



grass valley

A **BELDEN** BRAND

IQUCP25

UNIFIED COMPUTE PROCESSOR

User Manual

Issue 1 Revision 2

2019-02-12

www.grassvalley.com

Copyright and Trademark Notice

Copyright © 2019, Grass Valley Canada. All rights reserved.

Belden, Belden Sending All The Right Signals, and the Belden logo are trademarks or registered trademarks of Belden Inc. or its affiliated companies in the United States and other jurisdictions. Grass Valley, IQUCP25 are trademarks or registered trademarks of Grass Valley Canada. Belden Inc., Grass Valley Canada, and other parties may also have trademark rights in other terms used herein.

Terms and Conditions

Please read the following terms and conditions carefully. By using IQUCP25 module documentation, you agree to the following terms and conditions.

Grass Valley hereby grants permission and license to owners of IQUCP25 modules to use their product manuals for their own internal business use. Manuals for Grass Valley products may not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose unless specifically authorized in writing by Grass Valley.

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

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

Warranty information is available from the Legal Terms and Conditions section of Grass Valley's website (www.grassvalley.com).

Title	IQUCP25 User Manual
Part Number	Issue 1 Revision 2
Revision	2019-02-12, 15:42

Safety Information

Explanation of Safety Symbols

GB

-  This symbol refers the user to important information contained in the accompanying literature. Refer to manual.
-  This symbol indicates that hazardous voltages are present inside. No user serviceable parts inside. This unit should only be serviced by trained personnel.

Safety Warnings



"CAUTION: These servicing instructions are for use by qualified personnel only.

To reduce 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 personnel."

- To reduce the risk of electric shock, do not expose this appliance to rain or moisture.
- Always ensure that the unit is properly earthed and power connections correctly made.
- This equipment must be supplied from a power system providing a **PROTECTIVE EARTH** (⊕) connection and having a neutral connection which can be reliably identified.
- The power outlet supplying power to the unit should be close to the unit and easily accessible

Power connection in countries other than the USA

The equipment is normally shipped with a power cable with a standard IEC moulded free socket on one end and a standard IEC moulded plug on the other. If you are required to remove the moulded mains supply plug, dispose of the plug immediately in a safe manner.

The colour code for the lead is as follows:

- GREEN/YELLOW lead connected to E (Protective Earth Conductor)
- BLUE lead connected to N (Neutral Conductor)
- BROWN lead connected to L (Live Conductor)



-  Caution If the unit has two mains supply inputs ensure that both power cords are plugged into mains outlets operating from the same phase.

Erklärung der Sicherheitssymbole

D

-  Dieses Symbol weist den Benutzer auf wichtige Informationen hin, die in der begleitenden Dokumentation enthalten sind.
-  Dieses Symbol zeigt an, dass gefährliche Spannung vorhanden ist. Es befinden sich keine vom Benutzer zu wartenden Teile im Geräteinneren. Dieses Gerät sollte nur von geschultem Personal gewartet werden

Sicherheits-Warnhinweise



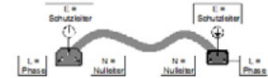
Die angeführten Service-/Reparatur-Anweisungen sind ausschließlich von qualifiziertem Service-Personal auszuführen. Um das Risiko eines Elektroschocks zu reduzieren, führen Sie ausschließlich die im Benutzerhandbuch beschriebenen Anweisungen aus, es sei denn, Sie haben die entsprechende Qualifikation. Wenden Sie sich in allen Service-Fragen an qualifiziertes Personal.

- Um das Risiko eines Elektroschocks zu reduzieren, setzen Sie das Gerät weder Regen noch Feuchtigkeit aus.
- Stellen Sie immer sicher, dass das Gerät ordnungsgemäß geerdet und verkabelt ist.
- Dieses Equipment muss an eine Netzsteckdose mit $\oplus$ Schutzleiter angeschlossen werden und einen zuverlässig identifizierbaren Nullleiter haben.
- Die Netzsteckdose sollte nahe beim Gerät und einfach zugänglich sein.

Netzanschluss in anderen Ländern als der USA

Das Equipment wird im Normalfall mit einem Netzkabel mit Standard IEC Anschlussbuchse und einem Standard IEC Anschlussstecker geliefert. Sollten Sie den angeschweißten Stecker austauschen müssen, entsorgen Sie diesen bitte umgehend. Die farbliche Belegung des Netzkabels ist wie folgt:

- GRÜN GELB E = Schutzleiter (⊕)
- BLAU N = Nullleiter
- BRAUN L = P = Phase



-  Achtung: Wenn das Gerät zwei Anschlussbuchsen hat, stellen Sie bitte sicher, dass beide Netzkabel mit der selben Phase in die Netzsteckdose gesteckt werden.

Légende :



Ce symbole indique qu'il faut prêter attention et se référer au manuel.



Ce symbole indique qu'il peut y avoir des tensions électriques à l'intérieur de l'appareil. Ne pas intervenir sans l'agrément du service qualifié.

Précaution d'emploi :



"ATTENTION: Les procédures de maintenance ne concernent que le service agréé. Afin de réduire le risque de choc électrique, il est recommandé de se limiter aux procédures d'utilisation, à moins d'en être qualifié. Pour toute maintenance, contacter le service compétent."

- Pour réduire le risque de choc électrique, ne pas exposer l'appareil dans un milieu humide.
- Toujours s'assurer que l'unité est correctement alimentée, en particuliers à la liaison à la terre.
- La source électrique de cet équipement doit posséder une connexion à la terre (⏏), ainsi qu'une liaison « neutre » identifiable.
- La prise électrique qui alimente l'appareil doit être proche de celle-ci et accessible.

Câble secteur de pays autres que les Etats-Unis

L'équipement est livré avec un câble secteur au standard IEC, moulé mâle/femelle.

Si vous souhaitez changer la prise mâle de votre cordon, voici les codes couleurs des fils :

Le fil VERT/JAUNE est connecté à T (Terre)

Le fil BLEU est connecté à N (Neutre)

Le fil MARRON est connecté à P (Phase)



Attention si l'appareil a 2 alimentations, s'assurer que les cordons soient branchés sur la même phase.

F

Explicación de los Símbolos de Seguridad

ESP



Este símbolo refiere al usuario información importante contenida en la literatura incluida. Referirse al manual.



Este símbolo indica que voltajes peligrosos están presentes en el interior. No hay elementos accesibles al usuario dentro. Esta unidad sólo debería ser tratada por personal cualificado.

Advertencias de Seguridad



Las instrucciones de servicio cuando sean dadas, son sólo para uso de personal cualificado. Para reducir el riesgo de choque eléctrico no llevar a cabo ninguna operación de servicio aparte de las contenidas en las instrucciones de operación, a menos que se esté cualificado para realizarlas.

Referir todo el trabajo de servicio a personal cualificado.

- Para reducir el riesgo de choque eléctrico, no exponer este equipo a la lluvia o humedad.
- Siempre asegurarse de que la unidad está propiamente conectada a tierra y que las conexiones de alimentación están hechas correctamente.
- Este equipo debe ser alimentado desde un sistema de alimentación con conexión a TIERRA (⏏) y teniendo una conexión neutra fácilmente identificable.
- La toma de alimentación para la unidad debe ser cercana y fácilmente accesible.

Conexión de alimentación en otros países que no sean USA.

El equipo es normalmente entregado con un cable de alimentación con un enchufe hembra estándar IEC en un extremo y con una clavija estándar IEC en el otro. Si se requiere eliminar la clavija para sustituirla por otra, disponer dicha clavija de una forma segura.

El código de color a emplear es como sigue:

VERDE/ AMARILLO conectado a E (Conductor de protección a Tierra)

-Earth en el original-

AZUL conectado a N (Conductor Neutro -Neutral en el original-)

MARRÓN conectado a L (Conductor Fase -Live en el original-)



Advertencia Si la unidad tuviera dos tomas de alimentación, asegurarse de que ambos cables de alimentación están conectados a la misma fase.

Simboli di sicurezza:



Questo simbolo indica l'informazione importante contenuta nei manuali appartenenti all'apparecchiatura. Consultare il manuale.

Questo simbolo indica che all'interno dell'apparato sono presenti tensioni pericolose. Non cercare di smontare l'unità. Per qualsiasi tipo di intervento rivolgersi al personale qualificato.

Attenzione:



Le istruzioni relative alla manutenzione sono ad uso esclusivo del personale qualificato. E' proibito all'utente eseguire qualsiasi operazione non esplicitamente consentita nelle istruzioni. Per qualsiasi informazione rivolgersi al personale qualificato.

- Per prevenire il pericolo di scosse elettriche è necessario non esporre mai l'apparecchiatura alla pioggia o a qualsiasi tipo di umidità.
- Assicurarsi sempre, che l'unità sia propriamente messa a terra e che le connessioni elettriche siano eseguite correttamente.
- Questo dispositivo deve essere collegato ad un impianto elettrico dotato di un sistema di messa a terra efficace.
- La presa di corrente deve essere vicina all'apparecchio e facilmente accessibile.

Connessione elettrica nei paesi diversi dagli Stati Uniti

L'apparecchiatura normalmente è spedita con cavo pressofuso con la presa e spina standard IEC. Nel caso della rimozione della spina elettrica, gettarla via immediatamente osservando tutte le precauzioni del caso. La leggenda dei cavi è la seguente:

VERDE/GIALLO cavo connesso ad "E" (terra)

BLU cavo connesso ad "N" (neutro)

MARRONE cavo connesso ad "L" (fase)



Attenzione! Nel caso in cui l'apparecchio abbia due prese di corrente, assicurarsi che i cavi non siano collegati a fasi diverse della rete elettrica.

Forklaring på sikkerhedssymboler



Dette symbol gør brugeren opmærksom på vigtig information i den medfølgende manual.

Dette symbol indikerer farlig spænding inden i apparatet. Ingen bruger servicebare dele i apparatet på brugerniveau. Dette apparat må kun serviceres af faglærte personer..

Sikkerhedsadvarsler



Serviceinstruktioner er kun til brug for faglærte servicefolk. For at reducere risikoen for elektrisk stød må bruger kun udføre anvisninger i betjeningsmanualen. Al service skal udføres af faglærte personer.

- For at reducere risikoen for elektrisk stød må apparatet ikke udsættes for regn eller fugt.
- Sørg altid for at apparatet er korrekt tilsluttet og jordat.
- Dette apparat skal forbindes til en nettilslutning, der yder BESKYTTENDE JORD (⊕) og 0 forbindelse skal være tydeligt markeret.
- Stikkontakten, som forsyner apparatet, skal være tæt på apparatet og let tilgængelig.

Nettilslutning i andre lande end USA

Udstyret leveres normalt med et strømkabel med et standard IEC støbt løst hunstik i den ene ende og et standard IEC støbt hanstik i den anden ende. Hvis et af de støbte stik på strømkablet er defekt, skal det straks kasseres på forsvarlig vis. Farvekoden for lederen er som følger:

GRØN/GUL leder forbundet til J (Jord)
BLÅ leder forbundet til 0
BRUN leder forbundet til F (Fase)



Forsigtig Hvis enheden har to lysnetindgange, skal der sørges for at begge ledninger tilsluttes lystnetudgange fra den samme fase.

Förklaring av Säkerhetssymboler

S

- ⚠ Denna symbol hänvisar användaren till viktig information som återfinns i litteraturen som medföljer. Se manualen.
- ⚠ Denna symbol indikerar att livsfarlig spänning finns på insidan. Det finns inga servicevänliga delar inne i apparaten. Denna apparat får endast repareras av utbildad personal.

Säkerhetsvarningar



Serviceinstruktioner som anges avser endast kvalificerad och utbildad servicepersonal. För att minska risken för elektrisk stöt, utför ingen annan service än den som återfinns i medföljande driftinstruktionerna, om du ej är behörig. Överlåt all service till kvalificerad personal.

- För att reducera risken för elektrisk stöt, utsätt inte apparaten för regn eller fukt.
- Se alltid till att apparaten är ordentligt jordad samt att strömtillförseln är korrekt utförd.
- Denna apparat måste bli försörd från ett strömsystem som är försedd med jordadanslutning (⏚) samt ha en neutral anslutning som lätt identifierbar.
- Vägguttaget som strömförsörjer apparaten bör finnas i närheten samt vara lättillgänglig.

Strömkontakter i länder utanför USA

Apparaten utrustas normalt med en strömkabel med standard IEC gjuten honkontakt på ena änden samt en standard IEC gjuten hankontakt på den andra änden. Om man måste avlägsna den gjutna hankontakten, avyttra denna kontakt omedelbart på ett säkert sätt. Färgkoden för ledningen är följande:

GRÖN/GUL ledning ansluten till E (Skyddsjordad ledare)

BLÅ ledning ansluten till N (Neutral ledare)
BRUN ledning ansluten till L (Fas ledare)



- ⚠ Varning! Om enheten har två huvudsakliga elförsörjningar, säkerställ att båda strömkablarna som är inkopplade i enheten arbetar från samma fas.

Turvamerkkien selitys

FI

- ⚠ Tämä merkki tarkoittaa, että laitteen mukana toimitettu kirjallinen materiaali sisältää tärkeitä tietoja. Lue käyttöohje.
- ⚠ Tämä merkki ilmoittaa, että laitteen sisällä on vaarallisen voimakas jännite. Sisäpuolella ei ole mitään osia, joita käyttäjä voisi itse huoltaa. Huollon saa suorittaa vain alan ammattilainen.

Turvaohjeita



Huolto-ohjeet on tarkoitettu ainoastaan alan ammattilaisille. Älä suorita laitteelle muita toimenpiteitä, kuin mitä käyttöohjeissa on neuvottu, ellei ole asiantuntija. Voit saada sähköiskun. Jätä kaikki huoltotoimet ammattilaiselle.

- Sähköiskujen välttämiseksi suojaa laite sateelta ja kosteudelta.
- Varmistu, että laite on asianmukaisesti maadoitettu ja että sähkökytkennät on tehty oikein.
- Laitteelle tehoa syöttävässä järjestelmässä tulee olla SUOJAMAALITÄNTÄ (⏚) ja nolailitännän on oltava luotettavasti tunnistettavissa.
- Sähköpistorasian tulee olla laitteen lähellä ja helposti tavoitettavissa.

Sähkökytkentä

Laitteen vakiovarusteena on sähköjohto, jonka toisessa päässä on muotittin valettu, IEC-standardin mukainen liitäntärasia ja toisessa päässä muotittin valettu, IEC-standardin mukainen pistoliitin. Jos pistoliitin tarvitsee poistaa, se tulee hävittää heti turvallisella tavalla. Johtimet kytketään seuraavasti:

KELTA-VIHREÄ suojamaajohtin E-napaan
SININEN nolajohdin N-napaan
RUSKEA vaihejohtin L-napaan



- ⚠ Huom! Jos laitteessa on kaksi verkkojännitteiden tuloliitäntää, niiden johdot on liitettävä verkkopistorasioihin, joissa on sama vaiheistus.

Σύμβολα de Segurança

(P)

-  O símbolo triangular adverte para a necessidade de consultar o manual antes de utilizar o equipamento ou efectuar qualquer ajuste.
-  Este símbolo indica a presença de voltagens perigosas no interior do equipamento. As peças ou partes existentes no interior do equipamento não necessitam de intervenção, manutenção ou manuseamento por parte do utilizador. Reparações ou outras intervenções devem ser efectuadas apenas por técnicos devidamente habilitados.

Avisos de Segurança



As instruções de manutenção fornecidas são para utilização de técnicos qualificados. Para reduzir o risco de choque eléctrico, não devem ser realizadas intervenções no equipamento não especificadas no manual de instalações a menos que seja efectuadas por técnicos habilitados.

- Para reduzir o risco de choque eléctrico, não expor este equipamento à chuva ou humidade.
- Assegurar que a unidade está sempre devidamente ligada à terra e que as ligações à alimentação estão correctas.
- O sistema de alimentação do equipamento deve, por razões de segurança, possuir ligação a terra de protecção (⏚) e ligação ao NEUTRO devidamente identificada.
- A tomada de energia à qual a unidade está ligada deve situar-se na sua proximidade e facilmente acessível.

Ligação da alimentação noutros países que não os EUA

O equipamento é, normalmente, enviado com cabo de alimentação com ficha IEC fêmea standard num extremo e uma ficha IEC macho standard no extremo oposto. Se for necessário substituir ou alterar alguma destas fichas, deverá remove-la e elimina-la imediatamente de maneira segura. O código de cor para os condutores é o seguinte:

Condutor VERDE/AMARELO ligado a E (Terra)
Condutor AZUL ligado a N (Neutro)
Condutor CASTANHO ligado a L (Vivo).



-  Atenção: Se a unidade tem duas fontes de alimentação assegurar que os dois cabos de alimentação estão ligados a tomadas pertencentes à mesma fase.

Επεξήγηση των Συμβόλων Ασφαλείας



Αυτό το σύμβολο παραπέμπει το χρήστη σε σημαντικές πληροφορίες που συμπεριλαμβάνονται στο συνοδευτικό εγχειρίδιο.



Αυτό το σύμβολο υποδεικνύει ότι στο εσωτερικό υπάρχουν επικίνδυνες ηλεκτρικές τάσεις. Στο εσωτερικό δεν υπάρχουν επισκευάσιμα μέρη. Αυτή η μονάδα πρέπει να επισκευάζεται μόνο από ειδικά εκπαιδευμένο προσωπικό.

Προειδοποίηση Ασφαλείας



Οδηγίες επισκευής, όπου παρέχονται, αναφέρονται αποκλειστικά και μόνο σε εξουσιοδοτημένο προσωπικό. Για να μειωθεί ο κίνδυνος ηλεκτροπληξίας, μην βλέπετε, επισκευές παρόμοιες με τις συμπεριλαμβανόμενες στο εγχειρίδιο των οδηγιών, εκτός και αν έχετε τα απαραίτητα προσόντα για να το κάνετε. Όλες οι επισκευές να εκτελούνται από ειδικά εκπαιδευμένο προσωπικό.

- Για να μειώσετε τον κίνδυνο ηλεκτροπληξίας μην εκθέτετε τη συσκευή σε βροχή ή υγρασία.
- Πάντα να εξασφαλίζετε τη σωστή γείωση της συσκευής και τη σωστή σύνδεση των συνδεδεμένων τροφοδοσιών.
- Ο εξοπλισμός πρέπει να τροφοδοτείται από ένα σύστημα τροφοδοσίας που να εξασφαλίζει ΠΡΟΣΤΑΤΕΥΤΙΚΗ ΓΕΩΣΗ (⏚) και να έχει καθορισμένες θέσεις ουδέτρου και φάσης.
- Ο εξοπλισμός που τροφοδοτεί τη συσκευή θα πρέπει να βρίσκεται κοντά στη συσκευή και να είναι εύκολα προσβάσιμος.

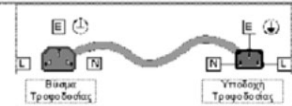
Σύνδεση τροφοδοσίας σε χώρες εκτός των ΗΠΑ

Ο εξοπλισμός συνοδεύεται συνήθως από ένα καλώδιο τροφοδοσίας με ένα σταθερό βύσμα τροφοδοσίας ρεύματος τύπου πυραμίδας στη μια άκρη του και μια σταθερή υποδοχή τροφοδοσίας ρεύματος τύπου πυραμίδας στην άλλη άκρη του. Εάν χρειαστεί να αφαιρέσετε το σταθερό βύσμα τροφοδοσίας μην το επαναχρησιμοποιείτε, θεωρείται άχρηστο. Ο χρωματικός οδηγός για το καλώδιο τροφοδοσίας είναι ο παρακάτω:

ΠΡΑΣΙΝΟ/ΚΙΤΡΙΝΟ καλώδιο συνδέεται στο E (Προστατευτικός Αγωγός Γείωσης)

ΜΠΛΕ καλώδιο συνδέεται στο N (Ουδέτερο Αγωγό)

ΚΑΦΕ καλώδιο συνδέεται στο L (Αγωγός Φάσης)



ΠΡΟΣΟΧΗ: Αν η μονάδα έχει δύο τροφοδοσιές βεβαιωθείτε ότι και τα δύο καλώδια τροφοδοσίας είναι συνδεδεμένα σε εξόδους τροφοδοσίας που βρίσκονται στην ίδια φάση.

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.



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 mains voltage at either 120 V AC or 240 V AC.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for 120 V AC or 240 V AC 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:

- 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.
- These servicing instructions are for use by qualified personnel only. 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.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Follow static precautions at all times when handling this equipment.

Electrostatic Discharge (ESD) Protection



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

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

Recycling

Visit www.grassvalley.com for recycling information.

Safety and EMC Standards

This equipment complies with the following standards.

Safety Standards



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.

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).

Fiber Output Modules

The IQUCP25 unit has 'small form-factor' (SFP) module cages and/or 'quad small form-factor pluggable' (QSFP) module cages at its rear for SFP/QSFP plug-in modules. Various SFP and QSFP optical fiber modules may be fitted into some rear cages.

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. patch cord) 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.

Upon Receipt of the Equipment

- The equipment is supplied in dedicated packaging provided by the manufacturer and should not be accepted if delivered in inferior or unauthorized materials.
- Carefully unpack the system components and check them against the packing list. If there is anything incorrect notify your Grass Valley Partner, or Grass Valley, at once.
- 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.
- Always retain the original packing materials if possible. They could prove useful should it ever be necessary to transport or ship the system units.
- Always read the user instruction manual carefully. It will provide you with helpful hints and tips about care and maintenance, and help you to get the most out of your Grass Valley equipment.
- In the unlikely event of an equipment failure, contact your Grass Valley Partner, or Grass Valley, at once. Contact details are at the rear of this manual.

toc

Table of Contents

IQUCP25

Copyright and Trademark Notice	ii
Terms and Conditions	ii
Safety Information	iii
Safety and EMC Standards	xi
Safety Standards	xi
EMC Standards	xi
Upon Receipt of the Equipment	xiv

1 Introduction 1

Cores	1
Essence Processing (EP) SDC	1
Multiviewer (MV) SDC	1
Future Cores	2
Network Processing SDC	2
Signal Processing SDC	2
Order Codes	2
Rear Panel View	3
IQ Frame Enclosure	3
B-style Enclosure	3
Related Documents	3

2 Base Module 5

Technical Specification	5
Rear Connections	7
SDI BNC Inputs/Outputs	7
25G Ethernet SFP	7
Front Card Edge	8

3 Essence Processing SDC..... 9

Block Diagram	10
IQUCP25 with Essence Processing SDC	10
Feature Summary - IQUCP25 with Essence Processing SDC	11
General Features	11
Essence Processing Features	11
Terminology Used in this Document	12
Navigating Pages in the RollCall Template	13
Template Pages	13
Setting Values	14

Information Display	14
Selecting the Information to Display	14
Configuration	15
Time Sync Configuration	17
Status Panel	18
Histogram Panel	18
TPG (Test Pattern Generator)	20
Counters	21
FEC	22
Ethernet Pages 1 and 2	24
The Ethernet Pane	24
Switch LLDP Info	25
The All Traffic/CPU Traffic Panes	25
Ethernet 1 and 2 RTP Sender	25
Ethernet 1 and 2 RTP Receiver	26
Ethernet RTP Receiver Video Stats	27
Ethernet RTP Receiver Audio Stats	28
Ethernet RTP Receiver Meta Stats	29
Link Control	30
Destination Timing	31
Spigot Pages	32
Input Spigots	32
Spigot Pane	32
Flow Pane	33
Output Spigots	34
Spigot Pane	35
Flow Panes (Primary and Secondary)	36
Logging SDI Info	38
Logging - System	39
Logging - Network	43
Logging - SFP	45
Logging - FPGA	48
Logging - Spigot	49
Logging - Card Diagnostics	51
RollTrack	52
Disable All	52
RollTrack Index	52
RollTrack Source	52
RollTrack Address	53
RollTrack Command	53
RollTrack Sending	53
RollTrack Status	53
Loopback Router	54
Setup	55
Restart	56
Defaults	56
Ethernet Front	57
The Ethernet Pane	57
Ethernet Arcnet	57
Interop	58

SFP Configuration.....	60
------------------------	----

4 Multiviewer SDC 61

MV Core Overview	61
MV SDC Features.....	62
Order Codes	63
Software Compatibility.....	63
IQUCP25-MV Module Description.....	64
Interfaces	64
Architecture	65
Multiviewer Input Scaling	65
IP Streams In and Out	65
External Rear Inputs and Outputs.....	67
Configuration and Control	68
Getting Started and Configuration.....	69
Operation and Configuration.....	69
Third Party Devices	70
Reference Timing	70
Video Wall Design.....	70
Orbit	71
Introduction	71
Orbit Projects	71
Project Names	71
Opening an Orbit Multiviewer Project	71
Multiviewer Projects	72
Technical Specification	73
Video Inputs	73
Multiviewer Head Display Outputs.....	74
Ethernet Interfaces.....	74
RollCall Templates - IQUCP25 'Base Module' (on IP port 2050).....	75
Introduction	77
Navigating to RollCall Template Screens	77
Setting Values in Templates	78
Common Information Display	78
Configuration Template.....	80
Time Sync Configuration Template	83
Time Sync Status Panel.....	84
Time Sync Histogram Panel	85
Multiviewer Configuration Template.....	87
Sender TPG (Test Pattern Generator) Template.....	89
Counters Template.....	91
FEC Template.....	93
Ethernet 1 and 2 Templates	95
Ethernet 1 and 2 RTP Sender Templates.....	99
Ethernet 1 and 2 RTP Receiver Templates	100
Ethernet RTP Receiver Video Stats Template	101
Ethernet RTP Receiver Audio Stats Template	102
Ethernet RTP Receiver Meta Stats Template	103
Link Control Template.....	104

Destination Timing Template.....	105
Audio V Fade Template	107
Audio Rate Adaption Template	108
Input Loss Control Template	109
Spigot 1 to 16 Templates.....	110
Source Spigot Template (Spigots 1 to 4)	111
Spigot Panel (Source Spigot)	112
Take (Source Spigot)	114
IP Flow Panels (Source Spigot).....	114
Set Multicast Details	116
Destination Spigot Template (Spigots 5 to 16)	117
Spigot Panel (Destination Spigot).....	118
Take (Destination Spigot)	121
Status and IP Flow Panels (Destination Spigot)	121
Set Multicast Details	123
Logging - SDI Info Template.....	124
Logging - System Template	125
Logging - Network Template	129
Logging - SFP Template	131
Logging - FPGA Template	134
Logging - Spigot 1 to 16 Templates.....	135
Source Spigots (Multiviewer Head Display Outputs).....	136
Destination Spigots (Multiviewer Inputs).....	137
Logging - Card Diagnostics Template.....	139
RollTrack Template.....	140
Loopback Router Template.....	143
Setup Template.....	144
Ethernet Gb Template.....	146
Ethernet ArcNet Template (Not used).....	147
Interop Template	148
SFP Configuration Template.....	151
SFP Transceiver Module Setting	153
RollCall Templates - MV SDC Multiviewer (on IP port 2051)	154
Introduction	154
Navigating to Templates	154
Common Information System Box	155
Entering Some Settings	156
Template Sections	156
System - Setup Template.....	157
Product Information Box	157
System Reset Box	158
RollCall Settings	159
Output Format.....	160
Information Box	161
System Reset to Effect Changes	161
Layout Template.....	162
TSL Template	164
Timer Control Template	166
Timer Request Protocol Template	168
Getting Going.....	169

Introduction	169
Procedure	169
Assumptions.....	170
STEP 1: Module Hardware Installation.....	170
STEP 2: Configuring IQUCP25 to be an IQUCP25-MV.....	171
STEP 2.1: Install MV SDC License onto a Module.....	171
STEP 2.2: Selecting/Loading an MV SDC License.....	171
STEP 2.3: Restart	171
STEP 3: IQUCP25-MV Physical Connections.....	171
STEP 3.1: HD-BNC - Multiviewer Head Display Outputs	172
STEP 3.2: Control Connection.....	172
STEP 3.3: Media Connections - Multiviewer Inputs and Outputs.....	172
STEP 4: Booting Up.....	173
Default IQUCP25-MV Video Wall.....	173
STEP 5: Preliminary IQUCP25-MV Configuration	174
STEP 5.1: Preliminaries - IQUCP25 Base Module Templates.....	175
STEP 5.2: Preliminaries - MV SDC Multiviewer Templates.....	177
STEP 6: IQUCP25-MV Media Interface(s) Setup (Video IP Streams)	179
Manual Procedure Overview	179
STEP 7: Make a Change to the Video Wall	181
Introduction	181
STEP 7.1: Get Orbit Multiviewer Project from IQUCP25-MV.....	182
STEP 7.2: Quick Edit of Project	185
STEP 7.3: Push a Project from Orbit to a Device.....	189
Pull a Project into Orbit from a Device	191
Multiviewer Video Wall	192
Basic Video Wall.....	192
TSL Support	193
TSL Protocol Tally Settings	193
Specifying Multiviewer TSL Tally Mode	193
Specifying Index Parameters for each UMD	194
Terminology	197
Multiviewer Terminology.....	197
IP Routing Terminology	200
 5 Maintenance.....	 203
Software Upgrade.....	203
Software Upgrade Package.....	203
Software Upgrade Procedure.....	203
Licensing	204
License Files	204
Installing a License onto a Module.....	204
Loading (Selecting) Software Version on a Module	204
 Contact Us.....	 205
Grass Valley Technical Support	205
Corporate Head Office	205

1 Introduction

The IQUCP25 is a hardware platform which can perform different tasks depending on the software option loaded. These options are known as *Software-Defined Cores* (SDCs), and can be purchased via a licensing mechanism and loaded as operational needs demand.

The IQUCP25 modules are also fully compatible with Grass Valley's new broadcast-centric IP routing and network management solution, designed to migrate broadcasters from a traditional baseband routing and control environment to new Hybrid SDI and IP workflows.

Cores

Software defined core options are:

Essence Processing (EP) SDC

For SDI to IP gateway type applications. See [Essence Processing SDC](#), on page 9 for information on using this option.

- SDI IP Encapsulation and De-encapsulation:
 - SD, HD and 3G.
 - ST 2022-6, ST 2022-7, AES67 & ST 2110-20/30/40.
- Frame synchronizer.
- Audio sample rate conversion, shuffling & delay.
- Audio embedding and de-embedding.

Multiviewer (MV) SDC

For multiviewer-style applications. See [Multiviewer SDC](#), on page 61 for information on using this option.

- Multiviewer:
 - Flexible configurations – 12 x 1 UHD (quad link) or 12 x 4 (3G).
 - IP inputs.
 - IP outputs and SDI HD-BNC copy outputs.
- Audio metering support.
- UMD and Tally support.
- Clocks and Timers.

Future Cores

Network Processing SDC

For IP transcoding and NAT firewall applications.

Signal Processing SDC

For broadcast-quality conversion and processing requirements.

Order Codes

The product platform order codes are:

UCP product platform:

IQUCP2500-2B3	16 channel SDI to IP transceiver with 2x 25GbE interface. Up to 16 x SDI inputs or outputs, 2 x 25GbE ports.
IQUCP2501-3B3	16 channel SDI to IP transceiver with 2x 25GbE interface with IQFAN rear. Up to 16 x SDI inputs or outputs, 2 x 25GbE ports.

Software-defined cores:

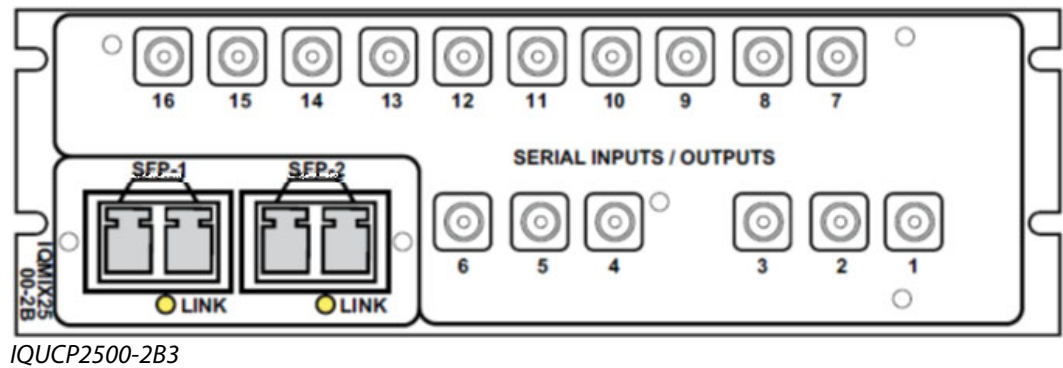
IQUCP25-EP	Essence Processing Software-Defined-Core license.
IQUCP25-MV	Multiviewer Software-Defined-Core license.

