



MV-825-RTR

MULTIVIEWER WITH INTEGRATED ROUTER

User Manual

MV-825-RTRUM

11 May 2022, Issue 1 Revision 2

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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Title	MV-825-RTR User Manual
Part Number	MV-825-RTRUM
Revision	11 May 2022

Read Me First

Thank you for purchasing your new MV-825-RTR product from Grass Valley.

The MV-825-RTR contains a video router and a powerful multiviewer.

When using the MV-825-RTR you will need access to the following Grass Valley documents, available from the Grass Valley website:

- 1 ***MV-825-RTR Multiviewer with Integrated Router User Manual*** (i.e. this document)
- 2 ***MV-8 Series Core Multiviewer User Manual*** - which provides information about the MV-825-RTR's core multiviewer features, control screens, 'getting going' instructions, and maintenance.

About this Manual

This user manual describes how to install, configure and operate the MV-825-RTR. It provides any relevant safety information. After reading this user manual, if you have any questions regarding the installation and setup of your product, please contact Grass Valley customer support.

If you have any questions regarding the installation and setup of your product, please contact Grass Valley Customer Support.



Related Documents

The following Grass Valley manuals are related documents:

Document	Description
MV-8 Series Core Multiviewer User Manual	User manual for the core multiviewer 'engine' within all MV-8XX Multiviewer products, including the MV-825-RTR.

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.

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.

Further Safety Information

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

The MV-825-RTR unit has 'small form-factor' module cages at its rear for SFP (small form-factor pluggable) plug-in modules. Various SFP optical fiber modules may be fitted into some rear cages.

Laser Safety - Fiber Output SFP 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.

Ventilation

Although the unit is constructed to meet normal environmental requirements, ensure that there is a free flow of air at the front, rear, and sides of the unit to dissipate the heat produced during operation. Installations should be designed to allow for this.

CAUTION

Do not obstruct the unit's ventilation holes: Damage to the equipment may result.

Equipment 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.

Mains supply rating for the equipment.



Rear Mains Inlets and Mains Supply Rating

Power Cords Supplied

WARNING

To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Power Cords Supplied for the USA

Power cords: 2x RMW8 18 USA MAINS LEAD IEC TO 3BLADE PLUG 2.4M
 GREEN lead connected to E (Protective Earth Conductor)
 WHITE lead connected to N (Neutral Conductor)
 BLACK lead connected to L (Live Conductor)

Power Cords Supplied for Countries other than the USA

Power cords: 2x RMW8 16 POWER CORD 10A 2M (IECSKT-IEC PLG
 GREEN/YELLOW lead connected to E (Protective Earth Conductor)
 BLUE lead connected to N (Neutral Conductor)
 BROWN lead connected to L (Live Conductor)

WARNING

- Always ensure that the unit is properly earthed and power connections are correctly made.
- Isolate the unit from the outputs of other products before servicing.
- The unit's IEC power inlets are the mains disconnection devices for this unit.

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.

Document History

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1

1 Product Overview

The Grass Valley MV-825-RTR is a compact and space-saving integrated router and multiviewer. It combines a 48x48 SDI video router and a powerful 48-in/12-out MV-8 Series multiviewer. Both the multiviewer and the router are optionally 12G SDI capable. An MV-825-RTR can flexibly monitor 48 source SDI video signals and, independently, route them to 48 SDI outputs. Up to 12x different multiviewer video walls can be shown, with up to 48 different video tile images and any source to any tile.

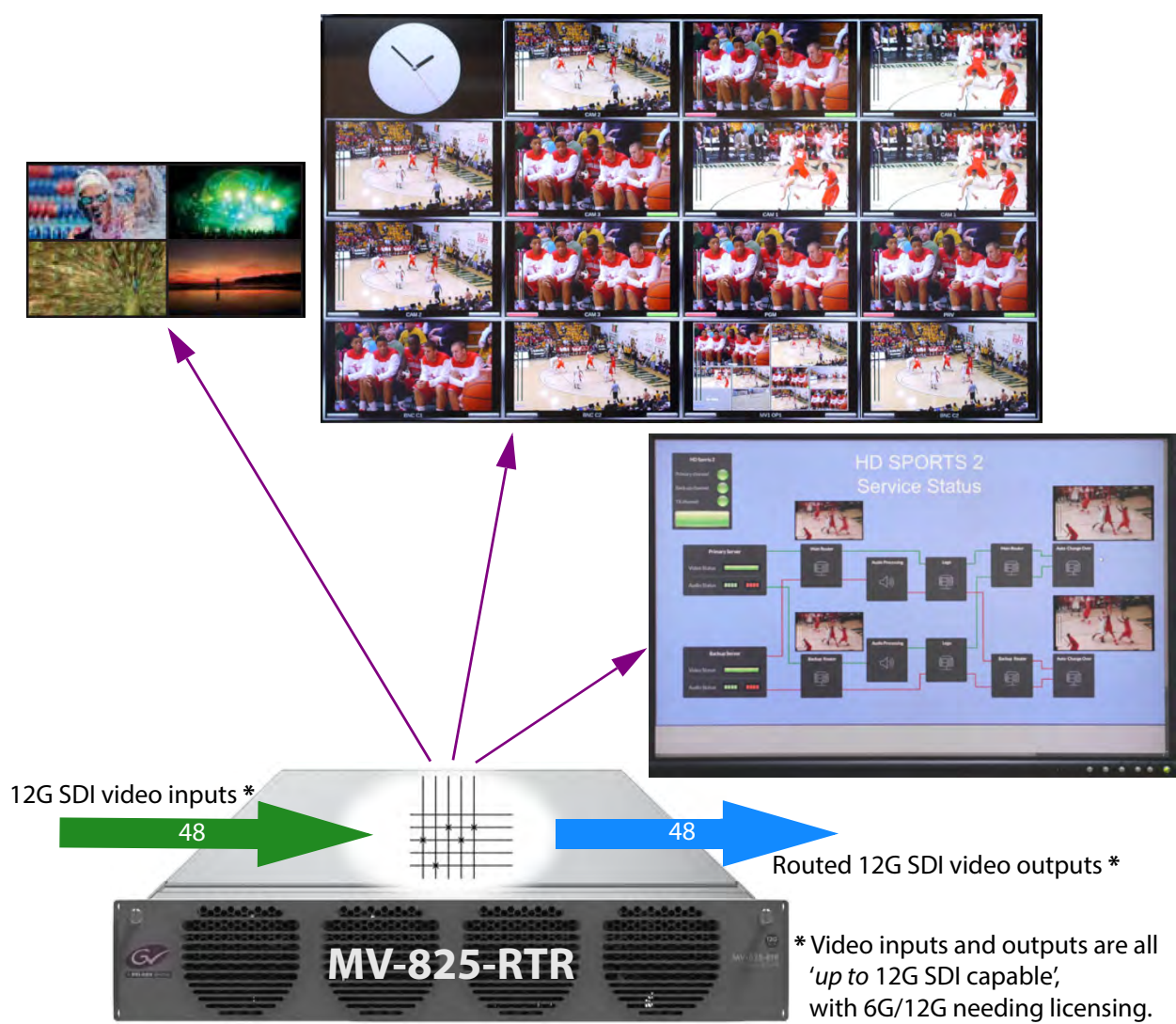


Fig. 1-1: MV-825-RTR Multiviewer with Integrated Router

Features

The MV-825-RTR offers some unique, powerful features:

Unit:

- Compact, space-saving 2RU chassis.
- Redundant power supplies.

Video router:

- Flexible internal 48x60 SDI video router, with optional 12G SDI capability.
 - Inputs: 48 video inputs.
 - Outputs: 48 routed destination outputs + up to 12 head display outputs.
- Timed switching, compliant to SMPTE RP-168-2009.
- 2x video reference inputs with loop-through outputs.
- Configured via a web interface.
- Controllable from:
 - Web interface and soft control panels;
 - Hard- and soft-panels.
 - Remote control protocol over Ethernet; and
 - SNMP.
- Monitor unit via SNMP.

Internal Multiviewer:

- MV-8 Series multiviewer core shared with other MV-8XX GV products.
- Up to 48 video signals monitored (SD-SDI/ HD-SDI/ 3G-SDI/ UHD/ 12G-SDI).
- Up to 12 multiviewer head display outputs:
 - 3G 1080p per head.
 - 4K UHD head outputs using four 3G-SDI outputs (quad-link).
 - 4x head display outputs on baseline MV-825-RTR model. Additional outputs are licensed.
- Mixture of 3G-SDI coax or fiber, or HDMI head display outputs with SFP modules.
- Up to 32 channels of audio metering per source.

Advanced broadcast media monitoring:

- Media biometric signature generation for all 48 multiviewer inputs.
 - Low-bandwidth video and audio signatures streamed.
 - Applications include: Lip sync, Channel mapping detection, Confidence monitoring, identification and comparison.
- HDR support in the multiviewer:
 - HDR down-mapping of HDR sources (for SDR displays).
 - HDR up-mapping of SDR sources (for HDR displays).

Screen layout flexibility:

- Display status and alarms from external devices.
- Custom styling.

- When designing video wall:
 - Drag and Drop objects onto the screen layout.
 - Adjust layering, transparencies and fine-positioning of graphical objects.

Flexible alarm capability:

- Monitoring of video, audio and metadata, with alarm notification.
- Intelligent monitoring of external devices, with configurable on-screen alarms.
- Control and acknowledgment of alarms from hardware- and soft-panels.

H.264 Streaming out of scaled Input-Copies:

- Extend and expand monitoring with this license option. The multiviewer can be ordered with this option, or the license option can be installed post-shipping, in the field.
- MV-825-RTR inputs may be scaled and compressed to create H.264-encoded input-copies which can then be streamed out over an IP connection. Suitable for confidence monitoring.
- Viewable on a desktop PC with suitable software, e.g. GV Orbit.

Order Codes

Table 1-1: MV-825-RTR Order Codes

Order Code	Description
MV-825-RTR	2RU 12G SDI Integrated Router and Multiviewer unit, with: <ul style="list-style-type: none"> • a license for four head display outputs; and • 4x <i>Ethernet</i> SFPs fitted for 1Gb Ethernet control interfaces (2x for the multiviewer and 2x for the router). Note: <i>SDI video</i> output SFP modules must be ordered separately.
Licenses:	(Apply licenses to the multiviewer within an MV-825-RTR.)
MV-825-12G	Enables up to 12G video capability (support is then licensed for 6G /12G SDI video input/output): <ul style="list-style-type: none"> • 3840 x 2160p at 23.98, 24, 25, 29.97, 30, 50, 59.94 and 60Hz frame rate. (4:2:2 YCbCr) Note: The license is <i>applied</i> to the core multiviewer of the MV-825-RTR, yet it affects the <i>whole</i> MV-825-RTR unit.
MV-825-H264	Enables H.264 streaming out of scaled H.264-encoded multiviewer 'input-copies' from the core multiviewer. May be ordered as part of the original unit purchase. Or license may be added later, in the field.
Additional head display Output Licenses:	
	Licenses enable more multiviewer head display outputs (from 'output 5' onwards). Note: SDI video output <i>SFP modules</i> for additional display outputs must be ordered separately.
MV-825-OP56	Upgrade to enable outputs 5 and 6.
MV-825-OP78	Upgrade to enable outputs 7 and 8.
MV-825-OP910	Upgrade to enable outputs 9 and 10.
MV-825-OP112	Upgrade to enable outputs 11 and 12.
SFP Modules (SDI video):	Per SFP module: <ul style="list-style-type: none"> • 2x SDI outputs (coaxial or fiber); or • 1x HDMI output.
CC-TTH-3G-N	Multiviewer HD-BNC Dual Output SFP module. Grass Valley module number SM-TT-3G.
ST31ST31-3	Multiviewer Fiber Dual Output SFP module (1310 nm, single mode LC/PC).
FC1-HDMI1	HDMI single output SFP module.
SFP Module (Blank):	
SFPBLANK	SFP blanking plug (dust and EMC cover).

MV-825-RTR Architecture

Inputs and Outputs

Figure 1-2 shows the main input and output signals of a MV-825-RTR unit.

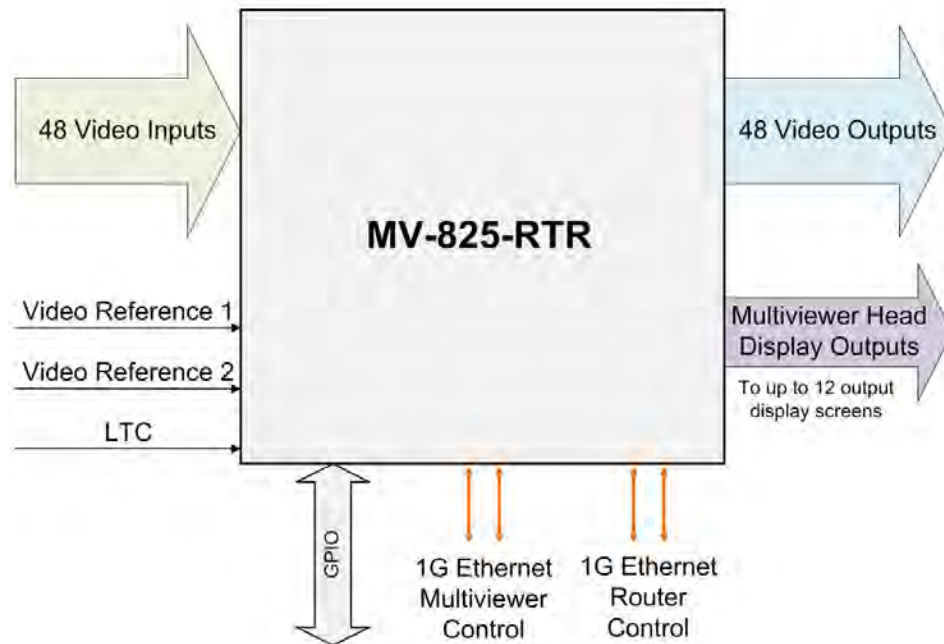


Fig. 1-2: MV-825-RTR - Main Inputs and Outputs

- 48x router 12G SDI video inputs, HD-BNC.
- 48x router 12G SDI video outputs, HD-BNC.
- Up to 12x multiviewer head display outputs, organized as 6x SFP cages, providing up to 12x head outputs for monitor display screens. With SFPs fitted, outputs are available in 3G-SDI coax, fiber, or HDMI and outputs are quad-link UHD-capable.

Note:

There are two video interfaces per coax SFP or fiber SFP.
But there is only one HDMI interface per HDMI SFP.
Thus, there can be:

- up to 12 coax/fiber multiviewer head display outputs; but
 - only up to 6 HDMI multiviewer head display outputs.
-

- Ethernet connections - 4x 1G Ethernet ports.
 - 2x multiviewer Ethernet ports for multiviewer configuration and control, and H.264 streaming out of multiviewer inputs.
 - 2x router Ethernet ports for router configuration and control.
- LTC and GPIO.
- Video reference. (2x inputs with loop-through connectors.)

Functional Block Diagram

The MV-825-RTR comprises a video router and a multiviewer which are separate and interconnected functional blocks within the MV-825-RTR unit.

$$MV-825-RTR = \text{Video Router} + \text{MV-8 Core Multiviewer}$$

Figure 1-3 shows a functional block diagram of the unit.

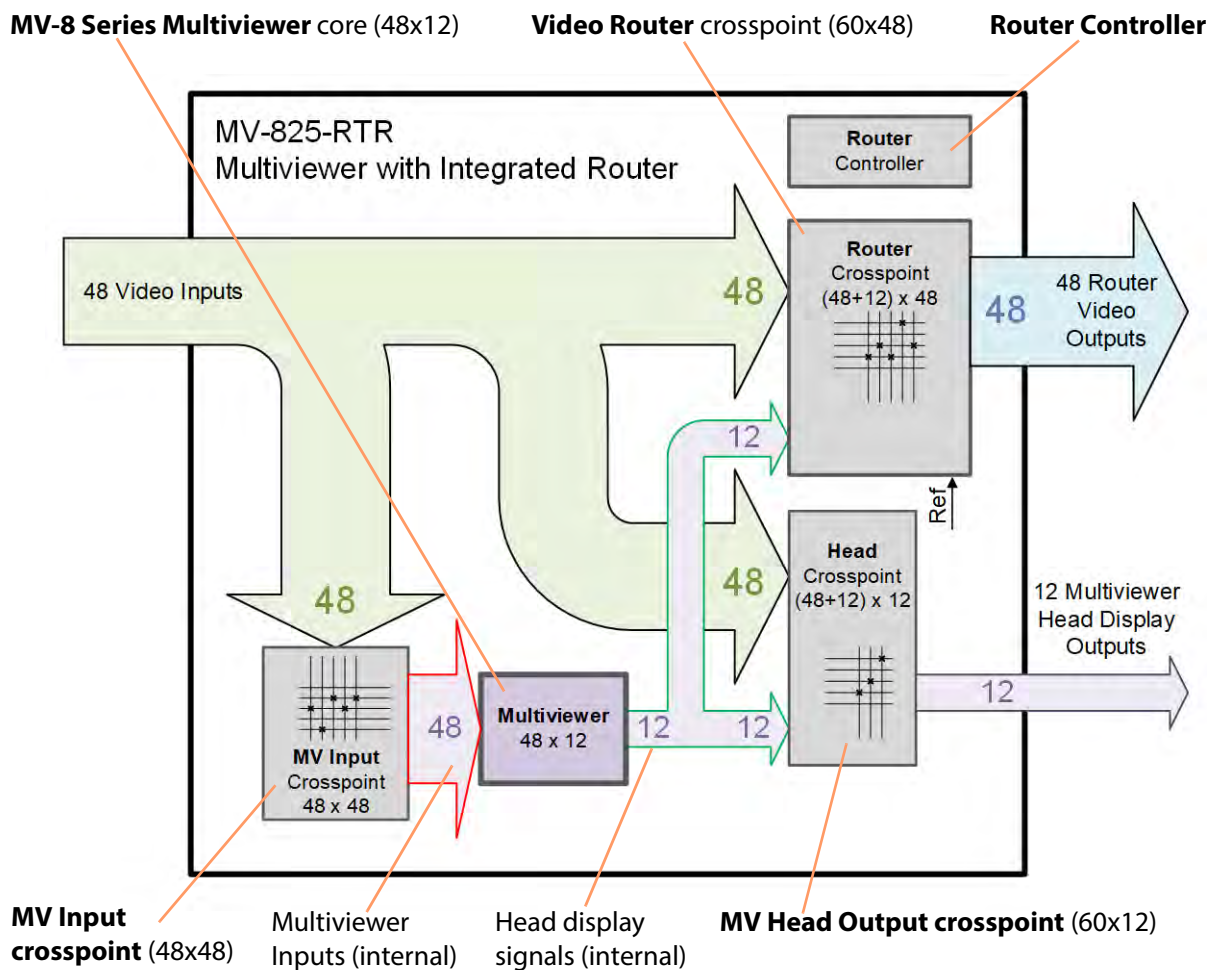


Fig. 1-3: MV-825-RTR Functional Block Diagram

The unit essentially contains a 48x48 12G SDI video router, a powerful multiviewer and some flexible internal signal switching. The internal switching is done with separate router crosspoint switches to allow the switching of signals going to the multiviewer and of signals going to rear head display outputs.

Router Crosspoint

The **Video Router** is implemented with a 60x48 **Router** crosspoint, which allows 48 router video SDI inputs and 12 internal multiviewer head display signals to be routed to 48 router video SDI outputs.

Router Controller

The crosspoints in the MV-825-RTR each perform a routing function under the control of an internal **Router Controller** which runs its own software, independent of the multiviewer core.

Multiviewer Core

The **Multiviewer** is a Grass Valley **MV-8 Series Core Multiviewer**, (48x12).

Note: For full details about the **MV-8 Series Core Multiviewer**, see the *MV-8 Series Core Multiviewer User Manual*, see [Related Documents](#), on page iii.

Multiviewer Input Crosspoint

The 48 router video SDI inputs can also be independently routed to the multiviewer via a 48x48 **MV Input crosspoint**.

Multiviewer Head Output Crosspoint

The multiviewer generates up to 12 head displays (dependent on licenses installed) which can be independently routed to the 12 multiviewer head display outputs of the MV-825-RTR unit via an **MV Head crosspoint**; additionally, any of the 48 router video inputs can be also routed out.

Streaming Out of Multiviewer Input-Copies

An MV-825-RTR unit can be ordered with a 'streaming out input-copies' license option (MV-825-H264) or the license can be applied in the field. All MV-825-RTR units support this feature and can be upgraded with this license in the field.

Streaming out is via either the '1G1' or the '1G2' MV control Ethernet interface.

These H.264 video IP streams can be viewed on a desktop PC with appropriate software.

MV-825-RTR Configuration, Control and Monitoring

The MV-825-RTR comprises two functional blocks which run their own software and are configured independently:

- Video router.
- 'MV-8 series' core multiviewer block.

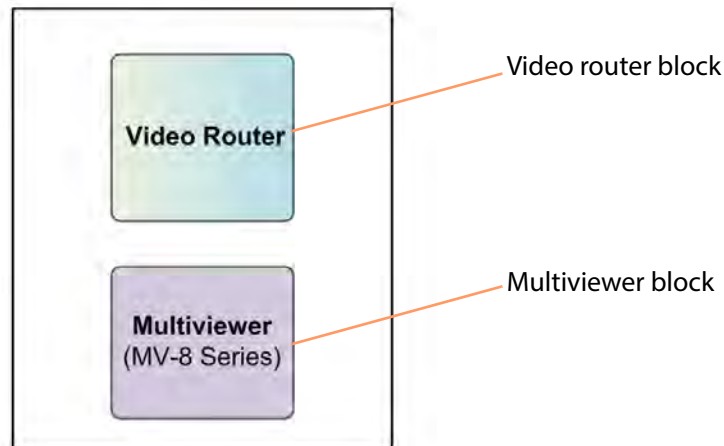


Fig. 1-4: MV-825-RTR - Separate Configuration, Control and Monitoring for Router and Multiviewer

These functional blocks are configured, controlled and monitored separately via their own IP addresses and control interfaces. Table 1-2 summarizes the interfaces available and the tool to use.

Table 1-2: MV-825-RTR Control Screen Interfaces

Functional Block	Web Browser	RollCall Control Panel Tool	GV Orbit Client
Video Router	Yes, web page	Yes, control screens	
Core Multiviewer	No	Yes, control screens	

Configuring of the multiviewer's video walls is also done with the GV Orbit Client tool.

Note: Licensing of the MV-825-RTR unit is done via the Multiviewer block, for the entire unit.

Multiviewer Block

Please refer to:

the *MV-8 Series Core Multiviewer* user manual for full information about the core multiviewer in the MV-825-RTR. (See [Related Documents](#), on page iii.)

Video Wall Design

Design of the multiviewer video wall used by the MV-825-RTR unit is done with the GV Orbit Client tool. GV Orbit users use the GV Orbit Client as part of a GV Orbit system with a GV Orbit server and all the services and facilities that the system affords. For users who do not have a GV Orbit system, the GV Orbit Client is available in 'Lite' form (GV Orbit Lite) as a free-of-charge download.

The layout and style of the MV-825-RTR video walls are designed and designs are stored in a GV Orbit multiviewer project, which is then pushed to a MV-825-RTR's multiviewer for deployment.

Multiple wall layout designs may be generated and stored. Different wall designs can then be pushed to the multiviewer for various MV-825-RTR multiviewer applications.

See [Multiviewer Terminology](#), on page 235 for a list of multiviewer terminology.

Router Block

The video router within a MV-825-RTR unit contains its own router controller and simply requires:

- An analog reference signal for SMPTE RP-168-2009 compliant switching.
- An Ethernet connection for configuration and control.

Video inputs are routed to router video outputs, switching of routes is timed. The router is controllable via the SW-P-02 and SW-P-08 protocols over IP.

The router also supports the RollCall protocol. Routing can be done with RollCall-capable panels or by using the RollCall Control Panel application.

The router supports 12G video with the 'MV-825-12G' license.

Video Reference

The MV-825-RTR auto-detects a bi-level or tri-level analogue reference sync signal and reports the video standard. The video reference is selectable from two external video reference inputs.

There is a reference loop-through output per reference input.

The video reference signal is used as the timing basis for video line switching. Switching is then done independently for each router input (compliant with SMPTE RP-168-2009).

The video standards for the MV-825-RTR reference input signal and for route switching are defined as part of the unit configuration. If there is no reference or no compatible, matching reference, then signal switching timing will crash-switch.

Timed Video Switching

The MV-825-RTR does timed switching to SMPTE RP-168-2009 for video input signals which are compliant with SMPTE RP-168 and which share the same frame rate. The router will switch between inputs on the switching line according to the video switching standard of the signal being switched to.

The video switching standard can be configured separately for each input in an 'auto' mode; the best-matching reference available is used. For example, with a 1080i50 analogue reference signal, 1080i50, 1080p50 and 2160p50 signals can be timed-switched.

Note: Two different, independent references:

The MV-825-RTR can accept two different and independent external references. For example, this allows:

- 50Hz video signals to be switched with a 50Hz reference; and also
 - 59.94Hz video signals to be switched with a 59.94Hz reference.
-

IMPORTANT:

- If there is no reference input signal, then the router will crash-switch upon receiving a routing switch command.
 - If a video input signal is inconsistent with the configured video switching standard set up for that input, then the signal will be crash-switched.
-

IMPORTANT:

When using an interlaced reference signal, progressive video sources are only switched on the first field of the reference signal.

Router Configuration and Control

MV-825-RTR router block configuration may be done in either of the following ways:

- Via a set of control screens with RollCall Control Panel/GV Orbit Client.
(See [Router Configuration Control Screens](#), on page 57 and see [Router Crosspoint Control Screens](#), on page 87.)
- Via a web page.
(See [Router Config and Control Web Pages](#), on page 113.)

A user can configure a router and backup/restore configuration and persistent data (for example, route settings).

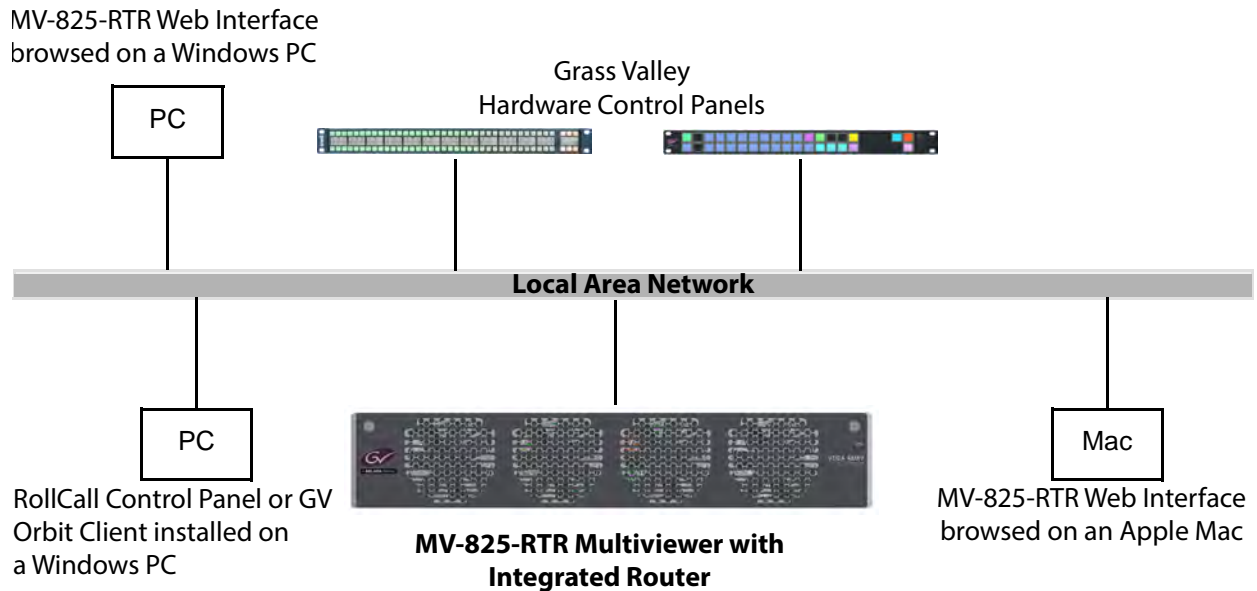


Fig. 1-5: Example MV-825-RTR Control System

The following router control methods are available:

- MV-825-RTR web browser control panel for routing and processing.
- RollCall interface.
- Grass Valley Luna and G2 Series hardware control panels.
- Protocols:
 - General Switcher (SW-P-02) protocol on Ethernet.
 - General Remote (SW-P-08) protocol on Ethernet.
 - RollCall protocol.
- SNMP.

SNMP

- Traps with support for 10 servers.
- MIB Browse/Walk.
- Route Setting.
- PSU fail, Fan fail.

SNMP support and MIB files for the *multiviewer* within the MV-825-RTR are described in the *MV-8 Series Core Multiviewer* user manual.

SNMP support and MIB files for the *router* within the MV-825-RTR are described Appendix F, [Router SNMP Support](#), on page 215.

Software Compatibility

Table 1-3 states the compatibility between MV-825-RTR and various other software and firmware releases.

Table 1-3: MV-825-RTR - Software/Firmware Compatibility Matrix

Software/Firmware Item	Software/Firmware version
MV-825-RTR router software	v0.1.40
MV-825-RTR multiviewer software	v3.3.39
RollCall Control Panel	v4.20.5 or later
Orbit Client	3.1 onwards
GV Orbit Client	4.0 onwards

This Document

This document covers the following MV-825-RTR items:

- [Hardware Description](#), on page 13 - describes the MV-825-RTR hardware.
- [Unit Installation](#), on page 33 - describes hardware installation.
- [Core MV Control Screens](#), on page 49- describes the control screens of the core multiviewer, which are common to other MV-8 Series multiviewers.
- [Router Configuration Control Screens](#), on page 57.
- [Router Crosspoint Control Screens](#), on page 87.
- [Router Config and Control Web Pages](#), on page 113.
- Core Multiviewer features:
 - [Core MV Input Alarms](#), on page 177.
 - [Core MV Input-Copy H.264 Streams](#), on page 197.
 - [Other Supported Core MV Features](#), on page 217.
- Router information:
 - [Router Function](#), on page 151.
- Getting Started information:
 - [Getting Started](#), on page 159.
- Maintenance items:
 - [Maintenance - Hardware](#), on page 167.
 - [Maintenance - Software](#), on page 183.

2 Hardware Description

Summary of chapter contents:

Hardware Description

<i>Chassis Overview</i>	page 14
<i>Chassis Front</i>	page 15
<i>To Open the Front Door</i>	page 15
<i>To Close the Front Door</i>	page 16
<i>Front Indicators</i>	page 17
<i>Rear Panel</i>	page 20
<i>Unit Serial Number</i>	page 20
<i>Rear Panel Connectors</i>	page 21
<i>Rear Connectors</i>	page 23
<i>HD BNC Video Inputs</i>	page 23
<i>HD BNC Video Outputs</i>	page 24
<i>Catsii LEDs</i>	page 24
<i>BNC Reference Connectors</i>	page 25
<i>AC Mains Inlets</i>	page 25
<i>Multiviewer Head Display Outputs</i>	page 27
<i>Rear Connectors - Aux Inputs/Outputs</i>	page 28
<i>Rear Connectors - Network Interface Ports</i>	page 29
<i>LTC and GPI Connector</i>	page 30

This section describes the MV-825-RTR unit from the outside and contains information on front panel controls and indicators, and on rear connectors and indicators.

Chassis Overview

The MV-825-RTR is a 2RU 19" rack-mount chassis with connectors at the rear (see Figure 2-1).



Fig. 2-1: MV-825-RTR Unit Views

The chassis is air-cooled and the airflow is front-to-back. The unit has a door at the front with a grille and integral cooling fans. On the rear, there are two power inlets and an array of video, control and data signal connectors. Some rear connections use small form-factor pluggable (SFP) plug-in modules. There are two dual-redundant power supply units (PSUs) in the chassis which are removable from the rear.

WARNING: Optical Outputs

With some SFP module types fitted, the MV-825-RTR may be equipped with optical input/outputs which contain low-power laser beams.

- Do not look into an optical output. Laser radiation can cause irreversible and permanent damage of eyesight.
- Do not look at the end of a fiber to see if light is coming out. Use optical instrumentation.
- Unused optical outputs should be covered, to prevent direct exposure to the laser beam.

For chassis physical dimensions, see Appendix B [Unit Dimensions](#), on page 199.

Chassis Front

The front door has two knurled fastening screws and a grille, behind which are fitted four fans which draw air in at the front, see Figure 2-2.

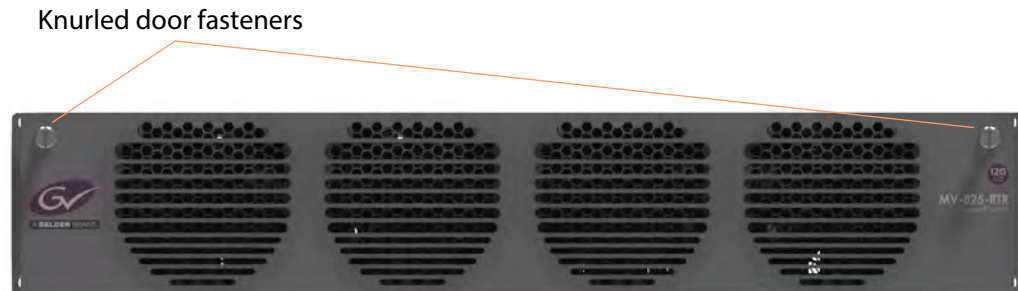


Fig. 2-2: MV-825-RTR Front View, Door Closed

With the front door open, some inner card status LEDs are visible: *However, there is normally no reason to open the front door.*

To Open the Front Door

The front door *is not normally opened*. When it is opened, it drops down, hinged along the bottom. To open:

- 1 Unscrew the two captive knurled door fasteners, see Figure 2-2.
- 2 Pull the door outwards about 2 cm and then down.
The door hinges along its bottom edge. See Figure 2-3.
When the door is open, the door fans and the fan supply wires are visible along with the front main module (which is not a serviceable item).

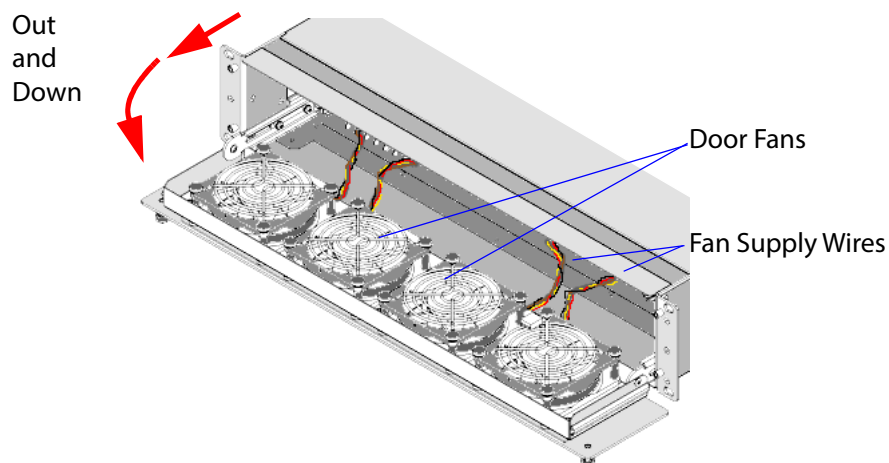


Fig. 2-3: MV-825-RTR - Front Door Open, Hinged Down

Note: The front main module is *not* a serviceable item.

To Close the Front Door

Before closing the door:

- 1 Check that the fan supply wires are all connected to the front edge of the MV-825-RTR main card. See Figure 2-4.



Fig. 2-4: Fan Supply Wires Connected to front of the Main Card

To close the door:

- 2 Pull the door upwards into a vertical position (the door hinges along its bottom edge) and then push it fully into the front of the chassis.
- 3 Secure the door by tightening the two captive knurled door fasteners.

Keep the front door closed when the equipment is powered, to maintain cooling airflow.

CAUTION: Close the Door:

Always keep the MV-825-RTR front door closed. This ensures correct ventilation and operation of the equipment.

The integral door fans ensure cooling airflow through the MV-825-RTR chassis when the door is properly closed.

When the front door is open, there is no cooling airflow through the frame. Do not leave the door open for longer than 45 seconds.

Front Indicators

There are no external front indicators.

Internally, with the front door open and dropped down, the front edge of the front main module can be seen in the top half of the chassis frame. This is the MV-825-RTR main card, see Figure 2-5.

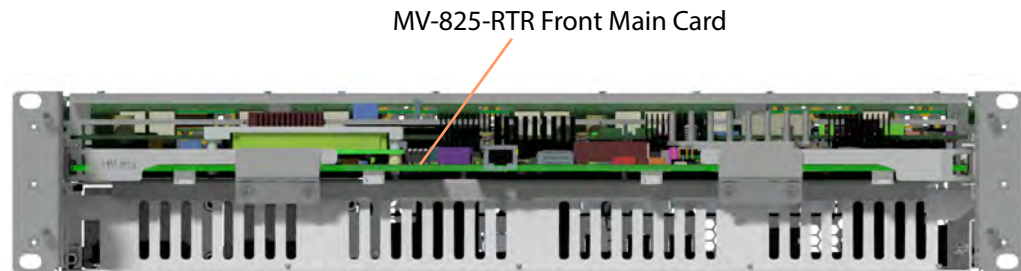


Fig. 2-5: MV-825-RTR Front View with Front Door Open

Note: The front main module is *not* a serviceable item.

CAUTION

Close the front door when the equipment is powered, to maintain cooling airflow.

The front door should not need to be opened in normal operation. And the MV-825-RTR main card is *not* a serviceable item.

LED status indicators are on the front edge of the front main card within the MV-825-RTR chassis and are viewed by opening the front door. Figure 2-6 shows the front edge of the card and Table 2-1 lists the LED color codes for the MV-825-RTR main card.

Along the underside of the card are four header connectors. These supply power for the front door fans. See Figure 2-6. The front door's fan supply wires connect to the four small headers on the underside of the front of the card.

Other DIP switches and connectors along the front edge are for engineering use only:

- **DIP switches** - The four DIP switches are not used. Check that all four switches are in the "up" position.
- **Engineering connectors** - There are two other connectors on the front edge of the card, see Figure 2-6. These are for Engineering use only and should not be used.

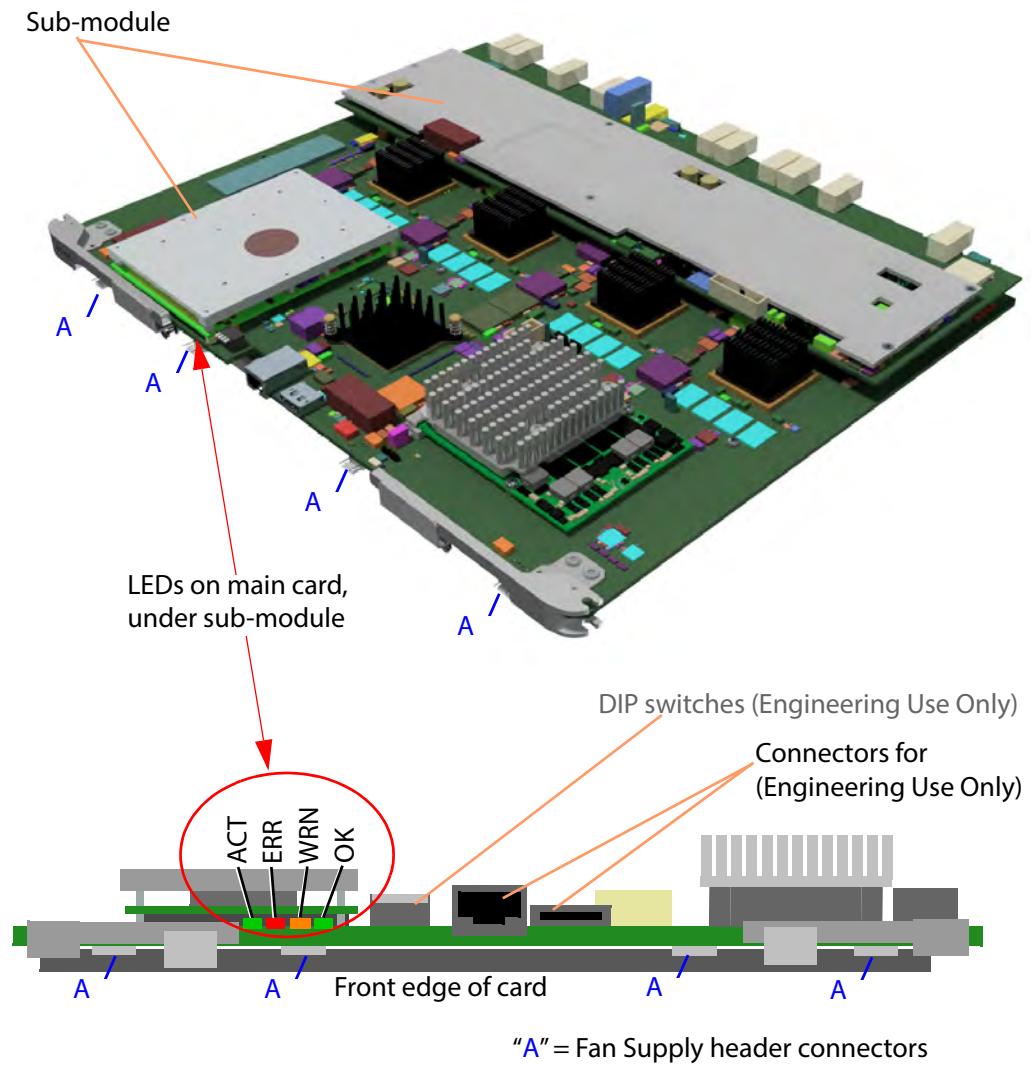


Fig. 2-6: Front Main Card - Status Indicating LEDs and Fan Supply Headers

Table 2-1: MV-825-RTR Front Main Card Status LED Information

Label	LED Color	Detail	Status
ACT	Green	"CPU Activity"	Flashing (2Hz): CPU heartbeat, working correctly. Solid On or Off: Software fault detected. Contact Grass Valley Customer Support, see Note 1 .
ERR	Red	Error	Off: Working correctly. On: Hardware fault detected. Contact Grass Valley Customer Support, see Note 1 .
WRN	Amber	Over Temperature Warning	Off: Working correctly. On: MV-825-RTR card overheating. Ensure the chassis front door is closed and the fans are all operating correctly.
OK	Green	Hardware Communications Status	Solid On: Working correctly. Flashing (2Hz): Hardware communications fault detected. Contact Grass Valley Customer Support, see Note 1 .

Note 1: For Grass Valley Customer Support contact details, see [Grass Valley Technical Support](#), on page 239.

CAUTION: Electrostatic Damage:
Static precautions must be observed when touching or handling cards or modules.

Rear Panel

The MV-825-RTR Rear Panel is shown in Figure 2-8. The rear panel houses various video, data and control connectors and two power supply modules (PSUs). Each PSU module is fitted into the unit from the rear and houses an IEC mains inlet.

Unit Serial Number

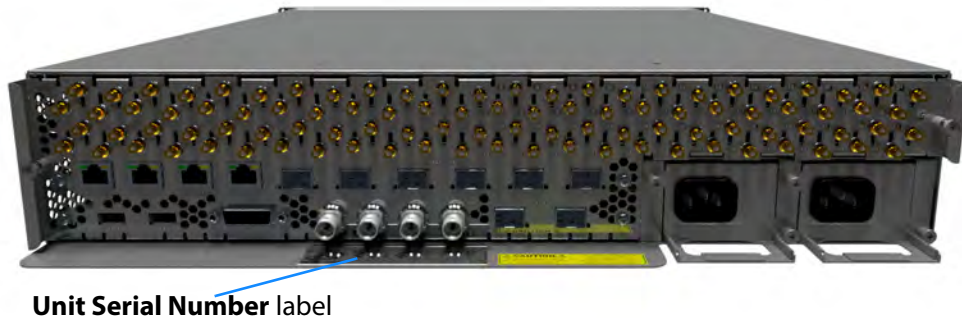


Fig. 2-7: Location of Unit Serial Number Label

The unit's serial number is shown on a label at the rear of the unit.

IMPORTANT To license an MV-825-RTR unit:
*Do not use the 'Unit Serial Number' on the rear label.
To license, use the 'Main PCB serial number'.*

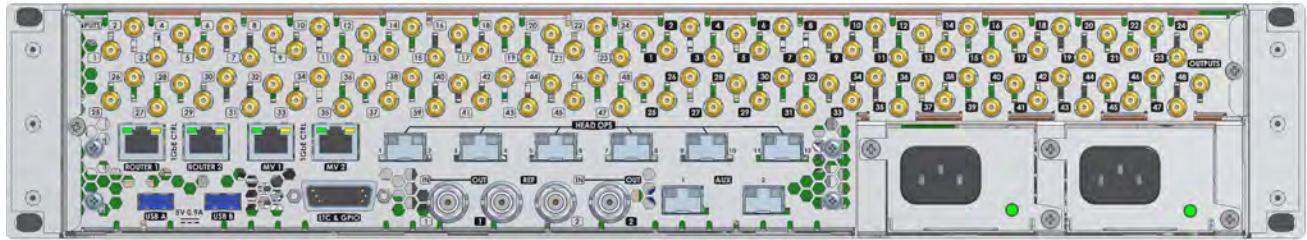
Note: The 'Main PCB serial number' is found:

- in the multiviewer block's 'System-Setup' control screen; or
- on the unit's start-up splash screen at boot up.

(See the *MV-8 Series Core Multiviewer User Manual* for details, see [Related Documents](#), on page iii.)

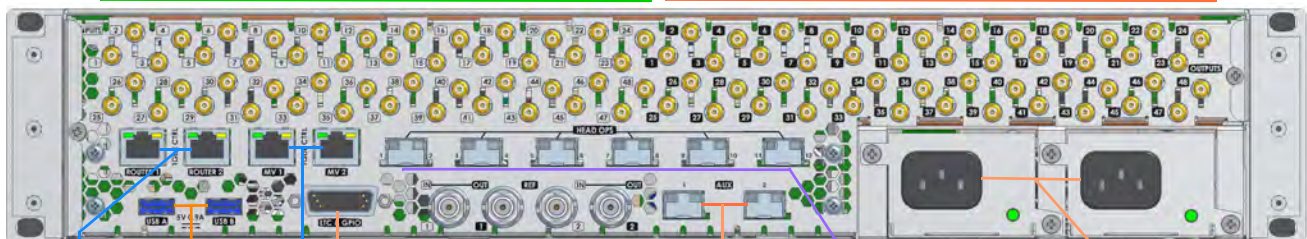
Rear Panel Connectors

Rear panel (no annotation)



Router Video **Inputs** 1 to 48
(48x 12G HD-BNC connectors)
See [HD BNC Video Inputs](#), on page 23.

Router Video **Outputs** 1 to 48
(48x 12G HD-BNC connectors)
See [HD BNC Video Outputs](#), on page 24.



USB A
and USB B
(For eng. use)

'LTC & GPIO'
26-way D

Aux Inputs/Outputs
(SFP cages)
(Reserved
for future use)

2x PSU modules
with IEC Mains Inlets

Multiviewer control and monitoring
Ethernet ports,
(**'1GbE CTRL'** **'MV 1'** and **'MV 2'**)
2x RJ-45

Multiviewer Head Display
Outputs 1 to 12
'HEAD OPS'
6x SFP Cages for Video SFPs
(HD-BNC or Fiber)

Router control Ethernet ports,
(**'1GbE CTRL'**
'ROUTER 1' and **'ROUTER 2'**)
2x RJ-45

Reference Input BNCs,
'REF'
(Inputs and looped outputs)
See [BNC Reference
Connectors](#), on page 25.

See connector information in [Table 2-2](#) on page 22

Fig. 2-8: MV-825-RTR Rear Panel

Table 2-2: MV-825-RTR Rear Connectors

Rear Connection	Description
Inputs 1 to 48	48x HD-BNC 12G router video inputs. (See HD BNC Video Inputs , on page 23.)
Outputs 1 to 48	48x HD-BNC 12G router video outputs. (See HD BNC Video Outputs , on page 24.)
REF Reference 1 and 2	4x BNCs. 2x Analog Reference inputs (unterminated), 1 and 2, each with a “Loop-through” output BNC. Reference inputs are unterminated inside the MV-825-RTR unit and should be terminated with 75R at the loop-through outputs, or at the end of the reference loop. (See BNC Reference Connectors , on page 25 for more information.)
Ref In 1	Reference signal input.
Ref Out 1	Corresponding reference signal “loop through” output.
Ref In 2	Reference signal input.
Ref Out 2	Corresponding reference signal “loop through” output.
Mains Inlets	2x IEC mains inlets. One per PSU module.
Head Display Outputs 1 to 12	Multiviewer video wall display outputs. 6x SFP cages for outputs 1 to 12. Two dual-BNC SFPs are fitted as standard providing display outputs 1 and 2, and display outputs 3 and 4. (See Multiviewer Head Display Outputs , on page 27.)
Aux Inputs 1 and 2	1x SFP cage. Reserved for future use.
Aux Outputs 1 and 2	1x SFP cage. Reserved for future use.
USB A and B	2x USB connectors. For engineering use.
‘1GbE CTRL’ ‘ROUTER 1’ and ‘ROUTER 2’	2x RJ45 Ethernet connectors for router control. 1Gbit Ethernet. (See Rear Connectors - Network Interface Ports , on page 29.)
‘1GbE CTRL’ ‘MV 1’ and ‘MV 2’	2x RJ45 Ethernet connectors for multiviewer control and monitoring. 1Gbit Ethernet. (See Rear Connectors - Network Interface Ports , on page 29.)
LTC & GPIO	26-way High Density “D” Type female connector. (See LTC and GPI Connector , on page 30, for more details, including pin-out details.)

Rear Connectors

HD BNC Video Inputs

The video inputs form sources for the router.

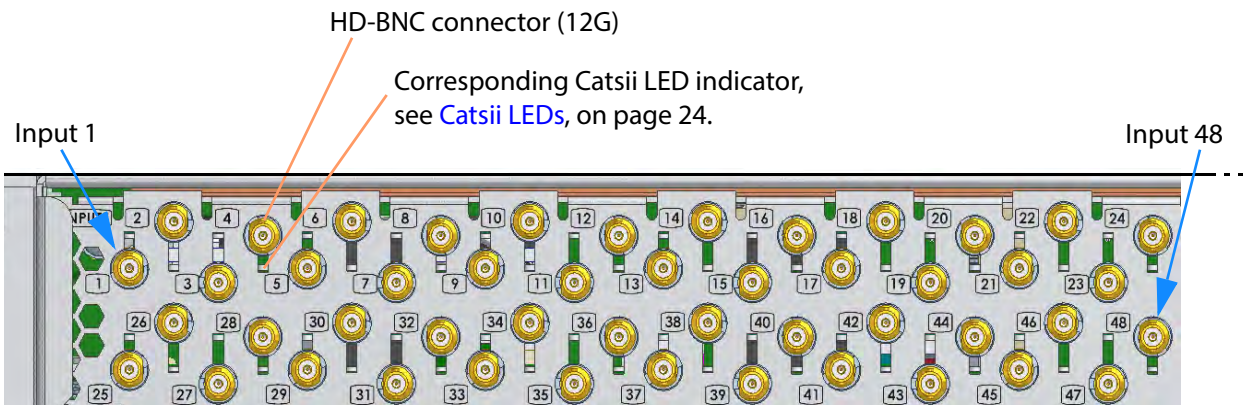


Fig. 2-9: MV-825-RTR Router Video Input Connectors (Rear Left-hand Side) 1 to 48

Connector Label and LED

The positioning of the rear video BNC connector's label and its corresponding Catsii LED is shown in Figure 2-10. Basically, the label is to the left of the connector, as seen from the rear of the unit, and the corresponding Catsii LED indicator is *above* or *below* the BNC connector.

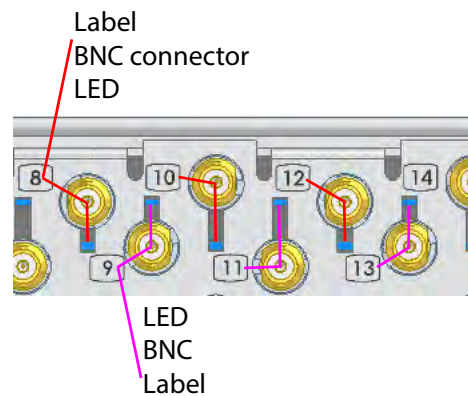


Fig. 2-10: BNC Connector Labels and Catsii LEDs

Note: This 'Label-BNC-LED' positioning arrangement applies both to the video input and to the video output BNC connectors.

HD BNC Video Outputs

The video outputs are destinations for the router.

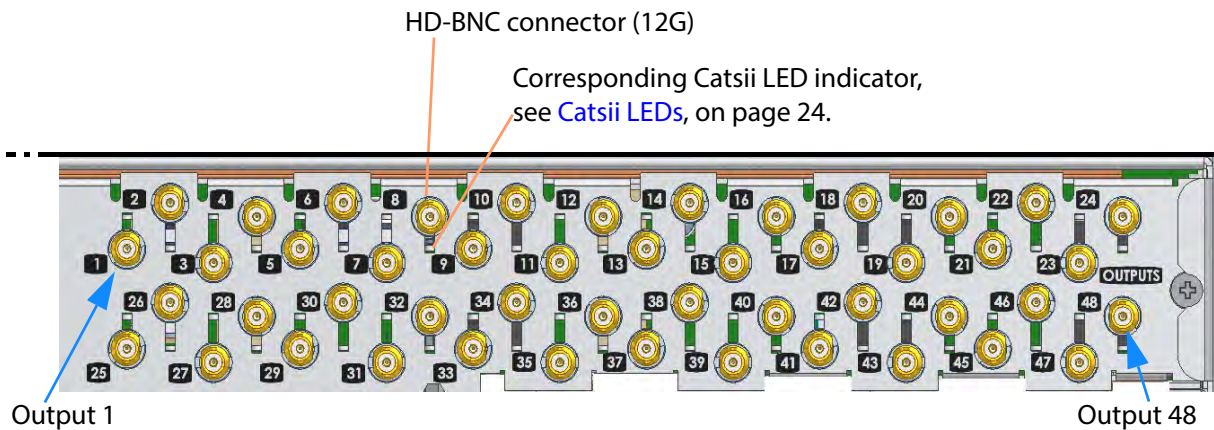








Fig. 2-11: MV-825-RTR Router Video Output Connectors (Rear Right-hand Side) 1 to 48

Catsii LEDs

The Catsii LEDs are on the rear panel at each router video input or output HD-BNC connector. These indicate the presence of a signal and its video standard. The colors used can be set up by the user on the router configuration web page, see [Catsii Colors Page](#), on page 119. Table 2-3 shows the default colors.

