This will enable the following parameters to be automatically applied in the event of an Alert determined by the GPI. This will act separately to any other audio Settings.

Audio Source - this allows the selection of the audio source. By default it will be “AES In 4”.)

Note: The Sage ENDEC unit can supply an AES feed for the Alert Audio over AES.

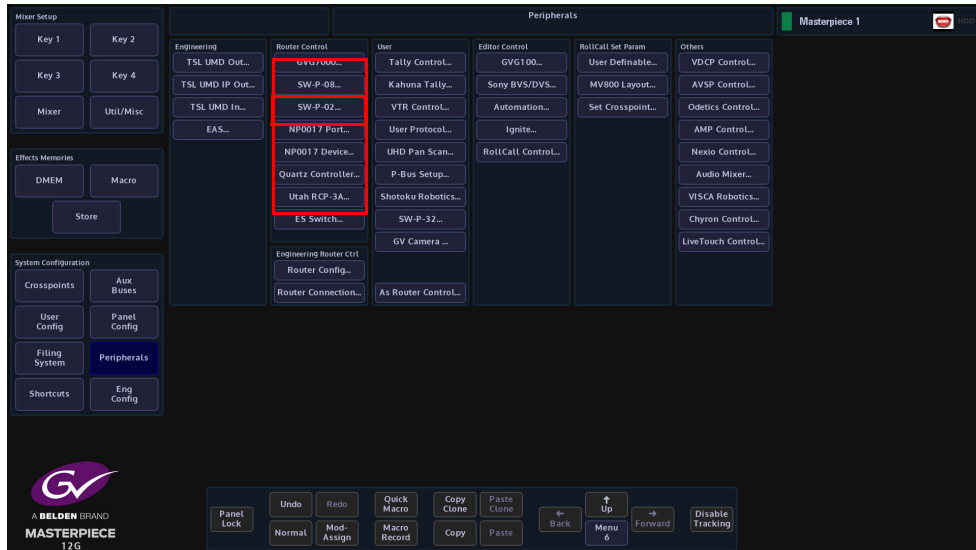
In the even that all AES sources are in used, other SDI sources can be used. This requires the user to embed the required audio and make sure its available.

Override Shuffle - the default new EAS to LCR (Left, Centre, Right), which can be edited or alternate a shuffle, can be selected. This will place the Audio (e.g. AES) on the 1st three SDI audio output Channels (assumed to be Front left, Front Right and center). The user can edit the “Shuffle Map” in the “Crosspoints” menu as required, to place the AES as where needed, e.g. on All Channels (see Crosspoints - Shuffle menu), and note that the use of mix that will mix the potential stereo AES into Mono or 1:1 for a 16 Channel SDI input pre shuffled etc.

Override Main Output - “No”. this will make the user responsible for setting up the Masterpiece such that it outputs the EAS alert audio (e.g via a Bus using a Macro to set the Masterpiece into a specific state, and another to return to a specific state), or take the “Output Audio” through the EAS Decoder or external switch.

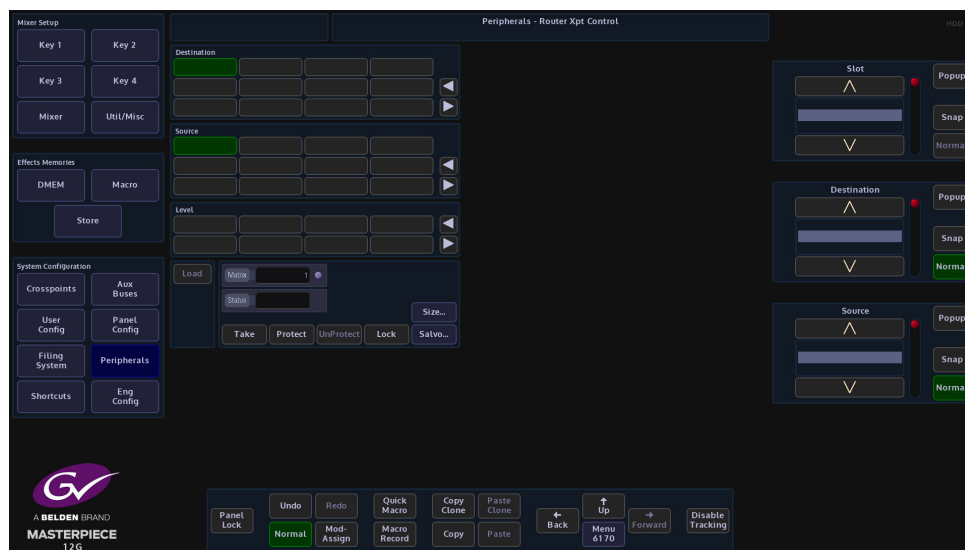
Peripherals - Router Control

This function allows Masterpiece to control a third party router. The menus are similar in functionality for the GVG7000 and Utah RCP-3A, and the menus for the SW-P-08 through to the Quartz Controller are also similar in functionality to each other. In the following section one example form each Router Control function will be explained.



For this example, we are going to look at the SW-P-08 Router Control Peripheral.

SW-P-08 - Xpt



This menu enables the user to control the router Names.

When first connecting to a system controller, Masterpiece will request all the names for the Destinations, Sources and Levels.

The user can then assign names to the 12 destination buttons and 12 next source selection buttons, the level names will then also appear in the Level Mapping by Names menu.

Router Control Buttons

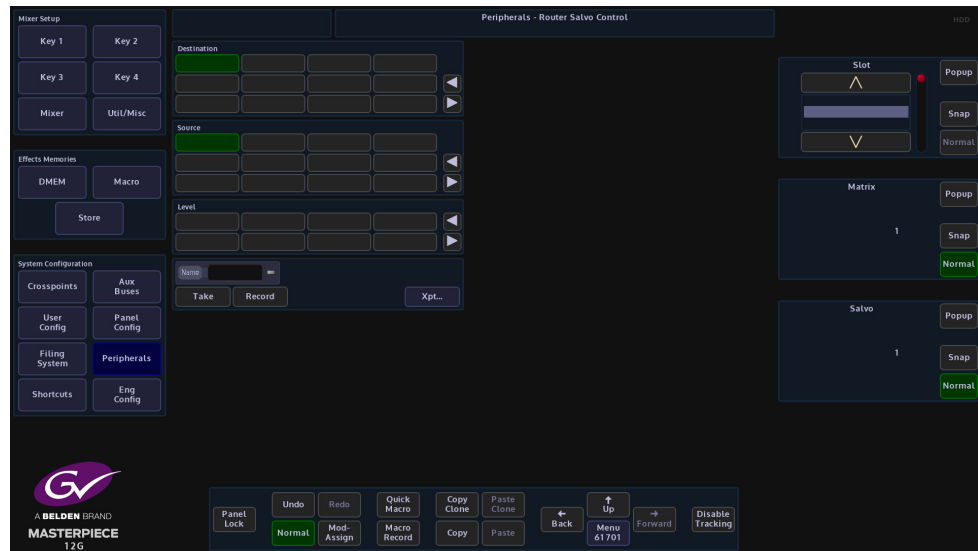
Take - Sets a crosspoint

Protect - protects a destination

UnProtect - removes the destination protection

Salvo Control

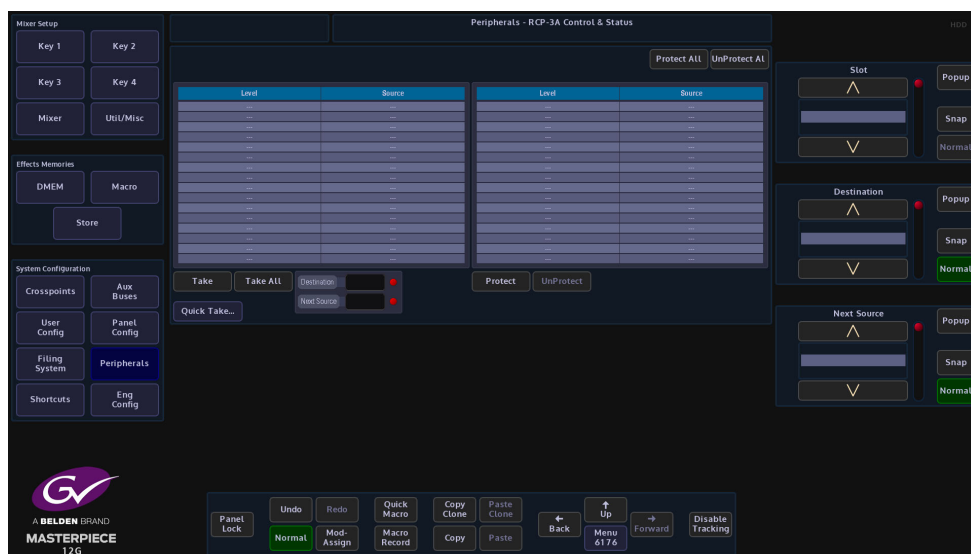
This menu works in exactly the Grass Valley way as the previous menu.



The Xpt button reverts back to the Xpt Control menu.

Utah RCP-3A

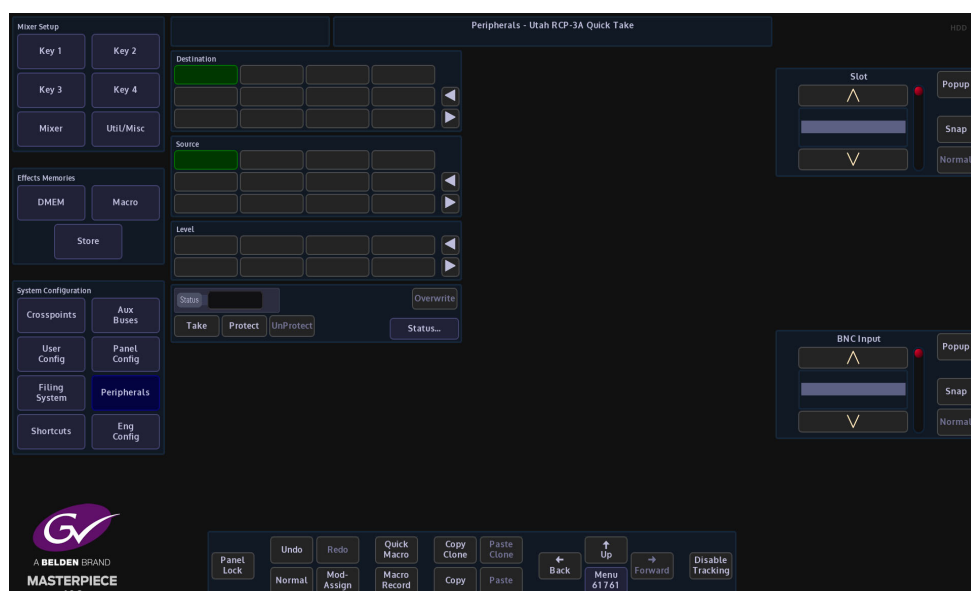
Touch the **{Utah RCP-3A...}** button, which will open the RCP-3A Status & Control menu.



If the Router is connected the sources and destinations will be displayed as shown in the above menu.

To perform a take, select the **Source** and **Destinations** using the parameters, on the desired level and then touch **{Take}**. The Green selection indicates which level is active - which level the Takes and (un) Protects will be acted on. There can be multiple active levels selected at a time.

Alternatively, select the **{Quick Take...}** button at the bottom of the menu, which will take the user to the RCP-3A Quick Take menu as shown below.



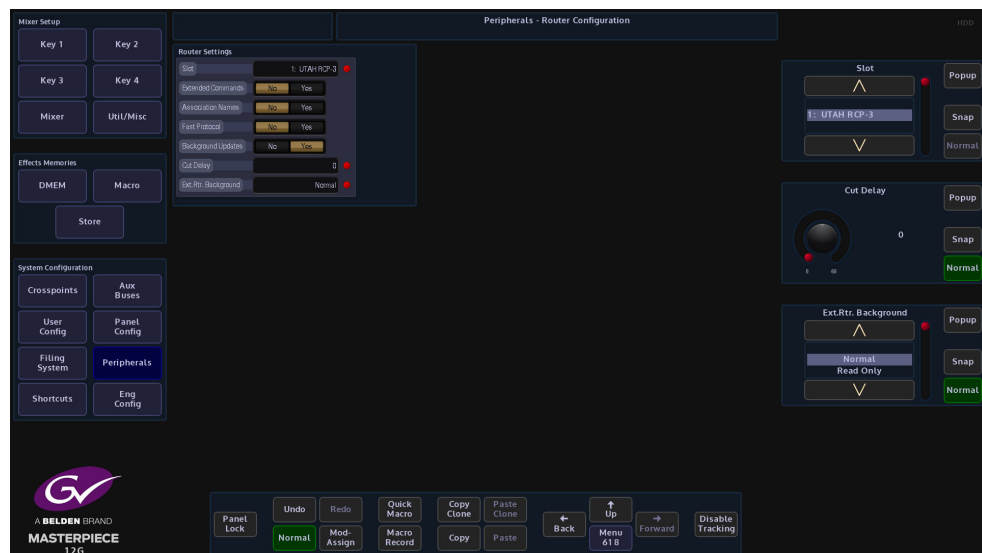
To perform a take, select the **Source** and **Destination** on the desired level and then touch **{Take}**. To lock the assignment press **{Protect}**. To Unlock press **{UnProtect}**.

Peripherals - Engineering Router Control

The menus in this section of the Peripherals menu are used to setup Masterpiece to communicate with external routers. One of the features that can be used with these menus is Masterpiece's new Intelligent "Tile Line" concept (this will be described later in this section).

Router Config

This menu allows the user to make changes to the way routers work with Masterpiece.



If for example a source switch on the external router is changing later than, the timing can be adjusted. This will delay the cut on the to ensure the router switch is complete.

Adjust the Cut Delay until clean switching is achieved.

For routers that use the Grass Valley SWP08 protocol the Fast Protocol selection can be enabled. This sends out multiple commands per video field. It will depend on the implementation of SWP08 whether this mode works.

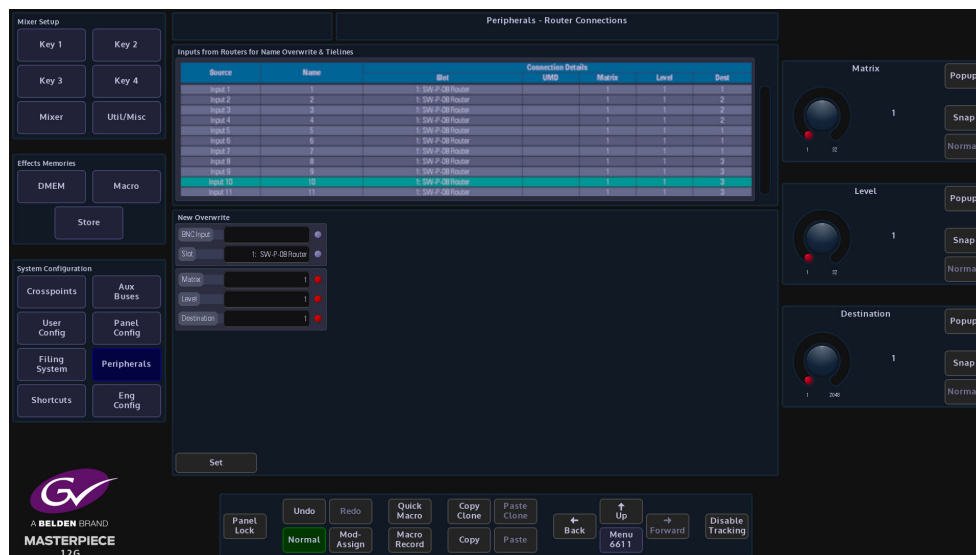
Ext Rtr. Background:-

- **Normal** - will send Xpt Take requests and Source Name requests.
- **Read Only** - will stop Xpt Take requests but continue Source Name requests.
- **Slow Read Only** - will stop Xpt Take requests but continue Source Name requests.
- **V.Slow** - will send Xpt Take requests and Source Name requests at a very slow rate.
- **V.Slow Read Only** - will stop Xpt Take requests but continue Source Name requests at a very slow rate.
- **Off** - will stop both Xpt Take and Source Name requests.

Router Connections

Here the physical router outputs (Including Matrix and Levels) can be mapped to the physical Masterpiece inputs.

Each of the input sources has to be setup individually, as each one is setup, touch the **{Set}** button



Matrix - this is the router connected to Masterpiece.

Level - this refers to the different levels within a router, video, audio and other.

Destination - this is the output from the router

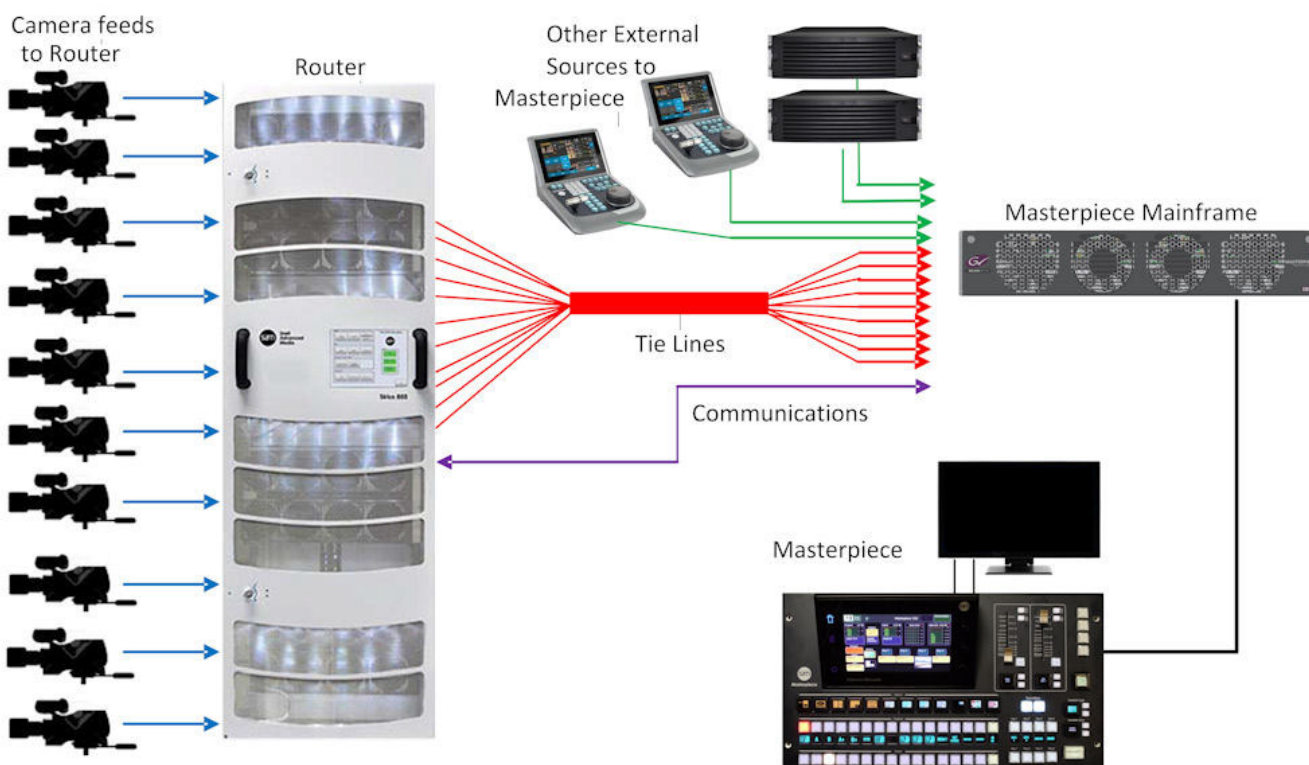
External Router Control - Practical Application

Masterpiece now has the mechanism to expand the number of sources coming into the mainframe using an external router. This is primarily due to a system setup running in UHD. Using this new feature, the number of sources to be used with the Masterpiece, are expandable up to the size of the upstream router.

Intelligent Tie Line Concept

Masterpiece deploys an intelligent “Tie **Line**” approach, the desired external router outputs (destinations) are connected to Masterpiece inputs. These inputs on the Masterpiece and destinations from the Router are treated as “Tie **Lines**”. Each Tie Line acts as a floating video bus between the router and Masterpiece, they are intelligently assigned and used as required. Source selection on any Bus is transparent to the operator, regardless from where the Xpt is being made, i.e. in the external router, or in the Masterpiece itself.

The Masterpiece software knows what physical inputs / Tie Lines are allocated and what are not being used on a bus. Masterpiece then assigns the Physical input /Tie Line to the desired Bus upon a source selection. Masterpiece updates the upstream router's destination /Tie Line with the selected source.



Source selection on any Bus is transparent to the operator. Once setup, the operator sets the desired router source by selecting the appropriate router XPT on the required bus. The selection on the external router and the Tie Line path into the Masterpiece is automated.

How Many Tie Lines?

How many Masterpiece inputs do you need to convert to Tie Lines? This is entirely dependent on a few external factors, such as:

- How many inputs available on the Masterpiece (max number shown below):
- HD = 40 Tie Lines
- UHD = 12 Tie Lines
- How many router destinations are available.
- How many router sources need to be selected on Masterpiece at any one time.

For example:

If the user wants to select different external router sources on the A and B bus of ME2 this would require 2 Tie Lines.

For HD this would require 2 router destinations and 2 Masterpiece inputs.

For UHD this would require 8 router destinations and 8 Masterpiece inputs.

If the user requires external router sources on the A and B bus plus Key 1 and Key 2, this would require 4 Tie Lines.

In summary: Each different external router source selected simultaneously requires a Tie Line. Masterpiece

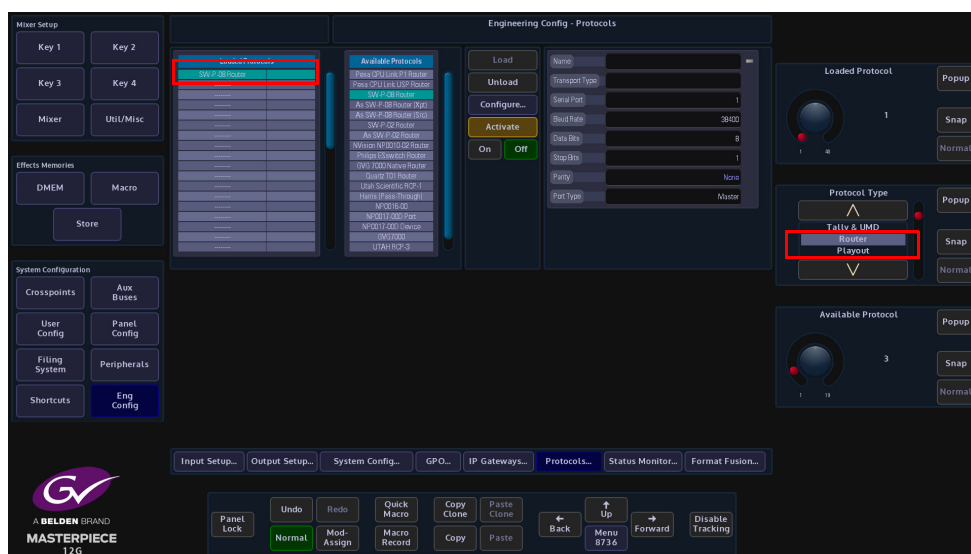
Each Tie Line requires one router destination and Masterpiece input in HD, or 4 router destinations and 4 Masterpiece inputs in UHD.

Note: If at all possible, it is recommended that the user creates more Tie Lines than are actually required. This gives some redundancy and reduces the risk of the system running out of available Tie Lines

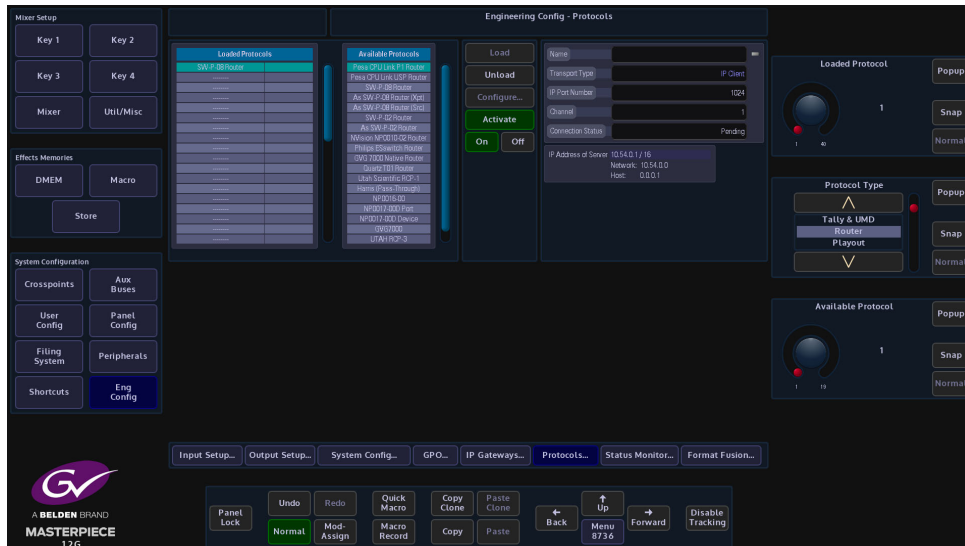
Setup

Protocol Setup

To setup the protocol, the user will have to go to the **Eng Config - Protocols** menu. Use the "Protocol **Type**" parameter to select "Router", then, use the "Available **Protocol**" parameter to select the required protocol. For this example, "SW-P-08 Router" is selected. Touch the **{Load}** button to add the protocol to the "Loaded **Protocols**" table.