SFPs

FCS-25GE-SR	25GBASE-SR short range SFP for MMF (Multi-mode fiber)
FCS-25GE-LR	25GBASE-SR short range SFP for SMF (Single-mode fiber)

(**Note:** Order SFPs in addition to the IQUCP25 module)

Rear Panel View



IQ Frame Enclosure

The IQUCP25 fits the enclosure shown:

B-style Enclosure



Note: The IQH4B enclosure provides two internal analog reference inputs. These inputs are applicable to modules with “B” order codes only.

Related Documents

Table 1-1: Related Documents

Related Grass Valley Documents		Description
Installation and User Manual:	IQH4B	Describes the IQ Modular™ High Power 4U Modular Enclosure, including module removal/fitting.
User Manual:	RollCall Control Panel	Describes module upgrading and licensing.

2

Base Module

Chapter summary:

Base Module

Technical Specification page 5

Rear Connections page 7

Front Card Edge page 8

Technical Specification

Inputs/Outputs	
Signal Inputs	
Inputs	Up to 16 (0/4/8/12/16)
Connector/Format	HD-BNC/75R panel jack on standard connector panel
Conforms to	3G-SDI to SMPTE 424M/425M level A compatible HD-SDI to SMPTE292M/274M/296M SD-SDI to SMPTE259M-C
Input cable length	Belden 1694A @ 3 Gbit/s - TBC Belden 1694A @ 1.5 Gbit/s - TBC Belden 1694A @ 270 Mbit/s - TBC
Signal Outputs	
Outputs	Up to 16 (16/12/8/4/0)
Connector/Format	HD-BNC/75R
Conforms to	3G-SDI to SMPTE 424M/425M level A/B compatible HD-SDI to SMPTE292M/274M/296M SD-SDI to SMPTE259M-C

Ethernet	
Connector/Format	IQUCP25: SFP+ 2 x 25GbE
Conforms to	IEEE 802.3by - 25 Gigabit Ethernet over fiber IEEE 802.3 - 25 Gigabit Ethernet over twinaxial cables ST2110-10/20/30 SMPTE-291M/IETF RTP Payload for Ancillary Data VC-2 AES'67 IEEE-1588v2/SMPTE-2059-2
Video Standards	1125 (1080)/50p (A), 1125 (1080)/59p (A), 750 (720)/50p, 750 (720)/59p, 1125 (1080)/25i, 1125 (1080)/29i, 625 (576)/25i, 525 (480)/29i
RollCall Features	
Status	Input and Output status
User memories	None
Communication	
RollCall/RollCall+	Via gateway or directly via rear SFP
Indicators	
Power	OK (Green)
CPU	OK (Green flashing)
16 x Input standard detection LEDs	UHD (White) 3G (Green) HD (Green) SD (Yellow) None (Red)
RollTrack controls	On/off, Index, Source, Address, Command, Status, Sending
Specifications	
Electrical	Transport Stream
Connector/Format	HD-BNC
Power Consumption	
Module Power Consumption	IQUCP25: 31 PR Max (PR Power Rating units in IQH4B frame only)

Rear Connections

This section describes the physical input and output connections provided by the IQUCP25 modules.

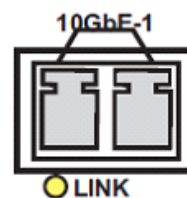
SDI BNC Inputs/Outputs

16 x 3G/HD/SD-SDI interfaces provided with HD-BNC.



25G Ethernet SFP

SFP+ supporting 10/25G Ethernet.



Front Card Edge

The LEDs on the front edge of the module indicate its operating status.

Front Panel	Front Edge		Description
	● STATUS	PB=IDENT	STATUS Green = PTP-LOCK OK Off = PTP-LOCK Fail
	● BOARD	● CPU	BOARD Green flashing= PTP-SYNC OK Off = PTP-SYNC Fail
	● PTP	● REF	REF Green flashing = Watchdog timer OK
	● 8	● 16	1 - 16 = Input port status. White = UHD Green = 3G Green = HD Yellow = SD Red = None
	● 7	● 15	
	● 6	● 14	
	● 5	● 13	
	● 4	● 12	
	● 3	● 11	
	● 2	● 10	SFP 1 - 2 = Status/lane. Green = OK (10G SFP), Blue = OK (25G SFP). If flashing, link is down. QSFP 1 - 2 = Status/lane. Cyan = OK (40G QSFP). If flashing, link is down.
	● 1	● 9	
	● SFP 2	● QSFP 2	
	● SFP 1	● QSFP 1	
	PB=RESET		

3

Essence Processing SDC

Chapter summary:

Essence Processing SDC

Block Diagram	page 10
Feature Summary - IQUCP25 with Essence Processing SDC	page 11
Terminology Used in this Document	page 12
Navigating Pages in the RollCall Template	page 13
Information Display	page 14
Configuration	page 15
Time Sync Configuration	page 17
TPG (Test Pattern Generator)	page 20
Counters	page 21
FEC	page 22
Ethernet Pages 1 and 2	page 24
Ethernet 1 and 2 RTP Sender	page 25
Ethernet 1 and 2 RTP Receiver	page 26
Ethernet RTP Receiver Video Stats	page 27
Ethernet RTP Receiver Audio Stats	page 28
Ethernet RTP Receiver Meta Stats	page 29
Link Control	page 30
Destination Timing	page 31
Spigot Pages	page 32
Logging SDI Info	page 38
Logging - System	page 39
Logging - Network	page 43
Logging - SFP	page 45
Logging - FPGA	page 48
Logging - Spigot	page 49
Logging - Card Diagnostics	page 51
RollTrack	page 52
Loopback Router	page 54
Setup	page 55
Ethernet Front	page 57
Ethernet Arcnet	page 57
Interop	page 58
SFP Configuration	page 60

This section contains information on using an IQUCP25 module running the Essence Processing (EP) SDC, via RollCall.

For help with general use of the RollCall application, open the user manual by clicking the



button on the main RollCall toolbar.

Block Diagram

IQUCP25 with Essence Processing SDC

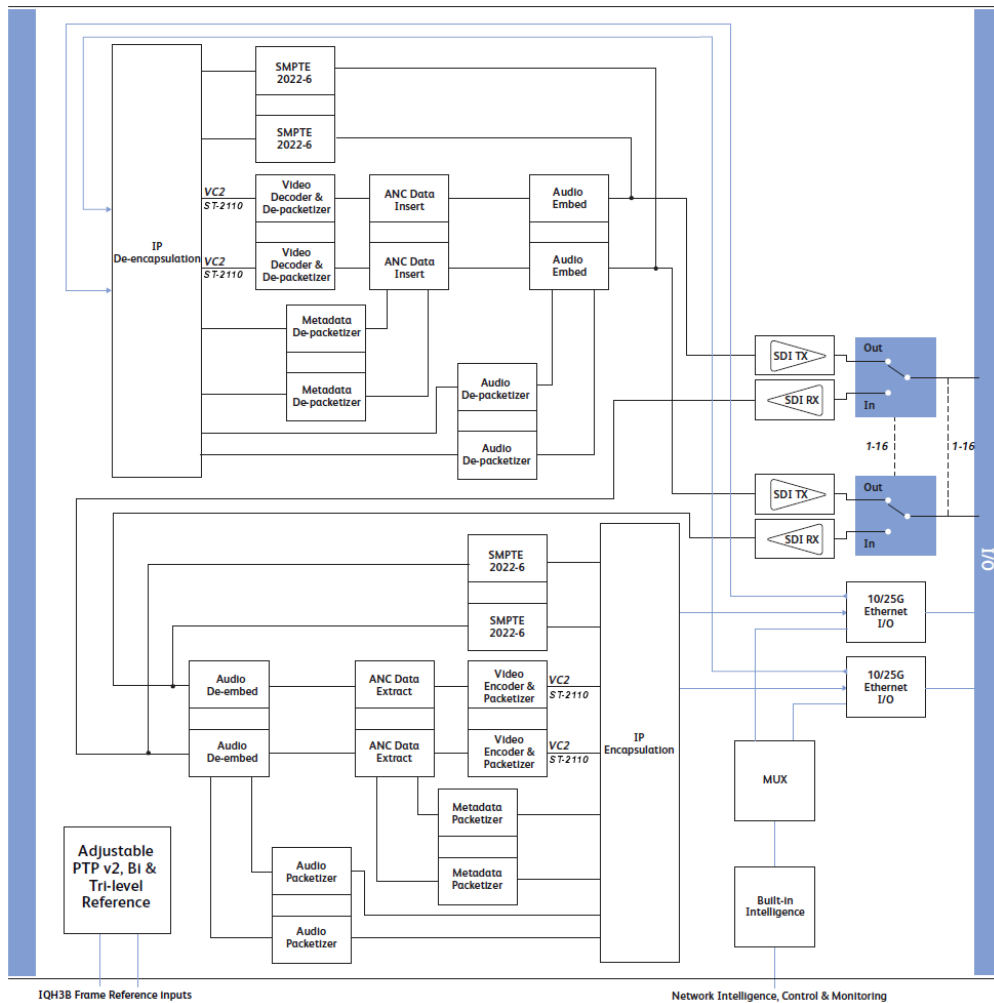


Fig. 3-1: Block Diagram for IQUCP25 with Essence Processing SDC

Feature Summary - IQUCP25 with Essence Processing SDC

General Features

- Supports configuration of Ethernet links for maximum signal transport using both SFPs, or, for dual link mode, to provide link redundancy as per SMPTE 2022-7. When operating as a receiver, the IQUCP25 will dynamically adapt to any stream presented to it.
- Supports unicast as well as IGMPv3 source-specific multicast, allowing point to point operation or transmission in multicast groups, and forward error correction with clause 74 (Base-R) or clause 108 (RS) FEC.
- Standards supported:
 - 3G-SDI to SMPTE 424M/425M level A compatible
 - HD-SDI to SMPTE292M/274M/296M
 - SD-SDI to SMPTE259M-C
 - 25GbE Ethernet to IEEE 802.3
- RollCall control and monitoring compatible with standard logging and reporting features.

Essence Processing Features

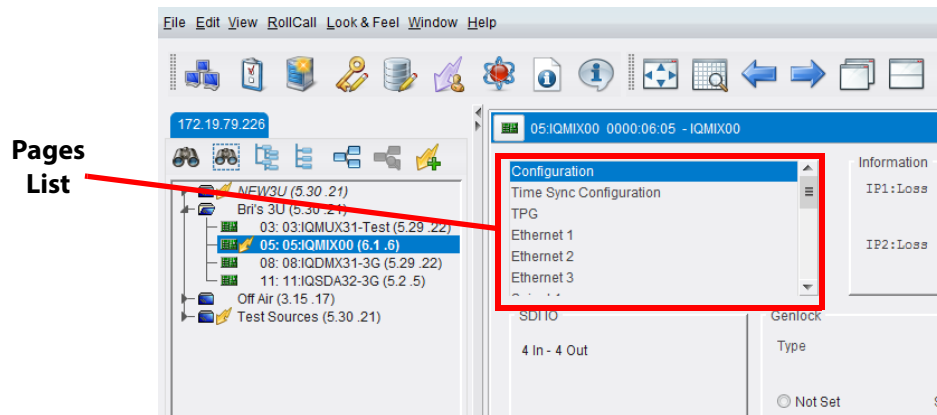
- Handles up to 16 SDI signals over dual 25GbE IP links (dependent on SDI signal format and compressed or uncompressed transport mode).
- Multiple transport types available for each SDI input including:
 - Compressed IP transport using VC2 low latency high quality encoding profile.
 - Uncompressed video transport using either VSF TR-03 and TR-04 RTP or SMPTE-2022-6 encapsulation.
 - PCM audio using TR-03 & AES67.
 - SMPTE-291M metadata support via IETF standard *RTP Payload for Ancillary Data*.
- Supports frame synchronized SDI inputs with audio rate adaption, referenced to either IEEE-1588v2 (PTP) network timing (compliant with SMPTE-2059-2), or via the IQH4B frame analog reference bus for black burst/tri-level syncs.
- Low delay mode and Independent H & V offset available for each channel, along with up to 2 frames of video delay, and up to 255ms of audio delay.

Terminology Used in this Document

Term	Description
Essence	A general term used to describe an SDI component; video, audio and data are all essences.
Spigot	Generic term for a source or destination.
Flow	ST-2022, 2110-20, 2110-30 and 2110-40 are all flow types. An SDI input can be used to create multiple IP flows.
Source	Originator of one or more flows, i.e. a set of one or more sender spigots.
Destination	Receiver of one or more flows, i.e. a set of one or more receiver spigots.

Navigating Pages in the RollCall Template

The RollCall template has a number of pages, each of which can be selected from the drop-down list at the top left of the display area. Right-clicking anywhere on the pages will also open a page view list, allowing quick access to any of the pages.



Template Pages

The following pages are available:

- **Configuration** - see [page 15](#).
- **Time Sync Configuration** - see [page 17](#).
- **TPG (Test Pattern Generator)** - see [page 20](#).
- **Counters** - see [page 21](#).
- **FEC** - see [page 22](#).
- **Ethernet Pages 1 and 2** - see [page 24](#).
- **Ethernet 1 and 2 RTP Sender** - see [page 25](#).
- **Ethernet 1 and 2 RTP Receiver** - see [page 26](#).
- **Ethernet RTP Receiver Video Stats** - see [page 27](#).
- **Ethernet RTP Receiver Audio Stats** - see [page 28](#).
- **Ethernet RTP Receiver Meta Stats** - see [page 29](#).
- **Link Control** - see [page 30](#).
- **Destination Timing** - see [page 31](#).
- **Spigot 1-x** - see [page 32](#).
- **Logging - SDI Info** - see [page 38](#).
- **Logging - System** - see [page 39](#).
- **Logging - Network** - see [page 43](#).
- **Logging - SFP** - see [page 45](#).
- **Logging - FPGA** - see [page 48](#).
- **Logging Spigot -1-n** - see [page 49](#).
- **Logging - Card Diagnostics** - see [page 51](#).
- **RollTrack** - see [page 52](#).

- **Loopback Router** - see [page 54](#).
- **Setup** - see [page 55](#).
- **Ethernet Front** - see [page 57](#).
- **Ethernet Arcnet** - see [page 57](#).
- **Interop** - see [page 58](#).
- **SFP Configuration** - see [page 60](#).

Setting Values

Many of the settings within the templates have values, either alpha or numeric.

When setting a value in a field, the value, whether text or a number, must be set by pressing the ENTER key, or clicking the **S Save Value** button.

Clicking an associated **P Preset Value** button returns the value to the factory default setting.

Information Display

The **Information** display pane appears at the top of each page, and shows basic information on the input, standard and status of the module. The information to be displayed is defined on the **SDI Selection** and **Information Select** panes to the right of the **Information** display.

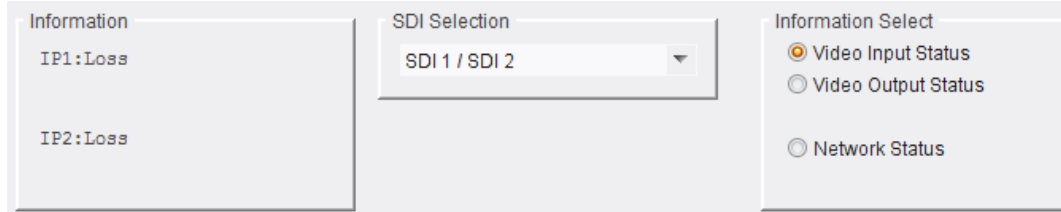


Fig. 3-2: Information and Selection Panes

Selecting the Information to Display

- Select the inputs to display data for from the **SDI Selection** drop-down list.
- Select **Video Input Status**, **Video Output Status** or **Network Status** from the **Information Select** pane as required.

The selected information will be displayed on the **Information** display pane.

Configuration

The **Configuration** page allows basic module parameters to be set.

Fig. 3-3: Configuration Page

The following facilities are available from this page:

Option	Description
SDI IO	Displays how input and output spigots are currently configured. See <i>Card Firmware/Software Version</i> , below, for information on how to change this.
Where Am I	Causes the front-edge LEDs to flash, allowing the module to be easily identified.
Genlock	Select Genlock type: • Network - click to select PTP. • Chassis Reference A/B - click to select an on-chassis reference. • Freerun - click to allow free running.

Option	Description
GUID	Displays the absolute unique identifier associated with the module.
Domain	RollCall+ uses domains to partition a network; only nodes on the same domain can communicate with one another. A domain is uniquely identified with a number and a friendly name/alias. Set an ID as required, then press Take to confirm the change.
Interface Configuration	Displays the IP address for each of the Ethernet interfaces.
Card Firmware/Software Version	Each software version contains multiple firmware images. These allow different spigot input/output and flow standard combinations to be selected. Select the required software from the Software Version pane, then select the firmware which provides the required combination of inputs, outputs and flow standards from the list displayed on the Firmware pane. Note: Restore and Restart buttons are displayed only when an item not currently installed is selected. Click Take to restart the module and implement any changes made.

Time Sync Configuration

The **Time Sync Configuration** page allows selection of the source to be used for synchronizing flows, and configuration of any properties associated with the relevant source.

Fig. 3-4: Time Sync Configuration Page

The following facilities are available from this page:

Option	Description
Time Sync Mode	Click a radio button to select the required mode. Note that the PTP options require a grandmaster clock to be present in the system.
NTP Configuration	To add an NTP server, enter the server's IP address in to the New field.
PTP Network Interface	Click check boxes to select the required network interfaces. If an interface fails, the next interface on the list will be switched to automatically.
PTP Configuration	Select values from the PTP Domain and PTP Delay Request Frequency drop-down lists, as required. Type the appropriate IP number into the PTP Multicast address field.
Show Status	Select the Show Status check box to display status information.
Save Settings	Displayed only if settings on this page are changed. Clicking Restore will discard the changes, while clicking Restart will implement the changes and reboot the module.

Status Panel

Displays important system status information on a single convenient panel.

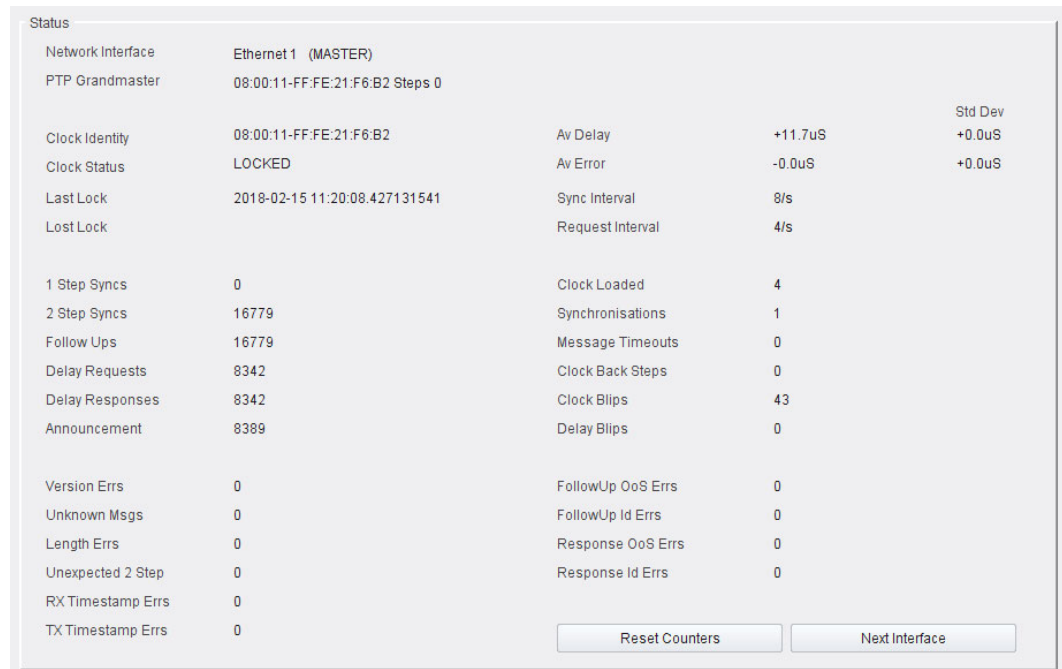


Fig. 3-5: Time Sync Status

Histogram Panel

Located to the right of the **Status** panel, the Histogram provides a graphical representation of the distribution of differences between the card's clock and the PTP grandmaster clock. Every time the clock difference is recalculated, the relevant bar is incremented. A correctly functioning system will show a distinct peak around the 0ns level.

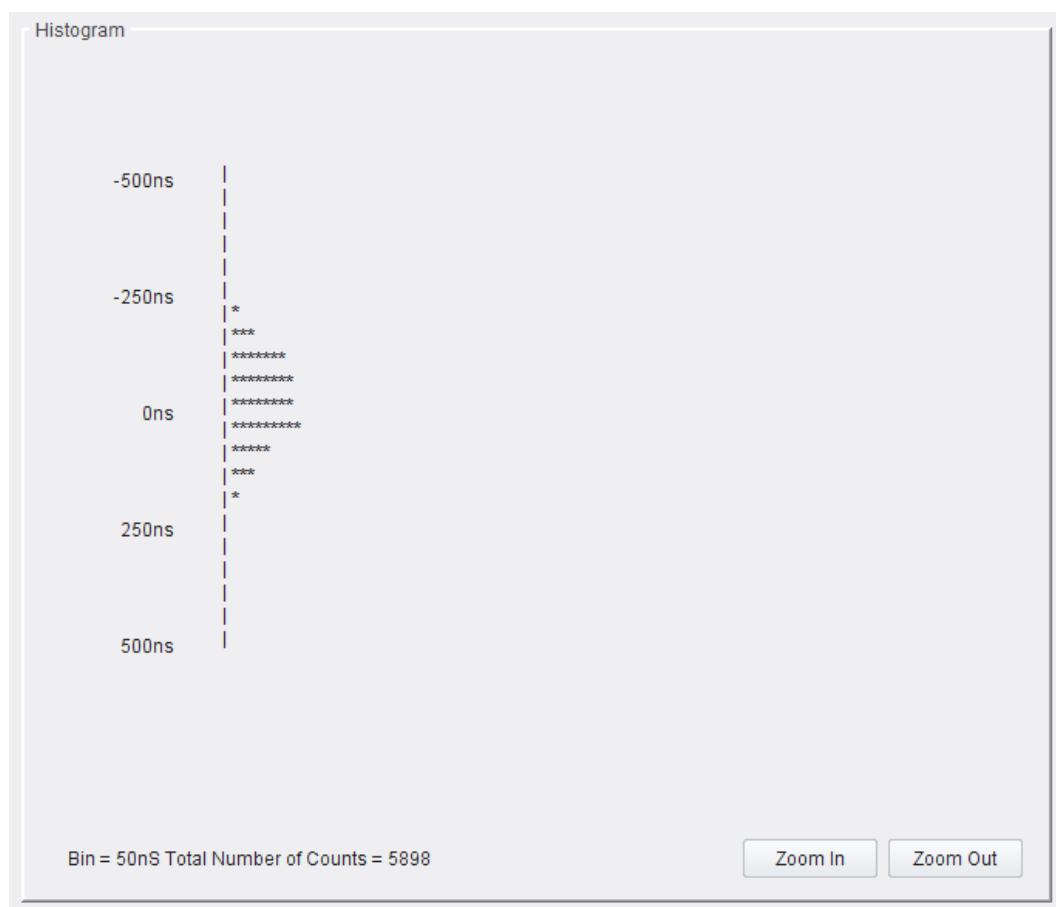


Fig. 3-6: Time Sync Status Information - Histogram

TPG (Test Pattern Generator)

The **TPG** page allows test patterns to be applied on a spigot-by-spigot basis.

Fig. 3-7: TPG Page

The following options are available for each spigot:

Option	Description
TPG	Select the test pattern to apply to the spigot from the drop-down list.
Audio Freq	Select the audio frequency to apply to the spigot from the drop-down list. Note: insertion of audio requires use of RFC3190, as set on the Spigot pages. See Spigot Pages on page 32 for more information.
Caption	Type a caption (max 19 characters) to optionally be displayed with the test pattern.
Audio dB	Select the dB level to apply to the spigot from the drop-down list.
Show Caption	Select the check box to display the caption with the test pattern.
Audio Mute	Select the check box to mute the audio tone.

If a test pattern is applied, either a pattern or a tone, the spigot cannot be used for streaming any other essence.

The caption generator allows a caption to be overlaid on the video essence.

Counters

The **Counters** page allows the various counters provided to be cleared down.

The screenshot displays the 'Counters' page interface. On the left, a vertical list of counter categories is shown, with 'Counters' selected at the top. Below this list, a section titled 'Global Counters' contains five sub-sections, each with a 'Clear' button: 'Clear All Sender Dropped Pkts', 'Clear All CRC Counts', 'Clear All RTP Counts', 'Clear All MAC Error Counts', and 'Clear All SDI Lost Lock Counts'. At the bottom of the page, there is a 'Clear All Global Counts' button. To the right of the counter list, there are two panels: 'Information' showing 'IP1:Loss' and 'IP2:Loss', and 'SDI Selection' with a dropdown menu set to 'SDI 1 / SDI 2'. Further right, an 'Information Select' panel contains three radio buttons: 'Video Input Status' (selected), 'Video Output Status', and 'Network Status'.

Fig. 3-8: Counters Page

Click **Clear** buttons as required.

FEC

The **FEC** page allows FEC Clause 74 to be selected and FEC logging to be activated, if required. FEC stats are also available.

The screenshot displays the FEC configuration interface. At the top, there is a sidebar menu with options: Ethernet 1, Ethernet 1 RTP Sender, Ethernet 1 RTP Receiver, Ethernet 2, and Ethernet 2 RTP Sender. The main content area is divided into several sections:

- Information:** Displays IP15:Loss and IP16:Loss.
- SDI Selection:** A dropdown menu currently set to SDI 15 / SDI 16.
- Information Select:** Radio buttons for Video Input Status (selected), Video Output Status, and Network Status.
- FEC Clause 74:**
 - Control:** Radio buttons for Off and On (selected).
 - Status:** A table showing SFP 1 and SFP 2 both in a LOCK state.
- FEC Stats:**
 - Two tables for SFP 1 (Ethernet 1) and SFP 2 (Ethernet 2), each showing Corrected and Uncorrected error counts (all are -).
 - An **Enable Stats** checkbox (unchecked).
 - A **Clear Count** button.
- FEC Logging:**
 - Four checked checkboxes for logging: Fec 1 Corrected Errors, Fec 1 Uncorrected Errors, Fec 2 Corrected Errors, and Fec 2 Uncorrected Errors.
 - A corresponding table showing zero counts for each: FEC_1_CORRECTED_ERRORS=0, FEC_1_UNCORRECTED_ERRORS=0, FEC_2_CORRECTED_ERRORS=0, and FEC_2_UNCORRECTED_ERRORS=0.

Fig. 3-9: FEC Page

The following facilities are available from this page:

Option	Description
FEC Clause 74	Allows low-latency FEC Clause 74 error correction to be used. Options are: • On • Off
Status	Displays lock status for each SFP.
FEC Stats	Displays the number of corrected and uncorrected errors received via the SFPs. Click Enable Stats to activate, and Clear Count to zero the counters.
FEC Logging	Information on several parameters can be made available to a logging device connected to the RollCall network. Enable check boxes to activate log fields as required. Available log fields are shown in the table below.

Log Field	Description
FEC_N_CORRECTED_ERRORS=	Number of corrected errors for FEC <i>N</i> .
FEC_N_UNCORRECTED_ERRORS=	Number of uncorrected errors for FEC <i>N</i> .

Where *N* is the SFP number.

Ethernet Pages 1 and 2

Note: Ethernet pages 1 & 2 refer to the rear-panel Ethernet connectors only. See [Ethernet Front](#) on page 57 for information on managing the on-module Ethernet connector.

The **Ethernet** pages show details and status for each network interface. The IQUCP25 defaults to use of DHCP, but this can be overridden and a static IP address defined if required.

Ethernet 1

Ethernet 1 RTP Sender

Ethernet 1 RTP Receiver

Ethernet 2

Ethernet 2 RTP Sender

Ethernet 2 RTP Receiver

Information

IP1: Loss

IP2: Loss

SDI Selection

SDI 1 / SDI 2

Information Select

☒ Video Input Status

☐ Video Output Status

☐ Network Status

Ethernet

Rear - SFP 1

Current

New Static

IP Address

172.19.164.101

172.19.164.101

Default Gateway

172.19.164.1

172.19.164.1

Subnet Mask

255.255.254.0

255.255.254.0

MAC Address

00:23:70:00:37:3C

Mode

STATIC

☐ Where Am I

Link Status

UP

SFP Status

OK

SFP Fitted

OK

New Mode

☐ DHCP

☒ Static

Restart

NOTE: DHCP / static takes effect on restart

Clear Link Change Count

Link Change Time

-

Link Change Count

1

Switch LLDP Info

Name

Arista7504R

Port ID

Ethernet4/28/2

Port VLAN

164

All Traffic

Capacity

Gb/s

Actual (Mb/s)

Used %

Free %

Enable Stats

☐

Sender

25

-

-

-

Receiver

25

-

-

-

CPU Traffic

Sent

Received

Total Unicast Packets

-

Total Unicast Packets

-

Total Broadcast Packets

-

Total Broadcast Packets

-

Total Multicast Packets

-

Total Multicast Packets

-

Total Bytes

-

Total Bytes

-

Bytes / sec

-

Bytes / sec

-

Fig. 3-10: Ethernet 1 Page

The Ethernet Pane

The **Ethernet** pane displays details of the currently selected network interface, and allows a static IP address to be defined. Enter information as required, then click **S** to save. New settings are applied when **Restart** is clicked.

Where am I? Check box

When enabled, the **Where Am I** function causes the SFP/QSFP LEDs for the relevant Ethernet connector to flash.

Clear Link Change Count

If the state of the Ethernet link changes, the **Link Change Count** and **Link Change Time** fields are updated. Click **Clear Link Change Count** to reset the **Link Change Count** to zero.

Switch LLDP Info

Displays LLDP information received from the switch that the IQUCP25 is connected to.

The All Traffic/CPU Traffic Panes

Click the **Enable Stats** check box to display information on traffic through the module.

Ethernet 1 and 2 RTP Sender

The **RTP Sender** page displays the amount of data transmitted, on a spigot-by-spigot basis. Units are megabits per second.

Click **Enable Stats** to display values.

Ethernet 1 RTP Sender

- Ethernet 1 RTP Receiver
- Ethernet 2
- Ethernet 2 RTP Sender
- Ethernet 2 RTP Receiver
- Spigot 1

Information

1:172.19.164.102
2:172.19.166.102
F:0.0.0.0
LOCKED :Ethernet 2

SDI Selection

SDI 1 / SDI 2

Information Select

☐ Video Input Status
☐ Video Output Status
☒ Network Status

RTP Sender

	Generated	Enable Stats
Total Mbs	12496	☒
Mbs		
Spigot 1	1560	
Spigot 2	1560	
Spigot 3	1560	
Spigot 4	1560	
Spigot 5	1560	
Spigot 6	1560	
Spigot 7	1560	
Spigot 8	1560	

Fig. 3-11: Ethernet 1 & 2 RTP Sender Page

Ethernet 1 and 2 RTP Receiver

The **RTP Receiver** pages display the amount of data received, plus details of packet loss, on a spigot-by-spigot basis. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear RTP Count** or **Clear Error Count** to zero RTP Sequence Discontinuity or Error counters.