Table 2-3: Router Video Input and Solid Output Catsii LEDs

Catsii LED Color	Description
Selectable by user:	
	Valid SD SDI signal
	Valid 1080i or 1080p (30 Hz or lower) HD SDI signal
	Valid 3G SDI signal
	Valid 6G SDI signal
	Valid 12G SDI signal
Fixed color setting:	
	No signal, or unknown signal present (e.g. DVB-ASI).

BNC Reference Connectors

The reference input is used for SDI video input timing and display output timing. There are two analog reference inputs and two “loop-through” outputs on MV-825-RTR.

The reference inputs are unterminated. Termination should be done at the reference output connector with a 75 ohm termination, or the reference signal may be “looped through”, via the Reference Out connector, and taken to another piece of equipment (where the signal must be terminated, at the end of the loop).

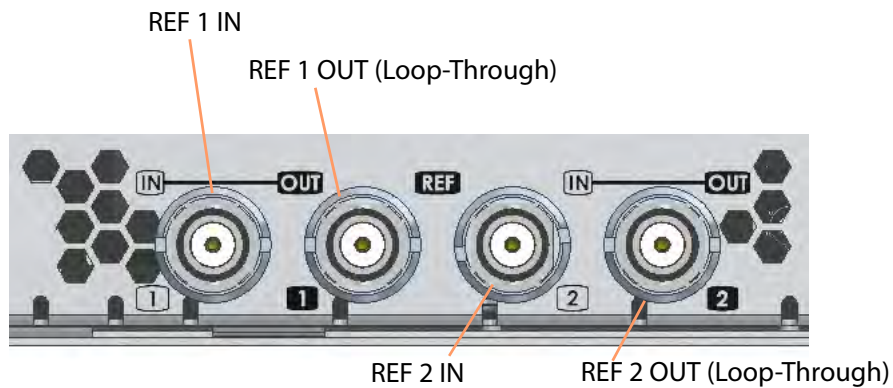


Fig. 2-12: MV-825-RTR Video Reference Connectors

AC Mains Inlets

The IEC power inlets are the mains disconnection devices for this unit. Each power supply unit (PSU) has a status LED. See Table 2-4.

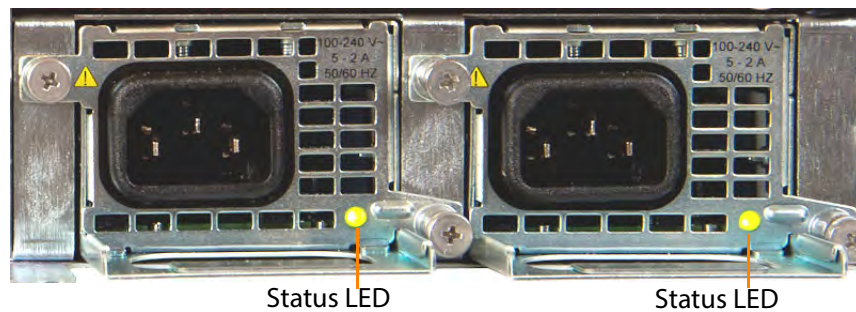


Fig. 2-13: MV-825-RTR IEC Mains Connectors

Table 2-4: PSU Status LED

Status	LED Color	PSU Module Outputs		Comment
		Main Output	Standby Output	
Normal Operation	Green	ON	ON	-
Stand by	Flashing Green	Off	ON	AC Mains Present
Warning	Flashing Yellow	Over-current, Under-voltage, or Over-voltage warning		-
Fault	Yellow	Over-current, Under-voltage, or Over-voltage fault		Fan Fault or Over-temperature fault

Multiviewer Head Display Outputs

Display outputs 1 to 12 come from Video SFPs fitted into the 6x SFP cage positions. The SFPs fitted depend on which display output options have been purchased.

Different types of video SFP modules provide:

- 2x SDI Coax outputs per SFP; or
- 2x SDI Fiber outputs per SFP; or
- 1x HDMI output per SFP.

SFP blanking plugs must be fitted if no SFP is present.

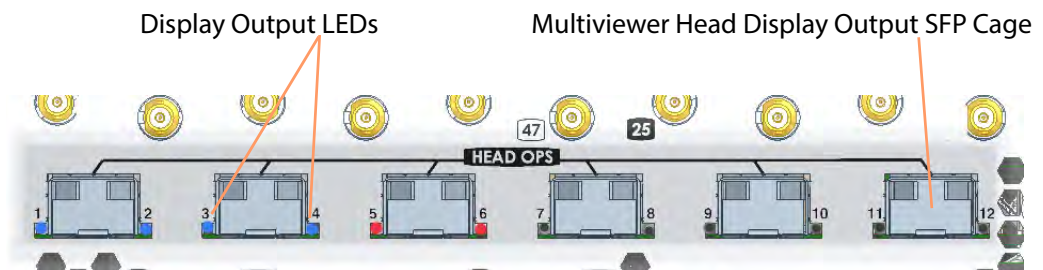


Fig. 2-14: MV-825-RTR Head Display Outputs - SFP Cages

Each display output has an associated LED which indicates the output status. See Table 2-5.

Table 2-5: Head Display Output - Status LED

LED Color	Status
Blue	Licensed Output; SFP Fitted. 1080p video output signal.
Green	Licensed Output; SFP Fitted. 720p video output signal.
Red	Licensed Output; No SFP Fitted.
Off	Unlicensed output.
Red Green Flashing	Flashes Red/Green at 1Hz <i>during</i> an internal FPGA upgrade (part of a unit software upgrade).
Red Flashing	Flashes Red/Off at 1Hz <i>after</i> a unit software upgrade if: <ul style="list-style-type: none"> • internal FPGA upgrading was unsuccessful; or • internal FPGAs fail to load during unit boot. <p>Note: A unit upgrade to the <i>same</i> version may be carried out to recover a unit if FPGA upgrading was unsuccessful. Otherwise, contact Grass Valley support.</p>

Rear Connectors - Aux Inputs/Outputs

The 'Aux' connections are reserved for future use.

Aux Inputs

SFP cage for 2x SDI inputs, reserved for future use.

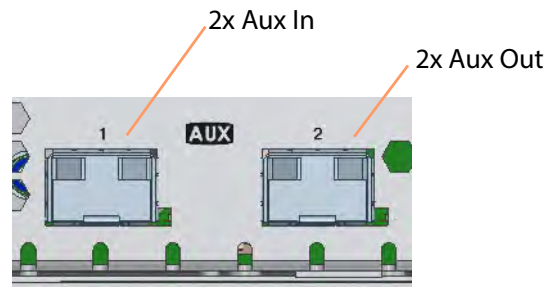


Fig. 2-15: MV-825-RTR Aux Inputs and Outputs

Aux Outputs

SFP cage for 2x SDI outputs, reserved for future use.

Rear Connectors - Network Interface Ports

Router and Multiviewer Control

Ethernet ports:

- ROUTER 1 and ROUTER 2 are for router control.
- MV1 and MV2 are for multiviewer control.

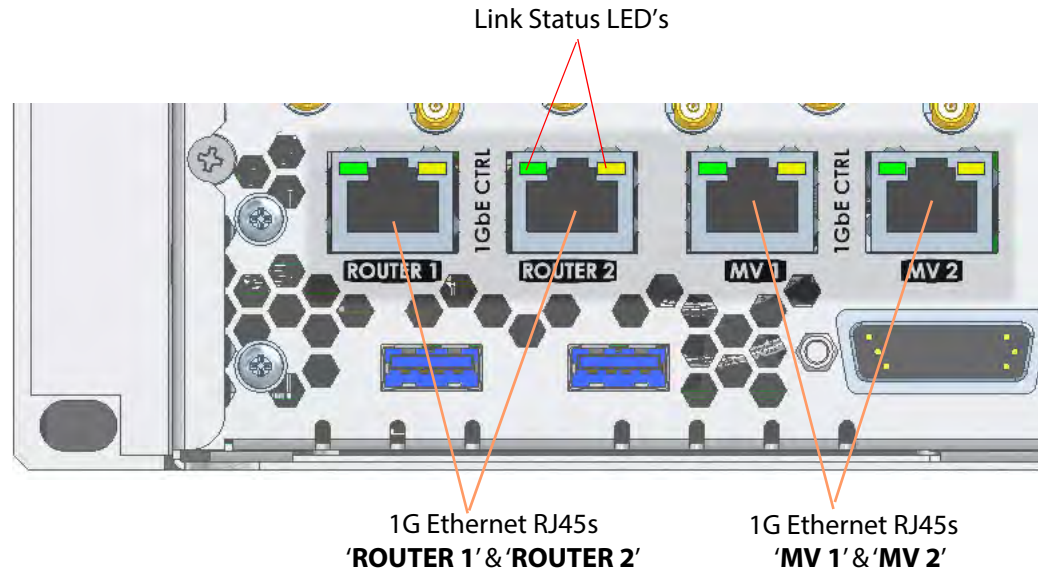


Fig. 2-16: MV-825-RTR Ethernet Port RJ45 Connectors

There are 2 link status LED's associated with each RJ45 connector. See Table 2-6.

Table 2-6: MV-825-RTR Ethernet LEDs

Ethernet Link LEDs		Description
Off	Off	No network connection.
Off	Flashing GREEN	10M link.
Flashing YELLOW	Flashing GREEN	100M link.
Flashing YELLOW	Off	1G link.

LTC and GPI Connector

LTC and GPIO Connector Pin-outs

Female high density 26 way 'D' type connector assignments

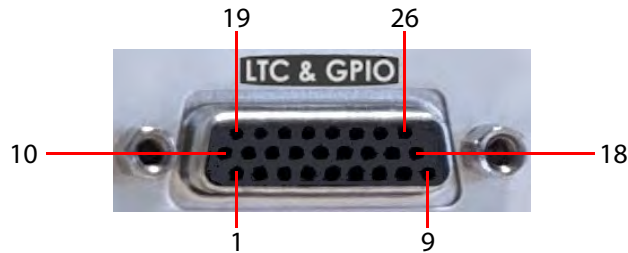


Fig. 2-17: Female High Density 26 Way 'D' Type LTC and GPIO Connector

The following table gives the pin assignments for the LTC and GPIO connector:

Table 2-7: Female High Density 26 Way 'D' Type LTC and GPIO Connector

Pin Number	Signal	Pin Number	Signal
1	+5 VDC Out	14	GND
2	+5 VDC Out	15	GND
3	Do Not Connect	16	GND
4	nc	17	GND
5	nc	18	GND
6	Do Not Connect	19	nc
7	Do Not Connect	20	Do Not Connect
8	nc	21	nc
9	LTC+	22	GPI 1
10	nc	23	GPI 2
11	nc	24	GPI 3
12	nc	25	GPI 4
13	GND	26	LTC-

Note: 'nc' denotes a "not connected" connector pin.

Note:

MV-825-RTR GPI outputs:

Open collector outputs. Require external pull-up resistors of value between 10 k Ω and 100 k Ω . Each output can sink up to 100 mA.

- “+5 VDC Out” pins are provided on the connector for this purpose.
- Maximum voltage, +5 V.
- See [Example: Driving LEDs from the GPI Outputs](#), on page 31, for an example of how GPI outputs can be used to drive LEDs.

MV-825-RTR GPI inputs:

Inputs have weak internal pull-down resistors.

- Can be driven by input voltages of up to +5 V.
- A logic “low” input is represented by an input voltage below +0.8 V.

Example: Driving LEDs from the GPI Outputs

MV-825-RTR GPI outputs have open collector drivers. There is a +5 V DC pin on the GPIO connector to provide the power needed to drive LEDs or relays.

The following schematic is an example of the circuit needed to drive an LED by each GPI output. MV-825-RTR GPIO connector pin names and numbers are shown on the left.

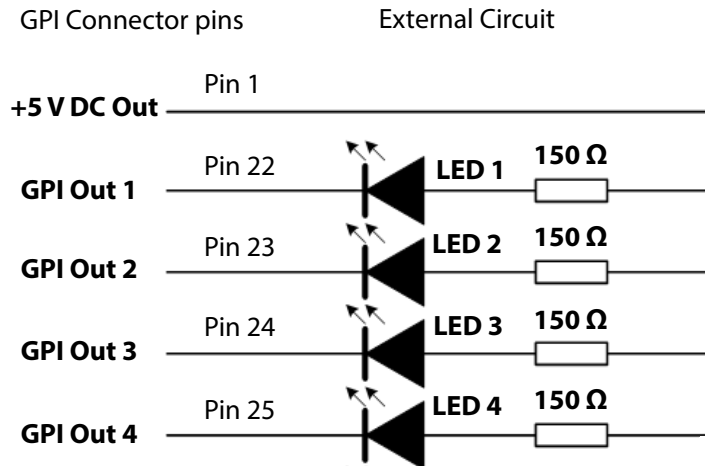


Fig. 2-18: Connecting LEDs to GPI Outputs

3

3 Unit Installation

Summary of chapter contents:

This section describes the unpacking and installation of the MV-825-RTR unit.

Unit Installation

<i>Unpacking</i>	<i>page 34</i>
<i>Environmental Considerations</i>	<i>page 34</i>
<i>Chassis Dimensions</i>	<i>page 34</i>
<i>Chassis Ventilation</i>	<i>page 34</i>
<i>Cooling Fan Failure</i>	<i>page 36</i>
<i>Rack Mounting</i>	<i>page 37</i>
<i>Location in Rack</i>	<i>page 37</i>
<i>Mounting the MV-825-RTR into a Rack</i>	<i>page 37</i>
<i>Cabling Up in a Rack</i>	<i>page 40</i>
<i>Powering</i>	<i>page 41</i>
<i>Booting Up</i>	<i>page 42</i>
<i>License Serial Number</i>	<i>page 42</i>
<i>The Start-up Splash Screen</i>	<i>page 43</i>
<i>Initial Connection and Configuration</i>	<i>page 44</i>
<i>Core Multiviewer Initial Connection and Configuration</i>	<i>page 44</i>
<i>Router Initial Connection and Configuration</i>	<i>page 49</i>
<i>Getting Started</i>	<i>page 54</i>

Unpacking

The MV-825-RTR is supplied in dedicated packaging provided by the manufacturer and should not be accepted if delivered in inferior or unauthorized materials.

- 1 Carefully unpack the system components and check them against the packing list. If there is anything incorrect, then notify your Grass Valley Partner, or Grass Valley, at once.
- 2 Check that the equipment has not been damaged in transit. If any damage has occurred notify your Grass Valley Partner (or Grass Valley directly) and the carrier immediately.
- 3 Always retain the original packing materials if possible, they could prove useful should it ever be necessary to transport or ship the equipment.
- 4 Always read the installation guide and the user instructions (separate manual) carefully, it will provide you with helpful hints and tips about care and maintenance and help you get the most out of your MV-825-RTR.

In the unlikely event of an equipment failure, contact your Grass Valley Partner, or Grass Valley, at once, contact details are at the end of this manual, see [Grass Valley Technical Support](#), on page 239.

Environmental Considerations

The ambient temperature for all the supplied equipment should not exceed the limits specified in [MV-825-RTR Specification](#), on page 189.

Installing the equipment in a clean environment with moderate temperature and humidity will promote a long and trouble-free equipment life.

Chassis Dimensions

See:

- Appendix A [Overall Dimensions](#), on page 189.
- Appendix B [Unit Dimensions](#), on page 199 for a chassis dimension drawing.

Chassis Ventilation

The MV-825-RTR is a 2RU 19" rack-mount chassis with front-to-back air cooling. Cooling fans are mounted in the chassis front door. Additionally, each PSU module has an internal variable-speed cooling fan.

Figure 3-1 shows the external chassis air flow and air intake and exhaust holes. Figure 3-2 shows the internal chassis air flow.

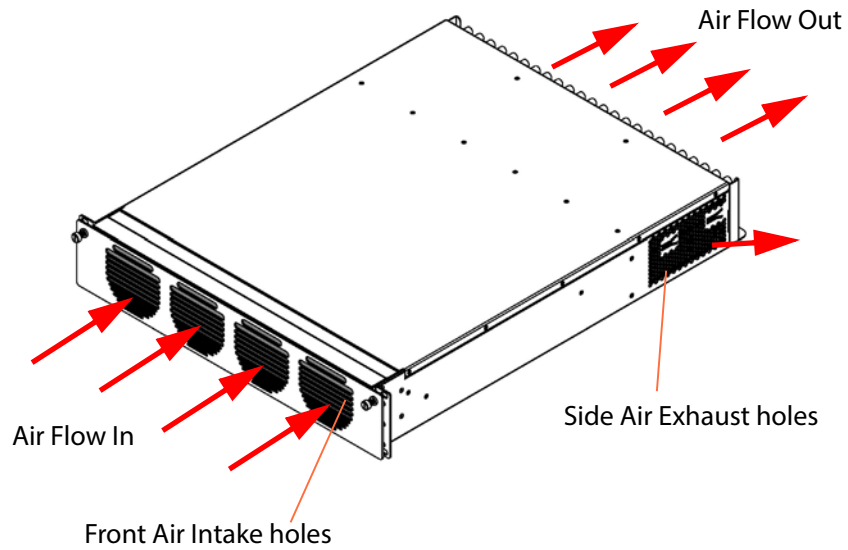


Fig. 3-1: MV-825-RTR Chassis Air Flow and Air Intake/Exhaust Holes

CAUTION:

Do not block the MV-825-RTR chassis air intake and exhaust holes. This permits correct unit operation.

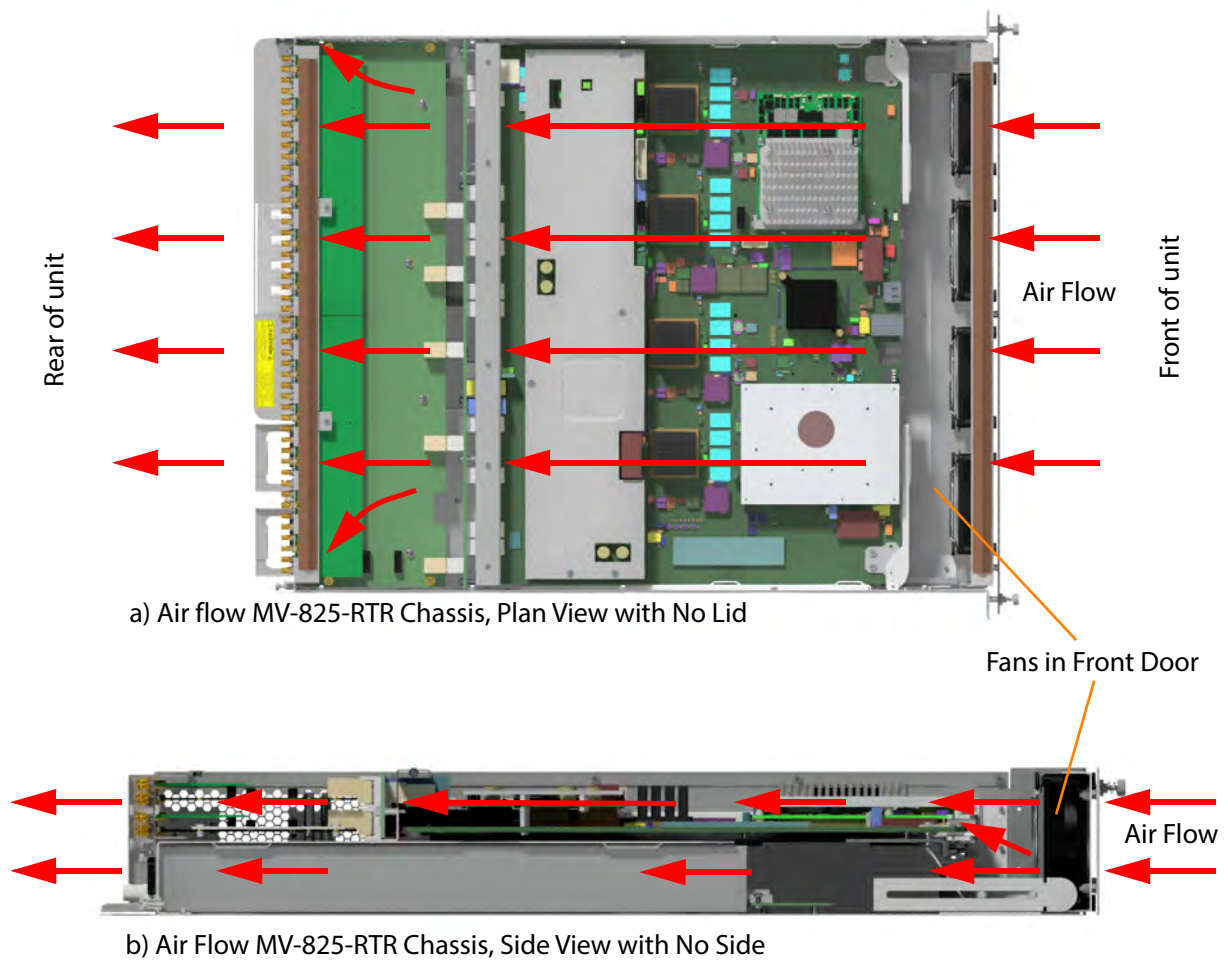


Fig. 3-2: MV-825-RTR Air Flow

- a) Chassis Plan View with No Lid.
- b) Chassis Side View with No Side

Cooling Fan Failure

CAUTION:

If the cooling fans in the MV-825-RTR unit should stop for any reason, then the unit should be switched off immediately. Otherwise permanent damage may result.

Depending on the length of time the MV-825-RTR has been run with no fan the unit may need to be returned for checking and repair. Contact Grass Valley or your Grass Valley dealer to discuss the situation.

Rack Mounting

Location in Rack

The MV-825-RTR is designed to be installed in a standard 483mm (19 inch) equipment rack for use. The unit requires a 2RU high space within a rack.

The following precautions should be observed:

- 1 Do not obstruct the front air intake holes. These are to allow the inlet of cooling air, and the air exhaust holes at the sides and rear of the unit.

CAUTION:

Do not obstruct the front air inlet holes.

- 2 Do not obstruct the air exhaust holes at the sides and rear of the unit.

CAUTION:

Do not obstruct the side and rear air exhaust holes.

- 3 Ensure that there is a minimum clearance at the rear of the mainframe of 200mm (8 inches). This is **ESSENTIAL**.

CAUTION:

Ensure a minimum clearance at the rear of the chassis frame of 200mm (8 inches).

Mounting the MV-825-RTR into a Rack

CAUTION:

The MV-825-RTR unit is heavy (see [Weight](#), on page 189) and will require two people to lift into position, using correct lifting procedures. If you are unsure of the lifting procedures, ask a Health and Safety adviser for information.

Preliminaries

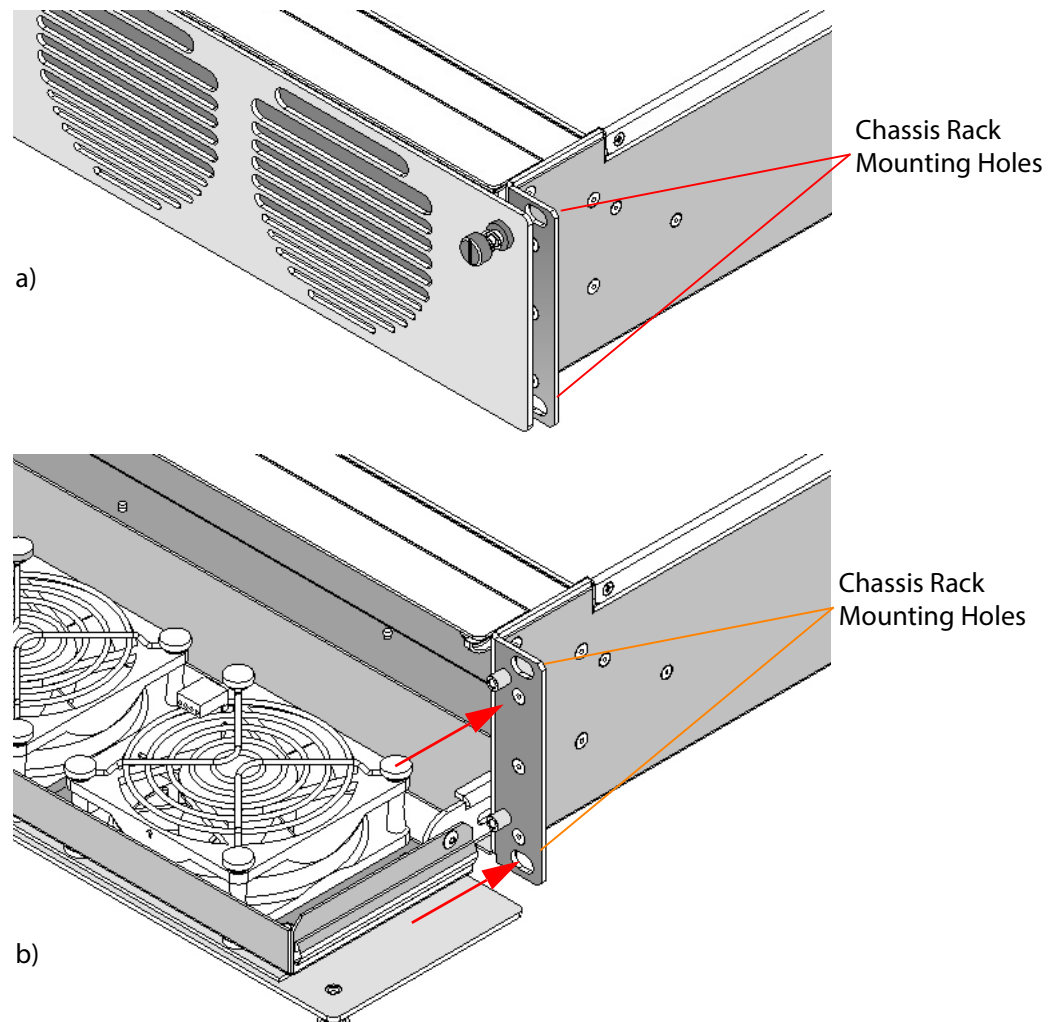
- 1 Check that the rack is rigid enough for the MV-825-RTR chassis.
- 2 Use a suitable rack tray in the rack to take the weight of the MV-825-RTR. The chassis rear will become heavier when cables are connected.

Note:

If the rack tray has sides, make sure that they do not block the ventilation holes on the sides of the MV-825-RTR.

Fitting the Unit

- 1 Position the MV-825-RTR in the rack on the shelf.
Use the correct lifting procedures.
- 2 Open the MV-825-RTR front door (see Chapter 2 [To Open the Front Door](#), on page 15).
Four chassis rack mounting holes are revealed, two on each side. See Figure 3-3.



*Fig. 3-3: MV-825-RTR Chassis Rack Mounting Holes
a) Front Door Closed.
b) Front Door Open, Allowing Access to Mounting Holes.*

- 3 Secure the MV-825-RTR chassis in the rack at each mounting hole using 4x M6 (1/4 inch) screws. See Figure 3-4. (Screws are available from rack suppliers.)

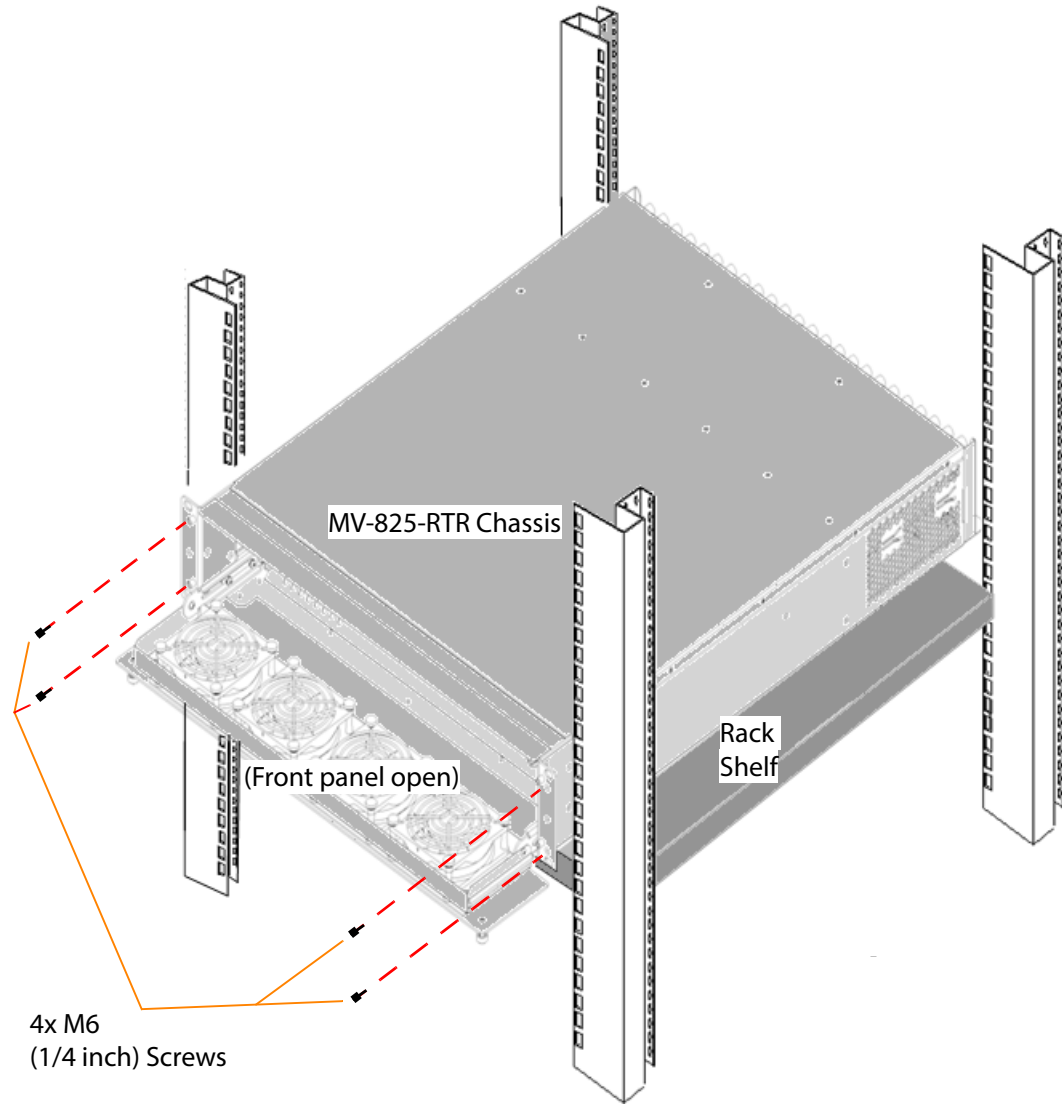


Fig. 3-4: Rack Mounting MV-825-RTR.

- 4 Close and secure the front door (see Chapter 2 [To Open the Front Door](#), on page 15).

Cabling Up in a Rack

When connecting cables to the MV-825-RTR, it is recommended that cable supports are used (clamps and bars) to relieve the strain on rear connectors.

See Chapter 2 [Rear Connectors](#), on page 23.

Cable connection examples for the MV-825-RTR are shown in Figure 3-5.

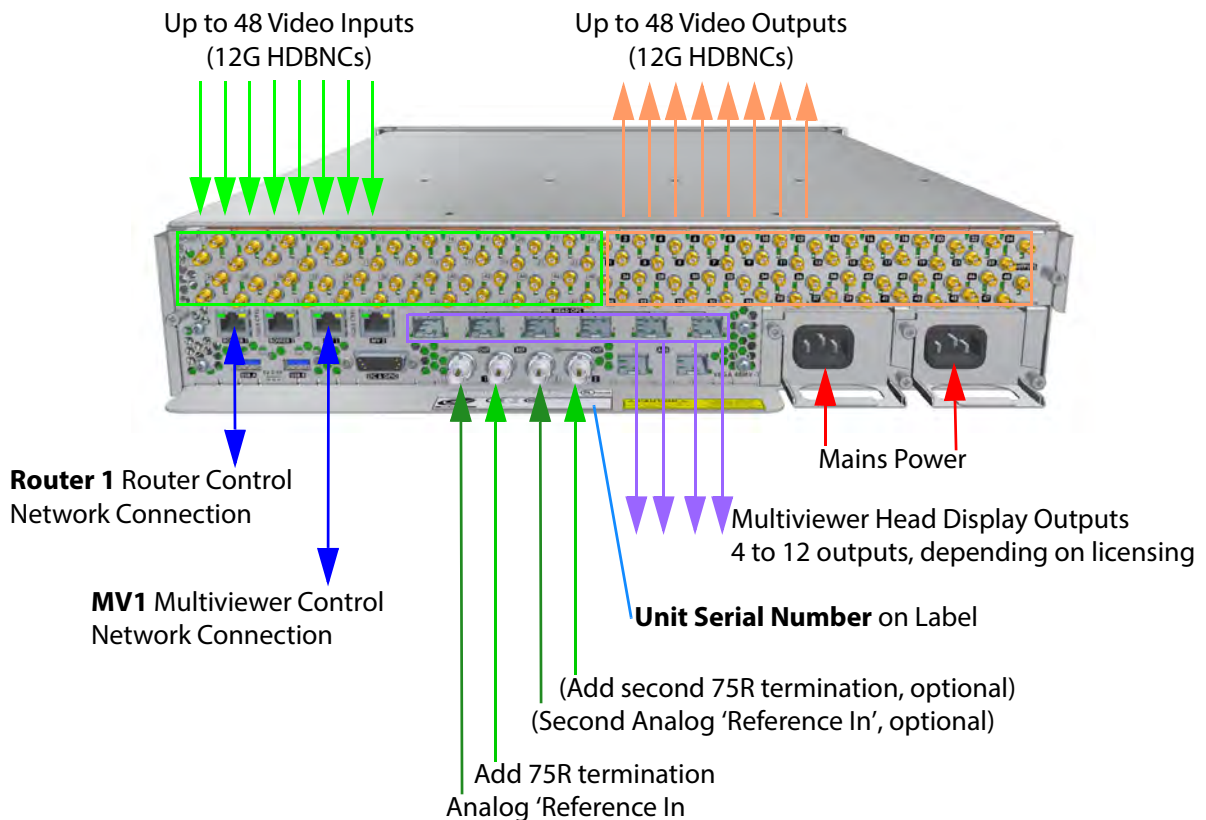


Fig. 3-5: MV-825-RTR Cable Connection Example

When the unit powers up, it goes through its booting up sequence and display as splash screen. See [Booting Up](#), on page 42.

Initial network connections should be made to a laptop PC until IP addresses etc are set up, see [Initial Connection and Configuration](#), on page 44.

Powering

WARNING:

To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Power consumption is listed in Appendix A [Power](#), on page 189.

Note:

Output disruption and MV-825-RTR starting up:

While the MV-825-RTR unit starts up or restarts, there may be disruption to the video outputs. This is normal:

- **Routing** - The unit starts by routing '1 to 1' inputs to outputs and only adopts the last known routing settings once the control software has successfully started up.
 - **Licensed features** - These do not take effect until the multiviewer software has started up.
For example, 12G will not be passed until the 12G licensed is set up in the MV-825-RTR unit by the started-up multiviewer software.
-

When the unit powers up, it goes through its booting up sequence and display as splash screen. See [Booting Up](#), on page 42.

Booting Up

The MV-825-RTR boots up after power is applied or after a system reset (for example, from a its control screen).

Booting takes about 1 to 2 minutes to complete. Approximately 1 minute after starting to boot up, each of the head display outputs presents a gray start-up splash screen from the multiviewer within the MV-825-RTR. See Figure 3-6.

Note: Initially, the first few lines of text appear on the splash screen, followed by the remaining lines.



Fig. 3-6: MV-825-RTR Start-up Splash Screen Example (Multiviewer)

Table 3-1: Reboot Time

Operation	Duration
Unit Reboot	Up to 3 minutes

Note: If the MV-825-RTR front main card does not have a Flashing “CPU Heartbeat” LED when it has finished booting, contact Grass Valley Support.

When the MV-825-RTR has finished starting up, the start-up splash screen goes away and is replaced by the video wall content of the multiviewer project running on the MV-825-RTR.

The unit has booted up.

License Serial Number

Use the serial number shown on the start-up splash screen (**Snnnnnnnn**) when adding licenses to the MV-825-RTR unit. (See [Maintenance - Software](#), on page 183, for more information.)

The Start-up Splash Screen

The start-up splash screen shows some MV-825-RTR information about the unit and the multiviewer within it. See Figure 3-7.

(1) Multiviewer **Main Card serial number**. (This is the licensing serial number.)
Note: The frame Unit Serial Number is different and is located on a label on the rear of the unit frame.

(2) Software version

(3) FPGA number supplying splash screen (Engineering use)

(4) Firmware version

(5) Display output showing the splash screen.

```
S57034358 MV-825 Multiviewer Booting...
SW v2.13.34 FPGA: 3 v233, Output: 3
1G1: 10.162.51.193 255.255.0.0 up static
1G2: 10.162.51.194 255.255.0.0 Invalid static
Eng: 10.54.31.223 255.255.0.0 down static
Domain ID: 193
RollCall+ Address: FFFF:93:00
```

(6) Network Interfaces

(7) IP Address

(8) Sub-net Mask

(9) Network link status:

- **up** - network link working.
- **down** - network link not working.
- **invalid**.

(10) IP Address type:

- static
- DHCP

(11) RollCall+ Domain number

(12) Unit's RollCall+ address

Fig. 3-7: Example MV-825-RTR Start-up Splash Screen Information

Note: Use the **Main Card serial number** for licensing the MV-825-RTR unit. See [Maintenance of the Core Multiviewer](#), on page 184.

Note: Use the '1G1' network interface when performing the initial unit configuration with Grass Valley RollCall control panel.

The 'Eng' interface is a reserved internal IP network interface. Do not use this IP address.

Initial Connection and Configuration

The multiviewer and the router parts of the MV-825-RTR require separate initial connection and configuration:

- [Core Multiviewer Initial Connection and Configuration](#)
- [Router Initial Connection and Configuration](#)

Core Multiviewer Initial Connection and Configuration

Items required:

- A laptop, or some computer, with a RJ45 Ethernet port and with RollCall Control Panel installed.
- A direct CAT 5 Ethernet cable.
- GV Orbit Client installed on the laptop (minimum GV Orbit Lite).

Initial MV-825-RTR multiviewer block connection and configuration should be carried out on a separate IT network, separate from any house IT network. The initial configuration sets up the MV-825-RTR's multiviewer block - IP addresses, communication settings and the multiviewer's output video format etc.

Note: **Multiviewer control Ethernet port:**

A new MV-825-RTR will be using a default IP address (see [Default IP Addresses](#), on page 195) on rear Ethernet port "**MV 1**" ("**1G1**" in the MV-825-RTR multiviewer control screen).

Connection Preparation Instructions

To prepare a computer for initial connection:

- 1 Select which computer Ethernet RJ45 port to use.
And set the computer's port to a fixed IP address which is on the same network as the MV-825-RTR is using.
(MV-825-RTR default IP addresses are listed at [Default IP Addresses](#), on page 195.)
- 2 Disable any WiFi connections on the computer. (These may interfere with the wired RJ45 port.)
- 3 Directly connect the computer RJ45 port to rear Ethernet port "**MV1**" of the MV-825-RTR module to set up the multiviewer.

Proceed to [Initial Connection to the Core Multiviewer](#), on page 45.

Initial Connection to the Core Multiviewer

To make the initial connection to the MV-825-RTR unit's core multiviewer:

- 1 Run GV Orbit Client.

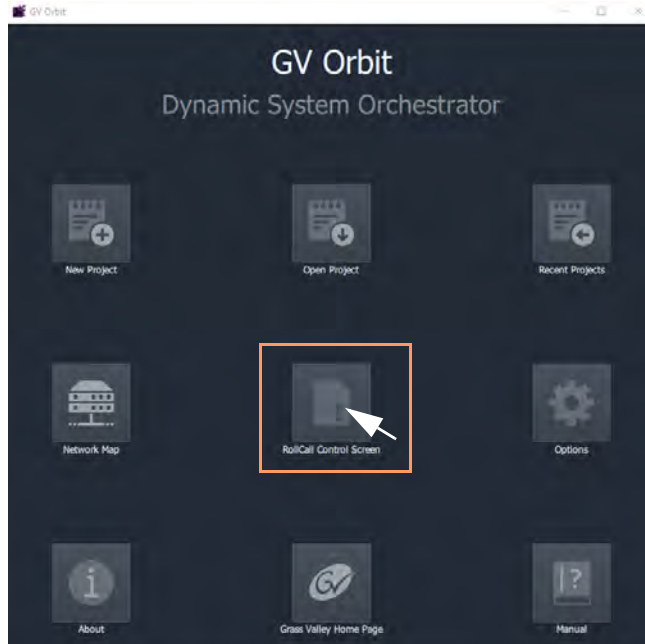


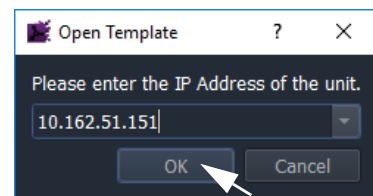
Fig. 3-8: GV Orbit Client Initial Screen

- 2 Click on the **RollCall Control Screen** icon.
(Or, if a GV Orbit project is already open in GV Orbit Client, then click **Connections** -> **RollCall** > **RollCall Control Screen** in the main menu.)

The **Open Template** dialog is shown:

- 3 Enter the IP address of the MV-825-RTR unit's multiviewer.
And click **OK**.

(See [Table A-13](#) on page 195 for the *default* IP addresses of MV-825-RTR network ports.)



Note: To find out the IP address of the MV-825-RTR's multiviewer "1G1" interface, restart the multiviewer. At start up, IP address information is shown in the start-up splash screen of a multiviewer display output, see [The Start-up Splash Screen](#), on page 43.

The MV-825-RTR's multiviewer control screen is shown in a tab of the GV Orbit Client. An example multiviewer control screen is shown in Figure 3-9.

Banner information, see [Banner Information in a Control Screen](#).

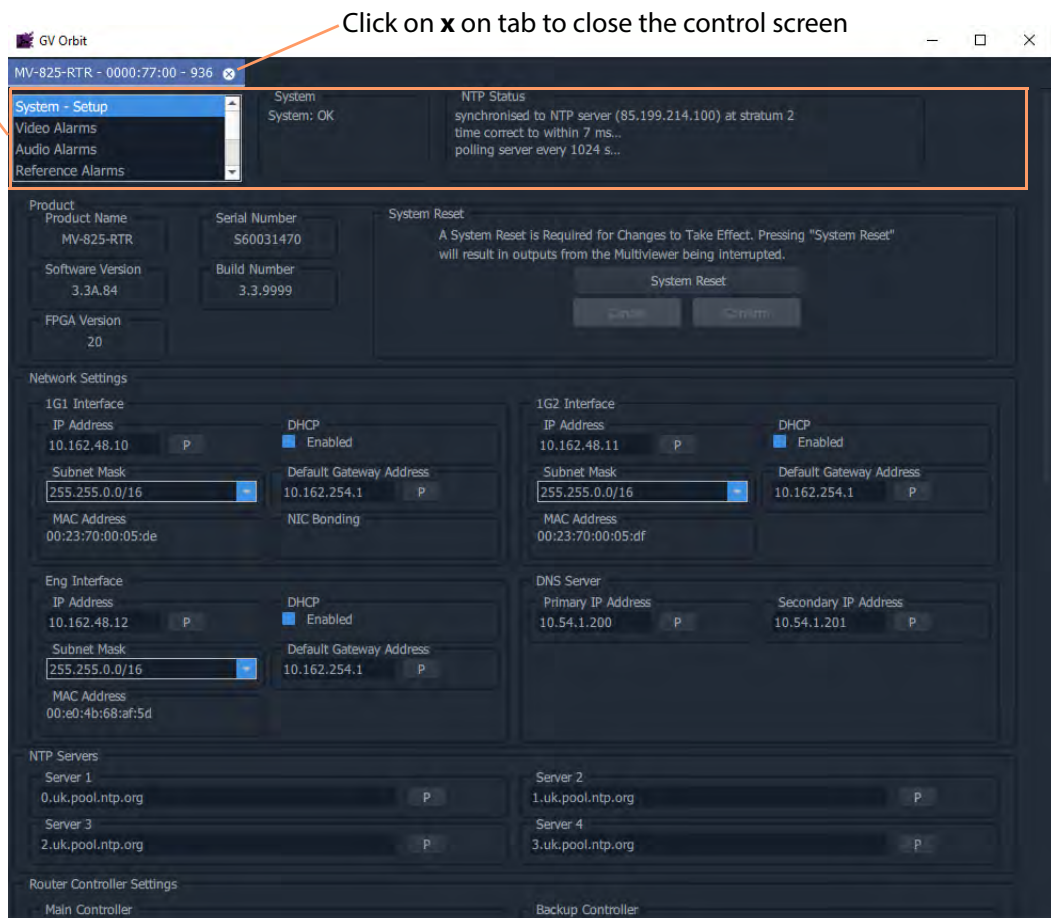


Fig. 3-9: Example Multiviewer Control Screen

To perform initial configuration, proceed to [Initial Configuration for Core Multiviewer](#), on page 47.

Note: The core multiviewer control screen is fully described in Chapter 4, [Core MV-8 Control Screens](#), on page 55

Banner Information in a Control Screen

Several MV-825-RTR multiviewer control screens are available and each displays the same banner information.

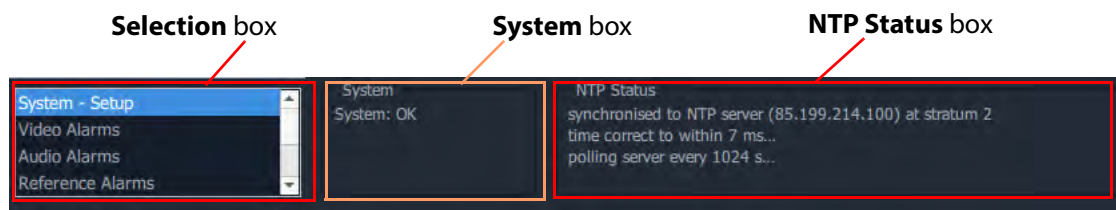


Fig. 3-10: Control Screen Banner Information

The **Selection** box allows the user to access the various control screens for the unit.

The **System** box displays the core multiviewer system status at the top of each menu page:

- **OK** - the multiviewer is working correctly.
- **Fail** - the multiviewer has a problem.
- **Restart Required** - the application requires a restart. (This is indicated for some configuration changes to take effect.)

The **NTP Status** box displays the status of the multiviewer's NTP at the top of each control screen.

Initial Configuration for Core Multiviewer

The initial configuration of the core multiviewer includes setting up:

- MV-825-RTR multiviewer IP addresses,
- communication settings, and
- multiviewer head output resolution.

After initial configuration, the MV-825-RTR unit may be connected to the house IT network and all remaining MV-825-RTR multiviewer configuration settings can be set up.

To do initial configuration via the control screens:

- 1 Select **System-Setup** in the **Selection** box in the banner.

The **System-Setup** control screen is shown.

(For a description of the control screen, see [System-Setup Control Screen](#), on page 54.)

In the **System-Setup** control screen:

- 2 Change the **Network Settings** for the MV-825-RTR's 'multiviewer control' network interfaces.

Modify:

- IP Address.
- DHCP enable/disable.
- Subnet mask.
- Default Gateway IP address.

Note: **"S" and "P" buttons** -

After entering information in each text box, always click on the adjacent **"S"** button or press 'Return' to locally save the new setting. Do this for each text box.

(Clicking on the **"P"** button will return the setting to its preset default value).

"S" - Locally save new setting value (or press 'Return').

"P" - Locally save default setting value.

- 3 Select the **Output Format** required for the head display outputs (1080p or 720p).

Note: The **Output Format** setting sets the format and frame rate for *all* of the multiviewer head display outputs.

All multiviewer head display outputs share the same format and timing.

Note: When driving a 4K monitor, each multiviewer head display output drives one quadrant of the 4K monitor.

Some 4K monitors have four 1080p inputs, so they can be fed from four multiviewer 1080p outputs. If this is not the case, a separate adapter must be used to convert four multiviewer head display outputs to a single 4K signal suitable for the monitor.

- 4 Select the **Reference Input** for the unit to use from the rear of the unit.

Once all setting changes in the **System-Setup** template have been done:

- 5 Click on the **System Reset** button at the top of the **System-Setup** template. Then click **Confirm** to perform a system reset.

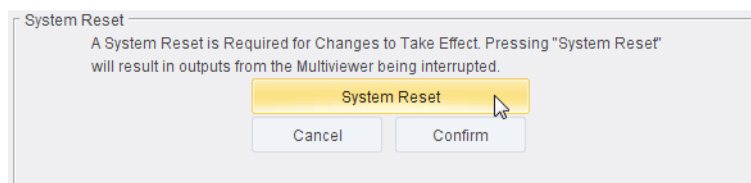


Fig. 3-11: System Reset Controls

IMPORTANT

A **System Reset** from the control screen is required before saved settings changes in the **System-Setup** template take effect. Such a reset will affect all MV-825-RTR core multiviewer connections, including the multiviewer network connections and display outputs. However, the router video inputs and outputs on the MV-825-RTR module are *not* affected.

When the MV-825-RTR has re-started, the new settings will be adopted by the multiviewer part of the MV-825-RTR.

Continue with the [Router Initial Connection and Configuration](#).

Router Initial Connection and Configuration

Some basic settings will need to be set up for the router functional block within the MV-825-RTR.

Default Routing for New MV-825-RTR

Initially, in a new MV-825-RTR unit, the router part is configured with a default routing which has crosspoints set to have straight-through, one-to-one routing. This initial default configuration is described in [Default Routing for New MV-825-RTR](#), on page 157. Figure 3-12 shows this.

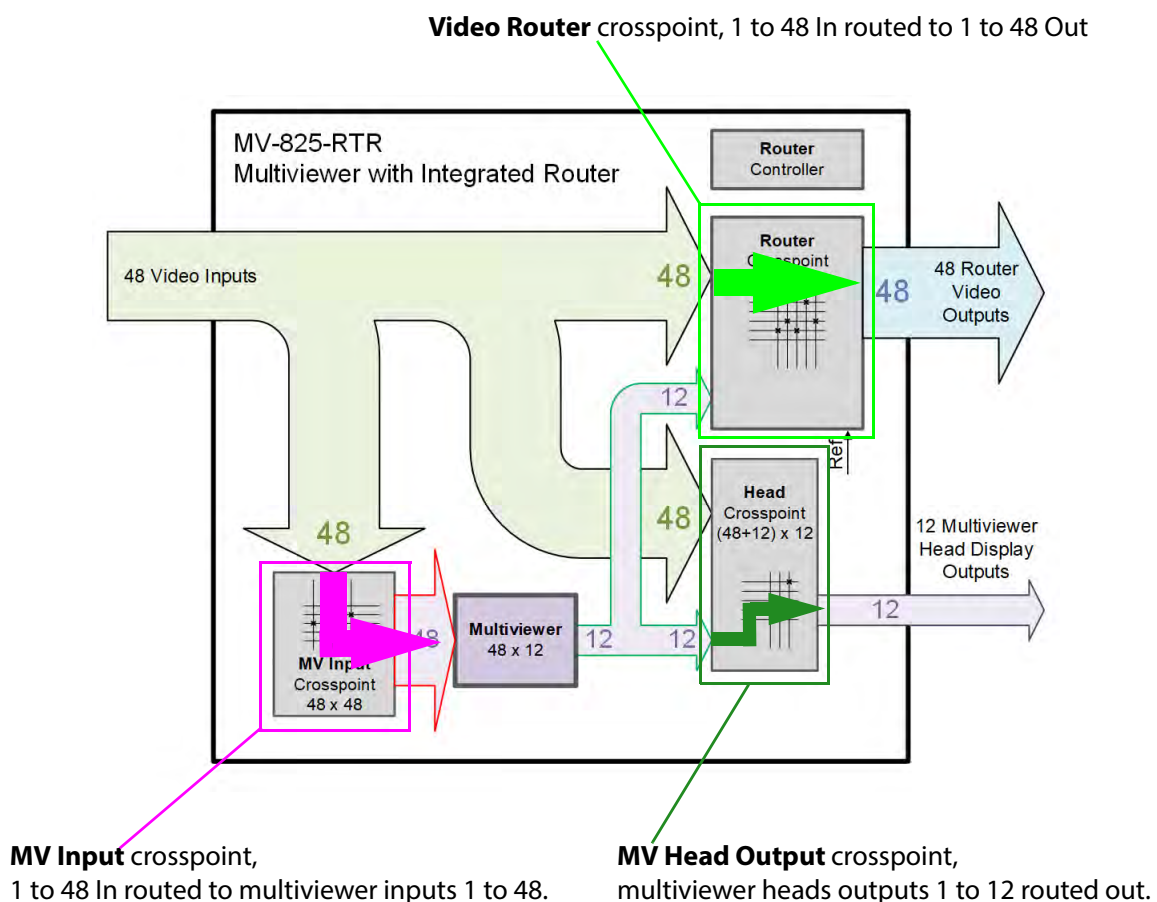


Fig. 3-12: MV-825-RTR Initial Default '1-to-1' Routing Configuration

Connection and Configuration Methods

The router within the MV-825-RTR can be connected to and configured by either of the following methods:

- [Router Initial Connection and Configuration \(Control Screen\)](#)
- [Router Initial Connection and Configuration \(Web Page\)](#)

Router Initial Connection and Configuration (Control Screen)

Items required:

- See [Core Multiviewer Initial Connection and Configuration](#), on page 44.

Note: **Router control Ethernet port:**

Typically, a new MV-825-RTR will be using a default IP address (see [Default IP Addresses](#), on page 195) on rear Ethernet port "**Router 1**" ("**1G1**" in the MV-825-RTR router control screen).

To prepare a computer for initial connection:

- 1 Select which computer Ethernet RJ45 port to use.
And set the computer's port to a fixed IP address which is on the same network as the MV-825-RTR is using.
(MV-825-RTR default IP addresses are listed at [Default IP Addresses](#), on page 195.)
- 2 Disable any WiFi connections on the computer. (These may interfere with the wired RJ45 port.)
- 3 Directly connect the computer RJ45 port to rear Ethernet port "**Router 1**" of the MV-825-RTR to set up the router.

Initial Connection to the Router

To make the initial connection to the MV-825-RTR unit's router using GV Orbit Client:

- 1 See [Initial Connection to the Core Multiviewer](#), on page 45, but use the IP address of the router.
The MV-825-RTR's router configuration control screen is shown in a tab of the GV Orbit Client.
- 2 In the **Selection** box of the control screen banner, navigate to the **Comms Setup** screen.
An example router configuration **Comms Setup** control screen is shown in Figure 3-13.