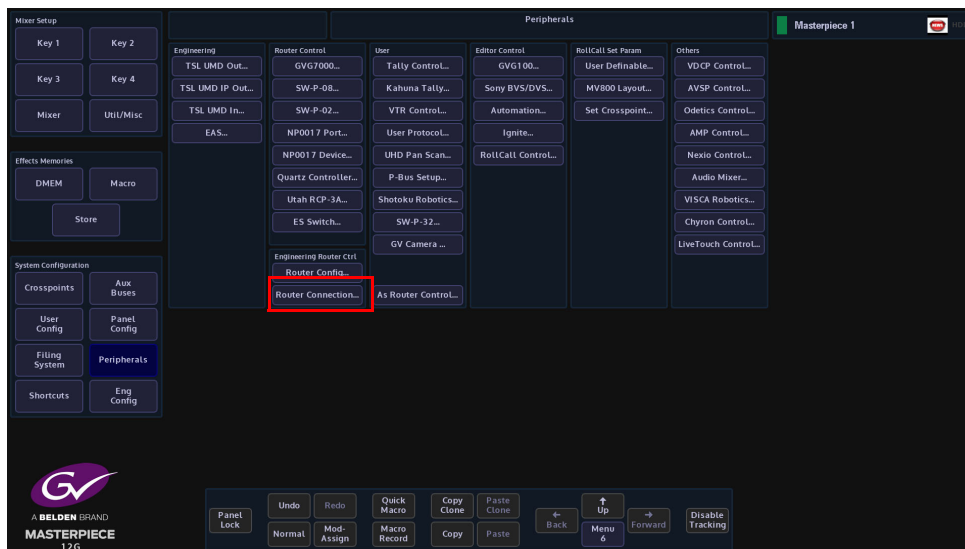
The user will now have to configure the protocol so that Masterpiece can communicate with the router. Touch the **{Configure...}** menu link button and the “Protocol **Config**” menu is displayed. Use the “Transport **Type**” parameter to select the communications transport type, then, setup the “IP **Client Configuration**” details.



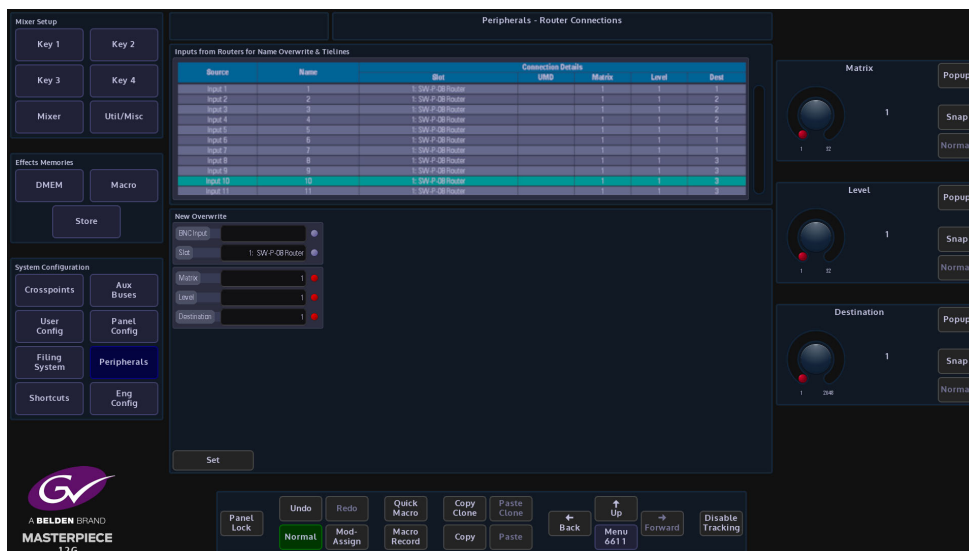
Once setup, touch the **{Apply}** button. Then back in the Peripherals main menu, touch the **{Activate}** button to activate the protocol.

Peripherals Setup

Touch the **{PERIPH}** button to enter the “Peripherals” menu. Then touch the **{Router Connections...}** menu link button.



Then select “Router **Connections**”. Here the physical router outputs (Including Matrix and Levels) need to be mapped to the physical Masterpiece inputs. These connections will form the “Tie Lines”



After each router connection row is set, touch the {Set} button.

Setting Up Names and Tie Lines

Next, go to the **ENG Config - Input Setup** menu.

In this menu, select the BNCs that where set to connect to the router destinations in the “Peripherals - **Router Connections**” menu and use the “**Router Tie Line**” parameter set the Tie Lines to “Yes”. Do this for all the inputs that will become Tie Lines from the router.

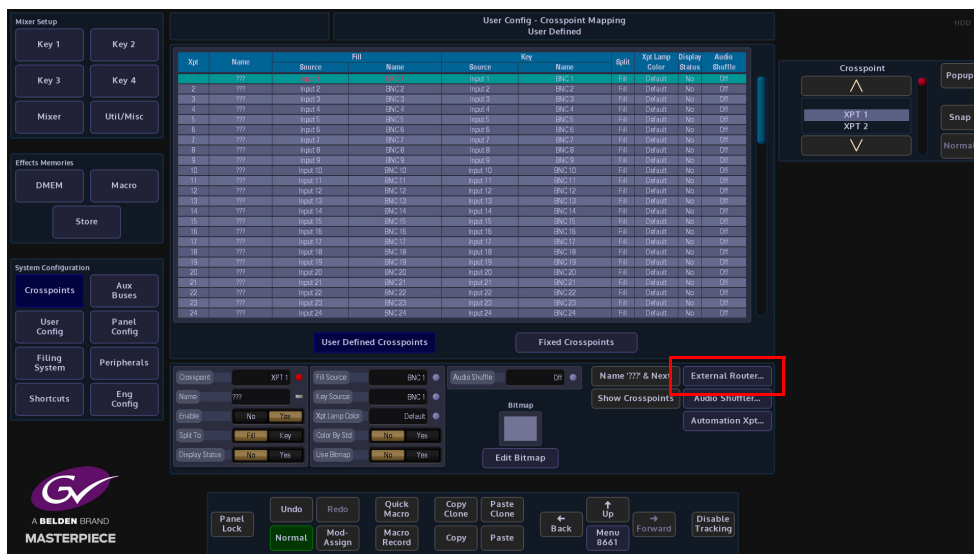


Note: For inputs that are set as “Tie Lines”, it is recommended that the “Source Standard” parameter (in the **Eng Config - Inputs** menu) is set to “Auto **Standard**”. It's recommended that sources which are off standard (and therefore requires format conversion) do not come via Tie Lines if hot cutting is required.

Make sure at this point to “Overwrite” or “Save” the **ENG Config** setup.

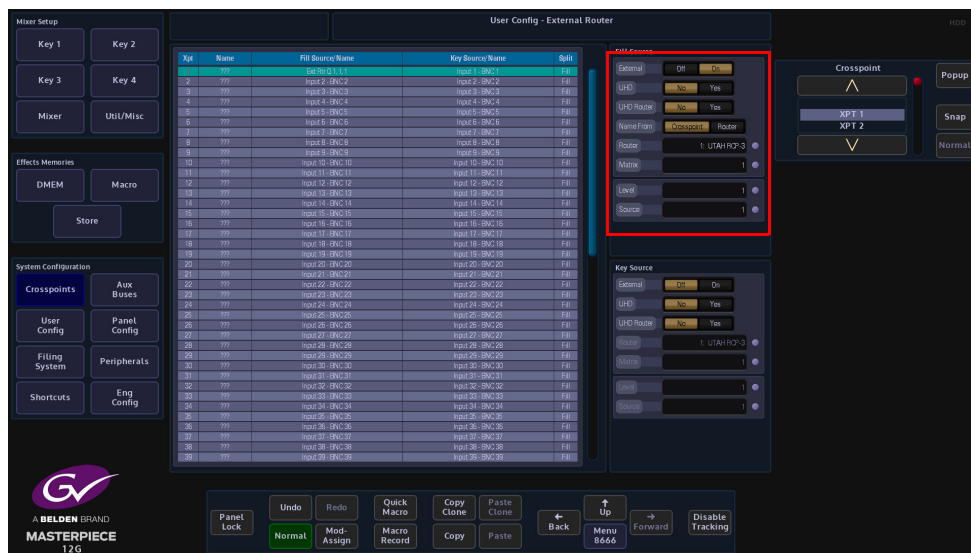
Setting up the User Config - Crosspoint Mapping - External Router configuration

In the Crosspoint Mapping menu, touch the **{External Router...}** menu link button.



In the **“External Router”** menu, select free Xpts that are not being currently used, there are a total of 160 variable Xpts available. Each external router source required on the Masterpiece will need its own router Xpt.

Use the **“Crosspoint”** parameter to select the required **“Xpt”** and then touch the **“Fill Source”** attacher to enable the parameters and set the **“External”** parameter to **“On”**



Touch the attacher below the **“Fill Source”** attacher, then use the parameter controls to set the **“Matrix, Level and Source”** for the selected XPT (originally set in the **“Peripherals - Router Connections”** menu).

If the source is UHD set the “UHD” parameter to “Yes”.

Note: When in UHD mode the 4 quadrants or streams from the router have to be consecutive.



If the router has its sources and destinations ganged as UHD then set “UHD **Router**” = **Yes**. This differentiates between the control protocol setting 4 router XPTs (un-ganged) or just the first router XPT (ganged).



“Name **From**” - Router means the name is fed into the Masterpiece from the external router (should the protocol allow this).

“Name **From**” - Crosspoint uses the internal XPT name as set in the **User Config - Crosspoint - Name** menu.



Repeat the above for the “Key **Source**” for the Xpt if required. Otherwise it's recommended to set the Key source to black or white for the external router XPT.



Make sure at this point to “Overwrite” or “**Save**” the User Config.

Operation

The Router XPTs can be mapped to the buttons on the control panel as per normal using the Panel Config - Button Maps menu.

The operator just selects the router XPT as per any other source and its fed via the Tie Lines from the external router.

If too many router sources are selected for the Tie Lines available, the following red text warning is displayed above the table (top left):



In this instance either extra Tie Lines need to be added, or router XPTs deselected from buses if not required.

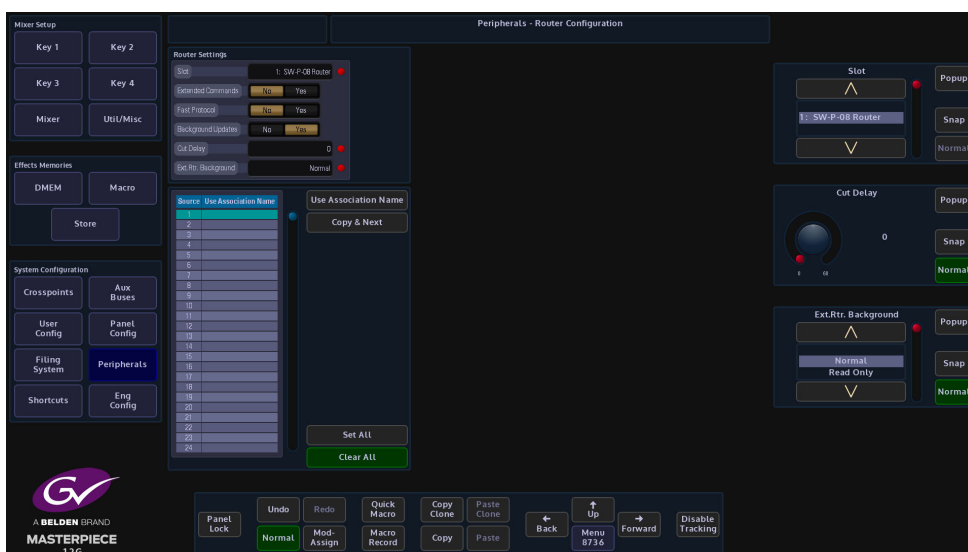
Timing

If the source switch on the external router is changing later than Masterpiece, the timing can be adjusted. This will delay the cut on the Masterpiece to ensure the router switch is complete.

Peripherals - Router Control - Router Config

Adjust the **Cut Delay** until clean switching is achieved.

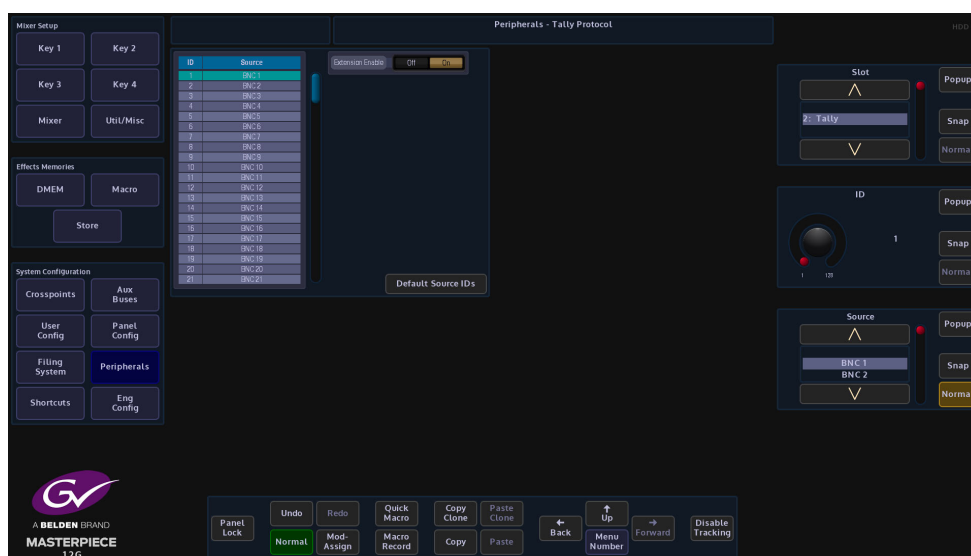
For routers that use the "Grass Valley SWP08" protocol the Fast Protocol selection can be enabled. This sends out multiple commands per video field. It will depend on the implementation of SWP08 whether this mode works.



Peripherals - User

Tally Control

This menu allows the setup of a Tally serial port that is connected to an external devices. Tally protocol supports 128 Source IDs.



Slot - selects the protocol that is currently being used

Extension Enable - this enables the Grass Valley extension in the protocol

ID - 1-84 are for BNC inputs and 85-128 are fixed, therefore greyed out.

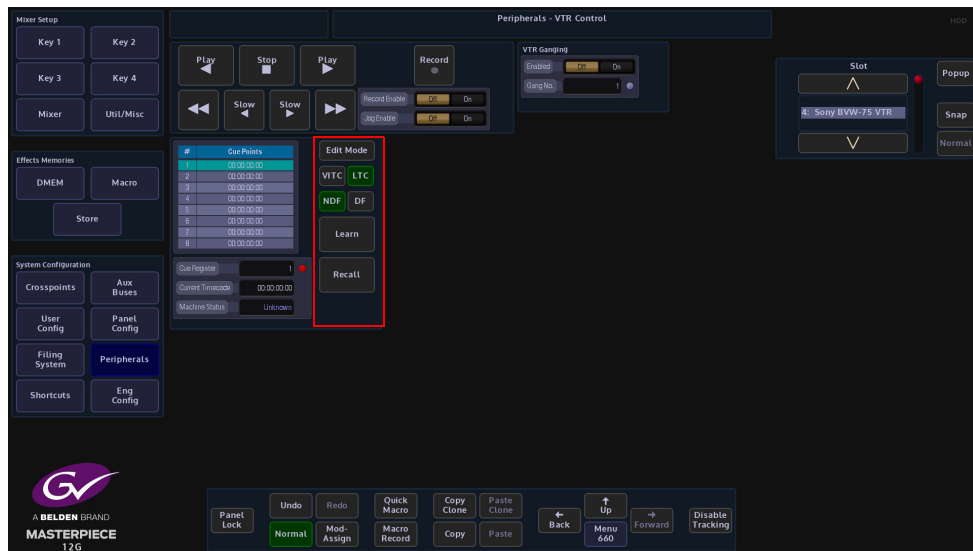
Source - is the 120 BNC inputs, 84 Source IDs are not enough. So the users have to “choose” which 84 out of the 120 BNCs they want to tally.

Any BNC that has not been assigned, an ID will not be tallied.

Default Source IDs button will reset the mapping table to be one to one mapped, i.e. ID 1 is BNC 1, ID 2 is BNC 2 etc.

VTR Control

This menu will allow control of VTR's connected via the RS422 ports.



Select the device using the "Slot" parameter. The status of the connection will be displayed in the "Machine Status" parameter. Use the standard controls to **Play**, **Fast Forward/Rewind**, **Cue** or **Record** the material on the device.

When in **Edit Mode** Cue points can be set up, which can be controlled directly from this menu or can be saved to a button on the panel as a macro.

When selecting **Edit Mode** the Edit Cue Point will stop and you can manually adjust the Timecode to reach a particular frame. Pressing Learn will record that as a Cue point and add it to the list. Turn off Edit Mode until you are ready to Recall this point.

To Recall a Cue point, select it in the list and press **Edit Mode** and press [Recall]. You will notice the VTR will now scroll to that Timecode and wait for further instruction.

Cue Register will scroll through your list of recorded Cue Points.

{VITC} - Vertical Interval Time Code

VITC assigns a specific time in hours, minutes, and seconds to each vertical blanking interval in a video recording, along with a frame number. The time code can be used to start a recording at a certain chronological time (such as 5:00:00 p.m.), or it can be used to keep a playback machine synchronized with a master time source. The former application might be used by a home television viewer, while the latter application would more likely be used by a broadcaster.

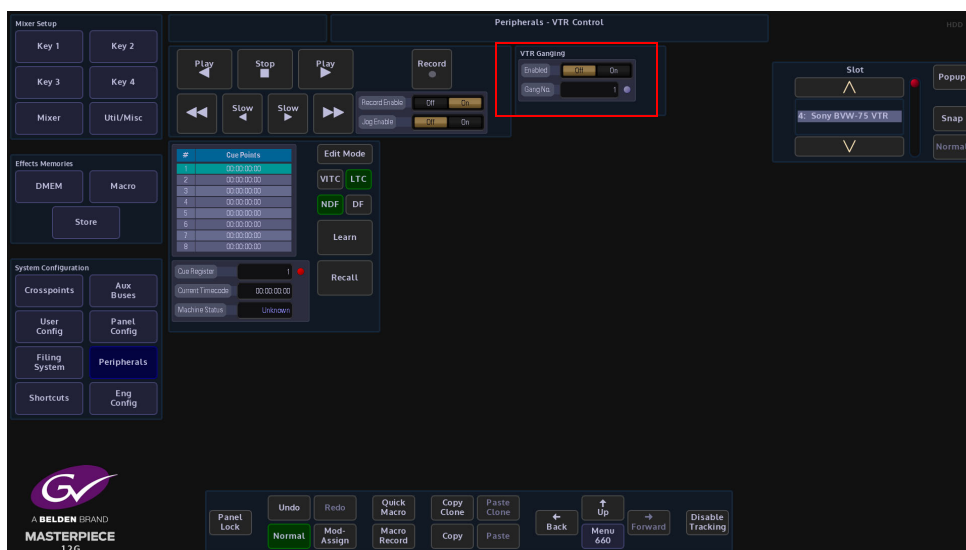
{LTC} - Longitudinal Time Code

LTC is recorded along the length of the tape in the form of a modulated audio signal. The signal may be recorded on a spare audio channel or, in the case of professional equipment, on an "address track" available for just this purpose.

{NDF} - Non-Drop-Frame Format

{DF} - Drop-Frame Format

The difference between the two is that with Drop-Frame format the frame address is periodically adjusted (once every minute) so that it exactly matches real time (at the 10 minute mark), while with Non-Drop-Frame format the frame address is never adjusted and gets progressively further away from real time.



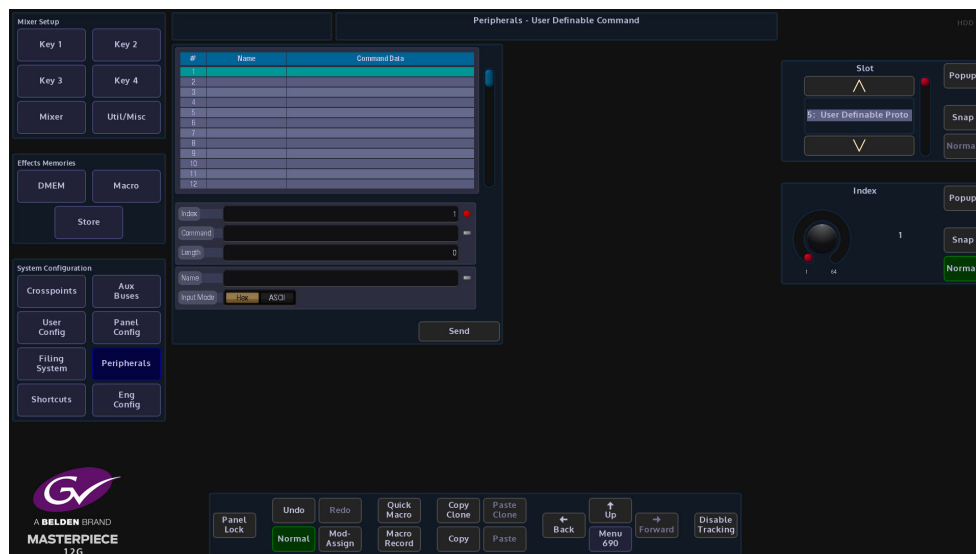
VTR Ganging - this allows the ability to “GANG” Roll up to 4 VTRs.

The Jog Enable function can be assigned to the Joystick on the control surface.

This can be permanently assigned to the joystick by pressing and holding of the **[MEM]** button, either on the Joystick. With the MEM enabled the Joystick will return to the VTR Jog Shuttle.

User Protocol

This function will allow the user to type in an ASCII or Hex command/message and send it out to a serial port.



Slot - selects the serial port that will be used to send the commands

Index - the index number in the table for the selected command

Input Mode - selects between ASCII or HEX as a command form.

Command - command code written by the user. When in ASCII mode, Masterpiece can be made to also send out two special characters.

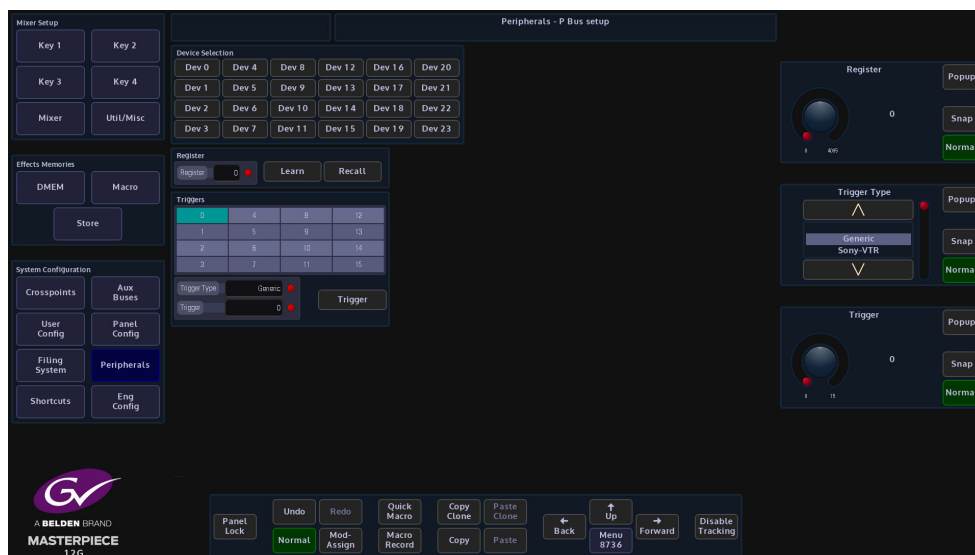
To send a carriage return character type "<cr>" and "<lf>" for a line feed character

Length - command length

Name - name (function) given to the command data.

P-Bus Setup

This menu allows the control of Peripheral Bus Interface Boxes that can be connected to the serial ports on the Masterpiece mainframe. The P Bus boxes have various external devices connected to them such as VTRs, cameras etc. The P-Bus boxes when “daisy chained” allow more than one device to be controlled through one serial ports on the Masterpiece mainframe, this allows up to 24 P Bus boxes to be controlled.



Register - is a store for the setup and position of the P Bus device, 4096 registers are available. For example, the start point on a VTR tape can be set in a register by selecting a register number at a certain point relating to the time code then pressing the {Learn} button. {Recall} will wind the tape back to the start point again which relates to the register point.