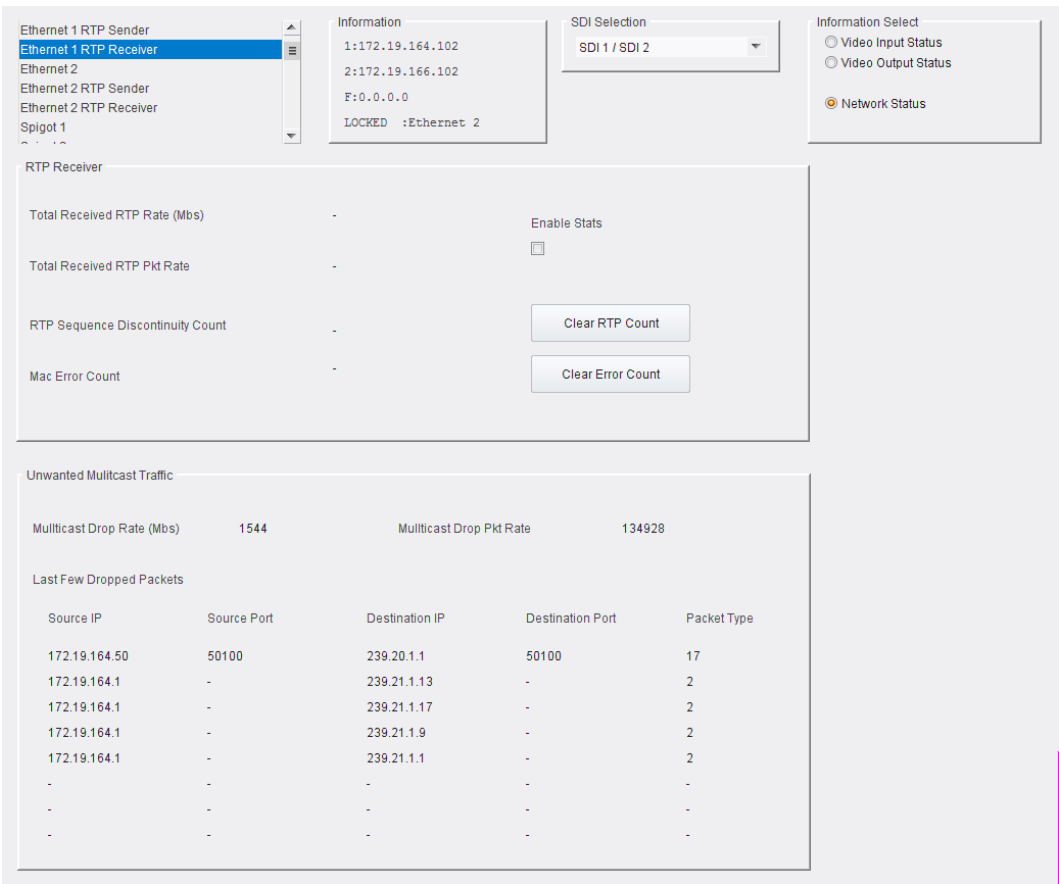


Fig. 3-12: Ethernet 1 & 2 RTP Receiver Page

Ethernet RTP Receiver Video Stats

The **Ethernet RTP Receiver Video Stats** page displays information on the data received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

Ethernet RTP Receiver Video Stats

Information: IP1: Loss, IP2: Loss

SDI Selection: SDI 1 / SDI 2

Information Select: ☒ Video Input Status, ☐ Video Output Status, ☐ Network Status

Video Stats

Enable Stats: ☐

Spigots	Flow ID
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

Ethernet 1	
Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Ethernet 2	
Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Fig. 3-13: Ethernet RTP Receiver Video Stats Page

Ethernet RTP Receiver Audio Stats

The **Ethernet RTP Receiver Audio Stats** page displays information on the data received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

Ethernet RTP Receiver Audio Stats

Information
IP1:Loss
IP2:Loss

SDI Selection
SDI 1 / SDI 2

Information Select
☒ Video Input Status
☐ Video Output Status
☐ Network Status

Audio Stats

Enable Stats
☐

Spigots	Flow ID
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Fig. 3-14: Ethernet RTP Receiver Audio Stats Page

Ethernet RTP Receiver Meta Stats

The **Ethernet RTP Receiver Meta Stats** page displays information on the metadata received via RTP on each Ethernet input. Units are megabits per second.

Click **Enable Stats** to display values; click **Clear All RTP Counts** to zero RTP Discontinuity counters for each Ethernet input.

Ethernet RTP Receiver Meta Stats

Link Control
Destination Timing
Spigot 1
Spigot 2
Spigot 3

Information
IP1:Loss
IP2:Loss

SDI Selection
SDI 1 / SDI 2

Information Select
☒ Video Input Status
☐ Video Output Status
☐ Network Status

Meta Stats

Enable Stats
☐

Spigots	Flow ID
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

Ethernet 1

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Ethernet 2

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Fig. 3-15: Ethernet RTP Receiver Meta Stats Page

Link Control

The **Link Control** page allows quad-link 4K inputs to be synchronized by the IQUCP25 module.

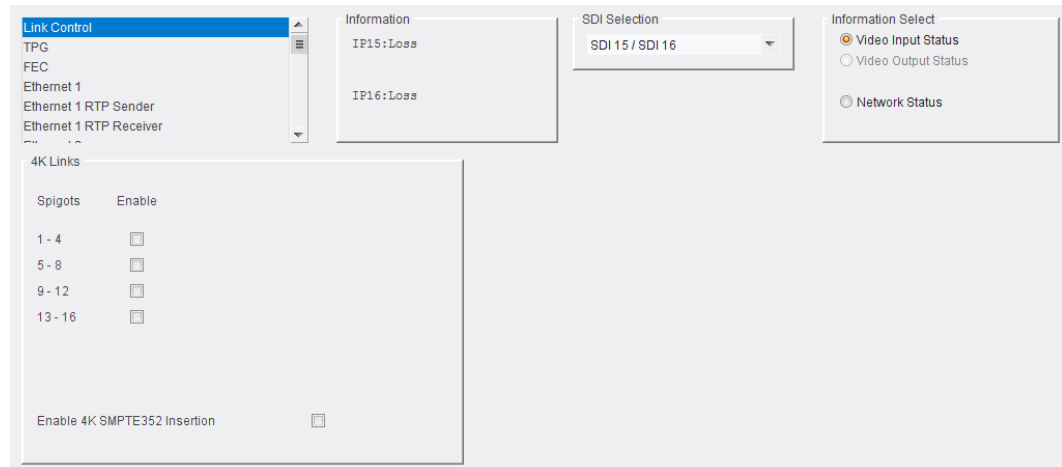


Fig. 3-16: Link Control Page

To have the IQUCP25 synchronize quad-link inputs, enable the check box next to the set of inputs to synchronize.

To use **4K SMPTE352 Insertion**, enable the adjacent check box.

Destination Timing

The **Destination Timing** page allows genlock timing on each spigot to be adjusted, in order to synchronize the IP signal with the house reference.

The screenshot shows the 'Destination Timing' configuration interface. On the left, a sidebar lists 'Ethernet RTP Receiver Meta Stats' with 'Destination Timing' highlighted. The main panel is divided into several sections. At the top, there's an 'Information' box showing IP addresses (1:172.19.164.191, 2:172.19.166.191), frame rate (F:0.0.0.0), and audio (A:). Next to it is an 'SDI Selection' dropdown set to 'SDI 7 / SDI 8'. To the right is an 'Information Select' section with radio buttons for 'Video Input Status', 'Video Output Status', and 'Network Status' (which is selected). Below these are five rows, each for a spigot (Spigot 1 to Spigot 4, with Spigot 9 at the top). Each row contains two main settings: 'Genlock Timing' and 'Receiver Packet Buffer'. 'Genlock Timing' includes 'V Offset (lines)' and 'H Offset (pixels)', both set to 0. 'Receiver Packet Buffer' includes 'Frames Delay (N to N+1)', also set to 0.

Fig. 3-17: Destination Timing Page

The following parameters can be modified:

Option	Description
Genlock Timing V Offset	Vertical timing offset in lines.
Genlock Timing H Offset	Horizontal timing offset in pixels.
Receiver Packet Buffer Frames Delay	The receiver packet buffer provides additional buffering for a received IP flow. Typically this is required where the IP flow is bursty in nature. However, increasing buffering can affect the time required to switch between IP flows at a spigot, owing to increased switching latency. Adjust as required.

Spigot Pages

A separate page is provided for each of the active spigots. These pages are dynamically configured by the product, based on the capabilities of the software version/firmware selected.

Note: The pages shown here may differ from those seen on your particular system, depending on the model and configuration of your IQUCP module.

Input Spigots

Input spigots are defined by selecting the appropriate firmware version on the **Configuration** page. See [Configuration](#) on page 15 for more information.

The screenshot displays the 'Typical Input Spigot Page' for Spigot 5. The interface includes a sidebar with a list of spigots (Spigot 5, 6, 7, 8, 9, 10). The main area is divided into several sections: 'Information' (IP1: 625/251, IP2: 625/251), 'SDI Selection' (SDI 1 / SDI 2), and 'Information Select' (Video Input Status, Video Output Status, Network Status). Below these are 'Spigot' settings (Direction: Transmit, BNC: Slot 3.1, Status: OK, Sender: Disable Ext Headers, Num Audio Chans: 16, Packet Time: 500us, SDI Input CRC Errors: Enable, Clear). The 'Last Spigot Take' is RCStart, and the 'Streaming' format is SDI/HD/3G. A 'Take' button is present. The bottom section shows 'Primary' and 'Secondary' flow configurations. The 'Primary' flow (Flow 1) has a table with 'Current' and 'NEW' values for Multicast IP, Multicast Port, Source IP, and Source Port, along with a 'Flow Type' dropdown and 'Packetizer Stats' (bits, packets, packet drops). The 'Secondary' flow (Flow 1) has similar fields but with 'None' values for Multicast IP, Multicast Port, Source IP, and Source Port, and 'None' for Flow Type.

Fig. 3-18: Typical Input Spigot Page

Spigot Pane

The **Spigot** pane provides basic monitoring for the selected spigot. Click **Take** to apply any changes made.

The screenshot displays the 'Input Spigot Pane' for Spigot 5. The interface includes a 'Spigot' section (Direction: Input, BNC: BNC 1, Status: OK, Disable Extended Headers, Last Spigot Take: RollCall, Audio Channels: 8). The 'Streaming' section has radio buttons for Dual (selected), Single, A, B, and Off. The 'Format' section has radio buttons for SD, SDI/HD (selected), and SDI/HD/3G. A 'Take' button is present.

Fig. 3-19: Input Spigot Pane

The **Spigot** pane details:

- Spigot direction;
- Associated BNC connector;

- Current status;
- The last **Take** performed on the spigot.

Disable Extended Headers

Extended header operation can be disabled for TR-03/TR-04 compatibility. Enable the **Disable Extended Headers** check box, then click **Take** to disable the extended headers.

Audio Channels

Allows the number of audio channels in use to be restricted. Select from the list the highest connector number to be used.

Streaming

Select the Ethernet connectors to use for this spigot. This will also determine the bandwidth to be used. Options are:

- **Dual** - use both Ethernet connectors, and so all available bandwidth.
- **Single** - use either Ethernet connector, and so half of the available bandwidth.
- **A** or **B** - use one particular Ethernet connector, and so half of the available bandwidth.
- **None** - do not use an Ethernet connector for this spigot.

Format

Select the format to be used on this spigot. This will ensure that the appropriate level of bandwidth is allocated.

Flow Pane

The **Flow** pane allows multicast IP and port details to be defined for the selected spigot. Stats for the spigot can also be enabled from here.

The screenshot shows a software interface titled "Primary" with a "Flow 1" section. It contains two columns: "Current" and "NEW". Under "NEW", there are input fields for "Multicast IP" (239.0.0.41), "Multicast Port" (50000), "Source IP" (172.19.81.30), and "Source Port" (50000). To the right of these fields are four buttons labeled "P" and "S". Below these is a "Flow Type" dropdown menu set to "None". At the bottom, there is a "Packetizer Stats" section with three input fields: "bit/s" (0), "packet/s" (0), and "packet drop/s" (0).

Fig. 3-20: Input Spigot Pane

Each spigot can support a variety of flows:

- SMPTE 2022-6

- ST-2110-20
- VC-2
- ST-2110-30
- ST-2110-40

Setting Multicast Details

To set multicast details:

- Enter IP and port details as required.
- Select **SMPTE 2022** from the **Flow Type** drop-down menu, if required.
- Click **Packetizer Stats** to view network statistics for an outgoing flow, if required.
- Click **S** to save the details.

In order to provide redundancy, Primary and Secondary flows are available.

Output Spigots

Output spigots are defined by selecting the appropriate firmware version on the **Configuration** page. See [Configuration](#) on page 15 for more information.

The screenshot displays the 'Typical Output Spigot Page' for Spigot 9. At the top, a list of spigots (9-14) has Spigot 9 selected. To the right, 'Information' shows IP1: Loss and IP2: Loss. 'SDI Selection' is set to 'SDI 1 / SDI 2'. 'Information Select' includes 'Video Input Status' (selected), 'Video Output Status', and 'Network Status'. Below this, the 'Spigot' section shows 'Direction' as 'Output', 'BNC' as 'SDI 9', and 'Status' as 'OK'. The 'Last Spigot Take' is 'IPCtrl'. 'Streaming' is 'Dual' and 'Format' is 'SD/HD/3G'. The 'Receiver' section shows 'Video Std' as 'Auto', 'Num Audio Chans' as 'Auto', 'Audio Delay' as '0 ms', and 'Make / Break Mode' as 'Make before Break'. A 'Take' button is present. The main area is divided into 'Primary' and 'Secondary' sections, each with 'Status', 'Video', 'Audio', and 'Metadata' tabs. The 'Primary' section shows 'Mac' as '1080/25i', 'Loopback' as 'None', and 'Meta' as 'Edwards'. The 'Secondary' section shows 'Mac' as 'None', 'Loopback' as 'None', and 'Meta' as 'None'. Each section has a 'Video' and 'Audio' configuration area with 'Current' and 'NEW' settings for Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type. The 'Metadata' section shows 'Current' and 'NEW' settings for Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type.

Fig. 3-21: Typical Output Spigot Page

Spigot Pane

The **Spigot** pane provides basic monitoring for the selected Spigot. Click **Take** to apply any changes made.

The screenshot displays the 'Output Spigot Pane' for Spigot 9. It shows the same configuration as Figure 3-21, including 'Direction' as 'Output', 'BNC' as 'SDI 9', 'Status' as 'OK', 'Last Spigot Take' as 'IPCtrl', 'Streaming' as 'Dual', 'Format' as 'SD/HD/3G', 'Receiver' section with 'Video Std' as 'Auto', 'Num Audio Chans' as 'Auto', 'Audio Delay' as '0 ms', and 'Make / Break Mode' as 'Make before Break'. A 'Take' button is present.

Fig. 3-22: Output Spigot Pane

The **Spigot** pane details:

- Spigot direction;
- Associated BNC connector;
- Current status;
- The last **Take** performed on the spigot.

Streaming

Select the Ethernet connectors to use for this spigot. This will also determine the bandwidth to be used. Options are:

- **Dual** - use both Ethernet connectors, and so all available bandwidth.
- **Single** - use either Ethernet connector, and so half of the available bandwidth.
- **A** or **B** - use one particular Ethernet connector, and so half of the available bandwidth.

Format

Select the format to be used on this spigot. This will ensure that the appropriate level of bandwidth is allocated.

Video Standard

Select the standard for the incoming video, or set to **Auto** to detect the standard automatically.

Num Audio Channels

Select the number of audio channels present on this spigot.

Audio Delay

Move the slider to set an **Audio Delay** as required. Click **P** to return to the preset default value.

Make/Break Mode

Specifies how changes to an output's destination will be made. **Make before Break** causes the new destination to buffer data before connection to the previous destination is broken; this results in a smoother transition, but requires more bandwidth. **Break before Make** simply swaps the output's destination without buffering.

Select the required mode from the drop-down list.

Flow Panes (Primary and Secondary)

Displays Video, Audio and Metadata Status, and allows multicast IP and port details to be defined for the selected spigot.

Primary

Status

	Video	Audio	Meta
Mac	1080/25i	16	None
Loopback	None	None	None

Video

	Current	NEW	
Multicast IP	239.30.1.141	239.30.1.141	P S
Multicast Port	50100	50100	P S
Source IP	172.19.164.62	172.19.164.62	P S
Source Port	50100	50100	P S
Flow Type	RFC4175	RFC4175	▼

Fig. 3-23: Output Spigot Flow Pane

Setting Multicast Details

To set multicast details:

- Select the required video standard from the drop-down list.
- Enter multicast IP and port details as required.
- Enter the appropriate details in the **Source IP** and **Source Port** fields. Each spigot can support a variety of flows.
- Select the required flow type from the **Flow Type** menu.
- Click **S** to save the details, or **P** to return to the preset default value.

Logging SDI Info

Information on various parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

The information below describes the various parameters available for logging.

SDI Change time		
☒ Input 1	INPUT_1_CHANGE_TIME=	2017-10-16T06:41:33
☒ Input 2	INPUT_2_CHANGE_TIME=	2017-10-16T06:41:33
☒ Input 3	INPUT_3_CHANGE_TIME=	2017-10-31T10:05:58
☒ Input 4	INPUT_4_CHANGE_TIME=	2017-10-31T10:05:58
☒ Input 5	INPUT_5_CHANGE_TIME=	2017-10-16T06:47:12
☒ Input 6	INPUT_6_CHANGE_TIME=	2017-10-16T06:47:12
☒ Input 7	INPUT_7_CHANGE_TIME=	2017-10-31T10:05:58
☒ Input 8	INPUT_8_CHANGE_TIME=	2017-10-31T10:05:58

SDI Change Counts		
☒ Input 1	INPUT_1_SDI_CHANGE_CNT=	5
☒ Input 2	INPUT_2_SDI_CHANGE_CNT=	5
☒ Input 3	INPUT_3_SDI_CHANGE_CNT=	17
☒ Input 4	INPUT_4_SDI_CHANGE_CNT=	16
☒ Input 5	INPUT_5_SDI_CHANGE_CNT=	7
☒ Input 6	INPUT_6_SDI_CHANGE_CNT=	7
☒ Input 7	INPUT_7_SDI_CHANGE_CNT=	23
☒ Input 8	INPUT_8_SDI_CHANGE_CNT=	21

Fig. 3-24: Logging SDI Info Page

The following facilities are available from this page:

Log Field	Description
INPUT_N_CHANGE_TIME=	Displays time that the SDI input changed.
INPUT_N_SDI_CHANGE_CNT=	Displays number of times that the SDI input has changed.

Where N is the input number.

Logging - System

Information on several parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging - System

- Logging - Network
- Logging - SFP
- Logging - Fpga
- Logging - Spigot 1
- Logging - Spigot 2

Information

IP1: Loss

IP2: Loss

SDI Selection

SDI 1 / SDI 2

Information Select

☒ Video Input Status

☐ Video Output Status

☐ Network Status

Log Enable	Log Field	Log Value
☒ Serial Number	SN=	YYYYYYYY
☒ OS Version	OS_VERSION=	QNX 6.6.0
☒ Build No.	BUILD_NUMBER=	0.20.34
☒ Hardware Ver.	HARDWARE_VERSION=	RUCP251A
☒ Hardware Mod.	HARDWARE_MOD=	0
☒ Hardware Build.	HARDWARE_BUILD=	0
☒ Featureboard Ver.	FEATUREBOARD_VERSION=	MIX25FB1
☒ Featureboard Mod.	FEATUREBOARD_MOD=	1
☒ Featureboard Build.	FEATUREBOARD_BUILD=	FB1
☒ Firmware Version	FIRMWARE_VERSION=	39250D6F
☒ Up Time	UPTIME=	003:23:40:00
☒ RollCall Up Time	RC_UPTIME=	003:23:39:00
☒ RollTracks	ROL_STATES=	Disabled
☒ Rear ID	REAR_ID=	0
☒ Rear Status	REAR_STATUS=	OK
☒ Slot Width	SLOT_WIDTH=	2
☒ Slot Start	SLOT_START=	1
☒ Power Usage	POWER_USAGE=	37.5W/37.5LU
☒ Temperature	TEMP_1_CELSIUS=	40C
☒ Temperature Sensor	TEMP_1_NAME=	CPU
☒ Reference Source	REFERENCE_1_SOURCE=	Frame Ref A
☒ Reference State	REFERENCE_1_STATE=	OK:625/251
☒ Time Sync Mode	TIMESYNC_1_MODE=	PTP Unicast
☒ Time Sync Network Interface	TIMESYNC_1_NETWORK=	Ethernet 1
☒ Time Sync Clock Identity	TIMESYNC_1_CLOCK_ID=	08:00:11:FF:FE:21:F6:B2
☒ Time Sync Clock State	TIMESYNC_1_CLOCK_STATE=	OK:LOCKED
☒ Time Sync Average Delay	TIMESYNC_1_AVG_DELAY=	+10.6uS
☒ Dev Delay	TIMESYNC_1_STDV_DELAY=	+0.0uS
☒ Time Sync Average Error	TIMESYNC_1_AVG_ERROR=	-0.0uS
☒ Time Sync Std Dev Error	TIMESYNC_1_STDV_ERROR=	+0.0uS
☒ Time Sync Grandmaster	TIMESYNC_1_GRANDMASTER=	08:00:11:FF:FE:21:F6:B2 Steps 0
☒ Time Sync Last Lock	TIMESYNC_1_LAST_LOCK=	2018-02-15 11:20:08.427131541
☒ Time Sync Synchronisations	TIMESYNC_1_SYNCHRONISATIONS=	1

Fig. 3-25: Logging - System Page

The following logging options are available. Enable check boxes to activate log fields as required.

Log Field	Description
SN=	Reports the module serial number, which consists of an S followed by eight digits. Note: this cannot be deselected.
OS_VERSION=	Reports the operating system name and version.
BUILD_NUMBER=	Reports the build number.
HARDWARE_VERSION=	Reports the hardware version number.
HARDWARE_MOD=	Reports the hardware modification number.
HARDWARE_BUILD=	Reports the hardware build number.
FEATUREBOARD_VERSION=	Reports the rear module daughter board version number.
FEATUREBOARD_MOD=	Reports the rear module daughter board modification number.
FEATUREBOARD_BUILD=	Reports the rear module daughter board build number. Valid values are: • FB1 • FB2
FIRMWARE_VERSION=	Reports the firmware version number.
UPTIME=	Reports the time since the last restart in the format <i>ddd:hh:mm:ss</i> .
RC_UPTIME=	Reports time RollCall has been up in the format <i>ddd:hh:mm:ss</i> .
ROL_STATES=	Reports the RollCall status. Valid values are: • OK • FAIL:n where <i>n</i> is the RollTrack index or indexes which are failing • Disabled
REAR_ID=	Reports the code number of the rear fitted.
REAR_STATUS=	Reports the status of the rear where it can be determined.
SLOT_WIDTH=	Reports the slot width. IQUCP25 modules are available in single and triple width.
SLOT_START=	Reports the slot in the rack where the module is located.
POWER_USAGE=	Reports the power usage in PR Units (for IQH4B-type frames). Note: this cannot be deselected.
TEMP_N_CELSIUS=	Reports the temperature status of the FPGA. Note: this cannot be deselected.
TEMP_N_NAME=	Temperature measurement name.
REFERENCE_N_SOURCE=	Reports time reference source.
REFERENCE_N_STATE=	Valid values are: • OK:Locked • OK:Input • WARN:Freerun • WARN:CrossLock

Log Field	Description
TIMESYNC_N_MODE=	Valid values are: • Free running: Module is using its own clock with no reference to any other source. • PTP Multicast: Card is synchronizing to a PTP grandmaster clock using multicast network messages. • PTP Unicast: As PTP Multicast but using the delay request. Reply messages are unicast to minimize network traffic. • NTP: Module clock is synchronized to an NTP clock. Generally less precise than PTP.
TIMESYNC_N_NETWORK=	Network port currently being used for synchronization for IQUCP25 modules, dependent on the choice of interfaces made on the Time Configuration page. If PTP and multiple interfaces are enabled, the PTP synchronization will switch ports if it doesn't see regular sync messages on the port.
TIMESYNC_N_CLOCK_ID=	Identification number of PTP clock being used for synchronization. This is not necessarily the grandmaster clock identity, as there can be intermediate clocks between the grandmaster and the card, depending on network configuration.
TIMESYNC_N_CLOCK_STATE=	Valid values are: • Free running: Card is not being synchronized. • No Lock: PTP being used but clocks haven't synchronized within +/- 1mS. • Locked: PTP being used and clocks are within the accepted range. • NTP: Module using NTP to synchronize.
TIMESYNC_N_AVG_DELAY=	The current network delay time between the card and the clock sending the synchronization messages. This should be relatively constant and is dependent on network configuration.
TIMESYNC_N_STDV_DELAY=	The current standard deviation in the network delay time between the card and the clock sending the synchronization messages. Should be a low number as the network delay is expected to be constant.
TIMESYNC_N_AVG_ERROR=	The current difference between the cards time and the grandmaster time. Should be close to zero once card has synchronized.
TIMESYNC_N_STDV_ERROR=	The standard deviation in the average error.
TIMESYNC_N_GRANDMASTER=	Identity of network clock acting as PTP grandmaster. This is the source of the PTP synchronization messages used by all PTP slave clocks on the network. If there are multiple grandmasters, they should negotiate between themselves to identify the most accurate and then silence the others.

Log Field	Description
TIMESYNC_N_LAST_LOCK=	Time when the module last changed from not locked to locked. Ideally this will be a few seconds after the module has powered up. This allows the user to confirm which clock the module has synchronized to.
TIMESYNC_N_SYNCHRONISATIONS=	Reports the number of times the card has synchronized since it was powered up. Ideally this will be a low number, as cards are expected to synchronize and stay synchronized. Large numbers indicate possible problems with the network or grandmaster clock.

Where N is the input number.

Logging - Network

Information on several parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging - Network

- Logging - SFP
- Logging - Fpga
- Logging - Spigot 1
- Logging - Spigot 2
- Logging - Spigot 3

Information

IP1: Loss

IP2: Loss

SDI Selection

SDI 1 / SDI 2

Information Select

☒ Video Input Status

☐ Video Output Status

☐ Network Status

Logging Network

Log Enable	Log Field	Log Value
☒ Ethernet 1 Name	LAN_PORT_1_NAME=	Ethernet 1
☒ Ethernet 1 Speed	LAN_PORT_1_SPEED=	25Gb/s
☒ Ethernet 1 IP Address	LAN_PORT_1_IPADDRESS=	172.19.164.101
☒ Ethernet 1 MAC Address	LAN_PORT_1_MACADDRESS=	00:23:70:00:37:3C
☒ Ethernet 1 State	LAN_PORT_1_STATE=	Active
☒ Ethernet 1 Traffic In	LAN_PORT_1_TRAFFIC_IN=	4442.6 Mb/s
☒ Ethernet 1 Traffic Out	LAN_PORT_1_TRAFFIC_OUT=	0.0 Mb/s
☒ Ethernet 1 CPU Traffic In State	LAN_PORT_1_CPU_TRAF_IN_STATE=	OK
☒ Ethernet 1 CPU Traffic Out State	LAN_PORT_1_CPU_TRAF_OUT_STATE=	OK
☒ Ethernet 1 RTP Discontinuity Rate	LAN_PORT_1_RTP_DIS_RATE=	20
☒ Ethernet 1 Link Status	LAN_PORT_1_LINK_STATE=	OK
☒ Ethernet 1 MAC Link Status	LAN_PORT_1_MAC_LINK_STATE=	OK
☒ Ethernet 1 Switch Name	LAN_PORT_1_SWITCH_NAME=	Arista7504R
☒ Ethernet 1 Switch Port ID	LAN_PORT_1_SWITCH_PORT_ID=	Ethernet4/28/2
☒ Ethernet 1 Switch Port VLAN	LAN_PORT_1_SWITCH_PORT_VLAN=	164
☒ Ethernet 2 Name	LAN_PORT_2_NAME=	Ethernet 2
☒ Ethernet 2 Speed	LAN_PORT_2_SPEED=	25Gb/s
☒ Ethernet 2 IP Address	LAN_PORT_2_IPADDRESS=	172.19.166.101
☒ Ethernet 2 MAC Address	LAN_PORT_2_MACADDRESS=	00:23:70:00:37:3D
☒ Ethernet 2 State	LAN_PORT_2_STATE=	WARN:Inactive
☒ Ethernet 2 Traffic In	LAN_PORT_2_TRAFFIC_IN=	0.0 Mb/s
☒ Ethernet 2 Traffic Out	LAN_PORT_2_TRAFFIC_OUT=	0.0 Mb/s
☒ Ethernet 2 CPU Traffic In State	LAN_PORT_2_CPU_TRAF_IN_STATE=	FAIL
☒ Ethernet 2 CPU Traffic Out State	LAN_PORT_2_CPU_TRAF_OUT_STATE=	FAIL
☒ Ethernet 2 RTP Discontinuity Rate	LAN_PORT_2_RTP_DIS_RATE=	0
☒ Ethernet 2 Link Status	LAN_PORT_2_LINK_STATE=	WARN:DOWN
☒ Ethernet 2 MAC Link Status	LAN_PORT_2_MAC_LINK_STATE=	WARN:DOWN
☒ Ethernet 2 Switch Name	LAN_PORT_2_SWITCH_NAME=	Unknown
☒ Ethernet 2 Switch Port ID	LAN_PORT_2_SWITCH_PORT_ID=	Unknown
☒ Ethernet 2 Switch Port VLAN	LAN_PORT_2_SWITCH_PORT_VLAN=	Unknown

Fig. 3-26: Logging - Network Page

The following logging options are available. Enable check boxes to activate log fields as required.

Log Field	Description
LAN_PORT_N_NAME=	Displays the Ethernet port name.
LAN_PORT_N_SPEED=	Displays the Ethernet connection speed. Valid values are: • 10 Mbit/s Full Duplex • 10 Mbit/s Half Duplex • 100 Mbit/s Full Duplex • 100 Mbit/s Half Duplex • 1 Gbit/s Full Duplex • 25 Gbit/s • No Link
LAN_PORT_N_IPADDRESS=	Displays the Ethernet port IP address.
LAN_PORT_N_MACADDRESS=	Displays the Ethernet port MAC address.
LAN_PORT_N_STATE=	Displays the Ethernet connection state. Valid values are: • Active • WARN:Inactive
LAN_PORT_N_TRAFFIC_IN=	Displays speed of traffic received by the Ethernet port. Values are reported in kbps, Mbps or Gbps, as appropriate.
LAN_PORT_N_TRAFFIC_OUT=	Displays speed of traffic transmitted by the Ethernet port. Values are reported in Kbps, Mbps or Gbps, as appropriate.
LAN_PORT_N_CPU_TRAF_IN_STATE=	Shows whether the flow of data into the CPU is satisfactory. Valid values are: • OK • WARN:LOW DATA • FAIL
LAN_PORT_N_CPU_TRAF_OUT_STATE=	Shows whether the flow of data out of the CPU is satisfactory. Valid values are: • OK • WARN:LOW DATA • FAIL
LAN_PORT_N_RTP_DIS_RATE=	Displays RTP discontinuity rate for the Ethernet port.
LAN_PORT_N_LINK_STATE=	Displays the Ethernet link state. Valid values are: • OK • WARN:DOWN
LAN_PORT_N_MAC_LINK_STATE=	Reports state of the module's FPGA Ethernet link. Valid values are: • UP • DOWN
LAN_PORT_N_SWITCH_NAME=	Reports name of the network switch that the module is connected to.
LAN_PORT_N_SWITCH_PORT_ID=	Reports Port ID of the network switch the module is connected to.
LAN_PORT_N_SWITCH_PORT_VLAN=	Reports name of the VLAN that the module is connected to.

Where N is the input number.