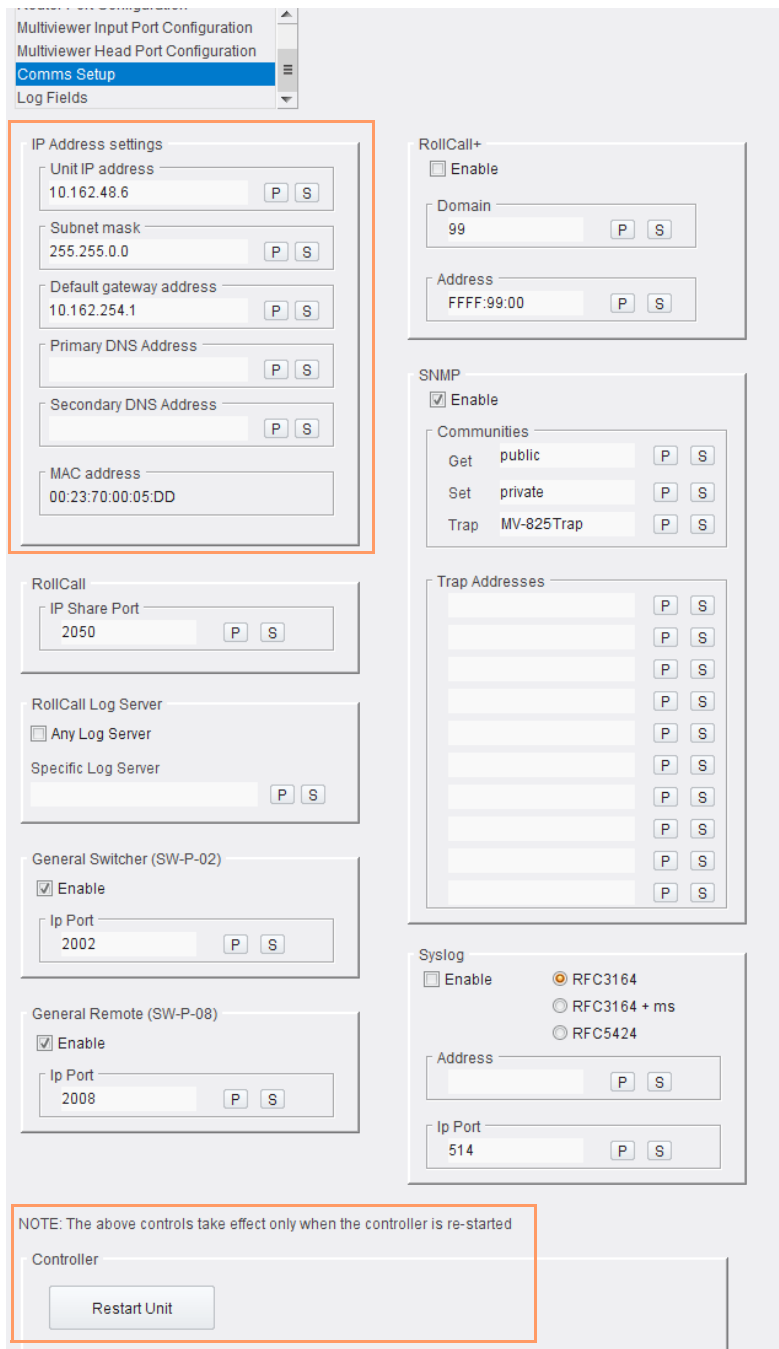


Fig. 3-13: Router Configuration - Comms Setup

Note: The Router configuration control screen is fully described in Chapter 5, [Router Configuration Control Screens](#), on page 57

Initial Configuration for Router

The initial configuration of the router includes setting up:

- MV-825-RTR router IP addresses, and
- communication settings.

After initial configuration, the MV-825-RTR unit may be connected to the house IT network and all remaining MV-825-RTR router configuration settings can be set up.

To do initial configuration via the router configuration control screen:

- 1 In the 'IP Address Settings' section of the **Comms Setup** screen, modify:
 - IP Address.
 - Subnet mask.
 - Default Gateway IP address.

Note: **"S" and "P" buttons -**

After entering information in each text box, always click on the adjacent **"S"** button or press 'Return' to locally save the new setting. Do this for each text box. (Clicking on the **"P"** button will return the setting to its preset default value).

"S" - Locally save new setting value (or press 'Return').

"P" - Locally save default setting value.

- 2 Click on the **Restart Unit** button at the bottom of the **Comms Setup** template to perform a router reset.

IMPORTANT

A **System Reset** from the control screen is required before saved settings changes in the **Comms Setup** template take effect. Such a reset will affect all MV-825-RTR core multiviewer connections, including the multiviewer network connections and display outputs. However, the router video inputs and outputs on the MV-825-RTR module are *not* affected.

When the MV-825-RTR has re-started, the new settings will be adopted by the router part of the MV-825-RTR and it may then be connected to your house IT network.

Router Initial Connection and Configuration (Web Page)

Alternatively, the router of the MV-825-RTR may be configured via its web page.

Items required:

- A laptop, or some computer, with a RJ45 Ethernet port and with RollCall Control Panel installed.
- A direct CAT 5 Ethernet cable.
- Web browser (Chrome recommended) installed on the computer.

Initial MV-825-RTR router connection and configuration should be carried out on a separate IT network, separate from any house IT network. The initial configuration sets up the MV-825-RTR's router block - IP addresses, communication settings etc.

Note: **Router Control Ethernet port:**

Typically, a new MV-825-RTR will be using a default IP address (see [Default IP Addresses](#), on page 195) on rear Ethernet port '**Router 1**' (on the 'Comms Setup' MV-825-RTR router control screen).

To prepare a computer for initial connection:

- 1 Connecting to rear Ethernet port '**Router 1**' on the MV-825-RTR, follow the preparation instructions at [Connection Preparation Instructions](#), on page 44.

Then:

- 2 Enter the IP address of the router into the web browser.
The MV-825-RTR router control 'Home' web page is shown.

Initial Configuration for Router (Web Page)

The initial configuration of the core multiviewer includes setting up:

- MV-825-RTR router IP addresses, and
- communication settings.

After initial configuration, the MV-825-RTR unit may be connected to the house IT network and all remaining MV-825-RTR router configuration settings can be set up.

To do initial configuration via the web page:

- 1 Navigate to the **System Configuration** web page.
(For a description of the control screen, see Chapter 7, [System Configuration Page](#), on page 144.)

In the **System-Setup** control screen:

- 2 Change the **System Network Settings** for the MV-825-RTR's 'router control' network interfaces.

Modify:

- IP Address.
- Subnet mask.
- Default Gateway IP address.

Once all setting changes in the **System-Setup** template have been done:

- 3 Click on the **Restart Unit** button at the top of the **System Configuration** web page.

IMPORTANT

A unit restart is required before saved settings changes in the **System Configuration** web page take effect.

Such a reset will affect the MV-825-RTR internal core multiviewer and router.

When the MV-825-RTR has re-started, the new settings for the multiviewer and for the router will be adopted by the MV-825-RTR.

Getting Started

When the MV-825-RTR unit has re-started, the new settings for the multiviewer and for the router will be adopted by the MV-825-RTR. The MV-825-RTR unit can then be connected to your house IT network.

Please refer to Chapter 10, [Getting Started](#), on page 159, to get started:

- [Getting Started \(Core Multiviewer\)](#), on page 160.
- [Getting Started \(GV Orbit\)](#), on page 160.
- [Getting Started \(Router\)](#), on page 161.

4

4 Core MV-8 Control Screens

The core multiviewer within the MV-825-RTR is an MV-8 Series core multiviewer, which is common across the MV-8 Series of MV-8xx multiviewers.

Control screens for the core multiviewer are independent of the MV-825-RTR's video router.

For information about the control screens of the core multiviewer, please refer to the 'Core MV Control Screens' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

5

5 Router Configuration Control Screens

Summary of chapter contents:

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This section describes the control screens for the video router within the MV-825-RTR. The control screens (RollCall templates) are accessible via the GV Orbit Client tool.

Note: The control screens for the video router of the MV-825-RTR are independent of the control screens for its core multiviewer.

There are two sets of video router control screens:

- 1 configuration control screens (see [Router - Configuration Screens](#), on page 62, onwards in this chapter); and
- 2 crosspoint control screens (see chapter on [Router Crosspoint Control Screens](#), on page 87).

Introduction

An MV-825-RTR broadly comprises a router function and a multiviewer function.

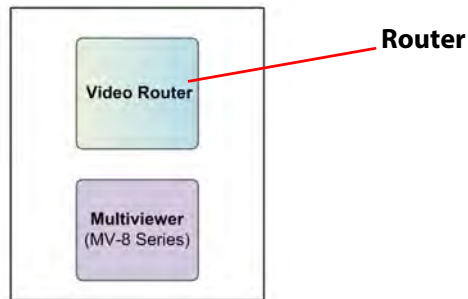


Fig. 5-1: MV-825-RTR Functions

Configuration of Router

This section describes the control screens (RollCall templates) for configuration of the router, which comprises: a router controller, main video router, an internal multiviewer input crosspoint, and an internal multiviewer head crosspoint.

Router configuration screens (RollCall templates) enable the user to configure the router functional block. (See this chapter, [Configure MV-825-RTR Router Block](#), on page 59.)

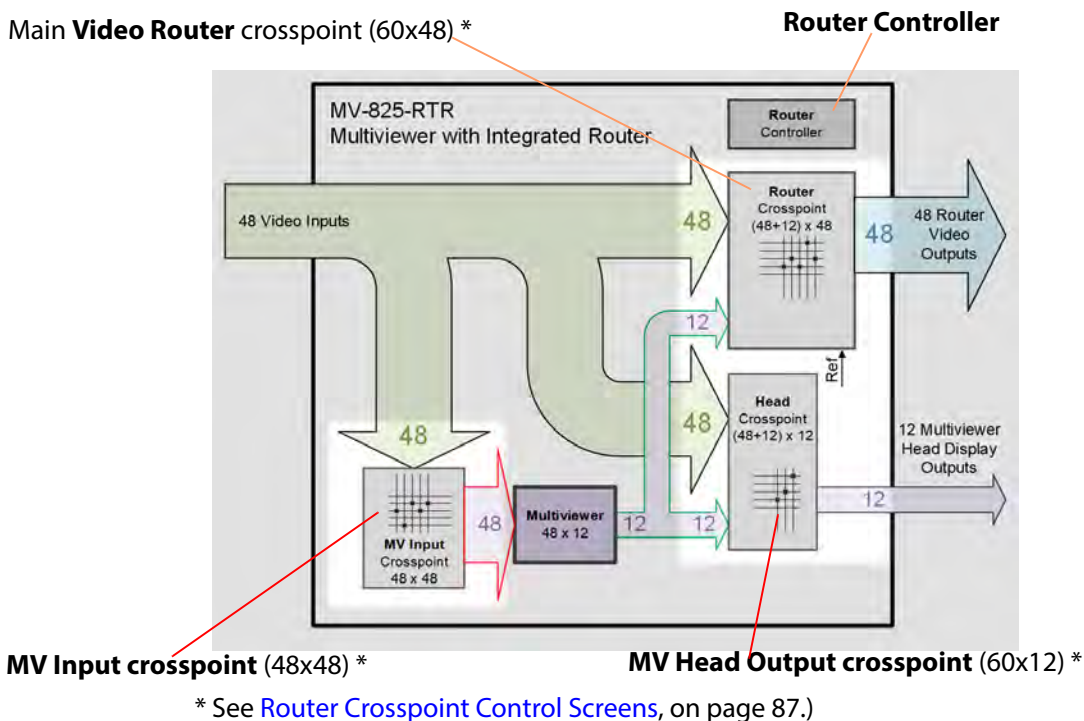


Fig. 5-2: MV-825-RTR Router and its Components, including Crosspoints

Configure MV-825-RTR Router Block

The control screens are accessible via Grass Valley's RollCall Control Panel tool, or via Grass Valley's GV Orbit Client tool.


Note: **RollCall Control Panel**

When installing the RollCall Control Panel software on your computer, use version 4.17.1 or later.
For RollCall installation instructions, see the "RollCall V4 Suite & RollCall Lite" Introduction manual. See the RollCall Control Panel User Manual and contact Grass Valley Support for information.

Note: **GV Orbit Client**

When installing the GV Orbit Client software on your computer, use version 4.3 or later.
For installation instructions, see the "GV Orbit Client Quick Start Guide".

Accessing Configuration Control Screen in RollCall Control Panel

- 1 Run RollCall Control Panel.
- 2 Click on the RollCall Network icon  and enter the IP address of the MV-825-RTR router block.
(Note: The router block has a different IP address to the multiviewer block within the MV-825-RTR.)

The MV-825-RTR is shown in the network view and has the RollCall views shown in Figure 5-3.

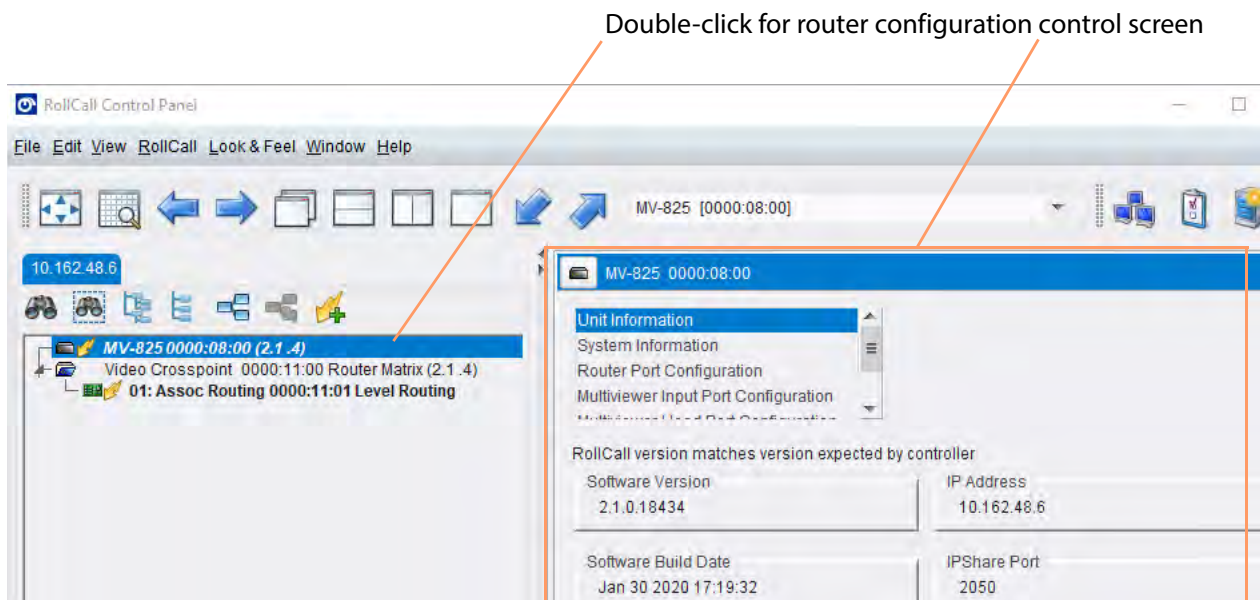


Fig. 5-3: MV-825-RTR Router Configuration Control Screen

To access the router configuration control screens:

- 3 Double-click on the first item. See Figure 5-3.

Control screens are downloaded from the device and shown. See Figure 5-3

Accessing Configuration Control Screen in GV Orbit Client

- 1 Run GV Orbit Client.

The GV Orbit Client initial screen is shown, see Figure 5-4.

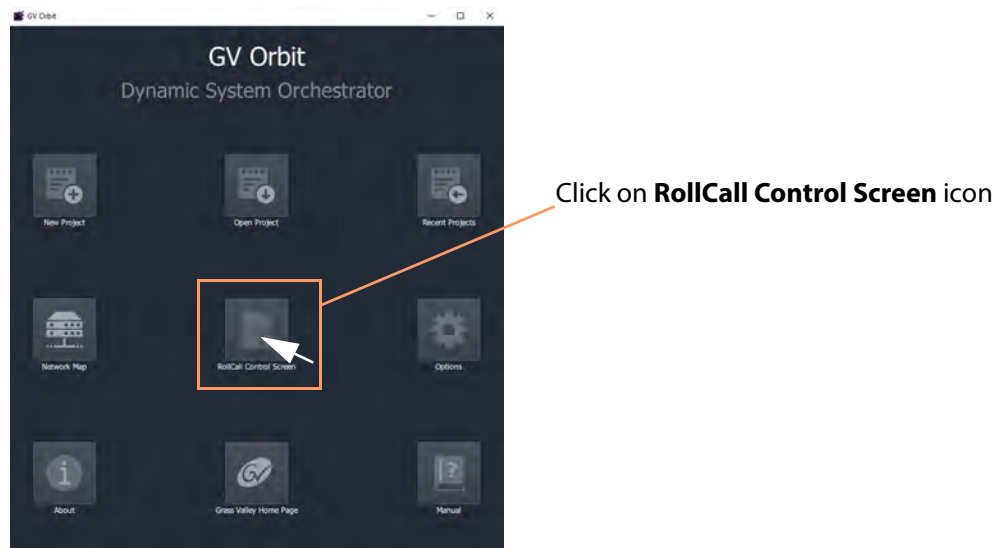


Fig. 5-4: Open RollCall Control Screen

- 2 On the initial screen, click on the **RollCall Control Screen** icon.

An **Open Template** dialog is shown.

- 3 Enter the IP address of the MV-825-RTR router block and click **OK**.

(Note: The router block has a different IP address to the multiviewer block within the MV-825-RTR.)

The control screens are downloaded from the device and shown in the GV Orbit client window. See Figure 5-5.

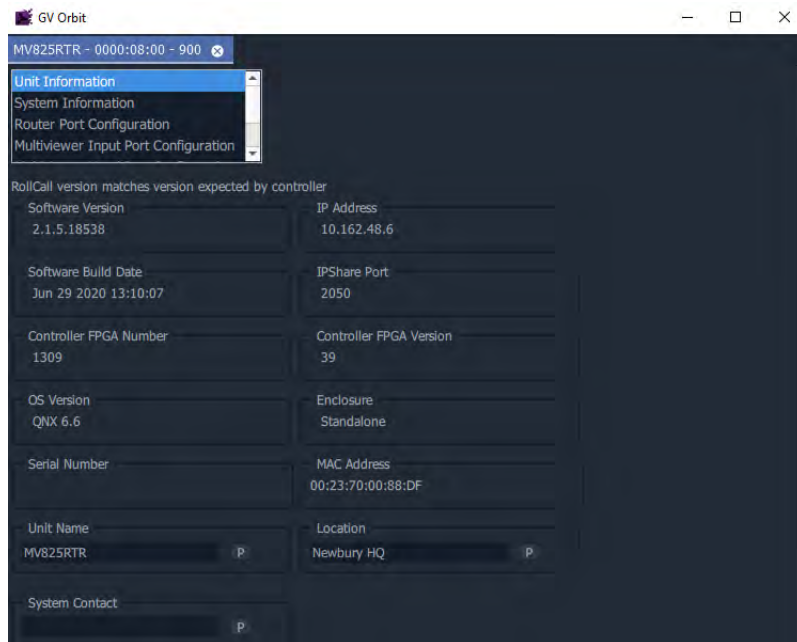


Fig. 5-5: MV-825-RTR Router Configuration Control Screen

Router - Configuration Screens

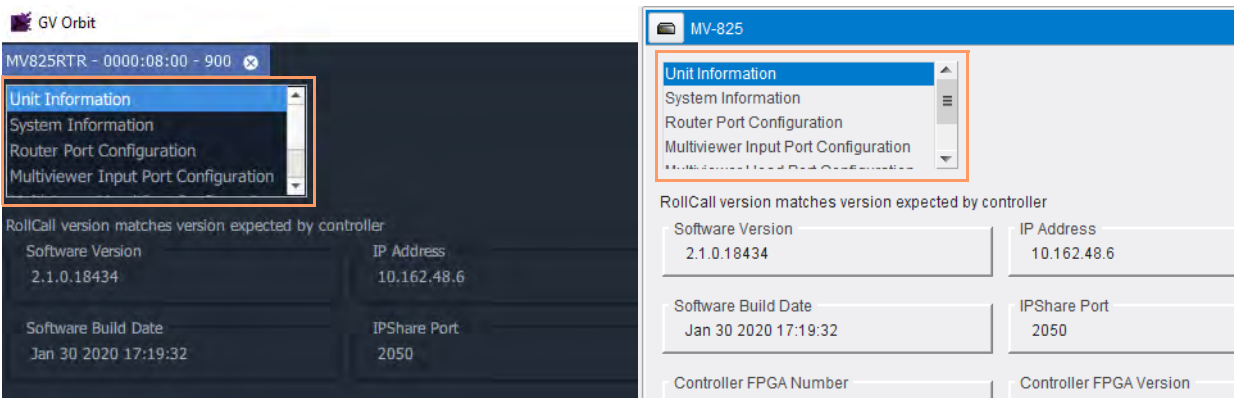
Note: "S" and "P" buttons on Control Screens:

After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to locally save the new setting. Do this for each text box.

(Note: Clicking on the "P" button will return the setting to its preset default value).

- "S" - Locally save new setting value (or press Return/Enter).
- "P" - Locally save default setting value.

Each configuration control screen has a **Selection Box** which enables the user to navigate to control screens.



a) Selection Box in GV Orbit Client

b) Selection Box in RollCall Control Panel

Fig. 5-6: Control Screen Selection Boxes a) GV Orbit; b) RollCall Control Panel.

Use the **Selection Box** to navigate to the following configuration control screens:

- [Router - Unit Information Screen](#)
- [Router - System Information Screen](#)
- [Router - Router Port Configuration Screen](#)
- [Router - Multiviewer Input Port Configuration Screen](#)
- [Router - Multiviewer Head Port Configuration Screen](#)
- [Router - Comms Setup Screen](#)
- [Router - Log Fields Screen](#)

Router - Unit Information Screen

The (MV-825-RTR router) **Unit Information** control screen shows unit information. The screen contains some read-only information as well as read-write settings that can be set up in the screen.

Note: The information may also be shown/modified on the unit's web page.

The screenshot displays the 'Unit Information' screen. At the top left, a navigation menu lists 'Unit Information', 'System Information', 'Router Port Configuration', 'Multiviewer Input Port Configuration', and 'Multiviewer Input Port Configuration'. Below the menu, a message states 'RollCall version matches version expected by controller'. The main area contains several fields for unit details, each with a 'P' (Read-Write) and 'S' (Read-Only) indicator. The fields are: Software Version (0.99a.8.18656), Software Build Date (Oct 28 2020 11:29:56), Controller FPGA Number (1309), Controller FPGA Version (46), OS Version (QNX 6.6), Enclosure (Standalone), Serial Number, Unit Name (MV825RTR), IP Address 1 (10.162.48.28), MAC Address 1 (00:23:70:00:88:DF), IP Address 2 (10.162.49.28), MAC Address 2 (00:23:70:00:B6:2F), IPShare Port (2050), Location (Newbury HQ), and System Contact. At the bottom, there is a checkbox for 'Use Long Names (32 chars)' and a 'Time Auto Set' section with radio buttons for 'NTP Server' (selected) and 'RollCall Log Server', along with fields for 'TimeZone' and a URL.

RollCall Control Panel version message

Read-Write Information

Fig. 5-7: Router Unit Information Screen

Table 5-1: MV-825-RTR Unit Information Screen

Item	Description
Software Version	Version of software running on the MV-825-RTR router.
Software Build Date	Date when the software was built.
Controller FPGA Number	Identifier for the firmware running on the MV-825-RTR router controller circuitry.
Controller FPGA Version	Version of the firmware running on the MV-825-RTR router controller circuitry.
OS Version	Version of the router controller embedded Operating System, running within the MV-825-RTR router block.
Enclosure	Type of frame that a router controller is mounted in. For the MV-825-RTR, this is set to 'Standalone', indicating that the MV-825-RTR is in its own standalone frame/chassis. (I.e. it does not fit into any larger router frame).
Serial Number	Serial number of the router block.
Unit Name	Text box, read-write. Enter a name for the MV-825-RTR router block. See Note 1 .
IP Address 1	IP address of the router block's 'Router 1' control network interface. Note: The same IP address is used to access the router block's web page.
MAC address 1	MAC address of the router block's network interface 'Router 1' port.
IP Address 2	IP address of the router block's 'Router 2' control network interface. Note: The same IP address is used to access the router block's web page.
MAC address 2	MAC address of the router block's network interface 'Router 2' port.
IP Share Port	IP Port used by RollCall comms over the router network control interfaces.
Location	Text box, read-write. Enter a name for the unit's location. See Note 1 .
System Contact	Text box, read write. Enter a name for the system contact. See Note 1 .
Note 1:	<p>"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button, or press Return/Enter, to locally save the new setting. (Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value.)</p>

Table 5-2: MV-825-RTR Unit Information Screen - Further Settings


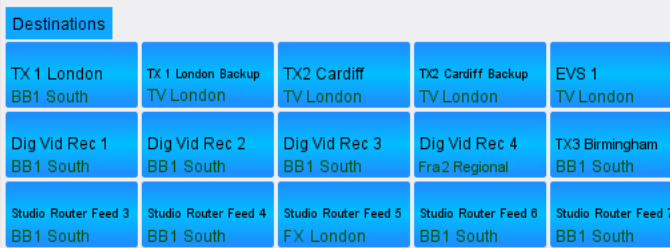
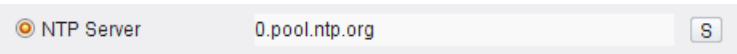
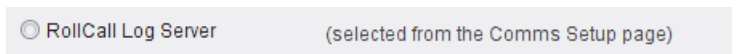
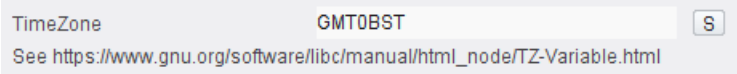
Item	Description
<p>Use Long Names (32 chars)</p> <p><input type="checkbox"/> Use Long Names (32 chars)</p> <p><input checked="" type="checkbox"/> Use Long Names (32 chars)</p>	<p>Check box. Select to use long Source and Destination names on the RollCall routing control screens:</p>  
<p>Time Auto Set:</p> <p>NTP Server</p>	<p>Time selection radio buttons:</p> <p>Radio button. Select to use an NTP server for setting the system time for the logs of the router of the MV-825-RTR unit.</p> <p>Text box. Enter the URL of the NTP server to be used. See Note 2 and Note 3.</p> 
<p>RollCall Log Server</p>	<p>Radio button. Select to use a RollCall log server for setting the system time.</p> <p>(The RollCall log server to use is defined on the Comms Setup screen.)</p> 

Table 5-2: MV-825-RTR Unit Information Screen - Further Settings (continued)

Item	Description
<p>TimeZone</p>	<p>Text box. Enter a Posix-style string to define the timezone to be used by the unit's time for the router of the MV-825-RTR unit.</p> <p>Example:</p> <ul style="list-style-type: none"> • EST5EDT - for North American Eastern Time. • EST5EDT4,M3.2.0/02:00:00,M11.1.0/02:00:00 - for the full, explicit specification of N.American Eastern Time. (The daylight saving time start and end dates/times are specified in the text string.) • PST8PDT - for Pacific time. • JST-9 - for Japanese time. <p>Refer to first two timezone formats specified in the Posix TimeZone documentation at: http://www.gnu.org/software/libc/manual/html_node/TZ-Variable.html</p>  <p>The screenshot shows a configuration interface for the 'TimeZone' field. The text box contains 'GMT0BST'. To the right of the text box is a small square button with the letter 'S' inside. Below the text box, there is a URL: 'See https://www.gnu.org/software/libc/manual/html_node/TZ-Variable.html'.</p>
<p>Note 1:</p>	<p>"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to locally save the new setting. (Note: Clicking on the "P" button will return the setting to its preset default value).</p> <p>Note 2: "S" button - After entering information in the text box, always click on the adjacent "S" button or press "return" to locally save the new setting.</p> <p>Note 3: When a URL is used, at least one DNS server IP address must be set up. (This allows the URL to be resolved into an IP address.)</p>

Router - System Information Screen

The (MV-825-RTR router) **System Information** control screen shows system information. The screen contains some read-only information as well as some controls.

Note: The information/controls may also be shown/modified on the unit's web page.

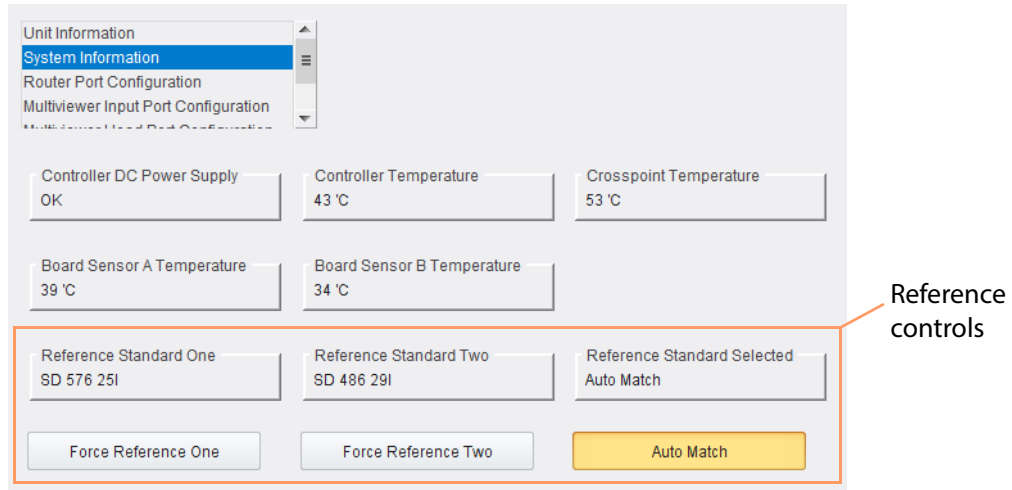
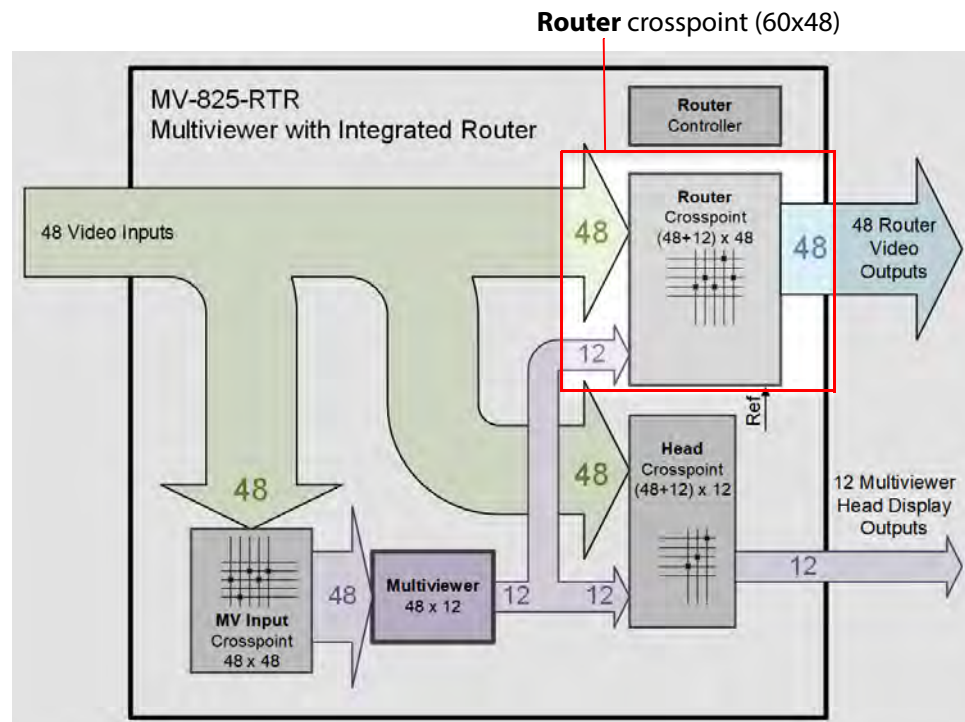


Fig. 5-8: Router System Information Screen

Table 5-3: MV-825-RTR System Information Screen - Read-only Information

Item	Description
Controller DC Power Supply	Status of the MV-825-RTR's router circuitry internal power supply.
Controller Temperature	Router controller temperature. (°C)
Crosspoint Temperature	Internal, single crosspoint chip temperature. (°C)
Board Sensor A Temperature	Router circuit A temperature. (°C)
Board Sensor B Temperature	Router circuit B temperature. (°C)
Reference Standard One	The video standard detected at rear reference 'REF 1'. For example, 'SD 576 25i'; or 'No signal'
Reference Standard Two	The video standard detected at rear reference 'REF 2'.
Reference Standard Selected	The selected/detected reference standard.

Router - Router Port Configuration Screen



The (MV-825-RTR router) **Router Port Configuration** control screen enables the user to configure input and output router ports of the Router crosspoint within the MV-825-RTR unit.

Note: The information/controls may also be shown/modified on the MV-825-RTR's web page. (See Chapter 7, [Router Config and Control Web Pages](#), on page 113.)

Router crosspoint:

- Sources (source, input ports);
- Destinations (destination, output ports)

The screenshot displays the Router Port Configuration interface. On the left, a navigation menu includes 'Unit Information', 'System Information', 'Router Port Configuration' (highlighted), 'Multiviewer Input Port Configuration', and 'Multiviewer Head Port Configuration'. Below the menu is a 'Reset All Persistence' button. The main area is divided into three sections: 'Input Ports', 'Router Outputs (1 to 48)', and 'Output Ports'. The 'Input Ports' section contains a table with columns for 'Input Standard', 'System Reference', 'Standard Selected', and '4K'. It lists Router Inputs 1-48 and Multiviewer Head Inputs 1-12. The 'Router Outputs (1 to 48)' section is a vertical list of output ports. The 'Output Ports' section is a vertical list of output ports with a '4K' checkbox. Annotations include a green line pointing to Router Inputs 1-48, an orange line pointing to Router Outputs 1-48, and a purple line pointing to Multiviewer Head Inputs 1-12.

Input Ports	Input Standard	System Reference	Standard Selected	4K
Router Input 1	HD 1080 59P	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 2	HD 1080 50P	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 3	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 4	HD 1080 50P	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 5	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 6	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 7	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 8	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 9	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 10	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 11	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 12	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 13	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 14	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 15	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 16	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 17	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 18	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 19	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 20	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 21	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 22	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 23	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 24	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 25	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 26	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 27	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 28	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 29	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 30	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 31	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 32	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 33	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 34	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 35	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 36	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 37	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 38	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 39	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 40	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 41	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 42	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 43	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 44	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 45	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 46	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 47	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Router Input 48	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 1	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 2	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 3	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 4	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 5	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 6	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 7	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 8	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 9	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 10	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 11	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>
Multiviewer Head Input 12	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	<input type="checkbox"/>

Router crosspoint:

- Sources (source, input ports);
- Destinations (destination, output ports)

Router Inputs (1 to 48)

Router Outputs (1 to 48)

Output Ports

Internal Multiviewer Head signals (1 to 12)

Fig. 5-9: Router Crosspoint Port Configuration Screen

Note: The Router crosspoint has:

- 60 Sources = Router Inputs (1 to 48) + internal Multiviewer Head signals (1 to 12)
- 48 Destinations = Router Outputs (1 to 48)

Input Ports

Input ports:

- Router Input (1 to 48).
- Internal Multiviewer Head signals 1 to 12.

For **Router** crosspoint Sources (input ports of the cross point), the screen shows the:

- port name,
- input standard detected,
- reference selected,
- 4K quad-link input grouping. Select four consecutive inputs to make a 4K quad-link group. The first box selected will be the primary link.

Output Ports

Output ports:

- Router outputs 1 to 48.

For **Router** crosspoint Destination (output ports of the cross point), the screen shows the:

- Port name,
- 4K quad-link output grouping.

Persistence

Click **Reset All Persistence** to reset the persistence settings of the Router crosspoint. (including all port settings) to their factory default.

Note: Persistence Settings:

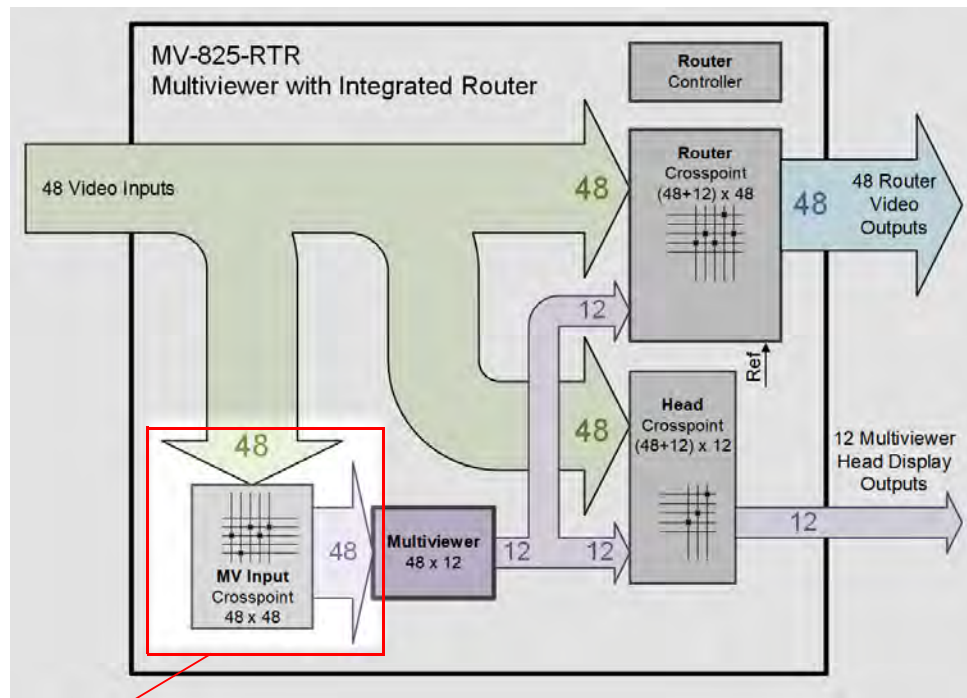
Persistence settings of the Router crosspoint include:

- All port settings.
- Routing.
- Names.
- and other settings that change in normal router use.

And does NOT include:

- Unit Information screen settings.
 - Comms Setup screen settings.
-

Router - Multiviewer Input Port Configuration Screen



MV Input crosspoint (48x48)

The (MV-825-RTR router) **Multiviewer Input Port Configuration** control screen enables the user to configure input and output router ports of the MV Input crosspoint within the MV-825-RTR unit.

Note: The information/controls may also be shown/modified on the unit's web page.

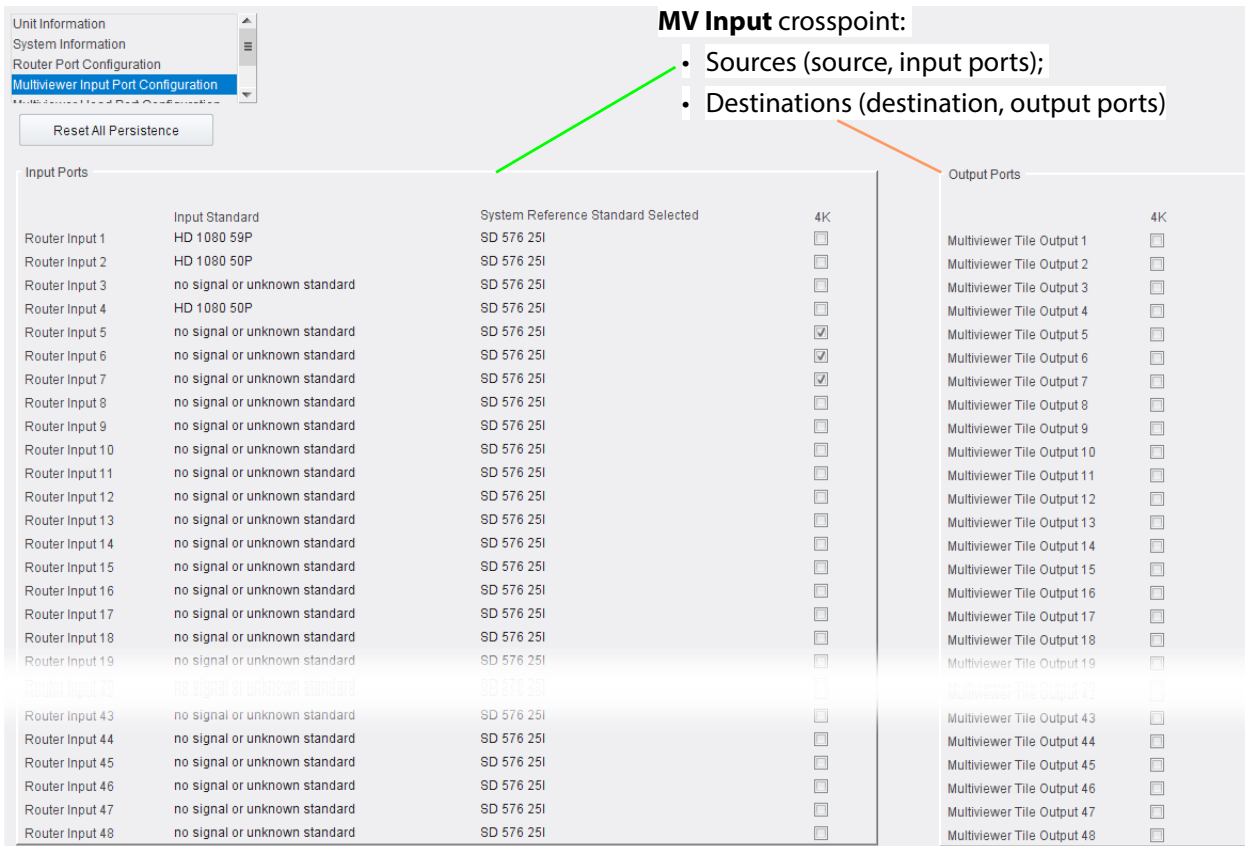


Fig. 5-10: MV Input Crosspoint Port Configuration Screen

Note: **MV Input** crosspoint has:

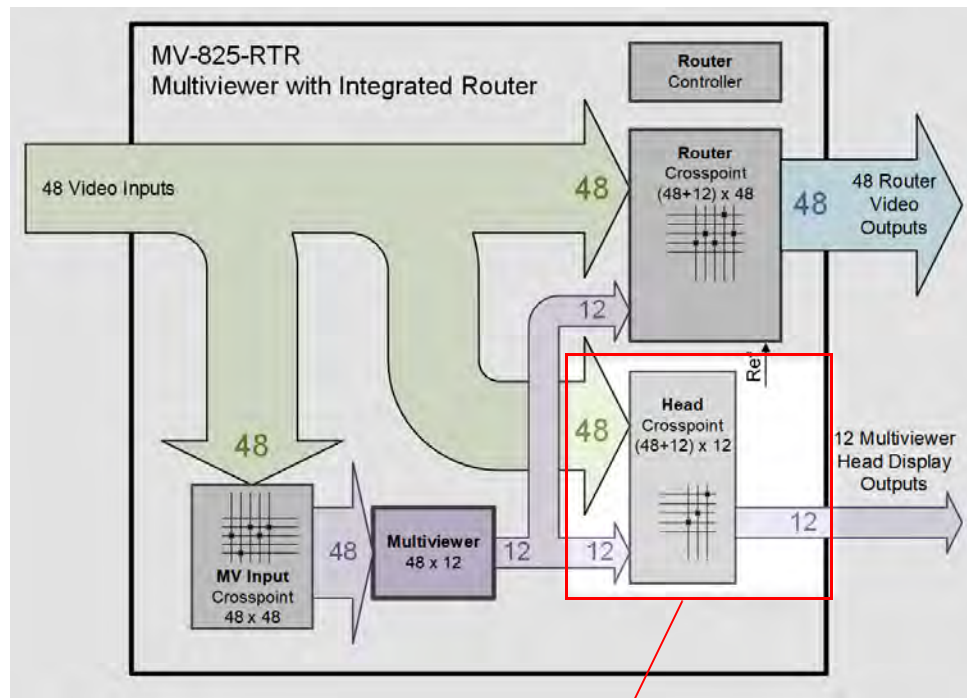
- 48 Sources = Router Inputs (1 to 48)
- 48 Destinations = internal Multiviewer input signals (1 to 48) (to Multiviewer Tiles)

The form of the screen is similar to [Router - Router Port Configuration Screen](#), on page 69.

The screen shows:

- Input ports: Router Input (1 to 48).
- Output ports: Internal Multiviewer inputs 1 to 48 (to Multiviewer Tiles).

Router - Multiviewer Head Port Configuration Screen



MV Head crosspoint (60x12)

The (MV-825-RTR router) **Multiviewer Head Port Configuration** control screen enables the user to configure input and output router ports of the MV Head crosspoint within the MV-825-RTR unit.

Note: The information/controls may also be shown/modified on the unit's web page.

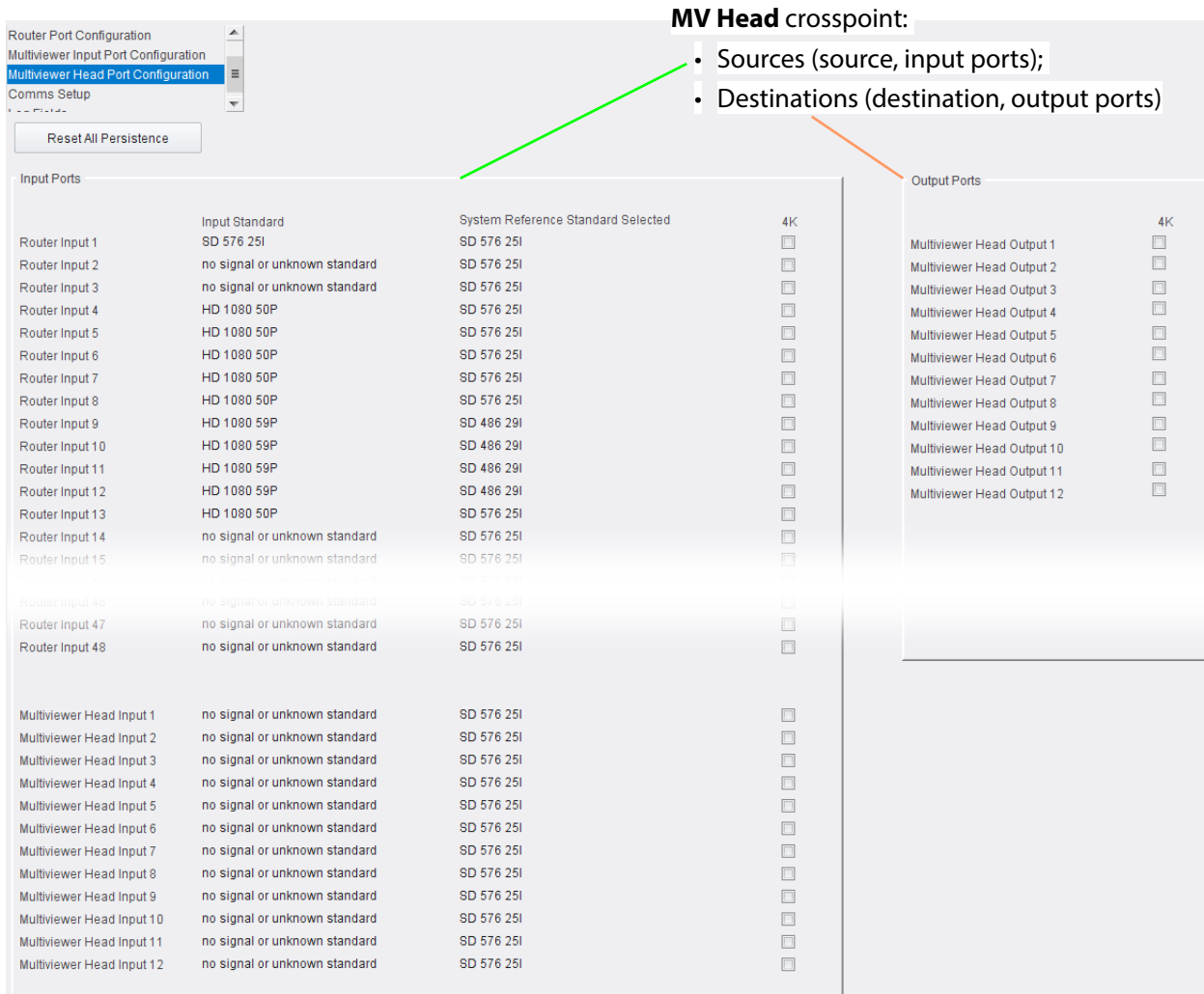


Fig. 5-11: MV Head Crosspoint Port Configuration Screen

Note: The **MV Head** crosspoint has:

- 60 Sources = Router Inputs (1 to 48) + internal Multiviewer Head signals (1 to 12)
- 12 Destinations = Rear, external Multiviewer Head Outputs signals (1 to 12)

The form of the screen is similar to [Router - Router Port Configuration Screen](#), on page 69.

The screen shows:

- Input ports: Router Inputs (1 to 48), and Internal Multiviewer Head signals (1 to 12).
- Output ports: Rear, external Multiviewer Head Outputs signals (1 to 12)

Router - Comms Setup Screen

The (MV-825-RTR router) **Comms Setup** control screen enables the user to access communication port settings for the router within an MV-825-RTR unit. A unit restart is required for changes on this screen to take effect.

Note: The information/controls may also be shown/modified on the unit's web page.

See [Comms Setup - IP Settings](#), on page 77.

See [Comms Setup - RollCall Items](#), on page 78.

See [Comms Setup - General](#), on page 79.

See [Comms Setup - Restart Unit](#), on page 84.

The screenshot shows the 'Comms Setup' screen with the following sections:

- IP Settings:** Two sections for IP Port 1 and IP Port 2. Each includes fields for IP Address, Subnet mask, Default gateway address, and MAC address.
- RollCall+:** Includes an 'Enable' checkbox, a 'Domain' field (value: 99), and an 'Address' field (value: FFFF:99:00).
- SNMP:** Includes an 'Enable' checkbox, 'Communities' (Get: public, Set: private, Trap: MV825RTRTrap), and a 'Trap Addresses' table with 10 empty rows.
- RollCall:** Includes an 'IP Share Port' field (value: 2050).
- RollCall Log Server:** Includes an 'Any Log Server' checkbox and a 'Specific Log Server' field.
- Syslog:** Includes an 'Enable' checkbox, radio buttons for 'RFC3164', 'RFC3164 + ms' (selected), and 'RFC5424'. It also has 'Address' (value: 10.162.7.1) and 'Ip Port' (value: 514) fields.
- General Switcher (SW-P-02):** Includes an 'Enable' checkbox and an 'Ip Port' field (value: 2002).
- General Remote (SW-P-08):** Includes an 'Enable' checkbox and an 'Ip Port' field (value: 2008).
- Controller:** Includes a 'Restart Unit' button.

NOTE: The above controls take effect only when the controller is re-started

See [Comms Setup - RollCall+](#), on page 80.

See [Comms Setup - SNMP](#), on page 82.

See [Comms Setup - Syslog \(Logging\)](#), on page 83.

Fig. 5-12: Comms Setup Screen

Comms Setup - IP Settings

Network interface settings are shown and may be configured here for both rear router network interface ports.

The screenshot displays the 'IP Settings' configuration window. It is divided into three main sections: 'IP Port 1', 'IP Port 2', and 'DNS Settings'. Each section contains text input fields for IP Address, Subnet mask, and Default gateway address, each with 'P' and 'S' buttons. The MAC address field is also present for each port. The DNS Settings section includes fields for Primary and Secondary DNS Address, also with 'P' and 'S' buttons.

Fig. 5-13: Comms Setup Screen - IP Address Section

CAUTION When two router network ports are used (router **IP Ports 1** and **2**, i.e. rear connections **Router 1** and **Router 2**), then the ports should be configured to be on different sub-nets for correct operation.

Table 5-5: Comms Setup - IP Port 1 and 2 Settings

Item	Description
IP Address	Text box. Enter IP address of MV-825-RTR router block IP interface. See Note 1 .
Subnet Mask	Text box. Enter subnet mask for MV-825-RTR router block IP interface. See Note 1 .
Default Gateway Address	Text box. Enter IP address of the IP gateway for the router block IP interface to use. See Note 1 .

Table 5-5: Comms Setup - IP Port 1 and 2 Settings (continued)

Item	Description
MAC Address	Displays the MAC address of the MV-825-RTR router block.
Note 1:	<p>“S” and “P” buttons - After entering information in each text box, always click on the adjacent “S” button or press Return to <i>locally save</i> the new setting. (Note: Clicking on the “P” button will return the setting to its <i>preset</i> default value). A unit restart is then required for saved settings changes to take effect.</p>

Table 5-6: Comms Setup - DNS Settings

Item	Description
Primary DNS Address	Text box. Enter IP address of DNS server for MV-825-RTR router block. See Note 1 .
Secondary DNS Address	Text box. Enter IP address of a second DNS server for router block. See Note 1 .
Note 1:	<p>“S” and “P” buttons - After entering information in each text box, always click on the adjacent “S” button or press Return to <i>locally save</i> the new setting. (Note: Clicking on the “P” button will return the setting to its <i>preset</i> default value). A unit restart is required for saved settings changes to take effect.</p>

Comms Setup - RollCall Items

The screenshot shows a configuration window titled "RollCall". It contains two main sections:

- IP Share Port:** A text input field containing the value "2050". To the right of the field are two buttons labeled "P" and "S".
- RollCall Log Server:** This section includes a checkbox labeled "Any Log Server" which is currently unchecked. Below it is a text input field labeled "Specific Log Server" which is empty. To the right of this field are two buttons labeled "P" and "S".