Trigger Type - this is a selection of devices that are pre loaded on to the mainframe hard drive with the trigger functions setup ready to use, the trigger settings for each device are displayed in the Triggers matrix in the menu. Scroll through this parameter and observe that the triggers will change for each device selected.

Trigger - selects one of the 16 trigger options in the Triggers matrix

Button Controls

Device Selection - Touch one of the 24 (0 to 23) available Device Selection buttons to control up to 24.

Learn - will learn an action from an external device and set the action to a register point

Recall - will recall the “Learned” action to the selected register point

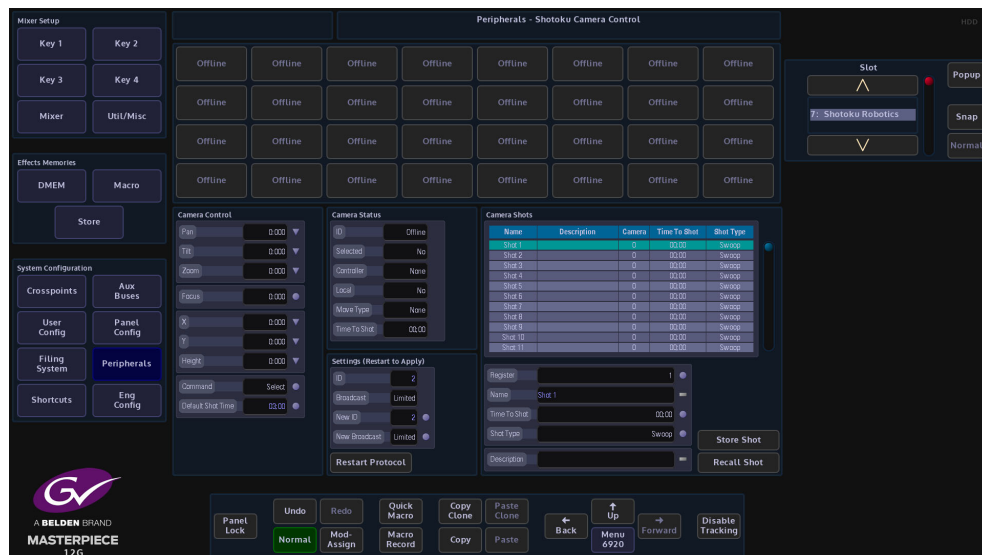
Trigger - the Trigger facility allows the switcher to be used to control various functions of the connected device such as Play, Stop, Slo-Mo or Reverse Play.

Shotoku Robotics

This function allows Masterpiece to communicate with and control a Shotoku robotic camera heads using an IP Server protocol.

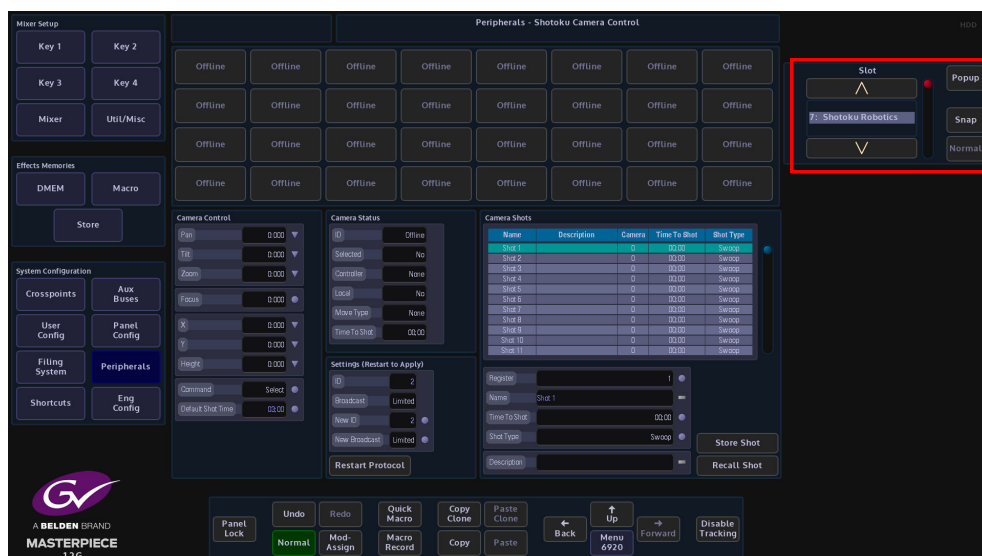
Using the Shotoku Robotic Peripheral Controls

This function is used to control Shotoku Robotic Camera Heads. In the "Home" menu, touch the **{Peripherals}** menu link button, then in the Peripherals menu, touch the **{Shotoku Robotics}** menu link button.



Shotoku Camera Control

The opening menu will display that the Shotoku Robotics protocol is active (as shown below).



The 32 buttons in the top half of the menu are control buttons, they display the current cameras that are on-line (when active, they will light up). They can be used along with the "Command" parameter to Select, Detach and Grab cameras.

The user can select a device by touching one of the Camera Control Buttons, making sure that the correct parameter controls is selected for the type of device, i.e. Pan, Tilt and Zoom.

Note: Each control button can have a number of commands and attachments, so the cloning of camera control buttons is recommended.

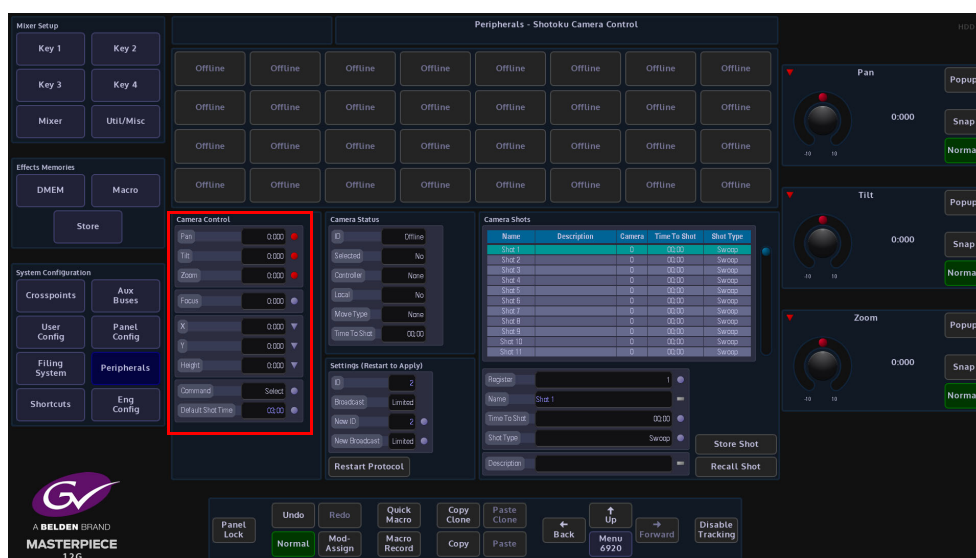
Pan, Tilt and Zoom - move the camera as described, as soon as the attachers is touched the selected parameters can now be attached to the control surface joystick (if available).

Height - adjusts the height of the camera pedestal

X, Y and Focus - work in the Grass Valley way as the parameters above and are selected by touching the attachers, and selecting **X, Y & Focus**.

Command - makes the number button select that camera for controlling. *Detach* makes the number button deselect that camera.

Default Shot Time - The default time entered for camera shot storage control.



Camera Status Menu Link Button

The menu displays the camera head connection status, when connected to either the Masterpiece system or the Shotoku Robotic camera head control panel.

ID - this displays the number of Robotic Camera heads that are connected and can be controlled,

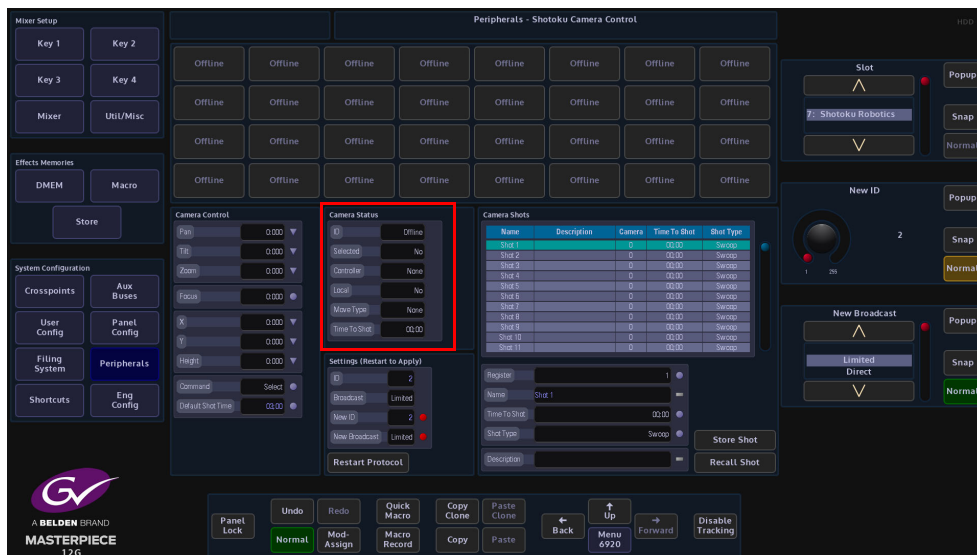
Selected - this displays if the Robotic Camera heads are selected and active

Controller - this displays a unique number for the controlling device, for example, the Shotoku Control panel could be Controller ID 1, and Masterpiece could be Controller ID 2 depending which Masterpiece ID value is entered by the user.

Local - this indicates if the camera head is currently under local control.

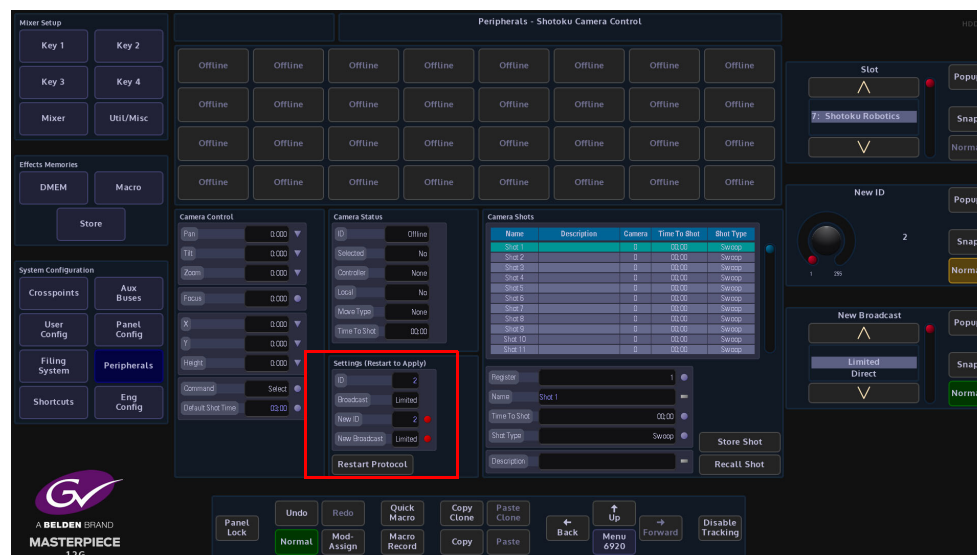
Move Type - this shows the 'shot type' of the current move. This will only display something during the shot recall.

Time To Shot - if a camera head has got a preset position setup in one of the Registers (shown later), this is the time that the camera head would take to move into that preset position.



Settings Menu Link Button

ID - A unique ID set as the controlling device, when online this field will be greyed out.

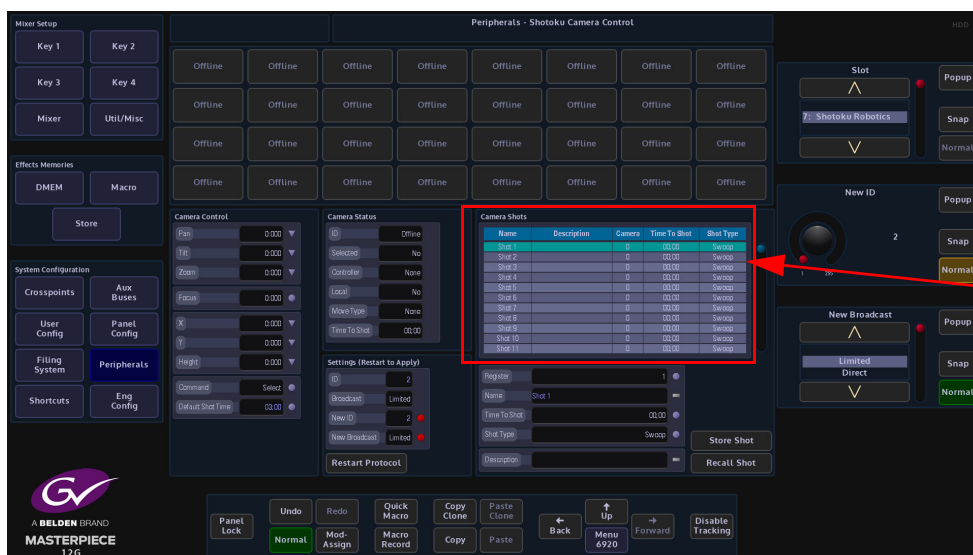


The user can manually select which camera head they wish to use by touching one of the 32 available buttons.

Note: The camera head can only be selected if it is deselected on the Shotoku controller.

Camera - Shots Menu

This menu allows the user to store **{Store Shot}** up to 100 recorded robotic camera head positions into registers, and recall them **{Recall Shot}** at any time.



Using the Store Shot

To use this function, the user will have to go back to the Camera Control Menu and touch either the Pan, Tilt, Zoom or X, Y, Focus attacher (depending on the type of camera head used) then press and hold down one of the 4 **{MEM}** buttons located next to the joystick. This will allow the user to move the camera head using the joystick whilst in the Camera Shots menu.

Go back into the Camera Shots menu, select a camera head by pressing one of the available buttons (in the top half of the menu), the button will turn Green when selected. Next use the joystick to position the camera head, select a register position in the table, and then press the **{Store Shot}** button.

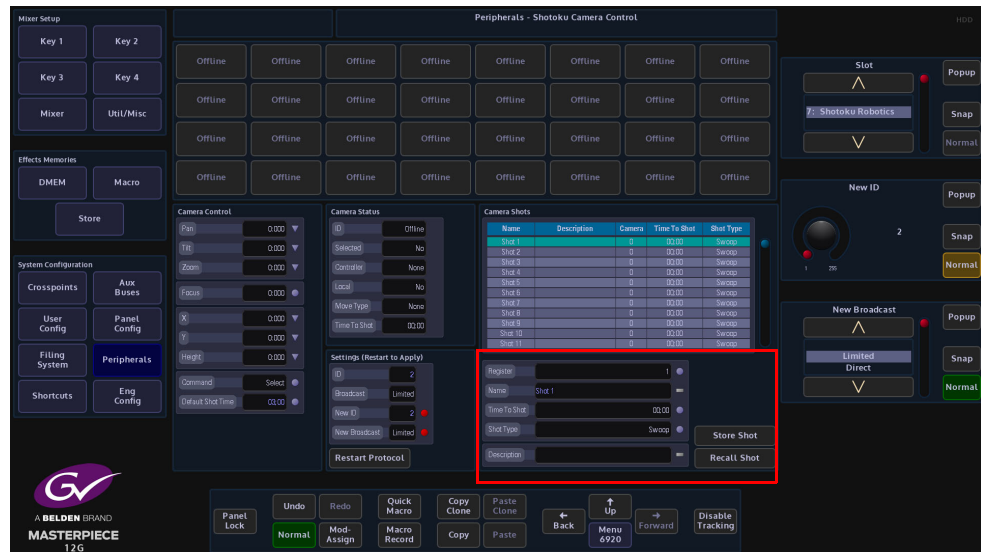
The stored position can be recalled by scrolling to the required "Shot" and pressing the **{Recall Shot}** button.

Store Shot Table

The table displays the Name of the Shot (this can be altered using the Name attacher below the table), the Description (again, this can be given a name using the Description attacher below the table), Camera ID, this is the selected camera head when the Shot was saved and Time To Shot is the time that the camera head takes to move from its current position to its saved position in the selected register.

Touch the **Name** attacher twice and the on-screen Keyboard will appear, allowing the user to enter a new name for the stored shot.

Touch the **Description** attacher twice to enter a description for the stored shot.



Register - Scrolls through the table.

Name - the name of the Shot.

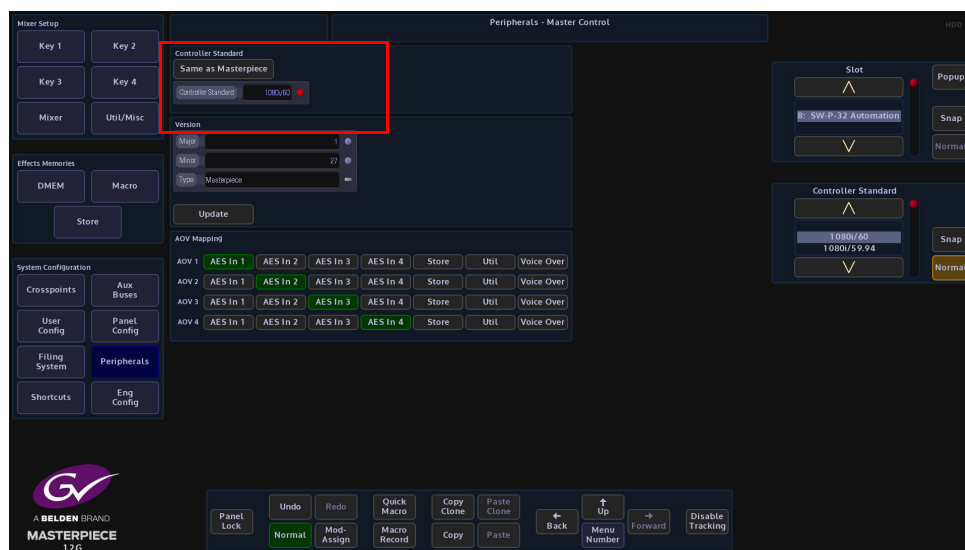
Camera - will select one of the available camera heads, use either the parameter control or press one of the buttons in the menu.

Time To Shot - this changes the time that the camera head moves from its current position to its saved Store Shot position.

Shot Type - this controls the way the recorded shots are recalled by the system. Swoop, Cut and Fade.

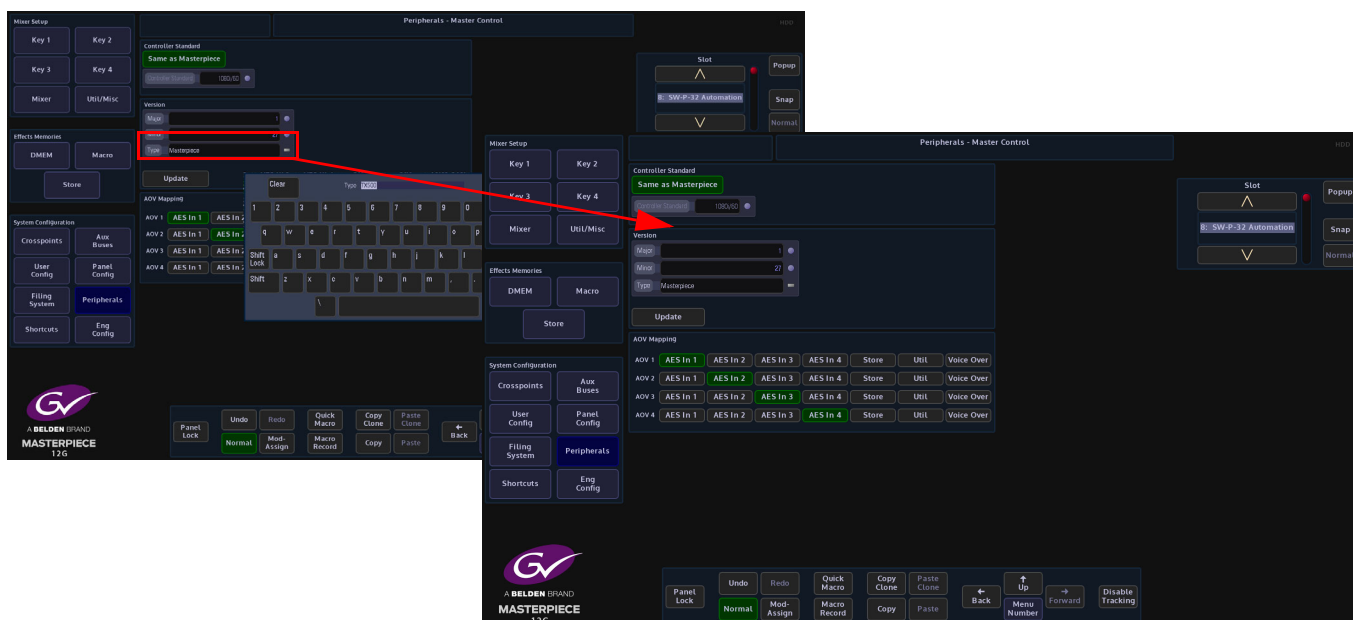
Snell SW-P-32

This protocol is used to identify and connect Masterpiece to the Grass Valley Morpheus Automation System.



For Morpheus software version 5.0.70 or above, you must set the “Major” version parameter to 1 and “Minor” version parameter to 27, and the type to “Masterpiece”. Basically leave all as default. Masterpiece can be controlled by Morpheus via RS422 or IP. Masterpiece is the server and Morpheus is the client.

For Morpheus software versions below 5.0.70, you must set “Major” version parameter to 1 and “Minor” version parameter to 27



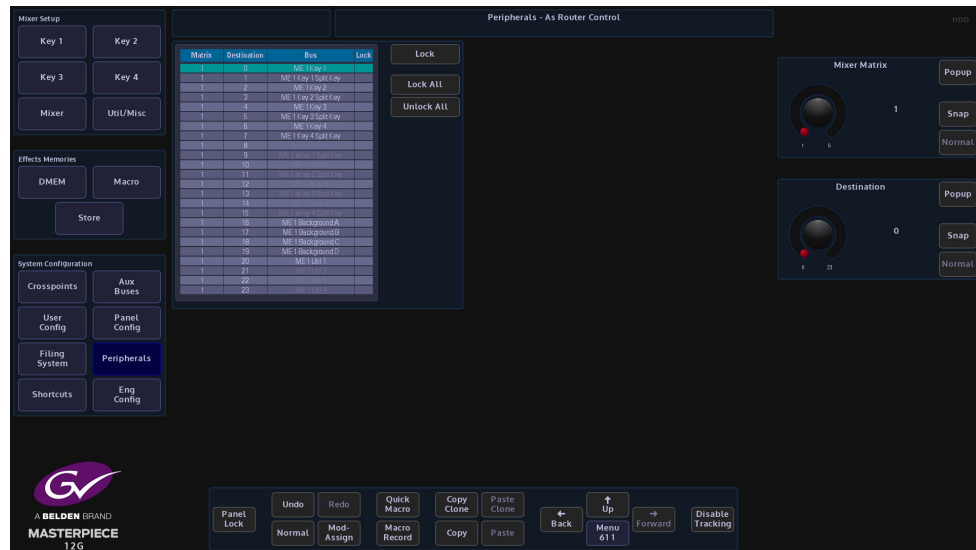
Use the on-screen keyboard to change the “Type” parameter to “TX500”. Make sure you press the **{Update}** button after the change.

Masterpiece can be controlled by Morpheus via RS422 only.

The protocol has only 4 AOV controls and Masterpiece has 7 AOV inputs. Hence Masterpiece needs to map the protocol control to one of our inputs.

As Router Control

This section details the protocol for controlling Masterpiece Switcher as routers. It covers the protocol used to Change the Source Destination



Matrix - Retrieve source names (Router Control systems can contain a multiple of Matrix configurations).

Destination - Physical outputs associated with currently selected router matrix.

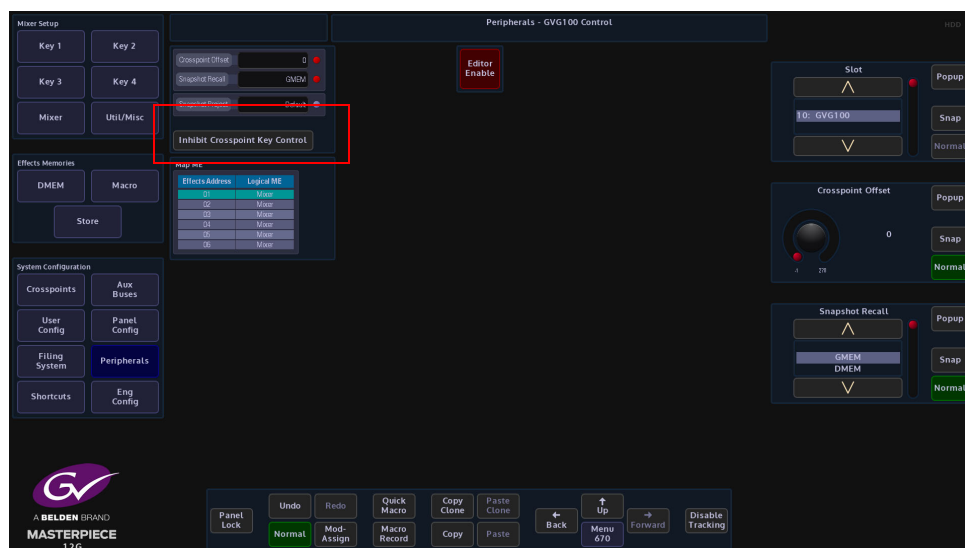
Bus - selects the source on the currently selected ME Matrix

Lock - this button locks the currently selected bus

Lock All - will lock all the buses displayed in the table for the currently selected ME matrix only.