Logging - SFP

Information on several parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging - SFP

- Logging - Fpga
- Logging - Spigot 1
- Logging - Spigot 2
- Logging - Spigot 3
- Logging - Spigot 4
- Logging - SFP

Information

1:172.19.164.154

2:172.19.166.154

F:0.0.0.0

A:

SDI Selection

SDI 1 / SDI 2

Information Select

☐ Video Input Status

☐ Video Output Status

☒ Network Status

Log Enable	Log Field	Log Value	Log Enable	Log Field	Log Value
☒ Fitted	SFP_1_FITTED=	OK	☒ Fitted	SFP_2_FITTED=	OK
☒ Status	SFP_1_STATUS=	OK	☒ Status	SFP_2_STATUS=	OK
☒ Type	SFP_1_TYPE=	40GBASE-SR4	☒ Type	SFP_2_TYPE=	40GBASE-SR4
☒ Manufacturer	SFP_1_VENDOR_PN=	FiberStore	☒ Manufacturer	SFP_2_VENDOR_PN=	FiberStore
☒ Model	SFP_1_VENDOR_PN=	QSFP-SR4-40G	☒ Model	SFP_2_VENDOR_PN=	QSFP-SR4-40G
☒ Serial Number	SFP_1_SERIAL_NR=	H0611160003	☒ Serial Number	SFP_2_SERIAL_NR=	H0603170034
☒ Revision	SFP_1_REVISION=	B	☒ Revision	SFP_2_REVISION=	B
☒ Connector	SFP_1_CONNECTOR=	MPO 1x12	☒ Connector	SFP_2_CONNECTOR=	MPO 1x12
☒ Temperature Sensor	TEMP_2_NAME=	QSFP1	☒ Temperature Sensor	TEMP_3_NAME=	QSFP2
☒ Temperature	TEMP_2_CELSIUS=	42C	☒ Temperature	TEMP_3_CELSIUS=	38C
☒ Temperature State	TEMP_2_STATE=	OK	☒ Temperature State	TEMP_3_STATE=	OK
☒ Voltage Sensor	VOLTAGE_4_NAME=	QSFP1	☒ Voltage Sensor	VOLTAGE_5_NAME=	QSFP2
☒ Voltage	VOLTAGE_4_VALUE=	3.32V	☒ Voltage	VOLTAGE_5_VALUE=	3.30V
☒ Voltage State	VOLTAGE_4_STATE=	OK	☐ Voltage State	VOLTAGE_5_STATE=	OK
☒ Tx Wavelength	SFP_1_WAVELENGTH=	850.00nm	☒ Tx Wavelength	SFP_2_WAVELENGTH=	850.00nm
☒ Tx Bias 1	SFP_1_1_LASER_BIAS=	5.07mA	☒ Tx Bias 1	SFP_2_1_LASER_BIAS=	7.49mA
☒ Tx Bias 2	SFP_1_2_LASER_BIAS=	5.06mA	☒ Tx Bias 2	SFP_2_2_LASER_BIAS=	7.49mA
☒ Tx Bias 3	SFP_1_3_LASER_BIAS=	5.08mA	☒ Tx Bias 3	SFP_2_3_LASER_BIAS=	7.49mA
☒ Tx Bias 4	SFP_1_4_LASER_BIAS=	5.07mA	☒ Tx Bias 4	SFP_2_4_LASER_BIAS=	7.42mA
☒ Tx Power 1	SFP_1_1_TX_POWER=	-2.16dBm	☒ Tx Power 1	SFP_2_1_TX_POWER=	-2.71dBm
☒ Tx Power 2	SFP_1_2_TX_POWER=	-2.16dBm	☒ Tx Power 2	SFP_2_2_TX_POWER=	-3.04dBm
☒ Tx Power 3	SFP_1_3_TX_POWER=	-2.15dBm	☒ Tx Power 3	SFP_2_3_TX_POWER=	-2.84dBm
☒ Tx Power 4	SFP_1_4_TX_POWER=	-2.16dBm	☒ Tx Power 4	SFP_2_4_TX_POWER=	-2.78dBm
☒ Tx Power State 1	SFP_1_1_TX_POWER_STATE=	OK	☒ Tx Power State 1	SFP_2_1_TX_POWER_STATE=	OK
☒ Tx Power State 2	SFP_1_2_TX_POWER_STATE=	OK	☒ Tx Power State 2	SFP_2_2_TX_POWER_STATE=	OK
☒ Tx Power State 3	SFP_1_3_TX_POWER_STATE=	OK	☒ Tx Power State 3	SFP_2_3_TX_POWER_STATE=	OK
☒ Tx Power State 4	SFP_1_4_TX_POWER_STATE=	OK	☒ Tx Power State 4	SFP_2_4_TX_POWER_STATE=	OK
☒ Rx Power 1	SFP_1_1_RX_POWER=	-1.36dBm	☒ Rx Power 1	SFP_2_1_RX_POWER=	-1.05dBm
☒ Rx Power 2	SFP_1_2_RX_POWER=	1.17dBm	☒ Rx Power 2	SFP_2_2_RX_POWER=	0.37dBm
☒ Rx Power 3	SFP_1_3_RX_POWER=	1.13dBm	☒ Rx Power 3	SFP_2_3_RX_POWER=	-0.23dBm
☒ Rx Power 4	SFP_1_4_RX_POWER=	0.48dBm	☒ Rx Power 4	SFP_2_4_RX_POWER=	0.35dBm
☒ Rx Power State 1	SFP_1_1_RX_POWER_STATE=	OK	☒ Rx Power State 1	SFP_2_1_RX_POWER_STATE=	OK
☒ Rx Power State 2	SFP_1_2_RX_POWER_STATE=	OK	☒ Rx Power State 2	SFP_2_2_RX_POWER_STATE=	OK
☒ Rx Power State 3	SFP_1_3_RX_POWER_STATE=	OK	☒ Rx Power State 3	SFP_2_3_RX_POWER_STATE=	OK
☒ Rx Power State 4	SFP_1_4_RX_POWER_STATE=	OK	☒ Rx Power State 4	SFP_2_4_RX_POWER_STATE=	OK

Fig. 3-27: Logging - SFP Page

The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
SFP_N_FITTED=	Displays presence of (Q)SFP. Valid values are: • OK • Missing

Log Field	Description
SFP_N_STATUS=	Displays status reported by the (Q)SFP. Valid values are: <u>SFPs</u> • OK • WARN:Temp • WARN:VCC • WARN:TX BIAS • WARN:RX BIAS • WARN:Laser • WARN:TEC Curr • FAIL:SFP Not Ready • FAIL:RX LOS - RX Failure • FAIL:TX Fault - TX Failure • FAIL:RX LOL - RX Loss of Lock • FAIL:TX LOL - TX Loss of Lock <u>QSFPs</u> • OK • WARN:Temp • WARN:VCC • WARN:RX PWR LO • WARN:RX PWR HI • WARN:TX PWR LO • WARN:TX PWR HI • FAIL:SFP Not Ready • FAIL:RX LOS - RX Failure • FAIL:TX LOS - TX Failure • FAIL:EQ Fault - EQ Failure • FAIL:RX LOL - RX Loss of Lock • FAIL:TX LOL - TX Loss of Lock • FAIL:Temp • FAIL:VCC • FAIL:RX PWR LO • FAIL:RX PWR HI • FAIL:TX BIAS LO • FAIL:TX BIAS HI • TX PWR LO • TX PWR HI
SFP_N_TYPE=	Displays (Q)SFP identifier from device.
SFP_N_VENDOR=	Displays (Q)SFP manufacturer from device.
SFP_N_VENDOR_PN=	Displays (Q)SFP model number from device.
SFP_N_SERIAL_NR=	Displays the module serial number, which consists of an S followed by eight digits.
SFP_N_REVISION=	Displays manufacturer revision number.
SFP_N_CONNECTOR=	Displays connector type.
TEMP_N_NAME=	Displays temperature sensor name.
TEMP_N_CELSIUS=	Displays current temperature sensor reading.

Log Field	Description
TEMP_N_STATE=	Displays temperature sensor state. Valid values are: • WARN:Disabled - Temperature sensor disabled. • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • OK • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance.
VOLTAGE_N_NAME=	Displays voltage sensor name.
VOLTAGE_N_VALUE=	Displays current voltage reading.
VOLTAGE_N_STATE=	Displays temperature sensor state. Valid values are: • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance.
SFP_N_WAVELENGTH=	Displays transmit wavelength in nm.
SFP_N_X_LASER_BIAS=	Displays bias level in mA.
SFP_N_X_TX_POWER=	Displays transmit power level in dBm.
SFP_N_X_TX_POWER_STATE=	Displays transmit power level. Valid values are: • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance.
SFP_N_X_RX_POWER=	Reports receive power level in dBm.
SFP_N_X_RX_POWER_STATE=	Reports receive power level. Valid values are: • OK • WARN:Low - Low, but in tolerance. • WARN:High - High, but in tolerance. • FAIL:Low - Low and out of tolerance. • FAIL:High - High and out of tolerance.

Where N is the input/(Q)SFP number and X is the lane.

Logging - FPGA

Information on several parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

The screenshot shows the 'Logging - Fpga' page. On the left is a list of logging pages: 'Logging - Fpga', 'Logging - Spigot 1', 'Logging - Spigot 2', 'Logging - Spigot 3', 'Logging - Spigot 4', and 'Logging - Spigot 5'. The 'Logging - Fpga' page is selected. The main area is divided into three columns: 'Log Enable', 'Log Field', and 'Log Value'. The 'Log Enable' column has checkboxes for 'Temperature Sensor', 'Temperature', 'Voltage Name', 'Voltage Value', 'Voltage Name', 'Voltage Value', 'Voltage Name', and 'Voltage Value'. The 'Log Field' column shows the names of the logging fields: 'TEMP_4_NAME=', 'TEMP_4_CELSIUS=', 'VOLTAGE_1_NAME=', 'VOLTAGE_1_VALUE=', 'VOLTAGE_2_NAME=', 'VOLTAGE_2_VALUE=', 'VOLTAGE_3_NAME=', and 'VOLTAGE_3_VALUE='. The 'Log Value' column shows the current values: 'FPGA', '52.19', 'VCCINT', 'VCCAUX', '1.77', 'VCCBRAM', and '1.00'. At the top right, there is an 'Information' section with 'IP1:1080/251' and 'IP2:Loss', an 'SDI Selection' dropdown menu set to 'SDI 1 / SDI 2', and an 'Information Select' section with radio buttons for 'Video Input Status', 'Video Output Status', and 'Network Status'.

Fig. 3-28: Logging - FPGA Page

The following options are available. Enable check boxes to activate log fields as required.

Log Field	Description
TEMP_N_NAME=	Reports temperature sensor name.
TEMP_N_CELSIUS=	Reports current temperature sensor reading.
VOLTAGE_N_NAME=	Voltage sensor name.
VOLTAGE_N_VALUE=	Reports current voltage reading.

Where N is the input number.

Logging - Spigot

The **Logging - Spigot** pages are used to select the fields to be enabled for each available spigot. Depending on whether the spigot is an input or an output, the appropriate log fields are shown.

An additional field is provided for the user to optionally specify a name for the input/output.

Logging - Spigot 1

Logging - Spigot 2
Logging - Spigot 3
Logging - Spigot 4
Logging - Spigot 5
Logging - Spigot 6

Information
IP1: Loss
IP2: Loss

SDI Selection
SDI 1 / SDI 2

Information Select
☒ Video Input Status
☐ Video Output Status
☐ Network Status

Input Logging

Input 1 Name
INPUT_1_NAME [P] [S]

Log Enable	Log Field	Log Value
Video		
☒ Input Ident	INPUT_1_IDENT=	3
☒ Input Name	INPUT_1_NAME=	INPUT_1_NAME
☒ Input State	INPUT_1_STATE=	FAIL: Lost
☒ Input Type	INPUT_1_TYPE=	HD / SD / 3G SDI
☒ Input Standard	INPUT_1_STANDARD=	Unknown

Fig. 3-29: Input Spigot Logging Page

Logging - Spigot 9

Logging - Spigot 10
Logging - Spigot 11
Logging - Spigot 12
Logging - Spigot 13
Logging - Spigot 14

Information
IP1: 1080/25i
IP2: Loss

SDI Selection
SDI 1 / SDI 2

Information Select
☒ Video Input Status
☐ Video Output Status
☐ Network Status

Output Logging

Output 9 Name
OUTPUT_9_NAME [P] [S]

Log Enable	Log Field	Log Value
Video		
☒ Output Ident	OUTPUT_9_IDENT=	9
☒ Output Name	OUTPUT_9_NAME=	OUTPUT_9_NAME
☒ Output State	OUTPUT_9_STATE=	FAIL
☒ Output Type	OUTPUT_9_TYPE=	HD / SD / 3G SDI
☒ Output Standard	OUTPUT_9_STANDARD=	Unknown

Fig. 3-30: Output Spigot Logging Page

The following options are available. Enable check boxes to activate log fields as required.

Option	Description
INPUT_N_IDENT=	System-defined identifier for the input, based on the rear ID.
INPUT_N_NAME=	Name of the input, as defined by the user on the Setup page. See section .
INPUT_N_STATE=	Valid values are: • OK: input signal good. • FAIL: input signal not detected.
INPUT_N_TYPE=	HD/SD/3G SDI
INPUT_N_STANDARD=	PAL/NTSC/625 Mono/525 Mono
OUTPUT_N_IDENT=	Name of the output as shown on the rear panel.
OUTPUT_N_NAME=	Name of the output as defined by the user.
OUTPUT_N_STATE=	Valid values are: • OK: output signal good. • FAIL: output signal not detected. • WARN:Freeze • WARN:Pattern • WARN:Black
OUTPUT_N_TYPE=	Valid values are: • SD SDI • HD SDI • HD/SD/3G SDI

Where N is the input/output number.

Logging - Card Diagnostics

Information on several parameters can be made available to a logging device connected to the RollCall network. Each logging page comprises three columns:

- **Log Enable** - Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field** - Displays the name of the logging field.
- **Log Value** - Displays the current log value.

Logging Card Diagnostics	Information	SDI Selection	Information Select
☒ NVRAM File System	IP1: Loss	SDI 1 / SDI 2	☒ Video Input Status
☒ Total Available Memory	IP2: Loss		☐ Video Output Status
☒ Total Used Memory			☐ Network Status
☒ Num Core Dumps			
☒ Last Core Dump Name			
☒ Last Core Dump Time			
☒ Powersafe Memory Restore			
☒ PMIC Version			
NVRAM_FS=			FAT32
TOTAL_AVAILABLE_MEMORY=			1024MB
TOTAL_USED_MEMORY=			127MB
NUM_CORE_DUMPS=			0
LAST_CORE_DUMP_NAME=			-
LAST_CORE_DUMP_TIME=			-
PWRSafe_MEMORY_RESTORE=			N/A
PMIC_VERSION=			PF0100A

Fig. 3-31: Logging - Card Diagnostics Page

The following options are available. Enable check boxes to activate log fields as required.

Option	Description
NVRAM_FS=	Reports whether the installed file system is QNX6 PowerSafe or FAT32.
TOTAL_AVAILABLE_MEMORY=	Reports total amount of CPU memory available to the module, in bytes.
TOTAL_USED_MEMORY=	Reports amount of CPU memory used by the module, in bytes.
NUM_CORE_DUMPS=	Reports number of times a core dump has been performed as a result of an application crash.
LAST_CORE_DUMP_NAME=	Reports name of last application to crash.
LAST_CORE_DUMP_TIME=	Reports time of last core dump performed as a result of an application crash.
PWRSafe_MEMORY_RESTORE=	Reports where system memory was restored from. Valid values are: • FAT32 - restored from FAT32. • OK - restored from QNX6 PowerSafe. • FAIL - memory restoration failed.
PMIC_VERSION=	Reports name of the on-board power management chip.

RollTrack

The **RollTrack** page allows information to be sent, via the RollCall network, to other compatible units connected on the same network.

The **Source** window lists the RollTrack sources:

The screenshot shows the 'RollTrack Output' window. On the left, there is a 'Disable All' checkbox which is checked. Below it is an 'Index' slider set to 1, with a 'P' button. In the center is a 'Source' list box containing 'Unused', 'Input 1 OK', 'Input 1 LOST', 'Input 2 OK', 'Input 2 LOST', 'Input 3 OK', 'Input 3 LOST', 'Input 4 OK', and 'Input 4 LOST'. On the right, there are two input fields: 'Address' with the value '0000:00:00*0' and 'Command' with the value '0:0', each with 'P' and 'S' buttons. At the bottom right, there are two status fields: 'RollTrack Sending' with the value 'No' and 'RollTrack Status' with the value 'Unknown'.

Fig. 3-32: Source Pane

Disable All

When checked, all RollTrack items are disabled.

RollTrack Index

This slider allows up to 16 distinct RollTrack outputs to be set up. Dragging the slider selects the RollTrack Index number, displayed below the slider. Clicking **P** selects the default preset value.

RollTrack Source

The source of information that triggers transmission of data is selected with this control. Dragging the slider selects the RollTrack source, displayed below the slider. Clicking **P** selects the default preset value. When no source is selected, **Unused** is displayed.

RollTrack Source	Description
Unused	No RollTracks sent.
Input <i>N</i> OK	Input <i>N</i> is good.
Input <i>N</i> LOST	Input <i>N</i> is bad.

Where *N* is the input number.

RollTrack Address

This item enables the address of the selected destination unit to be set.

The address may be changed by typing the new destination into the text field, then clicking **S** to save the selection. Clicking **P** returns to the default preset destination.

The RollTrack address consists of four sets of numbers, for example, **0000:10:01*99**:

- The first set, **0000**, is the network segment code number.
- The second set, **10**, is the number identifying the (enclosure/mainframe) unit.
- The third set, **01**, is the slot number in the unit.
- The fourth set, **99**, is a user-definable number that is a unique identifier for the destination unit in a multi-unit system. This ensures only the correct unit will respond to the command. If left at **00**, an incorrectly fitted unit may respond inappropriately.

RollTrack Command

This item enables a command to be sent to the selected destination unit.

The command may be changed by typing a code in to the text field, and then selecting **S** to save the selection. Clicking **P** returns to the default preset command.

A RollTrack command consists of two sets of numbers, for example: **84:156**:

- The first number, **84**, is the actual RollTrack command.
- The second number, **156**, is the value sent with the RollTrack command.

RollTrack Sending

A message is displayed here when the unit is actively sending a RollTrack command. Possible messages are:

Log Field	Description
No	The message is not being sent.
Yes	The message is being sent.

RollTrack Status

A message is displayed here to indicate the status of the currently selected RollTrack index. Possible RollTrack Status messages are:

Log Field	Description
OK	RollTrack message was sent and received successfully.
Unknown	RollTrack message has been sent but transmission has not yet completed.
Timeout	RollTrack message has been sent but acknowledgment not received. This could be because the destination unit is not at the location specified.
Bad	RollTrack message has not been correctly acknowledged at the destination unit. This could be because the destination unit is not of the type specified.
Disabled	RollTrack sending is disabled.

Loopback Router

The **Loopback Router** page provides a basic SDI router as a redundant backup in case of Ethernet failure.

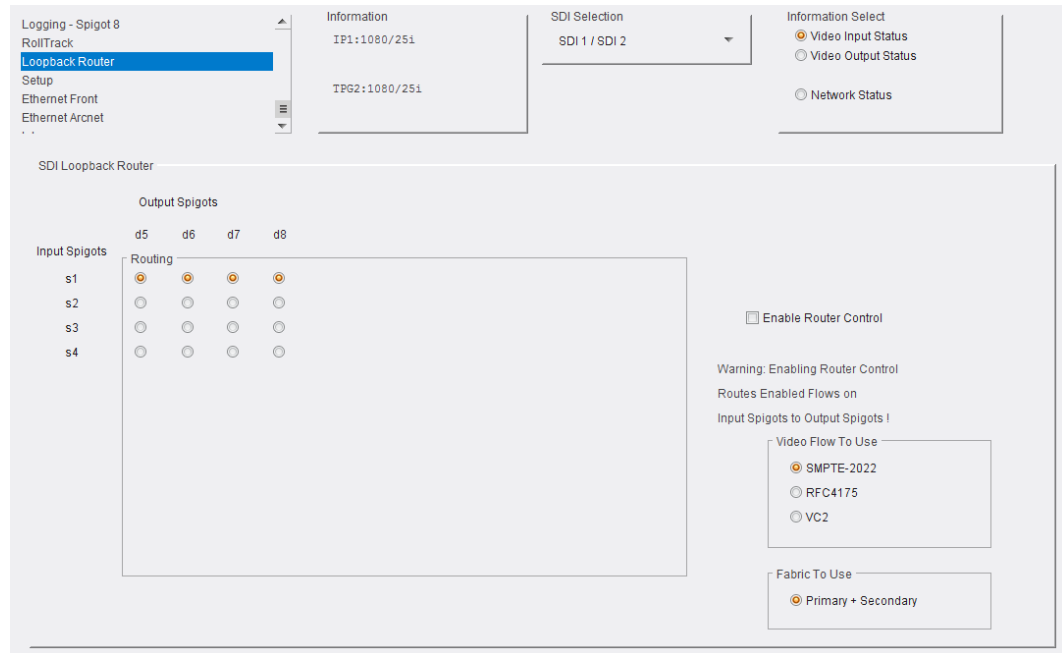


Fig. 3-33: Loopback Router Page

If an Ethernet failure is encountered:

- 1 Use the matrix radio buttons to specify which inputs should be routed to which outputs.
- 2 Select the **Video Flow to Use** - SMPTE-2022, RFC4175 or VC2.
- 3 When set as required, click the **Enable Router Control** check box to activate routing.

Setup

The **Setup** page displays basic information about the module, such as the serial number and software version. Use the functions on the page to restart the module or to return all settings to their factory or default settings.

Fig. 3-34: Setup Page

The **Product** pane displays technical information on the IQUCP25. You may be asked for these details by Grass Valley support if you need technical assistance.

Log Field	Description
Product	Name of the module.
Software Version	Currently installed software version number.
Firmware Version	Currently installed firmware version number.
Serial No	Module serial number.
SW Build	Factory software build number. This number identifies all parameters of the module.
OS	Operating system version number.
Rear ID	Rear panel type.
Main PCB	Printed Circuit Board version number.
Main Mod Level	Main PCB modification level.
Main HW Build	Factory main hardware build number.
Feature PCB	Daughter board PCB revision number.

Log Field	Description
Feature Mod Level	Daughter board PCB modification level.
Feature HW Build	Factory daughter board hardware build number.

Restart

Power-cycles the module. This will produce disturbances on the output picture.

Note: Restarting the module will affect all outputs.

Defaults

Provides options to reset the module to its defaults.

Option	Description
Default Settings	All controls are reset to their default values, except for network configuration and IP addresses.
Factory Defaults	All controls are reset to their default values, including network configuration and IP addresses.

Ethernet Front

The **Ethernet Front** page shows details and status of the on-module Ethernet connector. The IQUCP25 defaults to use of DHCP, but this can be overridden and a static IP address specified if required.

Fig. 3-35: Ethernet Front Page

The Ethernet Pane

The **Ethernet** pane displays details of the currently selected network interface, and allows a static IP address to be defined. Enter information as required, then click **S** to save. New settings are applied when **Restart** is clicked.

Ethernet Arcnet

Not currently used.

Fig. 3-36: Ethernet Arcnet Page

Interop

The **Interop** page allows certain parameters to be changed in order to improve interoperability with third-party equipment.

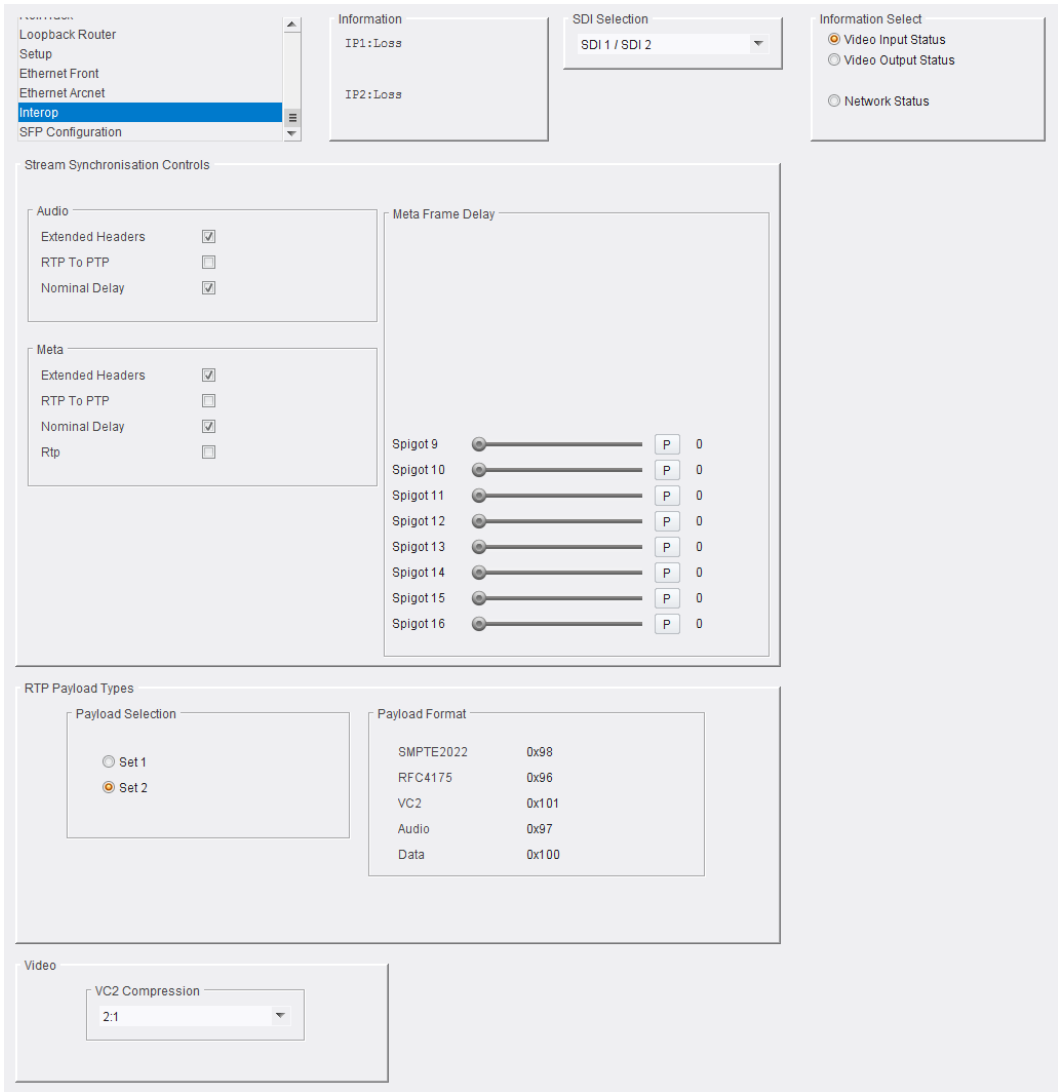


Fig. 3-37: Interop Page

The following facilities are available from this Interop page:

Option	Description
Stream Synchronization Controls	Audio: • Extended Headers - Enable to use extended headers in the RTP audio stream. • RTP to PTP - Enable to synchronize RTP to PTP. • Nominal Delay - Enable to set nominal delay at the spigot. Meta: • Extended Headers - Enable to use extended headers in the RTP metadata stream. • RTP to PTP - Enable to synchronize RTP to PTP. • Nominal Delay - Enable to set nominal delay at the spigot. • RTP - Enable to use RTP timestamps only to synchronize metadata to video.
Meta Frame Delay	Allows a frame delay for metadata received on the spigots shown to be set. Use the sliders to adjust as required. Click P to use the preset default value.
RTP Payload Types	Payload Selection: • Set 1/Set 2 - Select the appropriate set of standards to be used. The set contents are displayed on the Payload Format pane.
Video	VC2 Compression: • Select the compression ratio to be used from the drop-down list.

SFP Configuration

The **SFP Configuration** page allows various SFP parameters to be adjusted, if required.

The screenshot displays the SFP Configuration page. On the left is a navigation menu with options: Loopback Router, Setup, Ethernet Front, Ethernet Arcnet, Interop, and SFP Configuration (which is highlighted). The main content area is divided into several sections. At the top, there's an 'Information' box showing 'IP15:Loss' and 'IP16:Loss'. To its right is an 'SDI Selection' dropdown menu set to 'SDI 15 / SDI 16'. Further right is an 'Information Select' section with radio buttons for 'Video Input Status', 'Video Output Status', and 'Network Status'. Below these are two main sections for 'SFP 1 Compatibility Control' and 'SFP 2 Compatibility Control'. Each section contains an 'SFP Database List' with a dropdown menu (currently showing 'Default') and a 'Take' button. To the right of each 'Take' button is a 'Currently Set' status. For SFP 1, the 'Currently Set' status is 'Default'. Below the database list is an 'SFP Custom Control' section. It contains five rows of controls: 'Postcursor Control (Hex)' with a value of '0x0' and a 'S' button; 'Precursor Control (Hex)' with a value of '0x0' and a 'S' button; 'Tx Diff Control (Hex)' with a value of '0x0' and a 'S' button; 'Rx LPM Enable (Hex)' with a value of '0x0' and a 'S' button. Each of these rows also has a 'Take' button and a 'Currently Set' status. The 'Currently Set' values are '0x4', '0x0', '0x12', and '0x1' respectively.

Fig. 3-38: SFP Configuration Page

The majority of SFPs will operate correctly with IQUCP modules without any need for adjustment. Some, however, may need to have module parameters set a little differently.

If difficulties are encountered with an SFP not working as expected, follow these instructions:

- 1 Select the appropriate SFP type from the **SFP Database List**, and click **Take**. Verify whether the SFP is now working correctly; if so, no further action is required.
- 2 If the SFP is still not working properly, select **Custom** from the **SFP Database List**. This allows all the parameters shown to be adjusted as required. Make changes and click **Take** to apply them.
- 3 When a working configuration is found, the parameter values can be saved by clicking **S** beside each field.

4

Multiviewer SDC

Chapter summary:

Multiviewer SDC

MV Core Overview	page 61
IQUCP25-MV Module Description	page 64
Technical Specification	page 73
RollCall Templates - IQUCP25 'Base Module' (on IP port 2050)	page 75
RollCall Templates - MV SDC Multiviewer (on IP port 2051)	page 154
Getting Going	page 169
Multiviewer Video Wall	page 192
Terminology	page 197

MV Core Overview

The multiviewer software-defined core (MV SDC) runs on an IQUCP25 module in an IQ Modular™ frame. It requires the multiviewer license and comprises an advanced multiviewer for monitoring applications. The multiviewer has 12 video inputs and up to 4 multiviewer head display outputs. Multiviewer video wall layouts are designed using the Grass Valley Orbit software tool.

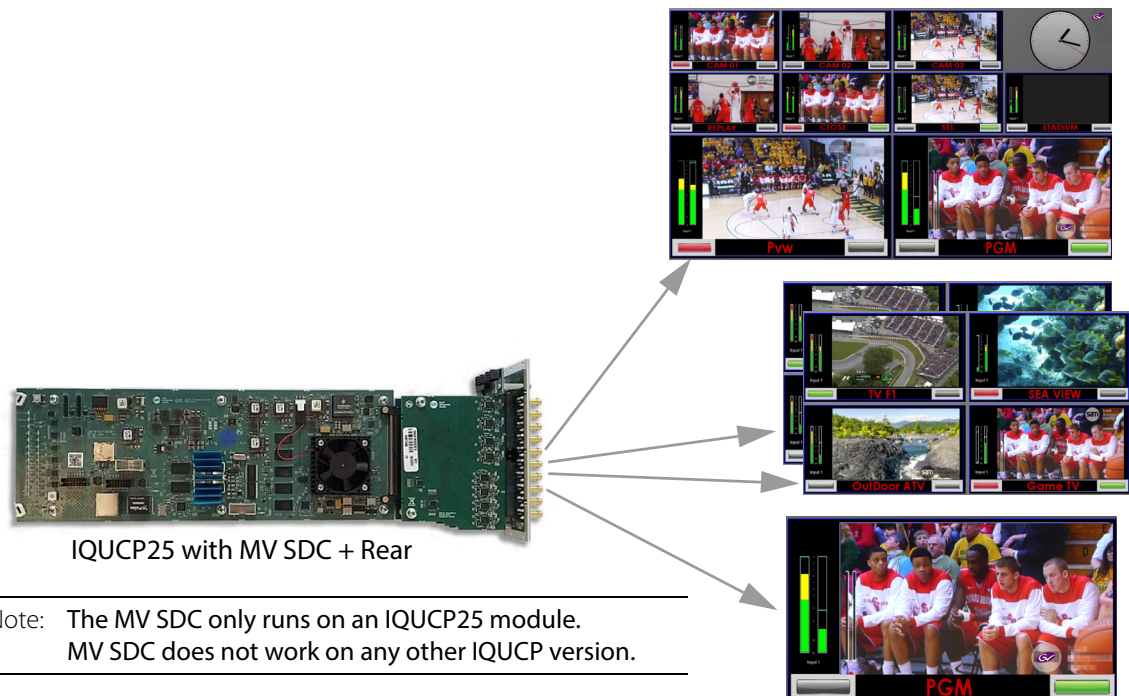


Fig. 4-1: IQUCP25 and Multiviewer SDC

This [MV Core Overview](#) sub-section covers:

[MV SDC Features](#), on page 62

[Order Codes](#), on page 63

[Software Compatibility](#), on page 63

[IQUCP25-MV Module Description](#), on page 64

MV SDC Features

Video Inputs:

- 12 video inputs.
- SFP cages for video IP streams over Ethernet.
(**Note:** SFP module(s) are required, order separately.)
- Standards supported: SMPTE 2022-6/7, SMPTE 2110-20/30.
- Resolution: SD/1080p/1080i/720p 50/59.94; 4K UHD via “quad-link” quadrants or signal-interleaved as ‘2SI’.