Fig. 5-14: Comms Setup - RollCall Items

Table 5-7: Comms Setup - RollCall Items

Item	Description
IP Share Port	Text Box. Enter network port for use by RollCall. Default is 2050. See Note 1 .
Any Log Server	Check box. <ul style="list-style-type: none"> Select to use any log server. <p>Note: This takes effect regardless of whether a 'Specific Log Server' has been entered.</p> <ul style="list-style-type: none"> Deselect to use the log sever specified.
Specific Log Server	Text box. Enter the name of a <u>specific log server</u> to use. <p>Note: The Log Server name is configured in the Log Server itself. The name entered must be correct and match the name set up in the Log Server.</p> <p>See Note 1.</p>
Note 1:	"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press "return" to locally <i>save</i> the new setting. (Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value). <p>Note: A unit restart is required for saved settings to take effect.</p>

Comms Setup - General

The screenshot shows a configuration interface with two main sections:

- General Switcher (SW-P-02):**
 - Enable
 - Ip Port: 2002 (with 'P' and 'S' buttons)
- General Remote (SW-P-08):**
 - Enable
 - Ip Port: 2008 (with 'P' and 'S' buttons)

Fig. 5-15: Comms Setup - General Setup

Table 5-8: Comms Setup - General Items

Item	Description
General Switcher (SW-P-02):	
Enable	Check box. Select to enable the unit's general switcher protocol interface.
IP Port	Text box. Enter IP port number for general switcher protocol. Default = 2002. See Note 1 .
General Remote (SW-P-08):	
Enable	Check box. Select to enable the unit's general remote protocol interface.
IP Port	Text box. Enter IP port number for general remote protocol. Default = 2008. See Note 1 .
Note 1:	<p>"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to locally <i>save</i> the new setting. (Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value). A unit restart is required for saved settings changes to take effect.</p>

Comms Setup - RollCall+

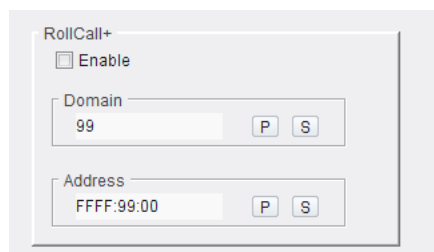


Fig. 5-16: Comms Setup - RollCall+ Items

Table 5-9: Comms Setup - RollCall+ Items

Item	Description
Enable	Check box. Select to enable RollCall+ on the MV-825-RTR's router block.
Domain	Text box. Enter a RollCall+ domain number for the MV-825-RTR's router block. Note: 'RollCall+ domain' is also known as 'GVOP domain'. See Note 1 :
Address	Text box. Enter a RollCall+ address for the MV-825-RTR's router block. See Note 1 : See RollCall Address note below.
Note 1:	"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to locally <i>save</i> the new setting. (Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value). A unit restart is required for saved settings changes to take effect.

Note: RollCall Address:

A RollCall address is of the form:

NNNN:UU:PP

Where:

NNNN - RollCall Network address.

UU - RollCall Unit address.

Address of unit of a RollCall network. Range: 0x10 to 0xFF.

PP - RollCall port address.

The port number within a unit. Range: 0x00 to 0xFF.

Comms Setup - SNMP

Fig. 5-17: Comms Setup - SNMP Items

Table 5-10: Comms Setup - SNMP Items

Item	Description
Enable	Check box. Select to enable the SNMP protocol interface.
Communities:	(SNMP name fields for Get, Set and Trap commands/messages.)
Get	Text box. Enter privacy setting for SNMP Community read-only string. Typically set to "public". See Note 1 .
Set	Text box. Enter privacy setting for SNMP Community read-write string. Typically set to "Private". See Note 1 .
Trap	Text box. Enter SNMP Community Trap string. See Note 1 .
Trap Addresses:	Several entry text box items: Enter IP Address to send trap message to. See Note 1 .
Note 1:	"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to <i>locally save</i> the new setting. (Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value). A unit restart is required for saved settings changes to take effect.

Comms Setup - Syslog (Logging)

Fig. 5-18: Comms Setup - Syslog Items

Table 6 Comms Setup - Syslog Items

Item	Description
Enable	Check box. Select to enable the unit's logging interface.
(Logging Format:)	Radio buttons: Select logging format.
RFC3164	RFC3164: BSD syslog protocol.
RFC3164+ms	RFC3164: BSD syslog protocol + milliseconds.
RFC5424	RFC5424: Syslog protocol.
Address	Text box. Enter IP address of logging server. See Note 1 .
IP Port	Text box. Enter IP port for logging data. See Note 1 .
Note 1:	<p>"S" and "P" buttons - After entering information in each text box, always click on the adjacent "S" button or press Return/Enter to <i>locally save</i> the new setting.</p> <p>(Note: Clicking on the "P" button will return the setting to its <i>preset</i> default value).</p> <p>A unit restart is required for saved settings changes to take effect.</p>

Comms Setup - Restart Unit

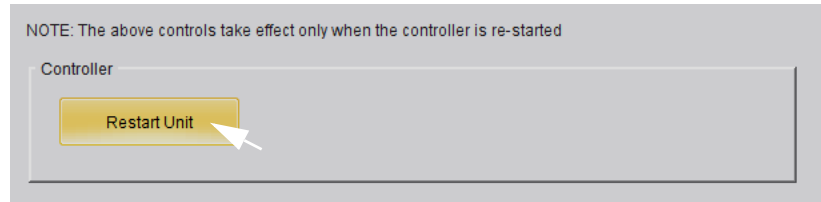
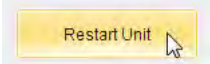


Fig. 5-19: Comms Setup - Restart Unit

Click **Restart Unit** after local changes have been made and saved on the **Comms Setup** screen. Unit restart begins immediately.

Table 5-11: Comms Setup - Restart Unit

Item	Description	
Restart Unit		Button. Click to restart the MV-825-RTR unit.

Router - Log Fields Screen

The (MV-825-RTR router) **Log Fields** control screen displays the state of RollCall log fields generated by the MV-825-RTR's router block.

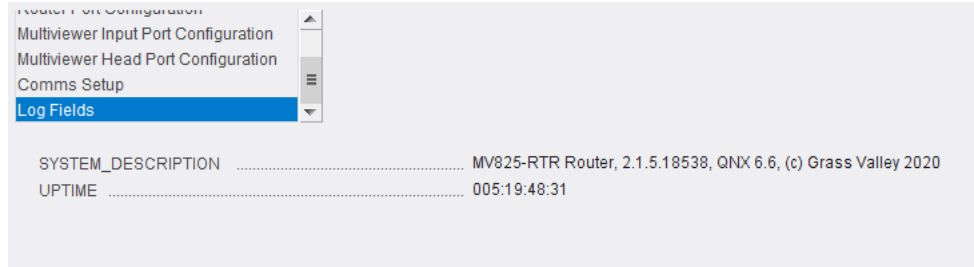


Fig. 5-20: Log Fields Screen

Table 5-12: MV-825-RTR Multiviewer with Integrated Router Logging Fields (Read-only information)

Item	Description
SYSTEM_DESCRIPTION	
	Text field. Describes the MV-825-RTR Multiviewer with Integrated Router unit.
UPTIME	
	Text field. Indicates the time elapsed since the last MV-825-RTR Multiviewer with Integrated Router unit hardware or software restart, or power on.

6 Router Crosspoint Control Screens

Summary of chapter contents:

Router Crosspoint Control Screens

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<i>This Chapter</i>	page 90
<i>Monolithic Crosspoint Sources and Destinations</i>	page 90
<i>Accessing MV-825-RTR Router Crosspoint Control Screen</i>	page 92
<i>Monolithic Crosspoint Control Screen</i>	page 93
<i>XYPanel Control Screen - Routing Tab</i>	page 94
<i>XYPanel Control Screen - Edit Names Tab</i>	page 98
<i>XYPanel Control Screen - Edit Protect Tab</i>	page 99
<i>XYPanel Control Screen - Options Tab</i>	page 100
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This section describes the control screens for the video router within the MV-825-RTR. The control screens (RollCall templates) are accessible via the GV Orbit Client tool.

Note: The control screens for the video router of the MV-825-RTR are independent of the control screens for its core multiviewer.

There are two sets of video router control screens:

- 1 configuration control screens (see chapter on [Router Configuration Control Screens](#), on page 57).
- 2 crosspoint control screens (see this chapter).

Introduction

An MV-825-RTR broadly combines a router function and a multiviewer function.

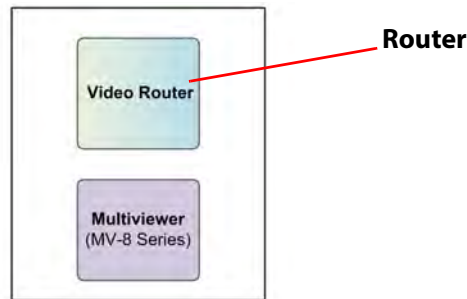


Fig. 6-1: MV-825-RTR

The router function presents three router crosspoints (see Figure 6-2) to the user:

- 1 Main **Video Router** crosspoint (size = $(48+12)$ in x 48 out);
- 2 **MV Head** crosspoint (size = $(48+12)$ in x 12 out); and
- 3 **MV Input** crosspoint (size = 48 in x 48 out).

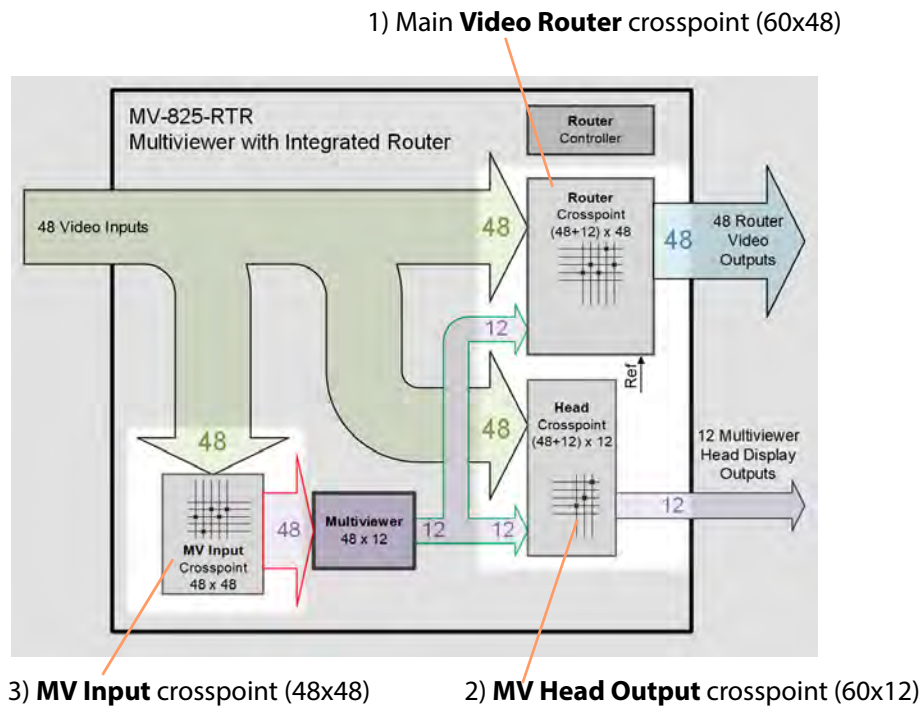
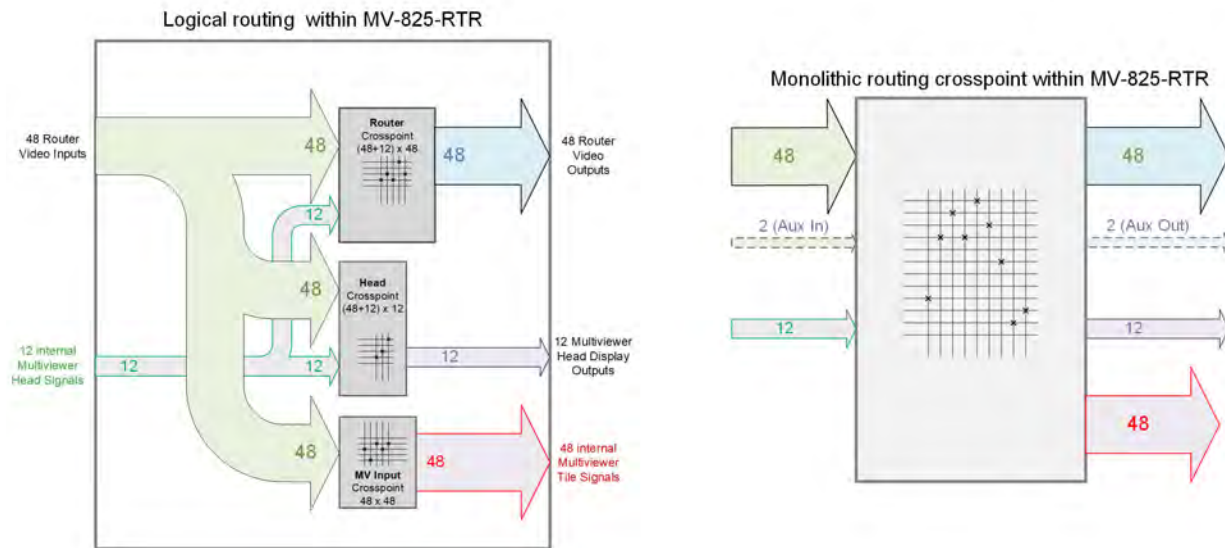


Fig. 6-2: MV-825-RTR Router Crosspoints

Monolithic Overall Router Crosspoint

The three router crosspoints of the MV-825-RTR are in reality implemented as one, monolithic crosspoint of overall size 62x110. See Figure 6-3a and Figure 6-3b.



a) Normally presented to user -
Logical Crosspoints:

- Main video router crosspoint - (48+12) x 48;
- MV Head crosspoint - (48+12) x 12; and
- MV Input crosspoint - 48 x 48.

b) Presented on MV-825-RTR RollCall router
crosspoint control screen -
Monolithic Overall Crosspoint:

- $(48+2+12) \times (48+2+12+48)$
= 62 x 110

Fig. 6-3: MV-825-RTR Router: a) Logical Crosspoints; b) Monolithic Crosspoint.

One physical monolithic crosspoint within the MV-825-RTR is controlled in such a way as to present three 'logical' crosspoints to the user in MV-825-RTR operation. This one crosspoint is presented on the MV-825-RTR RollCall router crosspoint control screens. It has the following sources and destinations:

- Sources:
 - MV-825-RTR Router Video Inputs (48)
 - Aux inputs (reserved for future use) (2)
 - *Internal* Multiviewer Head signals (12)
- Destinations:
 - MV-825-RTR Router Video Outputs (48)
 - Aux outputs (reserved for future use) (2)
 - MV-825-RTR Multiviewer Head Display Outputs (12)
 - *Internal* Multiviewer Tile signals (48)

This is summarized in [Monolithic Crosspoint Sources and Destinations](#), on page 90, in Table 6-1 and Table 6-2 respectively.

This Chapter

This chapter describes the control screens (RollCall templates) for control of the monolithic router crosspoint within the MV-825-RTR.

Monolithic Crosspoint Sources and Destinations

Table 6-1 Monolithic Crosspoint Sources

Monolithic Crosspoint Source Number	Default Source Name	Signal Description
1	VIn1	MV-825-RTR Router Video Inputs (48)
2	VIn2	
3	VIn3	
4	VIn4	
.	.	
.	.	
.	.	
45	VIn45	
46	VIn46	
47	VIn47	
48	VIn48	
49	AuxIn1	
50	AuxIn2	
51	MVOut1	Internal Multiviewer Head signals (12)
52	MVOut2	
53	MVOut3	
54	MVOut4	
55	MVOut5	
56	MVOut6	
57	MVOut7	
58	MVOut8	
59	MVOut9	
60	MVOut10	
61	MVOut11	
62	MVOut12	

Table 6-2 Monolithic Crosspoint Destinations


Monolithic Crosspoint Source Number	Default Name	Signal Description
1	VOut1	MV-825-RTR Router Video Outputs (48)
2	VOut2	
3	VOut3	
4	VOut4	
.	.	
.	.	
.	.	
45	VOut45	
46	VOut46	
47	VOut47	
48	VOut48	
49	AuxOut1	
50	AuxOut2	
51	MVHead1	MV-825-RTR Multiviewer Head Display Outputs (12)
52	MVHead2	
53	MVHead3	
54	MVHead4	
55	MVHead5	
56	MVHead6	
57	MVHead7	
58	MVHead8	
59	MVHead9	
60	MVHead10	
61	MVHead11	
62	MVHead12	
63	MVTile1	<i>Internal</i> Multiviewer Tile signals (48)
64	MVTile2	
65	MVTile3	
66	MVTile4	
.	.	
.	.	
.	.	
107	MVTile45	
108	MVTile46	
109	MVTile47	
110	MVTile48	

Accessing MV-825-RTR Router Crosspoint Control Screen

The crosspoint control screens are accessible via Grass Valley's RollCall Control Panel tool.

Note: **RollCall Control Panel**

When installing the RollCall Control Panel software on your computer, use version 4.17.1 or later.
For RollCall installation instructions, see the "RollCall V4 Suite & RollCall Lite" Introduction manual. See the RollCall Control Panel User Manual and contact Grass Valley Support for information.

- 1 Run RollCall Control Panel.
- 2 Click on the RollCall Network icon  and enter the IP address of the MV-825-RTR router block.

The MV-825-RTR is shown and has the RollCall views shown in Figure 6-4.

Double-click for router monolithic crosspoint routing control screen

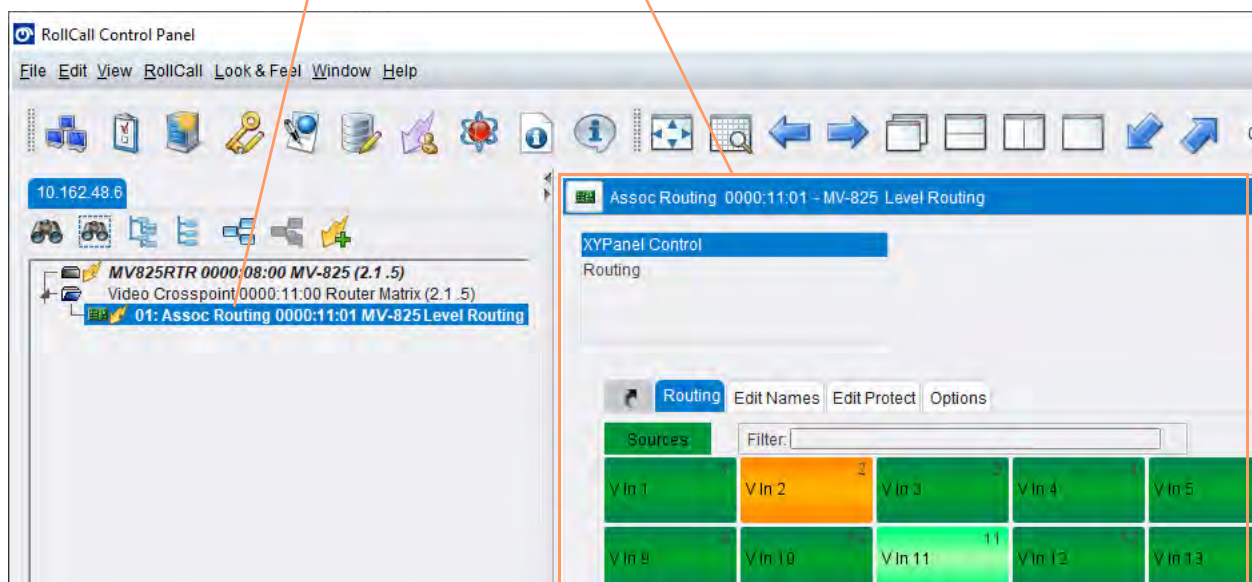


Fig. 6-4: MV-825-RTR Router Crosspoint Control Screen

- 3 Double-click on a crosspoint view item. See Figure 6-4.

Control screens are downloaded from the device and shown in the RollCall Control Panel window.

The control screen enables the user to make routes in the monolithic crosspoint and to edit Source and Destination names and set protected Destinations.

Monolithic Crosspoint Control Screen

The control screen enables the user to make routes in the monolithic crosspoint and to edit Source and Destination names and set protected Destinations.

Routing is initially set to be 1-to-1.

Selection: XY Panel Control, and Routing screens

See [XYPanel Control Screen - Routing Tab](#), on page 94

See [Routing Screen](#), on page 106



Fig. 6-5: Monolithic Crosspoint Control Screen

XYPanel Control Screen - Routing Tab

A crosspoint control screen is shown in Figure 6-6. The crosspoint's routing is initially set to be 1-to-1.

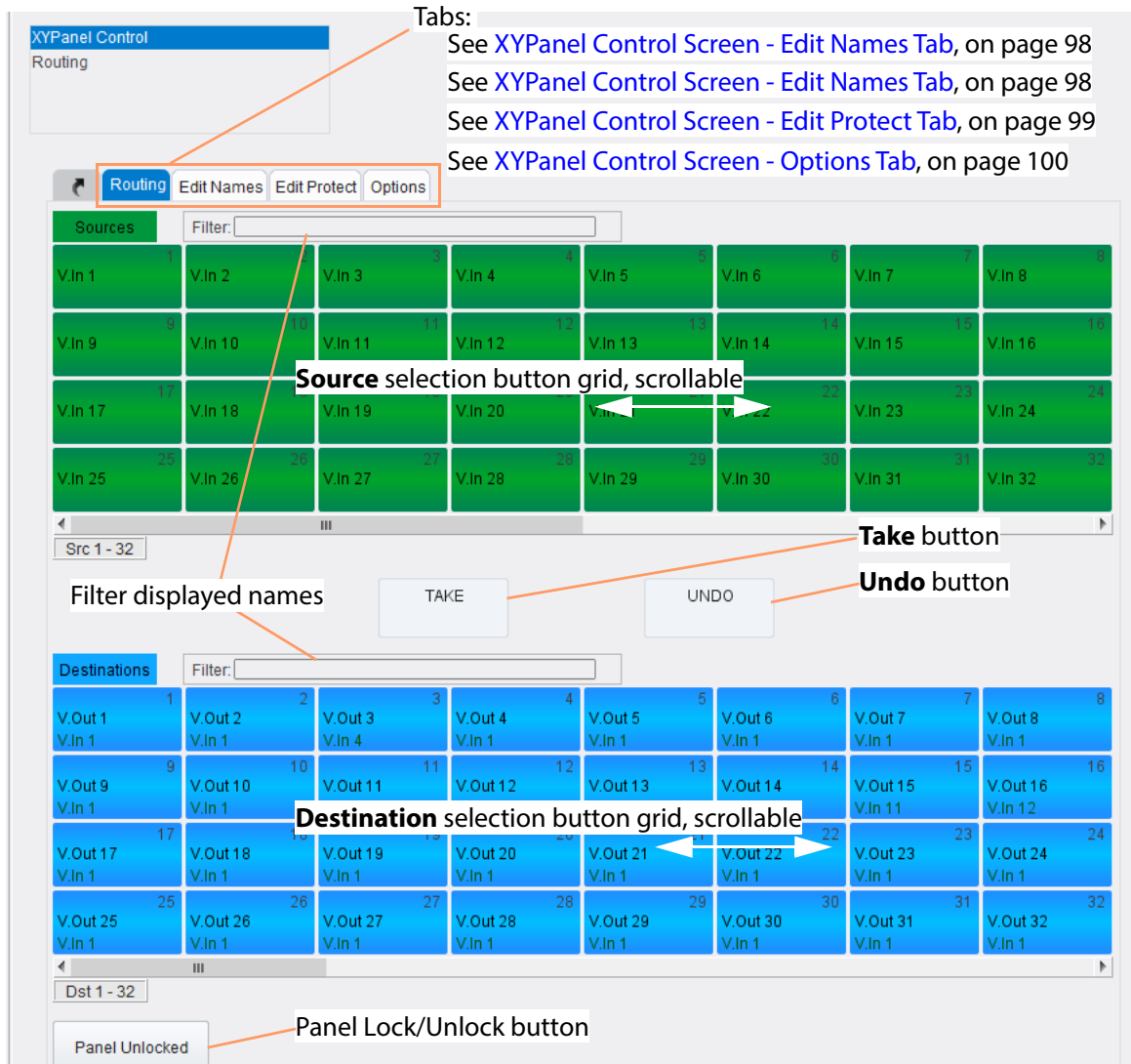


Fig. 6-6: Crosspoint Control Screen

Routing

For a description of routing with this screen, see [Routing Examples](#), on page 109.

Destination Protect

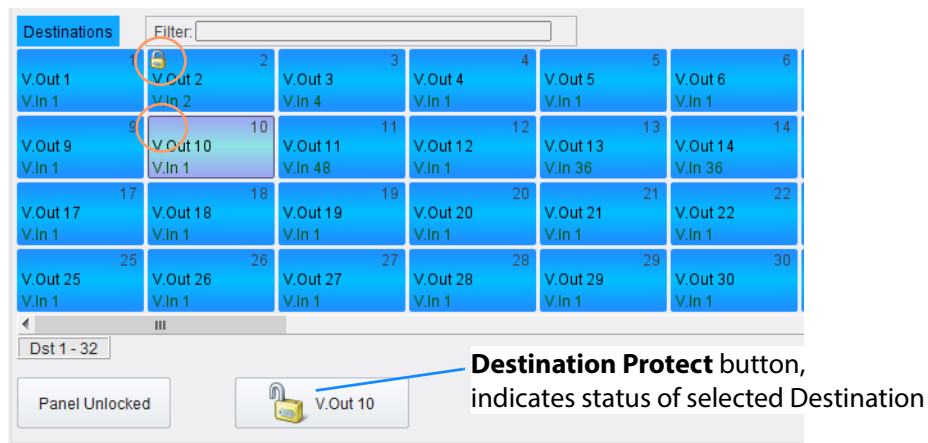
A protected Destination (called **Lock Route** on the web page) cannot be routed to.

The protected/locked status of each Destination is shown on the Destination buttons, with a padlock symbol to denote "locked" (i.e. protected). See Figure 6-7a.

To protect a destination from the XY Panel Routing screen:

- 1 Select a Destination. See Figure 6-7b.
- 2 Click on the **Destination Protect** button.

The protected status is toggled. See Figure 6-7c.



a) Locked/not locked (protected/unprotected)



b) Selected Destination

c) Destination Protected

Fig. 6-7: Destination Protect (Lock Route) a) Not Locked/Protected;
b) Selected Destination; c) Destination Protected

Filter Names

The displayed Source and/or Destination names can be filtered. To filter the displayed names:

- 1 Click in the **Filter** text box of either the Source or Destination grid.
Some **Filter** controls are shown. See Figure 6-8.

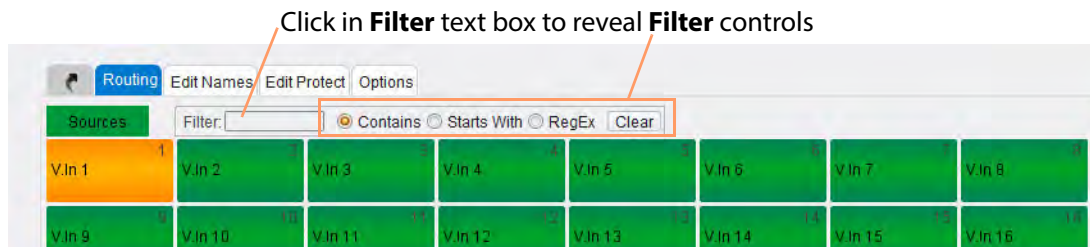


Fig. 6-8: Filter Controls

- 2 Select 'Contains'.

Note: Filtering options:

Contains - Filters names that contain certain text.

Starts with - Filters names that contain certain text.

RegEx - Filters names with a regular expression.

- 3 Enter text into the text box.

As characters are entered, the displayed names are filtered.

'3' entered. Displayed names are filtered, only those containing '3' are shown.

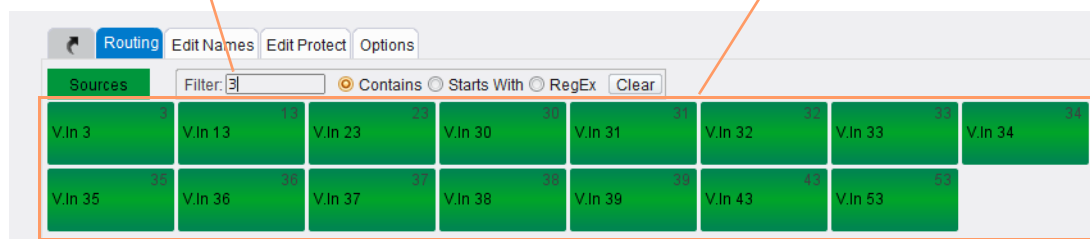


Fig. 6-9: Filtered Names

Clear Filter

To clear the filter and stop filtering,

- 1 Click **Clear**.

RegEx Filter

To filter using the regular expressions:

- 1 Select 'RegEx' as the filter option.
- 2 Enter a regular expression in the text box.

The names are filtered with the entered regular expression.

A RegEx example is shown in Figure 6-10.



Fig. 6-10: Regular Expression Filter Example

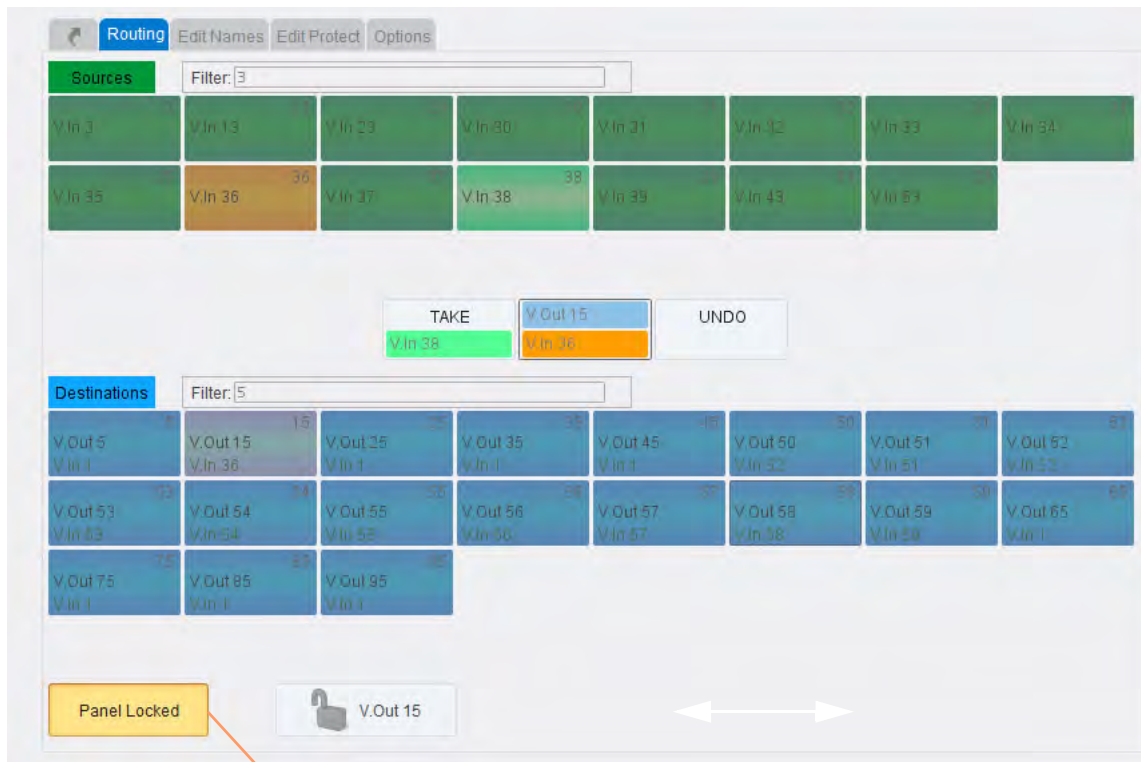
Note: Regular expressions can define a search pattern in a text string or name.

See information about regular expressions, for example:

https://en.wikipedia.org/wiki/Regular_expression

Panel Lock

Click on **Panel Unlocked** to lock the screen panel and prevent inadvertent routing. Click again to unlock. (This toggles between panel locked and unlocked states.)



Click **Panel Locked** button to unlock the panel.

Fig. 6-11: Panel Locked

XYPanel Control Screen - Edit Names Tab

The **Edit Names** tab enables a user to edit the crosspoint Source button names and Destination button names.

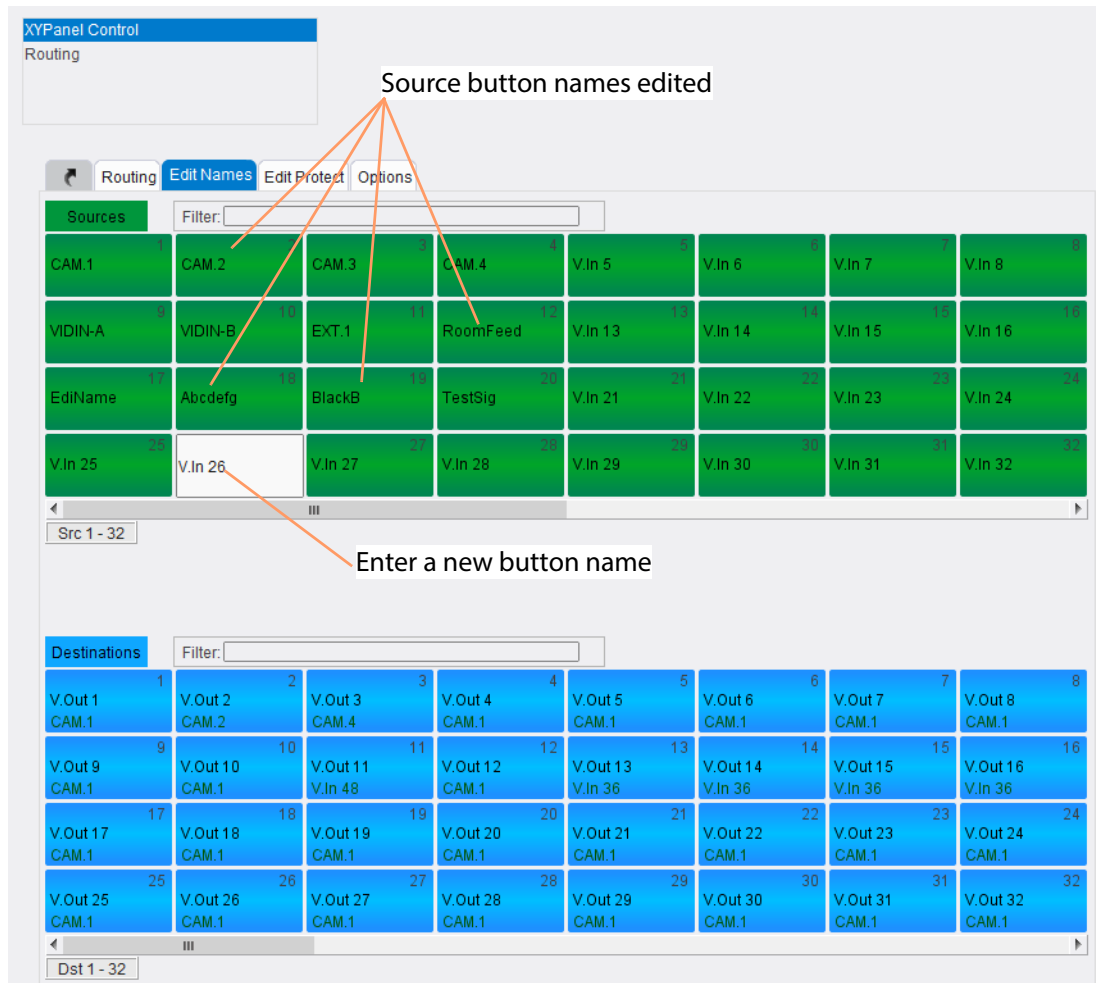


Fig. 6-12: Edit Names

To edit a Source or Destination button name:

- 1 Select a Source or a Destination.
The selection button goes white and a new name may be entered.
- 2 Enter a new name and press Enter/Return.
The crosspoint Source/Destination button is renamed.

XYPanel Control Screen - Edit Protect Tab

The **Edit Protect** tab enables a user to edit all the crosspoint Destination Protects easily from one screen. All locked, or protected, Destinations are shown with a padlock symbol on their buttons.

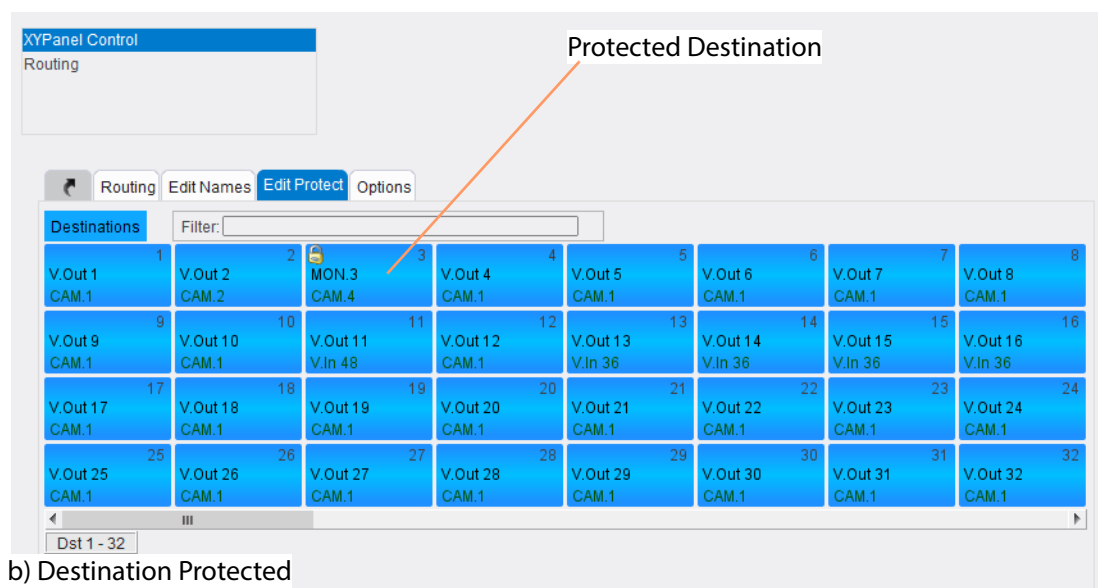
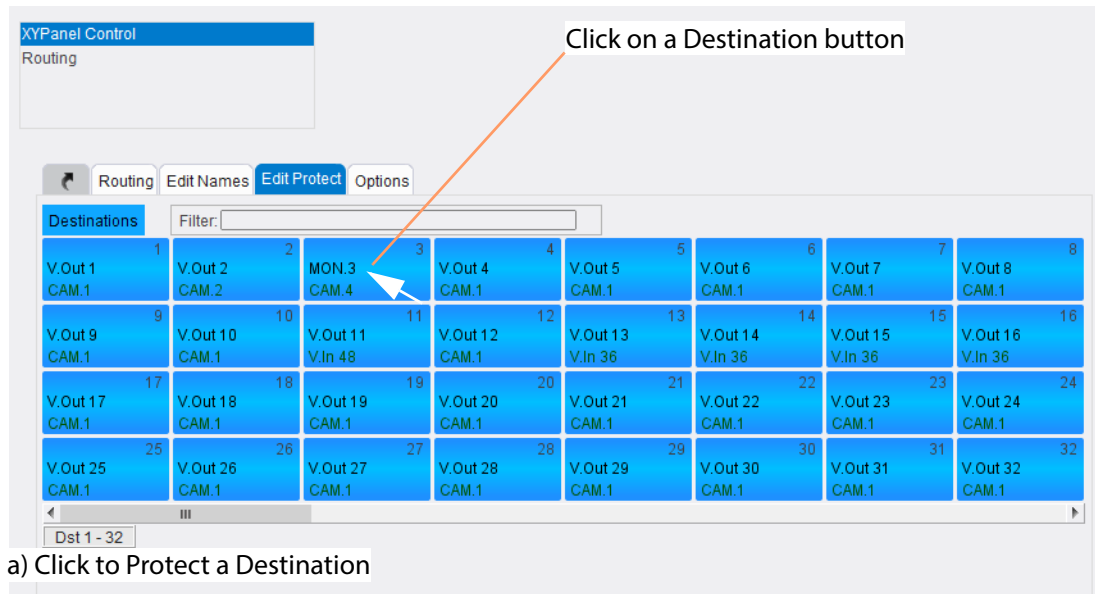


Fig. 6-13: Destination Protect: a) Click to Protect a Destination; b) Destination Protected.

To protect/unprotect a Destination:

- 1 Select a Destination.

The Destination is protection is toggled.

A padlock symbol is shown on the Destination button when it is protected.

Note: A protected (locked) Destination may only be unprotected (or unlocked) either:

- by the same soft panel that protected it; or
 - from the MV-825-RTR web page (which is considered to be a master panel for protect/unprotect).
-

XYPanel Control Screen - Options Tab

The **Options** tab enables the user to set up various routing panel options and to customize the behavior and display of the XY panel.

Note: For further information about RollCall Control Panel, XY Routing Panels and the Options tab, see the ex-SAM 'RollCall Control Panel User Manual'. Appendix 1, 'XY Panel', in that user manual, contains information about the Options. (User manual available from the Grass Valley web site by searching for 'rollcall' on the website and selecting 'RollCall Control Panel.book' in the search results. You may need to register with Grass Valley first, which is free.)

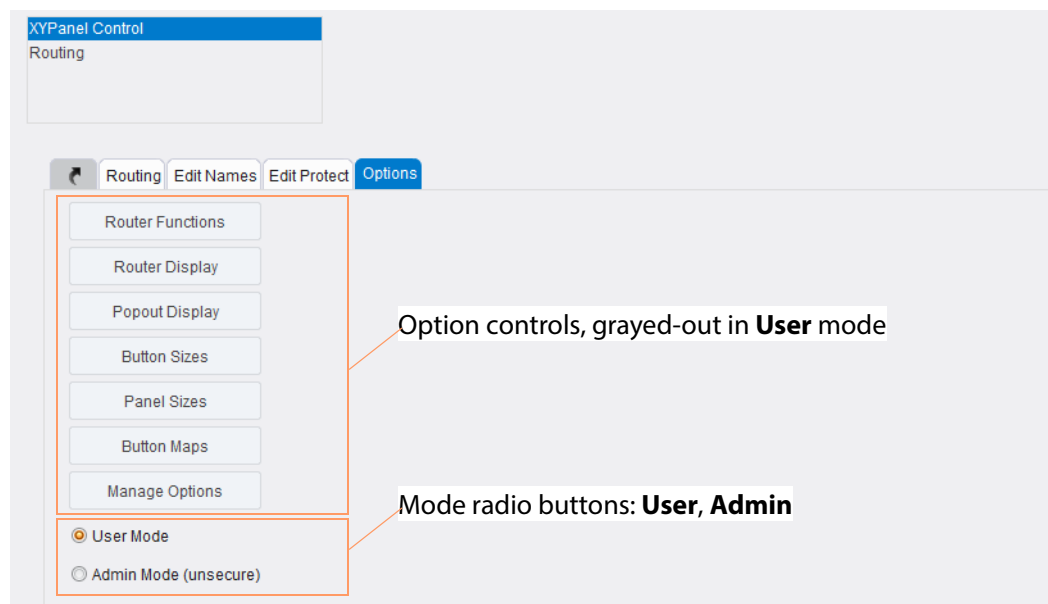


Fig. 6-14: Options Tab

User and Admin Mode

The **Options** tab has two modes:

- **User Mode**
- **Admin Mode**

The XY Panel always starts in **User Mode**. The option controls are only available when in **Admin Mode**. (If required, a password can be set up to secure this mode, see the ex-SAM 'RollCall Control Panel User Manual' for more information.)

To enter **Admin** mode:

- 1 Click **Admin** mode.

The option controls are now ungrayed-out.

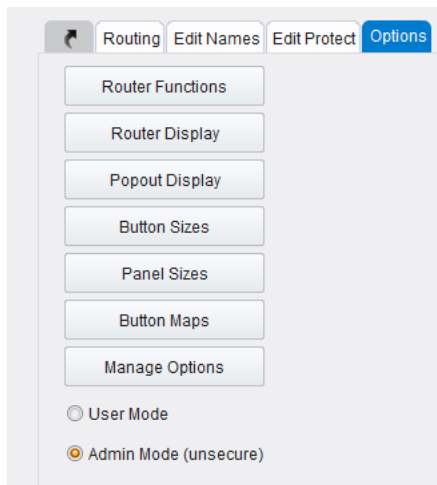


Fig. 6-15: Admin Mode Selected

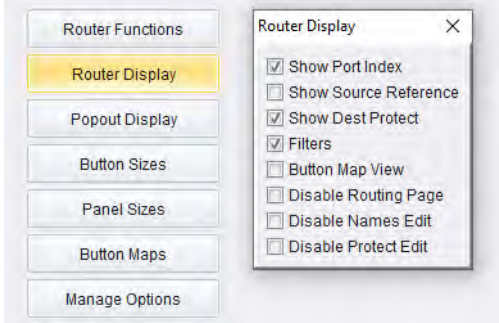
Options Controls

The option controls access the various features which are summarized in Table 6-3:. (See the ex-SAM 'RollCall Control Panel User Manual' for more information.)

Table 6-3: XY Panel Control Screen - Option Controls

Option	Description
Router Functions	Define Take and Undo buttons to be included in the XY Routing screen. If no Take button is present, then routing takes place immediately. An Undo button may be added with a time out. <div data-bbox="657 1480 1258 1795" style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> A screenshot of the 'Router Functions' dialog box. It has a title bar with a close button. The dialog is divided into two sections. The top section is for 'Take' and has two radio button options: 'Immediate Take' (unselected) and 'Preselect with Take button' (selected). The bottom section is for 'Undo' and has a checked checkbox for 'Undo'. Below the checkbox is a label 'Undo Timeout' followed by a horizontal slider control set to 'No timeout'. </div>

Table 6-3: XY Panel Control Screen - Option Controls (continued)

Option	Description
Router Display	Define additional information to be displayed on the source and destination buttons. 

Popout Display Customize the display of the XY panel when it is used as a pop-out screen.

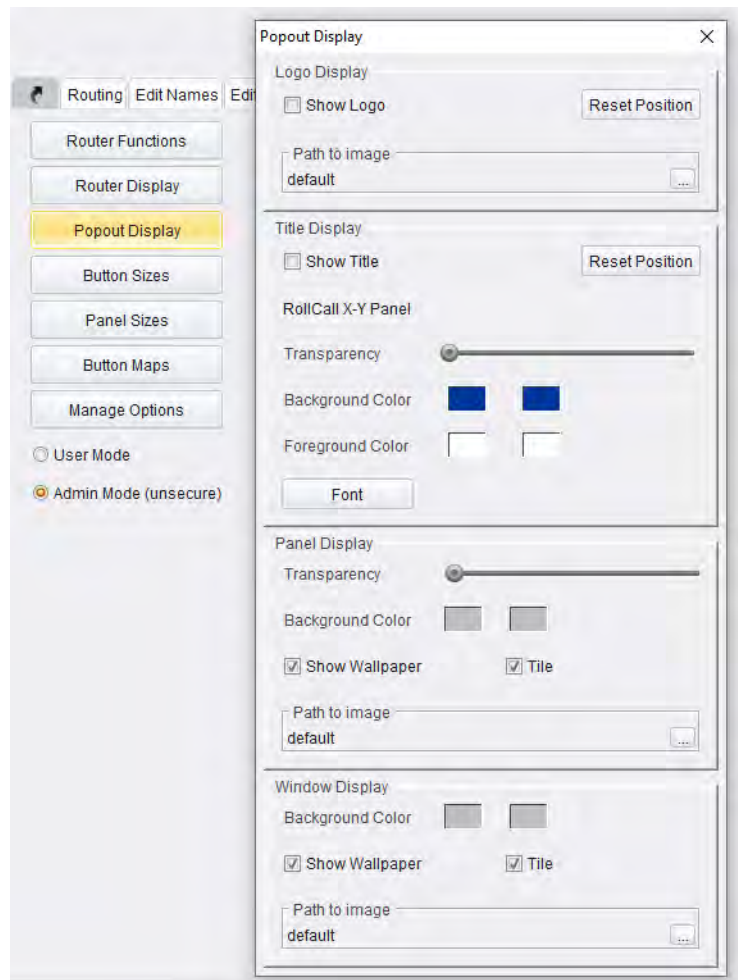


Table 6-3: XY Panel Control Screen - Option Controls (continued)

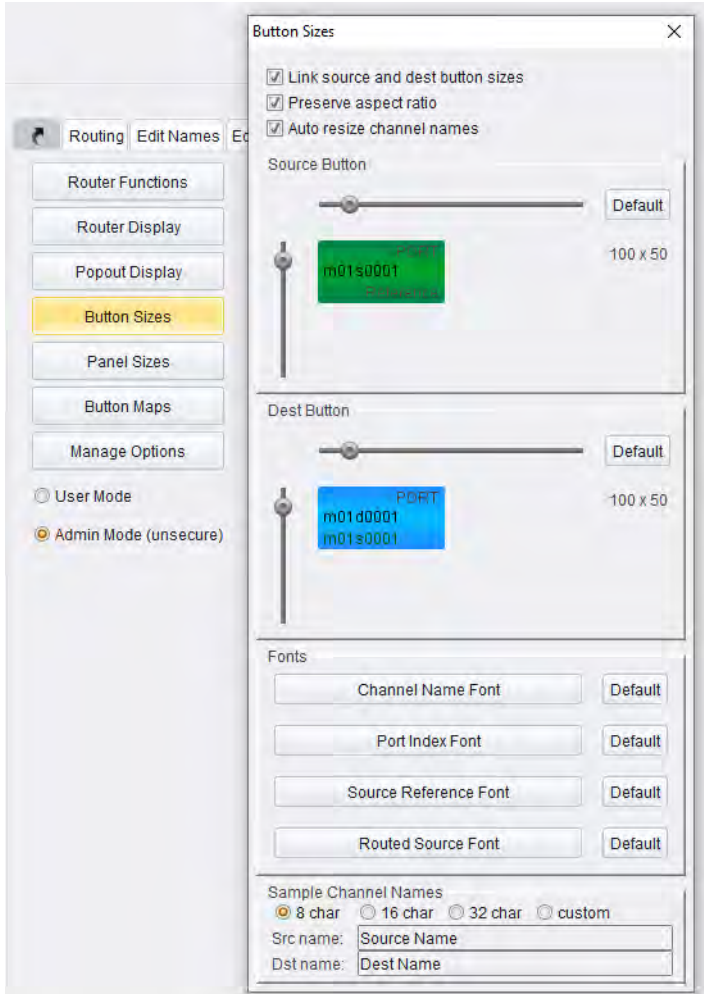
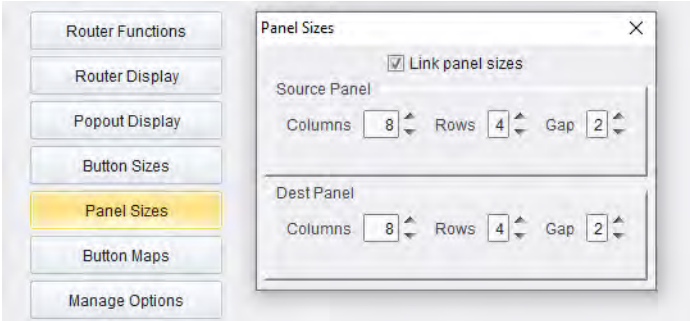
Option	Description
<p>Button Sizes</p>	<p>The source and destination buttons can be resized and button text formatted.</p> 

Table 6-3: XY Panel Control Screen - Option Controls (continued)

Option	Description
<p>Panel Sizes</p>	<p>Adjust the number of rows and columns of source and destination buttons of the XY panel, and the spacing between rows/columns.</p> 
<p>Button Maps</p>	<p>Use button maps to define alternative mappings of the source and destination buttons.</p> <p>Do this to:</p> <ul style="list-style-type: none"> • Limit the number of source and destination buttons visible on the router displays. • Control the order in which the buttons are displayed.

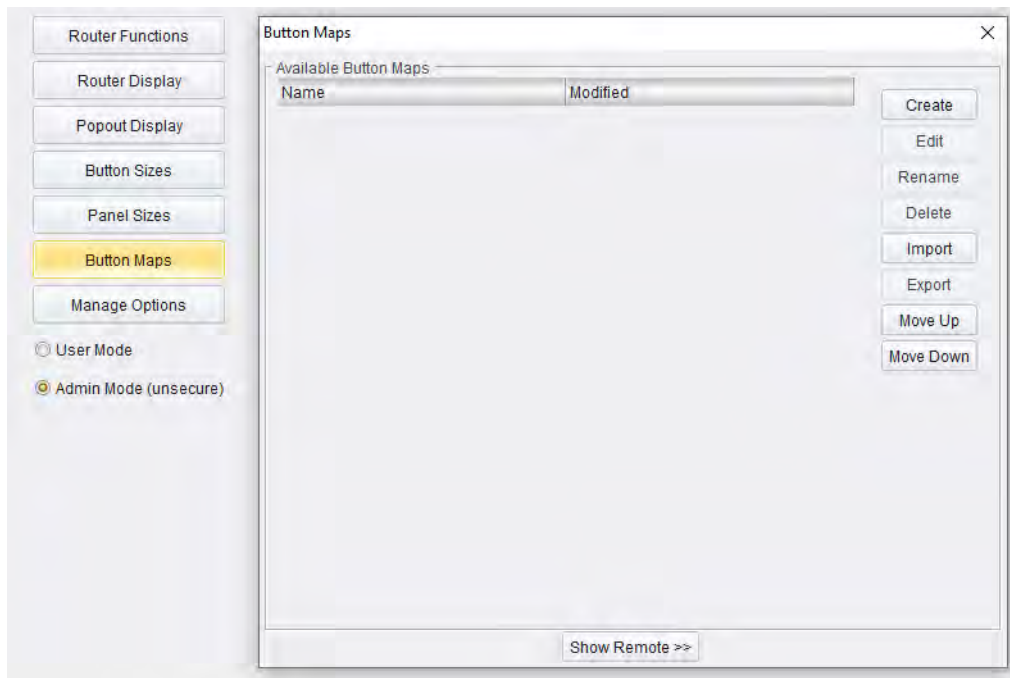
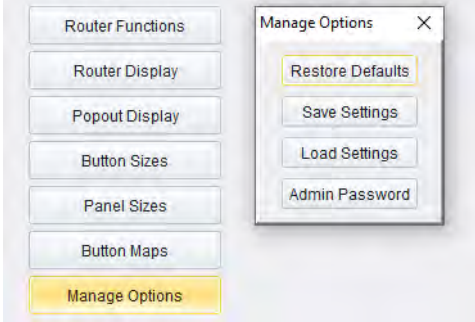


Table 6-3: XY Panel Control Screen - Option Controls (continued)

Option	Description
Manage Options	Save and load settings, restore defaults and set an admin password. 

Routing Screen

The **Routing** screen can be used to make routes. It is an alternative screen to the **XY Panel** screen ([XYPanel Control Screen - Routing Tab](#), on page 94).