Peripherals - Editor Control

This function allows external equipment software to control some functionality on Masterpiece, such as the Crosspoint selection, DMEM's, Transition Control.



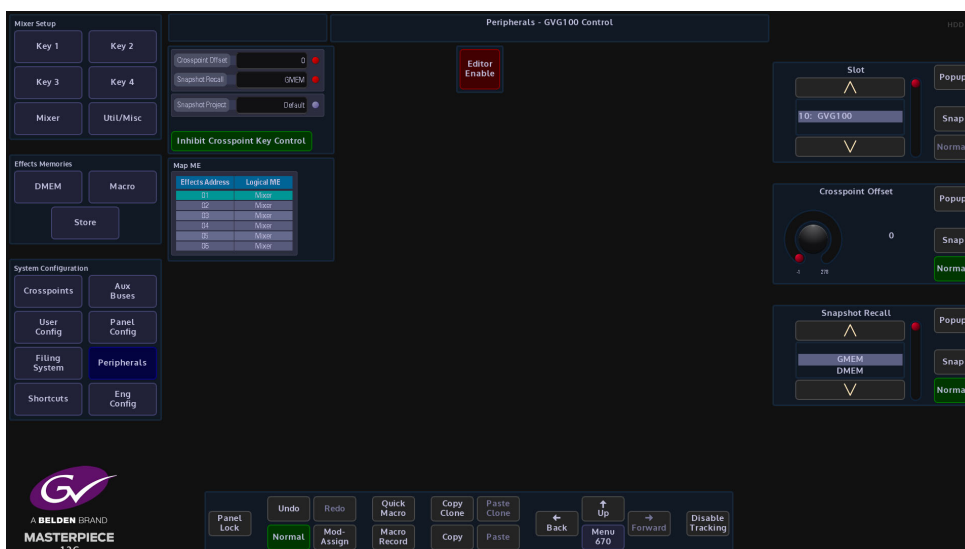
Before using this protocol the required DMEM that are going to be used with the external equipment software should have been saved into the "Default" file on the Masterpiece mainframe. This will enable external equipment software to recall the required DMEM.

Note: This example the GVG 100 Control protocol will be used.

The **Snapshot Recall** parameter should be set to "Auto" allowing the external equipment software to recall DMEM, but the user can also set the parameter to only allow DMEMs to be selected.

Crosspoint Selection

Note: GVG 100 Control protocol directly drives linked Mixer parameters for Bus Control and Transition Control.



The Map ME parameter allows the user to offset the Mixer with the Editor, so for example the "PP" (Program/Preview) can be set to the Mixer.

Crosspoints can be selected to the following buses for each Mixer in the User Config - Crosspoint Mapping menu.

- BKGD A
- BKGD B
- KEY 1 FILL
- KEY 1 KEY
- KEY 2 FILL
- KEY 2 KEY

Crosspoint selection for Auxes

Crosspoints can be selected to be used with the Aux buses.

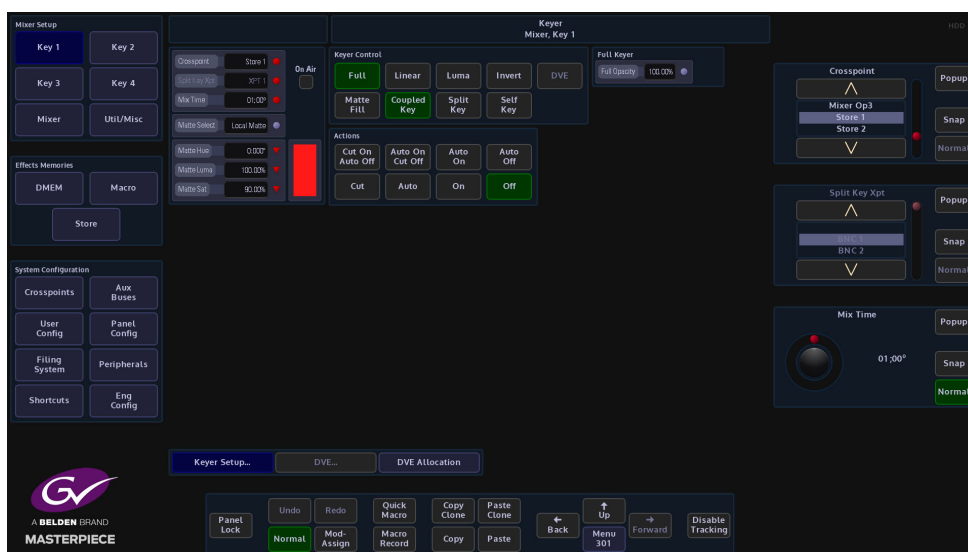
Transition Control



The following can be included in a transition:

- Transition mode - can include background, Key1, Key2, Key3 and Key4 in the transition
- Transition Types - includes MIX, WIPE and MATTE MIX
- Auto Transition Start
- Transition rate
- Transition Preview
- Transition Key On/Off

Key Control

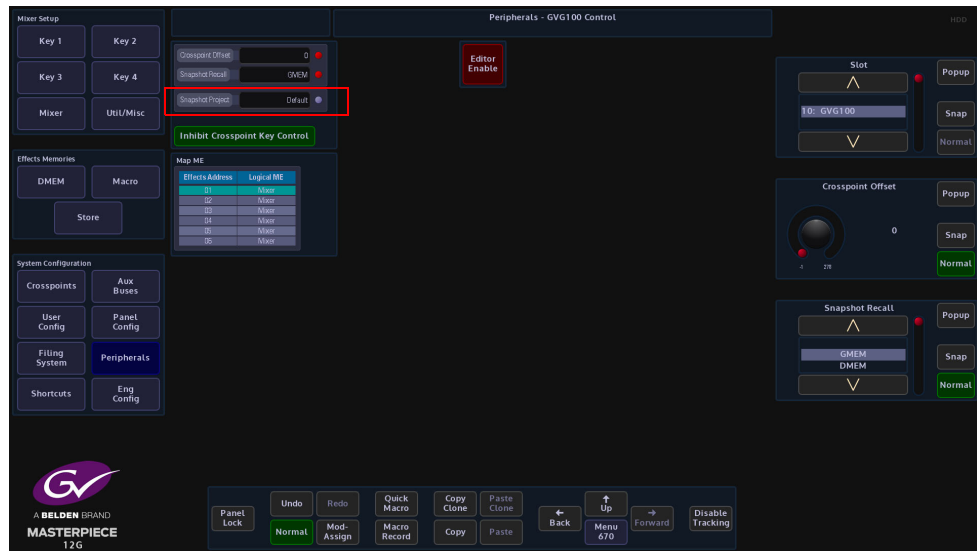


The following can be selected to affect Key1, Key2, Key3 and Key 4

Matte Fill On/Off

- Key Source Select - Auto (Coupled), Split and Self
- Mask Source Select
- Key Type - Full, Linear, Luma
- Key Edge Modify - Border
- Key Invert

Snapshot



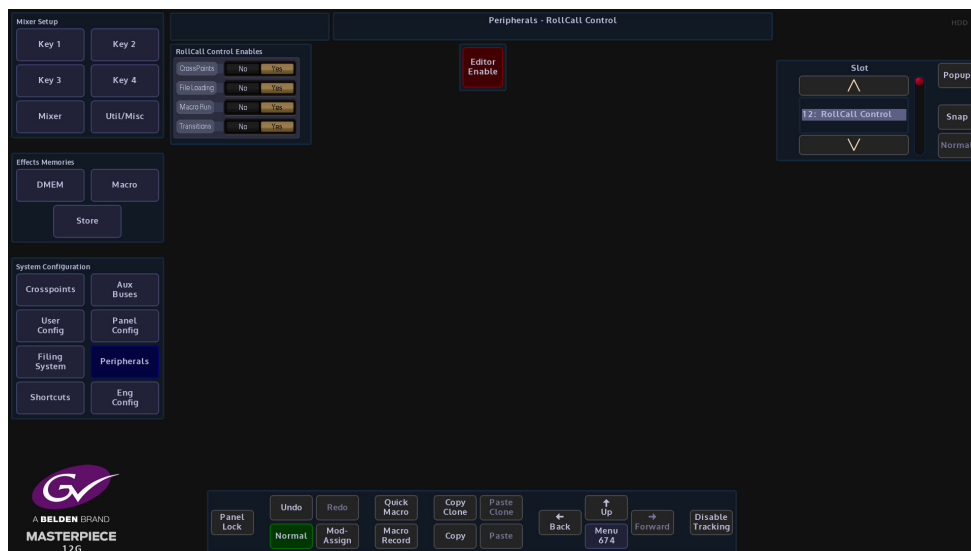
Snapshot Recall - Loads a Masterpiece DMEM Snapshot.

RollCall Control

This function allows external equipment running RollCall control software to control certain function on Masterpiece.

Only one instance of the RollCall Control protocol can be loaded at any one time. This instance of the protocol is system wide, facilitating control of all the available switchers on the mainframe.

RollCall software will need to be installed onto a computer/laptop which is connected either directly to one of the network ports on the Masterpiece mainframe or to a network switch that is connected to the Masterpiece mainframe.



The "Yes/No" parameters allow the user to filter incoming RollCall messages to affect certain areas of Masterpiece.

Touch the **{Editor Enable}** button to enable the protocol, then select which RollCall message is enabled.

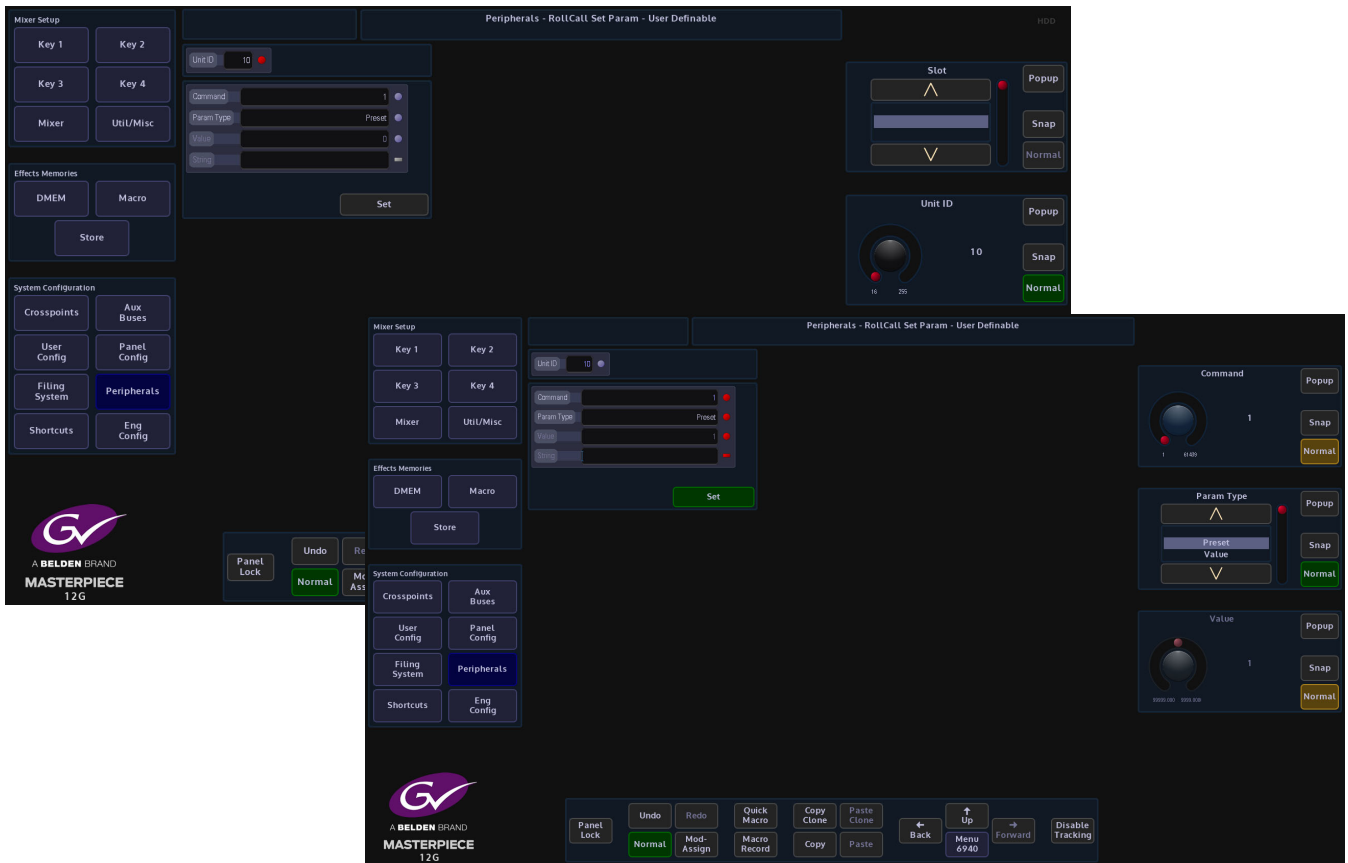
The RollCall software is able to control the functions listed above, but with the crosspoint control, the RollCall software is able to control both internal crosspoints in the Masterpiece mainframe and allow crosspoints to be controlled via an external control panel.

Peripherals - RollCall Set Param

The RollCall Set Param menus are to send a set parameter message over the RollCall network. Masterpiece is the RollCall Client. The parameter can be a value, a string or both. You can construct a general purpose message using the “User Definable” menu, or a specific message such as “MV800 Layout” or “Set Crosspoint” message.

User Definable

Set the Unit ID, you must specify the ID that you are trying to talk to. This is a unique ID which every unit has.

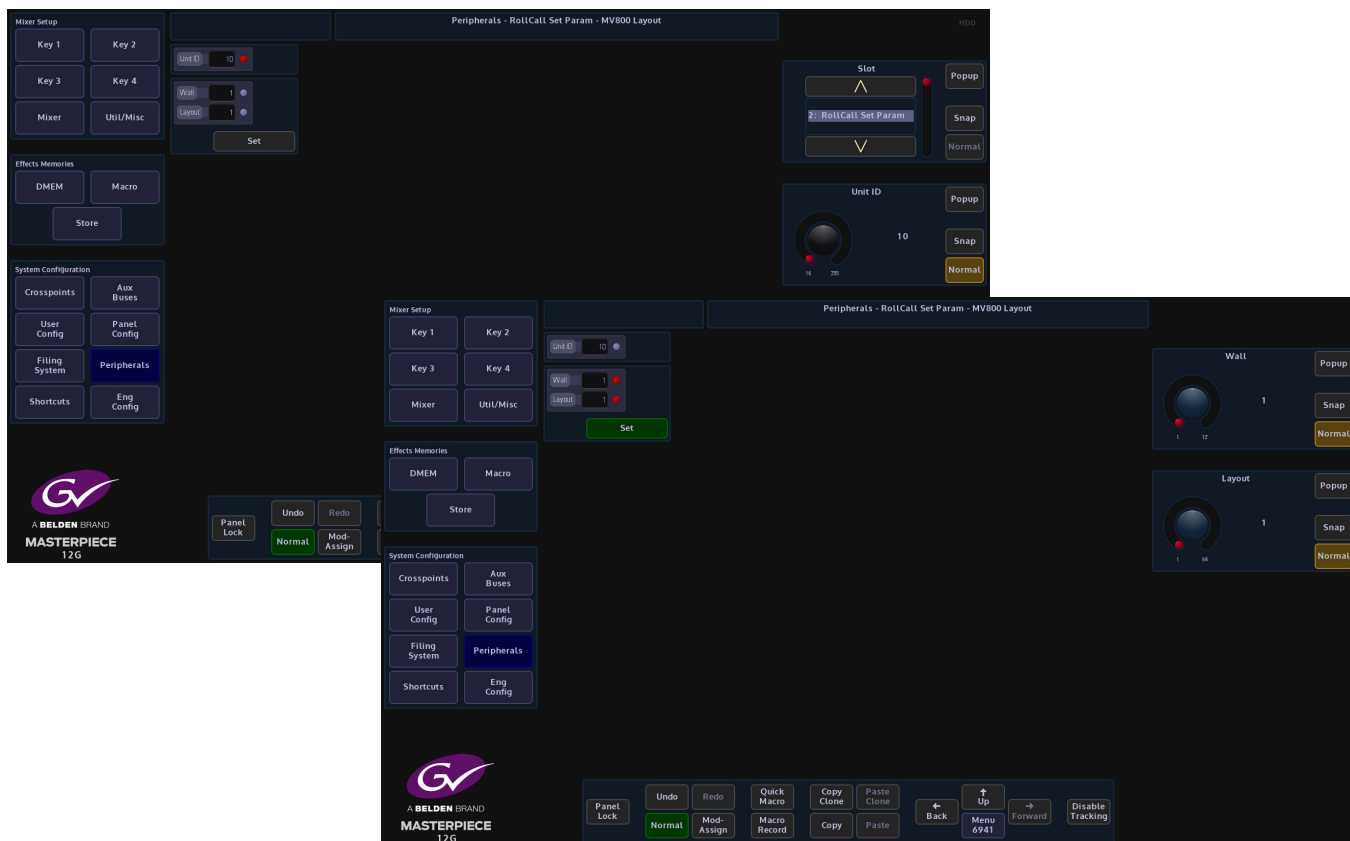


The RollCall Set Param menus are for sending a message to any unit on the RollCall network. The message can be a general purpose one, which consists of a command and a parameter. The parameter can be a value, a string or both.

MV 800 Layout

This parameter allows Masterpiece using RollCall set parameters to communication with the MV-800 integrated multiviewer fitted in the Grass Valley Sirius 800 range of Routers.

Set the unique **Unit ID** to communicate with the multiviewer.

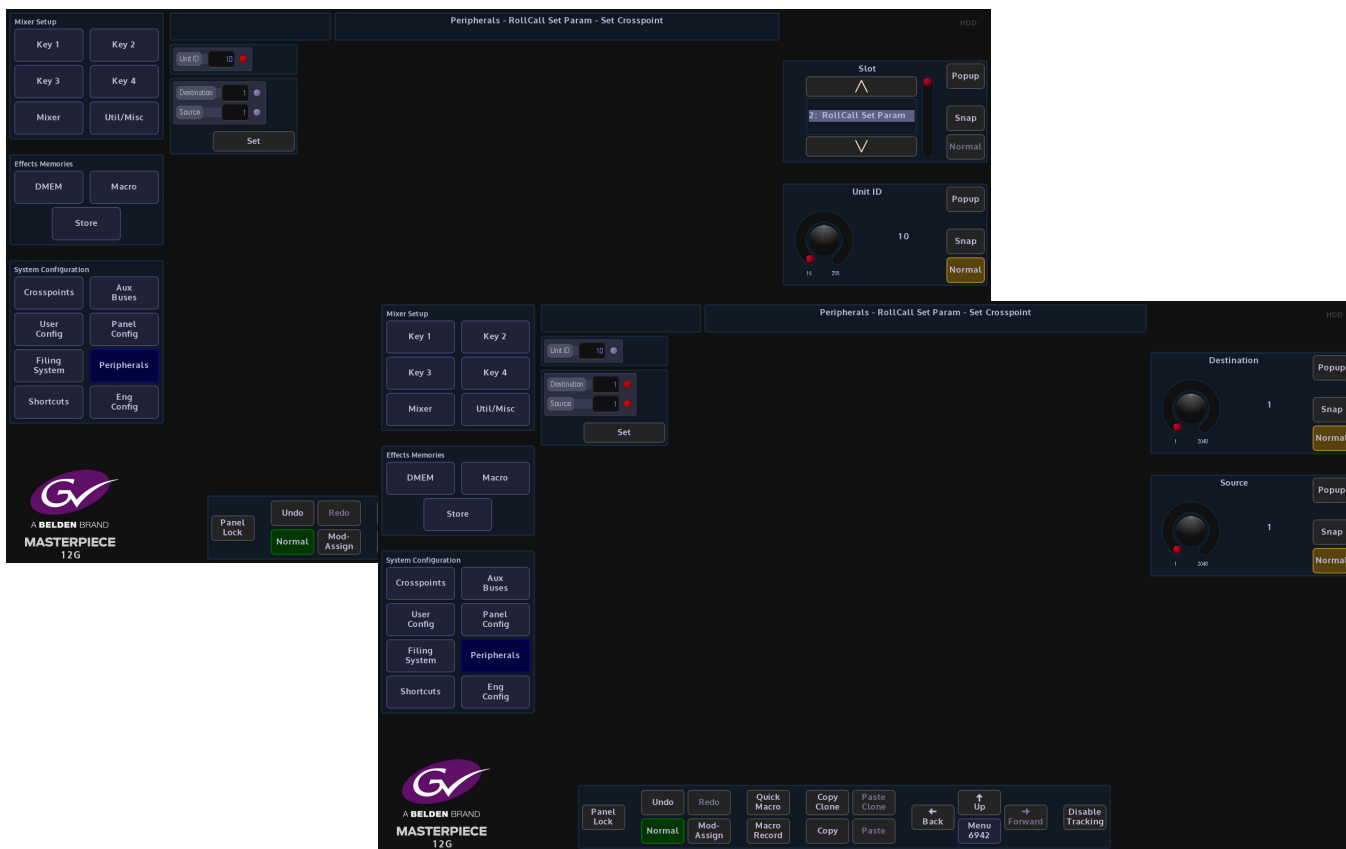


Wall - this selects video wall outputs 1 to 12

Layouts - this accesses the user defined video wall layouts (up to 64 individual layouts) saved.

Set Crosspoint

Set Crosspoint message is for switching a router source on a destination.



Set the unique ID for the unit that you are trying to communicate with.

Destination - the destination on the router

Source - the source that you are trying to switch on the router

Peripherals - Others

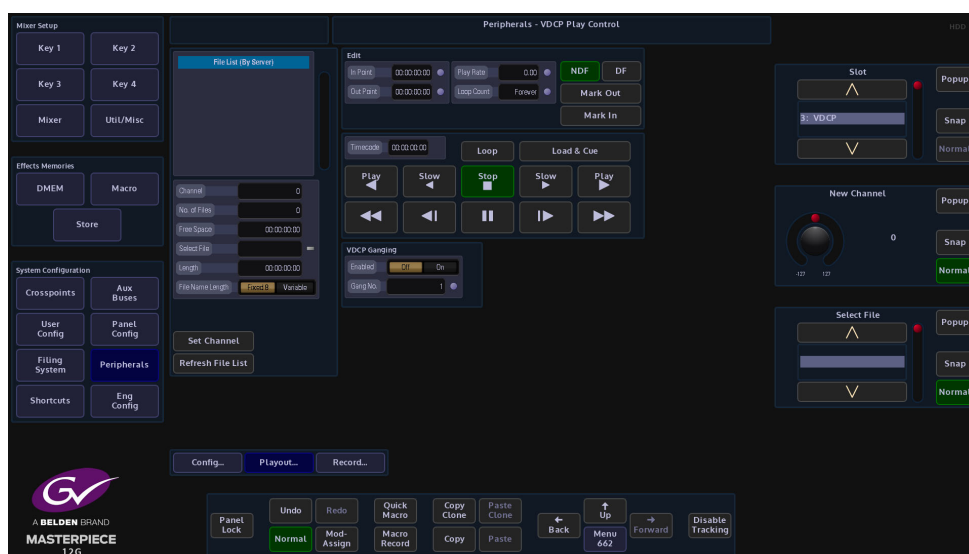
VDCP Control

VDCP is a common protocol for video servers. Note that only some commands (which means also functions) are mandatory; many are optional. If optional commands are not implemented in the disk server, VDCP Simple should be selected instead.

A video server is a system that has hard disk storage for video, and one or more audio/video channel connected to it. A channel on a server can play or record or both. The number of channels on the server, and what capabilities they have, are server dependent.

Playback

Press the **{VDCP Control...}** menu link button, this option is used to control video disk servers. Enter the Playback.



Parameter Controls

Slot - selects the slot that was setup in the Protocols menu

New Channel - selects a channel on the server

Select File - selects a clip by name

Edit

In Point - displays the play out start position of the selected clip

Out Point - displays play out end position of the selected clip

Play Rate - will allow the user to speed up or slow down a clip and change the direction of play

{Mark In Point} - used to set a play out start point within a clip

{Mark Out Point} - used to set a play out end point within a clip

{NDF} - Non-Drop-Frame format

{DF} - Drop-Frame format

The difference between the two is that with Drop-Frame format the frame address is periodically adjusted (once every minute) so that it exactly matches real time (at the 10 minute mark), while with Non-Drop-Frame format the frame address is never adjusted and gets progressively further away from real time.