Multiviewer Head Display Outputs:

- 4-off head display outputs.
- SDI HD-BNC copies.
- SFP cages for video IP streams.
(**Note:** SFP module(s) are required.)
- Standards supported: SMPTE 2110.
- Resolution: 1080p, 4K UHD support with four outputs used together as ‘quad-link’.
- Reference Timing:
 - Using IEEE-1588v2 (PTP), compliant with SMPTE 2059-2.
 - Analog video reference inputs from the host IQ Modular frame.

Multiviewer Video Walls:

- Drag and Drop objects onto the screen layout.
- Adjustable layering, transparencies and fine-positioning.
- Additionally display web pages, automation play lists, device status screens etc.
- Monitoring of video, audio and metadata.
- UMD and tally support, on a video tile-by-tile basis.
- On-screen Clocks and Timers, with TRP support.

Order Codes

Table 4-1: MV SDC Order Codes

Order Code	Description
IQUCP-MV	Multiviewer license, with 12x4 multiviewer functionality.
Requires: IQUCP2500-2B3	IQUCP base module: With 2 x 25GbE ports.
Note:	Separate SFPs are required. Order separately.

Software Compatibility

Table 4-2: Software Compatibility

Software	Version
Orbit	3v1 or later
RollCall Control Panel	4.17.1 or later

Related Documents

Table 4-3: Related Documents - MV SDC

Related Grass Valley Documents	Description
Installation and User Manual: IQH4B	Describes the IQ Modular™ High Power 4U Modular Enclosure, including module removal/fitting.
User Manual: RollCall Control Panel	Describes module upgrading and licensing.
User Manual: Orbit - Introduction	A general introduction to Grass Valley Orbit and its applications.
User Manual: Orbit for Multiviewers	Describes multiviewer-specific details of Orbit.
User Manual: Orbit for IP Routing	Describes the IP Routing configuration with Orbit.

IQUCP25-MV Module Description

This section contains sub-sections on:

- [Interfaces](#), on page 64
- [Architecture](#), on page 65
- [External Rear Inputs and Outputs](#), on page 67
- [Configuration and Control](#), on page 68
- [Reference Timing](#), on page 70
- [Video Wall Design](#), on page 70
- [Orbit](#), on page 71

Interfaces

The IQUCP25-MV module has the following interfaces:

- 2-off SFP cages for 2x 25Gbit/s Ethernet media interfaces via SFP modules.
- 4-off SDI video HD-BNC outputs.
- 1-off card front Ethernet 1Gbit/s interface. (For Grass Valley engineering use only.)
- IQ Modular frame interfaces.
Includes: 2x video ref, IQ frame comms signals (IQ Gateway comms), and power.

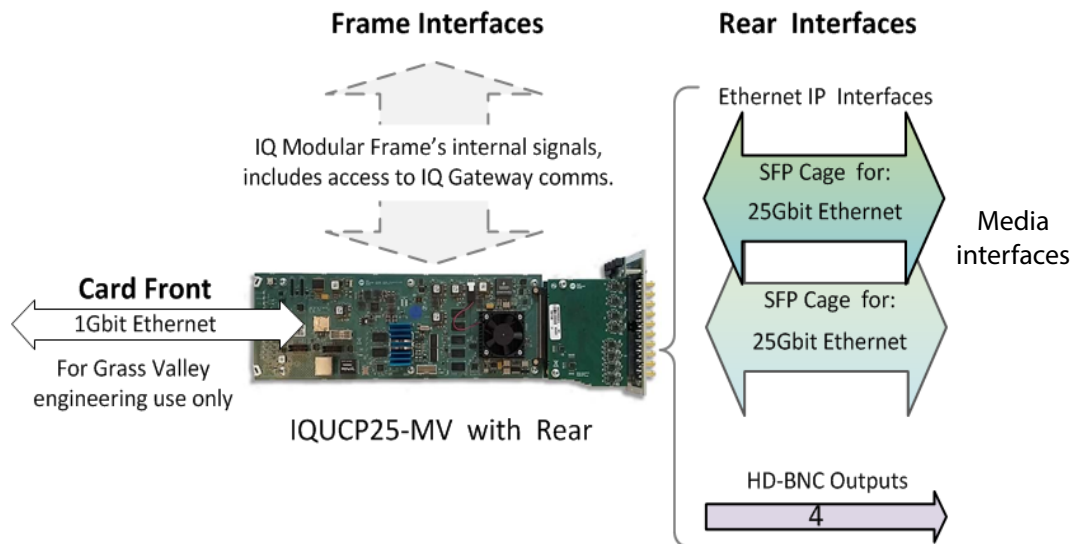


Fig. 4-2: IQUCP25-MV Interfaces

Architecture

The IQUCP25-MV module comprises a MV SDC multiviewer block running on an IQUCP25 'base module' (see Figure 4-3) and it has the following functional inputs and outputs:

- 12 channels of video input (video IP streams, IP Rx); and
- 4 channels of video output (video IP streams, IP Tx) + 4 SDI video HD-BNC copy outputs.

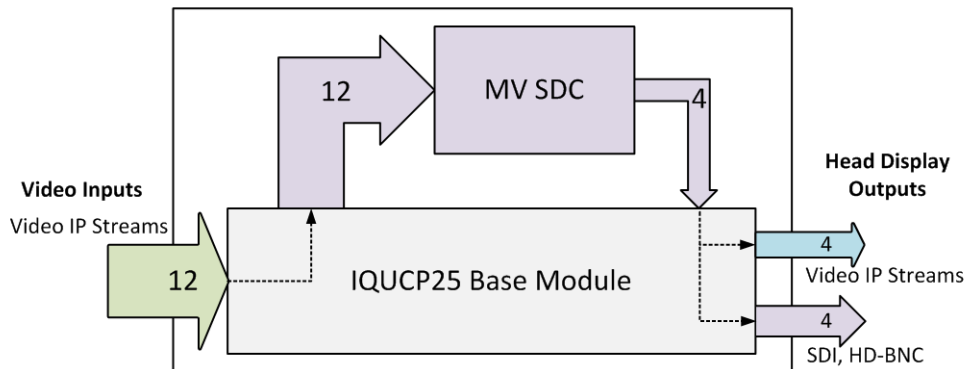


Fig. 4-3: IQUCP25-MV Module Functional Block Diagram

Multiviewer Input Scaling

The multiviewer block has 12 video inputs and four head display outputs. There are 12 image scaling blocks within the multiviewer, one scaler per input.

The internal multiviewer architecture means that:

- Only one scaling per input.
- An input can only appear once on any head display output.

IP Streams In and Out

Video IP streams are transmitted from or received at 'spigots' and may be sent/received on redundant networks. Destination spigots receive IP streams (IP Rx) and source spigots send IP Streams (IP Tx).

The IQUCP25 'base module' can accommodate various software-defined cores and has 16 generic video channels comprising one IP spigot per channel (IP Rx, or IP Tx) and one internal SDI video connection per channel (output SDI, or input SDI respectively). For the IQUCP25-MV module, the base module input/output configuration is:

- 12 destination spigots (IP Rx, converting video IP streams to SDI for MV SDC);
- 4 source spigots (IP Tx, converting SDI from MV SDC into video IP streams); and
- 4 channels of SDI HD-BNC output.

See Figure 4-4.

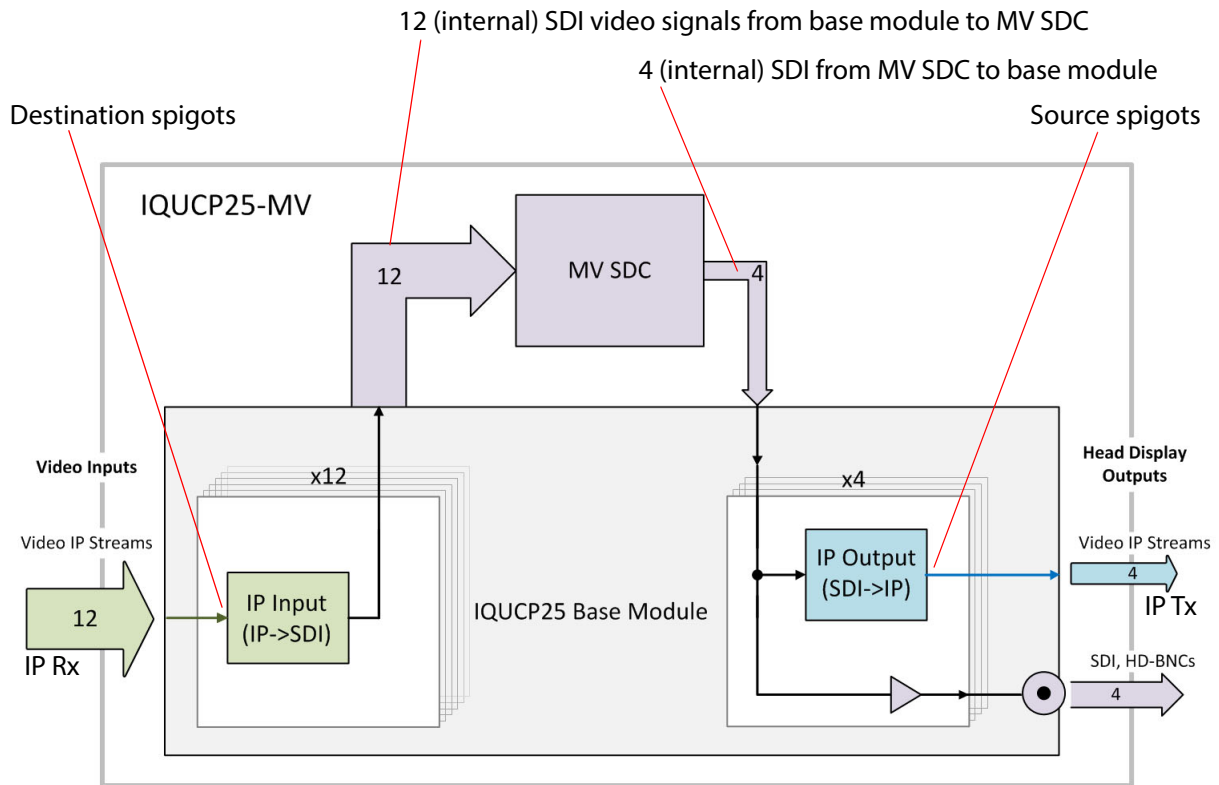


Fig. 4-4: IQUCP25 Base Module I/O Configuration

Table 4-4: IP Routing Terminology

IP Term	Description
Spigot	Generic term for a source or a destination of a Video IP stream on an IP network.
Stream	A stream comprises one or more flows.
Flow	2110-20, 2110-30 and 2110-40 are all flow types. Multiple IP flows can be created from an SDI video signal.
Source	Originator spigot of one or more flows.
Destination	Receiver spigot of one or more flows.

External Rear Inputs and Outputs

- IQUCP25-MV module external inputs and outputs appear at the rear of an IQ Modular frame and comprise MV SDC video inputs and multiviewer head display outputs.
- Inputs are received at (destination) IP spigots 5 to 16.
 - Outputs are sent from (source) IP spigots 1 to 4 and also appear on rear HD-BNC connectors 9, 8, 2 and 4.
- See Table 4-5 and Figure 4-5.

Table 4-5: IQUCP25-MV Rear Inputs and Outputs:
a) Video Inputs; b) Head Display Outputs.

a) Video Inputs		b) Head Display Outputs		
MV SDC Video Input (1 to 12)	Dest. IP Spigot Number	MV SDC Head Display Output (1 to 4)	Source IP Spigot Number	Rear HD-BNC Number
1	5	O/p 1	1	9
2	6	O/p 2	2	8
3	7	O/p 3	3	2
4	8	O/p 4	4	4
5	9			
6	10			
7	11			
8	12			
9	13			
10	14			
11	15			
12	16			

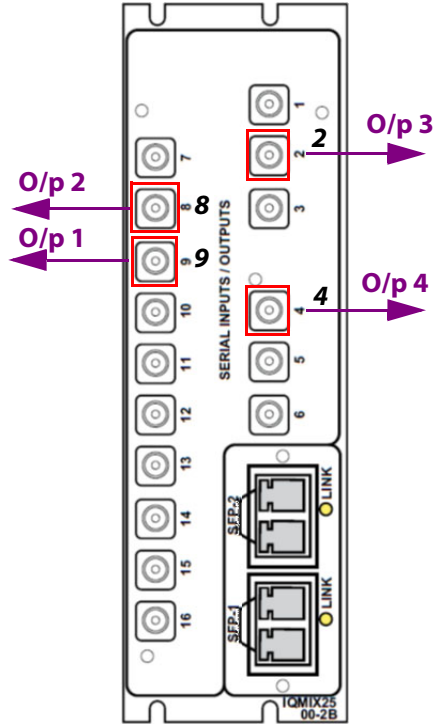


Fig. 4-5: Head Display Outputs 1 to 4
on Rear HD-BNCs 9, 8, 2 and 4.

Note: Module installation is described in the Grass Valley 'IQH4B High Power 4U Modular Enclosure Installation and User Manual'.

Configuration and Control

An IQUCP25-MV module comprises two functional blocks for configuration and control. These control blocks can be accessed through certain IQUCP25-MV module communication interfaces (see Figure 4-6). RollCall templates are accessed via different IP port numbers at the same IP address and have separate RollCall templates (see Table 4-6).

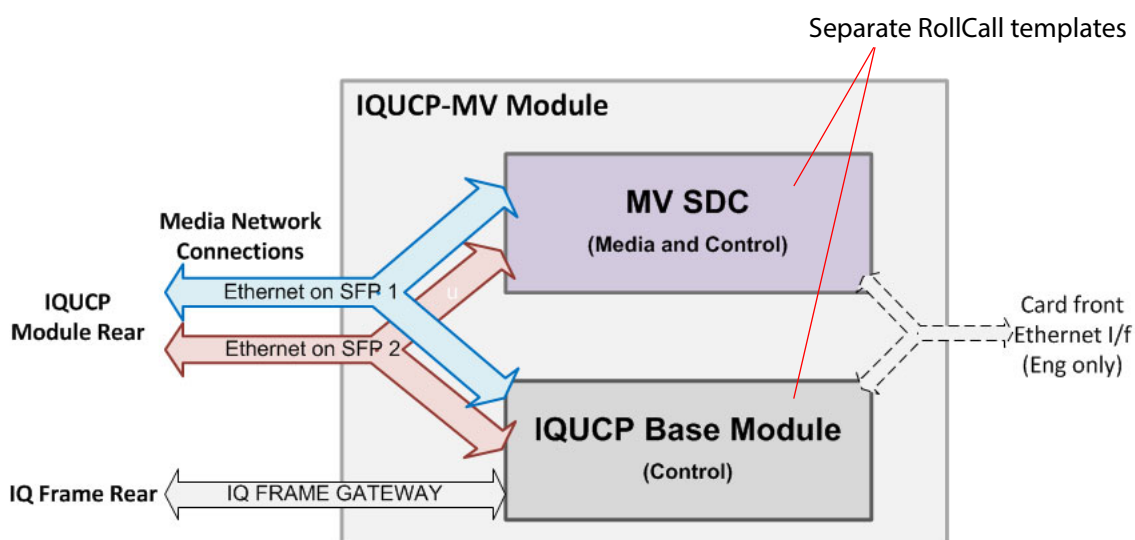


Fig. 4-6: IQUCP-MV Control Blocks

Table 4-6: Control Blocks of a IQUCP25-MV

Control Block	IP Port Number	Description
IQUCP25 base module	2050	Configures items associated with the UCP base module via RollCall. See RollCall Templates - IQUCP25 'Base Module' (on IP port 2050) , on page 75.
MV SDC multiviewer	- 2051	Interface used by Grass Valley Orbit Client tool for setting up IP routing and pushing/pulling multiviewer video wall designs. Configures items associated with the multiviewer core functionality via RollCall. See RollCall Templates - MV SDC Multiviewer (on IP port 2051) , on page 154.

The operational control interface for the IQUCP25-MV multiviewer is 'in-band', i.e. via the media network.

Note: The MV SDC is only operationally accessible via the media network interfaces.

IMPORTANT

The operational control interface for IQUCP25-MV is via the media network (in-band). The interface is used:

- for setting up the multiviewer;
- for selecting different multiviewer video wall layouts; and
- by the Grass Valley Orbit Client tool to:
 - setup IP routing to/from the module; and
 - push/pull multiviewer video wall designs to/from the module.

Getting Started and Configuration

Initial configuration of a module is done via the IQ gateway network connection and remaining configuration via a media network connection; this includes configuring each IP spigot with multicast settings - typically done using the Grass Valley Orbit Client tool with its IP Routing license option.

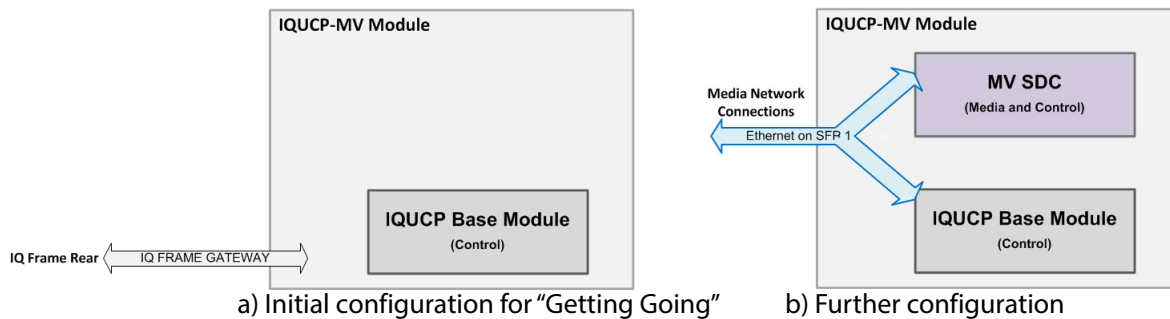


Fig. 4-7: IQUCP25 Getting Start and Configuration

Operation and Configuration

Module operation uses the media network connections for multiviewer inputs (video IP streams), multiviewer head display outputs (video IP streams), pushing/pulling multiviewer video wall designs, changing over layouts, and module control/status messages etc.

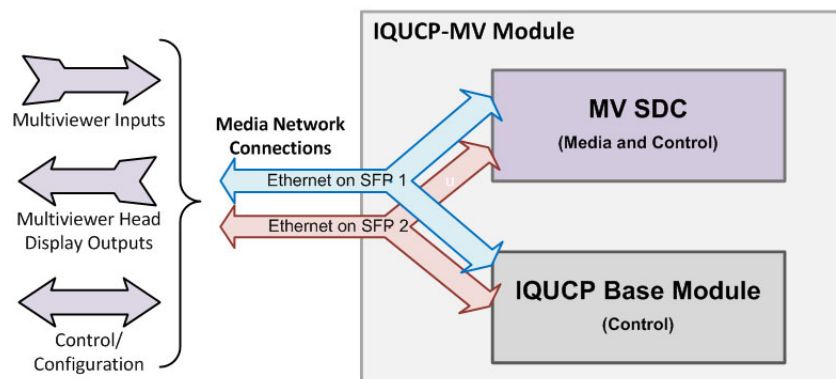


Fig. 4-8: IQUCP25-MV Operation and Configuration

Third Party Devices

Third-party system using a Grass Valley IQTIC card and the Grass Valley open-API 'SDC-01' protocol.

Reference Timing

The IQ Modular frame's analog video reference inputs can be used to lock the IQUCP25-MV's display outputs and use as the reference for the video inputs.

PTP can also be used as the reference source for the Video IP inputs.

Video Wall Design

The layout and style of the MV SDC multiviewer video walls are designed with the Grass Valley Orbit software application. Wall designs are stored as individual projects (Grass Valley Orbit projects), which are then pushed to an IQUCP25-MV device for use.

Multiple wall layout designs may be generated and stored on a PC. Different wall designs can then be pushed to (or pulled from) the multiviewer for different IQUCP25-MV monitoring applications. This is done over a media network connection.

Orbit multiviewer projects for an IQUCP25-MV device should have a 'IQ Multiviewer project' type. See Figure 4-9.

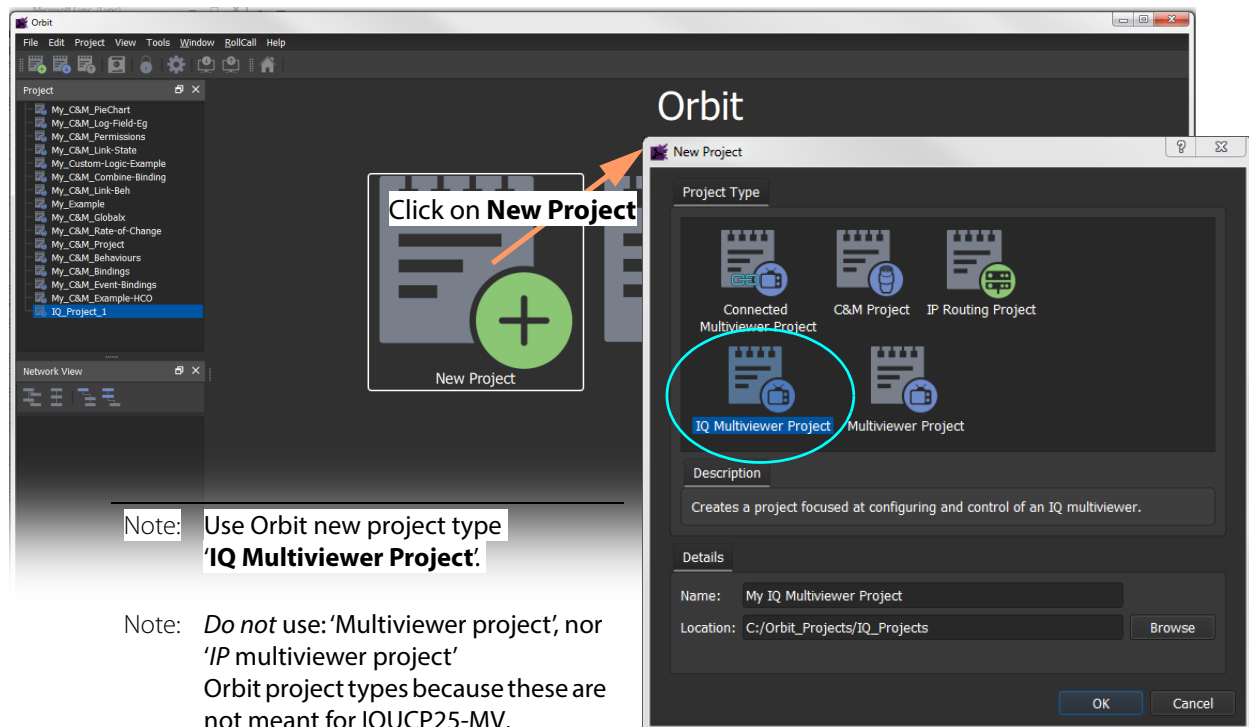


Fig. 4-9: New Orbit Project for an IQ Multiviewer

Orbit

Introduction

The Grass Valley Orbit tool is used to define the appearance of the multiviewer video wall deployed on a IQUCP25-MV with an Orbit multiviewer project.

The Orbit tool (with an IP routing license) may also be used to configure the IP input and output spigots of the module in a media network, using an Orbit IP routing project.

Orbit Projects

All layout information, settings and design information is stored in an Orbit project.

Projects can be created from scratch, opened from PC storage or pulled from a device. A project may be viewed and edited in Orbit in 'design mode'. When editing is complete, the project can be saved to the local PC storage and pushed to a device that Orbit is connected to.

Project Names

The project name is used as an identifier by Orbit. Project names should be meaningful, concise and unique. Use unique project names for each device (for example, for each multiviewer).

When a project is opened in Orbit, the project name may be edited, if required. This forms a new, separate Orbit project.

Note: If a default project has been pulled from a multiviewer, re-name the project before pushing it back to the multiviewer.

CAUTION

Local projects, projects on devices, or copies of projects that have the same project name are treated as being versions of the same project by Orbit.

Opening an Orbit Multiviewer Project

Orbit aims to keep a project up to date. If there are any differences between a project open in Orbit and the same-named project on a connected device, then the user is required to resolve a difference by choosing between projects before proceeding to edit the project.

When opening a project, Orbit follows a sequence of actions:

- 1 Orbit attempts to connect to the specified device (For example, to a multiviewer).
- 2 Orbit checks for a project with the same name.
- 3 Orbit checks for any differences between a local project and the device's project.
- 4 Orbit warns the user if a local project and a project on a connected device differ.
- 5 Orbit prompts the user to decide which copy of the project is to be edited.

Multiviewer Projects

Specific IQ multiviewer projects are used for IQUCP-MV multiviewer applications.

Aspects of a multiviewer project include: user management, video walls, graphical tiles, graphical widgets, on-screen appearance styling, and deploying a project.

Technical Specification

Additional IQUCP25 specifications for the IQUCP25-MV are given here.

Video Inputs

Table 4-7: Video Input Standards

Video Input	Standard
SD	525i59.94, 625i50
HD:	
SMPTE 296	720p23.98/24/25/29.97/30/50/59.94/60
SMPTE 274	1080i50/59.94/60
	1080sF23.98/24/25/29.97/30
	1080p23.98/24/25/29.97/30
3G-A	1080p50/59.94/60
UHD-1 (Quad-link)	1080p50/59.94/60

Table 4-8: Video IP Standards at "IP Rx" Spigots

IP Spigot	Standard
Receiving MV video inputs (destination spigots, IP Rx)	2022-6, -7 2110-20, -30, -40.

Table 4-9: Media Network Video IP Input Capacity for IQUCP25-MV

Video Input Resolution	Number of Multiviewer Video IP Inputs on Media Network Connection		
	No network redundancy		Network redundancy
	1x 25G	2x 25G	25G + 25G
1080i50/59.94	12	12	12
720p50/59.94	12	12	12
1080p50/59.94	8	12	8

Multiviewer Head Display Outputs

Table 4-10: MV Head Display Output Standards

Head Display Output	Standard
3G	1080p50/59.94/60
UHD-1 (Quad-link)	1080p50/59.94/60

Table 4-11: Video IP Standards at "IP Tx" Spigots

IP Spigot	Standard
Sending MV head display outputs (source spigots, IP Tx)	2022-6, -7 2110-20, -30

Ethernet Interfaces

Table 4-12: Default IP Addresses

Interface	Default IP Address
SFP-1 (Media Network interface)	DHCP
SFP-2 (Media Network interface)	DHCP
IQ Frame Gateway	IP address determined by IQ hosting frame.
Front Card Interface (for Grass Valley Engineering Use Only)	DHCP

RollCall Templates - IQUCP25 'Base Module' (on IP port 2050)

This section describes each RollCall template of the IQUCP25 *base module*. (For MV SDC templates, see [RollCall Templates - MV SDC Multiviewer \(on IP port 2051\)](#), on page 154.)

[Introduction](#), on page 77

[Configuration Template](#), on page 80

[Time Sync Configuration Template](#), on page 83

[Multiviewer Configuration Template](#), on page 87

[Sender TPG \(Test Pattern Generator\) Template](#), on page 89

[Counters Template](#), on page 91

[FEC Template](#), on page 93

[Ethernet 1 and 2 Templates](#), on page 95

[Ethernet 1 and 2 RTP Sender Templates](#), on page 99

[Ethernet 1 and 2 RTP Receiver Templates](#), on page 100

[Ethernet RTP Receiver Video Stats Template](#), on page 101

[Ethernet RTP Receiver Audio Stats Template](#), on page 102

[Ethernet RTP Receiver Meta Stats Template](#), on page 103

[Link Control Template](#), on page 104

[Destination Timing Template](#), on page 105

[Audio V Fade Template](#), on page 107

[Audio Rate Adaption Template](#), on page 108

[Input Loss Control Template](#), on page 109

[Spigot 1 to 16 Templates](#), on page 110

[Source Spigot Template \(Spigots 1 to 4\)](#), on page 111

[Destination Spigot Template \(Spigots 5 to 16\)](#), on page 117

[Logging - SDI Info Template](#), on page 124

[Logging - System Template](#), on page 125

[Logging - Network Template](#), on page 129

[Logging - SFP Template](#), on page 131

[Logging - FPGA Template](#), on page 134

[Logging - Spigot 1 to 16 Templates](#), on page 135

[Logging - Card Diagnostics Template](#), on page 139

[RollTrack Template](#), on page 140

[Loopback Router Template](#), on page 143

[Setup Template](#), on page 144

[Ethernet Gb Template](#), on page 146

[Ethernet ArcNet Template \(Not used\)](#), on page 147

[Interop Template](#), on page 148

[SFP Configuration Template](#), on page 151

Note: RollCall Control Panel:

The Grass Valley RollCall Control Panel tool is part of the RollCall Suite. (For installation instructions, see the "RollCall V4 Suite & RollCall Lite" Introduction manual.)

Install the RollCall Control Panel software on your computer. See the RollCall Control Panel User Manual and contact Grass Valley Support for information.

Note: Grass Valley Orbit:

The Grass Valley Orbit software tool is used to configure Grass Valley products. RollCall templates may be viewed and used via Orbit.

Introduction

This section describes the RollCall templates of the IQUCP25 base module *when a MV SDC licensed is applied*, i.e. for a IQUCP25-MV. Licensing is described as part of the 'Getting Going' procedure, see [Getting Going](#), on page 169.

The templates enable the IP spigots of the base module to be configured for multiviewer applications. Figure 4-10 shows the initial RollCall template shown in the Grass Valley RollCall Control Panel browser tool.

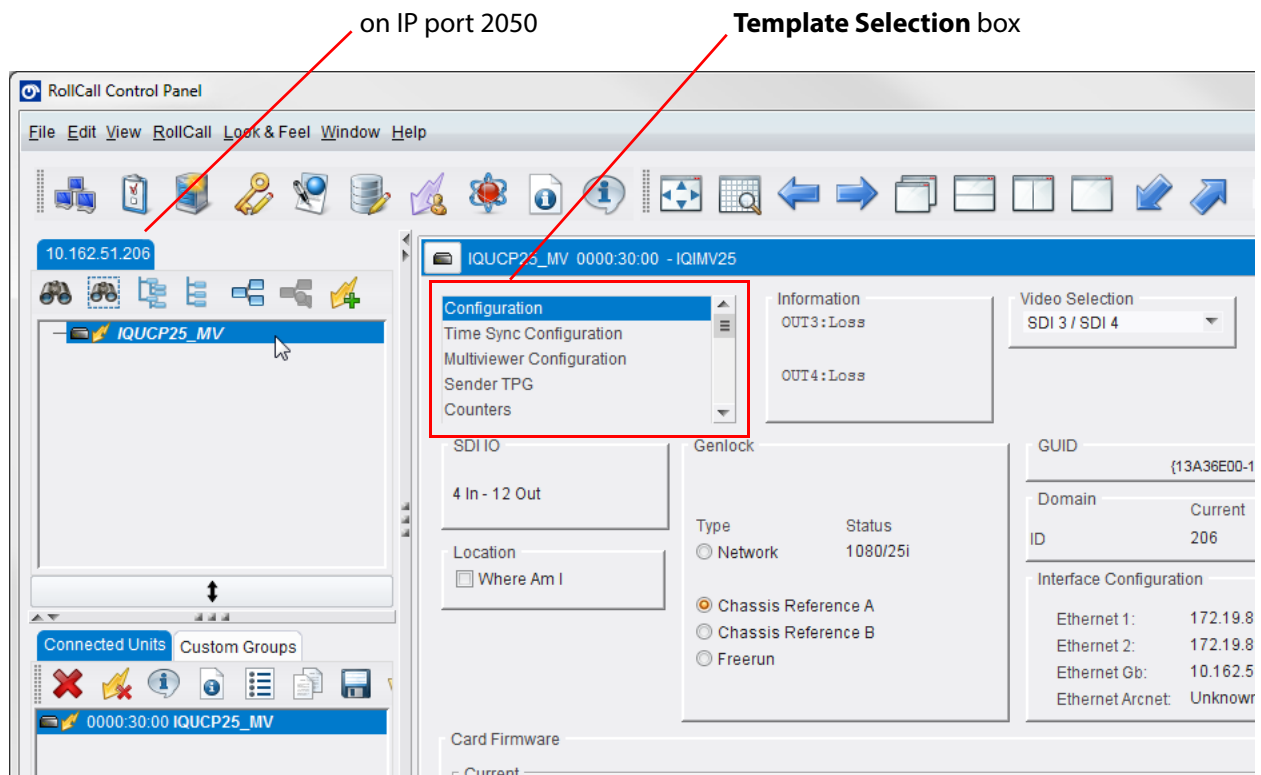


Fig. 4-10: Initial IQUCP25 Base Module Template

The RollCall templates of the IQUCP25 base module for the IQUCP25-MV product are derived from the templates of the *generic* IQUCP25 module with the following fixed spigot configuration:

- **Spigots 1 to 4** source up to 4 video IP signals.
These form the multiviewer head display output video IP streams.
- **Spigots 5 to 16** receive up to 12 video IP signals.
These are multiviewer video inputs 1 to 12.