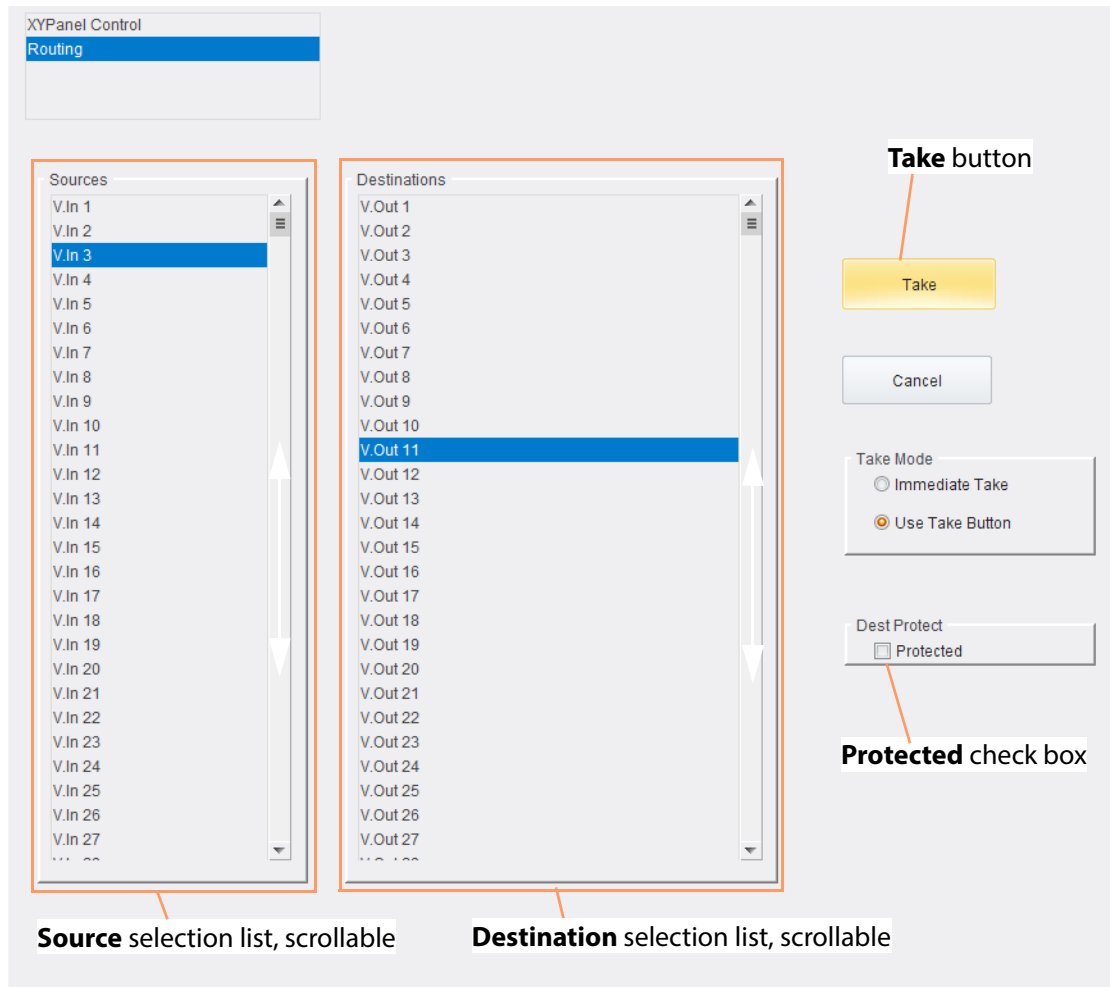


Fig. 6-16: Routing Screen

Routing

For a description of routing with this screen, see [Routing Examples](#), on page 109.

Take Mode

Routes can be made with the pressing of **Take**, or they can be made immediately after a Destination and Source are selected.

This option for the **Routing** screen is selectable in the **Take Mode** radio buttons.

Destination Protect

This is also called **Lock Route** on the MV-825-RTR web page.

When a Destination is protected (or when its 'route is locked') then no route can be made to that Destination.

To protect a Destination (or 'lock its route') from the **Routing** screen:

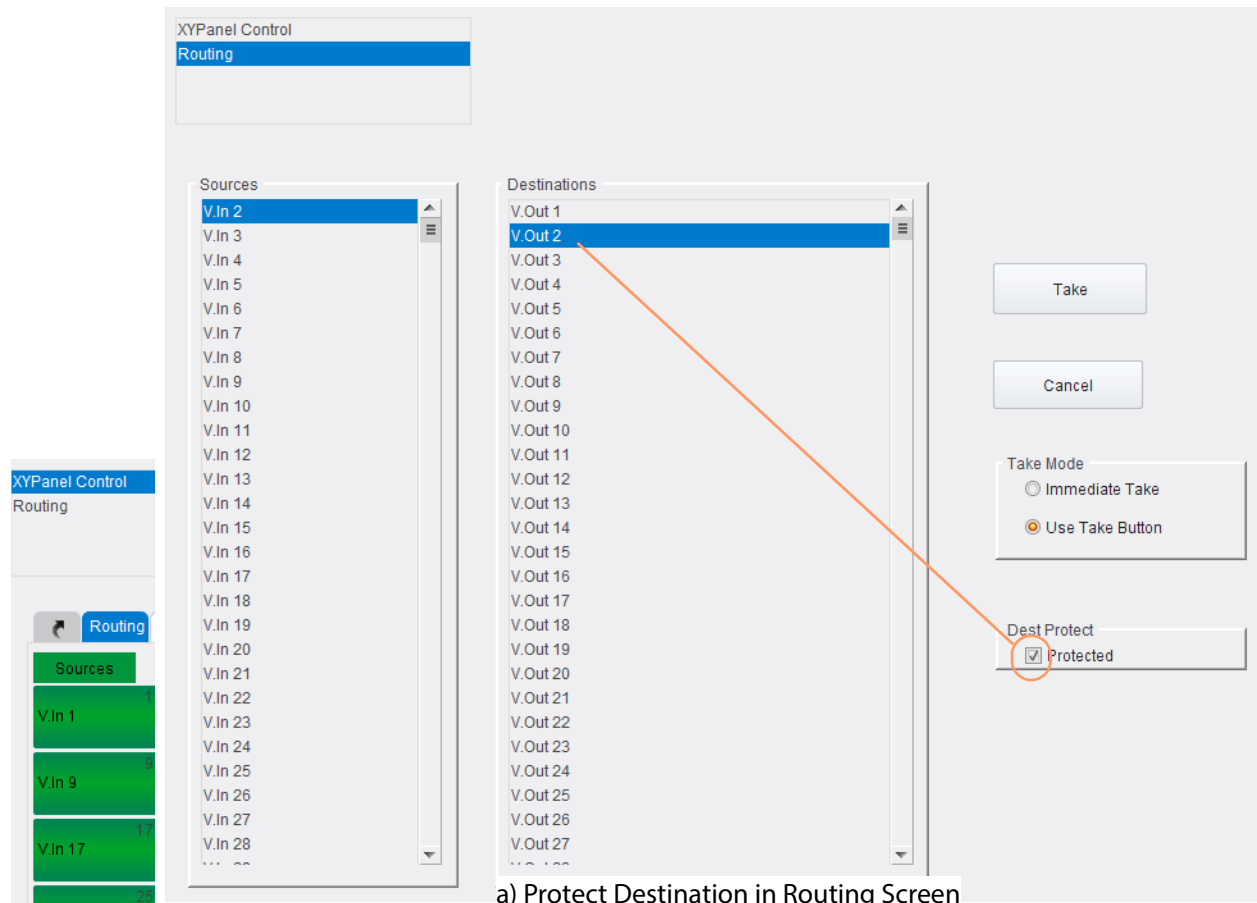
- 1 Select a Destination.
- 2 Select the **Protected** check box.

The Destination is now locked.

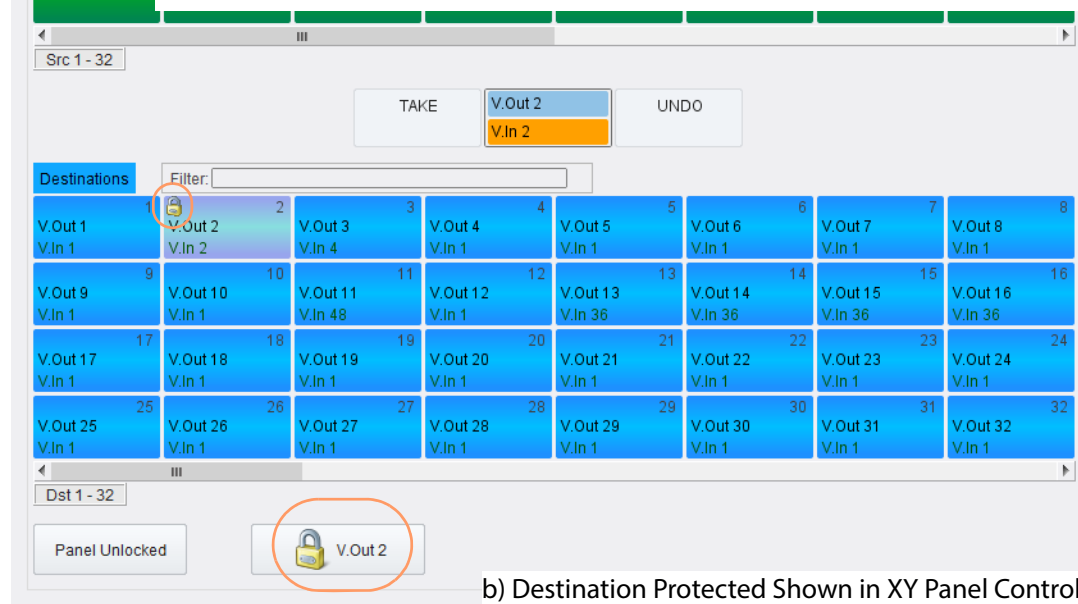
Note: A protected (locked) Destination may only be unprotected (or unlocked) either:

- by the same soft panel that protected it; or
 - from the MV-825-RTR web page (which is considered to be a master panel for protect/unprotect).
-

Router Crosspoint Control Screens
Routing Screen



a) Protect Destination in Routing Screen



b) Destination Protected Shown in XY Panel Control Screen

Fig. 6-17: Destination Protect: a) From Routing Screen; b) Shown in XY Panel Control Screen.

Routing Examples

Simple Route with XY Panel Control Screen

In the **XY Panel Control** screen's **Routing Tab**, to make a simple route for a crosspoint:

- 1 Select a **Destination**.
The currently-routed **Source** is highlighted.
- 2 Select a new **Source**. ('Pre-select' a **Source**.)



Fig. 6-18: Making a Route

- 3 Click **Take**.
The route is made from the pre-selected **Source** to the **Destination**.

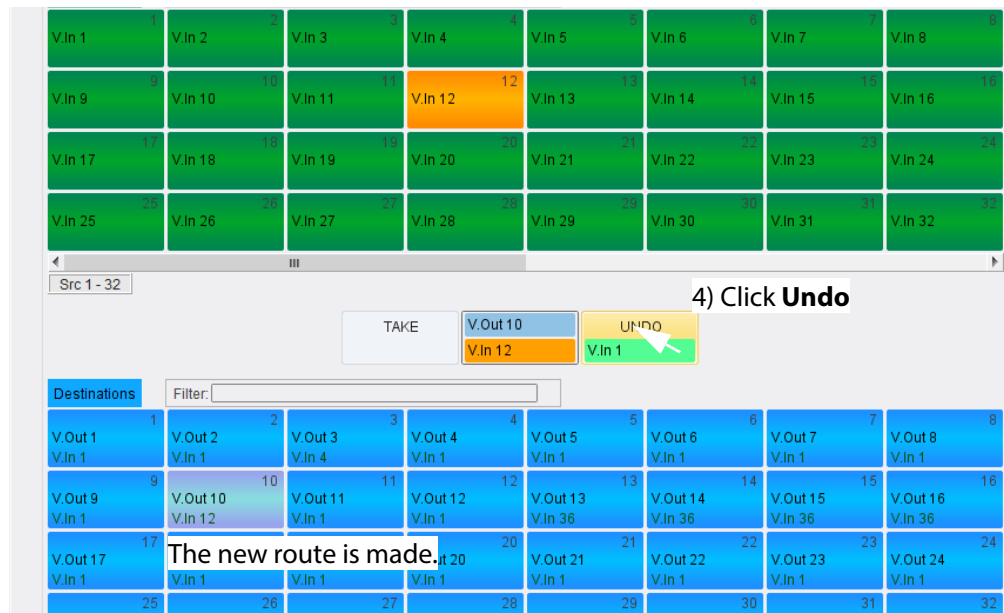


Fig. 6-19: Route Made, Undo If Required

To undo this (if required):

4 Click **Undo**.

The routing is undone and reverts to how it was before.

Note: After a timeout period, the Undo button becomes inactive. The Undo timeout is set up in the **XY Panel Control** screen's **Options Tab**.



Fig. 6-20: Route Undone

Take Information while Routing

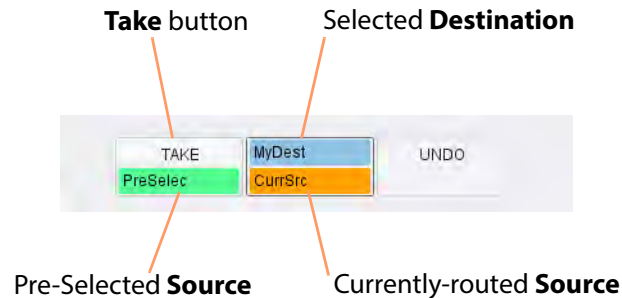


Fig. 6-21: Take Information

Simple Route with Routing Screen

In the **Routing** screen, to make a simple route for a crosspoint:

- 1 Select a **Destination**.
The currently-routed **Source** is highlighted in the 'Sources' column.
- 2 Select a new **Source**. ('Pre-select' a **Source**.)

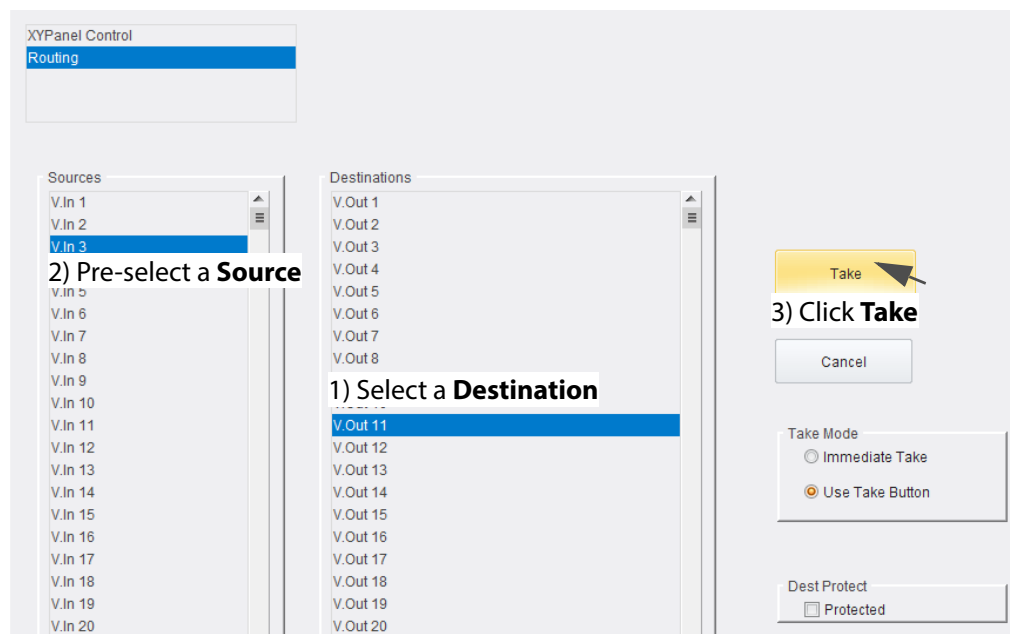


Fig. 6-22: Making a Route

- 3 To cancel a Source pre-selection, click **Cancel**.
- 4 To make the route, click **Take**.
The route is made from the pre-selected **Source** to the **Destination**.

(The routed source is shown in the 'Sources' column. Alternatively, change to the **XY Panel Control** screen to see the source routing, see Figure 6-23.)

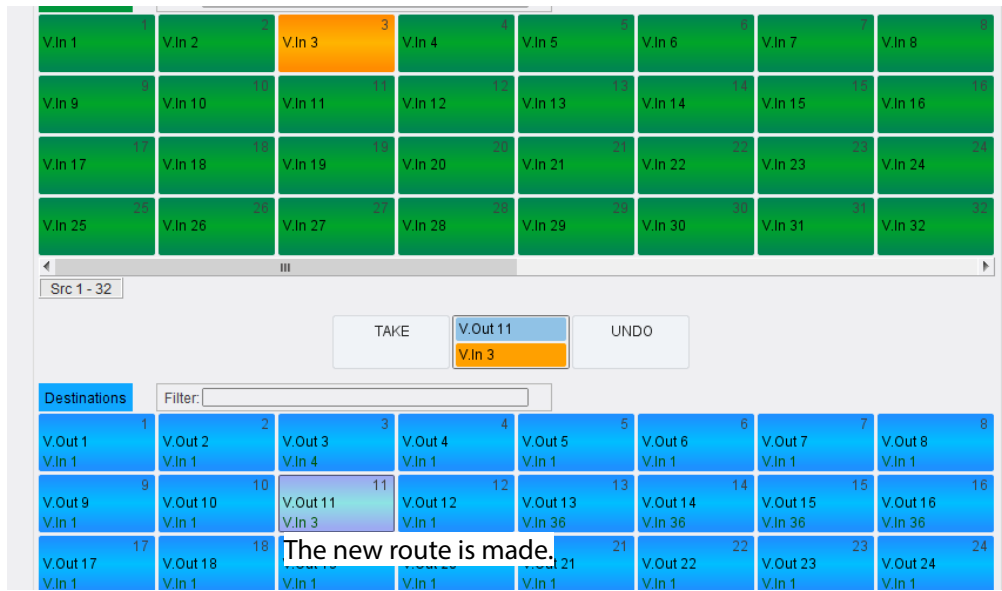


Fig. 6-23: Route Made

7

7 Router Config and Control Web Pages

Summary of chapter contents:

Router Config and Control Web Pages

<i>Open Home Web Page</i>	page 114
<i>Navigation Side Bar</i>	page 115
<i>Home Page</i>	page 116
<i>Functional Block Diagram</i>	page 116
<i>Router Information</i>	page 117
<i>Catsii Colors Page</i>	page 119
<i>Color Options</i>	page 119
<i>Router Crosspoint</i>	page 120
<i>Sources and Destinations</i>	page 120
<i>Make a Route in a Crosspoint</i>	page 121
<i>To Lock a Destination/Route in a Crosspoint</i>	page 121
<i>Router Crosspoint Page</i>	page 123
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<i>Router Crosspoint Inputs Page</i>	page 126
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<i>Sources and Destinations</i>	page 131
<i>Routing and Locking</i>	page 132
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<i>MV Head Crosspoint</i>	page 138
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<i>Routing and Locking</i>	page 139
<i>MV Head Crosspoint Page</i>	page 140
<i>MV Head Crosspoint Inputs Page</i>	page 141
<i>MV Head Crosspoint Outputs Page</i>	page 143
<i>System Configuration Page</i>	page 144
<i>Apply Changes and Restart</i>	page 147
<i>About Page</i>	page 148

This chapter describes the MV-825-RTR web pages which allow a user to:

- configure the integral router of the MV-825-RTR; and
- control the routing in the:
 - main, internal video router;
 - internal multiviewer input router; and
 - internal multiviewer head output router.

Open Home Web Page

Note: An MV-825-RTR unit comprises an integral router and integral core multiviewer. To access the *router's* web page, use:

- the router's IP address; and
- rear Ethernet control port 'Router 1' or 'Router 2'.

(Default IP addresses are listed in [Ethernet Rear Panel Connectors](#), on page 195.)

To open the router's **Home** web page:

- 1 Enter the control IP address of the router within the MV-825-RTR into a web browser. (For example, Chrome.)

The **Home** web page is shown.

grass valley MV-825-RTR

Home Page
Catsii Colors
Router Crosspoint
Router Crosspoint Inputs
Router Crosspoint Outputs
MV Input Crosspoint
MV Input Crosspoint Inputs
MV Input Crosspoint Outputs
MV Head Crosspoint
MV Head Crosspoint Inputs
MV Head Crosspoint Outputs
System Configuration
About

Click to navigate to respective configuration page:

MV-825-RTR Multiviewer with Integrated Router

48 Video Inputs → 48 → Router Crosspoint (48x12) x 48 → 48 Router Video Outputs

48 → MV Input Crosspoint (48x48) → 48 → Multiviewer (48x12) → 12 → Head Crosspoint (48x12) x 12 → 12 Multiviewer Head Display Outputs

12 → Router Crosspoint (48x12) x 48

System information

Serial number	Controller name
	MV825RTR

IP Port 1

IP address	MAC address
10.162.48.28	00:23:70:00:88:DF

IP Port 2

IP address	MAC address
10.162.49.28	00:23:70:00:B6:2F

System Reference Standard

Apply

Select System Reference Standard

Auto Match

System status

Controller DC power supply status	Controller Temperature (°C)	Crosspoint Temperature (°C)	Board Sensor A Temperature (°C)	Board Sensor B Temperature (°C)	Reference Standard One	Reference Standard Two
OK	43	54	39	34	SD 576 251	SD 486 291

Controller FPGA firmware version	Controller FPGA PA number	Controller software version
46	1309	0.99a.8.18656

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Side bar

Fig. 7-1: Home Web Page

The **Home** web page shows:

- navigation controls in a side-bar;
- a functional block diagram of the MV-825-RTR (see [Functional Block Diagram, Figure 1-3](#) on page 6); and
- some (router) system information.

The **Home** web page is described in [Home Page](#), on page 116.

Navigation Side Bar

Table 7-1: MV-825-RTR Home Web Page Navigation Side Bar

Rear Connection	Description
	Click on a sidebar item to go to the:
Home Page	• Home Page , on page 116
Catsii Colors	• Catsii Colors Page , on page 119
Router Crosspoint	• Router Crosspoint , on page 120
Router Crosspoint Inputs	• Router Crosspoint Inputs Page , on page 126
Router Crosspoint Outputs	• Router Crosspoint Outputs Page , on page 129
MV Input Crosspoint	• MV Input Crosspoint , on page 131
MV Input Crosspoint Inputs	• Router Crosspoint Inputs Page , on page 126
MV Input Crosspoint Outputs	• MV Input Crosspoint Outputs Page , on page 136
MV Head Crosspoint	• MV Head Crosspoint , on page 138
MV Head Crosspoint Inputs	• MV Head Crosspoint Inputs Page , on page 141
MV Head Crosspoint Outputs	• MV Head Crosspoint Outputs Page , on page 143
System Configuration	• System Configuration Page , on page 144
About	• About Page , on page 148

Additionally, some pages can be accessed by clicking on parts of the functional diagram on the **Home** page. See [Functional Block Diagram](#), on page 116.

Home Page

An image of the **Home** page is shown in [Figure 7-2](#) on page 116.

Functional Block Diagram

The block diagram shown on the **Home** web page is described in [Functional Block Diagram](#), on page 6. The user can click on parts of the diagram to navigate to web pages to control or configure: crosspoint inputs, crosspoint outputs and crosspoint routing. See [Figure 7-2](#).

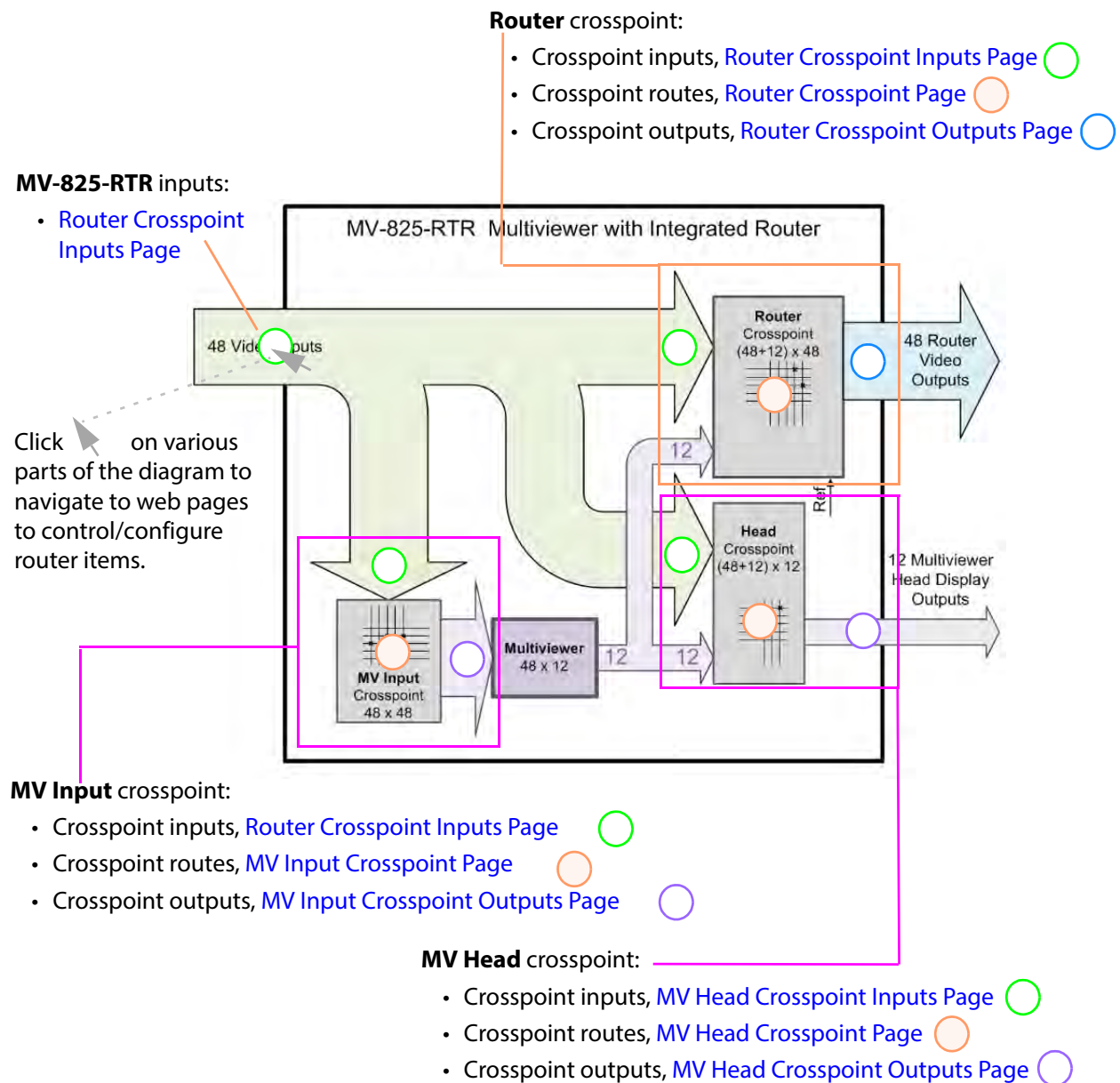


Fig. 7-2: Home Web Page Functional Block Diagram

Router Information

The information shown on the Home page is described in Table 7-2.

Table 7-2: Home Page Router Information

Item	Description
System Information:	(Read-only items.)
Serial Number	Serial number of the <i>router hardware block</i> within the MV-825-RTR unit. Note: This is <i>not</i> the same as the Unit Serial Number.
Controller Name	The 'control' name of the <i>router block</i> within the MV-825-RTR. This is user-definable.
IP Port 1	Information for the rear 'Router 1' 1GbE CTRL network interface.
IP Address	Control network interface IP address of an internal router block of the MV-825-RTR. The Home page can be viewed via this address.
MAC Address	The MAC address of the network interface. For example, 00:23:00:70:41:E2.
IP Port 2	Information for the rear 'Router 2' 1GbE CTRL network interface.
IP Address	Control network interface IP address of an internal router block of the MV-825-RTR. The Home page can be viewed via this address.
MAC Address	The MAC address of the network interface.
System Reference Standard:	Select the reference signal to be used as the reference standard for the router <i>and for the core multiviewer</i> . The crosspoints switch routes timed with the selected reference. Select: <ul style="list-style-type: none"> • Force Reference One - to use signal at rear 'REF 1' connector. • Force Reference Two - to use signal at rear 'REF 2' connector. • Auto Match - to use either the signal at rear connector 'REF 1' or at 'REF 2'. It defaults to using 'REF 1' under either of the following conditions: <ul style="list-style-type: none"> • if unable to match the signal standards; or • if 'REF 1' and 'REF 2' are detected as being identical. The selected or the matching (router) system reference standard will be shown in the System Status information, 'Reference Standard Selected'. Note: If there is no reference, nor suitable matching reference, then crosspoint switching will not be timed to a reference, but will 'crash-switch'.

Table 7-2: Home Page Router Information (continued)

Item	Description
Apply	Click to apply the selected reference signal standard type. The selected router system reference standard is shown in the System Status information, 'Reference Standard Selected'.
System Status:	(Read-only items.) Status information for the 'router' system within the MV-825-RTR. "Controller" refers to the internal router controller.
Controller DC Power Supply Status	Status of internal DC power supply to router circuits: <ul style="list-style-type: none"> • OK • Not OK
Controller Temperature	Router controller temperature. (°C)
Crosspoint Temperature	Internal, single crosspoint chip temperature. (°C)
Board Sensor A Temperature	Router circuit A temperature. (°C)
Board Sensor B Temperature	Router circuit B temperature. (°C)
Reference Standard One	The video standard detected at rear reference 'REF 1'. For example, 'SD 576 25i'; or 'No signal'
Reference Standard Two	The video standard detected at rear reference 'REF 2'.
Controller FPGA firmware version	Version of FPGA firmware used in the router controller. For example, '42'.
Controller FPGA PA number	Identifier of FPGA firmware. For example, '1309'.
Controller software version	Version of embedded software used in the router controller. For example, '0.99a.8.18656'

Note: If a user changes a setting and attempts to navigate away from the page before saving or applying the change, then a warning will be displayed. This applies to all pages on the web-interface.

Catsii Colors Page

The colors associated with the Catsii LED indicators at each rear video input can be selected. The LEDs report the video standard detected at each input.

- 1 Select a color.
- 2 Click **Apply** to apply the change to the unit.

Select 'Catsii Colors' in the side bar

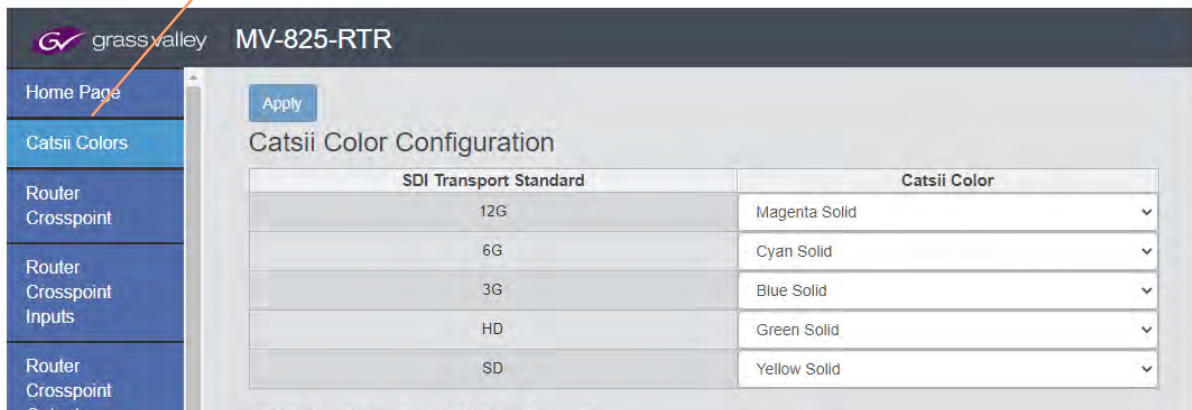


Fig. 7-3: Catsii Colors Page

Note: If a user changes a setting and attempts to navigate away from the page before saving or applying the change, then a warning will be displayed. This applies to all pages on the web-interface.

At inputs, the following SDI video standards are looked for: 12G, 6G, 3G, HD and SD.

Color Options

Catsii color options

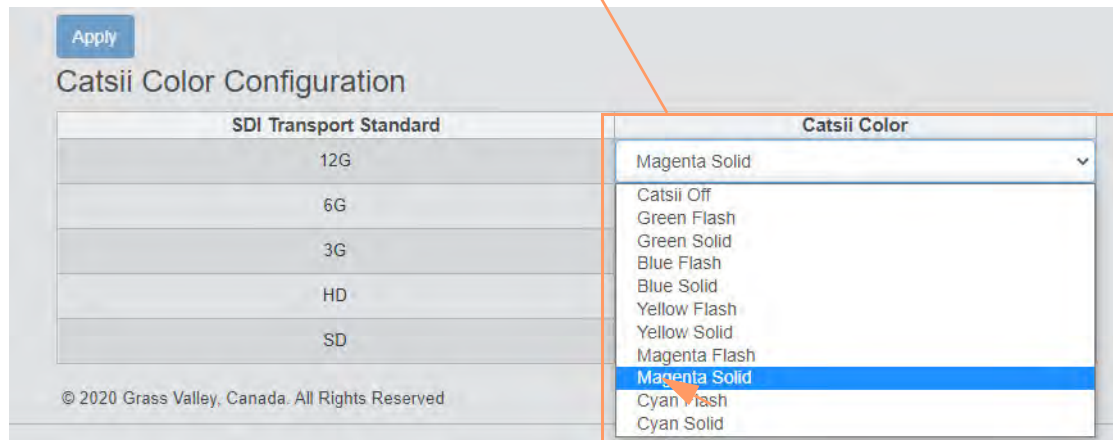


Fig. 7-4: Catsii Color Options

Router Crosspoint

The **Router** crosspoint controls the MV-825-RTR router. I.e. the routing of any MV-825-RTR router video input to any MV-825-RTR router video output.

The **Router** crosspoint pages enable a user to configure crosspoint inputs and outputs (router sources and destinations) and control the crosspoint routing.

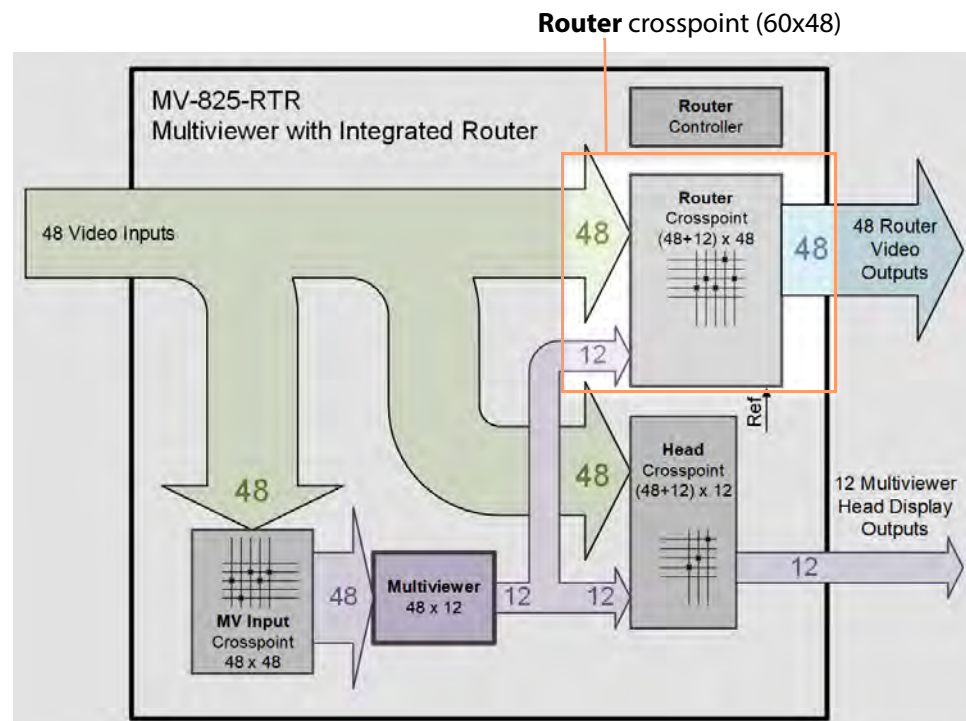


Fig. 7-5: Router Crosspoint in MV-825-RTR Functional Block Diagram

Sources and Destinations

The **Router Crosspoint** has the following Sources (crosspoint inputs):

- MV-825-RTR video inputs 1 to 48.
- 12 internal head display signals.

And the **Router Crosspoint** has the following Destinations (crosspoint outputs):

- MV-825-RTR video outputs 1 to 48.

Note: Initially, the routes set up are '1:1'.
I.e. Crosspoint input 1 routed to crosspoint output 1, input 2 to output 2, 3 to 3, etc.

See:

- [Router Crosspoint Page](#), on page 123.
- [Router Crosspoint Inputs Page](#), on page 126.
- [Router Crosspoint Outputs Page](#), on page 129.

Make a Route in a Crosspoint

A route can be made from the [Router Crosspoint Page](#) web page.

Note: Routing is a common operation for the other crosspoints.

See:

- [Router Crosspoint Page](#), on page 123,
- [MV Input Crosspoint Page](#), on page 133, and
- [MV Head Crosspoint](#), on page 138

for images of the respective crosspoint routing web pages.

1 Select a **Destination**.

The currently-routed Source to the selected Destination is highlighted.

2 Select a (new) **Source** to route.

The new Source is pre-selected.

3 Click on **Take**.

The route is made.

IMPORTANT When making a route, select the Destination first.

To Lock a Destination/Route in a Crosspoint

The existing route to a Destination may be locked (protected) to prevent other routing to be made to it.

The MV-825-RTR web page is considered to be a master panel for locking/unlocking (protecting/unprotecting). A master panel can unlock a Destination that has been locked by another control panel. (A *non*-master panel can only unlock a Destination which it itself has locked.)

IMPORTANT Lock / Unlock from the web page:

If a Destination has been locked via the MV-825-RTR web page, then it may only be unlocked from the web page.

The MV-825-RTR web page is considered to be a master panel for locking/unlocking (protecting/unprotecting).

Note: Locking and unlocking of a Destination/route can be made from the [Router Crosspoint Page](#) web page and is a common operation across the other crosspoints

To Lock

To lock (protect) the route to a Destination:

1 Select a **Destination**.

2 Click **Lock Route**.

A pop-up dialog states that the lock has been applied.

3 Click **OK**.

The Destination is locked (protected) and the route to it locked.



Fig. 7-6: Lock Destination

Routing to a Locked Destination/Route

If a route is attempted to a locked Destination, a pop-up dialog and informs the user that the route has been locked.

- Click **OK** in the dialog to continue.

No route is made.

Unlock a Locked Destination/Route

IMPORTANT

Lock / Unlock from the web page:

If a Destination has been locked via the MV-825-RTR web page, then it may only be unlocked from the web page.

To unlock the route to a locked Destination:

- 1 Select the **Destination**.
- 2 Click **UnLock Route**.

The Destination and route to it is unlocked.

Router Crosspoint Page

Note: This crosspoint page is similar to the [MV Input Crosspoint Page](#) and [MV Head Crosspoint Page](#).

This page enables a user to make routes with the **Router** crosspoint in the MV-825-RTR. (The router/crosspoint architecture of the MV-825-RTR is described in [Functional Block Diagram](#), on page 6.)

Select 'Router Crosspoint' in the side bar

The screenshot displays the Router Crosspoint configuration interface. On the left, a sidebar lists various system pages, with 'Router Crosspoint' selected. The main area is divided into 'Sources' and 'Destinations' sections. The 'Sources' section contains a grid of 48 source buttons (V In 1 to V In 48) and a row of 12 MV Out buttons (MV Out 1 to MV Out 12). The 'Destinations' section contains a grid of 48 destination buttons (V Out 1 to V Out 48) and 'Lock Route' and 'Unlock Route' buttons. At the bottom, there are labels for 'Destination:', 'Current Source:', and 'Preselected Source:', with a red 'TAKE' button highlighted by an orange arrow and labeled 'Take button'.

Fig. 7-7: Router Crosspoint Page

Source Buttons

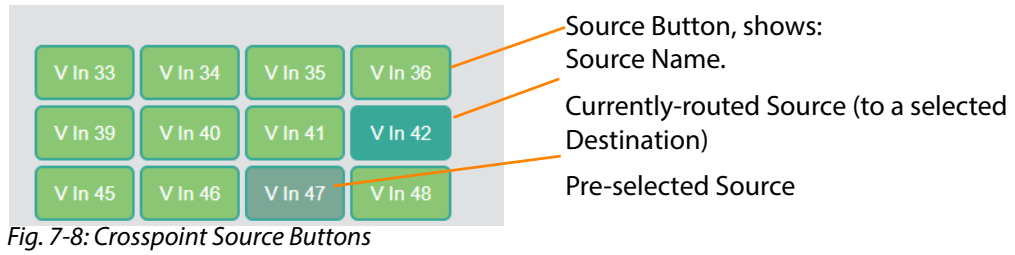


Fig. 7-8: Crosspoint Source Buttons

Router Input 24	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 24	V.In 24
Router Input 25	SD 576 25I	SD 576 25I	<input checked="" type="checkbox"/>	25	Video Input 25	V.In 25
Router Input 26	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	25	Video Input 26	V.In 26
Router Input 27	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	25	Video Input 27	V.In 27
Router Input 28	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	25	Video Input 28	V.In 28
Router Input 29	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 29	V.In 29

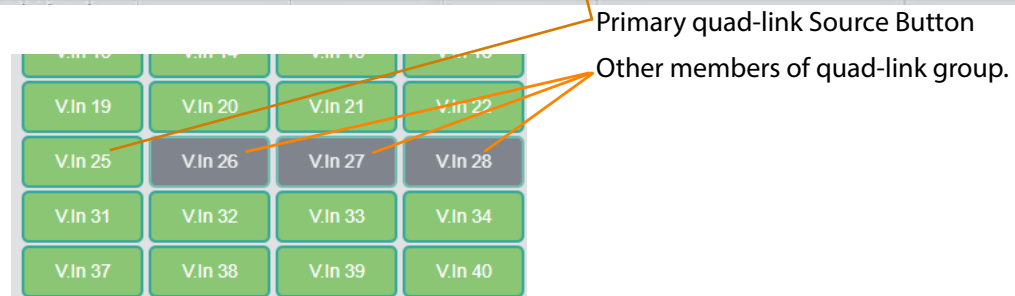


Fig. 7-9: Quad-Link Source Buttons

Destination Buttons

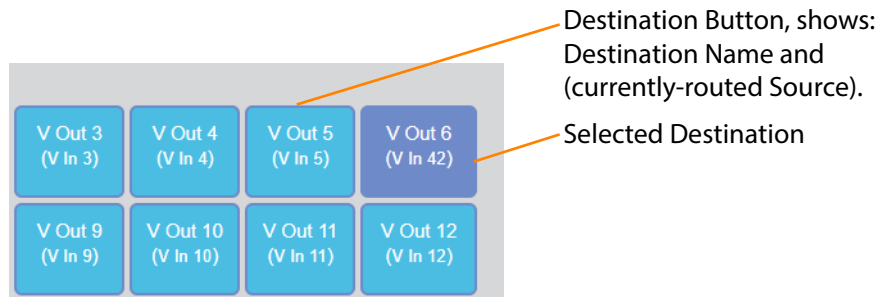


Fig. 7-10: Crosspoint Destination Buttons

Router Output 11	<input type="checkbox"/>	single port	Video Output 11	V.Out 11
Router Output 12	<input type="checkbox"/>	single port	Video Output 12	V.Out 12
Router Output 13	<input checked="" type="checkbox"/>	13	Video Output 13	V.Out 13
Router Output 14	<input checked="" type="checkbox"/>	13	Video Output 14	V.Out 14
Router Output 15	<input checked="" type="checkbox"/>	13	Video Output 15	V.Out 15
Router Output 16	<input checked="" type="checkbox"/>	13	Video Output 16	V.Out 16
Router Output 17	<input type="checkbox"/>	single port	Video Output 17	V.Out 17
Router Output 18	<input type="checkbox"/>	single port	Video Output 18	V.Out 18

Primary quad-link Destination Button
Other members of quad-link group.



Fig. 7-11: Quad-link Destination Buttons

Router Crosspoint Inputs Page

This page enables a user to configure inputs to the **Router** crosspoint.

Note: The **Router** crosspoint shares some inputs with other crosspoints and common input settings are reflected in other web pages.

For example,
'Router Input 8' also feeds the **MV Input** crosspoint and the **MV Head** crosspoint. Therefore, 'Router Input 8' is shown on those corresponding 'Crosspoint Inputs' pages also.

The page is shown in [Figure 7-12](#) on page 127 and displays a list of crosspoint inputs (sources for the crosspoint). For the **Router** crosspoint, there are two groups:

- MV-825-RTR Router Inputs 1 to 48.
(The first list item in the group, **All**, affects all of the Router Inputs.)
- Multiviewer Heads 1 to 12 from the internal multiviewer.
(The first list item in the group, **All**, affects all of the internal Multiviewer Head signals.)

Apply button

Note: The **Apply** button is grayed out until a change has been made on the page.

All Router Inputs list item

Router Inputs 1 to 48

All Internal Multiviewer Head signals (12) list item

Internal Multiviewer Head signals 1 to 12

Physical	Input Standard	System Reference Standard Selected	4K (Select the first input of a quad link source - groups 4 consecutive inputs)	Primary quad-link	Video 32 character name	Video 8 character name
All			<input type="checkbox"/>			
Router Input 1	3G-A 1080 59P	SD 576 25I	<input type="checkbox"/>	single port	Video Input 1	V In 1
Router Input 2	3G-A 1080 60P	SD 576 25I	<input type="checkbox"/>	single port	Video Input 2	V In 2
Router Input 3	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 3	V In 3
Router Input 4	3G-A 1080 60P	SD 576 25I	<input type="checkbox"/>	single port	Video Input 4	V In 4
Router Input 5	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 5	V In 5
Router Input 6	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 6	V In 6
Router Input 7	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 7	V In 7
Router Input 8	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 8	V In 8
Router Input 9	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 9	V In 9
Router Input 10	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 10	V In 10
Router Input 11	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 11	V In 11
Router Input 12	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 12	V In 12
Router input 13	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 13	V In 13
Router input 14	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 14	V In 14
Router input 15	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 15	V In 15
Router input 16	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 16	V In 16
Router input 17	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 17	V In 17
Router input 18	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 18	V In 18
Router input 19	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 19	V In 19
Router input 20	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 20	V In 20
Router input 21	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 21	V In 21
Router input 22	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 22	V In 22
Router input 23	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 23	V In 23
Router input 24	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 24	V In 24
Router input 25	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 25	V In 25
Router input 26	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 26	V In 26
Router input 27	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 27	V In 27
Router input 28	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 28	V In 28
Router input 29	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 29	V In 29
Router input 30	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 30	V In 30
Router input 31	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 31	V In 31
Router input 32	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 32	V In 32
Router input 33	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 33	V In 33
Router input 34	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 34	V In 34
Router input 35	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 35	V In 35
Router input 36	unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 36	V In 36
Router input 37	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 37	V In 37
Router input 38	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 38	V In 38
Router input 39	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 39	V In 39
Router input 40	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 40	V In 40
Router input 41	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 41	V In 41
Router input 42	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 42	V In 42
Router input 43	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 43	V In 43
Router input 44	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 44	V In 44
Router input 45	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 45	V In 45
Router input 46	unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 46	V In 46
Router input 47	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 47	V In 47
Router Input 48	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Video Input 48	V In 48
Inputs from Multiviewer						
All			<input type="checkbox"/>			
Multiviewer Head Input 1	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	51	Multiviewer Output 1	MV Out 1
Multiviewer Head Input 2	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	51	Multiviewer Output 2	MV Out 2
Multiviewer Head Input 3	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	51	Multiviewer Output 3	MV Out 3
Multiviewer Head Input 4	no signal or unknown standard	SD 576 25I	<input checked="" type="checkbox"/>	51	Multiviewer Output 4	MV Out 4
Multiviewer Head Input 5	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 5	MV Out 5
Multiviewer Head Input 6	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 6	MV Out 6
Multiviewer Head Input 7	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 7	MV Out 7
Multiviewer Head Input 8	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 8	MV Out 8
Multiviewer Head Input 9	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 9	MV Out 9
Multiviewer Head Input 10	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 10	MV Out 10
Multiviewer Head Input 11	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 11	MV Out 11
Multiviewer Head Input 12	no signal or unknown standard	SD 576 25I	<input type="checkbox"/>	single port	Multiviewer Output 12	MV Out 12

Fig. 7-12: Router Crosspoint Inputs Page

The page lists information about each crosspoint input and enables some input settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.
 A confirming pop-up dialog informs the user that changes have been applied.
- 2 Click **OK** in the pop-up dialog to continue.

Table 7-3 describes the list columns on the page.

Table 7-3: Router Crosspoint Inputs Information

Column Item	Description
Physical	(Read-only) The name of each input in the physical unit.
Input Standard:	(Read-only) Displays the detected video standard at the input. Note: "no signal or unknown standard" is displayed when an input is absent.
System Reference Standard Selected:	(Read-only) Reference standard selected. For example, 'SD 525 25i' Note: If there is no reference, then crosspoint switching will not be timed to a reference, but will 'crash-switch'.
4K	Check box. To designate four inputs as a 4K quad-link: <ul style="list-style-type: none"> • Select the first input of <u>four consecutive inputs</u>. The remaining three inputs are automatically selected to make a 4K quad-link input. • Click Apply to apply the changes. Note: The Apply button requires four items to be selected to be 'clickable.' • And, finally, click OK in the confirming the pop-up dialog.) To reverse this, simply deselect and apply.
Primary Quad-link	Indicates the first quad-link input 'channel' in the quad-link group of four, or indicates 'single port' when no quad-link is set up. For example, if crosspoint inputs 9,10,11, and 12 are grouped as a quad-link. The Primary quad-link channel is '9'.
Video 32 Character Name	Enter a 32 character name assigned to the input signal. This may be assigned in a routing system.
Video 8 Character Name	Enter a shorter 8-character name.

Router Crosspoint Outputs Page

This page enables a user to configure outputs from the **Router** crosspoint.

The page is shown in Figure 7-13 and displays a list of crosspoint outputs (destinations of the crosspoint). For the **Router** crosspoint, these are:

- MV-825-RTR Router Outputs 1 to 48.
(The first list item, **All**, affects all of the Router Outputs.)

The screenshot shows the 'Router Crosspoint' configuration page. At the top left is an 'Apply' button. Below it is the title 'Router Crosspoint' and 'Video Output Names'. A table lists 48 outputs. The first row is 'All', followed by 'Router Output 1' through 'Router Output 48'. Each row has a '4K' toggle, a 'Primary quad-link' description, a 'Video 32 character name', and a 'Video 8 character name'. Annotations with arrows point to the 'Apply' button, the 'All' row, and the 'Router Output 1' through 'Router Output 48' rows.

Physical	4K (Select the first output of a quad link destination - groups 4 consecutive outputs)	Primary quad-link	Video 32 character name	Video 8 character name
All	<input checked="" type="checkbox"/>			
Router Output 1	<input checked="" type="checkbox"/>	single port	12345678901234567890123456789012	Out 1
Router Output 2	<input checked="" type="checkbox"/>	single port	12345678901234567890123456789012	V Out 2
Router Output 3	<input checked="" type="checkbox"/>	single port	Video Output 3	V Out 3
Router Output 4	<input checked="" type="checkbox"/>	single port	Video Output 4	V Out 4
Router Output 5	<input checked="" type="checkbox"/>	single port	Video Output 5	V Out 5
Router Output 6	<input checked="" type="checkbox"/>	single port	Video Output 6	V Out 6
Router Output 7	<input checked="" type="checkbox"/>	single port	Video Output 7	V Out 7
Router Output 8	<input checked="" type="checkbox"/>	single port	Video Output 8	V Out 8
Router Output 9	<input checked="" type="checkbox"/>	single port	Video Output 9	V Out 9
Router Output 10	<input checked="" type="checkbox"/>	single port	Video Output 10	V Out 10
Router Output 11	<input checked="" type="checkbox"/>	single port	Video Output 11	V Out 11
Router Output 12	<input checked="" type="checkbox"/>	single port	Video Output 12	V Out 12
Router Output 13	<input checked="" type="checkbox"/>	single port	Video Output 13	V Out 13
Router Output 14	<input checked="" type="checkbox"/>	single port	Video Output 14	V Out 14
Router Output 15	<input checked="" type="checkbox"/>	single port	Video Output 15	V Out 15
Router Output 16	<input checked="" type="checkbox"/>	single port	Video Output 16	V Out 16
Router Output 17	<input checked="" type="checkbox"/>	single port	Video Output 17	V Out 17
Router Output 43	<input checked="" type="checkbox"/>	single port	Video Output 43	V Out 43
Router Output 44	<input checked="" type="checkbox"/>	single port	Video Output 44	V Out 44
Router Output 45	<input checked="" type="checkbox"/>	single port	Video Output 45	V Out 45
Router Output 46	<input checked="" type="checkbox"/>	single port	Video Output 46	V Out 46
Router Output 47	<input checked="" type="checkbox"/>	single port	Video Output 47	V Out 47
Router Output 48	<input checked="" type="checkbox"/>	single port	Video Output 48	V Out 48

Fig. 7-13: Router Crosspoint Outputs Page

The page lists information about each crosspoint output and enables some input settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.
A confirming pop-up dialog informs the user that changes have been applied.
- 2 Click **OK** in the pop-up dialog to continue.

Table 7-4 describes the list columns on the page.