File List Attacher Controls

Channel - displays the selected channel on the server.

No of Files - displays the number of files in the File List

Free Space - displays the Free Space left on the Video Servers Hard Disk

Select File - allows the user select a file and to also rename a file

Length - displays the duration of the selected clip

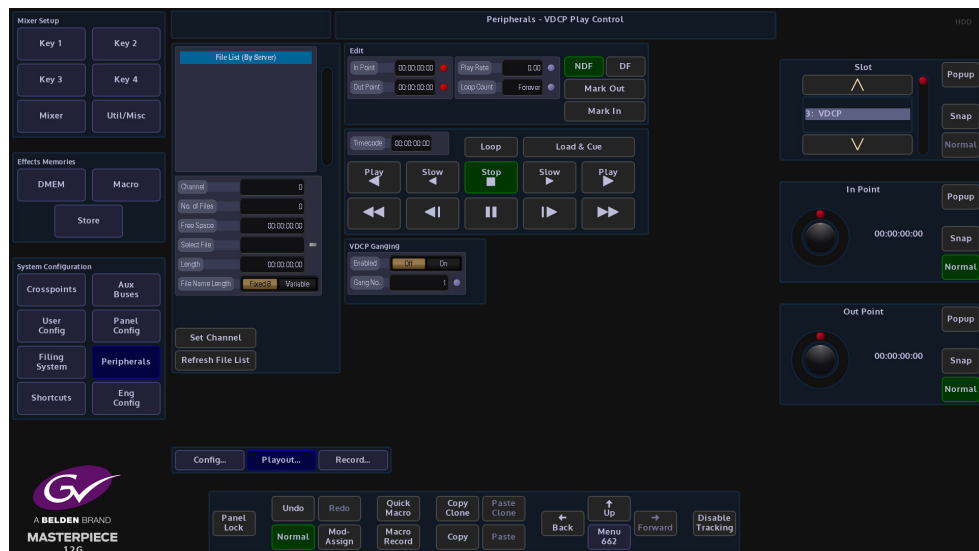
File Name Length - allows the user to input file names greater than 8 characters by selecting Variable

{Set Channel} - action button once the Channel has been selected. Note that if the channel selected is not available on the server, or the access has been denied (normally because some other device is currently using this channel), the Channel will be set to 0 after the button is pressed.

{Refresh File List} - refreshes the file list after clips have been deleted or added.

Using this menu

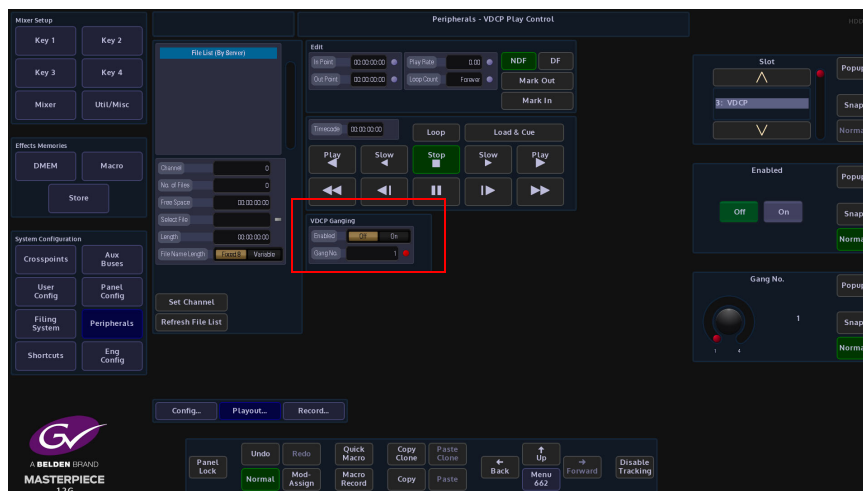
Select a clip and touch **{Play}** to start back-to-back play out. The attacher shows which clip is playing or about to play and its current timecode. While a clip is playing, Play Rate parameter can be used to change the play speed and direction.



Using the Port parameter select the port the Video Disk system is connected to. This will then be displayed in the Configure Channel attacher, then select the channel number on the server and press the **{Set Channel}** button. Any stored clips will then be displayed in the File List. Using the Select File parameter, select the required clip. The total length of the clip will be displayed below the File List table, here the clip can also be re-named or deleted. The user can choose to play a whole clip or just a part of it by setting a play out start or/and play out end position(s). The Current Clip box will display the name of the current clip being played or about to be played.

VDCP Ganged Commands

Ganged Commands - this allows for VDCP devices to be gang rolled or cued. Press the {Gang Commands} button, notice that a new option has appeared in the menu next to the Transport Control buttons, this option displays the available Gang VDCP Ports. There are 4 Gang Ports available.



Transport Control

Play - will play a clip backwards and play forwards at standard speed

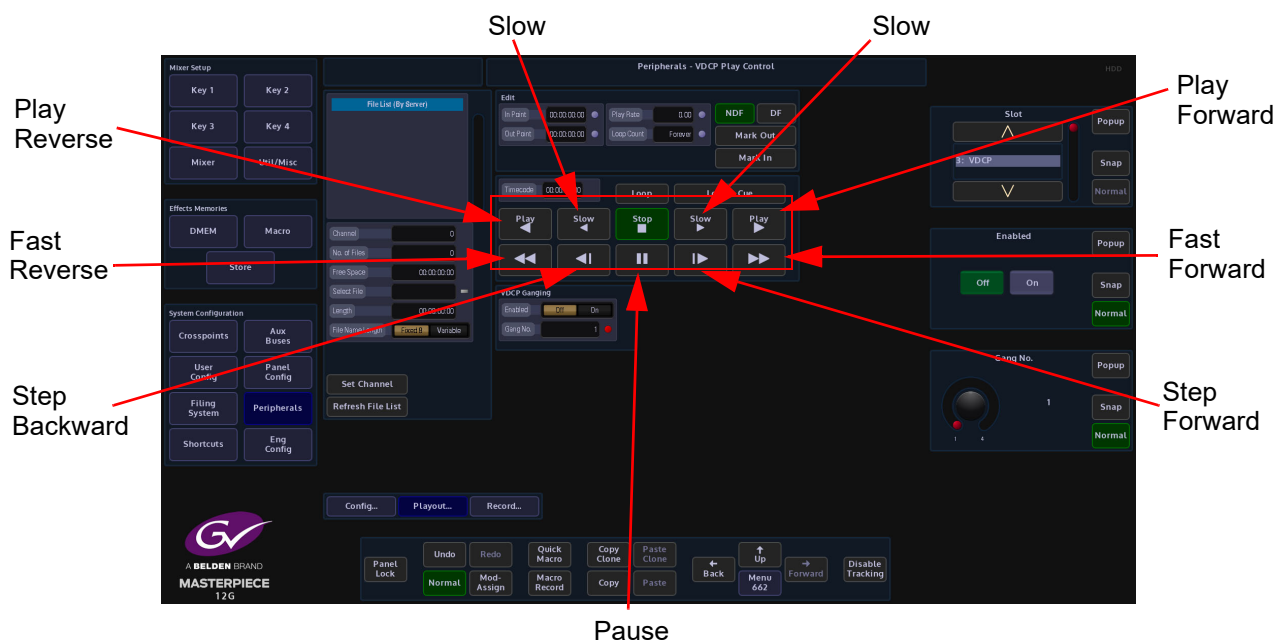
Slow - will play a clip backwards and forwards at slow motion speed

Stop - stops a clip

Fast Reverse and Fast Forward - like fast rewind and fast forward

Pause - pauses the current clip

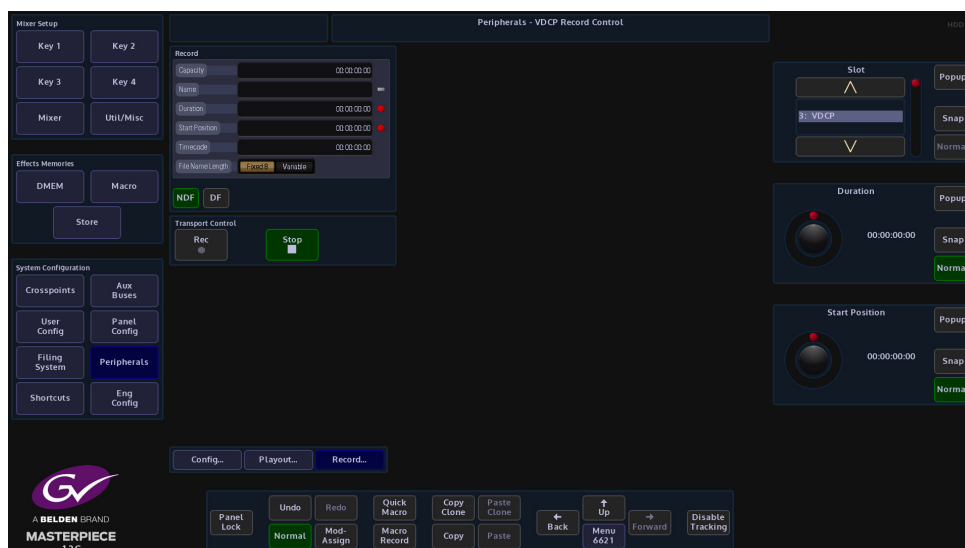
Step Forward Step Backward - Steps a clip forward and backward by one frame



Record

This menu will allow video/audio material to be recorded to the video disk system. The user needs to give the new clip a name and record duration and then press the Record action button.

The new name can not duplicate any existing ones and all names are case sensitive.



Record Attacher

Capacity - displays the server hard disk capacity

Name - put in the name of the clip that is going to be recorded
Variable in the File Name Length parameter allows names longer than 8 characters)

Duration - displays the record duration.

Start Position - sets the start position timecode, for the start of the record process

Timecode - displays time code as the clip is being recorded

Transport Control

Record - starts recording

Stop - stops the recording process

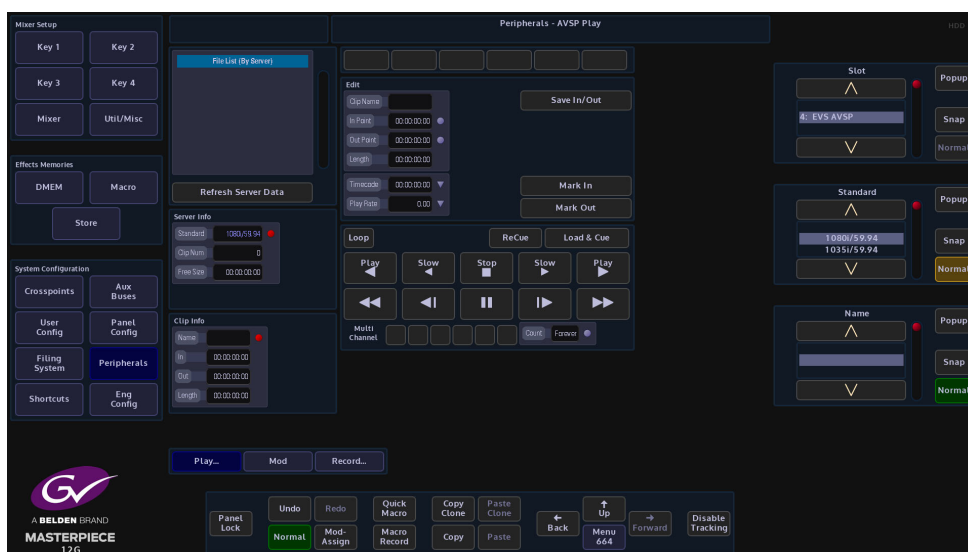
AVSP Control

Advanced Video Server Protocol, It allows the running, recording and editing of clips from up to 6 channels with either EVS XT or EVS XT2.

The protocol is connected via a Serial Port, one serial port will support the use of 6 channels of EVS, either in Playback or Record modes.

Play

The box in the top middle will display the number of configured EVS channels and their relevant details, these channels are displayed as "Rec" or "Play".



Center Top Buttons - (Channel Selector Area) - which channel of EVS is being controlled.

Slot - this displays the serial port that is connected to the server.

Standard - this has to be set to the video standard being used by the server.

Name - the Clip Name

Server Info

Data regarding the server being used which includes:

Standard - the Video Standard of and number of Clips stored on the server

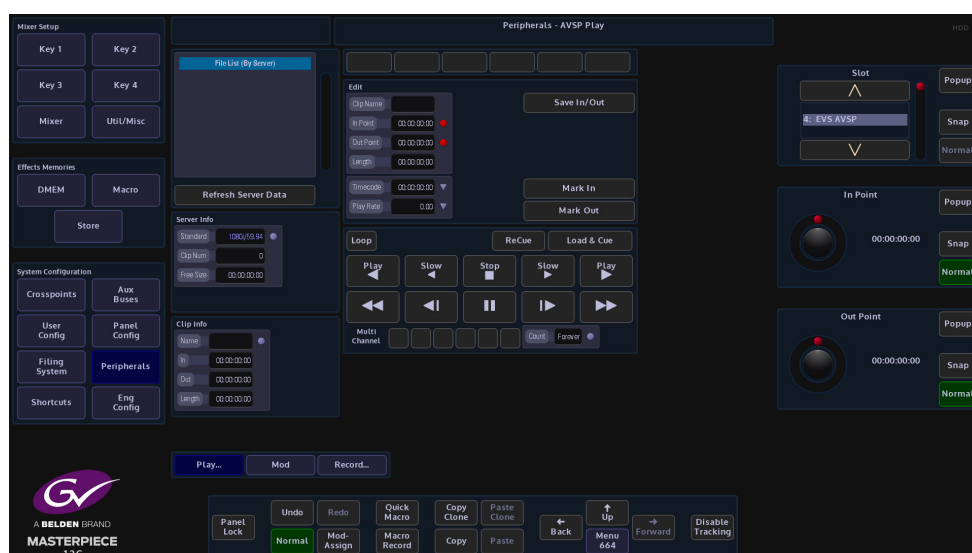
Clip Num - the number of the clip being played

Free Size - the remaining Free Storage Space,

Clip Info - data regarding the name of the chosen clip, total clip duration and In/Out points.

Transport Control - generic play controls affecting the selected clip includes PLAY Fwd, PLAY Rev, Play ½ speed fwd, rev, Pause.

Note: It is advisable to {Pause} when the clip is needed again because Stop will stop the clip from running, and has essentially emptied the contents of that channel, it is then necessary to Load and Cue the next clip. This will set the new clip to the marked In point.



Edit In / Out Points - the currently stored In and Out points for the currently loaded clip. Using the attachers and Snap/Normal buttons it is possible to scroll through the clip to re-assign a new In or Out point.

Note: Pressing and holding the Snap Normal button on the GUI brings up the internal popup number pad, for the inserting of Time Code

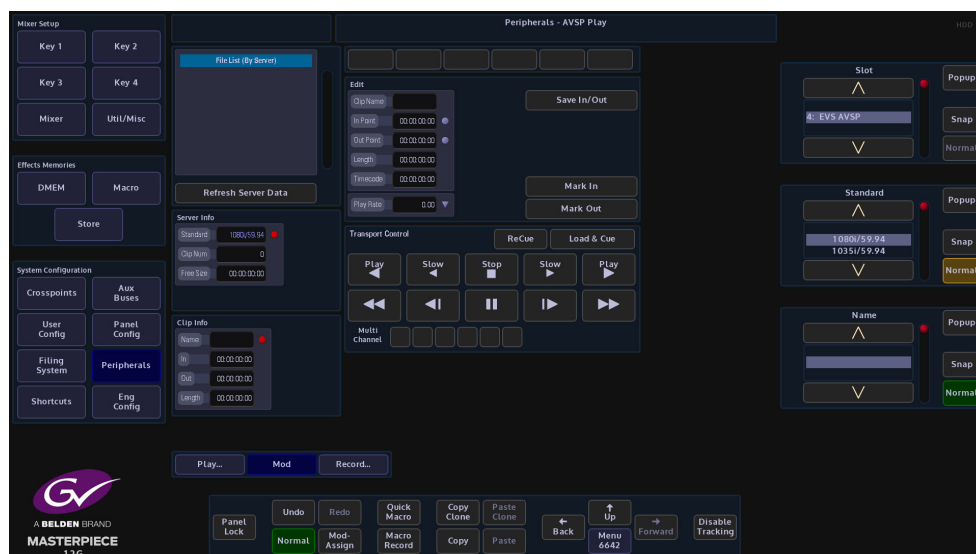
Length - total duration of the currently loaded clip

Timecode - current Timecode of loaded clip

Play Rate - controls the playback speed of the clip

Save In/Out - saving the In and Out points will save to the server. Editing a clip and re-saving will overwrite the original In/Out points. The action will be validated then Save - this ensures that a clip will always start on field 0 when using Interlaced standards, it is a requirement of the EVS that a clip begin on field 0 and end on field 1.

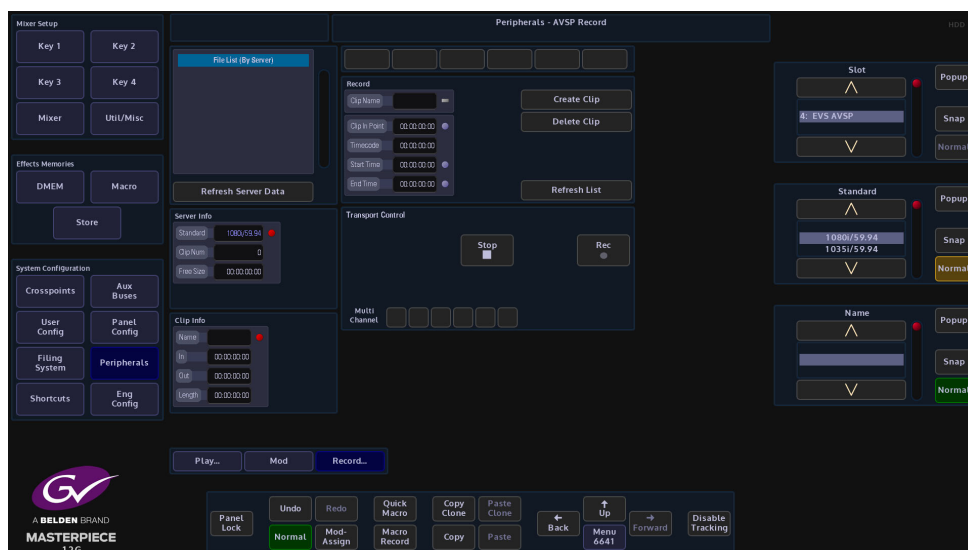
MOD



The Play Rate parameter in this menu means that it is possible to Modulate the play rate. Modulators can be attached to this parameters in the usual fashion.

RECORD

Recording will create a stream of footage within the selected server, additional recordings are appended onto the end of the stream.



Ensure the "Rec" channel(s) is selecting a video source that is running in the Grass Valley video standard as the server, it may be useful to route this source and the record channel to a monitor, to be certain that pictures are actually being recorded. The EVS can be set to record from ME Opt's or directly from external sources.

Start Recording

Select the correct "Rec" channel from the top section, then give the Clip a name (it is advisable to give the recorded clip a name as the EVS generates a random number that is not easily remembered), press the **{Rec}** button, record until satisfied, then Stop

Finally press **{Create Clip}** and the Clip will be saved to the server and appear in the Clip List

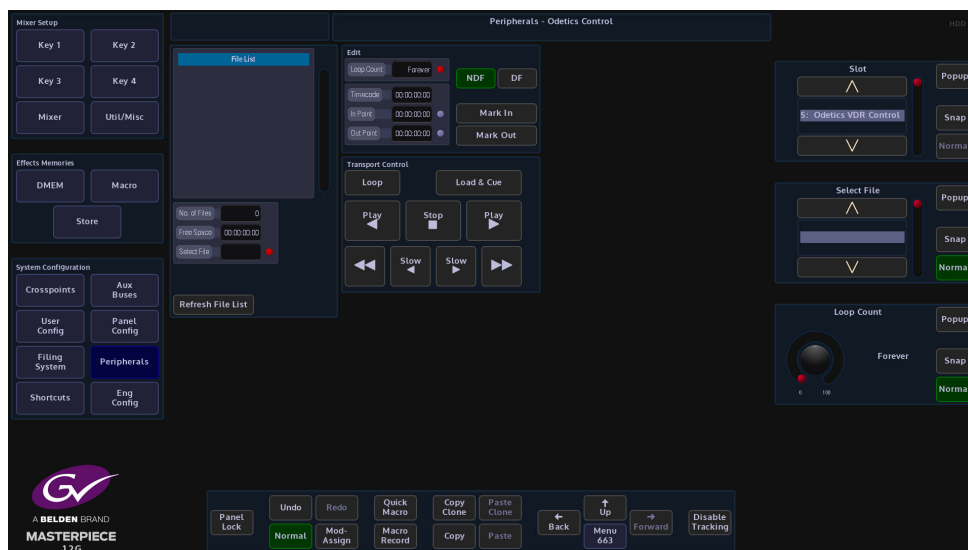
Now it is possible to go back to the Play menu and Edit the In and Out points of the newly recorded clip.

Delete Clip - will delete the recorded clip

Odetics Control

Odetics protocol is a serial based protocol, that will allow Masterpiece to control external equipment such as disk servers.

Using Odetics Control



Controls and Parameters

Slot - selects the serial port that is connected to the external equipment

Select File - selects a file by name

Loop Count - when a file is set to play, if the **{Loop}** button is touched, the **Loop Count** parameter can be set to play the file; Forever or from 1 time up to 100 times then stop.

Mark In / Out Points - the currently stored In and Out points for the currently loaded clip. Using the attachers and Snap/Normal buttons it is possible to scroll through the clip to re-assign a new In or Out point.

{NDF} - Non-Drop-Frame format

{DF} - Drop-Frame format

The difference between the two is that with Drop-Frame format the frame address is periodically adjusted (once every minute) so that it exactly matches real time (at the 10 minute mark), while with Non-Drop-Frame format the frame address is never adjusted and gets progressively further away from real time

File List - this table displays all available files external tape or equipment

No of Files - total number of files in the File List

Free Space - displays the free space left on the external equipment disk

Select File - allows the user to select a file from the File List

Refresh File List - refreshes the file list after file had been deleted or added.

AMP Control

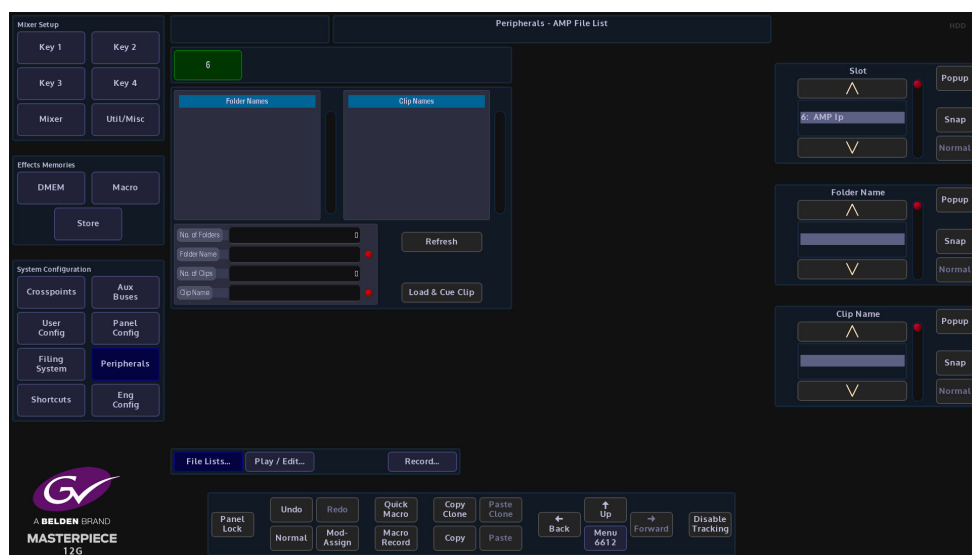
AMP protocol is an IP Based control structure, it will support 4 channels (VTR1, VTR2, VTR3, & VTR4) in a single device, and also supports multiple devices over different IP Addresses.

Note: Name the device as required e.g. Server1, this name will appear wherever the user needs to select it.

Note: If the server is not on a local network, an IP Gateway will be required

Using AMP Control

Masterpiece can manage Folder (Bin) selection; set In and Out points, as well as the Standard VTR type commands. It is recommended that Macros and/or Clones are used to assign these controls to the main control surface.



The **Peripherals - AMP File List** menu allows the user to set the VTR that is being controlled (green button at the top of the menu) and setup the working Folder Name and Clip Name lists.

Note: Each VTR can be set to contain different Folders/Clips.