Navigating to RollCall Template Screens

When RollCall has connected to a device, several template screens are available, listed in the **Template Selection** box (see [Figure 4-10](#) on page 77).

Click on an item in the **Template Selection** box to go to that template screen.

Alternatively, right-click in a template screen and a pop-up list of the unit's template screens is shown. Click on an item in the list to go to that template screen. (The full list is shown in Figure 4-11.)

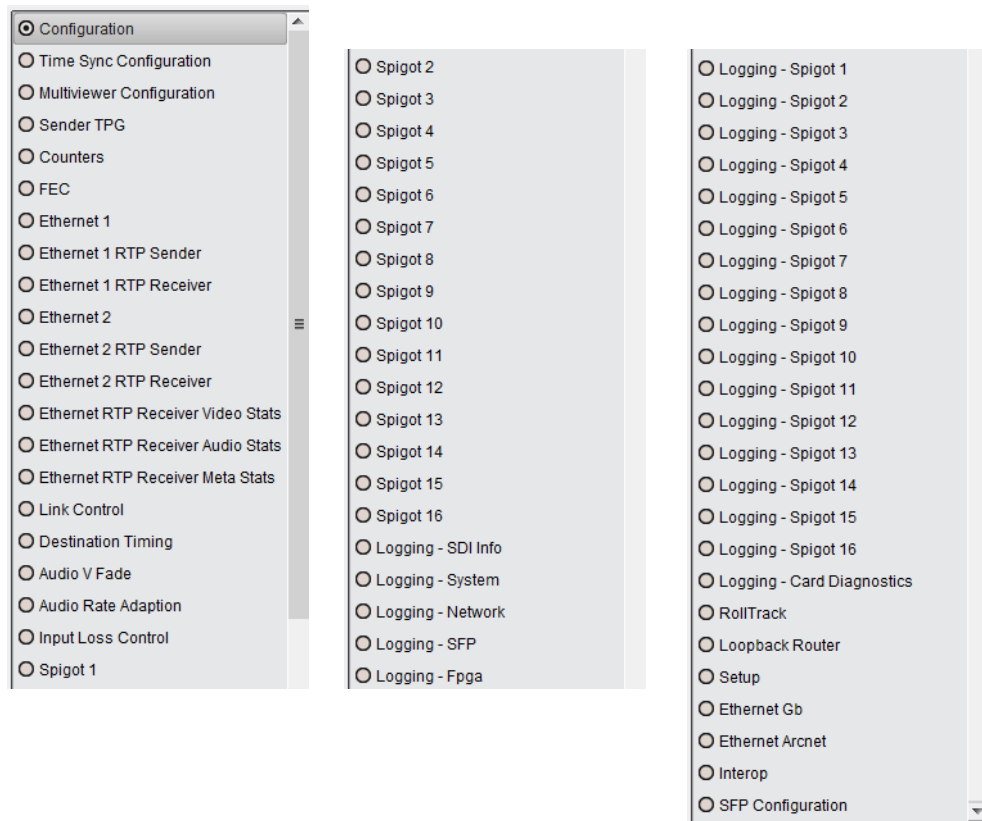


Fig. 4-11: Pop-up list of Template Screens

Setting Values in Templates

Many parameters within the templates have values, either alpha or numeric. When entering a value (text or numeric), type the value into a text box and then it must be entered by pressing the ENTER key, or by clicking the **S Save Value** button. (Clicking an associated **P Preset Value** button enters the value to the factory default setting.)

Common Information Display

An **Information Display** area appears at the top of each template screen and shows basic information about the input, standard and status of the IQUCP25 base module.

The information displayed is selected via the **Video Selection** box and **Information Selection** box, and is shown in the **Information** box. See Figure 4-12 and Table 4-13.

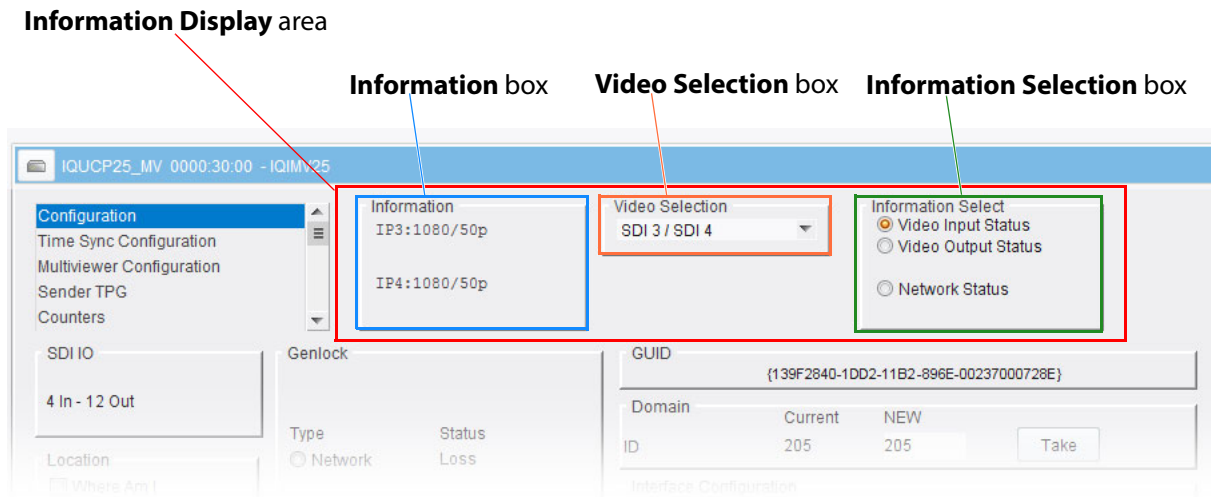


Fig. 4-12: Common Information Display Area

Table 4-13: Selecting Information to Display

Selection Control	Description
Video Selection	Drop-down box. Select the pair of SDI channels on the IQUCP25 base module to display. Selection range: ' SDI 1/SDI 2 ' to ' SDI 11/ SDI 12 '. (SDI 13 to SDI 16 are unused and 'not applicable' (N/A) for the IQUCP25-MV.)
Information Select	Radio buttons. Select the type of information to show: • Video input status. See Note 1. • Video output status. See Note 2. • Network status. IP addresses of the network interfaces used.
Note 1:	'Video inputs' are considered to be video signals <i>from</i> the MV SDC. Thus, 'SDI 1' to 'SDI 4' 'video inputs' are the MV SDC's head display outputs.
Note 2:	'Video outputs' are considered to be video signals <i>to</i> the MV SDC. Thus, 'SDI 1' to 'SDI 12' 'video outputs' are the MV SDC's 12 multiviewer video inputs.

Configuration Template

The **Configuration** template screen allows basic IQUCP25 parameters to be set.

Configuration

- Time Sync Configuration
- Multiviewer Configuration
- Sender TPG
- Counters

SDI IO

4 In - 12 Out

Location

☐ Where Am I

Genlock

Type	Status
☐ Network	1080/25i
☒ Chassis Reference A	
☐ Chassis Reference B	
☐ Freerun	

GUID

{13A36E00-1DD2-11B2-B7E8-002370007292}

Domain

ID	Current	NEW
206	206	

Interface Configuration

Ethernet 1:	172.19.83.84
Ethernet 2:	172.19.81.84
Ethernet Gb:	10.162.51.206
Ethernet Arcnet:	Unknown

Card Firmware

Current

12M0, IQIMV-10 0012-EDA57A18.tib

New

12M0, IQIMV-10, 1st-stage gtx improvement

12M0, revised audio mapping tables

Card must be restarted before changes to firmware will become active

Software Version

Current

14.43.83::0.23.5 team-city build, FPGA ver=20181205

Product IQUCP25_MV **License Loaded** OK

New

14.43.83::0.23.5 team-city build, FPGA ver=20181205

14.43.83::0.23.4 team-city build, FPGA ver=20181205

14.43.83::0.23.3 team-city build, FPGA ver=20181205

14.43.83::0.23.2 team-city build, FPGA ver=0012-3DA4FA79

14.43.83::0.23.1 team-city build, FPGA ver=0012-3DA4FA79

Product IQUCP25_MV **25G Licensed Option Needed** Signal Monitoring

Card must be restarted before changes to software will become active

Installed 25G Licensed Options

Licensed Option Essence Processing

Licensed Option Signal Processing

Licensed Option Network Processing

Licensed Option Signal Monitoring

Fig. 4-13: Configuration Template

The various sections of this template are described in Table 4-14, and Table 4-15.

Table 4-14: Configuration Template Settings

Configuration Setting	Operation
SDI IO	Displays how the SDI channels of the IQUCP25 base module are currently configured: '4 In - 12 Out' for IQUCP25-MV Explanation: • 4 In - 4-off MV SDC multiviewer head outputs come from the MV SDC function and go into the IQUCP25 base module. These four channels will use source spigots. • 12 Out - 12-off MV SDC multiviewer inputs come from the IQUCP25 base module and go into the MV SDC function. These 12 channels will use destination spigots.
Location: Where Am I	• Check box. • Select to flash front and rear LED indicators of the IQUCP25-MV module. This aids location of the module in a rack. • Deselect to stop flashing.
Genlock	Radio buttons. Select Genlock type: • Network - click to select PTP. • Chassis Reference A - click to select IQ frame reference A. • Chassis Reference B - click to select IQ frame reference B. • Freerun - click to allow free running.
GUID	Displays the absolute unique identifier associated with the IQUCP25-MV module.
Domain	To set a new RollCall+ domain number (ID): 1 Set a new RollCall+ ID in the text field. 2 Press Take to confirm the change.
Interface Configuration	Displays the IP addresses of the network interfaces: • Ethernet 1 • Ethernet 2 • Ethernet Gb (Card front, for Grass Valley engineering use only.) • Ethernet Arcnet (Interface is not used).
Note 1:	RollCall+ uses domains to partition a RollCall+ network; only devices on the same RollCall+ domain can communicate with one another. A domain is uniquely identified with a number and a friendly name/alias.

Table 4-15: Configuration Template Settings - Card Firmware and Software Version

Configuration Setting	Operation
Card Firmware	The current firmware version is shown highlighted. Each software version may contain multiple firmware images. Typically, there is one firmware image for an IQUCP25-MV module. (Multiple images may be stored on the module.) For an IQUCP25-MV module, the firmware configures the IQUCP25 base module inputs and outputs. Note: Selecting a firmware version is <i>not</i> normally required for IQUCP25-MV. To use a new card firmware: 1) Select the firmware item in the list. Note: Buttons Restore and Restart are only displayed when a 'not-currently-loaded' item is selected. 2) Click Restore to load the selected firmware version. 3) Click Restart to restart the Video IP block.
Software Version	Each software version may contain multiple firmware images. The current software version is shown highlighted in the list. To use a new software version: 1) Select the required software version in the list. Note: Buttons Restore and Restart are only displayed when a 'not-currently-loaded' item is selected. 2) Click Restore to load the selected software version. 3) Click Restart to restart the Video IP block.
Installed 25G Licensed Options	Shows which license options are installed on the IQUCP25 module.

Time Sync Configuration Template

The **Time Sync Configuration** template allows selection of the source signal to be used for synchronizing IP flows through the IQUCP25-MV module, and the configuration of any properties associated with the relevant source.

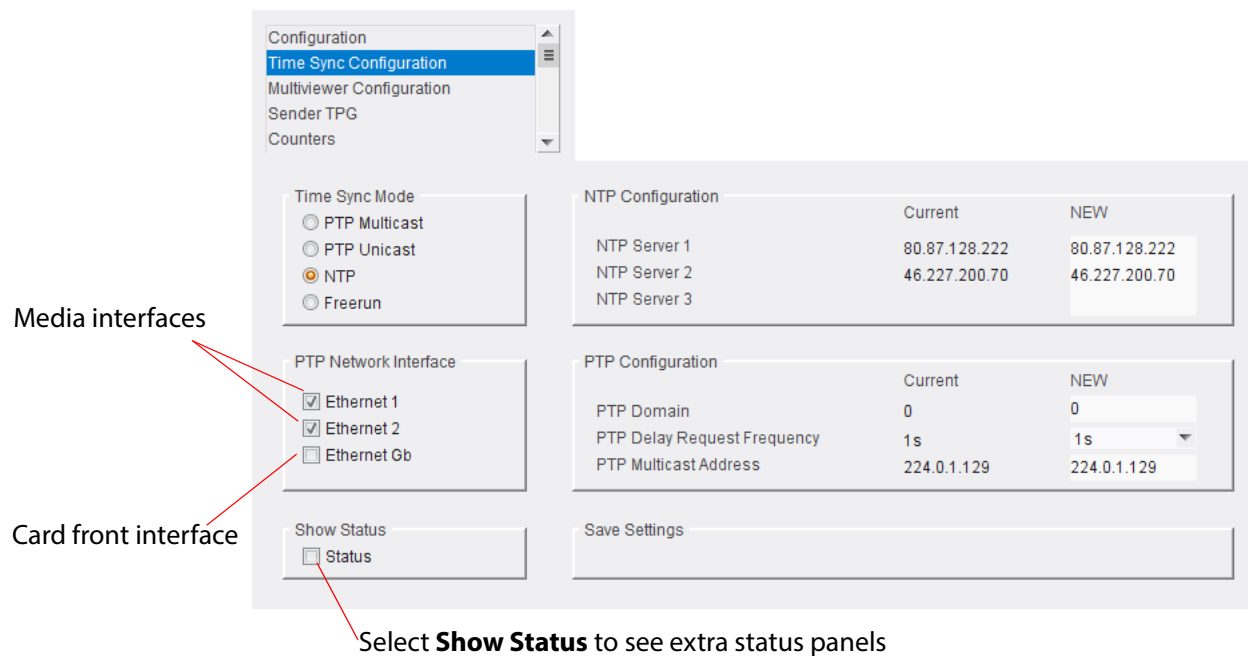


Fig. 4-14: Time Sync Configuration Template

Table 4-16: Time Sync Configuration Template Settings

Time Sync Configuration Setting	Operation
Time Sync Mode	Radio buttons. Select the required time sync mode. Note: Precision Time Protocol (PTP) options require a grandmaster clock to be present in the network system.
NTP Configuration	Network Time Protocol (NTP) servers are listed. To add a new NTP server: - Enter server's IP address into the New field. Restart the template, see 'Save Settings' table entry below.

Table 4-16: Time Sync Configuration Template Settings (continued)

Time Sync Configuration Setting	Operation
PTP Network Interface	Check boxes. Select one or more required network interfaces for Precision Time Protocol (PTP) data traffic. If a network interface fails, the next interface on the list will be switched to automatically for PTP data traffic.
PTP Configuration	PTP information is listed. • PTP Domain - Enter the PTP clock domain number. • PTP Delay Request Frequency - Select the duration in the drop-down list. • PTP Multicast - Enter the PTP Multicast server IP address.
Show Status	Check box. Select to display time sync status information in the template. See Time Sync Status Panel, on page 84.
Save Settings:	These controls are only displayed only if settings on this template are changed.
Restore	Button. Click Restore to discard settings changes made in the template.
Restart	Button. Click Restart to implement settings changes made in the template and restart the IQUCP25-MV module.

Time Sync Status Panel

Select **Show Status** in the **Time Sync Configuration** template to display extra status panels which show system time status information. See Figure 4-15.

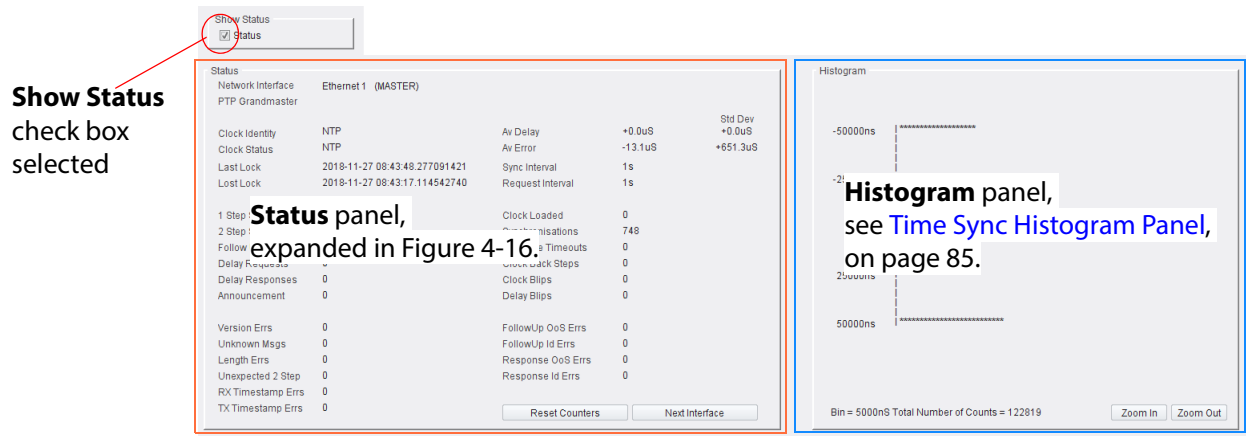


Fig. 4-15: Show Status Selected - Extra Time Sync Status Information Panel

Timing status information shown for the network interface shown here.

Click **Next Interface** button to see status of next network interface.

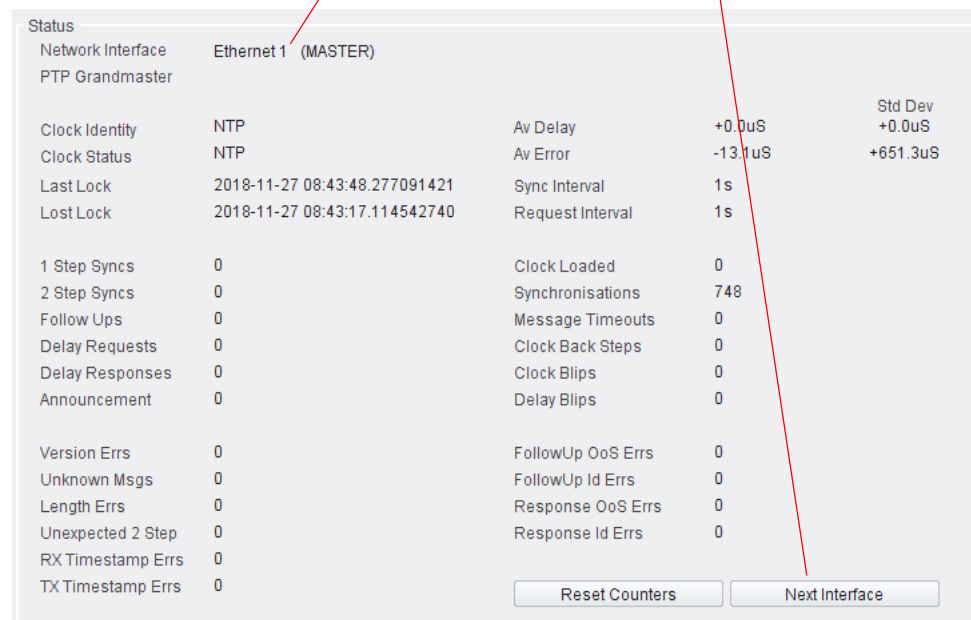


Fig. 4-16: Status Panel

To see the status of another network interface of the IQUCP25-MV in the **Status** panel:

- Click the **Next Interface** button. (This cycles through the interfaces.)

Time Sync Histogram Panel

Select **Show Status** in the **Time Sync Configuration** template to display extra status panels showing important system time status histogram information on a single convenient panel. See Figure 4-17.

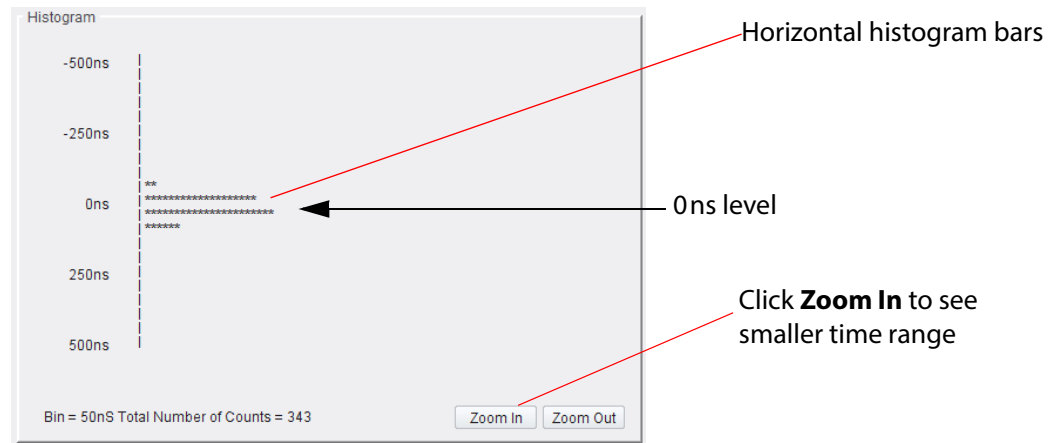


Fig. 4-17: Time Sync Status - Histogram Panel

The **Histogram** panel is located to the right of the **Status** panel and it provides a graphical representation of the distribution of differences between the IQUCP25-MV's own clock and the network system's PTP grandmaster clock. The histogram is available when a IQUCP25-MV's clock is locked to the master clock.

Use the **Zoom-in** and **Zoom-out** button controls to see the corresponding histogram.

Every time a clock time sync difference is recalculated, the relevant horizontal histogram bar is incremented and shown.

A correctly functioning system will show a distinct peak around the 0ns level.

Multiviewer Configuration Template

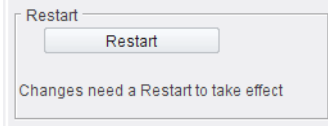
The **Multiviewer Configuration** template configures MV SDC-related settings on the IQUCP25 base module.

Fig. 4-18: Multiviewer Configuration Template

Table 4-17: Multiviewer Configuration Template Settings

Configuration Setting	Operation
RollCall Display Name	Name to be displayed (for example, in RollCall Control Panel) for the MV SDC RollCall templates. 1) Enter the name in the text field. 2) Press S. (Press P to enter the factory default.) Remember to Restart to make changes take effect. See below.
Multiviewer Control Interface	Radio buttons. Select the control interface to use for the MV SDC. • 1G - Card front interface. (For Grass Valley engineering use only.) • Ethernet 1 - SFP 1 rear interface. • Ethernet 2 - SFP 2 rear interface.
RollCall Logging Domain	Enter RollCall domain to use for logging data (by the IQUCP25 base module). Remember to press S to save a settings change in the template. Press Restart to apply template changes to module. (Press P to enter the factory default.)

Table 4-17: Multiviewer Configuration Template Settings (continued)

Configuration Setting	Operation
Restart	Button. Press Restart to restart the IQUCP25-MV module for changes made in this template to take effect. 

Sender TPG (Test Pattern Generator) Template

The **Sender TPG** template allows test patterns to be applied on a spigot-by-spigot basis at source spigots (senders of IP streams). There are four spigot test pattern panels, corresponding to the four source spigots configured for multiviewer head display output. See Figure 4-19a and b.

Note: When a test pattern is applied to a spigot (either a video test pattern or an audio test tone), then that test pattern appears on the IP flow from that spigot and the spigot cannot be used for video streaming any other IP flow.

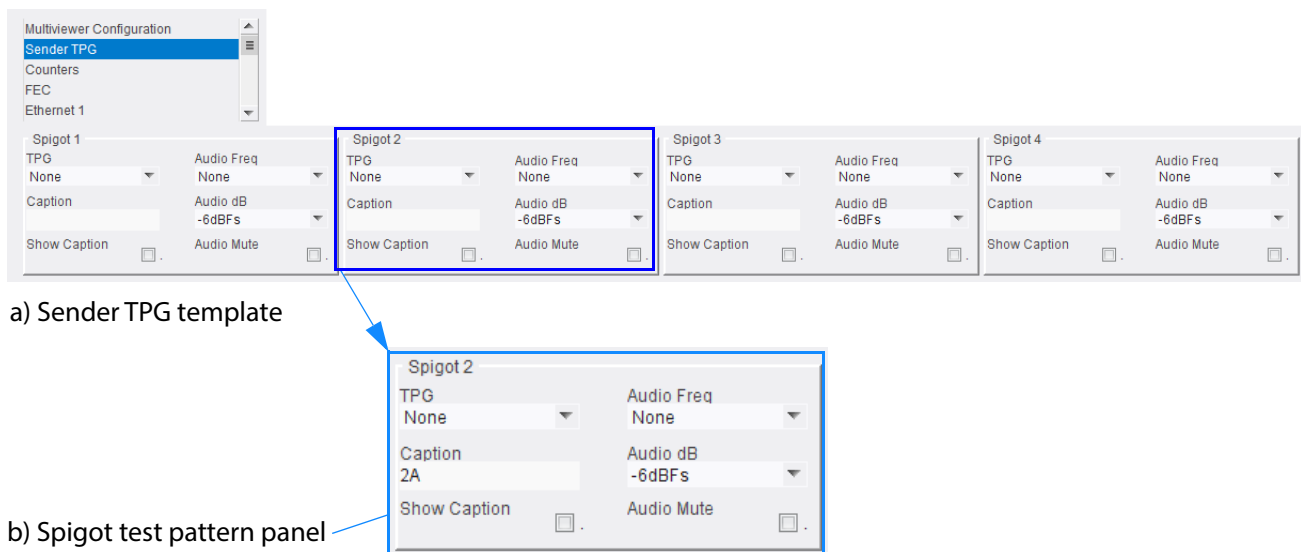
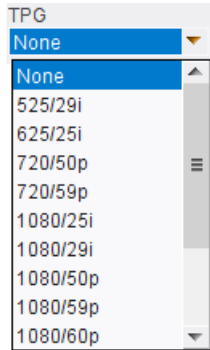
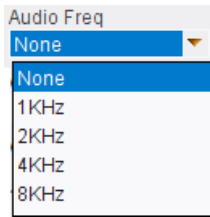
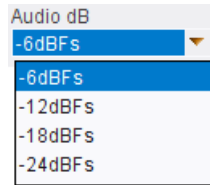


Fig. 4-19: TPG Template and Spigot Test Pattern Panel:
a) Sender TPG Template.
b) Spigot Test Pattern Panel.

The video test pattern is 'moving color bars'. The TPG options are available for each source (sender) spigot are described in Table 4-18, and include an audio test tone and text caption overlay.

Note: The test patterns will appear at IP outputs; they do not appear at HD-BNC outputs.

Table 4-18: Spigot Panel TPG Settings

Spigot Test Pattern Setting	Operation
TPG	Select the video standard of the 'moving color bars' test pattern to apply to the spigot from the drop-down list. Select 'None' to turn off the test pattern.  Note: Different video standards may be selected for the test pattern, if required. But, for normal operation, the multiviewer head display outputs from the MV SDC support high resolution video standards. Please refer to IQUCP25-MV Module Description, on page 64.
Audio Freq	Select the audio frequency for the audio test tone signal to apply to the spigot. 
Caption	Enter a caption (maximum 19 characters) to optionally be overlaid onto the video test pattern.
Audio dB	Select the audio dB level to apply to the spigot. 
Show Caption	Select to display the Caption with the test pattern.
Audio Mute	Select to mute the audio tone.

Counters Template

The **Counters** template contains controls to clear various global counters on IQUCP25 base module templates. These count various types of error conditions that might occur.

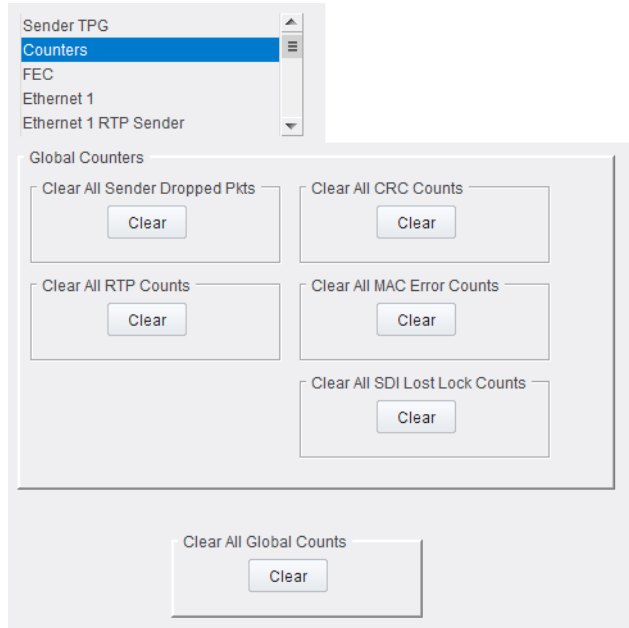


Fig. 4-20: Counters Template

Table 4-19: Counters Template Settings

Control	Click to clear the counters for ...
Clear All Sender Dropped Pkts	Sender dropped data packets counters. Counts the number of data packets an IP sender has had to drop. For example, if an IP connection were over-subscribed, a sender may drop data packets to prevent the total IP sending bandwidth being exceeded.
Clear All CRC Counts	CRC counters. These count any SDI video CRC errors in the <i>internal</i> MV SDC multiviewer head display output video signals (i.e. from the MV SDC to the IQUCP25 base module).
Clear All RTP Counts	All RTP packet counters. Counts jumps in an Real-time Transport Protocol (RTP) packet ID sequence in an IP flow. This indicates any lost, dropped or out-of-sequence RTP packets. Counters are found on RTP Receiver and Ethernet templates.

Table 4-19: Counters Template Settings (continued)

Control	Click to clear the counters for ...
Clear All MAC Error Counts	All MAC error counters. Counts packets marked as bad, for example, for a data packet CRC error. (Such an error is normally also accompanied by an RTP error because a packet would be dropped.)
Clear All SDI Lost Lock Counts	All SDI lock error counts. Counts the number of times an (internal) SDI signals to the MV SDC comes and goes. (Counters are found on the sending spigots templates, 'Spigot 1' to 'Spigot 4'.)
Clear All Global Counts	All the global counts.

FEC Template

The **FEC** template allows forward error correction (FEC) to be enabled on a spigot and FEC logging to be activated, if required. FEC is implemented to clause 108 (RS) or clause 74 FEC of IEEE 802.3. FEC statistics are also available.

Counters

- FEC
- Ethernet 1
- Ethernet 1 RTP Sender
- Ethernet 1 RTP Receiver

FEC Clause 74

Control

- Off
- On

Status

- SFP 1LOCK
- SFP 2LOCKERROR

FEC Stats

SFP 1 (Ethernet 1)

- Corrected32228
- Uncorrected3162

SFP 2 (Ethernet 2)

- Corrected0
- Uncorrected0

Enable Stats

- ☐

Clear Count

FEC Logging

SFP 1

- ☒ Fec 1 Corrected ErrorsFEC_1_CORRECTED_ERRORS=45590
- ☒ Fec 1 Uncorrected ErrorsFEC_1_UNCORRECTED_ERRORS=34802

SFP 2

- ☒ Fec 2 Corrected ErrorsFEC_2_CORRECTED_ERRORS=0
- ☒ Fec 2 Uncorrected ErrorsFEC_2_UNCORRECTED_ERRORS=0

Fig. 4-21: FEC Template

Table 4-20: FEC Template Settings

FEC Setting	Description
FEC Clause 74	Radio buttons. For using low-latency FEC Clause 74 error correction. - Select On to enable FEC. - Select Off to disable FEC.