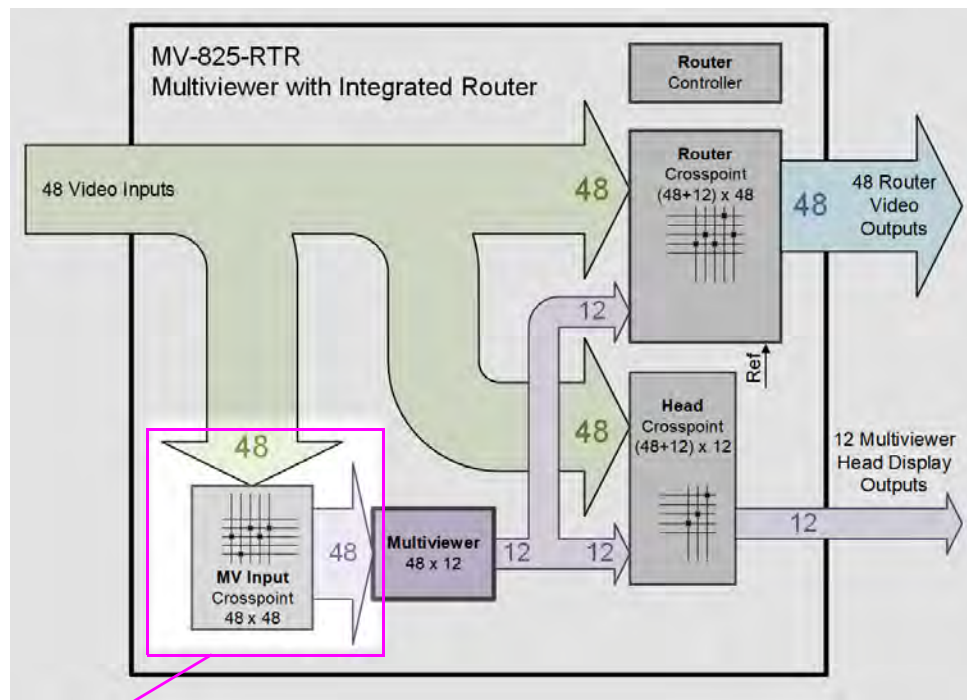
Table 7-4: Router Crosspoint Outputs Information

Column Item	Description
Physical	(Read-only) The name of each output in the physical unit.
4K	Check box. To designate four outputs as a 4K quad-link: <ul style="list-style-type: none">• Select the first input of four consecutive inputs. The remaining three inputs are automatically selected to make a 4K quad-link input.• Click Apply to apply the changes. Note: The Apply button requires four items to be selected to be 'clickable.'• And, finally, click OK in confirming the pop-up dialog.) To reverse this, simply deselect and apply.
First or Primary Quad-link in Group	Indicates the first quad-link output 'channel' in the quad-link group of four, or indicates 'single port' when no quad-link is set up.
Video 32 Character Name	Enter a 32 character name assigned to the output signal. This may be assigned in a routing system.
Video 8 Character Name	Enter a shorter 8-character name.

MV Input Crosspoint

Note: The **MV Input** crosspoint has similar web pages to the **Router** crosspoint and the information shown and the controls available are similar to the **Router** crosspoint pages.

The **MV Input** crosspoint can route any of the 48 MV-825-RTR router video inputs to any of the 48 internal core multiviewer inputs (and hence to video wall tiles).



MV Input crosspoint (48x48)

Fig. 7-14: MV Input Crosspoint in MV-825-RTR Functional Block Diagram

Sources and Destinations

The **MV Input** crosspoint has the following Sources (crosspoint inputs):

- MV-825-RTR video inputs 1 to 48.

And the following Destinations (crosspoint outputs):

- MV-825-RTR internal multiviewer inputs 1 to 48.

Note: These **MV Input** crosspoint destinations (crosspoint outputs) are fully internal, being outputs from the router and inputs to the internal multiviewer. They have the 'physical' names *Multiviewer Tile Output 1* to 48.

Note: Initially, the routes set up are '1:1'.
I.e. Crosspoint input 1 routed to crosspoint output 1, input 2 to output 2, 3 to 3, etc.

See:

- [MV Input Crosspoint Page](#), on page 133.
- [MV Input Crosspoint Inputs Page](#), on page 134.
- [MV Input Crosspoint Outputs Page](#), on page 136.

Routing and Locking

Make a Route

A route can be made from the [MV Input Crosspoint Page](#) web page.

Note: Routing is a common operation for the other crosspoints.
See [Make a Route in a Crosspoint](#), on page 121, for further details on making a route.

To Lock/Unlock a Route

The existing route to a Destination may be locked to prevent other routing to be made to it. This may be done from the [MV Input Crosspoint Page](#) web page.

IMPORTANT
If a Destination has been locked via the web page,
then it may only be unlocked from the web page.

If a route is attempted to a locked Destination, a pop-up dialog and informs the user that the route has been locked.

Note: Locking and unlocking of a Destination/route is a common operation across the other crosspoints.
See [To Lock a Destination/Route in a Crosspoint](#), on page 121, for further details on Lock/Unlock.

MV Input Crosspoint Page

Note: This crosspoint page is similar to the [Router Crosspoint Page](#). See the [Router Crosspoint Page](#) for more information.

This page enables a user to make routes with the **MV Input** crosspoint in the MV-825-RTR. (The router/crosspoint architecture of the MV-825-RTR is described in [Functional Block Diagram](#), on page 6.)

Select 'MV Input Crosspoint' in the side bar

The screenshot displays the MV-825-RTR interface. On the left is a sidebar with the following menu items: Home Page, Catsif Colors, Router Crosspoint, Router Crosspoint Inputs, Router Crosspoint Outputs, **MV Input Crosspoint**, MV Input Crosspoint Inputs, MV Input Crosspoint Outputs, MV Head Crosspoint, MV Head Crosspoint Inputs, MV Head Crosspoint Outputs, System Configuration, and About. The main area is titled 'MV-825-RTR' and contains two primary sections: 'Sources' and 'Destinations'. The 'Sources' section shows a 6x6 grid of green buttons labeled 'V In 2' through 'V In 48'. The 'Destinations' section shows a 6x6 grid of blue buttons labeled 'MV Tile 1 (12345678)' through 'MV Tile 48 (V In 48)'. To the right of the 'Destinations' grid are 'Lock Route' and 'Unlock Route' buttons. At the bottom, there are labels for 'Destination :', 'Current Source :', and 'Preselected Source :'. The 'Current Source' label is followed by a 'Take button' label. Below the 'Preselected Source' label is a red 'TAKE' button.

Fig. 7-15: MV Input Crosspoint Page

MV Input Crosspoint Inputs Page

This page enables a user to configure inputs to the **MV Input** crosspoint.

Note: The **MV Input** crosspoint shares some inputs with other crosspoints and common input settings are reflected in other web pages.
Changes made to common inputs are reflected in the other respective web pages.

For example, 'Router Input 8' also feeds the **Router** crosspoint, the **MV Input** crosspoint, and the **MV Head** crosspoint. Therefore, 'Router Input 8' is shown on those corresponding 'Crosspoint Inputs' pages also and any changes made to 'Router Input 8' will be reflected across other corresponding web pages.

The page displays a list of crosspoint inputs (sources for the crosspoint). For the **MV Input** crosspoint, this is:

- MV-825-RTR Router Inputs 1 to 48.
(The first list item, **All**, affects all of the Router Inputs.)

Apply button

All Router Inputs (48) list item

Router Inputs 1 to 48

Physical	Input Standard	System Reference Standard Selected	4K Sources (Select the first input of a quad link source - groups 4 consecutive inputs)	Primary quad-link	Video 32 character name	Video 8 character name
All			<input type="radio"/>			
Router Input 1			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 2			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 3			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 4			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 5			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 6			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 7			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 8			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 9			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 10			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 11			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 12			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 13			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 38			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 39			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 40			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 41			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 42			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 43			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 44			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 45			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 46			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 47			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1
Router Input 48			<input type="radio"/>		CAM-LDN 1	CAM-LDN 1

Fig. 7-16: MV Input Crosspoint Inputs Page

The page lists information about each crosspoint input and enables some input settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.
A confirming pop-up dialog informs the user that changes have been applied.
- 2 Click **OK** in the pop-up dialog to continue.

Table 7-3 on page 128 describes the list columns on the page.

MV Input Crosspoint Outputs Page

This page enables a user to configure outputs from the **MV Input** crosspoint.

The page is shown in Figure 7-13 and displays a list of crosspoint outputs (destinations of the crosspoint). For the **MV Input** crosspoint, these are:

- MV-825-RTR internal multiviewer inputs 1 to 48 (Labeled as *Multiviewer Head Outputs 1 to 48* on the web page.).
(The first list item, **All**, affects all of the crosspoint's outputs.)

Apply button

All list item

Internal Multiviewer Input signals (aka Multiviewer Tile Output) 1 to 48

Physical	4K (Select the first output of a quad link destination - groups 4 consecutive outputs)	Primary quad-link	Video 32 character name	Video 8 character name
All	<input type="checkbox"/>			
Multiviewer Tile Output 1	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 2	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 3	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 4	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 5	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 6	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 7	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 8	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 9	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 10	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 11	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 12	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 13	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 14	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 15	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 16	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 17	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 18	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 19	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 20	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 21	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 22	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 23	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 24	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 25	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 26	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 27	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 28	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 29	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 30	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 31	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 32	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 33	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 34	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 35	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 36	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 37	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 38	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 39	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 40	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 41	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 42	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 43	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 44	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 45	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 46	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 47	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1
Multiviewer Tile Output 48	<input type="checkbox"/>		CAM-LDN 1	CAM-LDN 1

Fig. 7-17: MV Input Crosspoint Outputs Page

The page lists information about each crosspoint output and enables some output settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.

A confirming pop-up dialog informs the user that changes have been applied.

2 Click **OK** in the pop-up dialog to continue.

[Table 7-4](#) on page 130 describes the list columns on the page.

MV Head Crosspoint

Note: The **MV Head** crosspoint has similar web pages to the **Router** crosspoint and the information shown and the controls available are similar to the **Router** crosspoint pages.

The **MV Head** crosspoint can route any of the 48 MV-825-RTR router video inputs or internal 12 Multiviewer Heads to any of the 12 external, rear Multiviewer Head Display Outputs.

Note: The **MV Head** crosspoint is 3G-SDI only. It is mainly used to route the internal 3G-SDI multiviewer head signals to the (3G-SDI) video SFP multiviewer head display outputs on the rear of the MV-825-RTR.

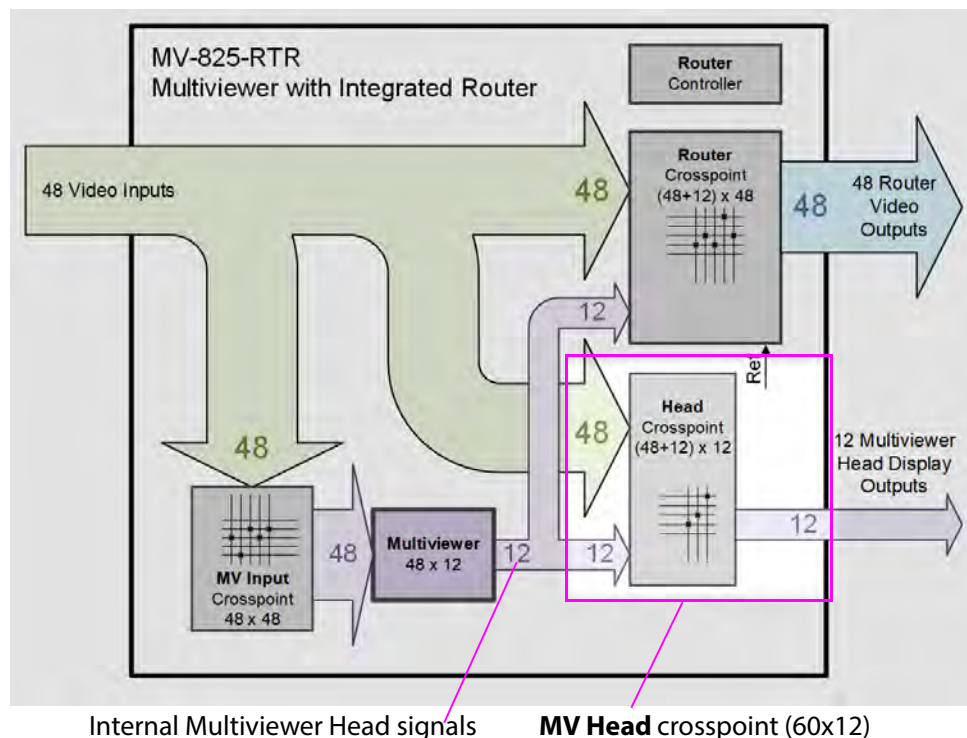


Fig. 7-18: MV Head Crosspoint in MV-825-RTR Functional Block Diagram

Sources and Destinations

The **MV Head** crosspoint has the following Sources (crosspoint inputs):

- MV-825-RTR video inputs 1 to 48; and
- Internal Multiviewer Head signals 1 to 12.

And the following Destinations (crosspoint outputs):

- MV-825-RTR external, rear Multiviewer Head Display outputs 1 to 12.

Note: Initially, the routes set up are '1:1'.
I.e. Crosspoint input 1 routed to crosspoint output 1, input 2 to
output 2, 3 to 3, etc.

Routing and Locking

Make a Route

A route can be made from the [MV Head Crosspoint Page](#) web page.

Note: Routing is a common operation for the other crosspoints.
See [Make a Route in a Crosspoint](#), on page 121, for further details
on making a route.

To Lock/Unlock a Route

The existing route to a Destination may be locked to prevent other routing to be made to it.
This is done from the [MV Head Crosspoint Page](#) web page. If a route is attempted to a
locked Destination, a pop-up dialog and informs the user that the route has been locked.

IMPORTANT
If a Destination has been locked via the web page,
then it may only be unlocked from the web page.

Note: Locking and unlocking of a Destination/route is a common
operation across the other crosspoints.
See [To Lock a Destination/Route in a Crosspoint](#), on page 121, for
further details on Lock/Unlock.

See:

- [MV Head Crosspoint Page](#), on page 140.
- [MV Head Crosspoint Inputs Page](#), on page 141.
- [MV Head Crosspoint Outputs Page](#), on page 143.

MV Head Crosspoint Page

Note: This crosspoint page is similar to the [Router Crosspoint Page](#). See the [Router Crosspoint Page](#) for more information.

This page enables a user to make routes with the **MV Head** crosspoint in the MV-825-RTR. (The router/crosspoint architecture of the MV-825-RTR is described in [Functional Block Diagram](#), on page 6.)



Fig. 7-19: MV Head Crosspoint Page

MV Head Crosspoint Inputs Page

This page enables a user to configure inputs to the **MV Head** crosspoint.

Note: The **MV Head** crosspoint shares some inputs with other crosspoints and common input settings are reflected in other web pages. Changes made to common inputs are reflected in the other respective web pages.

For example, 'Router Input 8' also feeds the **Router** crosspoint, the **MV Input** crosspoint, and the **MV Head** crosspoint. Therefore, 'Router Input 8' is shown on those corresponding 'Crosspoint Inputs' pages also and any changes made to 'Router Input 8' will be reflected across other corresponding web pages.

The page displays a list of crosspoint inputs (sources for the crosspoint). For the **MV Head** crosspoint, this is:

- MV-825-RTR Router Inputs 1 to 48, and
- Internal Multiviewer Head signals 1 to 12 (also known as Multiviewer Head Inputs on the web page).

The first item (**All**) affects all of the crosspoint's inputs.

Apply button

All Router Inputs item

Router Inputs 1 to 48

All internal Multiviewer Head signals item

Internal Multiviewer Head signals 1 to 12

Physical	Input Standard	System Reference Standard Selected	4K (Select the first input of a quad link source - groups 4 consecutive inputs)	Primary quad-link	Video 32 character name	Video 8 character name
All			<input type="checkbox"/>			
Router Input 1	3G-A 1080 50P	SD 576 25i	<input type="checkbox"/>	single port	Video Input 1	V.In 1
Router Input 2	3G-A 1080 50P	SD 576 25i	<input type="checkbox"/>	single port	Video Input 2	V.In 2
Router Input 3	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 3	V.In 3
Router Input 4	3G-A 1080 50P	SD 576 25i	<input type="checkbox"/>	single port	Video Input 4	V.In 4
Router Input 5	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 5	V.In 5
Router Input 6	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 6	V.In 6
Router Input 7	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 7	V.In 7
Router Input 8	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 8	V.In 8
Router Input 9	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 9	V.In 9
Router Input 10	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 10	V.In 10
Router Input 11	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 11	V.In 11
Router Input 12	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 12	V.In 12
Router Input 47	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 47	V.In 47
Router Input 48	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 48	V.In 48
Inputs from Multiviewer						
All			<input type="checkbox"/>			
Multiviewer Head Input 1	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 51	V.In 51
Multiviewer Head Input 2	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 52	V.In 52
Multiviewer Head Input 3	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 53	V.In 53
Multiviewer Head Input 4	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 54	V.In 54
Multiviewer Head Input 5	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 55	V.In 55
Multiviewer Head Input 6	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 56	V.In 56
Multiviewer Head Input 7	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 57	V.In 57
Multiviewer Head Input 8	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 58	V.In 58
Multiviewer Head Input 9	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 59	V.In 59
Multiviewer Head Input 10	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 60	V.In 60
Multiviewer Head Input 11	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 61	V.In 61
Multiviewer Head Input 12	no signal or unknown standard	SD 576 25i	<input type="checkbox"/>	single port	Video Input 62	V.In 62

Fig. 7-20: MV Head Crosspoint Inputs Page

The page lists information about each crosspoint input and enables some input settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.
A confirming pop-up dialog informs the user that changes have been applied.
- 2 Click **OK** in the pop-up dialog to continue.

Table 7-3 on page 128 describes the list columns on the page.

MV Head Crosspoint Outputs Page

This page enables a user to configure outputs from the **MV Head** crosspoint.

The page is shown in Figure 7-13 and displays a list of crosspoint outputs (destinations of the crosspoint). For the **MV Head** crosspoint, these are:

- MV-825-RTR external, rear Multiviewer Head Display Outputs 1 to 12.

The first item (**All**) affects all of the crosspoint's outputs.

Apply button

All items

External, rear
Multiviewer Head
Display Outputs
1 to 12

Physical	4K Dest (Select the first output of a quad link destination - groups 4 consecutive outputs)	Primary quad-link	Video 32 character name	Video 8 character name
All	<input type="radio"/>			
Multiviewer Head Output 1	<input type="radio"/>	single port	Multiviewer Head Output 1	MVHead1
Multiviewer Head Output 2	<input type="radio"/>	single port	Multiviewer Head Output 2	MVHead2
Multiviewer Head Output 3	<input type="radio"/>	single port	Multiviewer Head Output 3	MVHead3
Multiviewer Head Output 4	<input type="radio"/>	single port	Multiviewer Head Output 4	MVHead4
Multiviewer Head Output 5	<input type="radio"/>	single port	Multiviewer Head Output 5	MVHead5
Multiviewer Head Output 6	<input type="radio"/>	single port	Multiviewer Head Output 6	MVHead6
Multiviewer Head Output 7	<input type="radio"/>	single port	Multiviewer Head Output 7	MVHead7
Multiviewer Head Output 8	<input type="radio"/>	single port	Multiviewer Head Output 8	MVHead8
Multiviewer Head Output 9	<input type="radio"/>	single port	Multiviewer Head Output 9	MVHead9
Multiviewer Head Output 10	<input type="radio"/>	single port	Multiviewer Head Output 10	MVHead10
Multiviewer Head Output 11	<input type="radio"/>	single port	Multiviewer Head Output 11	MVHead11
Multiviewer Head Output 12	<input type="radio"/>	single port	Multiviewer Head Output 12	MVHead12

Fig. 7-21: MV Head Crosspoint Outputs Page

The page lists information about each crosspoint output and enables some output settings to be configured. When settings changes are made on the page:

- 1 Click **Apply** to apply the changes.
A confirming pop-up dialog informs the user that changes have been applied.
- 2 Click **OK** in the pop-up dialog to continue.

[Table 7-4](#) on page 130 describes the list columns on the page.

System Configuration Page

System settings are shown on this page and may be changed.

After making settings changes on the page, [Apply Changes](#) and [Restart](#) to make them take effect.

Apply button

Restart Unit button

A restart is required for changes to take effect

Protocol settings

Protocol	Enable	Port	Enable SNMP	Community get	Community set	Community trap	SNMP Trap (1 to 5)	IP address	SNMP Trap (6 to 10)	IP address
Rollcall	<input checked="" type="checkbox"/>	2050	<input checked="" type="checkbox"/>	public	private	MV625RTRTrap	SNMP IP address1		SNMP IP address6	
SW-P-02	<input checked="" type="checkbox"/>	2002					SNMP IP address2		SNMP IP address7	
SW-P-08	<input checked="" type="checkbox"/>	2008					SNMP IP address3		SNMP IP address8	
							SNMP IP address4		SNMP IP address9	
							SNMP IP address5		SNMP IP address10	

System Network settings

Ethernet Port 1

IP address	Subnet mask	Gateway
10.162.48.28	255.255.0.0	10.162.254.1

Ethernet Port 2

IP address	Subnet mask	Gateway
10.162.49.28	255.255.255.0	10.162.254.1

DNS

DNS server 1	DNS server 2

System files

Import configuration file		Export configuration file		Import persistence file		Export persistence file	
<input type="text"/>	<input type="button" value="Import"/>	<input type="text"/>	<input type="button" value="Export"/>	<input type="text"/>	<input type="button" value="Import"/>	<input type="text"/>	<input type="button" value="Export"/>

Logging settings

Enable	IP address	Format	Port
<input checked="" type="checkbox"/>	10.162.7.1	RFC3164Millis	514

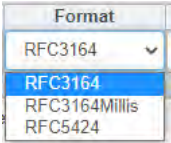
Fig. 7-22: System Configuration Page

CAUTION When two router network ports are used (router **Ethernet Ports 1** and **2**, i.e. rear connections **Router 1** and **Router 2**), then the ports should be configured to be on different sub-nets for correct operation.

Table 7-5: System Configuration Page Information

Item	Description
<p>Protocol Settings:</p> <p>Protocol</p> <p>Enable</p> <p>Port</p>	<p>The following router control protocols can be enabled:</p> <ul style="list-style-type: none"> • RollCall • SW-P-02 • SW-P-08 <p>Check box. Select to enable each protocol</p> <p>Text box. IP port number for each protocol to use. The default value is shown and is usually sufficient. Leave this as default.</p>
<p>SNMP:</p> <p>Enable SNMP</p> <p>Community Get</p> <p>Community Set</p> <p>Community Trap</p> <p>SNMP Trap 1 to 5, 6 to 10:</p> <p>SNMP IP Address 1 to 10</p>	<p>Check box. Select to enable the SNMP protocol interface. SNMP is disabled by default.</p> <p>Enter privacy setting for SNMP Community read-only string. Typically set to "public".</p> <p>Enter privacy setting for SNMP Community read-only string. Typically set to "private".</p> <p>Enter SNMP Community Trap string.</p> <p>Enter IP address of each SNMP manager to send Trap message to (one IP address per Trap).</p>
<p>System Network Settings:</p> <p>IP Address</p> <p>Subnet Mask</p> <p>Gateway</p>	<p>Settings are presented for each of the rear router control network interfaces 'Router 1' and 'Router 2'.</p> <p>Reminder: Unit restart needed for changes to take effect.</p> <p>Enter IP address of the MV-825-RTR unit's router control interface. ROUTER 1.</p> <p>Enter subnet mask.</p> <p>CAUTION: When two router network ports are used (router Ethernet Ports 1 and 2, i.e. rear connections Router 1 and Router 2), then the ports should be configured to be on <u>different sub-nets</u> for correct operation.</p> <p>Enter IP address of the network gateway.</p>

Table 7-5: System Configuration Page Information (continued)

Item	Description
DNS:	
DNS server 1	Enter IP address of a DNS server. Note: At least one DNS server is required if any MV-825-RTR settings contain URLs.
DNS server 2	Enter IP address of a second DNS server.
System Files:	
Import Configuration File	Browse to a valid configuration text file. Import configuration text file.
Export Configuration File	Export router configuration to a configuration text file. The file is downloaded by the browser. Note: The exported configuration file is called "config". If a file of this name already exists in the browser's download area, then the exported file will typically have its file name appended with (n), where n is an incrementing number. For example, "config(2)".
Import Persistence File	Browse to a valid persistence text file. Import persistence text file.
Export Persistence File	Export router persistence data to a persistence text file. The file is downloaded by the browser. Note: The exported persistence file is called "persistence". If a file of this name already exists in the browser's download area, the exported file will typically have its file name appended with (n), where n is an incrementing number. For example, "persistence(4)".
Logging Settings:	
Enable	Check box. Select to enable logging.
IP Address	Enter the IP address of the logging server.
Format	Drop-down box. Select the logging format to use: <ul style="list-style-type: none"> • RFC3164: BSD syslog protocol. • RFC3164: BSD syslog protocol + milliseconds. • RFC5424: Syslog protocol. (RFC3164 and RFC5464 are IETF system logging protocols.)
	
Port	Enter IP port number for the logging data.

Apply Changes and Restart

To make a change:

1 Make the required changes to the web page.

2 Click **Apply**.

Changes are stored on the unit.

3 Click **Restart Unit**.

A dialog pops up and asks: "Are sure to restart the unit?" (OK, Cancel)

4 Click **OK** to continue.

5 A further confirming dialog pops up, "Restarting".

The unit restarts.

Click **OK** to clear the dialog.

The MV-825-RTR unit restarts.

When the restart is complete, the changes made on this page take effect.

About Page

The About web page shows some information about the router control software running on the unit.

The screenshot displays the 'About' page for the Grass Valley MV-825-RTR. On the left is a vertical navigation menu with the following items: Home Page, Catsii Colors, Router Crosspoint, Router Crosspoint Inputs, Router Crosspoint Outputs, MV Input Crosspoint, MV Input Crosspoint Inputs, MV Input Crosspoint Outputs, MV Head Crosspoint, MV Head Crosspoint Inputs, MV Head Crosspoint Outputs, System Configuration, and About. The main content area is titled 'Grass Valley - MV-825-RTR' and contains the following text: 'This product may be protected by one or more patents. For further information, please visit: <https://www.grassvalley.com/patents/>'. Below this is the 'End User License Agreement' section, which includes a scrollable window containing the following text:

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1.1 **"Agreement"** means this software license agreement together with any signature page, cover page, exhibits, and attachments hereto and the terms and conditions thereof.

1.2 **"Affiliate"** of a party means any entity which, at the time or after the entry into force of this Agreement, directly or indirectly controls, is controlled by, or is under common control with, the party. An entity is considered to control another entity if it owns, directly or indirectly, more than fifty percent (50%) of the total voting securities or other such similar voting rights. For Grass Valley, Affiliates shall include legal entities with "Grass Valley", "Quanta", "Eric", or "Miranda" in their legal entity name or other Affiliates as may be included in the Grass Valley group over time.

1.3 **"Contract"** in the case where Licensee is a direct Grass Valley Licensee, means (i) a Grass Valley Proposal and any other document incorporated as a schedule to the Grass Valley Proposal and accepted by Licensee as evidenced by either the issuance of a Purchase Order or the signature of an officer or other duly authorized representative of Licensee or (ii) a signed agreement between Grass Valley and Licensee reflecting Licensee's purchase of a license, and certain parameters of such license, subject to the terms and conditions of this Agreement. "Contract" in the case where Licensee is not a direct Grass Valley Licensee but has obtained the Software through an authorized Grass Valley reseller or distributor, means the applicable quote, order confirmation, receipt, or invoice for the Software provided by Grass Valley's authorized distributors or resellers, reflecting Licensee's purchase of a license, and certain parameters of such license, subject to the terms and conditions of this Agreement, with respect to the Software.

Fig. 7-23: About Page

Core MV-8 Multiviewer Features



Features of the core multiviewer within the MV-825-RTR are described in the *MV-8 Series Core Multiviewer* user manual. Features include:

- Input alarms:
 - please refer to the 'Core MV Input Alarms' chapter of the *MV-8 Series Core Multiviewer* user manual.
- Input-copy H.264 streams:
 - please refer to the 'Core MV Input-Copy H.264 Streams' chapter.
- Audio meters; input audio loudness and phase monitoring; output embedded audio; and support for TSL, high dynamic range video, media biometrics, and extended data services:
 - please refer to the 'Other Supported Core MV Features' chapter.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about features of the core multiviewer in the
MV-825-RTR.
See [Related Documents](#), on page iii.

9 Router Function

Summary of chapter contents:

Router Function

<i>Introduction</i>	<i>page 152</i>
<i>Router Rear Connections</i>	<i>page 152</i>
<i>Internal Crosspoints</i>	<i>page 153</i>
<i>Monolithic Router Crosspoint</i>	<i>page 153</i>
<i>Monolithic Crosspoint Sources and Destinations</i>	<i>page 155</i>
<i>Default Routing for New MV-825-RTR</i>	<i>page 157</i>
<i>Destination Lock / Unlock (Protect / Unprotect)</i>	<i>page 158</i>

Introduction

An MV-825-RTR broadly combines a video router function and a multiviewer function.

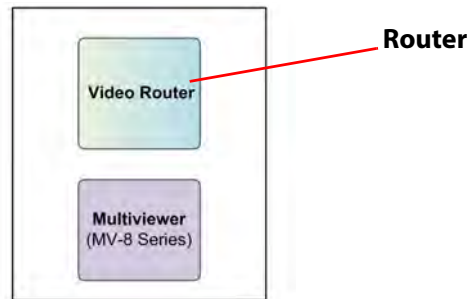


Fig. 9-1: MV-825-RTR

The router is a basic video router which supports 6G/12G video with the MV-825-12G license.

The router switches at the SDI physical layer only; there are no line buffers nor synchronizers. As a result, transport delay is minimal, one or two pixels.

The router is controlled by:

- the Grass Valley SW-P-02 router control protocol (see Appendix C, [SW-P-02 General Switcher Protocol](#), on page 201); or
- the Grass Valley SW-P-08 router control protocol (see Appendix C, [SW-P-08 General Remote Protocol](#), on page 203); or
- the Grass Valley RollCall protocol; or
- SNMP.

Router Rear Connections

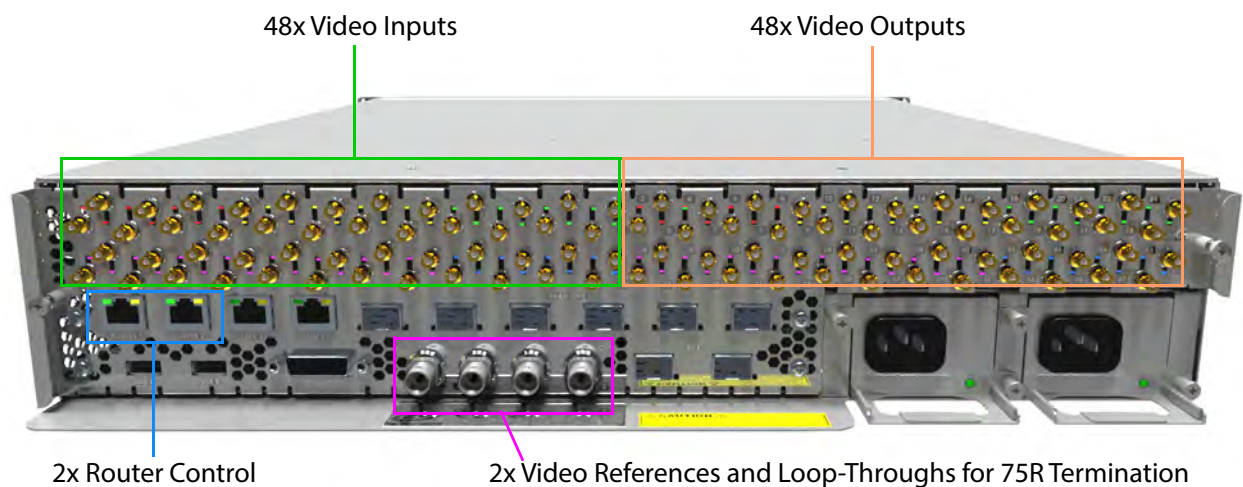


Fig. 9-2: MV-825-RTR Router Rear Connections

For a description of these connectors etc., see [Rear Connectors](#), on page 23.

Internal Crosspoints

The MV-825-RTR router function presents three router crosspoints (see Figure 9-3) to the user:

- 1 Main **Video Router** crosspoint (size = $(48+12)$ in x 48 out);
- 2 **MV Head** crosspoint (size = $(48+12)$ in x 12 out); and
- 3 **MV Input** crosspoint (size = 48 in x 48 out).

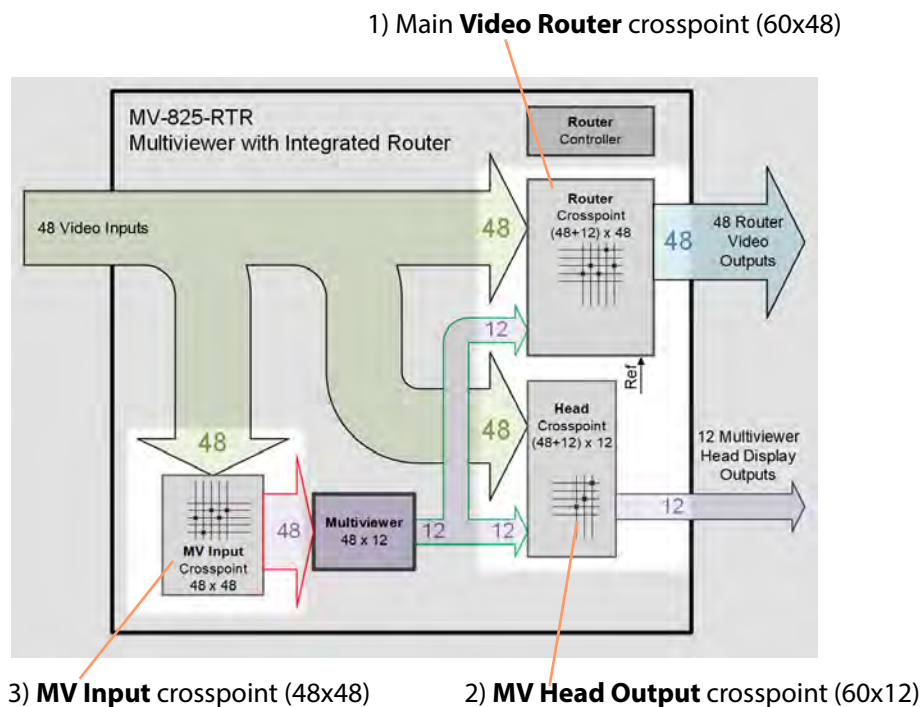


Fig. 9-3: MV-825-RTR Router Crosspoints

Monolithic Router Crosspoint

The three crosspoints within the MV-825-RTR are in reality implemented as one, overall, monolithic crosspoint. The size of this monolithic crosspoint is 62×110 . See Figure 9-4.

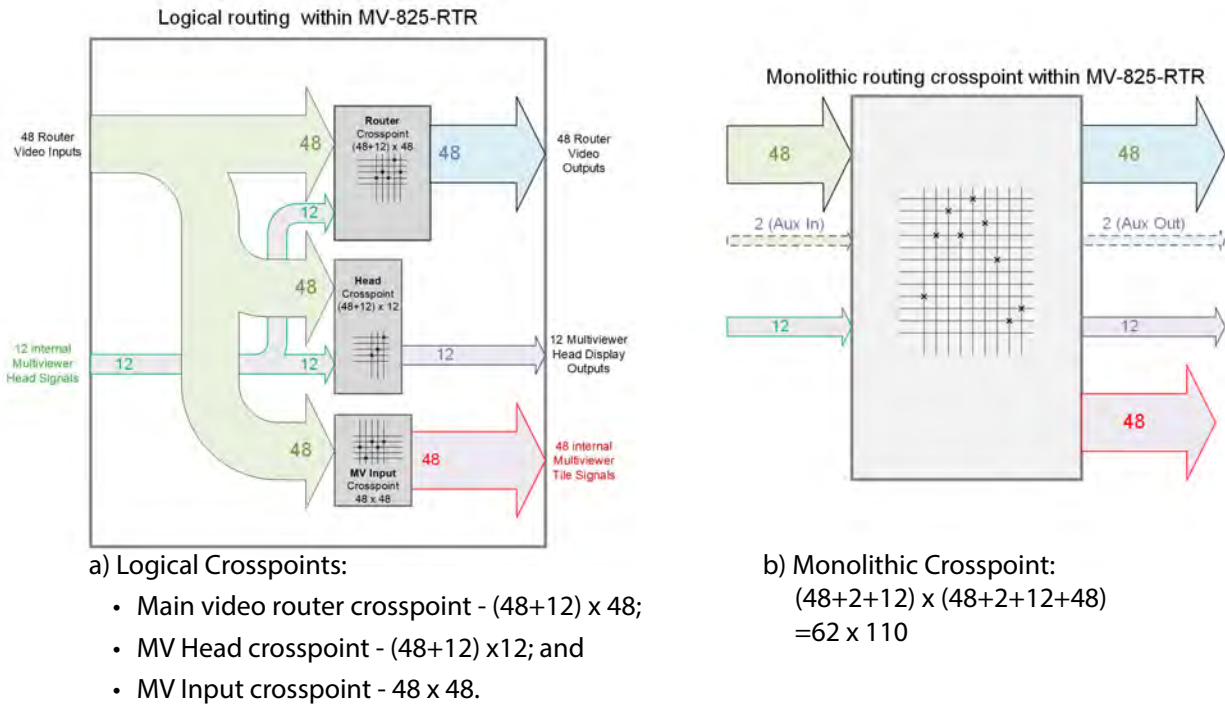


Fig. 9-4: MV-825-RTR Router: a) Logical Crosspoints; b) Monolithic Crosspoint.

The monolithic crosspoint has:

- Sources:
 - MV-825-RTR Router Video Inputs (48)
 - Aux inputs (reserved for future use) (2)
 - *Internal* Multiviewer Head signals (12)
- Destinations:
 - MV-825-RTR Router Video Outputs (48)
 - Aux outputs (reserved for future use) (2)
 - MV-825-RTR Multiviewer Head Display Outputs (12)
 - *Internal* Multiviewer Tile signals (48)

This is summarized in [Monolithic Crosspoint Sources and Destinations](#), on page 155, in Table 9-1 and Table 9-2 respectively.

Monolithic Crosspoint Sources and Destinations

Table 9-1 Monolithic Crosspoint Sources

Monolithic Crosspoint Source Number	Default Source Name	Signal Description	
1	VIn1	MV-825-RTR Router Video Inputs (48)	
2	VIn2		
3	VIn3		
4	VIn4		
.	.		
.	.		
.	.		
45	VIn45		
46	VIn46		
47	VIn47		
48	VIn48		
49	AuxIn1		Aux inputs, reserved for future use (2)
50	AuxIn2		
51	MVOut1		Internal Multiviewer Head signals (12)
52	MVOut2		
53	MVOut3		
54	MVOut4		
55	MVOut5		
56	MVOut6		
57	MVOut7		
58	MVOut8		
59	MVOut9		
60	MVOut10		
61	MVOut11		
62	MVOut12		

Table 9-2 Monolithic Crosspoint Destinations

Monolithic Crosspoint Source Number	Default Name	Signal Description
1	VOut1	MV-825-RTR Router Video Outputs (48)
2	VOut2	
3	VOut3	
4	VOut4	
.	.	
.	.	
.	.	
45	VOut45	
46	VOut46	
47	VOut47	
48	VOut48	
49	AuxOut1	
50	AuxOut2	
51	MVHead1	MV-825-RTR Multiviewer Head Display Outputs (12)
52	MVHead2	
53	MVHead3	
54	MVHead4	
55	MVHead5	
56	MVHead6	
57	MVHead7	
58	MVHead8	
59	MVHead9	
60	MVHead10	
61	MVHead11	
62	MVHead12	
63	MVTile1	<i>Internal</i> Multiviewer Tile signals (48)
64	MVTile2	
65	MVTile3	
66	MVTile4	
.	.	
.	.	
.	.	
107	MVTile45	
108	MVTile46	
109	MVTile47	
110	MVTile48	

Default Routing for New MV-825-RTR

Initially, in a new MV-825-RTR unit, the router part is configured with a default routing which has crosspoints set to have straight-through, one-to-one routing, described in Table 9-3 and Figure 9-5.

Table 9-3: Router Crosspoint Default Routing

Crosspoint	Default Routing
Video Router	video input 1 to router video output 1 2 to 2 ... to ... 48 to 48
MV Input	video input 1 to <i>internal</i> multiviewer input 1 2 to 2 ... to ... 48 to 48
MV Head Output	<i>internal</i> multiviewer output 1 to <i>external</i> multiviewer head 1 2 to 2 ... to ... 12 to 12

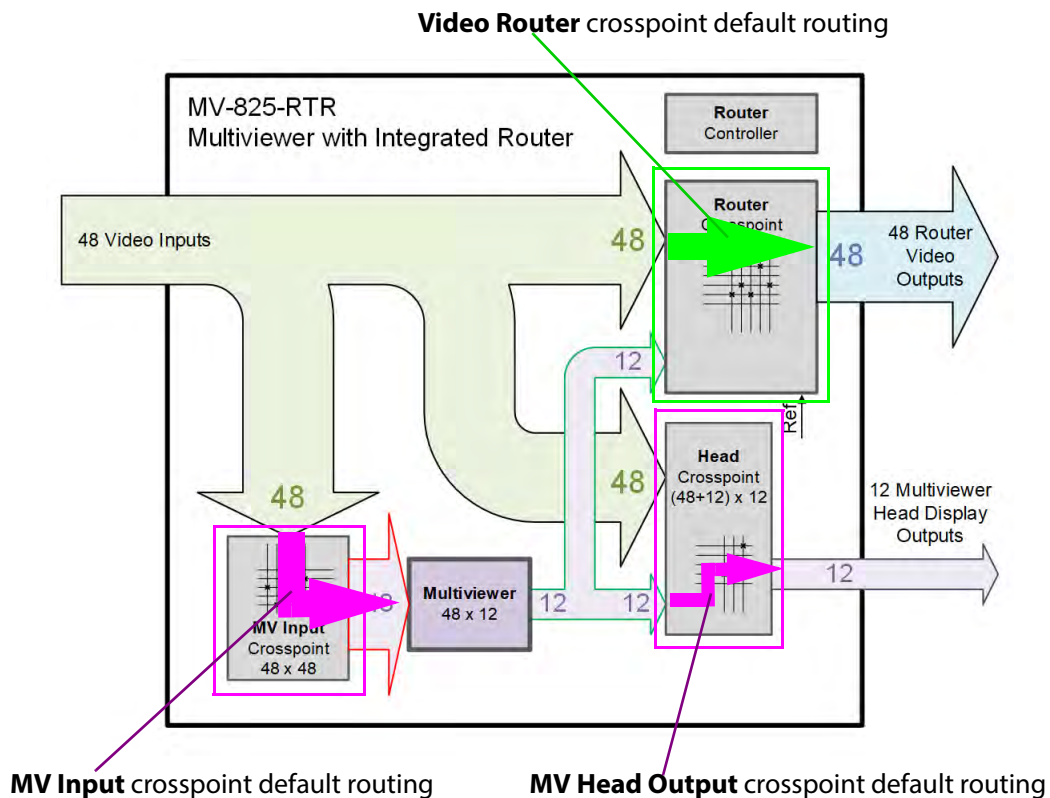


Fig. 9-5: MV-825-RTR Initial Default '1 to 1' Routing Configuration

Destination Lock / Unlock (Protect / Unprotect)

When a Destination is locked, it prevents a route being made to the Destination. Destinations can be locked (protected) and unlocked (unprotected) from the MV-825-RTR web interface.

IMPORTANT

Lock / Unlock (Protect / Unprotect) from MV-825-RTR web page:

If a Destination has been locked via the MV-825-RTR web page, then it may only be unlocked from the web page.

The web page is configured as a master panel.

IMPORTANT

Lock / Unlock (Protect / Unprotect) from a control panel:

If a Destination has been locked by a panel, it can only be unlocked either by:

- the *same* panel; or
 - a master panel.
(The MV-825-RTR web page is a master panel and can unlock any locked Destination.)
-

10

10 Getting Started

Summary of chapter contents:

Getting Started

Getting Started (Core Multiviewer)	page 160
Getting Started (GV Orbit)	page 160
Getting Started (Router)	page 161
MV-825-RTR Rear Connections Summary	page 161
Preliminary MV-825-RTR Router Configuration	page 162
Procedure	page 162
Initial Configuration	page 165
Routing	page 165

This chapter assumes that the initial connection and configurations have been done as part of the unit hardware installation. These are described in Chapter 3, [Initial Connection and Configuration](#), on page 44.

This chapter describes getting started with the MV-825-RTR. The procedure breaks down to getting started with:

- [Getting Started \(Core Multiviewer\)](#), on page 160.
- [Getting Started \(GV Orbit\)](#), on page 160.
- [Getting Started \(Router\)](#), on page 161.

Getting Started (Core Multiviewer)

Getting started with the core multiviewer within the MV-825-RTR is a procedure in common with other MV-8xx products. For information, please refer to the 'Core MV Getting Started' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Getting Started (GV Orbit)

Getting started with a multiviewer video wall design with GV Orbit Client is common to other MV-8XX multiviewer products.

For information, please refer to the 'Getting Started with GV Orbit' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the 'Getting Started with GV Orbit' chapter of the
MV-8 Series Core Multiviewer user manual for information about
getting started with GV Orbit. See [Related Documents](#), on
page iii.

Getting Started (Router)

These sections guide the user through the steps required to initially configure the MV-825-RTR router and control signal routing using a PC. The MV-825-RTR unit's router web page is used.

Please refer to other sections of this user manual for detailed information. In particular to:

- [Hardware Description](#), on page 13, which contains information on unpacking the unit, front panel controls and indicators, and rear controls, connectors and indicators.
- [Unit Installation](#), on page 33, which describes unit installation.
- [Router Config and Control Web Pages](#), on page 113, which describes the unit's web pages.

MV-825-RTR Rear Connections Summary

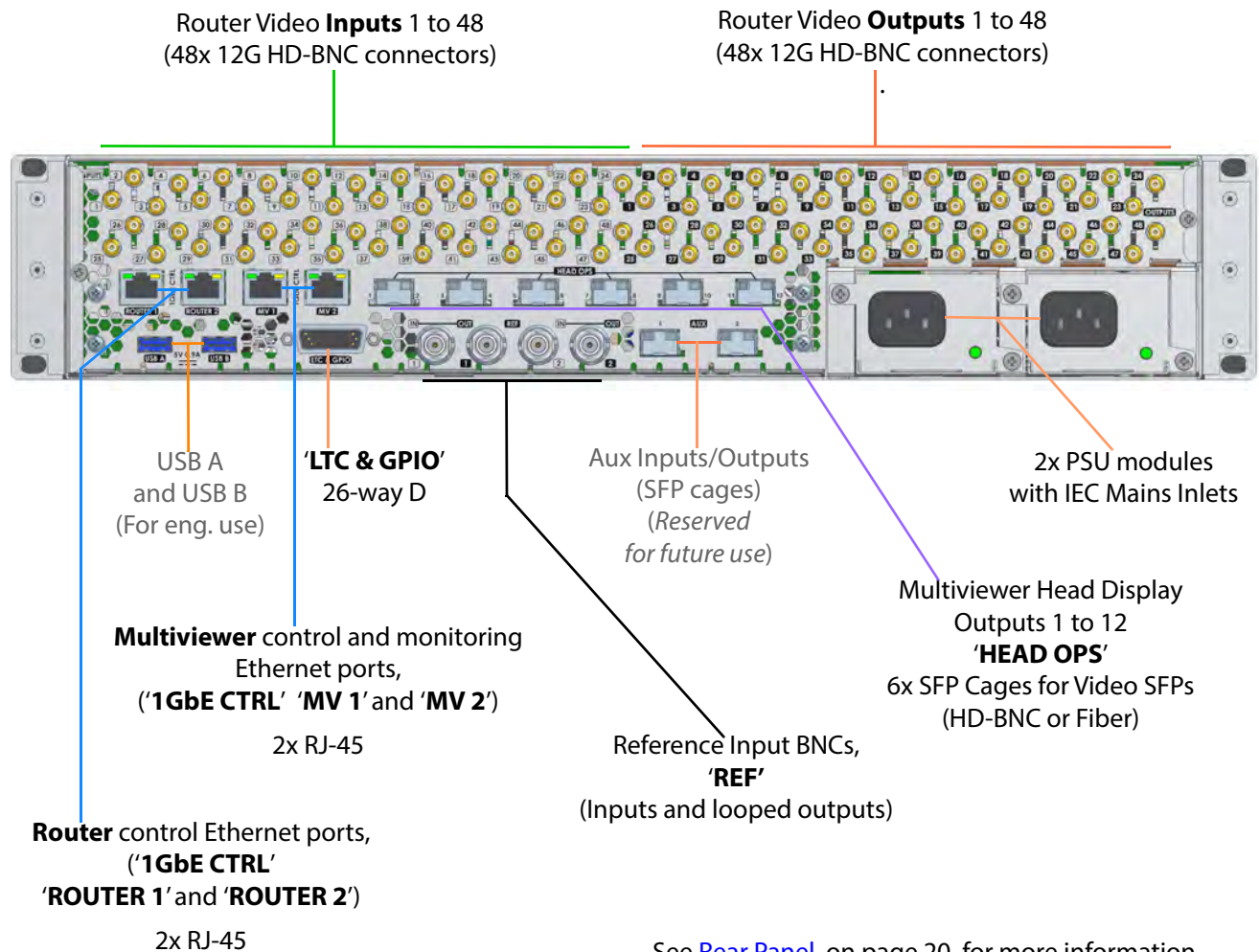


Fig. 10-1: MV-825-RTR Rear Panel Connectors

Preliminary MV-825-RTR Router Configuration

The MV-825-RTR unit initially requires some network settings to be set up. The network settings may be set up via either of the following unit interfaces:

- **Web Interface**
- see [Router Config and Control Web Pages](#), on page 113.

or

- **RollCall Control Panel**
- see [Router Configuration Control Screens](#), on page 57.

Here, the web interface is used to describe the preliminary configuration procedure.

You will require:

- A PC with a network port configured with a static IP address on the same sub-net as the MV-825-RTR unit (255.255.0.0).
Do not use the same IP address as the router default IP address. (Default IP addresses are listed in [Ethernet Rear Panel Connectors](#), on page 195.)
- A standard CAT 5 network cable.
(Older PCs may require a cross-over network cable instead.)

Procedure

- 1 Connect the CAT5 network cable to the RJ45 1GbE **Router 1** "Ethernet" port on the rear of the unit.
Connect the other end of the CAT5 cable to the PC's configured network port.
- 2 Open a web browser on the PC.
- 3 Enter the default IP address of the MV-825-RTR's *router* block. (Default IP addresses are listed in [Ethernet Rear Panel Connectors](#), on page 195.)
The MV-825-RTR's router home web page is shown in the browser, see Figure 10-2.

Navigation panel

The screenshot shows the MV-825-RTR Router Home Web Page. On the left is a navigation sidebar with the following items: Home Page, Catsii Colors, Router Crosspoint, Router Crosspoint Inputs, Router Crosspoint Outputs, MV Input Crosspoint, MV Input Crosspoint Inputs, MV Input Crosspoint Outputs, MV Head Crosspoint, MV Head Crosspoint Inputs, MV Head Crosspoint Outputs, System Configuration, and About. The main content area is titled 'MV-825-RTR Multiviewer with Integrated Router' and contains a diagram showing the system architecture. The diagram shows 48 Video Inputs entering an MV Input Crosspoint (48 x 48), which connects to a Multiviewer (48 x 12). The Multiviewer outputs 12 signals to a Head Crosspoint (48+12) x 12, which then outputs 12 Multiviewer Head Display Outputs. The Head Crosspoint also connects to a Router Crosspoint (48+12) x 48, which outputs 48 Router Video Outputs. A 'Ref.' signal is also shown between the Router Crosspoint and Head Crosspoint. Below the diagram is a 'System Reference Standard' section with an 'Apply' button and a dropdown menu set to 'Auto Match'. The 'System status' section contains two tables. The first table shows Controller DC power supply status (OK), Controller Temperature (43°C), Crosspoint Temperature (54°C), Board Sensor A Temperature (39°C), Board Sensor B Temperature (34°C), Reference Standard One (SD 576 251), and Reference Standard Two (SD 486 291). The second table shows Controller FPGA firmware version (46), Controller FPGA PA number (1309), and Controller software version (0.99a.8.18656).

System information

Serial number	Controller name
	MV825RTR

IP Port 1

IP address	MAC address
10.162.48.28	00:23:70:00:88:DF

IP Port 2

IP address	MAC address
10.162.49.28	00:23:70:00:B6:2F

System Reference Standard

Apply

Select System Reference Standard

Auto Match

System status

Controller DC power supply status	Controller Temperature (°C)	Crosspoint Temperature (°C)	Board Sensor A Temperature (°C)	Board Sensor B Temperature (°C)	Reference Standard One	Reference Standard Two
OK	43	54	39	34	SD 576 251	SD 486 291

Controller FPGA firmware version	Controller FPGA PA number	Controller software version
46	1309	0.99a.8.18656

Fig. 10-2: MV-825-RTR Router Home Web Page

Note: See [Router Config and Control Web Pages](#), on page 113, for more information on the router web page.

- Click 'System Configuration' in the navigation side-bar. The **System Configuration** web page for router configuration is shown.

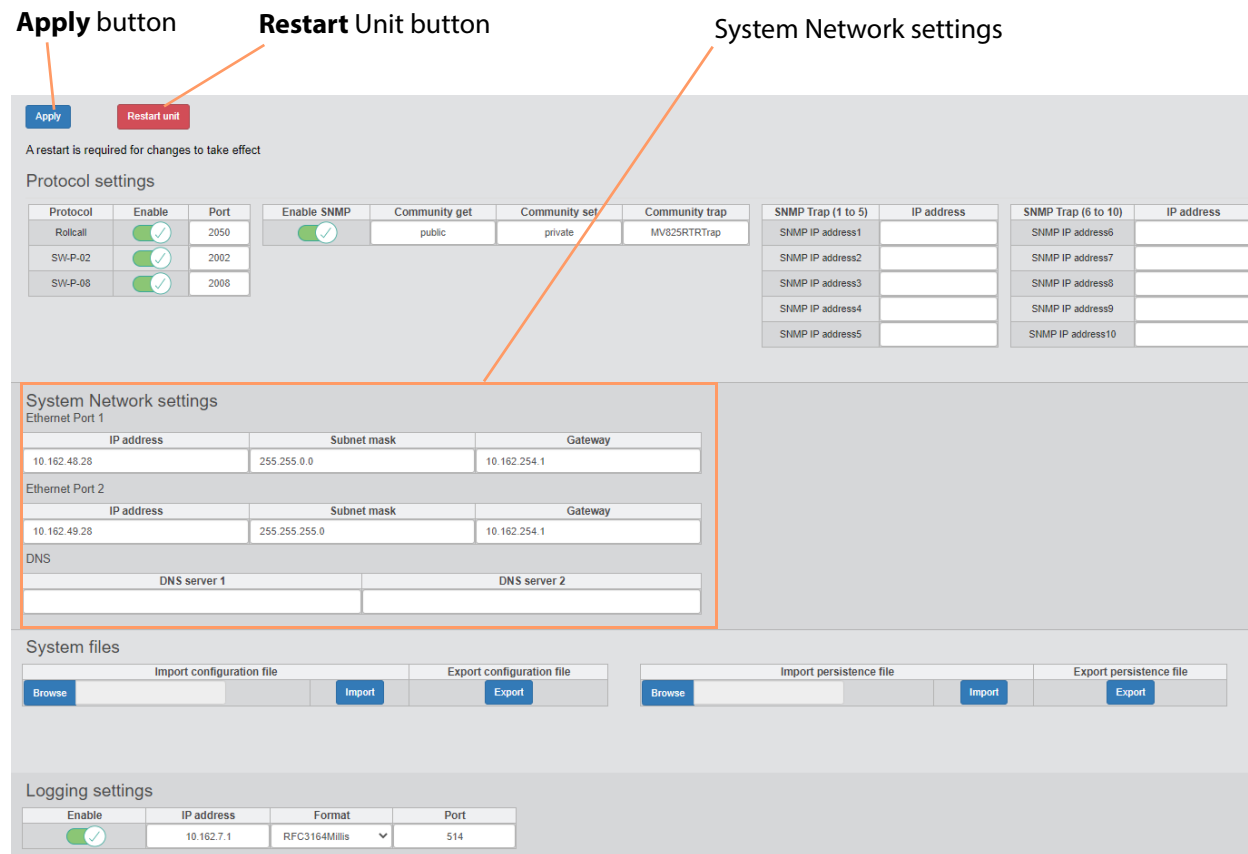


Fig. 10-3: System Configuration Web Page

On the **System Configuration** web page for router configuration:

- 5 Make network settings changes as required for the MV-825-RTR and your house network.
(I.e. MV-825-RTR IP address, Sub-net mask, Gateway IP address, and DNS server 1 and 2 IP addresses.)