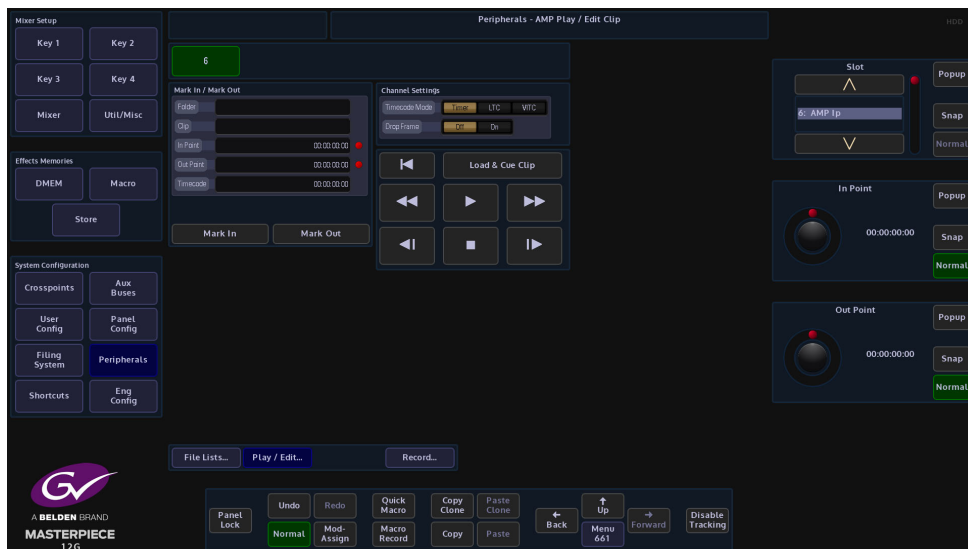
The **Clip Name** table displays all the clips in the current working folder on the server. **{Refresh}** button will refresh the Folder and Clip tables (e.g. if another controller adds a new Folder/Clip).

Note: Masterpiece uses the Folder Name and Clip Name for reference.

{Load & Cue Clip} button will load and cue the currently selected clip to the currently selected VTR.

AMP Play/Edit Clip

The **Play/Edit Clip** menu allows the user to set In/Out points for the currently selected VTR and clip, setting the In/Out points can be done either by using the VTR command buttons to position the clip then press the **{Mark In}** or **{Mark Out}** buttons, or by direct input using the In and Out parameter controls.

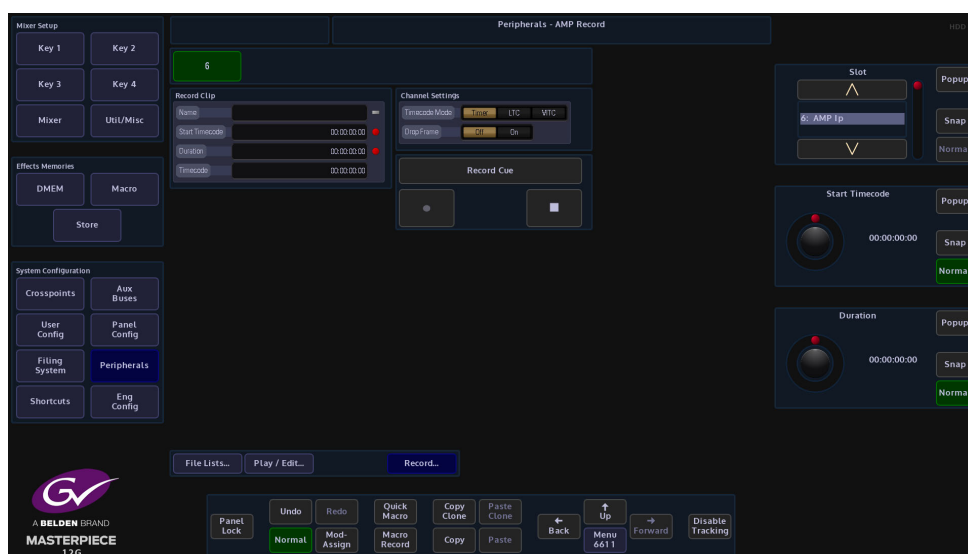


To assert the In/Out points, press the **{Load & Cue Clip button}**. To make a Macro that will Cue a clip and assert In and Out points, set the Clip as described above, once happy with the Clip, including its **In/Out** points, press **[MACRO REC]** button on the GUI.

Next, press **{Load & Cue Clip}** button, then press **[MACRO REC]** to stop recording the macro. The macro will now Load and Cue the selected Clip in the Macro main menu. View the macro and notice that it has stored the **Clip Name** and **In/Out Points**.

AMP Record

Masterpiece can also be used to set-up the Record VTR (Channel).



The record VTR/channel is set on the K2 server. To set the **Clip Name**, and **Timecode** press the **{Record Cue}** button.

Nexio Server - AMP Protocol

Nexio Server is an Ingest and playback server supporting HD and 1080p formats. Masterpiece is able to communicate with Nexio via the AMP protocol over RS422 or IP Client transport types.

Nexio Play Menu

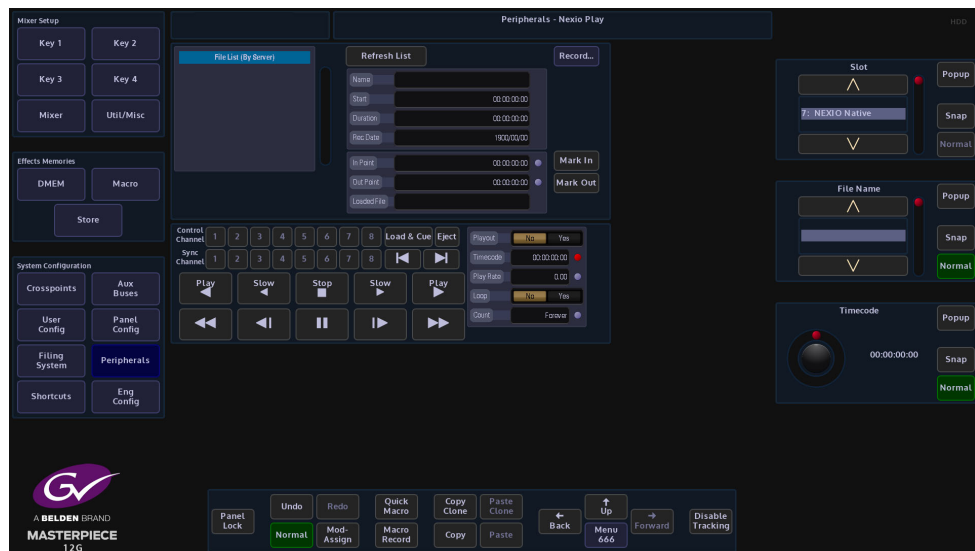
The **Nexio Play** menu allows the user to select files in the playback File List, set In/Out points for the currently selected file, setting the In/Out points can be done either by using the VTR command buttons to position the clip then press the **{Mark In}** or **{Mark Out}** buttons, or by direct input using the In and Out parameter controls.

Once the protocol is activated, Masterpiece will automatically download the file list from the Nexio server. Touching the title bar of the **File List** will sort the files by Server, by Name, or by Date. (By Server means it is in the order that the Nexio server sends to Masterpiece).

Control Channel is the channel for the transport commands to the Nexio server (play, stop, pause etc.). The control channel will initially set to the highest channel number for the server (i.e if it is a 4 channel server, it will set to 4 at start). If the user needs to change the control channel, change it before pressing **{Load & Cue}**.

The **Sync Channel** is the channel that follows the control channel i.e. if Sync Channel 1 is the Fill channel and Sync Channel 2 is Key channel, the user can set Control Channel for the transport commands to 1 and Sync Channel to 1&2, so the Key channel will always follow the Fill. channel.

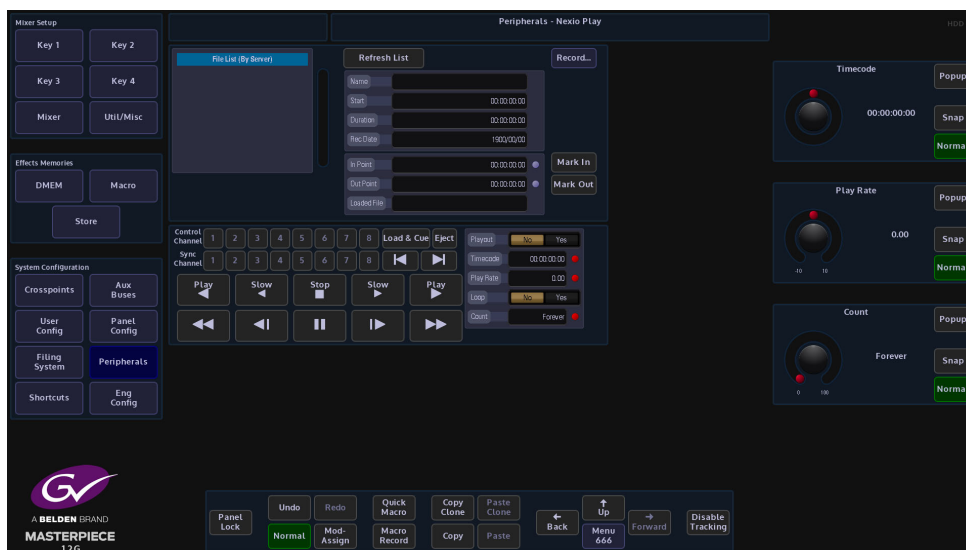
If there is no need to edit the In/Out points, Masterpiece will use the first/last frame of the clip as the In/Out points; if the user needs to trim the clip, set the In/Out points then press **{Load & Cue}**.



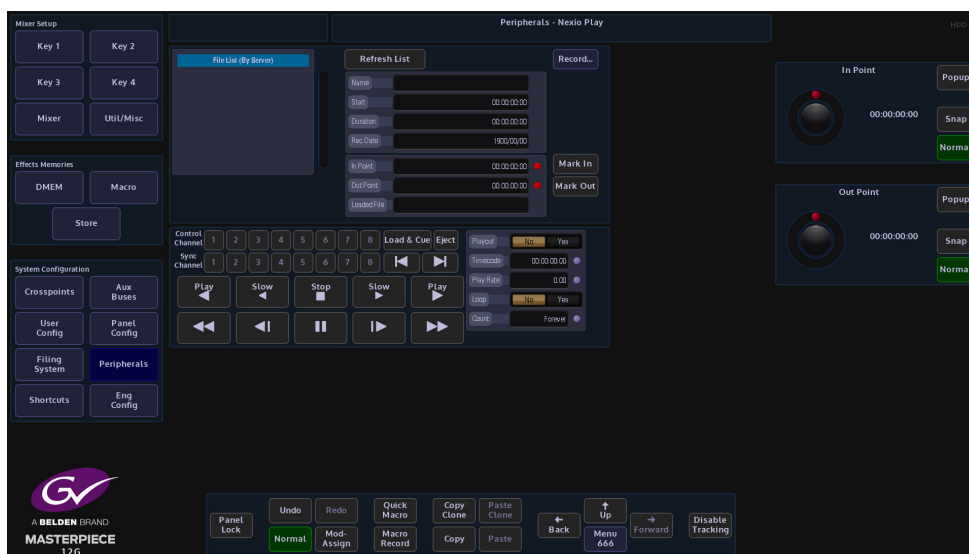
Note: It is recommended to setup the loop play parameters before doing a **{Load & Cue}**.

Select a file in the File List, press the **{Load & Cue}** button and the file will show in the **"Loaded File"** window. User the **In Point** and **Out Point** parameters to set the **Mark In/Out** points as required.

Select the transport command Control Channel, and then select the Sync and then press the Play button.



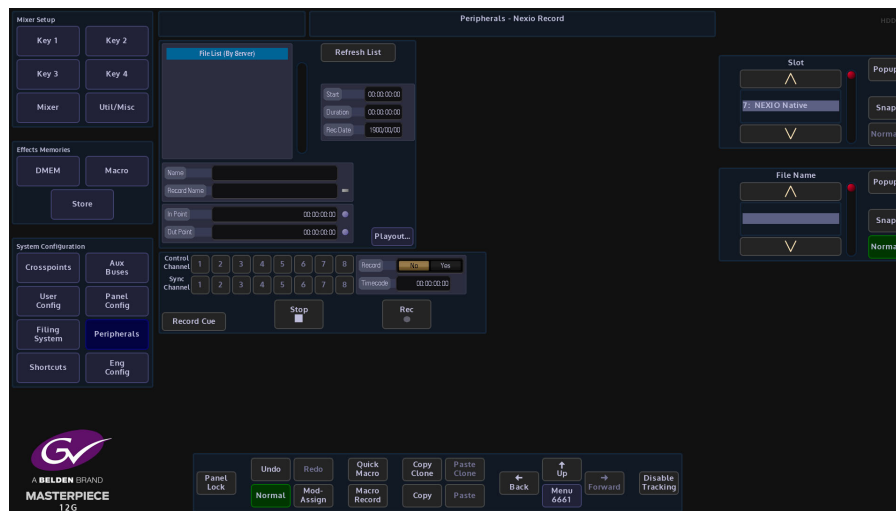
Touch the “Playout” attacher at the bottom of the menu, here the Play Rate parameter can be adjusted and the file set to “Loop” a set amount of times or forever if required.



The **Playout Yes/No** indicates what the control channel is capable of doing, i.e. if you have selected a control channel that is a Record Only channel, it will have Playout No in the window, then none of the playout transports will work

To jump to a particular frame in a file, set the **Timecode** to the frame and press **{Play}**.

Nexio Record Menu



Select the correct **Control** and **Sync Channels**, then give the file a name for playout identification. Set the record **In Point** and **Out Point** and then press the **{Record Cue}** button.

Once happy with the settings press the **{Rec}** button and recording will commence.

Audio Mixer

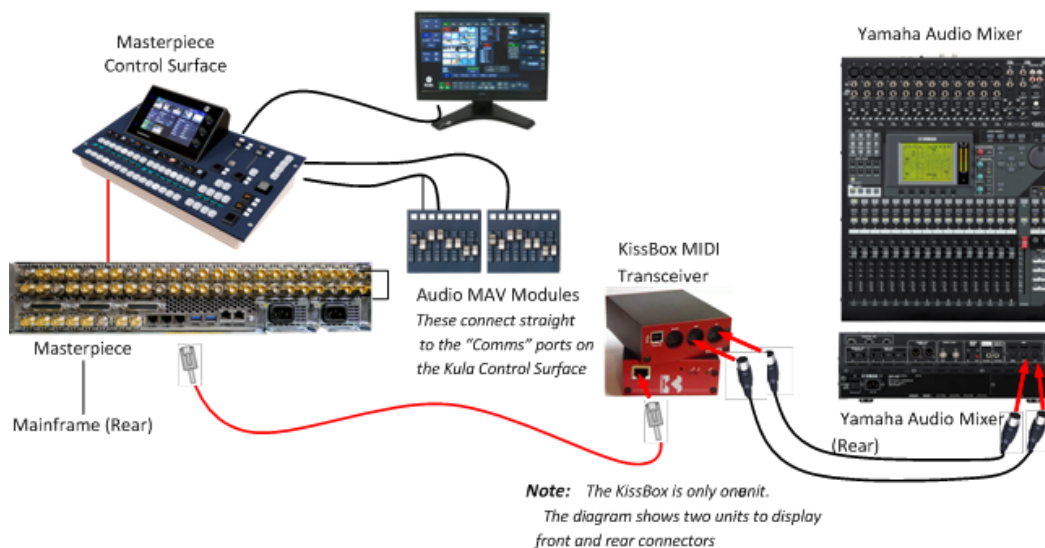
Masterpiece is able to control functionality on a Yamaha (01V96) Audio Mixing desk. Some of the functionality includes:

- Map MAV Audio Module faders to correspond with the Yamaha Mixer Faders.
- From MAV Audio Module:- Turn Audio On/Off per channel/Audio Fader off (unassigned).
- Channel Fader position set/modified from start point.
- Allow Yamaha panel override of Audio Faders separately from MAV Audio Module.
- Transition to Air Time & Delay.
- For Audio Follow Video, Audio Channel assigned to Mixer Input and set/learn levels on source selection.
- Audio Follow Video Override.

What is Required

- Masterpiece Control Surface.
- Masterpiece mainframe
- Touch screen monitor
- Yamaha Audio Mixer from list above (we tested the 01V96)
- KissBox CM-MIDI - MIDI transceiver for RTP-MIDI networks (this is the one that we have tested. Other makes may be compatible).
- Ethernet cable from Masterpiece Mainframe to KissBox
- 2x MIDI to MIDI cables (from KissBox to audio mixing desk)
- Laptop/desktop computer (initial setup of KissBox IP address)

Connection Diagram



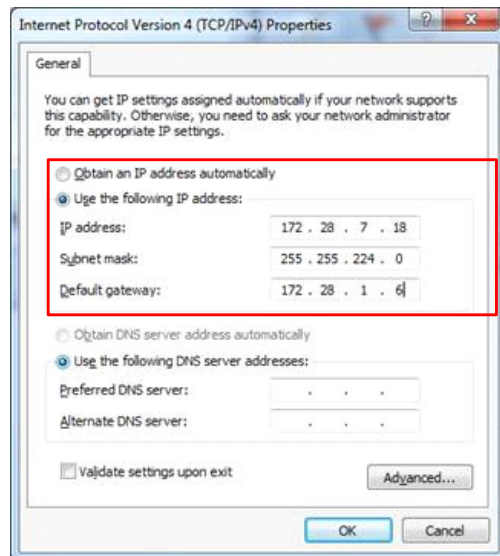
Note: Before connecting the hardware (as shown above), the KissBox IP address has to be set so that the Masterpiece mainframe can communicate with it. The following section will describe how this is done.

KissBox Setup

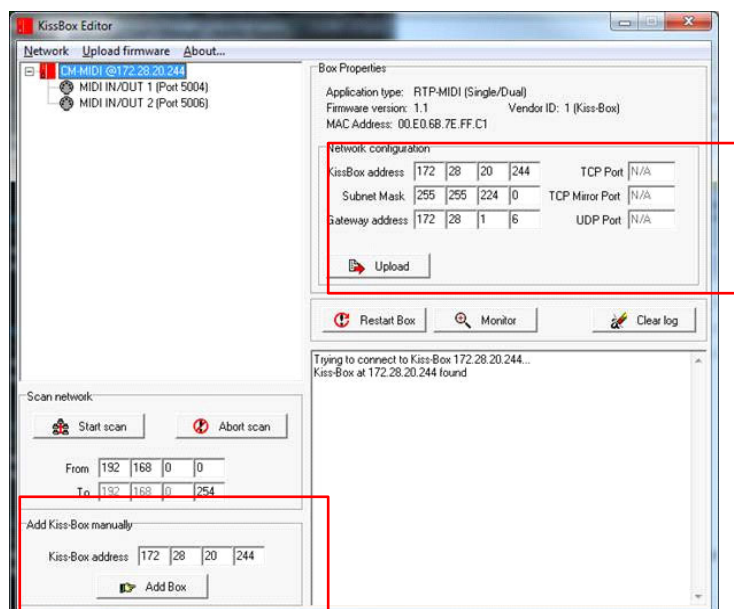
The KissBox editor software which comes with the product has to be installed on the laptop/PC being used to set the IP address. Install the "KissBox_Editor_Win_11_0_0".

Unplug the laptop/PC from any network being used (this is to stop any network IP address conflicts).

Configure the laptop/PC so that it is on the Grass Valley network as the KissBox, as shown below. Click on "OK". The network settings can be found in the "Control Panel\Network and Internet\Network and Sharing Center\Local Area Connection\Properties\Internet protocol Version 4(TCP/IPv4)"



Start up the KissBox Editor software, then in the "Add KissBox manually" area of the KissBox Editor menu, type in the IP address of the KissBox and click on "Add Box". The menu will now look like the one below:



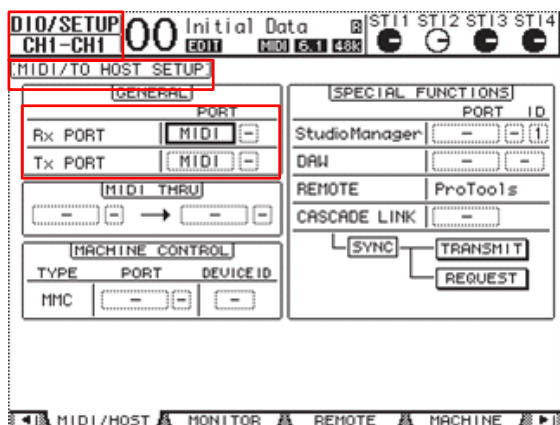
Change the IP setting in the "Network Configuration area of the menu to match the required IP network and click on "Upload". Then re-start the KissBox.

Change the laptop/PC network configuration back to the required network. Type the new KissBox IP address into the "Add KissBox manually" area of the menu, then click on "Add Box". You will now see the updated network configuration.

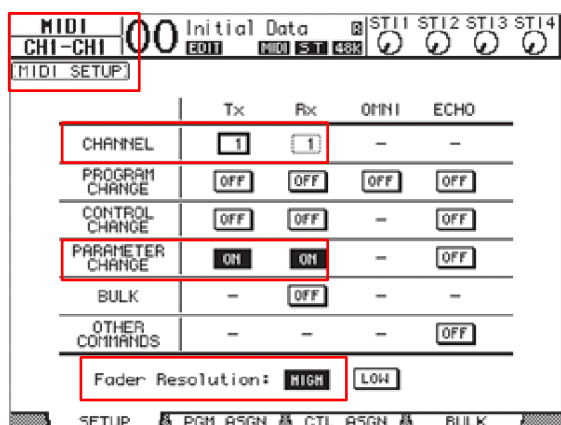
Setup the Yamaha (this example 01V96i) Audio Mixer to communicate with the KissBox

From the MIDI connectors on the back of the back of the KissBox, connect a MIDI cable from the “MIDI IN” port on the KissBox from the “MIDI OUT” on the Yamaha mixer. Connect a MIDI cable from the “MIDI OUT” port on the KissBox from the “MIDI IN” on the Yamaha mixer, (as shown in the diagram on page 1).

Power up the Yamaha audio mixer, then using the LCD screen on the Yamaha mixer, navigate to the “DISPLAY ACCESS - DIO/SETUP - MIDI HOST” menu and select “MIDI” for both the “Rx Port” and the Tx PORT”.



Next, go to the “DISPLAY ACCESS - MIDI - SETUP” and set:
 CHANNEL - Tx to 1 and Rx to 1
 PARAMETER CHANGE - Tx to ON and Rx to ON
 Fader Resolution: HIGH
 All other options need to be set to OFF.



Audio Mixer Parameters Continued:

Cut - On/Off. This displays if the "Cut" function is set or available to use.

PFL (Pre Fade Listen) - On/Off. This displays if the "PFL" function is set or available to use. PFL allows the user to listen to the channel's audio at a point before the fader takes effect.

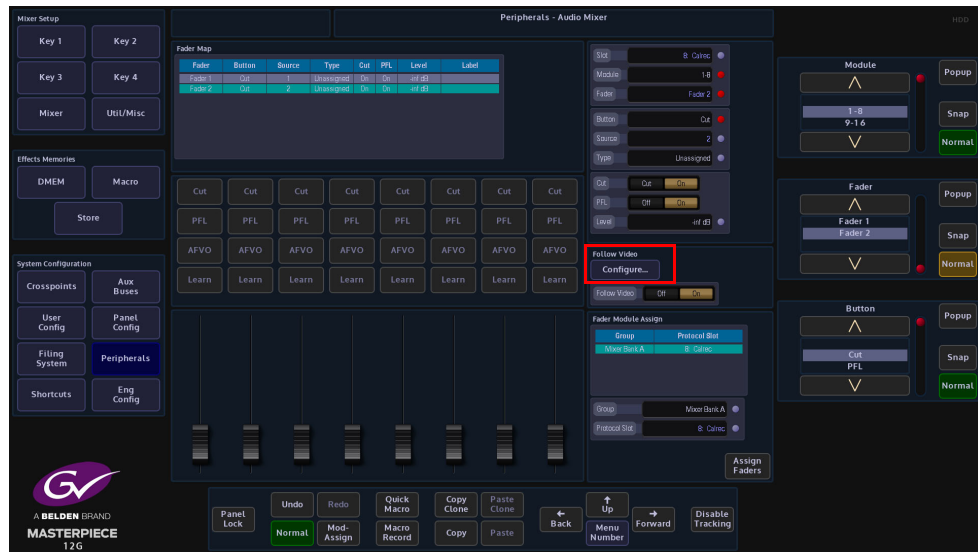
Level - this is the fader audio level; the level is default at 0dB, with a range of - infinity to 10dB.

Follow Video - On/Off. Touch the {Configure...} menu link button at the top of the menu to go to the Audio Follow Video menu.

The Follow Video Menu Allows the user to map a Crosspoint to a Yamaha audio mixer Source. When the Tally Now is configured (Eng Config, Output Setup, Tally) Any Crosspoint that goes to air, the assigned protocol audio source will also go to air. If there is no transition time, the audio faders will use the quick crossfade cut buttons to follow, otherwise they will follow the transition time to air. The user can also set a transition delay, which delays the time for the audio source to go to air after the crosspoint has gone to air.