93

Table 4-20: FEC Template Settings (continued)

FEC Setting	Description
Status	Displays the lock status for each SFP.
FEC Stats	Displays the number of corrected and uncorrected errors received via each SFP module. Check box. • Select Enable Stats to activate the display. • Click Clear Count to clear the counters.
FEC Logging	Enables logging of FEC information to a logging device connected to the RollCall network. The number of corrected and uncorrected FEC errors are logged on a 'per SFP' basis. Select the check boxes to activate log fields, as required. Available log fields are: • FEC_1_CORRECTED_ERRORS, FEC_1_UNCORRECTED_ERRORS; • FEC_2_CORRECTED_ERRORS, FEC_2_UNCORRECTED_ERRORS.

Ethernet 1 and 2 Templates

Note: **Ethernet 1** and **Ethernet 2** templates are for the two media network connections to each IQUCP25-MV.

Both the **Ethernet 1** and **Ethernet 2** templates show IP configuration details and status for a media network interface. The IQUCP25-MV defaults to use DHCP for the interface, but this can be overridden and a static IP address can be defined if required.

Link name

Select to locate the module and link

Ethernet 1

Ethernet 1 RTP Sender

Ethernet 1 RTP Receiver

Ethernet 2

Ethernet 2 RTP Sender

Ethernet

Rear - SFP 1

Current

New Static

IP Address 172.19.83.84 172.19.83.84

Default Gateway 172.19.254.1 172.19.254.1

Subnet Mask 255.255.0.0 255.255.0.0

MAC Address 00:23:70:00:72:91

Mode STATIC

Link Status UP

SFP Status OK

SFP Fitted OK

Location

☒ Where Am I

New Mode

☐ DHCP

☒ Static

Restart

NOTE: DHCP / static takes effect on restart

Clear Link Change Count

Link Change Time 2018-12-19T16:38:06

Link Change Count 5

See Ethernet Panel, on page 96

Switch LLDP Info

See Switch LLDP Info Panel, on page 97

Name - ID - Port ID - Port VLAN -

All Traffic

See All Traffic Panel, on page 98

	Capacity	Gb/s	Actual (Mb/s)	Used %	Free %	Enable Stats ☒
Sender	25		0.00	0.00	100.00	
Receiver	25		6715.27	26.86	73.14	

CPU Traffic

See CPU Traffic Panel, on page 98

	Sent	Received
Total Unicast Packets	13	0
Total Broadcast Packets	417	0
Total Multicast Packets	32550	32276
Total Bytes	14927102	14782408
Bytes / sec	0	458

Fig. 4-22: Ethernet 1 or Ethernet 2 Template (Ethernet 1 Template shown)

The various panels in the template are described below:

- **Ethernet** panel - see [Ethernet Panel](#), on page 96.
- **Switch LLDP Info** panel - see [Switch LLDP Info Panel](#), on page 97.
- **All Traffic** panel - see [All Traffic Panel](#), on page 98.
- **CPU Traffic** panel - see [CPU Traffic Panel](#), on page 98.

Ethernet Panel

The **Ethernet** panel displays details of the media network interface (i.e. **Ethernet 1** or **Ethernet 2**) and allows a static IP address to be defined. Additionally some summary Ethernet link status and SFP transceiver status is shown.

Additionally a 'Where Am I' Check box provides the facility to physically locate an IQUCP25-MV module and its specific Ethernet link.

Table 4-21: Ethernet Panel Settings and Controls

Ethernet Panel Item	Description
IP Address	Shows current IP address of the network interface. Allows entry of a new, static IP address. Click S to enter a new value into the text box.
Default Gateway	Shows current default gateway IP address. Allows entry of a new default gateway IP address. Click S to enter a new value into the text box.
Subnet Mask	Shows current subnet mask of the network interface. Allows entry of a new mask. Click S to enter a new value into the text box.
MAC Address	Shows the MAC address of the interface.
Mode	Shows the current mode of the network interface: DHCP or Static.
Link Status	Reports network link status: UP or DOWN.
SFP Status	Reports the status of the designated SFP cage/transceiver: • OK • Fail
SFP Fitted	Reports the fitted status of a SFP cage/transceiver: • OK • Not Fitted
Location: Where Am I	Check box. Select to locate the Ethernet link. When selected, the IQUCP25-MV module flashes front and rear LED indicators for the Ethernet link.
New Mode: DHCP Static	Radio buttons. Note: Changes take effect after clicking Restart (see table entry below). Select for DHCP interface mode. Select for static interface mode.

Table 4-21: Ethernet Panel Settings and Controls (continued)

Ethernet Panel Item	Description
Clear Link Change Count	
	Button. Click to clear the link status change count.
Link Change Time	Shows date and time of the last network link up or link down status change.
Link Change Count	Counts number of times the network link has changed state (link up or link down).
Restart	Button. Click to make any IP address and mode setting changes take effect.

Change Network Interface Mode

To change the mode of a network interface:

- 1 Select **DHCP** or **Static** for a new mode, as required.

Then, as applicable:

- 2 Enter IP address information and click **S** to save.
- 3 Enter default gateway information and click **S** to save.
- 4 Enter subnet mask information and click **S** to save.

The new DHCP/static settings are applied when **Restart** is clicked and the IQUCP25-MV module has restarted.

Switch LLDP Info Panel

The **Switch LLDP Info** panel displays information about the network IP switch connected to the media network interface(s). Information is obtained via the LLDP (Link Layer Discovery) protocol. See Figure 4-23.

Switch LLDP Info					
Name	Arista7504R	ID	-	Port ID	Ethernet4/18/3
				Port VLAN	164

Fig. 4-23: IP Switch LLDP Info Panel

Table 4-22: IP Switch LLDP Panel Settings

IP Switch LLDP Item	Description
Name	Shows the name assigned to the network IP switch.
ID	Shows the IP switch ID.
Port ID	Shows the IP switch port ID.
Port VLAN	Shows the VLAN ID number used by the network interface.

All Traffic Panel

Select **Enable Stats** in the panel to display information on traffic through the IQUCP25-MV module network interface links. See Figure 4-24.

Enable Stats

All Traffic							
	Capacity	Gb/s	Actual (Mb/s)	Used %	Free %	Enable Stats	☒
Sender	25		0.00	0.00	100.00		
Receiver	25		6715.27	26.86	73.14		

Fig. 4-24: All Traffic Panel

CPU Traffic Panel

When **Enable Stats** is selected in the **All Traffic** panel, the **CPU Traffic** panel displays information on traffic through the CPU of the IQUCP25-MV module. See Figure 4-25.

CPU Traffic			
	Sent		Received
Total Unicast Packets	1686638		Total Unicast Packets 278580
Total Broadcast Packets	14		Total Broadcast Packets 151086
Total Multicast Packets	2443		Total Multicast Packets 345778
Total Bytes	867422258		Total Bytes 260189070
Bytes / sec	183430		Bytes / sec 50456

Fig. 4-25: CPU Traffic Panel

Ethernet 1 and 2 RTP Sender Templates

The **Ethernet 1 RTP Sender** and **Ethernet 2 RTP Sender** templates display the amount of data transmitted on a spigot-by-spigot basis. Units are Mbits per second.

An IQUCP25-MV module transmits 'multiviewer head display output' video IP data packets on spigots 1 to 4.

- Select **Enable Stats** in the template to display values.

See Figure 4-26.

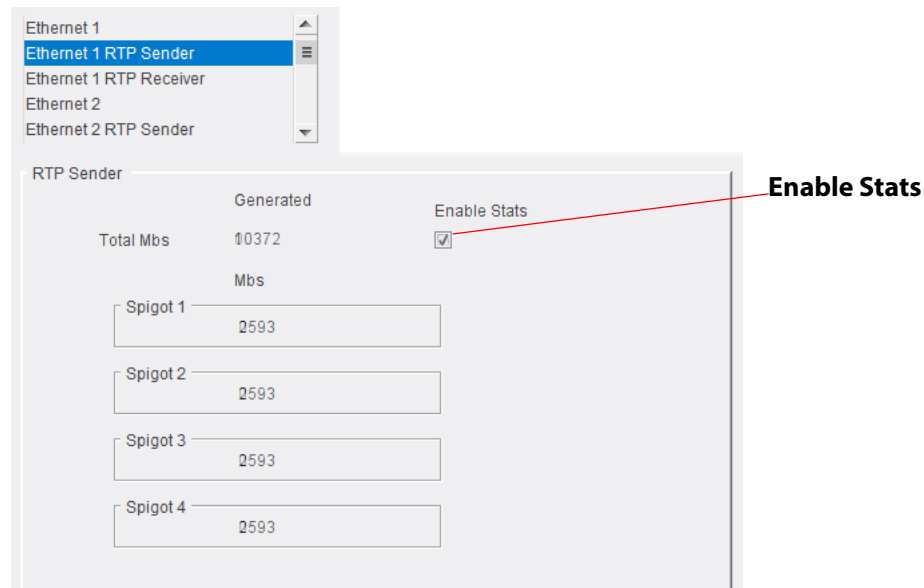


Fig. 4-26: Ethernet 1 or 2 RTP Sender Template

Ethernet 1 and 2 RTP Receiver Templates

The **Ethernet 1 RTP Receiver** and **Ethernet 2 RTP Receiver** templates display information on a spigot-by-spigot basis about:

- the amount of data received;
- packet loss; and
- any unwanted multicast traffic.

Units are Mbits per second.

IQUCP25-MV modules receive video IP data packets on spigots 5 to 16.

- Select **Enable Stats** to display the values.

The screenshot shows the 'Ethernet 1 RTP Receiver' template interface. A sidebar on the left lists navigation options: FEC, Ethernet 1, Ethernet 1 RTP Sender, **Ethernet 1 RTP Receiver** (selected), and Ethernet 2. The main panel displays statistics for the RTP Receiver. Annotations with red arrows point to specific elements: 'Enable Stats' points to the 'Enable Stats' checkbox; 'Click to instantaneously clear the RTP Count' points to the 'Clear RTP Count' button; and 'Click to clear the MAC Error Count' points to the 'Clear Error Count' button.

RTP Receiver	
Total Received RTP Rate (Mbs)	6544
Total Received RTP Pkt Rate	552851
RTP Sequence Discontinuity Count	286617
Mac Error Count	65535

Unwanted Multicast Traffic

Multicast Drop Rate (Mbs)	Multicast Drop Pkt Rate
0	0

Last Few Dropped Packets

Source IP	Source Port	Destination IP	Destination Port	Packet Type
172.19.83.82	45000	239.4.7.22	45000	17
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

Fig. 4-27: Ethernet RTP Receiver Template

Ethernet RTP Receiver Video Stats Template

The **RTP Receiver Video Stats** template displays information on the video IP flows to both network interfaces 1 and 2 of the IQUCP25-MV module on a spigot-by-spigot basis.

- Select **Enable Stats** to display the values.

Ethernet 1 stats

Ethernet 2 stats

Enable Stats

Video Stats

Spigots

Spigots	Flow ID
5	1
6	2
7	-
8	-
9	5
10	6
11	7
12	8
13	-
14	-
15	-
16	-

Ethernet 1

Byte Rate (Mbs)	RTP Discontinuity Count
208	65535
1008	65535
-	-
-	-
1048	65535
1048	65535
2104	65535
1048	65535
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Ethernet 2

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Clear All RTP Counts

Click to clear the RTP discontinuity counts

Fig. 4-28: Ethernet RTP Receiver Video Stats Template

Ethernet RTP Receiver Audio Stats Template

The **RTP Receiver Audio Stats** template displays information on the audio IP flows to the network interfaces 1 and 2 of the IQUCP25-MV module on a spigot-by-spigot basis. It is similar to the 'video stats' template in format.

- Select **Enable Stats** to display the values.

Ethernet RTP Receiver Audio Stats Template

Enable Stats ☒

Spigots	
Spigots	Flow ID
5	1
6	2
7	-
8	-
9	5
10	-
11	-
12	-
13	-
14	-
15	-
16	-

Ethernet 1	
Byte Rate (Mbs)	RTP Discontinuity Count
16	0
16	0
-	-
-	-
16	0
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Ethernet 2	
Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Fig. 4-29: Ethernet RTP Receiver Audio Stats Template

Ethernet RTP Receiver Meta Stats Template

The **RTP Receiver Meta Stats** template displays information on the metadata IP flows to the network interfaces 1 and 2 of the IQUCP25-MV module on a spigot-by-spigot basis. It is similar to the 'video stats' template in format.

- Select **Enable Stats** to display the values.

Ethernet 2 RTP Receiver

Ethernet RTP Receiver Video Stats

Ethernet RTP Receiver Audio Stats

Ethernet RTP Receiver Meta Stats

Link Control

Enable Stats

☒

Meta Stats

Spigots

Spigots	Flow ID
5	-
6	-
7	-
8	-
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

Ethernet 1

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Ethernet 2

Byte Rate (Mbs)	RTP Discontinuity Count
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

Clear All RTP Counts

Fig. 4-30: Ethernet RTP Receiver Meta Stats Template

Link Control Template

The **Link Control** template allows quad-link 4K *MV SDC* input video IP streams (destination spigots, 5 to 16) or MV SDC multiviewer head display outputs (source spigots 1 to 4) to be aggregated and synchronized by the IQUCP25-MV module.

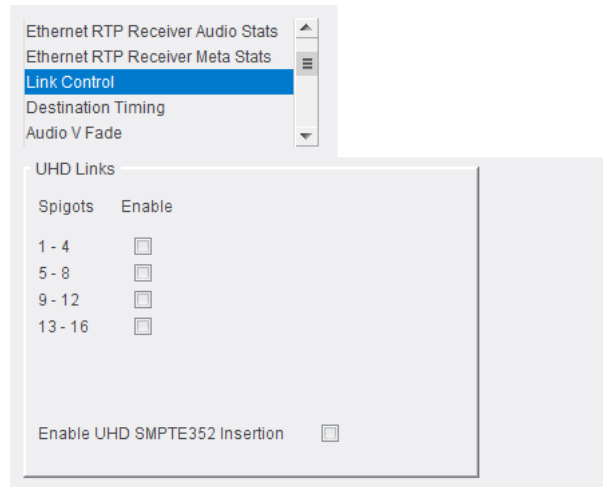


Fig. 4-31: Link Control Template

To enable 4K quad-link video input IP streams on spigots:

- Select the 'Enable' check box for quad-link **Spigots**, as required:
 - '1 - 4'
 - '5 - 8'
 - '9 - 12'
 - '13 - 16'

To insert a 4K SMPTE352 payload identifier into a video IP output stream:

- Select the **Enable 4K SMPTE352 Insertion** check box.

This inserts the same time-stamp information into each of the four 'quad-linked' video IP streams.

Destination Timing Template

The **Destination Timing** template shows video timing information for each destination spigot of the IQUCP25-MV module. Spigots 5 to 16 are configured as destination spigots, they receive video IP streams. (This template is not applicable to grayed-out spigots 1 to 4 because they are configured as source spigots.)

Ethernet RTP Receiver Meta Stats
 Link Control
Destination Timing
 Audio V Fade
 Audio Rate Adaption

Spigot 1	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 2	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 3	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 4	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 5	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 6	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 7	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 8	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 9	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 10	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 11	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 12	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 13	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 14	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 15	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0
Spigot 16	Genlock Timing V Offset (lines) 0	H Offset (pixels) 0	Receiver Packet Buffer Frames Delay (N to N+1) 0

Fig. 4-32: Destination Timing Template

Note: An IQUCP25-MV module:

- Sources up to 4 video IP streams (3G video) on spigots 1 to 4.
 - Receives up to 12 video IP streams (up to 3G video) on spigots 5 to 16.
-

The template shows a panel of settings for each destination spigot, see Figure 4-28.

Fig. 4-33: Destination Timing - Spigot Panel

Table 4-23: Destination Timing - Spigot Panel Information

Spigot Panel Item	Description
Genlock Timing:	Displays video timing with respect to the chosen video reference signal.
V Offset (lines)	Displays vertical timing offset in units of video lines.
H Offset (pixels)	Displays horizontal timing offset in units of pixels.
Receiver Packet Buffer	The receiver packet buffer can provide additional buffering to a received IP flow.
Frames Delay (N to N+1)	Enter number of frames of buffering (0 or 1). Note: Adding buffering can affect the time it takes to switch between IP flows at a spigot.

Audio V Fade Template

The **Audio V Fade** template configures an audio V-fade for each video input IP stream (i.e. at receiving, destination spigots) of the IQUCP25-MV module. When the video input switches to another, an audio V-fade can be used to reduced audio disturbances at the switch-over.

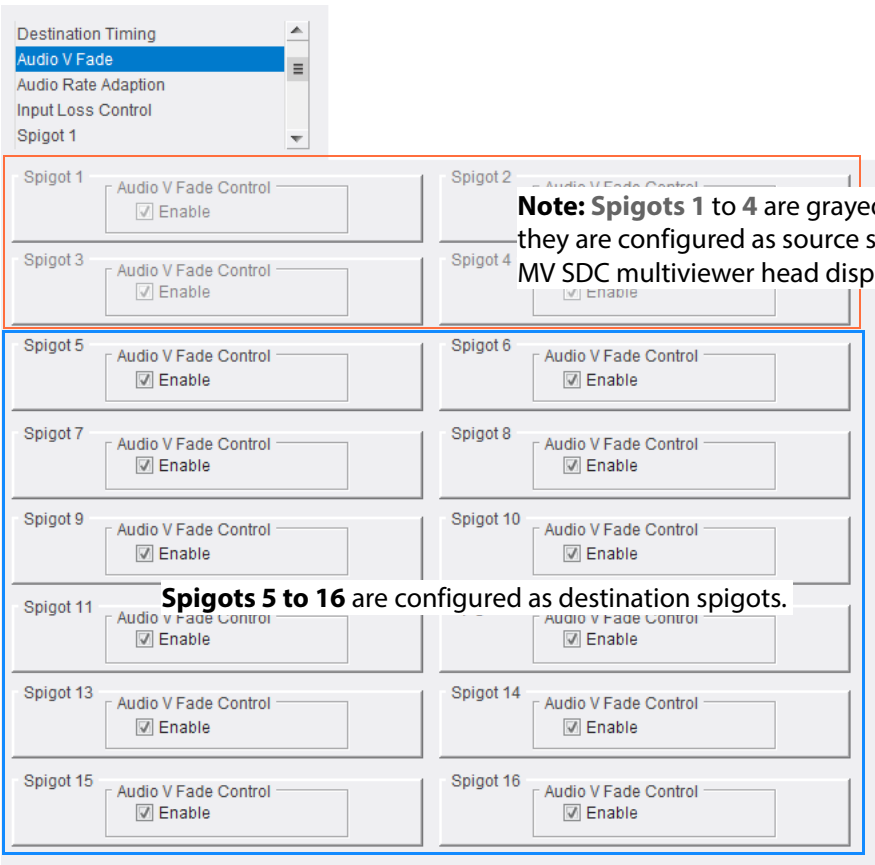


Fig. 4-34: Audio V Fade Template

The template shows a panel of settings for each destination spigot, see Table 4-24.

Table 4-24: Audio V Fade - per Destination Spigot

Item	Description
Audio V Fade Control: Enable	Check box. Select to enable audio V-fade on multiviewer inputs.

Audio Rate Adaption Template

The **Audio Rate Adaption** template configures audio sample drop/repeat to adapt dissimilar audio sampling for each video input IP stream (i.e. at receiving, destination spigots) of the IQUCP25-MV module.

Destination Timing
Audio V Fade
Audio Rate Adaption
Input Loss Control
Spigot 1

Spigots 5 to 16 are configured as destination spigots.

Spigot 5 Audio Drop/Repeat Control ☒ Enable

Spigot 6 Audio Drop/Repeat Control ☒ Enable

Spigot 7 Audio Drop/Repeat Control ☒ Enable

Spigot 8 Audio Drop/Repeat Control ☒ Enable

Spigot 9 Audio Drop/Repeat Control ☒ Enable

Spigot 10 Audio Drop/Repeat Control ☒ Enable

Spigot 11 Audio Drop/Repeat Control ☒ Enable

Spigot 12 Audio Drop/Repeat Control ☒ Enable

Spigot 13 Audio Drop/Repeat Control ☒ Enable

Spigot 14 Audio Drop/Repeat Control ☒ Enable

Spigot 15 Audio Drop/Repeat Control ☒ Enable

Spigot 16 Audio Drop/Repeat Control ☒ Enable

Fig. 4-35: Audio Rate Adaption Template

The template shows a panel of settings for each destination spigot, see Table 4-25.

Table 4-25: Audio Rate Adaption - per Destination Spigot

Spigot Panel Item	Description
Audio Drop/Repeat Control: Enable	Check box. Select to enable audio sample drop/repeat on multiviewer inputs.

Input Loss Control Template

The **Input Loss Control** template configures which video signal to transmit in a video IP stream from a source spigot if the (internal SDI) signal to the sending spigot is lost. (For IQUCP25-MV, such signals are internal are coming from the MV SDC and source spigots 1 to 4.)

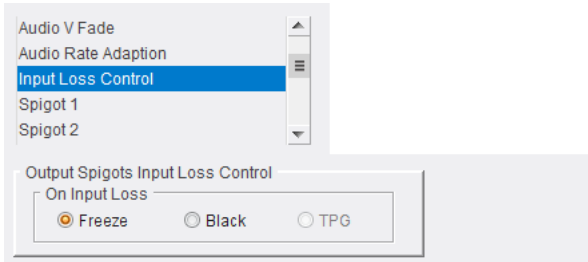


Fig. 4-36: Input Loss Control Template

Table 4-26: Input Loss Control Settings

Item	Description
Output Spigots Input Loss Control:	
	Radio buttons. Select what to do when sending (source) spigots lose their internal SDI video signals from the MV SDC.
Freeze	Select to freeze video.
Black	Select to use video black.
TPG	Selection <i>not</i> available.

Spigot 1 to 16 Templates

Note: An IQUCP25-MV module:

- Sends out up to 4 video IP streams on (source) spigots 1 to 4.
- Receives up to 12 video IP streams on (destination) spigots 5 to 16.

A separate template is provided for each of the spigots. Templates for destination spigots and source spigots are slightly different and are described separately below.

Input Loss Control: Spigot 1

Direction: Input, BNC: SDI 1, Status: OK, Sender: Disable Ed Headers, Num Audio Chans: 16, Packet Time: 600us, SDI Input CRC Error: Unknown, Enable: [X], Clear: [X]

Last Spigot Take: RCTStart, Streaming: Dwell, Format: SDH/D10

Table: Table

Primary:

Video	Current	NEW
Multicast IP	0	0
Multicast Port	0	0
Source IP	0	0
Source Port	0	0
Flow Type	None	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

Secondary:

Video	Current	NEW
Multicast IP	0	0
Multicast Port	0	0
Source IP	0	0
Source Port	0	0
Flow Type	None	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

Audio:

Current	NEW
Multicast IP	0
Multicast Port	0
Source IP	0
Source Port	0
Flow Type	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

See [Source Spigot Template \(Spigots 1 to 4\)](#), on page 111.

a) **Source** spigot template (spigots 1 to 4)

Spigot 5

Direction: Output, BNC: SDI 5, Status: OK, Receiver: Video Std: Auto, Num Audio Chans: Auto, Audio Delay: 0 ms, Make before Break: [X]

Last Spigot Take: RCTStart, Streaming: Dwell, Format: SDH/D10

Table: Table

Primary:

Video	Current	NEW
Multicast IP	239.4.5.10	239.4.5.10
Multicast Port	45000	45000
Source IP	172.16.81.82	172.16.81.82
Source Port	45000	45000
Flow Type	RFC4175	RFC4175

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

Secondary:

Video	Current	NEW
Multicast IP	0	0
Multicast Port	0	0
Source IP	0	0
Source Port	0	0
Flow Type	None	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

Audio:

Current	NEW
Multicast IP	0
Multicast Port	0
Source IP	0
Source Port	0
Flow Type	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

Metadata:

Current	NEW
Multicast IP	0
Multicast Port	0
Source IP	0
Source Port	0
Flow Type	None

Packetizer Stats: [X] packets: Unknown, packet drop count: Unknown

See [Destination Spigot Template \(Spigots 5 to 16\)](#), on page 117.

b) **Destination** spigot template (spigots 5 to 16)

Fig. 4-37: Spigot Template:

a) Source Spigot Template.

b) Destination Spigot Template.

Source Spigot Template (Spigots 1 to 4)

The **Source Spigot** template is shown in Figure 4-37.

Spigot panel, see [Spigot Panel \(Source Spigot\)](#), on page 112.

Take, see [Take \(Source Spigot\)](#), on page 114.

The screenshot displays the 'Source Spigot Template' interface. At the top left, the 'Input Loss Control' panel shows 'Spigot 1' selected. Below it, the 'Spigot' panel contains various controls: 'Direction' (Input), 'BNC' (SDI 1), 'Status' (OK), 'Sender' (Disable Ext Headers), 'Num Audio Chans' (16), 'Packet Time' (500us), 'SDI Input CRC Errors' (Unknown), 'Enable' checkbox, 'Clear' button, 'Last Spigot Take' (RCStart), 'Streaming' (Dual), and 'Format' (SDI/HD/3G). A 'Take' button is highlighted with a blue box. Below the 'Take' button, the interface is divided into 'Primary' and 'Secondary' sections. Each section contains 'IP Flow panels' for 'Video' and 'Audio'. Each flow panel has 'Current' and 'NEW' settings for Multicast IP, Multicast Port, Source IP, Source Port, and Flow Type. There are also 'Packetizer Stats' and status indicators (bit/s, packet/s, packet drop count) for each flow. The 'Take' button is also labeled with 'Take' in a smaller font.

Fig. 4-38: Source Spigot Template (Spigot 1 to 4)

Spigot Panel (Source Spigot)

The **Spigot** panel provides basic monitoring for the selected **Spigot**.

Fig. 4-39: Spigot Panel (Source Spigot)

Table 4-27: Spigot Panel Information (Source Spigot)

Spigot Panel Item (Source Spigot)	Description
Direction	Identifies spigot direction. • 'Input': For the IQUCP25-MV module, such a spigot uses an <i>SDI input</i> from the MV SDC and generates source video IP stream. • 'Output': For the IQUCP25-MV module, such a spigot receives a video IP stream, generates an <i>SDI output</i>, and passes it to the MV SDC.
BNC	Shows an associated (notional) SDI channel number.
Status	Reports the current status of the spigot. • OK • Warn:TPG • FAIL:Lost
Last Spigot Take	Reports the 'control agency' which last changed IP settings on a spigot. I.e. the source of the last a Take on the spigot. 'Control agencies' are: • RC - RollCall. Operation from a control panel or by an external agent, like VSM. • IPCtrl - Grass Valley Orbit. • RcStart - The module start up itself.

Table 4-27: Spigot Panel Information (Source Spigot) (continued)

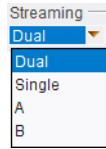
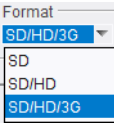
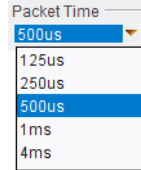
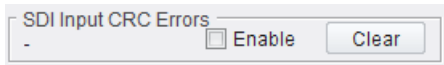
Spigot Panel Item (Source Spigot)	Description
Streaming	Drop down box. Select the IQUCP25-MV module's media network connections to use for this spigot. This will also determine the bandwidth to be used. Options are: • Dual - use both network connections and all the available bandwidth. • Single - use either connection. • A or B - use one particular connection (A or B). 
Format	Drop down box. Select the video format to be used on this spigot. This will ensure that the appropriate level of bandwidth is allocated. 
Sender: Disable Ext Headers Num Audio Chans	Check box. Select to disable extended headers in the sourced IP data packets. Extended header operation can be disabled for TR-03/TR-04 compatibility. To disable extended headers: 1 Select Disable Extended Headers. 2 Click Take. Drop down box. Select the number of audio channels. (1 to 16) This setting allows the number of audio channels in use to be restricted. Select from the list the highest audio channel number to be used.

Table 4-27: Spigot Panel Information (Source Spigot) (continued)

Spigot Panel Item (Source Spigot)	Description
Packet Time	Drop down box. Select the duration of an audio data packet. 
SDI Input CRC Errors	Shows a count of any CRC errors on the SDI input to the spigot. - Select Enable to enable the count. - Click Clear to clear the count. 

Take (Source Spigot)

Click the **Take** button to apply any changes made to spigot or flow properties in the Spigot panel.

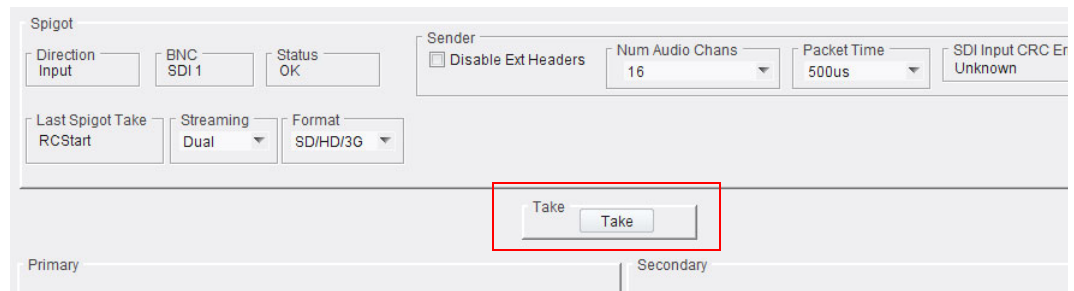


Fig. 4-40: Take

IP Flow Panels (Source Spigot)

The **IP Flow** panels are arranged into two columns: **Primary** flows and **Secondary** flows. (Primary flows pass through one network connection to the IQUCP25-MV module, secondary through the other.)

Each network connection can carry more than one IP flow. For the IQUCP25-MV module, source spigots 1 to 4 each have two video IP flows and one audio IP flow. Each flow has an **IP Flow** panel.

The **IP Flow** panel allows multicast IP flow and IP port details to be defined for the selected spigot. Statistics for the spigot can also be enabled. Figure 4-41 shows an example **IP Flow** panel.

In a Grass Valley IP routing system, some of these settings may be set up by Grass Valley Orbit. This is indicated in Table 4-28.

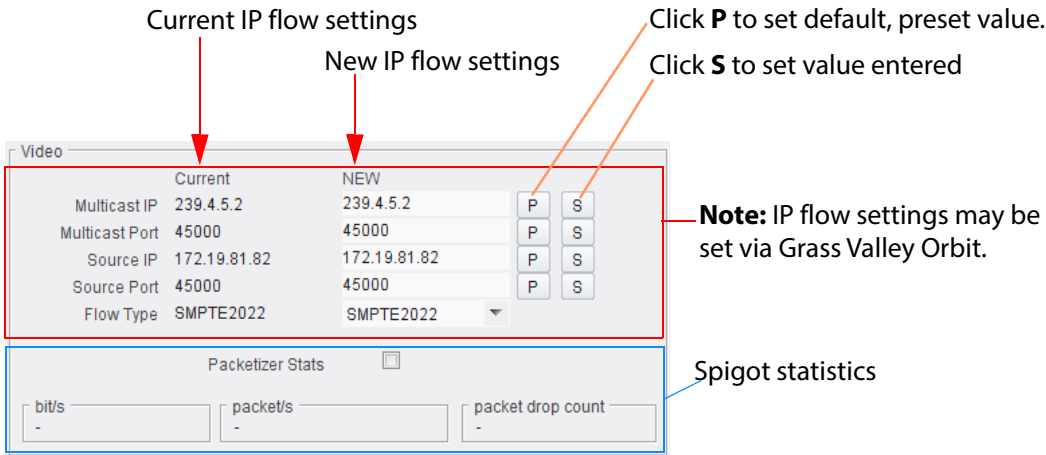


Fig. 4-41: IP Flow Panel (Video Flow Example shown)

Table 4-28: IP Flow Panel Information and Settings (Source Spigot)

IP Flow Panel Item	Description
Multicast IP	Multicast group IP address. See Note 1 .
Multicast Port	Multicast group IP port number.See Note 1 .
Source IP	Source IP address.See Note 1 .
Source Port	Source IP port number.See Note 1 .
Flow Type	Drop down box.See Note 1. Select the flow type. - Video flow types: (Note: Two simultaneous video flows are possible from the source spigot. But this impacts on media interface IP bandwidth.) None None SMPTE2022 None None RFC4175 SMPTE2110-20 / RFC4175 - Audio flow types: None None Audio

Table 4-28: IP Flow Panel Information and Settings (Source Spigot) (continued)

IP Flow Panel Item	Description
Packetizer Stats	Check box. Select to enable statistics on spigot IP data packets.
bits/s	Bits per second.
packet/s	Packets per second.
packet drop count	Number of dropped packets.
Note 1: These settings may be set by Orbit.	