CAUTION When two router network ports are used (router **Ethernet Ports 1** and **2**, i.e. rear connections **Router 1** and **Router 2**), then the ports should be configured to be on different sub-nets for correct operation.

- 6 Click **Apply**.
- 7 Click **Restart Unit**.
The MV-825-RTR restarts.
- 8 Disconnect the MV-825-RTR from the PC.

When the MV-825-RTR has restarted, the new settings have taken effect and the MV-825-RTR is ready to be connected to the house network and to use its new IP address etc.

Initial Configuration

With the unit installed:

- 1 Power up the MV-825-RTR unit and wait for the unit to start up.
- 2 Connect to the unit's Home Web page using its new IP address on your house network with a browser.

The unit's Home page should be displayed in your browser window.

- 3 On the Home page, check the status of:
 - Fan status is OK.
 - Check that the standard of the video reference signal is shown in the **Reference Standard** box.

The unit is now ready to be initially configured.

- 4 Click 'Router Crosspoint Inputs' in the navigation panel.
The **Router Crosspoint Inputs** web page is shown and input names are shown in a table.
- 5 In the table, for each of the connected video inputs:
 - Set up input name.
 - Select a video standard to use when switching to that input.
 - Set up any 4K Source ports.
- 6 Click **Apply** to apply the changes.
- 7 Click 'Router Crosspoints Outputs' in the navigation panel.
The **Router Crosspoints Outputs** web page is shown and output names are shown in a table.
- 8 In the table:
 - Set up names.
 - Set up any 4K destinations.
- 9 Click **Apply** to apply any changes.

The MV-825-RTR unit is ready to do some basic video routing.

Routing

For routing instructions from the router web page, see Chapter 7 [Router Crosspoint, Make a Route in a Crosspoint](#), on page 121.

- [Make a Route in a Crosspoint](#), on page 121
- [To Lock a Destination/Route in a Crosspoint](#), on page 121

11 Maintenance - Hardware

Summary of chapter contents:

Maintenance - Hardware

<i>Fitting Video SFP Modules</i>	page 168
<i>Video SFPs (Multiviewer Display Outputs)</i>	page 168
<i>Power Supply Units</i>	page 170
<i>PSU Module Removal</i>	page 171
<i>PSU Module Fitting</i>	page 172
<i>MV-825-RTR Main Front Card</i>	page 173
<i>Main Front Card Removal</i>	page 175
<i>Main Card Fitting</i>	page 178

This section contains instruction on the removal and fitting of various hardware items. Some removal/re-fitting operations are only for trained personnel to carry out and this is marked in each sub-section.

(For maintenance of the software within the MV-825-RTR, see Chapter 12 [Maintenance - Software](#), on page 183.)

Fitting Video SFP Modules

SFP modules are fitted into the MV-825-RTR chassis at the rear for:

- Video display outputs (Coax, Fiber or HDMI Video SFPs).

Note:

SFP module types:

Ethernet SFP modules and Video SFP modules are *different*.

Video SFPs (Multiviewer Display Outputs)

This sub-section provides SFP video module fitting guidelines.

Note: It is possible to hot-plug SFP modules.

Before inserting the SFP modules, take notice of the required SFP orientation for fitting into the SFP cages of the MV-825-RTR Rear Panel, as shown in Figure 11-1.

Note the orientation of the SFPs in this figure.

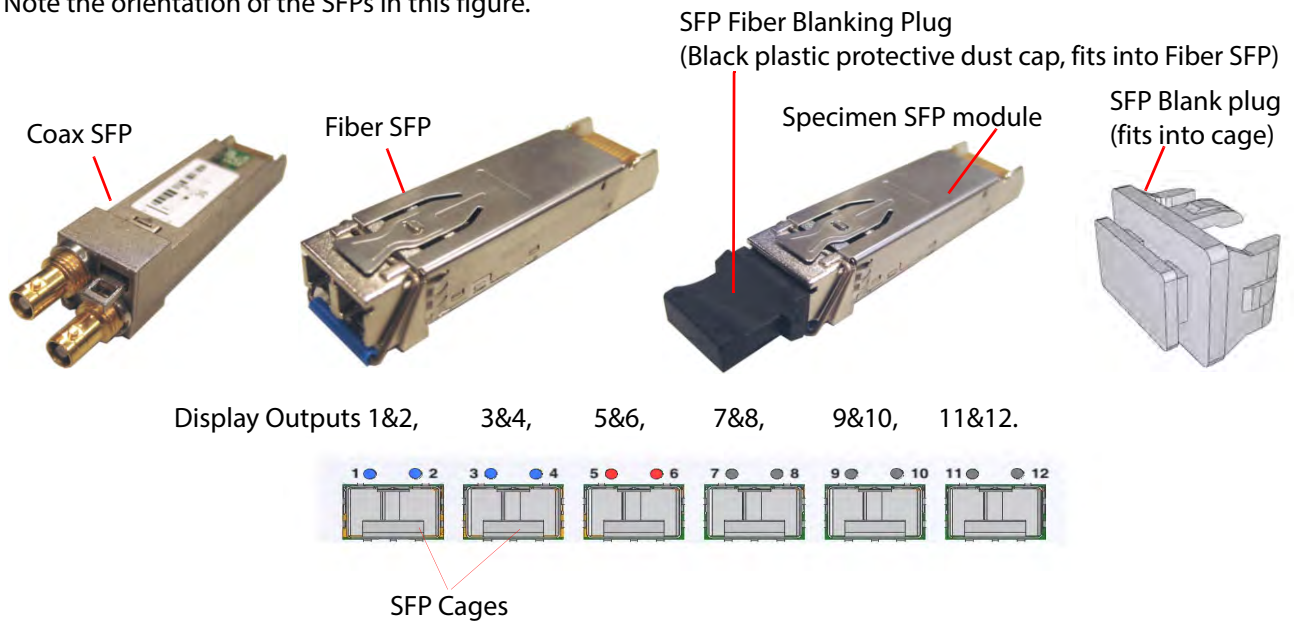


Fig. 11-1: SFP orientation for fitting into MV-825-RTR Rear Panel SFP cages

Note: **SFP orientation:**

The SFP orientation in the MV-825-RTR chassis may be different to other equipment. This is because of the internal mechanics of the MV-825-RTR chassis. See Figure 11-1 for SFP orientation.

Inserting SFPs

Start by filling the SFP cage for output pair 1 & 2, then 3 & 4 etc., see Figure 11-1.

Procedure:

- 1 Insert the SFP video modules into the SFP cages on the MV-825-RTR Rear.
- 2 The SFP modules slide in until there is an audible click.
- 3 Fill any remaining cages with SFP blanking plugs (SFP-BLANK).

Removing SFPs

SFP module removal, if required, is achieved by operating a small lever or lever-bar on the SFP module before sliding the SFP video module out of its cage.

Power Supply Units

WARNING:

To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

The MV-825-RTR has independent modular dual-redundant power supply units (PSUs). Either PSU can supply enough power to the MV-825-RTR chassis. The units are hot-swappable.

Note: To ensure full dual redundancy, the two power supplies must be powered from independent power sources.

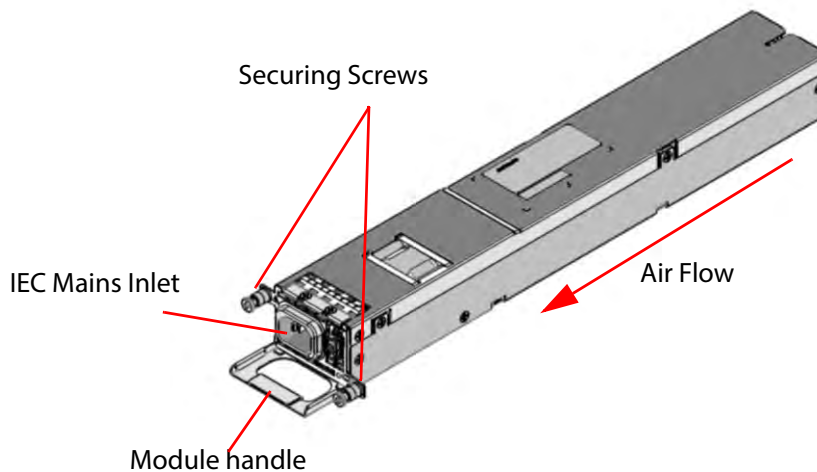


Fig. 11-2: MV-825-RTR PSU Module (Grass Valley stock code FGAMV 820-PSU)

Two PSU modules are fitted into the rear of the MV-825-RTR chassis. Each is secured with two fixing screws, see Figure 11-3.

Each PSU has an IEC mains inlet and a status LED. The PSU status LEDs are described in [AC Mains Inlets](#), on page 25.

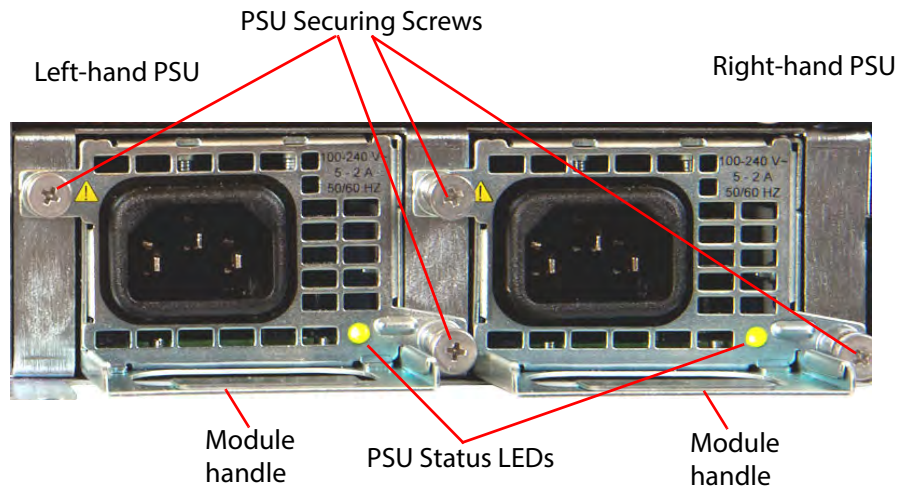


Fig. 11-3: MV-825-RTR Rear PSU modules

There are no On/Off switches for the power supplies; the MV-825-RTR will power up as soon as the AC Power Cords are plugged into the IEC connectors and turned **On** at the AC mains supply.

The PSU modules are hot-swappable. The MV-825-RTR may be powered on while one PSU module is removed or fitted.

IMPORTANT:

Hazardous voltages are present inside the PSU module.

IMPORTANT:

PSU Modules:

- Contain **No User Serviceable Parts**.
- Contain an integral fuse, which is not user replaceable.
- Should only be replaced or serviced by trained personnel.

A faulty PSU module should be replaced immediately by a trained person.

PSU Module Removal

IMPORTANT:

Removal of PSUs should only be attempted by trained personnel.

A pozidriv screwdriver is required.

Procedure

To remove a PSU module:

- 1 Identify the PSU module to be removed and disconnect its mains power cord.
If the MV-825-RTR is powered on, it should continue to operate using the second PSU module.
- 2 Unscrew two PSU securing screws, see Figure 11-3.
- 3 Carefully pull the PSU module out of the MV-825-RTR chassis, using the PSU handle, see Figure 11-2.

PSU Module Fitting

IMPORTANT:
Fitting of PSUs should only be attempted by trained personnel.

A pozidriv screwdriver is required.

Procedure

To fit a PSU module:

- 1 Note the orientation of a PSU module in the MV-825-RTR chassis, see Figure 11-3.
- 2 Carefully insert the PSU module into the empty PSU module slot at the chassis rear.
When the module is nearly fully pushed in, an increased resistance is met as the module's DC connector engages with the chassis.
The module should be finally fully pushed in.
- 3 Tighten the two PSU securing screws, see Figure 11-3.
Do not over-tighten the screws.
- 4 Connect a power cord and switch the mains supply on.
The module starts up and the PSU status LED should be lit green.

The MV-825-RTR operation should be uninterrupted.

The status LED is described in [AC Mains Inlets](#), on page 25.

MV-825-RTR Main Front Card

The MV-825-RTR main front module is located in the front of the unit; the module is actually a card-set and is *not a serviceable* item and this is not normally removed. The MV-825-RTR does not function without the main card and the card is not hot-pluggable.

IMPORTANT:
Removal of the main front card should only be attempted by trained personnel.

For front door opening instructions, see [Chassis Front](#), on page 15. With the front door open and dropped down, the front main card can be seen in the top half of the chassis frame, see Figure 11-4. The card is shown in Figure 11-5.

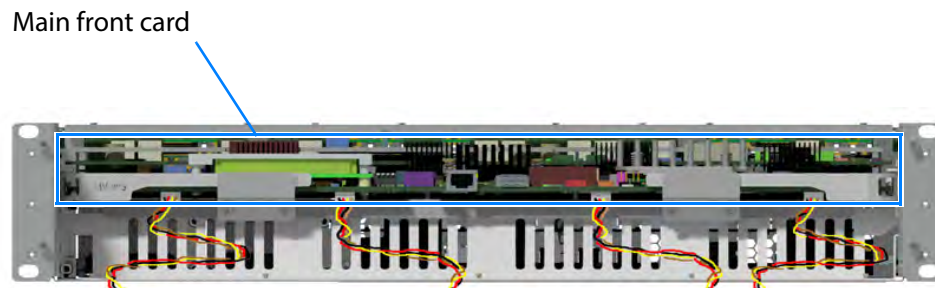
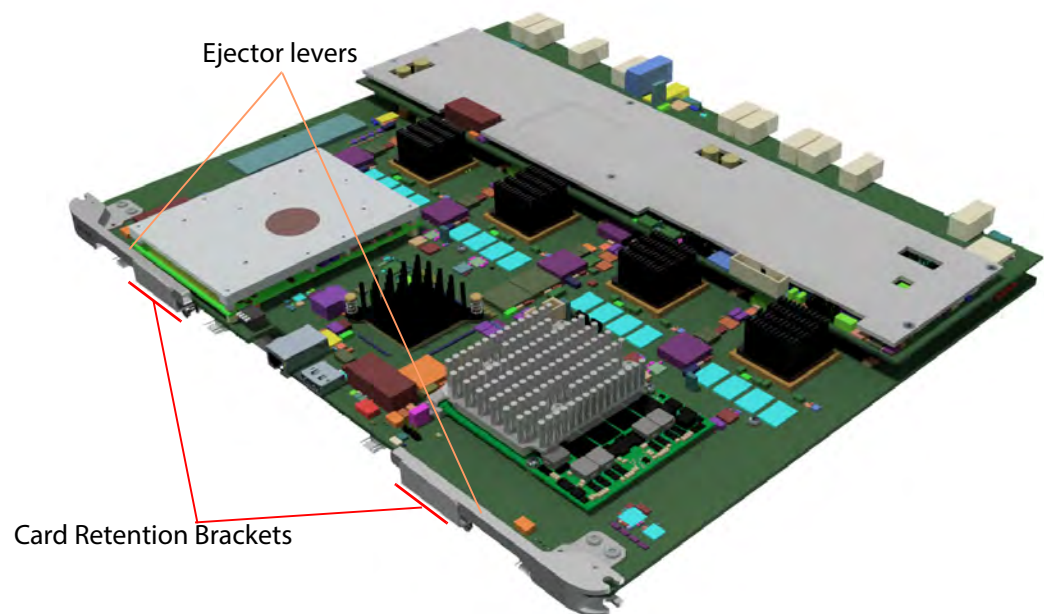


Fig. 11-4: MV-825-RTR Front View with Front Door Open

IMPORTANT: Keep chassis door closed.
The front door should not need to be opened in normal operation. The main card is not a serviceable item.
Close the front door when the equipment is powered, to maintain cooling airflow.



Note: This is *not* a serviceable item.

Fig. 11-5: MV-825-RTR Main Front Card

LED status indicators and connectors on the upper and lower front edge of the main card are described in Section [Front Indicators](#), on page 17.

The main card is retained in the chassis with two card retention brackets, each attached to the cards lower strengthener bar with two captive screws. See Figure 11-6.

Note: Do not remove the MV-825-RTR top lid.
(This photograph was only taken with the lid removed for lighting reasons.)

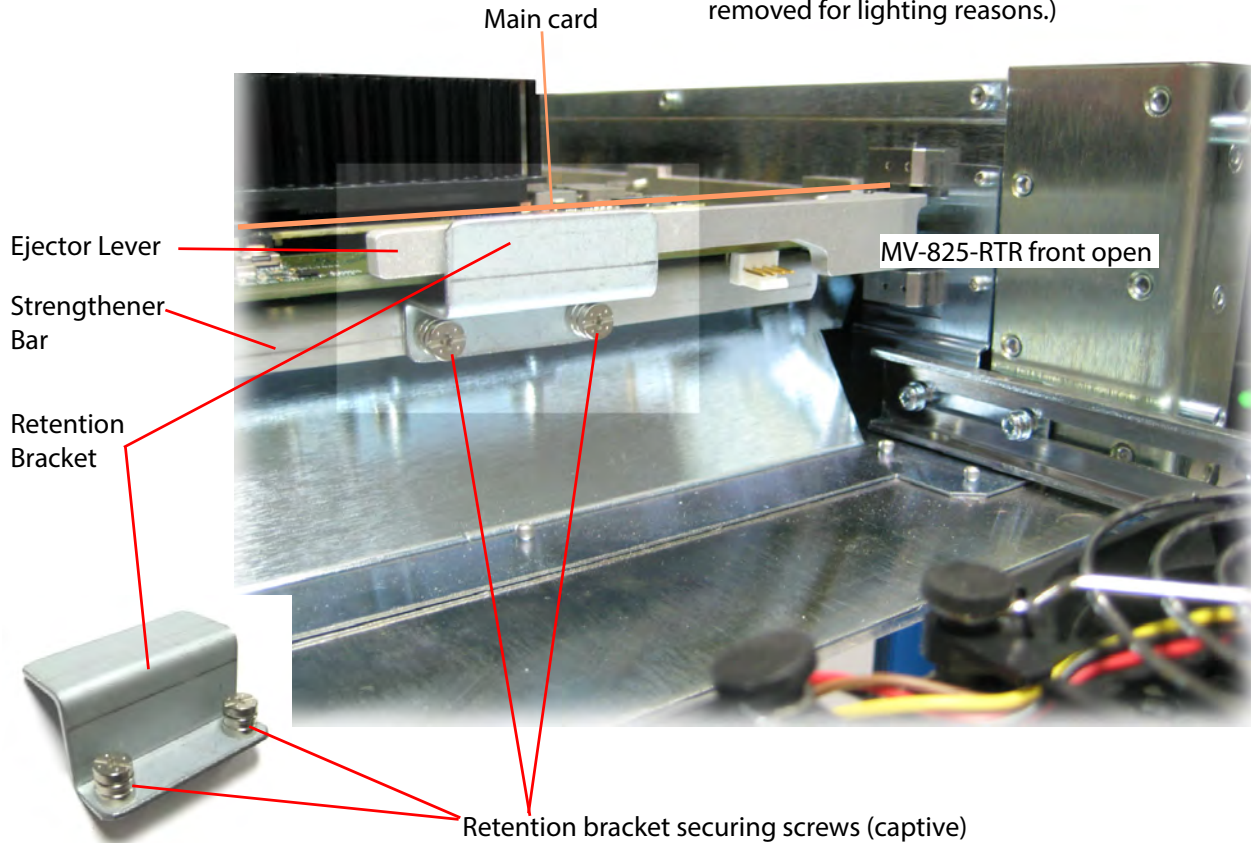


Fig. 11-6: Main Front Card Retention Bracket and Strengthened Bar

Main Front Card Removal

The MV-825-RTR main front card is not a serviceable item and is not normally removed. Removal of the MV-825-RTR main front card is only required if the card were to have a fault.

IMPORTANT

Removal of the main front card should only be attempted by trained personnel.

CAUTION:

Electrostatic Damage

Static precautions must be observed when touching or handling cards/modules.

Note: When removing or fitting the main front card, the front door should be closed as soon as possible after opening. This ensures correct ventilation and operation of the router frame.

Tools Required

- Small pozidriv screw driver, or a flat blade screwdriver.

Procedure

The MV-825-RTR should be powered down for main card removal/fitting.

To remove the MV-825-RTR main front card:

- 1 Disconnect both mains cords from the MV-825-RTR unit.
This powers down the unit.
- 2 Open the front door of the MV-825-RTR. (See [To Open the Front Door](#), on page 15.)
- 3 Disconnect the four door-fan supply wires from the front of the MV-825-RTR main front card. See Figure 11-7.

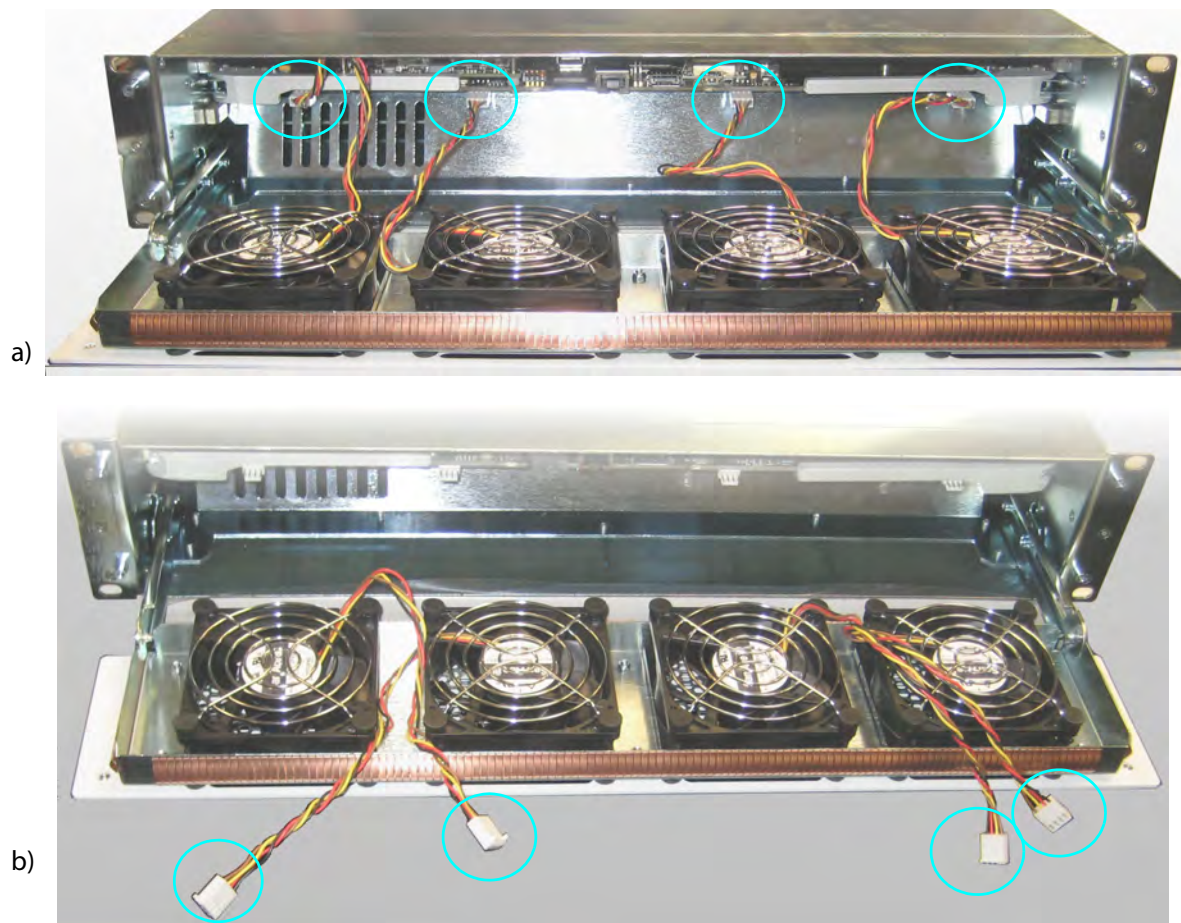


Fig. 11-7: Door-Fan Supply Wires:
a) Fan Wires Connected to MV-825-RTR Main Card.
b) Fan Wires Disconnected.

- 4 Unscrew the two captive screws securing each of the Retention Brackets. Remove the Retention Brackets and keep them aside. See Figure 11-8.

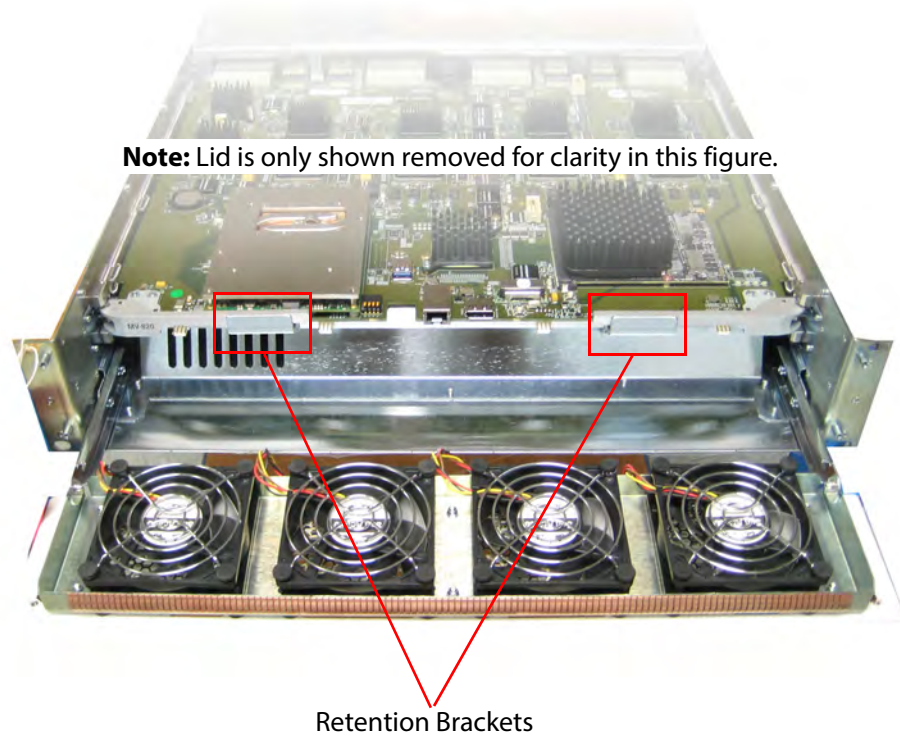


Fig. 11-8: Retention Bracket Locations

- 5 Remove the front card by pulling on the two card eject levers, which hinge on the left and right. See Figure 11-9. The card disengages with the chassis and slides out.

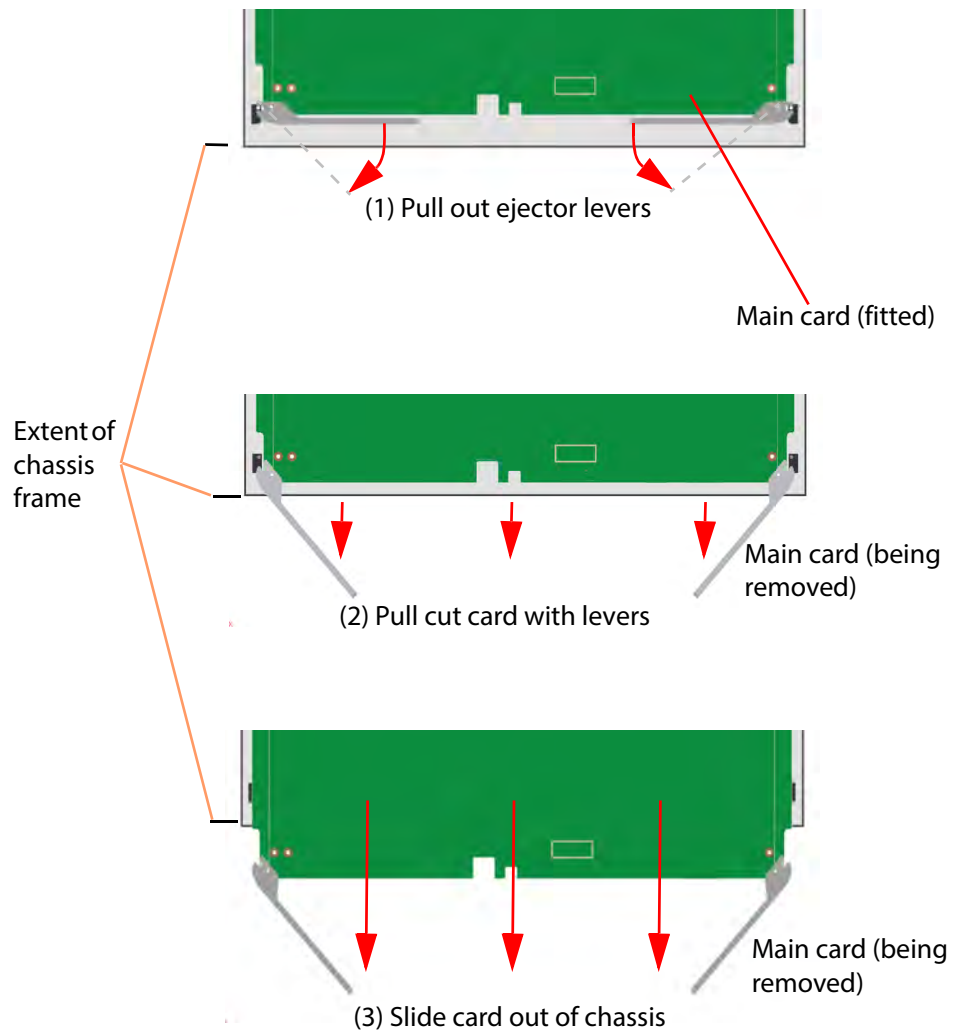


Fig. 11-9: Removing MV-825-RTR Multiviewer Main Card

IMPORTANT

When removing a card, take care not to knock high components mounted on the top- or on the bottom-side of the card.

The main card is now removed.

- 6 Proceed to fit a replacement main card, see [Main Card Fitting](#), on page 178.

The MV-825-RTR will not operate without a main front card.

Main Card Fitting

The MV-825-RTR main front card is not a serviceable item and is not normally removed/re-fitted.

IMPORTANT

Re-fitting of the main front card should only be attempted by trained personnel.

CAUTION

Electrostatic Damage

Static precautions must be observed when touching or handling cards.

Note: When removing or fitting the main front card, the front door should be closed as soon as possible after opening. This ensures correct ventilation and operation of the router frame.

Note:

When inserting a card into the front of a MV-825-RTR chassis:

- Check the card is the correct one for the chassis frame.
 - Check there are no obstructions or damage at the card connectors.
 - Check for any high components on the card's top- or under-side. Do not knock these during fitting.
 - Insert the card into the chassis card slot and slide the card into the chassis frame.
 - In the last few millimeters of travel, the card connectors mate with the chassis. Some resistance will be met; ease, but do not force, the card in with the levers.
 - If excessive resistance is met:
 - Remove the card and re-check that the card and slot are correct.
 - Check the slot for any obstruction.
 - Check the card connectors for any damage or foreign objects.
 - In the final few millimeters of travel, the levers engage with the chassis frame, locking the card into position.
-

IMPORTANT

High Components

When inserting a card - Take care not to knock high components which are mounted on the top- or on the under-side of the card.

Note:

The MV-825-RTR main front card is **not** hot-pluggable.

Procedure

These instructions follow on from the card removal instructions of [Main Front Card Removal](#), on page 175.

Note:

Items required:

- Small pozidriv screw driver, or a flat blade screwdriver.
 - 2x Card Retention Brackets.
-

The unit should already be powered down and have no main card fitted.

To fit a main card:

- 1 If the Main Card has the Retention Brackets already fitted, then remove the brackets by unscrewing two captive screws securing each of them.
- 2 Open the front door of the MV-825-RTR.
(See [To Open the Front Door](#), on page 15.)
- 3 Engage the MV-825-RTR Main Card sides with the guides in the chassis.
- 4 Push the card levers and slide the card into the slot.
In the final few millimeters of travel, the card connectors mate with the internal chassis motherboard and the ejector levers engage with the router frame, locking the card into position. See Figure 11-10.

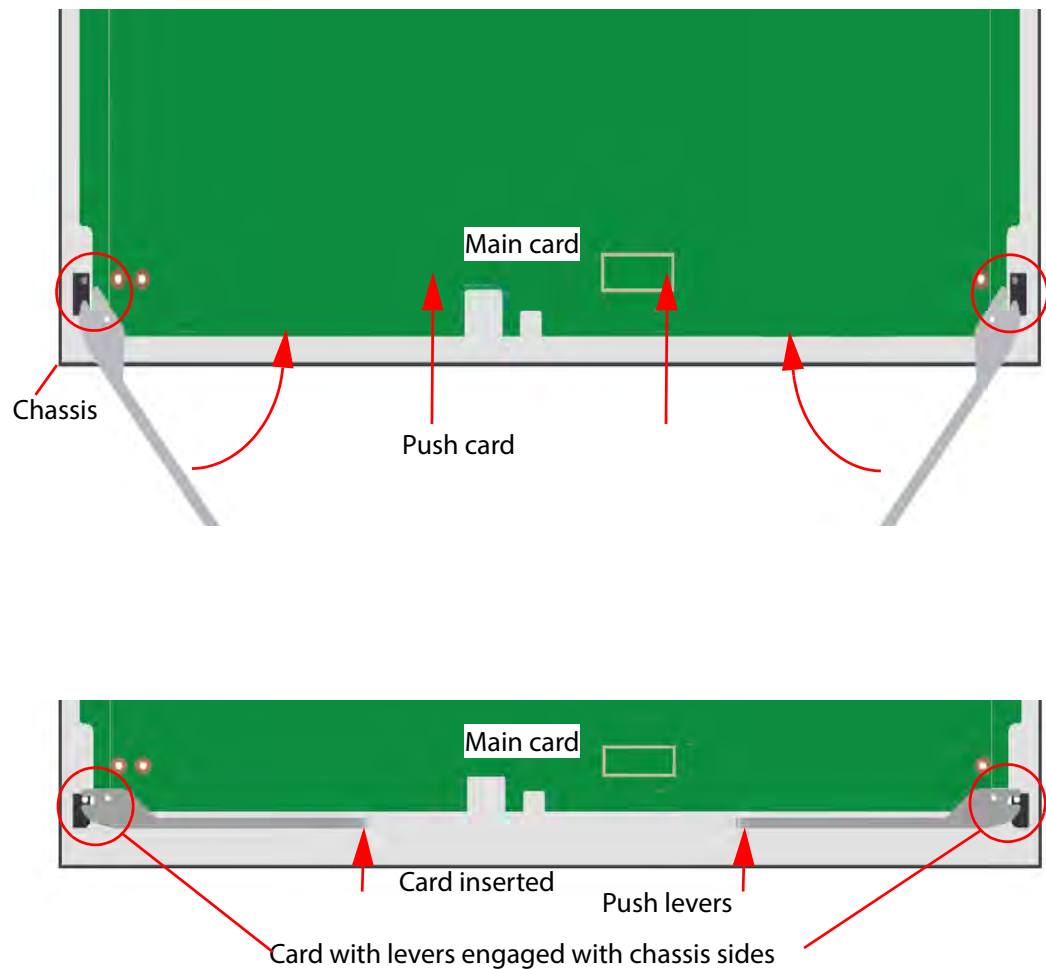


Fig. 11-10: Inserting MV-825-RTR Multiviewer Main Front Card

The card is inserted into the chassis. Now fit the Retention Brackets and close the front door:

- 5 Fit both Retention Brackets onto the card's Strengthen Bar and secure by tightening the two captive securing screws.
- 6 Reconnect the four door-fan supply wires to the headers on the main front card. Check they are pushed onto the main front card headers fully and securely. See Figure 11-7.
- 7 Close and secure the chassis front door.
(See Section [To Close the Front Door](#), on page 16.)
- 8 Reconnect both mains cords to the MV-825-RTR unit.
This powers the unit.
- 9 Check that the front door-fans are all operating.

The main card is now fitted into the MV-825-RTR chassis.

When the MV-825-RTR is powered on, the main card starts to boot up. Start-up lasts 2 to 3 minutes and a splash-screen is shown on the Head Display Outputs after 1 minute until booting is complete.

See [Booting Up](#), on page 42 for a description of the unit start up.

12

12 Maintenance - Software

Summary of chapter contents:

Maintenance - Software

<i>Maintenance of the Core Multiviewer</i>	page 184
<i>Rear Core Multiviewer Ethernet Ports</i>	page 184
<i>Licensing for Core Multiviewer</i>	page 184
<i>Upgrading Core Multiviewer</i>	page 185
<i>Downloading of log files for Core Multiviewer</i>	page 185
<i>Maintenance of the Router Software</i>	page 186
<i>Rear Router Ethernet Ports</i>	page 186
<i>Licensing Router Software</i>	page 186
<i>Upgrading Router Software</i>	page 186
<i>Downgrading Router Software</i>	page 187

This chapter describes various software maintenance tasks for the MV-825-RTR unit. For instructions for the MV-825-RTR's core multiviewer and for the MV-825-RTR's video router within the MV-825-RTR, respectively, see:

- [Maintenance of the Core Multiviewer](#), on page 184.
- [Maintenance of the Router Software](#), on page 186.

(For hardware maintenance, see Chapter 11 [Maintenance - Hardware](#), on page 167.)

Maintenance of the Core Multiviewer

Maintenance of the core multiviewer of the MV-825-RTR is common to other MV-8xx products.

Specific MV-825-RTR information is found in this section (see [Rear Core Multiviewer Ethernet Ports](#), [Licensing for Core Multiviewer](#), [Upgrading Core Multiviewer](#), and [Downloading of log files for Core Multiviewer](#)).

General instruction and are found in the 'Core MV Maintenance' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Rear Core Multiviewer Ethernet Ports

Use rear Ethernet port 'MV1' or 'MV2' are for core multiviewer maintenance.

IMPORTANT

Use rear Ethernet port 'MV1' or 'MV2' are for core multiviewer software maintenance.

Licensing for Core Multiviewer

IMPORTANT **To license an MV-825-RTR unit:**

Use the multiviewer Main Board serial number.

This is found:

- in the multiviewer block's 'System-Setup' control screen; or
- on the start-up splash screen when the unit boots up.

(See the *MV-8 Series Core Multiviewer User Manual* for details, see [Related Documents](#), on page iii.)

Licenses for MV-825-RTR are listed in Chapter 1, Table 1-1, [MV-825-RTR Order Codes](#), on page 4. Licenses include:

- MV-825-H264
- MV-825-12G
- MV-825-OPxxx

Licensing is done using the RollCall Control Panel software tool.

Note: RollCall Control Panel version for licensing the MV-825-RTR,
use RollCall Control Panel version 4.20.5 or later.

For information on the licensing procedure, please refer to the 'Core MV Maintenance' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Upgrading Core Multiviewer

Use RollCall Control Panel for upgrading multiviewer software.

The multiviewer software upgrade package required is for the MV-8 Series multiviewer core within the MV-825-RTR. The upgrade package required is for the latest, generic MV-8 Series multiviewer. (For example, version v3.3.39.)

For information, please refer to the
'Core MV Maintenance' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Downloading of log files for Core Multiviewer

For information, please refer to the
'Core MV Maintenance' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Router log file formats:

- RFC3164;
- RFC 3164 millisecond; and
- RFC 5424.

Maintenance of the Router Software

Rear Router Ethernet Ports

Use rear Ethernet port 'ROUTER1' or 'ROUTER2' are for router maintenance.

IMPORTANT

Use rear Ethernet port 'ROUTER1' or 'ROUTER2' are for router software maintenance.

Licensing Router Software

There are no specific licenses for the router software of the MV-825-RTR product.

All licensing on the MV-825-RTR product is done with multiviewer software licensing. See [Licensing for Core Multiviewer](#), on page 184.

Note: The **MV-825-12G** license is applied to the core multiviewer software and affects the whole MV-825-RTR product.
With this license applied, the whole MV-825-RTR unit gains 6G/12G video input/output capability.

Note: **Licensing serial number for the multiviewer software:**
Licensing uses the serial number of the main card within the MV-825-RTR unit. This is not the same thing as the Unit Serial Number which is shown at the unit rear.
The serial number to use for licensing is shown on the start-up splash screen, or on the multiviewer control screen.

Upgrading Router Software

Upgrading of the router software within the MV-825-RTR is done in a similar way to the upgrading of the core multiviewer software. See [Upgrading Core Multiviewer](#), on page 185.

However, there are some differences with upgrading:

- router software is accessed through a different rear Ethernet port ('ROUTER1' or 'ROUTER 2'; see [Rear Router Ethernet Ports](#), on page 186);
- router software uses a separate software upgrade package which is specifically for the router within the MV-825-RTR unit; and
- router software upgrading times may differ because of different upgrade package sizes.
- Upgrade file name is "RouterRelease.zip" and file size is approximately 13.5Mbytes.

Otherwise, the procedure for upgrading is similar to that for the core multiviewer software. For instructions on the procedure to upgrade the router software, please refer to the 'Core MV Maintenance' chapter of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
See [Related Documents](#), on page iii.

Upgrade Duration

Software upgrade of the router block within the MV-825-RTR unit takes approximately 2 to 3 minutes.

Downgrading Router Software

Downgrading follows a similar procedure to upgrading.

A MV-825-RTR Specification

Power

Table A-1

Power	
Power consumption	350W (max.)

Operating Environment

Table A-2

Environmental	
Operating Temperature	5°C to 30 °C ambient.
Relative Humidity	10 to 90% (non-condensing)

Weight

Table A-3

Weight	
Unit	14.4 kg (approx. 32lb)

Overall Dimensions

Table A-4

Dimensions	
Width	435 mm (~ 17.25 in.) approx.
Depth	345 mm (~ 13.6 in.) approx.
Height	32 mm (~ 1.3 in.) approx.

Inputs

Table A-5

Router Video Inputs	
Number and type	48x 12G HD-BNC Coax.
Standards supported	SMPTE-259M 525 and 625 SD-SDI SMPTE 292M 720p and 1080i HD-SDI SMPTE 424M 1080p 3G-SDI SMPTE 2081 2160p 6G-SDI SMPTE 2082 2160p 12G-SDI
Impedance	75 R
Data rate	270 Mb/s to 11.88 Gb/s.
Return loss	>15 dB, 10 MHz to 1.5 GHz >10 dB, 1.5 GHz to 3 GHz > 7 dB, 3 GHz to 6 GHz > 4 dB, 6 GHz to 12 GHz
Signal Amplitude	800 mV \pm 10% pk-pk
DC offset	<5V
Cable Equalization	Automatic for: Up to 350 m (1150 feet) Belden 1694A, PSF1/2M at SD rates Up to 200 m (650 feet) Belden 1694A at HD Up to 90 m (295 feet) Belden 1694A at 3G Up to 60 m (195 feet) Belden 4694R at 12G

Outputs

Table A-6

Router Video Outputs	
Number and type	48x HD-BNC Coax
Standards supported	SMPTE-259M 525 and 625 SD-SDI SMPTE 292M 720p and 1080i HD-SDI SMPTE 424M 1080p 3G-SDI SMPTE 2081 2160p 6G-SDI SMPTE 2082 2160p 12G-SDI
Impedance	75 ohm
Data rate	270Mb/s to 11.88Gb/s.
Amplitude	800mV \pm 10% pk-pk
Rise/Fall time	<45 ps @ 12G <90 ps @ 3G <180 ps @ HD <650 ps @ SD

Table A-6 (continued)

Router Video Outputs	
Timing Jitter	<2 UI @ 12G <0.25 UI @ 1.5G and 3G <0.15 UI @ SD
Alignment Jitter	<0.3 UI @ 12G <0.15 UI @ 1.5G and 3G <0.1 UI @ SD
DC offset	0 V ±0.5 V

Table A-7

Multiviewer Head Display Outputs	
Multiviewer Head Display Outputs	4 to 12 SDI video outputs. HD-BNC Coax or Fiber. <ul style="list-style-type: none"> • Outputs 1 to 4 on standard MV-825-RTR. • Outputs 5 to 12, with MV-825-RTR licenses. Optional SFPs: <ul style="list-style-type: none"> • Dual coax SFP. • Dual Fiber SFP. • Single HDMI SFPs. (Up to 6 x HDMI outputs, 1080p)
Video Standard	3G: 1080p or 720p 2.97Gbps SDI. 75 ohm coax.
Frame rate	50, 59.94 & 60 frames per second.
Reference timing	Display Outputs locked to: <ul style="list-style-type: none"> • Host Router Reference. • Or Internal Reference (free running).
Video Delay (latency through multiviewer)	Interlaced input: <ul style="list-style-type: none"> • 1 input field • + 1 to 3 output frames, Progressive input: <ul style="list-style-type: none"> • 1 input frame • + 1 to 3 output frames.

Table A-8 Streamed Out Copies of Inputs

Streams	
Streaming Out	Scaled copies of the multiviewer inputs. Each multiviewer input is re-scaled to SD resolution and H.264-encoded to create streamed copies of the 48 inputs. These are streamed out over IP from MV1 or MV2 interfaces. See Note 1 .
Quantity	Up to 48x.
Encoding	H264-encoded streams. See Note 1 . H.264 encoding latency is approximately 2 video frames. (For information about 'end-to-end' viewing latency, please refer to the <i>MV-8 Series Core Multiviewer</i> user manual.)
<p>Note 1: The H.264 streams do not function for the following slower-frame-rate HD standards:</p> <ul style="list-style-type: none"> • 1080p30 (and slower frame rates); and • 720p30 (and slower frame rates). 	

TV Standards

Table A-9

Video Standard			
12G-SDI: 11.88Gbps (Licensed feature)	2160p	60 Hz	SMPTE 2082
	2160p	59.94 Hz	SMPTE 2082
	2160p	50 Hz	SMPTE 2082
6G-SDI: 5.94Gbps (Licensed feature)	2160p	30 Hz	SMPTE 2081
	2160p	29.97 Hz	SMPTE 2081
	2160p	25 Hz	SMPTE 2081
3G-SDI: 2.97Gbps	1080p	59.94 Hz	SMPTE 424M/Level A and Level B
	1080p	60 Hz	SMPTE 424M/Level A and Level B
	1080p	50 Hz	SMPTE 424M/Level A and Level B
HD-SDI: 1.485 Gbps	1080i	30 Hz	(ANSI/SMPTE-274M(4), -292M(D))
	1080i	29.97 Hz	(ANSI/SMPTE-274M(5), -292M(E))
	1080i	25 Hz	(ANSI/SMPTE-274M(6), -292M(F))
	1035i	30 Hz	(ANSI/SMPTE-260M, -292M(A))
	1035i	29.97 Hz	(ANSI/SMPTE-260M, -292M(B))
	1080p	30 Hz sF	(ANSI/SMPTE-274M(12) as per RP211)
	1080p	29.97 Hz sF	(ANSI/SMPTE-274M(13) as per RP211)
	1080p	25 Hz sF	(ANSI/SMPTE-274M(14) as per RP211)
	1080p	24 Hz sF	(ANSI/SMPTE-274M(15) as per RP211)
	1080p	23.976Hz sF	(ANSI/SMPTE-274M(16) as per RP211)
	1080p	30 Hz	(ANSI/SMPTE-274M(7), -292M(G))
	1080p	29.97 Hz	(ANSI/SMPTE-274M(8), -292M(H))
	1080p	25 Hz	(ANSI/SMPTE-274M(9), -292M(I))
	1080p	24 Hz	(ANSI/SMPTE-274M(10), -292M(J))
	1080p	23.976 Hz	(ANSI/SMPTE-274M(11), -292M(K))
SD Video Standards	525i	29.97 Hz 4:3/16:9	(ITU-R BT.601-5, ANSI/SMPTE-259M(2))
	625i	25 Hz	(ITU-R BT.601-5, ANSI/SMPTE-259M(2))
		4:3/16:9	

Note: UHD support via:

- quad 3G-SDI; or
- native 12G-SDI (licensed feature).

Note: Other transports carried in the SDI framework can be passed through the routing block of the MV-825-RTR. However, non-SDI transports are indicated with a "Signal Loss" input signal status and red rear 'Catsii' LED to indicate 'unknown signal'.

Note: Other transports carried in the SDI framework can be passed through the routing block of the MV-825-RTR. However, these cannot be monitored and viewed with the multiviewer block.

Reference

Table A-10

Reference	
Reference Input	2x BNC inputs.
Input Signal	Analog reference signal. According to system standard, when terminated with 75 ohm termination: <ul style="list-style-type: none">• $\pm 300\text{mV}$ tri-level HD sync, or• 300mV bi-level SD sync with optional 300mV pk-pk burst $\pm 6\text{dB}$
Impedance	75 ohm.
Reference Loop Out	2x loop-through BNC connectors. Terminate at these connectors with 75R terminations.

GPI and LTC

Table A-11

GPI	
Connector	26 Way Screw Terminal type connector. GPIO and LTC pins. Programmable GPIO Tally with TTL-level/contact-closure inputs for GPI See LTC and GPIO Connector Pin-outs , on page 30 for wiring details and pinout.

Ethernet Rear Panel Connectors

Table A-12 Rear Ethernet Ports

Connectors	
Router Control	2x 1 Gbps RJ45 Ethernet sockets. Rear ports ' ROUTER 1 ' and ' ROUTER 2 '.
Multiviewer Control	2x 1 Gbps RJ45 Ethernet sockets. Rear ports ' MV 1 ' and ' MV 2 '. ('1G1 ' and ' '1G2 ' in control screen.)

Default IP Addresses

Table A-13 MV-825-RTR Default IP Addresses for Rear Ethernet Ports

Rear Ethernet Connector Label	Control Screen Name	Interface Type	Default IP Address
ROUTER 1	IP Port 1	1GbE	192.168.0.101
ROUTER 2	IP Port 2	1GbE	192.168.0.102
MV 1	1G1	1GbE	10.54.31.221
MV 2	1G2	1GbE	10.54.31.222

Unused Rear Panel Connectors

Table A-14

Connectors	
Aux	2x. Not currently used. For future use.
USB	2x. For Grass Valley engineering use.

Monitoring and Alarms

Table A-15

Monitoring and Alarms	
Video:	
On-Screen Monitoring:	Fully flexible layouts: <ul style="list-style-type: none"> • Any object can be any size, in any position. • Adjustable layering and transparency of objects over video or other objects or background. • Display up to 48 video tiles on a single screen. • Any router input can be assigned to any screen. • WSS/AFD flags. • Media Biometrics
Alarms:	<ul style="list-style-type: none"> • Video Input signal loss • Video black • Picture freeze or still • Video Input format change.
Audio:	
On-Screen Monitoring:	<ul style="list-style-type: none"> • Metering of AES embedded audio: <ul style="list-style-type: none"> • VU, extended VU, DIN, BBC, and Nordic scales • Up to 32 audio channels per video signal • Bars outside or overlaid on picture • Audio meter scales on/off • Programmable color & alarm thresholds
Alarms:	<ul style="list-style-type: none"> • Loss of: <ul style="list-style-type: none"> • AC3 encoded audio data, • Dolby E encoded audio data. • DialNorm under preset threshold. • Dolby E configuration change. • Audio Level: <ul style="list-style-type: none"> • Loss of audio. • Audio level low/high.
Metadata and Control Monitoring:	
On-Screen Monitoring:	<ul style="list-style-type: none"> • Closed Caption & Subtitle detection • V chip detection • Display UMD router source names via General Remote protocol SW-P-08 over IP
Alarms:	Loss of: <ul style="list-style-type: none"> • Teletext. • Closed Caption (CC). • TS ID. • V-chip. • VITC. • Extended Data Services (XDS).
Alarm Control:	Controls and features for: <ul style="list-style-type: none"> • Configurable alarms trigger delays • Alarm acknowledge/clear/previous fault indication (border color or tally alarm box) • Alarm acknowledge from hardware or soft panels via RollCall interface • Layout recalls from hardware or soft panels, on-screen message boxes via RollCall • Alarm auto-clear after default time.

Video Wall Screen Display

Table A-16

Screen Display	
Screen Design	Facilities: <ul style="list-style-type: none"> • Drag and drop objects on screen • Configurable grid • Snap to grid • Object grouping and re-sizing • Fixed/adjustable video tile aspect ratios
Time code	Time code: <ul style="list-style-type: none"> • Display time code extracted from video and from multiviewer time code input
Time	Time: <ul style="list-style-type: none"> • Multiple clock display – lock to NTP, VITC or LTC, with time zone offsets • Generate real-time clocks and timers with count up/down capability
Miscellaneous	Control from: <ul style="list-style-type: none"> • TSL protocol v3.1 and v5.0 Graphics / Images: <ul style="list-style-type: none"> • Add graphics files to display labels and channel logos, etc • Programmable background color or image Generate safe area markings

Software Versions

Table A-17

Software	Version
MV-825-RTR Multiviewer Software	v3.3.39 or later
MV-825-RTR Router Controller S/w	0.99s.8.18656
RollCall Suite	v4.19.10 or later
Grass Valley Orbit	GV Orbit v1.3 or later GV Orbit Client v4.3 or later

B Unit Dimensions

Chassis dimensions are shown in Figure B-1.