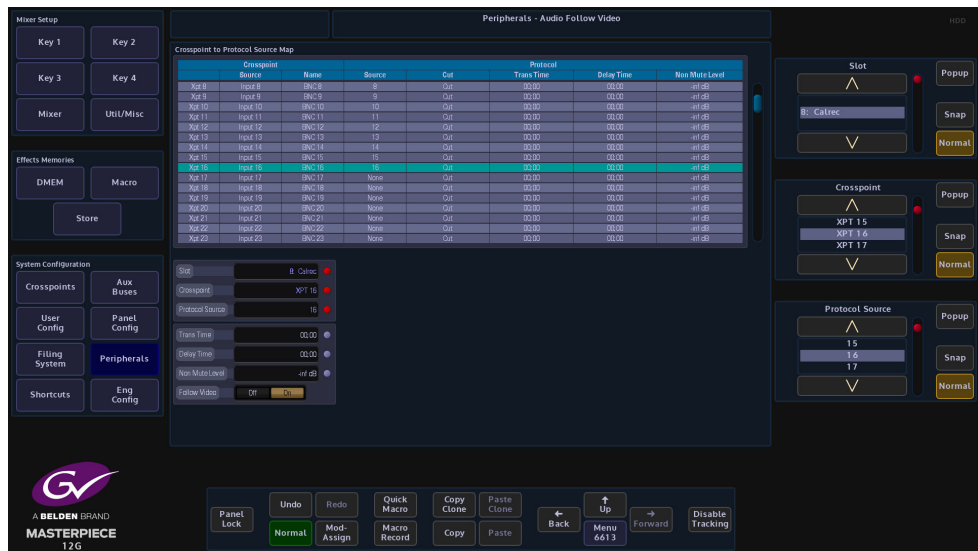
Audio Follow Video Configuration Test

In the Peripherals - Audio Mixer menu, touch the {Configure...} menu link button to open the "Audio Follow Video" menu.

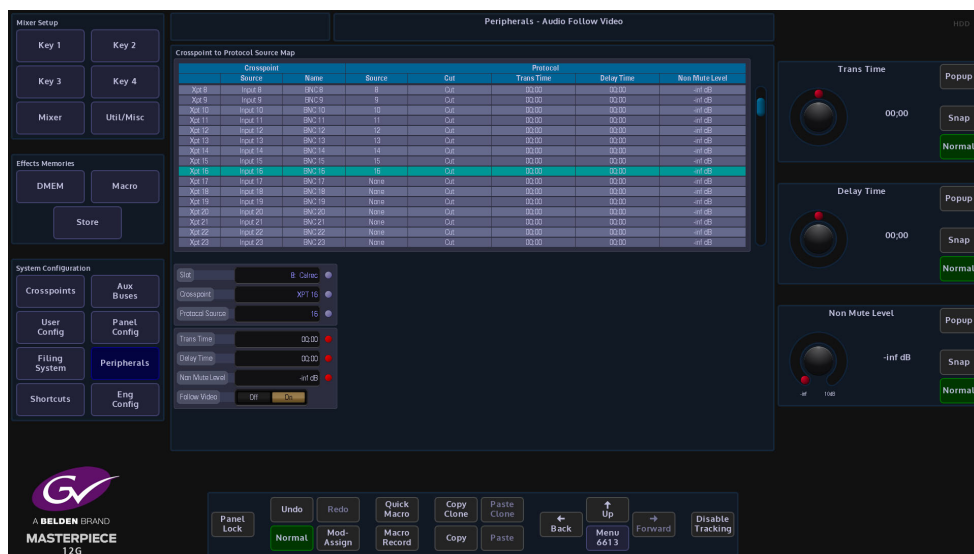


Again in this menu use the "Protocol Source" parameter to map a "Protocol Source" to the Masterpiece Crosspoint.

See the "Protocol Source Mapping" tables at the rear of this section as a reference.



To see a Fader Move set the “Trans Time” to video standard field rate and greater (less than field rate will act as a quick crossfade cut on/off).



Set the desired non muted level for each Crosspoint.



On the Masterpiece GUI, touch the “arrow up” button to get to the “Top” menu. Touch the {Defaults...} menu link button. In the “Defaults” menu, touch the {Engineering Config...} menu link button.

The menu now displayed is the “Engineering - Config” menu. Touch the {Output Setup...} menu link button and in the menu, ensure 'Tally Now' is on for desired BNC O/P.

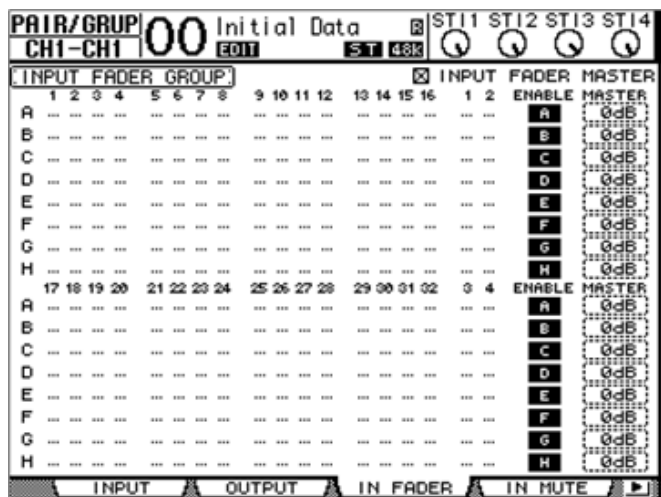
Cutting along the desired bus will trigger the fader to crossfade to non muted level as Crosspoint goes to air.

Additional Functionality using the Yamaha Audio Mixer menus

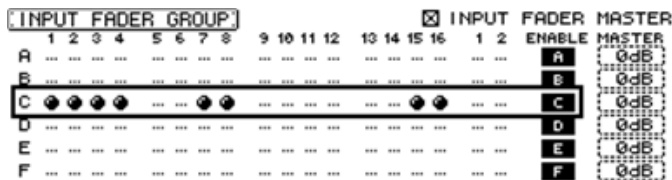
MIDI Protocol Control Features

- Inputs 1 to 32 Fader and Cut Button Control - Split over 2 layers (Layer 1 and Layer 2) - Masterpiece Fader Protocol Source {1 - 32}
- Aux Outputs 1 to 8 Fader and Cut Button Control - Master Layer - Masterpiece Fader Protocol Source {113 - 120}
- Bus Outputs 1 to 8 Fader and Cut Button Control - Master Layer - Masterpiece Fader Protocol Source {129 - 136}
- Stereo Inputs 1 - 4 Visual Fader and Cut Button Control - ST IN 1/3, ST IN 2/4 - Masterpiece Fader Protocol Source {33,34} {35,36}, {37, 38}, {39, 40}
- Input and Output Master Fader Group - Visual Fader and Cut Button Control (can be mapped to a physical remote fader layer as a user assignable layer)

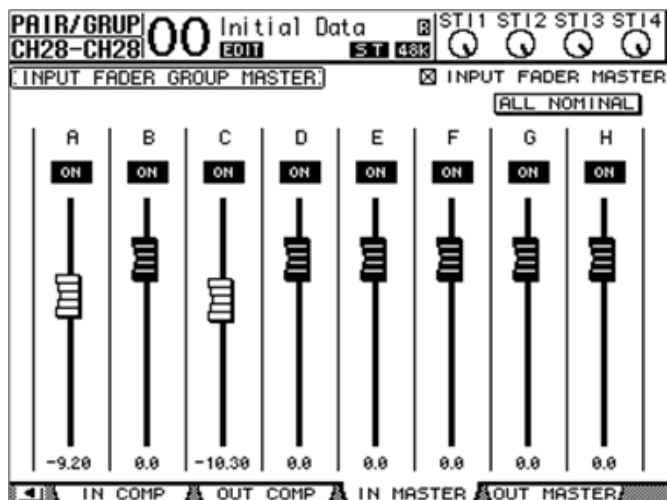
On the Yamaha Audio Mixer user interface, press the DISPLAY ACCESS [PAIR/GROUP] button and select IN FADER or OUT FADER Menu, to set Fader Input Master Group (A-H). For Input Channels 1-32 and Output Master Group (Q - T) for Auxes 1 -8 and Buses 1 - 8.



Ensure that INPUT FADER MASTER or OUTPUT FADER MASTER is checked and the Desired LAYER is selected. Then press the [SEL] button for the channel you wish to assign to the group (data entry controls maybe useful here).

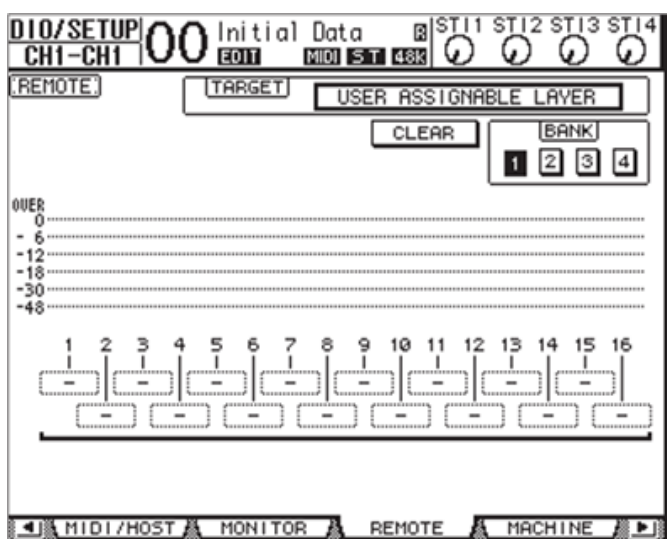


The corresponding Protocol Sources for Masterpiece control of Fader Input Master Group(A-H) are {145 - 152} and Fader Output Master Group (Q - T) are {161 - 164}.



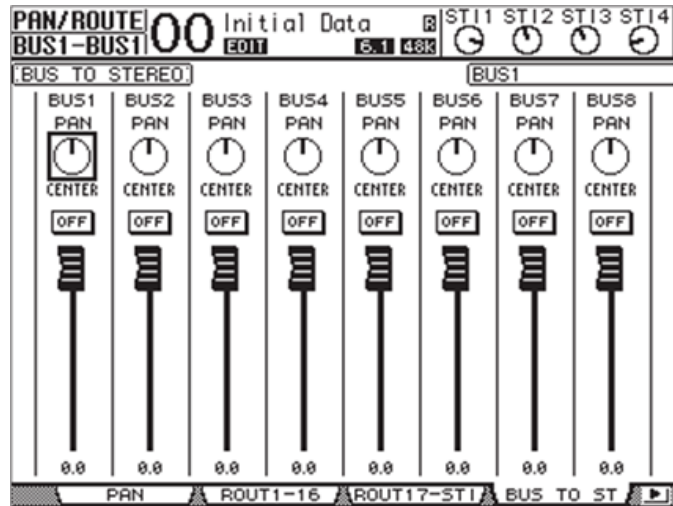
The Visual Fader can be mapped to a physical fader on the Yamaha desk by assigning to the remote layer.

1. Select [REMOTE] Layer or DISPLAY ACCESS [DIO/SETUP] and set the Target to 'USER ASSIGNABLE LAYER' in Remote Menu.



2. Select the group channel you wish to assign to using the Parameter 1 - 16 boxes.

Bus Out (1 - 8) to Stereo Bus Visual Fader and Cut Button Control - Masterpiece Fader Protocol Source {177 - 184}.
Select DISPLAY ACCESS - PAN/ROUTING - BUS TO ST Menu or [MASTER] and DISPLAY ACCESS [VIEW] and [SEL] Bus for view.



Stereo Out - Fader and Cut Button Control - Masterpiece Fader Protocol Source {Main1, Main2}.

Masterpiece Protocol Source to Yamaha Input Map List

Yamaha (01V96) Audio Mixer

Protocol Source	Input Map
1	INPUT 1
2	INPUT 2
:	:
32	INPUT 32
33	ST IN 1L
34	ST IN 1R
35	ST IN 2L
36	ST IN 2R
37	ST IN 3L
38	ST IN 3R
39	ST IN 4L
40	ST IN 4R

Protocol Source	Aux Out Map
113	AUX 1
114	AUX 2
:	:
120	AUX 8

Protocol Source	Bus Out Map
129	BUS 1
130	BUS 2
:	:
136	BUS 8

Protocol Source	Input Group Master Map
145	INPUT A
146	INPUT B
:	:
152	INPUT H

Protocol Source	Output Group Master Map
161	OUTPUT Q
162	OUTPUT R
163	OUTPUT S
164	OUTPUT T

Protocol Source	Bus Out To Stereo Bus Map
177	BUS 1
178	BUS 2
:	:
184	BUS 8

Protocol Source	Stereo Out Map
Main 1	STEREO OUT L
Main 2	STEREO OUT R

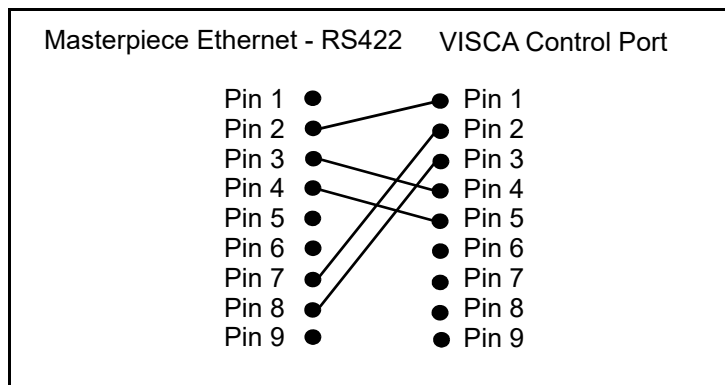
VISCA Robotics Camera Control

With the release of V1.3 software, Masterpiece can now use the VISCA protocol. Masterpiece is now able to control a range of robotic CCD cameras, with the ability of a remote pan/tilt/zoom operation.

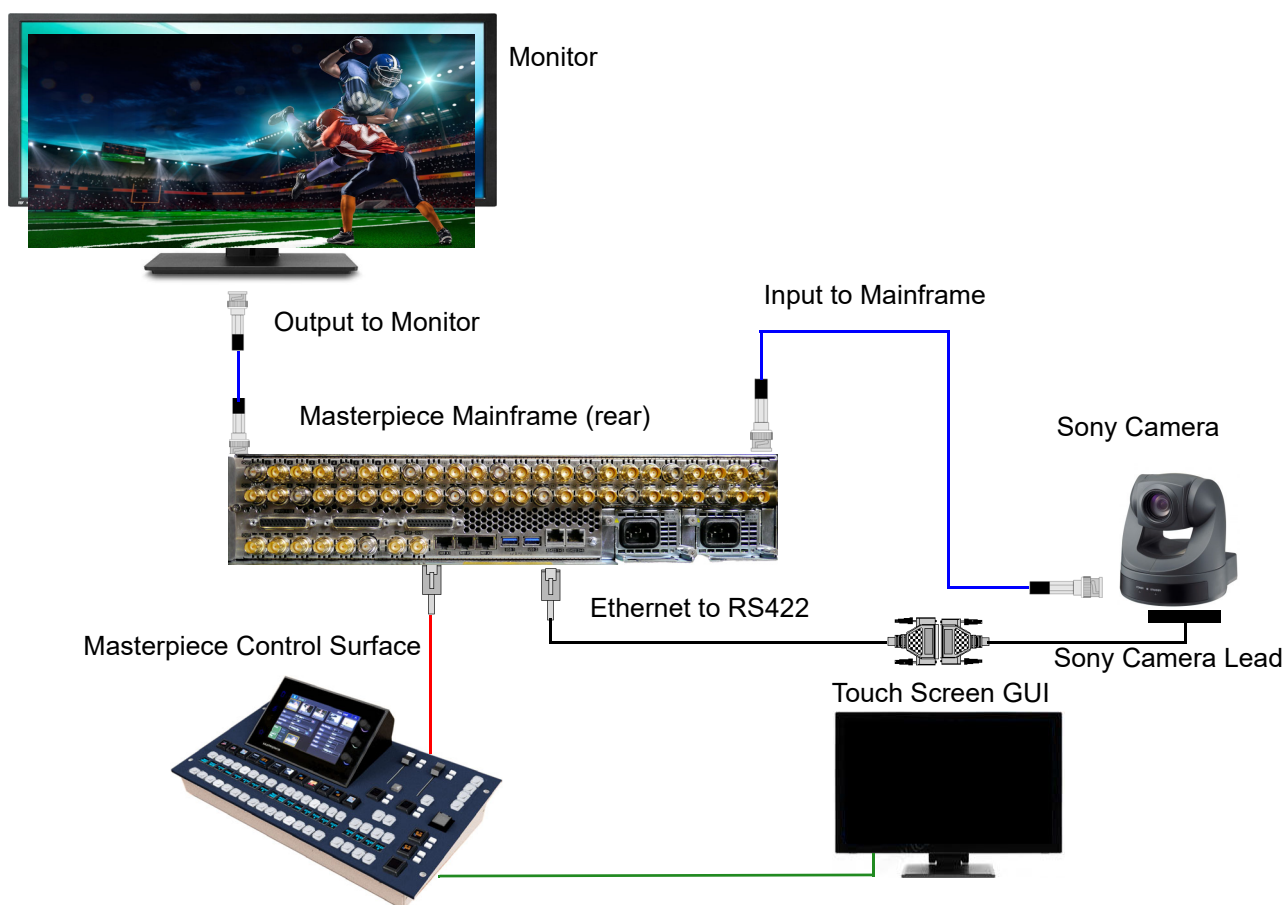
Masterpiece uses an RS422 (IP Client) port and VISCA protocol to communicate and control the device.

RS422 Cable Information

An Ethernet to RS422 cable with 9 Pin D-type connector at one end and a connector that suites the interface to the camera. (this example uses the Sony EVI-D70P camera) Use the following pin out information:



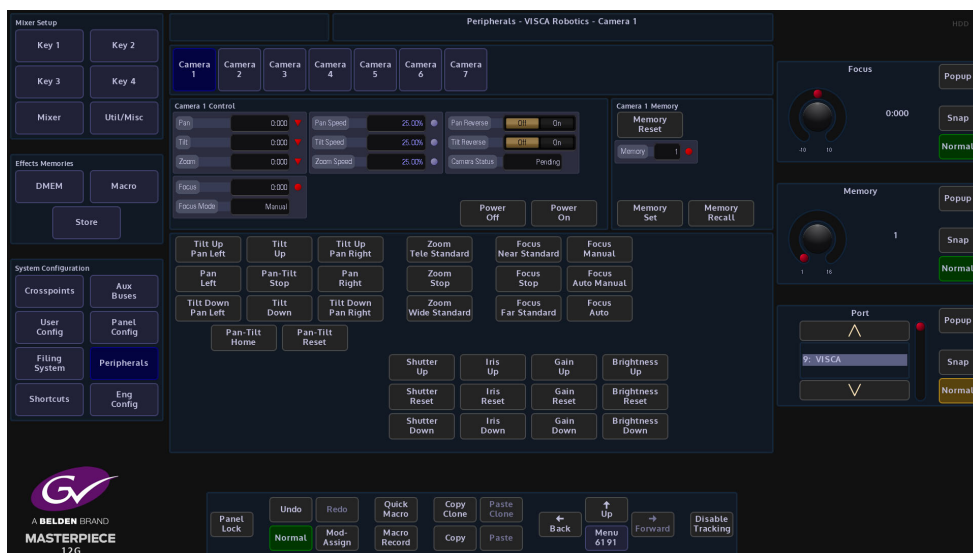
Connecting Masterpiece to the Sony Camera



Using the VISCA Protocol

Touch the **{Peripherals}** menu link button, then in the Peripherals menu touch the **{VISCA Robotics...}** menu link button.

Once in the VISCA Robotics menu, using the Port parameter select the RS422 port (named VISCA) that is connected to the camera, once connected, one of the camera control buttons will turn Blue with a number, up to 7 cameras can be connected.



Controlling the Camera

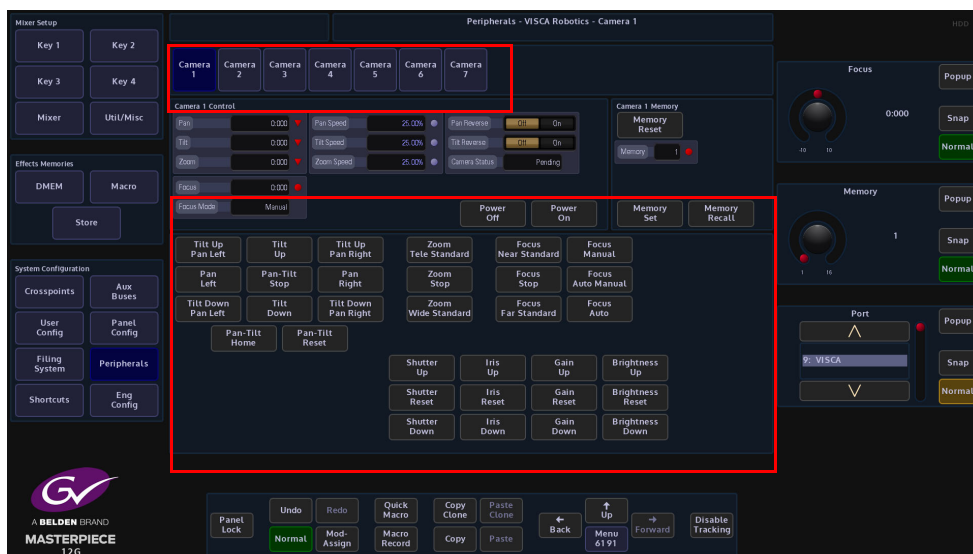
There are two ways to control the robotic camera:

Using the Pre-Defined Command parameter

Using the Masterpiece Control Surface joystick

Pre-Defined Camera Commands

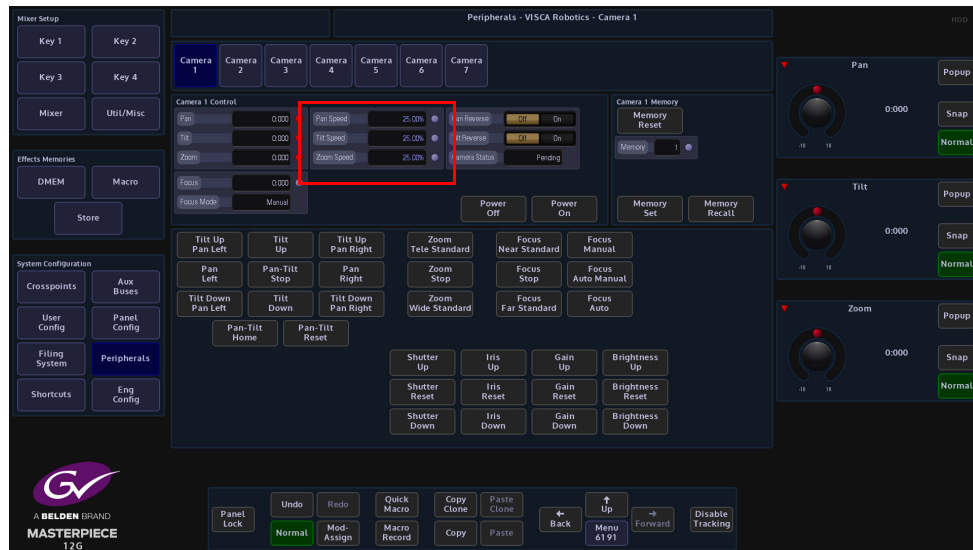
The first method described here will be using the Pre-Defined camera commands in the Command parameter.



The pre-defined camera commands are selected by touching one of the commands and then pressing the Blue Camera button, the camera will then move and keep moving until a different command is selected.

Pre-defined Camera Commands

- Select
 - Power On
 - Power Off
 - Pan Tilt Stop
 - Tilt Up
 - Tilt Down
 - Pan Left
 - Pan Right
 - Tilt Up, Pan Left
 - Tilt Up, Pan Right
 - Tilt Down, Pan Left
 - Tilt Down, Pan Right
 - Pan Tilt Home
 - Pan Tilt Reset
 - Zoom Stop
 - Zoom Tele (Standard)
 - Zoom Wide (Standard)
 - Focus Stop
 - Focus Far (Standard)
 - Focus Near (Standard)
 - Manual Focus
 - Auto Focus
 - Auto/Manual Focus
 - Shutter Reset
 - Shutter Up
 - Shutter Down
 - Iris Reset
 - Iris Up
 - Iris Down
 - Gain Reset
 - Gain Up
 - Gain Down
 - Brightness Reset
 - Brightness Up
 - Brightness Down
 - Memory Reset



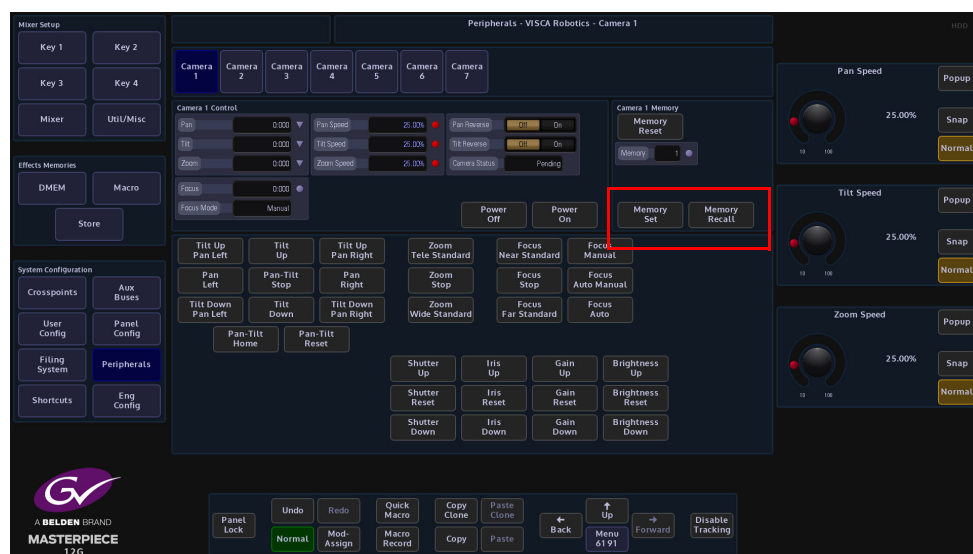
Pan Speed and Tilt Speed parameters are only available when controlling the camera with pre-defined commands. When panning left or right, adjust the Pan Speed parameter using the GUI rotary control knob and the camera head will speed up or slow down. The Grass Valley action is defined when using the Tilt Speed parameter.