Unit Dimensions

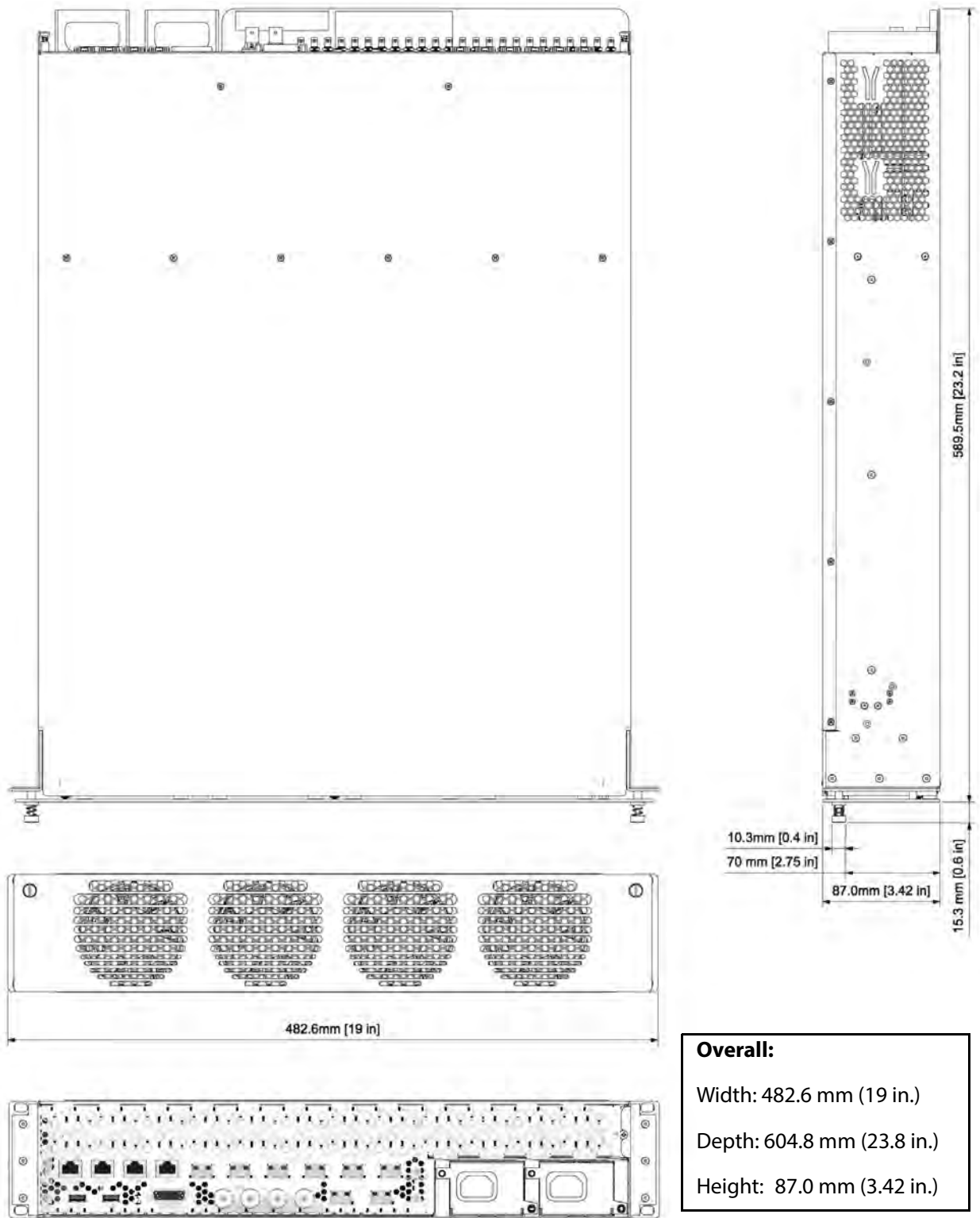


Fig. B-1: MV-825-RTR Dimensions

Appendix content summary:

Protocols 201

<i>SW-P-02 General Switcher Protocol</i>	<i>page 201</i>
<i>Supported SW-P-02 Commands</i>	<i>page 201</i>
<i>SW-P-08 General Remote Protocol</i>	<i>page 203</i>
<i>Supported SW-P-08 Commands</i>	<i>page 203</i>

SW-P-02 General Switcher Protocol

Supported commands:

- **Interrogate.**
- **Connect**, including **Connect on Go Group Salvo**, including Extended Command.
- **Go Group Salvo.**
- **Extended Protect Interrogate.**
- **Extended Protect Tally Dump Request.**
- **Protected Device Name Request.**

Eight simultaneous clients.

Supported SW-P-02 Commands

Input Commands

- 01: Interrogate
- 02: Connect
- 35: Connect On Go Group Salvo
- 65: Extended Interrogate
- 66: Extended Connect
- 71: Extended Connect On Go Group Salvo
- 101: Extended Protect Interrogate
- 102: Extended Protect Connect
- 103: Protect Device Name Request
- 104: Extended Protect Disconnect
- 105: Extended Protect Tally Dump Request

Output Commands

- 03: Tally
- 04: Connected
- 37: Connect On Go Group Salvo Acknowledge
- 38: Go Done Group Salvo Acknowledge
- 67: Extended Tally
- 68: Extended Connected
- 72: Extended Connect On Go Group Salvo Acknowledge
- 96: Extended Protect Tally
- 97: Extended Protect Connected
- 98: Extended Protect Disconnected
- 99: Protect Device Name Response
- 100: Extended Protect Tally Dump
- 120: Cannot Execute

SW-P-08 General Remote Protocol

Supported commands:

- **Connect** - Now supports Extended command.
- **Interrogate** - now supports Extended command.
- **Protect Connect** - Now supports Extended Commands..
- **Protect Interrogate** - Now supports Extended command.
- **Protect Disconnect** - Now supports Extended Commands.
- **Protect Tally Dump.**
- **Device Name Request.**
- **Tally Dump Request.**
- **Connect on Go Group Salvo** - Now supports Extended Commands.
- **Go Group Salvo.**
- **Enquire Connect** - Now supports Extended Commands.
- **Protect Tally Dump Request** - Now supports Extended Commands.
- **Tally Dump Request** - Now Supports Extended commands.
- **All Source Names Request** - New command supported includes Extended Command option.
- **All Destination Association Names Request** - New command supported includes Extended Command option.
- **All Source Association Names Request** - New command now supported.

Eight simultaneous clients.

Supported SW-P-08 Commands

Input Commands

- 1: Crosspoint Interrogate
- 2: Crosspoint Connect
- 10: Protect Interrogate
- 12: Protect Connect
- 14: Protect Dis-Connect
- 17: Protect Device Name Request
- 19: Protect Tally Dump Request
- 21: Crosspoint Tally Dump Request
- 29: Master Protect Connect
- 97: Implementation Request
- 99: Invalid Message
- 100: All Source Names Request
- 101: Single Source Name Request
- 102: All Destination Association Names Request
- 103: Single Destination Association Name Request

- 111: Crosspoint Tie-Line Connect
- 112: Crosspoint Tie-Line Interrogate
- 114: All Source Association Names Request
- 115: Single Source Association Name Request
- 117: Update Name Request
- 120: Crosspoint Connect On Go Group Salvo
- 121: Crosspoint Go Group Salvo
- 124: Crosspoint Group Salvo Interrogate
- 129: Extended Crosspoint Interrogate
- 130: Extended Crosspoint Connect
- 138: Extended Protect Interrogate
- 140: Extended Protect Connect
- 142: Extended Protect Dis-Connect
- 147: Extended Protect Tally Dump Request
- 149: Extended Crosspoint Tally Dump Request
- 228: Extended All Source Names Request
- 229: Extended Single Source Name Request
- 230: Extended All Destinations Association Names Request
- 231: Extended Single Source Destination Association Name Request
- 248: Extended Crosspoint Connect On Go Group Salvo
- 252: Extended Crosspoint Salvo Group Interrogate

Output Commands

- 3: Crosspoint Tally
- 4: Crosspoint Connected
- 11: Protect Tally
- 13: Protect Connected
- 15: Protect Dis-Connected
- 18: Protect Device Name Response
- 20: Protect Tally Dump Response
- 22: Crosspoint Tally Dump (byte) Response
- 23: Crosspoint Tally Dump (word) Response
- 98: Implementation Status
- 99: Invalid Message
- 106: Source Name Response
- 107: Destination Association Name Response
- 113: Crosspoint Tie-Line Tally
- 116: Source Association Names Response
- 122: Crosspoint Connect On Go Group Salvo Acknowledge
- 123: Crosspoint Go Group Salvo Acknowledge

- 125: **Crosspoint Group Salvo Tally**
- 131: **Extended Crosspoint Tally**
- 132: Extended Crosspoint Connected
- 139: Extended Protect Tally
- 141: **Extended Protect Connected**
- 143: Extended Protect Dis-Connected
- 148: Extended Protect Tally Dump Message
- 151: Extended Crosspoint Tally Dump (word) Message
- 234: Extended Source Names Response Message
- 235: Extended Destination Association Names Response Message
- 250: Extended Crosspoint Connect On Go Group Salvo Acknowledge
- 253: Extended Crosspoint Group Salvo Tally

D Configuration File

Introduction

The Configuration file is a text file containing configuration information for the router within the MV-825-RTR. The file is for backup purposes. The user is NOT advised to edit this file.

Note: The Configuration file is for backup purposes only.
Always keep a backup copy of the Configuration file.

CAUTION

Do not edit the file.
An incorrect configuration file can cause a unit's router settings to be lost.
If an incorrect configuration file is used, the unit could be rendered inoperative and the only means of recovering would be a factory reset, which would overwrite settings.

Note: Take a backup of the configuration file before carrying out a Factory Reset.

Example Configuration File

```
// [MV825Config:v1.0]
{
  "MV825" :
  {
    "Clock" :
    {
      "NTPServer" : "0.pool.ntp.org",
      "RTCSetMode" : 0,
      "TimeZone" : "GMT0BST"
    },
    "General" :
    {
      "ControllerName" : "MV825",
      "Location" : "Newbury HQ",
      "SystemContact" : "Walter Plinge"
    },
    "Logging" :
    {
      "Enable" : false,
      "Format" : 0,
      "IpAddress" : ""
    }
  }
}
```

Configuration File
Example Configuration File

```
        "Port" : 514
    },
    "Network" :
    {
        "UNIpAddress" : "192.168.0.101",
        "UNIpAddress0" : "10.162.48.6",
        "UNIpGateway" : "",
        "UNIpGateway0" : "10.162.254.1",
        "UNIpPriDnsAddress" : "",
        "UNIpSecDnsAddress" : "",
        "UNIpSubNet" : "255.255.0.0",
        "UNIpSubNet0" : "255.255.0.0"
    },
    "PSU" :
    {
        "Number" : 0
    },
    "RollCall" :
    {
        "AnyLogServer" : false,
        "Enable" : true,
        "LogServerName" : "",
        "LongNames" : false,
        "SharePort" : 2050
    },
    "RollCallPlus" :
    {
        "Address" : "FFFF:99:00",
        "Domain" : 99,
        "Enable" : false,
        "LongNames" : false
    },
    "SNMP" :
    {
        "CommunityGet" : "public",
        "CommunitySet" : "private",
        "CommunityTrap" : "MV825Trap",
        "Enable" : true,
        "TrapAddresses" : []
    },
    "SWP02" :
    {
        "Enable" : true,
        "Port" : 2002
    },
    "SWP08" :
    {
        "Enable" : true,
        "Port" : 2008
    }
}
}
```

End of configuration file.

E Persistence File

Introduction

The Persistence file is a text file containing state information for the router within an MV-825-RTR. The file is for backup purposes. The user is **not advised** to edit this file.

Persistence settings include:

- All port settings.
- Routing.
- Names.
- and other settings that change in normal router use.

And does NOT include:

- Unit Information screen settings.
- Comms Setup screen settings.

Note: The persistence file is for backup purposes only.
Always keep a backup copy of the persistence file.

CAUTION

Do not edit the Persistence file.
If an incorrect file is pushed to a MV-825-RTR unit, it can cause a MV-825-RTR to not behave as expected.

Note: If a subsequent Factory Reset is required to recover a unit, then all persistence data will be overwritten.

IMPORTANT

Take a backup of the persistence file before carrying out a Factory Reset.
If a Factory Reset is required to recover a unit, then all persistence data will be overwritten.

Example Persistence File

```
[MV825Persistence:v1.0]
2.6.1.1.1.63=1
2.6.1.1.1.64=1
2.6.1.1.1.65=1
2.6.1.1.1.66=1
2.6.1.1.1.67=1
2.6.1.1.1.68=1
2.6.1.1.1.69=1
```

Persistence File
Example Persistence File

2.6.1.1.1.70=1
2.6.1.1.1.71=1
2.6.1.1.1.72=1
2.6.1.1.1.73=1
2.6.1.1.1.74=1
2.6.1.1.1.75=1
2.6.1.1.1.76=1
2.6.1.1.1.77=1
2.6.1.1.1.78=1
2.6.1.1.1.79=1
2.6.1.1.1.80=1
2.6.1.1.1.81=1
2.6.1.1.1.82=1
2.6.1.1.1.83=1
2.6.1.1.1.84=1
2.6.1.1.1.85=1
2.6.1.1.1.86=1
2.6.1.1.1.87=2
2.6.1.1.1.88=1
2.6.1.1.1.89=1
2.6.1.1.1.90=1
2.6.1.1.1.91=1
2.6.1.1.1.92=1
2.6.1.1.1.93=1
2.6.1.1.1.94=1
2.6.1.1.1.95=1
2.6.1.1.1.96=1
2.6.1.1.1.97=1
2.6.1.1.1.98=1
2.6.1.1.1.99=1
2.6.1.1.1.100=1
2.6.1.1.1.101=1
2.6.1.1.1.102=1
2.6.1.1.1.103=1
2.6.1.1.1.104=1
2.6.1.1.1.105=1
2.6.1.1.1.106=1
2.6.1.1.1.107=1
2.6.1.1.1.108=1
2.6.1.1.1.109=1
2.6.1.1.1.110=1
2.4.1.1.3.3=8
2.5.1.1.3.64=1
2.5.1.1.3.65=1
2.5.1.1.3.66=1
2.5.1.1.3.67=1
2.5.1.1.3.68=1
2.5.1.1.3.69=1
2.5.1.1.3.70=1
2.5.1.1.3.71=1
2.5.1.1.3.72=1
2.5.1.1.3.73=1
2.5.1.1.3.74=1
2.5.1.1.3.75=1
2.5.1.1.3.76=1
2.5.1.1.3.77=1

2.5.1.1.3.78=1
2.5.1.1.3.79=1
2.5.1.1.3.80=1
2.5.1.1.3.81=1
2.5.1.1.3.82=1
2.5.1.1.3.83=1
2.5.1.1.3.84=1
2.5.1.1.3.85=1
2.5.1.1.3.86=1
2.5.1.1.3.87=2
2.5.1.1.3.88=1
2.5.1.1.3.89=1
2.5.1.1.3.90=1
2.5.1.1.3.91=1
2.5.1.1.3.92=1
2.5.1.1.3.93=1
2.5.1.1.3.94=1
2.5.1.1.3.95=1
2.5.1.1.3.96=1
2.5.1.1.3.97=1
2.5.1.1.3.98=1
2.5.1.1.3.99=1
2.5.1.1.3.100=1
2.5.1.1.3.101=1
2.5.1.1.3.102=1
2.5.1.1.3.103=1
2.5.1.1.3.104=1
2.5.1.1.3.105=1
2.5.1.1.3.106=1
2.5.1.1.3.107=1
2.5.1.1.3.108=1
2.5.1.1.3.109=1
2.5.1.1.3.49=51
2.6.1.1.1.49=51
2.5.1.1.3.50=52
2.6.1.1.1.50=52
2.5.1.1.3.4=1
2.6.1.1.1.4=1
2.5.1.1.3.5=1
2.6.1.1.1.5=1
2.5.1.1.3.6=1
2.6.1.1.1.6=1
2.5.1.1.3.7=1
2.6.1.1.1.7=1
2.5.1.1.3.8=1
2.6.1.1.1.8=1
2.5.1.1.3.9=1
2.6.1.1.1.9=1
2.5.1.1.3.10=1
2.6.1.1.1.10=1
2.5.1.1.3.11=1
2.6.1.1.1.11=1
2.5.1.1.3.12=1
2.6.1.1.1.12=1
2.5.1.1.3.13=1
2.6.1.1.1.13=1

Persistence File
Example Persistence File

2.5.1.1.3.14=1
2.6.1.1.1.14=1
2.5.1.1.3.15=1
2.6.1.1.1.15=1
2.5.1.1.3.16=1
2.6.1.1.1.16=1
2.5.1.1.3.17=1
2.6.1.1.1.17=1
2.5.1.1.3.18=1
2.6.1.1.1.18=1
2.5.1.1.3.19=1
2.6.1.1.1.19=1
2.5.1.1.3.20=1
2.6.1.1.1.20=1
2.5.1.1.3.21=1
2.6.1.1.1.21=1
2.5.1.1.3.22=1
2.6.1.1.1.22=1
2.5.1.1.3.23=1
2.6.1.1.1.23=1
2.5.1.1.3.24=1
2.6.1.1.1.24=1
2.5.1.1.3.25=1
2.6.1.1.1.25=1
2.5.1.1.3.26=1
2.6.1.1.1.26=1
2.5.1.1.3.27=1
2.6.1.1.1.27=1
2.5.1.1.3.28=1
2.6.1.1.1.28=1
2.5.1.1.3.29=1
2.6.1.1.1.29=1
2.5.1.1.3.30=1
2.6.1.1.1.30=1
2.5.1.1.3.31=1
2.6.1.1.1.31=1
2.5.1.1.3.32=1
2.6.1.1.1.32=1
2.5.1.1.3.33=1
2.6.1.1.1.33=1
2.5.1.1.3.34=1
2.6.1.1.1.34=1
2.5.1.1.3.35=1
2.6.1.1.1.35=1
2.5.1.1.3.36=1
2.6.1.1.1.36=1
2.5.1.1.3.37=1
2.6.1.1.1.37=1
2.5.1.1.3.38=1
2.6.1.1.1.38=1
2.5.1.1.3.39=1
2.6.1.1.1.39=1
2.5.1.1.3.40=1
2.6.1.1.1.40=1
2.5.1.1.3.41=1
2.6.1.1.1.41=1

2.5.1.1.3.42=1
2.6.1.1.1.42=1
2.5.1.1.3.43=1
2.6.1.1.1.43=1
2.5.1.1.3.44=1
2.6.1.1.1.44=1
2.5.1.1.3.45=1
2.6.1.1.1.45=1
2.5.1.1.3.46=1
2.6.1.1.1.46=1
2.5.1.1.3.47=1
2.6.1.1.1.47=1
2.5.1.1.3.110=1
2.5.1.1.3.48=1
2.6.1.1.1.48=1
2.5.1.1.3.62=51
2.6.1.1.1.62=51
2.5.1.1.3.63=1
2.4.1.1.3.2=2
2.5.1.1.3.2=1
2.6.1.1.1.2=1
2.4.1.1.3.1=4
2.5.1.1.3.3=4
2.6.1.1.1.3=4
2.2.1.2.3=5
2.2.1.2.4=5

End of persistence file.

Router SNMP Support

Router SNMP Support

SNMP Support (MV Core)	page 215
SNMP Support (Router)	page 215
MV-825-RTR MIB Support	page 216
File listing: PROBEL-COMMON.mib	page 218
File listing: MV-825-RTR.mib	page 219

This appendix presents the SNMP support of the MV-825-RTR. The core multiviewer and the router of the MV-825-RTR have separate MIB files.

This chapter describes getting started with the MV-825-RTR. The procedure breaks down to getting started with:

- [SNMP Support \(MV Core\)](#), on page 215.
- [SNMP Support \(Router\)](#), on page 215.

SNMP Support (MV Core)

For information on SNMP support and MIB file for the core multiviewer, please refer to the 'SNMP Support' appendix of the *MV-8 Series Core Multiviewer* user manual.

Please refer to:

the *MV-8 Series Core Multiviewer* user manual
for information about the core multiviewer in the MV-825-RTR.
(See [Related Documents](#), on page iii.)

SNMP Support (Router)

To use the full SNMP features of the MV-825-RTR, the following router-based MIB files are required:

- PROBEL-COMMON.mib
- MV-825-RTR.mib

Information to be added.

MV-825-RTR MIB Support

The MV-825-RTR.mib MIB file supports the following functionality, based on SNMP V2 format (see the MIB file for details of values returned):

- **Traps:**
 - Fan Status
 - PSU 1, PSU 2
 - Destination Protect
 - Destination Client Name
 - Destination Routed Source
- **Get** (read only):
 - Application version, Application description, Application copyright, Application build date
 - FPGA Number (A, B, C & Z), FPGA Firmware Revision (A, B, C & Z)
 - Network MAC Address
 - Unit Serial Number
 - Fan Status, Fan Speed
 - PSU1, PSU2 Status
 - Unit Temperature
 - Reference Standard
 - Input Information
 - Output Information
 - Line sync offset
 - Table of Sources
- **Get/Set** (Read/Write):
 - Audio V-Fade rates for FPGA A, B & C
 - Input Standard
 - 4K Input selection
 - Route Lock
 - Line Sync Enable/Disable, Line Sync Line offset, Line Sync Pixel offset
 - 4K output selection
 - V-Fade Enable/Disable
 - Source 8-Character & Source 32-Character names
 - Destination 8-Character & Destination 32-Character names
 - Route Source to Destination
 - Destination Protect, Destination Protect State
 - Routing table
 - Audio Routing
 - Vega30 Unit Name
 - Location of Device
 - System Contact
 - Unit IP address, Sub-Net, Gateway, Primary DNS & Secondary DNS

- PSU1 & PSU 2 connection status
- SWP-02 Port number & Protocol enable
- SWP-08 Port number & Protocol enable
- RollCall Port number & Protocol enable
- Log Server Enable, Name & Long Names
- SNMP Enable, Community Name for Get, Community Name for Set, Community name for Traps
- SNMP IP address of Trap Manager
- RTC Enable, Server & Timezone

File listing: PROBEL-COMMON.mib

```

--
-- PROBEL-COMMON.MIB
-- MGL 10-08-02 V 1.00
--
PROBEL-COMMON DEFINITIONS ::= BEGIN

    IMPORTS

        OBJECT-GROUP
            FROM SNMPv2-CONF

        enterprises,
        OBJECT-TYPE,
        Integer32
            FROM SNMPv2-SMI

        DisplayString,
        TimeInterval,
        RowStatus,
        StorageType,
        TruthValue
            FROM SNMPv2-TC;

--
-- Textual conventions
--
    ControllerStatus ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "In a dual-redundant pair of controllers one is
            active and one idle. The idle controller will fail
            any PDUs associated with router status or control."
        SYNTAX INTEGER
            {
            controllerActive(1),
            controllerIdle(2)
            }

    RouterTerminal ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "Source or destination number"
        SYNTAX INTEGER (1..4096)

    RouterTerminalName ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "Source or Destination name"
        SYNTAX OCTET STRING (SIZE (0..8))

--
-- Node definitions
--
    probelLtd OBJECT IDENTIFIER ::= { enterprises 6419 }
    probel OBJECT IDENTIFIER ::= { probelLtd 1 }
    probelProducts OBJECT IDENTIFIER ::= { probel 1 }

-- Add product OIDs in here
--   probelSiriusRouter OBJECT IDENTIFIER ::= { probelProducts 1 }
--   probelHaloRouter OBJECT IDENTIFIER ::= { probelProducts 2 }
--   vega30Router OBJECT IDENTIFIER ::= { probelProducts 4 }

-- End product OIDs
    probelModules OBJECT IDENTIFIER ::= { probel 2 }
END
--
-- PROBEL-COMMON.MIB
--

```

End of PROBEL-COMMON.MIB file.

File listing: MV-825-RTR.mib

```
MV825Router DEFINITIONS ::= BEGIN

    IMPORTS probelProducts FROM PROBEL-COMMON

    Integer32, Unsigned32, Gauge32, Counter32, Counter64, Opaque, TimeTicks,
    IPAddress, OBJECT-TYPE FROM SNMPv2-SMI
    DisplayString FROM SNMPv2-TC;

    mv825Router MODULE-IDENTITY
        LAST-UPDATED"202010220000Z"
        ORGANIZATION"Grass Valley"
        CONTACT-INFO"customersupport@grassvalley.com"
        DESCRIPTION"This MIB contains the information on the MV825 Router Control"
        ::= { probelProducts 6 }

    BooleanFT ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION "Represents a boolean value."
        SYNTAX INTEGER { false(0), true(1) }

    GVVideoFormat ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION "Enumeration of GV Video Format values."
        SYNTAX Unsigned32{ unknown(0), hd1035i30(1), hd1035i29(2), hd1080p60(3),
hd1080p59(4), hd1080p50(5),
hd1080i30(6), hd1080i29(7), hd1080i25(8), hd1080p30(9),
hd1080p29(10), hd1080p25(11),
hd1080p24(12), hd1080p23(13), hd1080pe50(14), hd1080ie25(15),
hd720p60(16), hd720p59(17),
sd525p59(18), sd525i29(19), sd625i25(20), sd525iw29(21),
sd625iw25(22), hd1080sf24(23),
hd1080sf23(24), sd525pt60(25), sd525pt59(26), sd625sf24(27),
sd625sf23(28), hd1125i25(29),
hd720p50(30), sd625px50(31), sd525px60(32), sd525px59(33),
hd1080sf30(34), hd1080sf29(35),
hd1080sf25(36), hd720p30(37), hd720p29(38), hd720p25(39),
hd720p24(40), hd720p23(41),
sd525it29(42), sd625it25(43), sd625it24(44), sd625it23(45),
sd525sf29(46), sd625sf25(47),
sd525iv29(48), uhd2160p23(49), uhd2160p24(50), uhd2160p25(51),
uhd2160p29(52), uhd2160p30(53),
uhd2160p50(54), uhd2160p59(55), uhd2160p60(56),
uhd2160p100(57), uhd2160p119(58), uhd2160p120(59),
uhd4320p23(60), uhd4320p24(61), uhd4320p25(62), uhd4320p29(63),
uhd4320p30(64), uhd4320p50(65),
uhd4320p59(66), uhd4320p60(67), uhd4320p100(68),
uhd4320p119(69), uhd4320p120(70), uhd1080pw60(71),
uhd1080pw59(72), uhd1080pw50(73), uhd1080pw48(74),
uhd1080pw47(75), uhd1080pw30(76), uhd1080pw29(77),
uhd1080pw25(78), uhd1080pw24(79), uhd1080pw23(80)
        }

    CatsiiColor ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION "List of Catsii Colors."
        SYNTAX INTEGER{ off(0), red_flash(1), red(2), green_flash(3), green(4),
blue_flash(5), blue(6), yellow_flash(7), yellow(8),
magenta_flash(9), magenta(10), cyan_flash(11), cyan(12)
        }

    routerStatus OBJECT IDENTIFIER ::= { mv825Router 1 }

    statusVersion OBJECT IDENTIFIER ::= { routerStatus 1 }

    versionApplication OBJECT-TYPE
        SYNTAX DisplayString
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION "The application version"
        ::= { statusVersion 1 }

    versionName OBJECT-TYPE
        SYNTAX DisplayString
        MAX-ACCESS read-only
```

```
STATUScurrent
DESCRIPTION"The application name"
::= { statusVersion 2 }

versionDescription OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The application description"
    ::= { statusVersion 3 }

versionCopyright OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The application copyright"
    ::= { statusVersion 4 }

versionBuildDate OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The application build date"
    ::= { statusVersion 5 }

versionFPGANumberZ OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The FPGA Z number"
    ::= { statusVersion 14 }

versionFirmwareRevZ OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The FPGA Z firmware revision"
    ::= { statusVersion 24 }

versionMacAddress OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The first network MAC address"
    ::= { statusVersion 31 }

versionSerialNumber OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The unit's serial number"
    ::= { statusVersion 32 }

versionMacAddress2 OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"The second network MAC address"
    ::= { statusVersion 33 }

statusPSU OBJECT IDENTIFIER ::= { routerStatus 3 }

statusPSU1 OBJECT-TYPE
    SYNTAXUnsigned32 { psuOK(1), psuFault(0) }
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"{{poll}} The status of PSU 1"
    ::= { statusPSU 1 }

statusTemperature OBJECT-TYPE
    SYNTAXUnsigned32
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"{{poll}} The internal temperature"
    ::= { routerStatus 4 }

crosspointTemperature OBJECT-TYPE
```

```

SYNTAXUnsigned32
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The internal temperature of the crosspoint"
::= { routerStatus 5 }

boardSensorATemperature OBJECT-TYPE
SYNTAXUnsigned32
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The temperature reported by board sensor A"
::= { routerStatus 6 }

boardSensorBTemperature OBJECT-TYPE
SYNTAXUnsigned32
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The temperature reported by board sensor B"
::= { routerStatus 7 }

routerDevice OBJECT IDENTIFIER ::= { mv825Router 2 }

routerGeneral OBJECT IDENTIFIER ::= { routerDevice 1 }

sysRefStdOne OBJECT-TYPE
SYNTAXGVVideoFormat
ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The first reference standard, read from h/w"
::= { routerGeneral 1 }

sysRefStdTwo OBJECT-TYPE
SYNTAXGVVideoFormat
ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The second reference standard, read from h/w"
::= { routerGeneral 2 }

sysRefStdSelectMode OBJECT-TYPE
SYNTAXUnsigned32 { forceReferenceOne(0), forceReferenceTwo(1),
autoMatch(2) }
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"System standard selection mode"
::= { routerGeneral 3 }

inputTable OBJECT-TYPE
SYNTAXSEQUENCE OF InputEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"An array containing the information on all the inputs"
::= { routerDevice 2 }

inputEntry OBJECT-TYPE
SYNTAXInputEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"This is the record that contains the input specific
information"
INDEX { inputIndex }
::= { inputTable 1 }

InputEntry ::=
SEQUENCE {
    inputIndex Unsigned32,
    inputStandardUnsigned32,
    input4K Unsigned32
}

inputIndex OBJECT-TYPE
SYNTAXUnsigned32
ACCESSnot-accessible
STATUScurrent
DESCRIPTION"Auto-generated index parameter for the array"
::= { inputEntry 101 }

inputStandard OBJECT-TYPE

```

```
SYNTAX      GVVideoFormat
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"{{poll}} The input standard"
::= { inputEntry 1 }

input4K OBJECT-TYPE
SYNTAXUnsigned32
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"{{index1=VideoInput}} Specifies the first input in a 4K group,
or 0 for single input"
::= { inputEntry 2 }

outputTable OBJECT-TYPE
SYNTAXSEQUENCE OF OutputEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"An array containing information on all outputs"
::= { routerDevice 3 }

outputEntry OBJECT-TYPE
SYNTAXOutputEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"This is the record that contains the output specific
information"
INDEX { outputIndex }
::= { outputTable 1 }

OutputEntry ::=
SEQUENCE {
    outputIndex                Unsigned32,
    output4K                    Unsigned32,
    outputStandard              Unsigned32,
}

outputIndex OBJECT-TYPE
SYNTAXUnsigned32
ACCESSnot-accessible
STATUScurrent
DESCRIPTION"Auto-generated index parameter for the array"
::= { outputEntry 101 }

output4K OBJECT-TYPE
SYNTAXUnsigned32
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"{{index1=VideoOutput}} Specifies the first output in a 4K
group, or 0 for single output"
::= { outputEntry 5 }

outputStandard OBJECT-TYPE
SYNTAXGVVideoFormat
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"{{index1=VideoOutput}} The output signal standard read from
the hardware"
::= { outputEntry 6 }

sources OBJECT IDENTIFIER ::= { routerDevice 4 }

sourceTable OBJECT-TYPE
SYNTAXSEQUENCE OF SourceEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"A table of all the sources"
::= { sources 1 }

sourceEntry OBJECT-TYPE
SYNTAXSourceEntry
MAX-ACCESSread-only
STATUScurrent
DESCRIPTION"A source record"
INDEX { sourceIndex }
::= { sourceTable 1 }
```

```

SourceEntry ::=
SEQUENCE {
    sourceIndex          Unsigned32,
    sourceName8         DisplayString,
    sourceName32        DisplayString
}

sourceIndex OBJECT-TYPE
    SYNTAXUnsigned32
    ACCESSnot-accessible
    STATUScurrent
    DESCRIPTION"Auto-generated index parameter for the array"
    ::= { sourceEntry 101 }

sourceName8 OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"The 8 character name for this source"
    ::= { sourceEntry 1 }

sourceName32 OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"The 32 character name for this source"
    ::= { sourceEntry 2 }

dests OBJECT IDENTIFIER ::= { routerDevice 5 }

destTable OBJECT-TYPE
    SYNTAXSEQUENCE OF DestEntry
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"An array of destinations"
    ::= { dests 1 }

destEntry OBJECT-TYPE
    SYNTAXDestEntry
    MAX-ACCESSread-only
    STATUScurrent
    DESCRIPTION"A record contained information on a destination"
    INDEX { destIndex }
    ::= { destTable 1 }

DestEntry ::=
SEQUENCE {
    destIndex          Unsigned32,
    destName8         DisplayString,
    destName32        DisplayString,
    destRoutedSource  Unsigned32,
    destProtectStateandDevice Unsigned32
}

destIndex OBJECT-TYPE
    SYNTAXUnsigned32
    ACCESSnot-accessible
    STATUScurrent
    DESCRIPTION"Auto-generated index parameter for the array"
    ::= { destEntry 101 }

destName8 OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"The 8 character name for this destination"
    ::= { destEntry 1 }

destName32 OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"The 32 character name for this destination"
    ::= { destEntry 2 }

destRoutedSource OBJECT-TYPE

```

```
SYNTAXUnsigned32
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"This parameter is used to indicate the source that is routed
to this destination. By writing to this parameter a
crosspoint can be set"
 ::= { destEntry 3 }

destProtectStateandDevice OBJECT-TYPE
SYNTAXUnsigned32 { ptNotProtected(0) }
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"This object indicates both the destination protected state and
the Device ID"
 ::= { destEntry 5 }

-- Catsii settings
catsii OBJECT IDENTIFIER ::= { routerGeneral 4 }

catsiiTable OBJECT-TYPE
SYNTAXSEQUENCE OF CatsiiEntry
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"None"
 ::= { catsii 1 }

catsiiEntry OBJECT-TYPE
SYNTAX CatsiiEntry
MAX-ACCESS read-write
STATUS current
DESCRIPTION "None"
INDEX { catsiiIndex}
 ::= { catsiiTable 1 }

CatsiiEntry ::=
SEQUENCE {
    catsiiIndexUnsigned32,
    catsiiColorCatsiiColor
}

catsiiIndex OBJECT-TYPE
SYNTAXUnsigned32
MAX-ACCESSnot-accessible
STATUScurrent
DESCRIPTION"Auto-generated index parameter for the array"
 ::= { catsiiEntry 101 }

catsiiColor OBJECT-TYPE
SYNTAXCatsiiColor
ACCESSread-write
STATUScurrent
DESCRIPTION"[[Catsii/Colors]] The Catsii color"
 ::= { catsiiEntry 1 }

-----
--- MV825 Router configuration settings - as in the Config.json file

routerConfig OBJECT IDENTIFIER ::= { mv825Router 3 }

configGeneral OBJECT IDENTIFIER ::= { routerConfig 1 }

routerName OBJECT-TYPE
SYNTAXDisplayString
ACCESSread-write
STATUScurrent
DESCRIPTION"[[General/ControllerName]] The name of the MV825 Router"
 ::= { configGeneral 1 }

configLocation OBJECT-TYPE
SYNTAXDisplayString
MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"[[General/Location]] Location of the device"
 ::= { configGeneral 2 }

configSystemContact OBJECT-TYPE
SYNTAXDisplayString
```



```

MAX-ACCESSread-write
STATUScurrent
DESCRIPTION"[[General/SystemContact]] System contact for administration"
::= { configGeneral 3 }

-- Router IP Address settings
unitNetwork OBJECT IDENTIFIER ::= { routerConfig 2 }

unitIPAddress0 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpAddress0]] The first IP Address of the
Router"
    ::= { unitNetwork 1 }

unitIPSubNet0 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpSubNet0]] The first IP SubNet Address of
the Router"
    ::= { unitNetwork 2 }

unitIPGateway0 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpGateway0]] The first IP Gateway Address of
the Router"
    ::= { unitNetwork 3 }

unitIPAddress1 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpAddress1]] The second IP Address of the
Router"
    ::= { unitNetwork 4 }

unitIPSubNet1 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpSubNet1]] The second IP SubNet Address of
the Router"
    ::= { unitNetwork 5 }

unitIPGateway1 OBJECT-TYPE
    SYNTAXIpAddress
    ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpGateway1]] The second IP Gateway Address
of the Router"
    ::= { unitNetwork 6 }

unitPriDNSAddress OBJECT-TYPE
    SYNTAXIpAddress
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpPriDnsAddress]] The primary DNS Address of
the Router"
    ::= { unitNetwork 7 }

unitSecDNSAddress OBJECT-TYPE
    SYNTAXIpAddress
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Network/UNIpSecDnsAddress]] The secondary DNS Address
of the Router"
    ::= { unitNetwork 8 }

-- MV825 PSU usage
psu OBJECT IDENTIFIER ::= { routerConfig 3 }

psuNumber OBJECT-TYPE
    SYNTAXUnsigned32 { both(0), psu1Only(1), psu2Only(2)}

```

```

        MAX-ACCESSread-write
        STATUScurrent
        DESCRIPTION"[[PSU/Number]] This object indicates which of the PSUs
are connected to the router"
        ::= { psu 1 }

-- MV825 Control Protocol Settings
protocolSettings OBJECT IDENTIFIER ::= { routerConfig 4 }

-- General Switcher (SW-P-02) settings
swp02GeneralSwitcher OBJECT IDENTIFIER ::= { protocolSettings 1 }

swp02PortNumber OBJECT-TYPE
    SYNTAXUnsigned32
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[SWP02/Port]] This Port number used for protocol
clients"
    ::= { swp02GeneralSwitcher 1 }

swp02Enable OBJECT-TYPE
    SYNTAXBooleanFT
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[SWP02/Enable]] This indicates if the protocol is
enabled"
    ::= { swp02GeneralSwitcher 2 }

-- General Remote (SW-P-08) settings
swp08GeneralRemote OBJECT IDENTIFIER ::= { protocolSettings 2 }

swp08PortNumber OBJECT-TYPE
    SYNTAXUnsigned32
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[SWP08/Port]] This Port number used for protocol
clients"
    ::= { swp08GeneralRemote 1 }

swp08Enable OBJECT-TYPE
    SYNTAXBooleanFT
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[SWP08/Enable]] This indicates if the protocol is
enabled"
    ::= { swp08GeneralRemote 2 }

-- RollCall settings
rollCall OBJECT IDENTIFIER ::= { protocolSettings 3 }

rollCallEnable OBJECT-TYPE
    SYNTAXBooleanFT
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[RollCall/Enable]] This indicates if the protocol is
enabled"
    ::= { rollCall 1 }

rollCallSharePortNumber OBJECT-TYPE
    SYNTAXUnsigned32
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[RollCall/SharePort]] This Port number used for
protocol clients"
    ::= { rollCall 2 }

rollCallAnyLogServer OBJECT-TYPE
    SYNTAXBooleanFT
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[RollCall/AnyLogServer]] This indicates if any log
server is enabled"
    ::= { rollCall 3 }

rollCallLogServerName OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
```

```

        DESCRIPTION"[[RollCall/LogServerName]] This is the name of the
RollCall log server"
        ::= { rollCall 4 }

        rollCallUseLongNames OBJECT-TYPE
            SYNTAXBooleanFT
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[RollCall/LongNames]] This indicates if the use of Long
Names is enabled"
            ::= { rollCall 5 }

        -- RollCall+ settings
        rollCallPlus OBJECT IDENTIFIER ::= { protocolSettings 4 }

        rollCallPlusEnable OBJECT-TYPE
            SYNTAXBooleanFT
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[RollCallPlus/Enable]] This indicates if the protocol
is enabled"
            ::= { rollCallPlus 1 }

        rollCallPlusDomain OBJECT-TYPE
            SYNTAXUnsigned32
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[RollCallPlus/Domain]] This domain number used for
discovery"
            ::= { rollCallPlus 2 }

        rollCallPlusAddress OBJECT-TYPE
            SYNTAXDisplayString
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[RollCallPlus/Address]] This is the unit's RollCall+
address"
            ::= { rollCallPlus 3 }

        rollCallPlusUseLongNames OBJECT-TYPE
            SYNTAXBooleanFT
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[RollCallPlus/LongNames]] This indicates if the use of
Long Names is enabled"
            ::= { rollCallPlus 4 }

        -- SNMP Settings
        snmpNetwork OBJECT IDENTIFIER ::= { protocolSettings 5 }

        snmpEnable OBJECT-TYPE
            SYNTAXBooleanFT
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[SNMP/Enable]] This indicates if the protocol is
enabled"
            ::= { snmpNetwork 1 }

        snmpCommunityGet OBJECT-TYPE
            SYNTAXDisplayString
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[SNMP/CommunityGet]] Community name for Get operations"
            ::= { snmpNetwork 2 }

        snmpCommunitySet OBJECT-TYPE
            SYNTAXDisplayString
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[SNMP/CommunitySet]] Community name for Set operations"
            ::= { snmpNetwork 3 }

        snmpCommunityTrap OBJECT-TYPE
            SYNTAXDisplayString
            MAX-ACCESSread-write
            STATUScurrent
            DESCRIPTION"[[SNMP/CommunityTrap]] Community name sent with traps"

```

```

    ::= { snmpNetwork 4 }

snmpTrapManagerTable OBJECT-TYPE
  SYNTAXSEQUENCE OF SNMPTrapManagerEntry
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"None"
  ::= { snmpNetwork 5 }

snmpTrapManagerEntry OBJECT-TYPE
  SYNTAX SNMPTrapManagerEntry
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"None"
  INDEX { snmpTrapManagerIndex }
  ::= { snmpTrapManagerTable 1 }

SNMPTrapManagerEntry ::=
SEQUENCE {
  snmpTrapManagerIndexUnsigned32,
  snmpTrapManagerIPIpAddress
}

snmpTrapManagerIndex OBJECT-TYPE
  SYNTAXUnsigned32
  MAX-ACCESSnot-accessible
  STATUScurrent
  DESCRIPTION"Auto-generated index parameter for the array"
  ::= { snmpTrapManagerEntry 101 }

snmpTrapManagerIP OBJECT-TYPE
  SYNTAXIpAddress
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"[[SNMP/TrapAddresses]] The IP Address of the Trap
Manager"
  ::= { snmpTrapManagerEntry 1 }

-- Debug Logging settings
debugLogging OBJECT IDENTIFIER ::= { routerConfig 5 }

debugLoggingEnable OBJECT-TYPE
  SYNTAXBooleanFT
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"[[Logging/Enable]] This indicates if the SysLogging is
enabled"
  ::= { debugLogging 1 }

debugLoggingIPAddress OBJECT-TYPE
  SYNTAXIpAddress
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"[[Logging/IpAddress]] This indicates if the SysLogging
is enabled"
  ::= { debugLogging 2 }

debugLoggingPortNumber OBJECT-TYPE
  SYNTAXUnsigned32
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"[[Logging/Port]] This Port number used for SysLog
clients"
  ::= { debugLogging 3 }

debugLoggingFormat OBJECT-TYPE
  SYNTAXUnsigned32 { logFormatRFC3164(0), logFormatRFC3164Millis(1),
logFormatRFC5424(2) }
  MAX-ACCESSread-write
  STATUScurrent
  DESCRIPTION"[[Logging/Format]] This Port number used for SysLog
clients"
  ::= { debugLogging 4 }

-- Clock settings
clock OBJECT IDENTIFIER ::= { routerConfig 8 }

clockRTCSetMode OBJECT-TYPE

```

```

        SYNTAXUnsigned32 { ntpServer(0), rollCallLogServer(1) }
        MAX-ACCESSread-write
        STATUScurrent
        DESCRIPTION"[[Clock/RTCSetMode]] This is the RTC mode settings"
        ::= { clock 1 }

clockNTPServer OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Clock/NTPServer]] This indicates the server for the
NTP"
        ::= { clock 2 }

clockTimeZone OBJECT-TYPE
    SYNTAXDisplayString
    MAX-ACCESSread-write
    STATUScurrent
    DESCRIPTION"[[Clock/TimeZone]] This defines the timezone as defined
in https://www.gnu.org/software/libc/manual/html_node/TZ-Variable.html"
        ::= { clock 3 }

-----
--- Traps and events for the MV825 router

routerEvents OBJECT IDENTIFIER ::= { mv825Router 101 }

destRoutedSourceEvent NOTIFICATION-TYPE
    OBJECTS{ destRoutedSource }
    STATUScurrent
    DESCRIPTION"This event is triggered when a crosspoint is set"
    ::= { routerEvents 1 }

destProtectStateandDeviceEvent NOTIFICATION-TYPE
    OBJECTS{ destProtectStateandDevice }
    STATUScurrent
    DESCRIPTION"This event is triggered when the protect state on a
destination changes"
    ::= { routerEvents 2 }

OutputStandardEvent NOTIFICATION-TYPE
    OBJECTS{ outputStandard }
    STATUScurrent
    DESCRIPTION"This event is triggered when the video standard on an
output changes"
    ::= { routerEvents 3 }

InputStandardEvent NOTIFICATION-TYPE
    OBJECTS{ inputStandard }
    STATUScurrent
    DESCRIPTION"This event is triggered when the video standard on an
input changes"
    ::= { routerEvents 4 }

statusPSU1Event NOTIFICATION-TYPE
    OBJECTS{ statusPSU1 }
    STATUScurrent
    DESCRIPTION"This event is triggered when the status of PSU 1 changes"
    ::= { routerEvents 5 }

statusTemperatureEvent NOTIFICATION-TYPE
    OBJECTS{ statusTemperature }
    STATUScurrent
    DESCRIPTION"This event is triggered when the controller temperature
is too high"
    ::= { routerEvents 6 }

crosspointTemperatureEvent NOTIFICATION-TYPE
    OBJECTS{ crosspointTemperature }
    STATUScurrent
    DESCRIPTION"This event is triggered when the crosspoint temperature
is too high"
    ::= { routerEvents 7 }

END
End of MV-825-RTR.mib file.

```


Router Terminology

Router terms used in this MV-825-RTR user manual are listed and defined in the table below:

Table G-1: Router Terminology

Term	Definition
Association	A logical grouping of sources, or of destinations, which allows several signals to be routed together. These are normally of different signal types e.g. audio channels associated with a video source.
Association Routing	Routing using associations, i.e. associated sources and associated destinations.
Audio Channel Source	Sources for each audio channel in a source association.
Audio De-mux Point	Internal node within a MV-825-RTR router. Provides access to the embedded audio in the video crosspoint outputs.
Channel	A signal may be a composite of several signals or channels. For example, the 16 embedded audio channels in a video signal.
Clean switch	A switch transition resulting in a signal waveform with no or minimal disturbance in the switched signal waveform.
Crash Switch	A switch transition carried out without any switch-timing consideration. For example, a switch transition carried out without a reference timing signal, or without any signal-matching reference timing signal. The resulting switched signal may contain some signal disturbance.
Crosspoint Switch	(Crosspoint) The switching component of a router. There can be more than one crosspoint switch. For example, video crosspoint and audio crosspoint.
Destination	An output of a crosspoint.
Direct Audio Routing	Routing the audio crosspoint, using source and destination port names or fixed numbers, not using associated sources and destinations.
Direct Video Routing	Routing the video crosspoint, using source and destination port names and fixed numbers, not using associated sources and destinations.

Table G-1: Router Terminology (continued)

Term	Definition
Input	Router input connection.
Null Source	A video or an audio channel source of 'null source' has no effect when routed.
Output	Router output connection.
Partial Source	A user-defined source which contains one or more 'null sources'.
Pre-defined Source	A source inherently defined in a router. These are not editable by the user. In MV-825-RTR, these are associated sources.
Port	Input or output signal connection to the router.
Port Name	Name given to a router port. Typically, the name can be edited.
Port Number	Number assigned to a router crosspoint port. The number is fixed.
Protect destination	A feature of a destination. Set 'Protect Destination' on a destination to prevent a route being made to it. 'Protect' is an operational control.
Route	The connection made within a router in a crosspoint, connecting an input to an output.
Router	A MV-825-RTR unit contains a router function. This functional block has physical input and output signal connections, where the inputs can be routed to any output.
Signal	Information carried by a connection between equipment in a facility. For example video or audio data.
Source	A set of one or more crosspoint inputs which can be routed at the same time. For example, video together with embedded audio channels.
Source port name	Name assigned to a source. For example, "BBC News".
Tally	Message sent out of a comms port by a router to confirm that a command to set a route has been received. It does not mean that a route has been set.
Timed switch	Switching between two signals in a crosspoint switch at a time consistent with SMPTE RP-168-2009. The timing of the switching is governed by the signal being switched to.

Table G-1: Router Terminology (continued)

Term	Definition
User-defined source	A source which can be defined by the user. In MV-825-RTR, these are associated sources.



H Multiviewer Terminology

This section describes some of the MV-825-RTR multiviewer terminology used in the manual. Table H-1 below should be read alongside the example dual-screen video wall of Figure H-1.

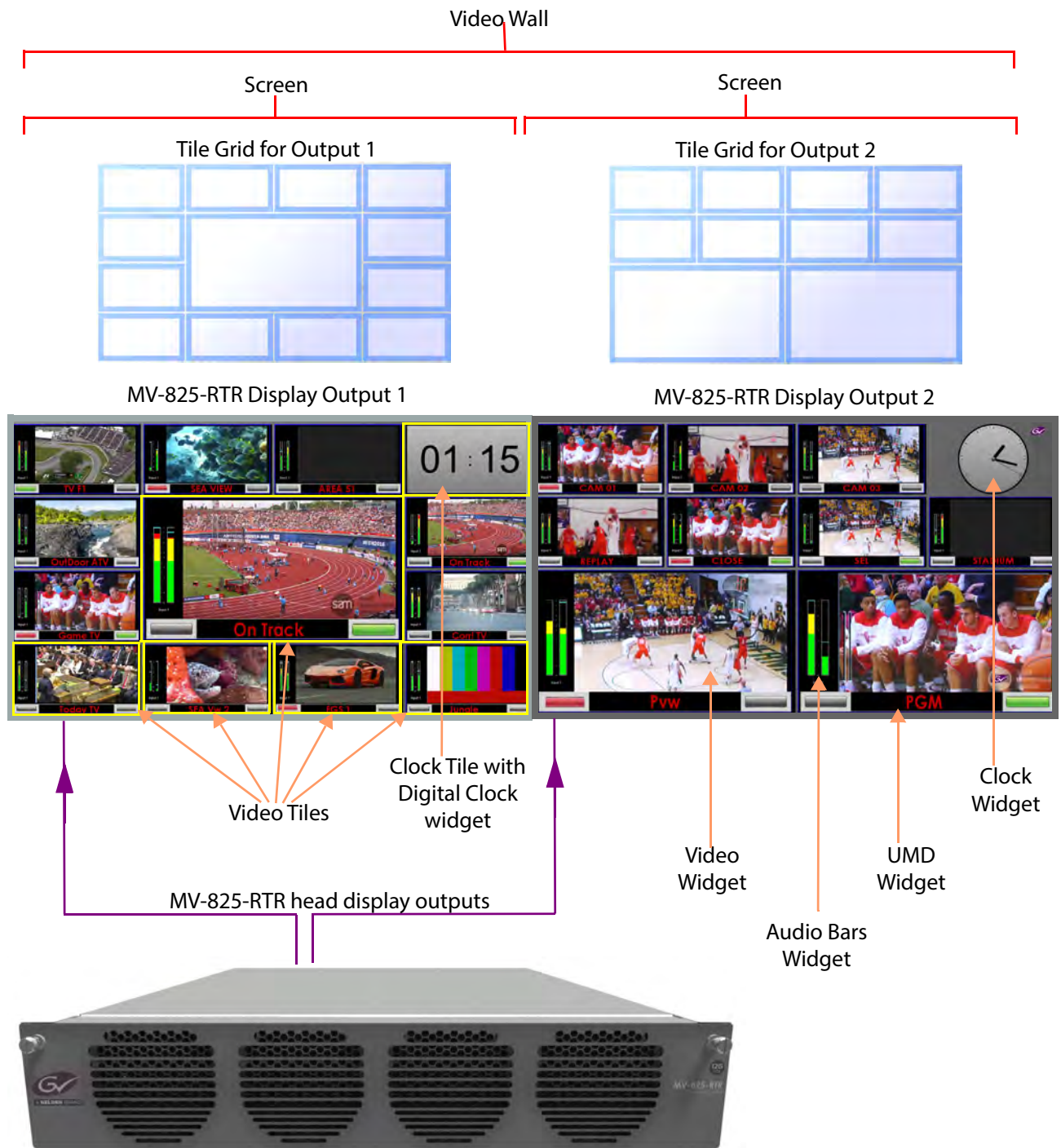


Fig. H-1: Example Video Wall of Two Monitor Display Screens

Table H-1 Definition of Terms - Multiviewer

Term	Definition
Wall, Video Wall	One or more monitor display screens configured to form one large screen.
Screen	Display area of one individual monitor/display device.
Theme	The style and appearance of the video wall and its screen elements. A Theme is a set of widget styles which can be applied to a project. Each widget may have one or more specific styles. Using themes, a video wall may be tailored to conform to a house style.
Style	Each Widget can have several appearances, styles. Styles are changes to a widget's appearance and do not affect its function. Styles can be grouped under themes.
Tile	A rectangular area on a video wall screen, usually displaying video inputs and other supporting information. For example, a tile may display a video picture with audio level and other related status information. Other information may be displayed in tiles, for example, time, images, labels and/or text.
Tile Grid	A multiviewer video wall screen is divided up into rectangular areas; various sizes and arrangements are possible. A tile grid can be used in Orbit for quick-positioning of tile arrangements on a wall.
Fine Grid	A fine grid on a Orbit screen is used for the fine-positioning of graphical elements. For example, for positioning Tiles on a wall or Widgets on a tile.
Widget	On-screen graphical elements used to display information on tiles. There are one or more widgets on a tile. Displayed information includes: Audio sound level, Time, Text labels. Widget types include: Audio bars, Clocks, Images, Labels, Lines, Tally LEDs, Timers, UMDs, Video and Web sources.
Display Output	A 1080P output from the MV-825-RTR; this can be SDI (Coax or Fiber) or HDMI. Each display output, or head, is connected to a monitor display that forms all or part of a multiviewer video wall. Connection is via Coax, Fiber or HDMI using an SFP module. There are up to 12 display outputs from an MV-825-RTR.
Head	A display output.
Multiviewer Input	One of 48 video inputs to the multiviewer block within the MV-825-RTR.



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).

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