Note: Pan, Tilt, Zoom Right and Focus can be used when using the pre-defined commands, but they will override the current Pan/Tilt/Zoom/Focus type commands

Saving Camera positions into the Camera Memory

The camera is able to store up to 16 different camera memory positions.

Move the camera to the required position, use the Memory parameter to select a memory position and then press Memory Set. If the memorized camera position is required in the future, select the memory location and then press Memory Recall and the camera will move to the memorized position.

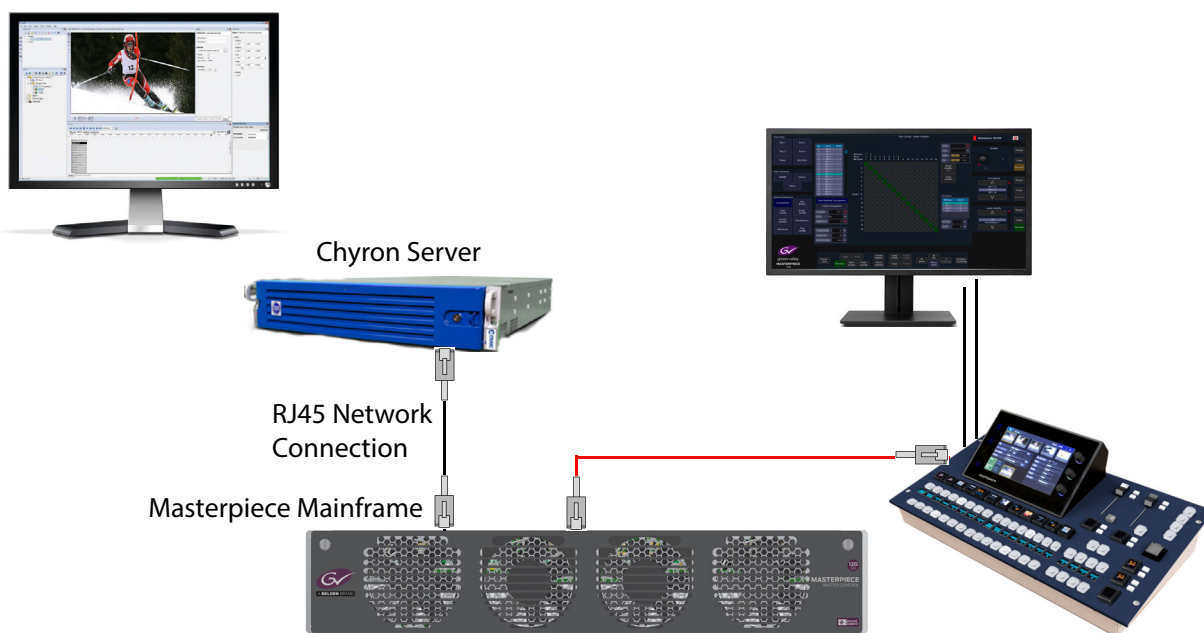


Chyron Control

Overview

Masterpiece is able to connect to Chyron graphics servers to load and play files. The Chyron system is also able to trigger a macro to run. Chyron has a dedicated protocol and control menu on Masterpiece.

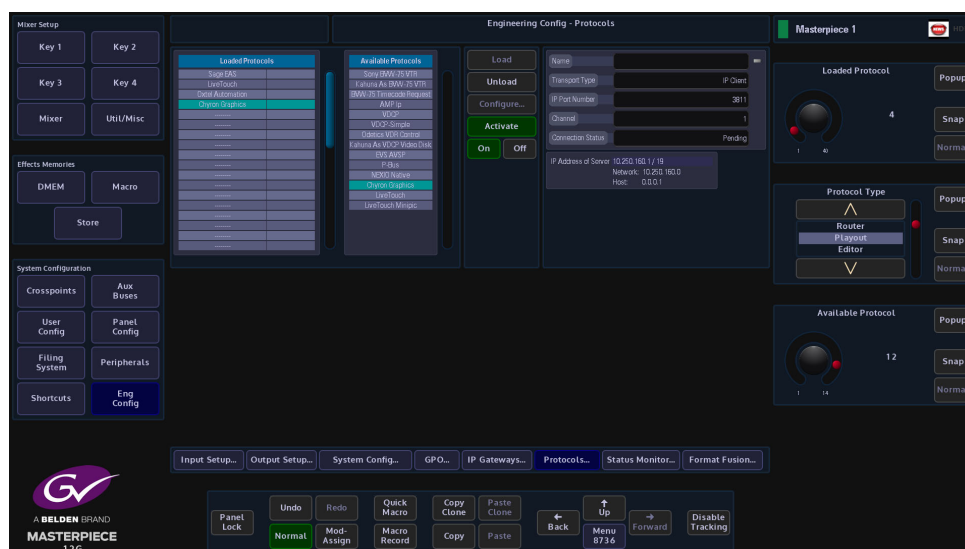
Setup - Example of Masterpiece connecting to a Chyron System



The Chyron server is connected to the Masterpiece mainframe.

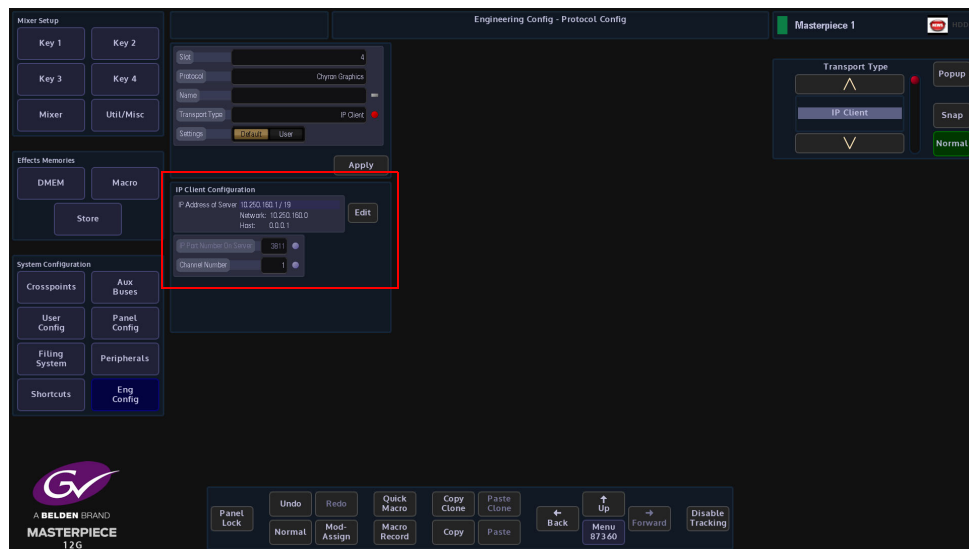
Masterpiece Setup

In the “Eng Config” menu, touch the **{Protocols...}** menu link button.



Select “Playout” in the “Protocol Type” parameter, then in the “Available Protocols” table, touch to select “Chyron Graphics” and then touch the {Load} button.

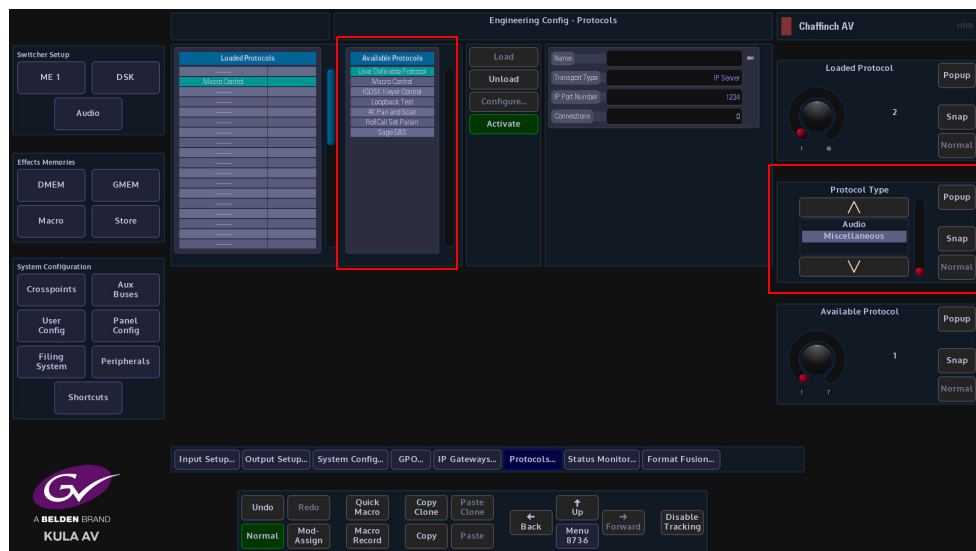
Touch the **{Configure...}** button to display the “Protocol Config” menu.



The “IP Client” transport type is default as “IP Client” and cannot be changed. Change the “Settings” parameter to “User” so that the “IP Client Configuration” parameters can be set, so that Masterpiece can communicate with the Chyron server. Enter the IP address of the server, and set the “IP Port Number on Server”, then touch the **{Apply}** button. In the Protocols menu, touch the **{Activate}** button and the protocol is setup.

Macro Control

To allow Chyron to trigger a macro on Masterpiece, the “Macro Control” protocol has to be setup on Masterpiece.



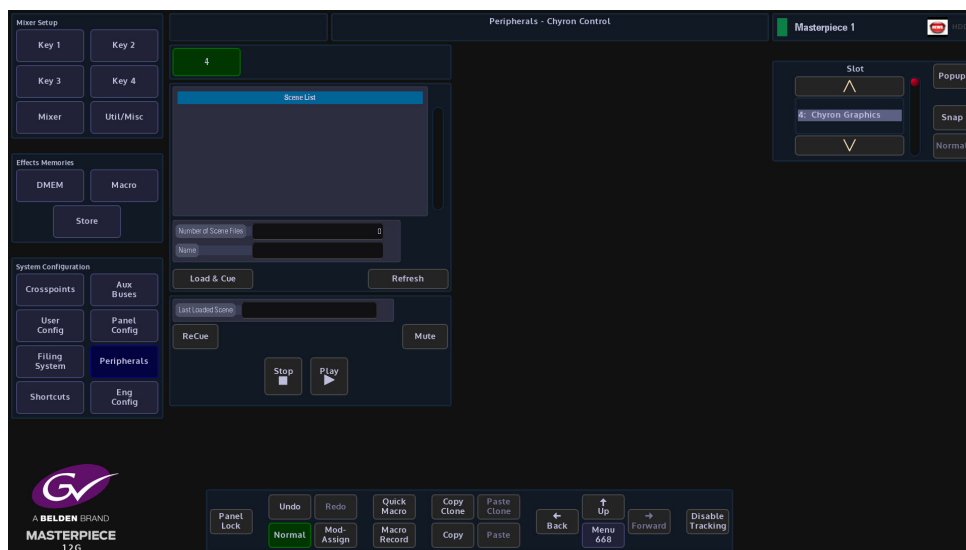
In the “Protocol Type” parameter, select “Miscellaneous”, and in the “Available Protocols” table select “Macro Control” and touch the **{load}** button.

Touch the **{Configure...}** menu link button and in the Configure menu, select “IP Server” and select the correct port number and touch the **{Apply}** button.

In the “Protocols” menu, touch the **{Activate}** button to activate the protocol.

Peripherals - Chyron Control

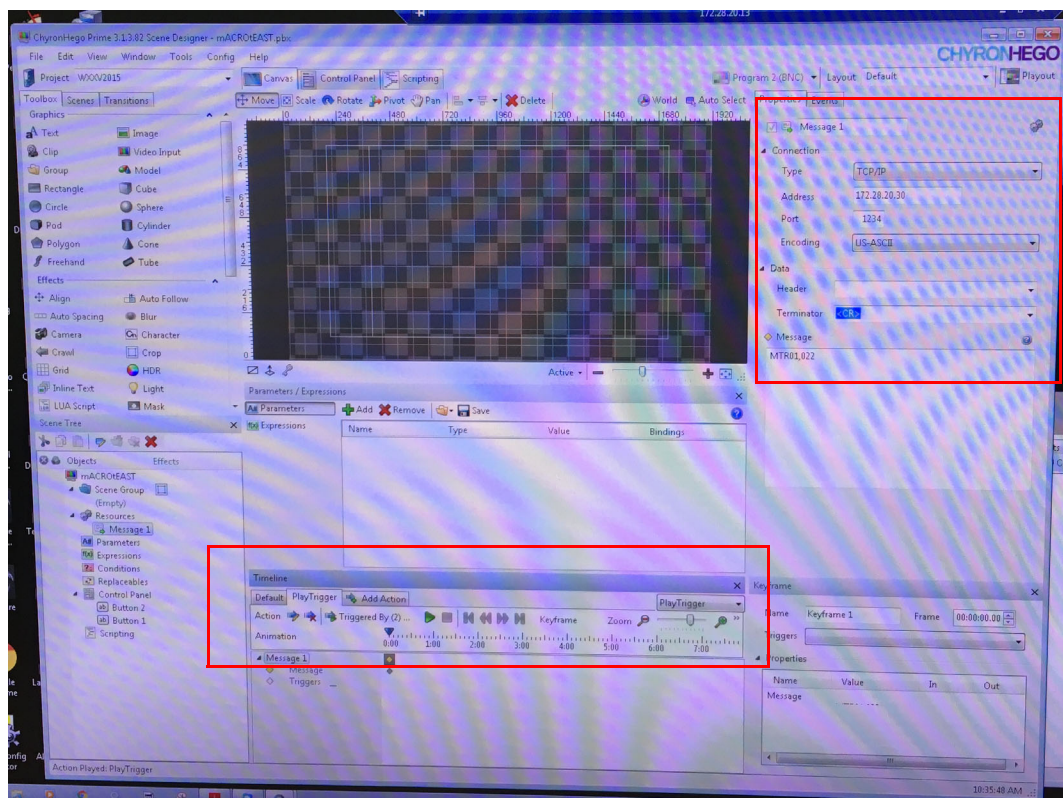
Touch the **{Peripherals}** menu button and then in the “Others” column, touch the **{Chyron Control...}** menu link button.



Once connected to the Chyron server, the “Scene List” will display the available clips/files that can be loaded and cued ready to play. Once the clip/file has played you can either select a different clip to load and cue ready to play or re-cue the last clip played. If there is embedded audio with the clip, the audio can be muted.

Chyron Triggering a Macro on Masterpiece

The Chyron User Interface can be set to trigger a Macro on Masterpiece.



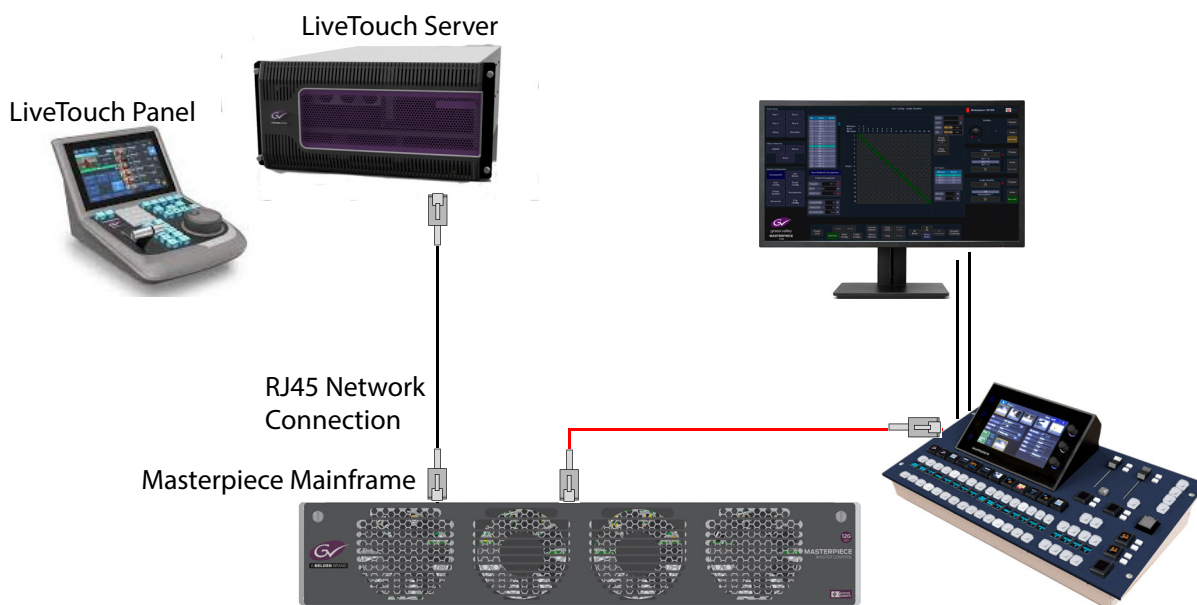
In the "Connection" area of the menu (above top right), enter the IP address of the Masterpiece mainframe and the Grass Valley "Port Number" as was set when setting up the Masterpiece protocol menu. Then set the "Encoding" parameter to ASCII.
In the "Message" window, type "MTR01, (number of macro) i.e. 022. This will trigger macro 22 in the Masterpiece mainframe.

Note: Chyron will only Flash 1 or trigger the macro once on Masterpiece and then cut the connection.

LiveTouch

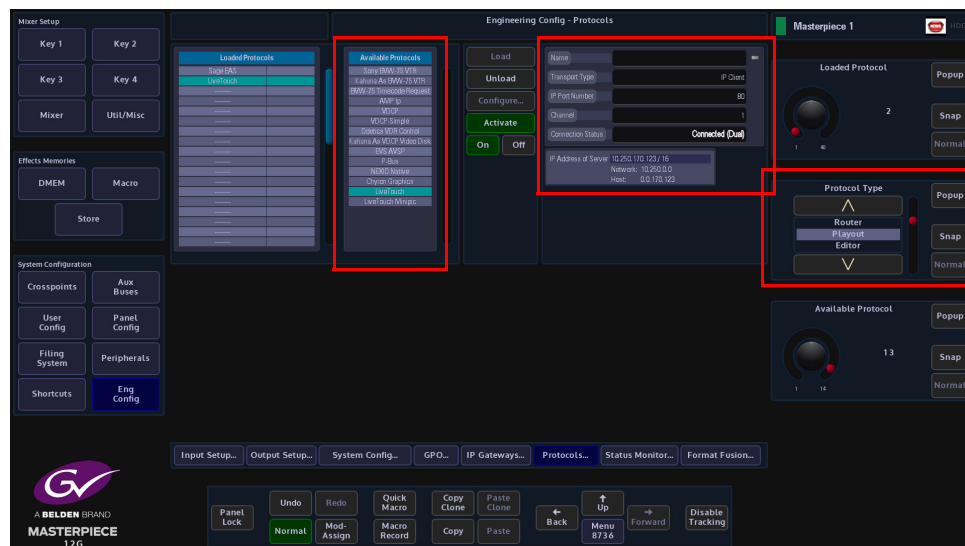
Masterpiece is able to connect to a LiveTouch server and load, cue and play files.

Setup - Example of Masterpiece connecting to a LiveTouch System



Protocol Setup

In the “Eng Config” menu touch the **{Protocols...}** menu link button. Scroll through the “Protocol Type” list until you get to “Payout”.



Touch “LiveTouch” in the “Available Protocols” list and then touch the **{Load}** button, to add it to the “Loaded Protocols” list.

Touch the **{Configure...}** button to display the “Protocol Config” menu. Touch the **{Edit...}** button and enter the IP address of the LiveTouch server and make sure that the “IP Port Number on Server” is set to 80, then touch the **{Apply}** button.

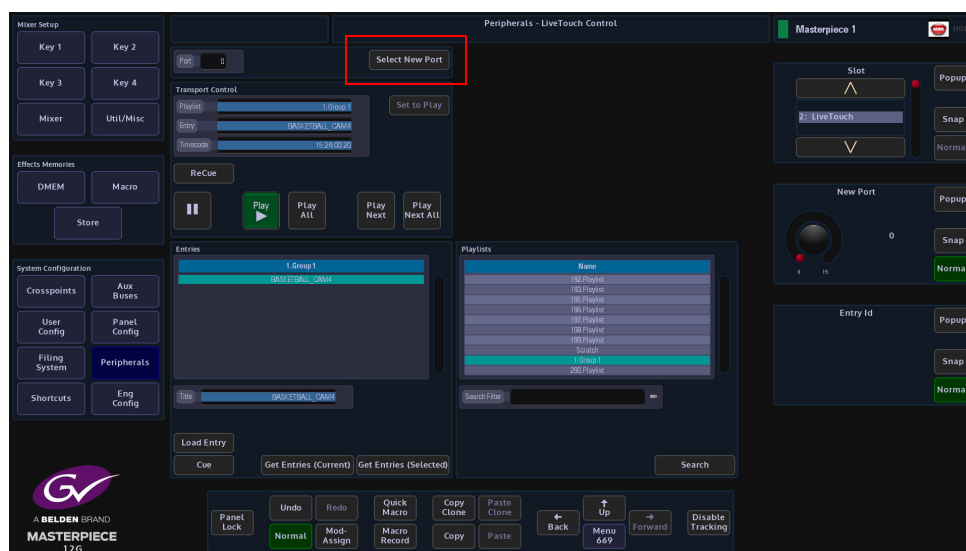
The menu will return to the “Protocols” menu, finally touch the **{Activate}** button. The “Connection Status” will show “Connected (Dual)”

Depending on hardware configurations, some LiveTouch systems can provide a thumbnail image for the "Playlist" entries.

To do this, you will have to assign an optional "LiveTouch Minipic" protocol, following the protocol setup process on the previous page.

Peripherals - LiveTouch Control

Touch the **{Peripherals}** button, then in the Peripherals menu touch the **{LiveTouch Control...}** menu link button.



To select a new port to control, touch the **{Select New Port}** button. In the "Transport Control" panel, if the "Port" is idle, touch the **{Set to Play}** button to change the port to playout mode. While in playout mode, it shows the current "Playlist", "Entry" and "Timecode".

Buttons:

Recue - Recue current entry

Pause - Pause current entry

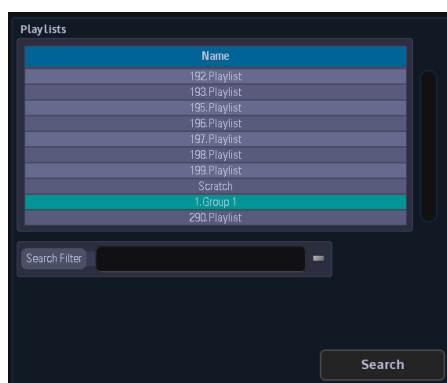
Play - Play current entry

Play All - Play from current entry till the end of the playlist

Play Next - Play the next entry

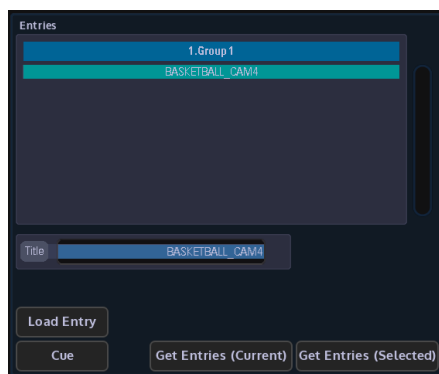
Play Next All - Play from next entry till the end of the playlist

Playlists Panel:



To use the PlayLists search, type in a keyword in "Search Filter" and touch the **{Search}** button. This will find play lists for the current port, i.e. type in "Masterpiece" and the search will list all playlists contain the word "Masterpiece" in the title. Leave "Search Filter" blank, and when the **{Search}** button is pressed, the search will list all play lists available for the current port.

Entries Panel:



Touch the **{Get Entries (Current)}** button to get the entries of the current playlist. The current playlist is displayed in the "Transport Control" panel above. The other way is to touch the **{Get Entries (Selected)}** button to get the entries of the selected playlist in the "Playlists" panel. The title of the playlist is displayed at the top of the list.

To play and entry, select an entry and touch the **{Load Entry}** button. This entry will not have any on air effect until the subsequence "Cue" or "Play Next" buttons press.



Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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