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 **P** will return the setting to its preset default value.)

S - Locally save new, entered setting value (or press "return").

P - Locally save default setting value.

Set Multicast Details

To set multicast details:

- 1 Enter IP address and IP port number details in the 'New settings' column, as required. (Remember to click **S** or press the enter key to enter each new value.)
- 2 Select the **Flow Type**.
- 3 Click **Packetizer Stats** to view network statistics for an outgoing flow, if required.
- 4 Click **Take**.

In order to provide redundancy, primary and secondary flows are available on separate network connections to the IQUCP25 module. These require setting up separately.

Destination Spigot Template (Spigots 5 to 16)

The **Destination Spigot** template is shown in Figure 4-42.

Spigot panel, see [Spigot Panel \(Destination Spigot\)](#), on page 118.

Take, see [Take \(Destination Spigot\)](#), on page 121.

Spigot 1
Spigot 2
Spigot 3
Spigot 4
Spigot 5

Spigot
Direction Output BNC SDI 5 Status OK
Last Spigot Take RCStart Streaming Dual Format SD/HD/3G Receiver Video Std Auto Num Audio Chans Auto Audio Delay 0 ms Make / Break Mode Make before Break

Take Take

Primary
Status Video Audio Meta
Mac 625/25i 16 None
Loopback None None None
Video
Current NEW
Multicast IP 239.4.7.10 239.4.7.10 P S
Multicast Port 45000 45000 P S
Source IP 172.19.83.82 172.19.83.82 P S
Source Port 45000 45000 P S
Flow Type RFC4175 RFC4175
Audio
Current NEW
Multicast IP 239.4.7.11 239.4.7.11 P S
Multicast Port 50000 50000 P S
Source IP 172.19.83.85 172.19.83.85 P S
Source Port 50000 50000 P S
Flow Type Audio Audio
Metadata
Current NEW
Multicast IP 0 0 P S
Multicast Port 0 0 P S
Source IP 0 0 P S
Source Port 0 0 P S
Flow Type None None

Secondary
Status Video Audio Meta
Mac None None None
Loopback None None None
Video
Current NEW
Multicast IP 239.4.5.10 239.4.5.10 P S
Multicast Port 45000 45000 P S
Source IP 172.19.81.82 172.19.81.82 P S
Source Port 45000 45000 P S
Flow Type RFC4175 RFC4175
Audio
Current NEW
Multicast IP 239.4.7.11 239.4.7.11 P S
Multicast Port 50000 50000 P S
Source IP 172.19.81.85 172.19.81.85 P S
Source Port 50000 50000 P S
Flow Type Audio Audio
Metadata
Current NEW
Multicast IP 0 0 P S
Multicast Port 0 0 P S
Source IP 0 0 P S
Source Port 0 0 P S
Flow Type None None

IP Flow panels, see [Status and IP Flow Panels \(Destination Spigot\)](#), on page 121.

Fig. 4-42: Destination Spigot Template (Spigots 5 to 12)

Spigot Panel (Destination Spigot)

The **Spigot** panel provides basic monitoring for the selected **Spigot**.

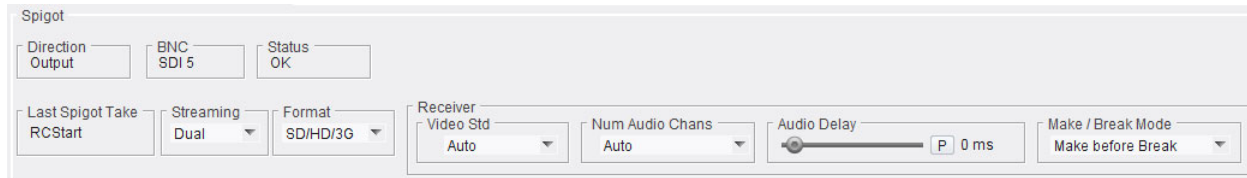


Fig. 4-43: Spigot Panel (Destination Spigot)

Table 4-29: Spigot Panel Information (Destination Spigot)

Spigot Panel Item (Destination Spigot)	Description
Direction	Identifies spigot direction. • 'Input': For the IQUCP25-MV module, such a spigot uses an <i>SDI input</i> from the MV SDC and generates source video IP stream. • 'Output': For the IQUCP25-MV module, such a spigot receives a video IP stream, generates an <i>SDI output</i>, and passes it to the MV SDC.
BNC	Shows an associated (notional) SDI channel number.
Status	Reports the current status of the spigot. • OK • FAIL:Lost
Last Spigot Take	Reports the 'control agency' which last performed a Take on the spigot. • RC - RollCall. Operation from a control panel or by an external agent, like VSM. • IPCtrl - Grass Valley Orbit. • RCStart - The module start up itself.

Table 4-29: Spigot Panel Information (Destination Spigot) (continued)

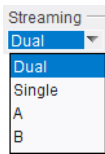
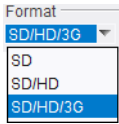
Spigot Panel Item (Destination Spigot)	Description
Streaming	Drop down box. Select the IQUCP25-MV module's Ethernet connections to use for this spigot. This will also determine the bandwidth to be used. Options are: • Dual - use both connections and all the available bandwidth. • Single - use either connection and half of the available bandwidth. • A or B - use one particular connection and half of the available bandwidth. 
Format	Drop down box. Select the video format to be used on this spigot. This will ensure that the appropriate level of bandwidth is allocated. 

Table 4-29: Spigot Panel Information (Destination Spigot) (continued)

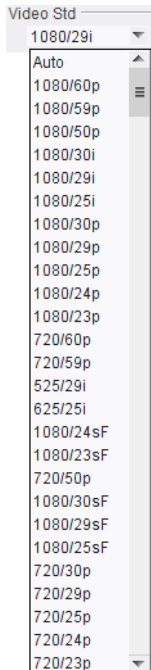
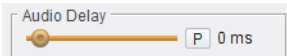
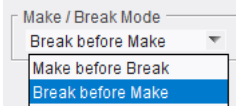
Spigot Panel Item (Destination Spigot)	Description
Receiver:	
Video Std	Drop down box. Select the video standard (resolution / frame rate) for the receiving spigot. 
Num Audio Chans	Drop down box. Select the number of audio channels to use. (1 to 32) This setting allows the number of audio channels in use to be restricted. Select from the list the highest audio channel number to be used.
Audio Delay	Slider control. Select the audio delay. (-10 ms to 255 ms) Click P to set the preset, default value. 

Table 4-29: Spigot Panel Information (Destination Spigot) (continued)

Spigot Panel Item (Destination Spigot)	Description
Make / Break Mode	Drop-down box. Select the make/break mode when changing the video IP signal to the spigot. Make before Break - causes the destination spigot to buffer new IP stream data packets before connection to current IP stream is broken; this results in a smoother transition on-screen, but requires more bandwidth. Break before Make - simply swaps IP data stream received at the destination spigot without buffering. 

Take (Destination Spigot)

Click the **Take** button to apply any changes made to spigot or flow properties in the Spigot panel.

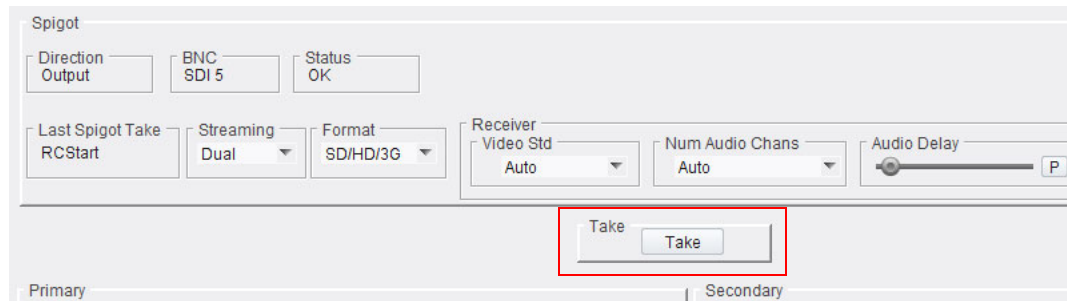


Fig. 4-44: Take

Status and IP Flow Panels (Destination Spigot)

The **IP Flow** panels are arranged into two columns: **Primary** flows and **Secondary** flows. (Primary IP flows pass through one network connection to the IQUCP25-MV module, secondary through the other.) Additionally, for each primary and secondary network connection, there is a summary **Status** panel (see Figure 4-45).

Each network connection can carry more than one flow. For spigots 5 to 16, there is: one video flow, one audio flow, and one metadata IP flow. Each flow has an **IP Flow** panel.

Status Panel

Status	Video	Audio	Meta
Mac	1080/23p	16	None
Loopback	None	None	None

Fig. 4-45: Status Panel Example

The **Status** panel reports status information for each enabled flow.

- **Mac** - IP flow received over IP network.
- **Loopback** - IP flow received by the module looped-back from the module. Not useful in IQUCP25-MV applications - it is a feature of the IQUCP25 base module.

(Such loop-back could be achieved by either explicitly setting the IQUCP25-MV module to receive a flow from itself, or by using the module's loop-back router facility.)

IP Flow Panel

The **IP Flow** panel allows multicast IP flow and IP port details to be defined for the selected spigot. Figure 4-46 shows an example **IP Flow** panel.

In a Grass Valley IP routing system, some of these settings are set up by Orbit. This is indicated in Table 4-30.

Current IP flow settings

New IP flow settings

Click **P** to set default, preset value.

Click **S** to set value entered

	Current	NEW		
Multicast IP	239.4.7.12	239.4.7.12	P	S
Multicast Port	45000	45000	P	S
Source IP	172.19.83.82	172.19.83.82	P	S
Source Port	45000	45000	P	S
Flow Type	RFC4175	SMPTE2022		

Note: IP flow settings may be set via Grass Valley Orbit.

Fig. 4-46: IP Flow Panel Example

Table 4-30: IP Flow Panel Information and Settings (Destination Spigot)

IP Flow Panel Item (Destination Spigot)	Description
Multicast IP	Multicast group IP address. See Note 1 .
Multicast Port	Multicast group IP port number. See Note 1 .
Source IP	Source IP address. See Note 1 .
Source Port	Source IP port number. See Note 1 .
Flow Type	Drop down box. See Note 1. Select the flow type. - Video flow types: - Audio flow types: - Metadata flow types:

Note 1: These settings may be set by Grass Valley Orbit.

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 **P** will return the setting to its preset default value.)

S - Locally save new, entered setting value (or press "return").

P - Locally save default setting value.

Set Multicast Details

To set multicast details:

- 1 Select the required **Video Std** (from spigot as SDI video signal to MV SDC).
- 2 Enter IP address and IP port number details in the 'New settings' column, as required.
(Remember to click **S** or press the enter key to enter each new value.)
- 3 Select the **Flow Type**.
- 4 Click **Take**.

In order to provide redundancy, primary and secondary flows are available on separate network connections to the IQUCP25-MV module. These require setting up separately.

Logging - SDI Info Template

The **Logging - SDI Info** template shows SDI log message types: Log field names and current log values are listed.

To enable a log message type:

- Selecting the message in the template.

Figure 4-47 shows an example template.

SDI Change time			
☒	Input 1	INPUT_1_CHANGE_TIME=	2018-12-19T14:44:52
☒	Input 2	INPUT_2_CHANGE_TIME=	2018-12-19T14:44:52
☒	Input 3	INPUT_3_CHANGE_TIME=	2018-12-19T14:44:52
☒	Input 4	INPUT_4_CHANGE_TIME=	2018-12-19T14:44:52

SDI Change Counts			
☒	Input 1	INPUT_1_SDI_CHANGE_CNT=	1
☒	Input 2	INPUT_2_SDI_CHANGE_CNT=	1
☒	Input 3	INPUT_3_SDI_CHANGE_CNT=	1
☒	Input 4	INPUT_4_SDI_CHANGE_CNT=	1

Fig. 4-47: Logging - SDI Info Template

Table 4-31: Logging - SDI Info Template Settings

Log Message	Description
SDI Change Time INPUT_N_CHANGE_TIME	The time when the state of the SDI input changed. (I.e. input lost or input standard changed.)
SDI Change Count INPUT_N_CHANGE_CNT	The number of times the state of the SDI input has changed.
Where: N is the input number.	

Logging - System Template

The **Logging System** template shows system message types: Log field names and log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to the RollCall network.

To enable a log message type:

- Selecting the message type in the template in the 'Log Enable' column.

Figure 4-48 shows an example template. Log fields are described in Table 4-32.

Logging - System		
Logging - Network		
Logging - SFP		
Logging - Fpga		
Logging - Spigot 1		
Log Enable	Log Field	Log Value
☒ Serial Number	SN=	S58091275
☒ OS Version	OS_VERSION=	QNX 6.6.0
☒ Build No.	BUILD_NUMBER=	0.23.5
☒ Hardware Ver.	HARDWARE_VERSION=	RMIX251B
☒ Hardware Mod.	HARDWARE_MOD=	0
☒ Hardware Build.	HARDWARE_BUILD=	0
☒ Featureboard Ver.	FEATUREBOARD_VERSION=	MIX25FB1
☒ Featureboard Mod.	FEATUREBOARD_MOD=	0
☒ Featureboard Build.	FEATUREBOARD_BUILD=	FB1
☒ Firmware Version	FIRMWARE_VERSION=	EDA57A18
☒ Up Time	UPTIME=	002:01:27:00
☒ RollCall Up Time	RC_UPTIME=	002:01:26:00
☒ RollTracks	ROL_STATES=	Disabled
☒ Rear ID	REAR_ID=	0
☒ Rear Status	REAR_STATUS=	OK
☒ Slot Width	SLOT_WIDTH=	2
☒ Slot Start	SLOT_START=	5
☒ Power Usage	POWER_USAGE=	31.0W/31.0LU
☒ Temperature	TEMP_1_CELSIUS=	51C
☒ Temperature Sensor	TEMP_1_NAME=	CPU
☒ Reference Source	REFERENCE_1_SOURCE=	Frame Ref A
☒ Reference State	REFERENCE_1_STATE=	OK:1080/25i
☒ Time Sync Mode	TIMESYNC_1_MODE=	NTP
☒ Time Sync Network Interface	TIMESYNC_1_NETWORK=	Ethernet 1
☒ Time Sync Clock Identity	TIMESYNC_1_CLOCK_ID=	NTP
☒ Time Sync Clock State	TIMESYNC_1_CLOCK_STATE=	OK:NTP
☒ Time Sync Average Delay	TIMESYNC_1_AVG_DELAY=	+0.0uS
☒ Dev Delay	TIMESYNC_1_STDV_DELAY=	+0.0uS
☒ Time Sync Average Error	TIMESYNC_1_AVG_ERROR=	+149.5uS
☒ Time Sync Std Dev Error	TIMESYNC_1_STDV_ERROR=	+761.2uS
☒ Time Sync Grandmaster	TIMESYNC_1_GRANDMASTER=	-
☒ Time Sync Last Lock	TIMESYNC_1_LAST_LOCK=	2018-12-21 16:09:44.813449053
☒ Time Sync Synchronisations	TIMESYNC_1_SYNCHRONISATIONS=	333
☒ Time Sync State Ethernet 0	TIMESYNC_0_STATE=	FAIL
☒ Time Sync State Ethernet 1	TIMESYNC_1_STATE=	FAIL
☒ Time Sync State Ethernet 2	TIMESYNC_2_STATE=	FAIL
☒ Time Sync Clock Address	TIMESYNC_1_CLOCK_ADDRESS=	0.0.0.0
☒ Time Sync Request Interval	TIMESYNC_1_REQUEST_INTERVAL=	1s

Fig. 4-48: Logging - System Template

Table 4-32: Logging - System Log Fields

Log Field	Description
SN	Reports the module serial number, which consists of an S followed by eight digits. Note: this cannot be deselected.
OS_VERSION	Reports the operating system name and version.
BUILD_NUMBER	Reports the build number.
HARDWARE_VERSION	Reports the hardware version number.
HARDWARE_MOD	Reports the hardware modification number.
HARDWARE_BUILD	Reports the hardware build number.
FEATUREBOARD_VERSION	Reports the rear module's daughter board version number
FEATUREBOARD_MOD	Reports the rear module's daughter board modification number.
FEATUREBOARD_BUILD	Reports the rear module's daughter board build number.
FIRMWARE_VERSION	Reports the firmware version number.
UPTIME	Reports the time since the last Video IP block restart in the format <i>ddd:hh:mm:ss</i> .
RC_UPTIME	Reports the time since the last RollCall log server restart in the format <i>ddd:hh:mm:ss</i> .
ROL_STATES	Reports the RollTrack status. Valid values are: • OK. • Fail:N - where N is the failing RollTrack index(es). • Disabled.
REAR_ID	Reports ID of IQUCP rear module connected to the IQUCP25-MV.
REAR_STATUS	Reports status of IQUCP rear module connected to the IQUCP25-MV, where it can be determined.
SLOT_WIDTH	Reports the IQ modular frame 'slot width' of the IQUCP25-MV module. (IQUCP modules are available in single and triple width.)
SLOT_START	Reports the IQ modular frame slot location of the IQUCP25-MV module.
POWER_USAGE	Reports the power usage rating for the module (in PR Units for IQH4B-type frames).
TEMP_N_CELSIUS	Reports the temperature status.
TEMP_N_NAME	Temperature sensor name.

Table 4-32: Logging - System Log Fields (continued)

Log Field	Description
REFERENCE_N_SOURCE	Reports time reference source.
REFERENCE_N_STATE	Valid values are: • OK: Locked • OK: Input • WARN: Freerun • WARN: CrossLock
TIMESYNC_N_MODE	Valid values are: • Free running: Card is using its own clock with no reference to any other source. • PTP Multicast: Card is synchronizing to a PTP grandmaster clock using multicast network messages. • PTP Unicast: As PTP Multicast but using the delay request. Reply messages are unicast to minimize network traffic. • NTP: Module clock is synchronized to an NTP clock. Generally less precise than PTP.
TIMESYNC_N_NETWORK	Network port currently being used for synchronization for IQUCP-MV modules, dependent on the choice of interfaces made on the Time Configuration template. If PTP and multiple interfaces are enabled, the PTP synchronization will switch ports if it doesn't see regular sync messages on the port.
TIMESYNC_N_CLOCK_ID	Identification number of PTP clock being used for synchronization. This is not necessarily the grandmaster clock identity, as there can be intermediate clocks between the grandmaster and the card, depending on network configuration.
TIMESYNC_N_CLOCK_STATE	Valid values are: • Free running: Card is not being synchronized. • No Lock: PTP being used but clocks haven't synchronized within +/- 1mS. • Locked: PTP being used and clocks are within the accepted range. • NTP: Module using NTP to synchronize.
TIMESYNC_N_AVG_DELAY	The current network delay time between the card and the clock sending the synchronization messages. This should be relatively constant and is dependent on network configuration.

Table 4-32: Logging - System Log Fields (continued)

Log Field	Description
TIMESYNC_N_STDV_DELAY	The current standard deviation in the network delay time between the card and the clock sending the synchronization messages. Should be a low number as the network delay is expected to be constant.
TIMESYNC_N_AVG_ERROR	The current difference between the cards time and the grandmaster time. Should be close to zero once card has synchronized.
TIMESYNC_N_STDV_ERROR	The standard deviation in the average error.
TIMESYNC_N_GRANDMASTER	Identity of network clock acting as PTP grandmaster. This is the source of the PTP synchronization messages used by all PTP slave clocks on the network. If there are multiple grandmasters, they should negotiate between themselves to identify the most accurate and then silence the others.
TIMESYNC_N_LAST_LOCK	Time when the module last changed from not locked to locked. Ideally this will be a few seconds after the module has powered up. This allows the user to confirm which clock the module has synchronized to.
TIMESYNC_N_SYNCHRONISATIONS	Reports the number of times the card has synchronized since it was powered up. Ideally this will be a low number, as cards are expected to synchronize and stay synchronized. Large numbers indicate possible problems with the network or grandmaster clock.
TIMESYNC_N_STATE	Reports OK if interface N is communicating with the PTP clock. Where N is 1 or 2.
TIMESYNC_N_CLOCK_ADDRESS	Reports the IP address of the PTP clock being followed by the card on interface N. Note: Depending on the network configuration, this is not necessarily the same as the IP address of the grandmaster PTP clock.
TIMESYNC_N_REQUEST_INTERVAL	Reports the time between the delay request messages sent from interface N to the PTP clock.
Where: N is the input/SFP number.	

Logging - Network Template

The **Logging Network** template shows network message types: Log field names and current log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to the RollCall network. Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Figure 4-49 shows an example template.

Logging - Network		
Logging - Network Logging - SFP Logging - Fpga Logging - Spigot 1 Logging - Spigot 2		
Log Enable	Log Field	Log Value
☒ Ethernet 1 Name	LAN_PORT_1_NAME=	Ethernet 1
☒ Ethernet 1 Speed	LAN_PORT_1_SPEED=	25Gb/s
☒ Ethernet 1 IP Address	LAN_PORT_1_IPADDRESS=	172.19.81.86
☒ Ethernet 1 MAC Address	LAN_PORT_1_MACADDRESS=	00:23:70:00:72:8D
☒ Ethernet 1 State	LAN_PORT_1_STATE=	Active
☒ Ethernet 1 Traffic In	LAN_PORT_1_TRAFFIC_IN=	6777.8 Mb/s
☒ Ethernet 1 Traffic Out	LAN_PORT_1_TRAFFIC_OUT=	12397.5 Mb/s
☒ Ethernet 1 CPU Traffic In State	LAN_PORT_1_CPU_TRAF_IN_STATE=	OK
☒ Ethernet 1 CPU Traffic Out State	LAN_PORT_1_CPU_TRAF_OUT_STATE=	OK
☒ Ethernet 1 RTP Discontinuity Rate	LAN_PORT_1_RTP_DIS_RATE=	10
☒ Ethernet 1 Link Status	LAN_PORT_1_LINK_STATE=	OK
☒ Ethernet 1 MAC Link Status	LAN_PORT_1_MAC_LINK_STATE=	OK
☒ Ethernet 1 Switch Name	LAN_PORT_1_SWITCH_NAME=	Arista7504R
☒ Ethernet 1 Switch Chassis ID	LAN_PORT_1_SWITCH_CHASSIS_ID=	-
☒ Ethernet 1 Switch Port ID	LAN_PORT_1_SWITCH_PORT_ID=	Ethernet4/18/1
☒ Ethernet 1 Switch Port VLAN	LAN_PORT_1_SWITCH_PORT_VLAN=	164
☒ Ethernet 2 Name	LAN_PORT_2_NAME=	Ethernet 2
☒ Ethernet 2 Speed	LAN_PORT_2_SPEED=	25Gb/s
☒ Ethernet 2 IP Address	LAN_PORT_2_IPADDRESS=	172.19.83.86
☒ Ethernet 2 MAC Address	LAN_PORT_2_MACADDRESS=	00:23:70:00:72:8B
☒ Ethernet 2 State	LAN_PORT_2_STATE=	WARN:inactive
☒ Ethernet 2 Traffic In	LAN_PORT_2_TRAFFIC_IN=	0.0 Mb/s
☒ Ethernet 2 Traffic Out	LAN_PORT_2_TRAFFIC_OUT=	0.0 Mb/s
☒ Ethernet 2 CPU Traffic In State	LAN_PORT_2_CPU_TRAF_IN_STATE=	FAIL
☒ Ethernet 2 CPU Traffic Out State	LAN_PORT_2_CPU_TRAF_OUT_STATE=	FAIL
☒ Ethernet 2 RTP Discontinuity Rate	LAN_PORT_2_RTP_DIS_RATE=	0
☒ Ethernet 2 Link Status	LAN_PORT_2_LINK_STATE=	WARN:DOWN
☒ Ethernet 2 MAC Link Status	LAN_PORT_2_MAC_LINK_STATE=	WARN:DOWN
☒ Ethernet 2 Switch Name	LAN_PORT_2_SWITCH_NAME=	-
☒ Ethernet 2 Switch Chassis ID	LAN_PORT_2_SWITCH_CHASSIS_ID=	-
☒ Ethernet 2 Switch Port ID	LAN_PORT_2_SWITCH_PORT_ID=	-
☒ Ethernet 2 Switch Port VLAN	LAN_PORT_2_SWITCH_PORT_VLAN=	-

Fig. 4-49: Logging Network Template

Table 4-33: Logging Network Log Fields

Log Field	Description
LAN_PORT_N_NAME	Ethernet port name (as defined by the operating system running on the IQUCP25-MV module).
LAN_PORT_N_SPEED	Ethernet connection speed.
LAN_PORT_N_IPADDRESS	Ethernet port IP address.
LAN_PORT_N_MACADDRESS	Ethernet port MAC address.
LAN_PORT_N_STATE	Ethernet link connection state. Valid values are: • Active • Inactive
LAN_PORT_N_TRAFFIC_IN	Traffic in (kbps, Mbps, Gbps).
LAN_PORT_N_TRAFFIC_OUT	Traffic out (kbps, Mbps, Gbps).
LAN_PORT_N_CPU_TRAF_IN_STATE	Reports if there is incoming control data traffic connection on the Ethernet link (OK, Fail).
LAN_PORT_N_CPU_TRAF_OUT_STATE	Reports if there is incoming control data traffic connection on the Ethernet link (OK, Fail).
LAN_PORT_N_RTP_DIS_RATE	Reports the number of RTP discontinuities on the Ethernet link.
LAN_PORT_N_LINK_STATE	Reports state of the Ethernet link (OK, FAIL:Down).
LAN_PORT_N_MAC_LINK_STATE	Reports state of the MAC (Media Access Controller) sub-circuit (OK, FAIL:Down).
LAN_PORT_N_SWITCH_NAME	Name of IP network switch that the media network connection of the IQUCP25 module is connected to.
LAN_PORT_N_SWITCH_CHASSIS_ID	IP network switch chassis ID, read from the IP Switch.
LAN_PORT_N_SWITCH_PORT_ID	Network switch's IP port that the media network connection of the IQUCP25 module is connected to.
LAN_PORT_N_SWITCH_VLAN	Network switch VLAN number that the media network connection of the IQUCP25-MV module is connected to.
Where: N is the input/SFP number.	

Logging - SFP Template

The **Logging SFP** template shows SFP message types relating to fitted SFP modules: Log field names and current log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to a RollCall network.

Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Figure 4-50 shows an example template.

Logging - SFP		
Logging - SFP Logging - Fpga Logging - Spigot 1 Logging - Spigot 2 Logging - Spigot 3		
Logging SFP		
SFP 1		
Log Enable	Log Field	Log Value
☒ Fitted	SFP_1_FITTED=	OK
☒ Status	SFP_1_STATUS=	OK
☒ Type	SFP_1_TYPE=	25GBASE-SR
☒ Manufacturer	SFP_1_VENDOR=	FLEXOPTIX
☒ Model	SFP_1_VENDOR_PN=	P.8525G.01
☒ Serial Number	SFP_1_SERIAL_NR=	F820CGF
☒ Revision	SFP_1_REVISION=	1A
☒ Connector	SFP_1_CONNECTOR=	Fibre LC
☒ Temperature Sensor	TEMP_2_NAME=	SFP1
☒ Temperature	TEMP_2_CELSIUS=	40C
☒ Temperature State	TEMP_2_STATE=	
☒ Voltage Sensor	VOLTAGE_4_NAME=	SFP1
☒ Voltage	VOLTAGE_4_VALUE=	3.31V
☒ Voltage State	VOLTAGE_4_STATE=	
☒ Tx Wavelength	SFP_1_WAVELENGTH=	850nm
☒ Tx Bias 1	SFP_1_1_LASER_BIAS=	6.74mA
☒ Tx Bias 2	SFP_1_2_LASER_BIAS=	
☒ Tx Bias 3	SFP_1_3_LASER_BIAS=	
☒ Tx Bias 4	SFP_1_4_LASER_BIAS=	
☒ Tx Power 1	SFP_1_1_TX_POWER=	0.11dBm
☒ Tx Power 2	SFP_1_2_TX_POWER=	
☒ Tx Power 3	SFP_1_3_TX_POWER=	
☒ Tx Power 4	SFP_1_4_TX_POWER=	
☒ Tx Power State 1	SFP_1_1_TX_POWER_STATE=	
☒ Tx Power State 2	SFP_1_2_TX_POWER_STATE=	
☒ Tx Power State 3	SFP_1_3_TX_POWER_STATE=	
☒ Tx Power State 4	SFP_1_4_TX_POWER_STATE=	
☒ Rx Power 1	SFP_1_1_RX_POWER=	-0.99dBm
☒ Rx Power 2	SFP_1_2_RX_POWER=	
☒ Rx Power 3	SFP_1_3_RX_POWER=	
☒ Rx Power 4	SFP_1_4_RX_POWER=	
☒ Rx Power State 1	SFP_1_1_RX_POWER_STATE=	
☒ Rx Power State 2	SFP_1_2_RX_POWER_STATE=	
☒ Rx Power State 3	SFP_1_3_RX_POWER_STATE=	
☒ Rx Power State 4	SFP_1_4_RX_POWER_STATE=	
SFP 2		
Log Enable	Log Field	Log Value
☒ Fitted	SFP_2_FITTED=	FAIL:Missing
☒ Status	SFP_2_STATUS=	FAIL:Missing
☒ Type	SFP_2_TYPE=	
☒ Manufacturer	SFP_2_VENDOR=	
☒ Model	SFP_2_VENDOR_PN=	
☒ Serial Number	SFP_2_SERIAL_NR=	
☒ Revision	SFP_2_REVISION=	
☒ Connector	SFP_2_CONNECTOR=	
☒ Temperature Sensor	TEMP_3_NAME=	
☒ Temperature	TEMP_3_CELSIUS=	
☒ Temperature State	TEMP_3_STATE=	
☒ Voltage Sensor	VOLTAGE_5_NAME=	
☒ Voltage	VOLTAGE_5_VALUE=	
☒ Voltage State	VOLTAGE_5_STATE=	
☒ Tx Wavelength	SFP_2_WAVELENGTH=	
☒ Tx Bias 1	SFP_2_1_LASER_BIAS=	
☒ Tx Bias 2	SFP_2_2_LASER_BIAS=	
☒ Tx Bias 3	SFP_2_3_LASER_BIAS=	
☒ Tx Bias 4	SFP_2_4_LASER_BIAS=	
☒ Tx Power 1	SFP_2_1_TX_POWER=	
☒ Tx Power 2	SFP_2_2_TX_POWER=	
☒ Tx Power 3	SFP_2_3_TX_POWER=	
☒ Tx Power 4	SFP_2_4_TX_POWER=	
☒ Tx Power State 1	SFP_2_1_TX_POWER_STATE=	
☒ Tx Power State 2	SFP_2_2_TX_POWER_STATE=	
☒ Tx Power State 3	SFP_2_3_TX_POWER_STATE=	
☒ Tx Power State 4	SFP_2_4_TX_POWER_STATE=	
☒ Rx Power 1	SFP_2_1_RX_POWER=	
☒ Rx Power 2	SFP_2_2_RX_POWER=	
☒ Rx Power 3	SFP_2_3_RX_POWER=	
☒ Rx Power 4	SFP_2_4_RX_POWER=	
☒ Rx Power State 1	SFP_2_1_RX_POWER_STATE=	
☒ Rx Power State 2	SFP_2_2_RX_POWER_STATE=	
☒ Rx Power State 3	SFP_2_3_RX_POWER_STATE=	
☒ Rx Power State 4	SFP_2_4_RX_POWER_STATE=	

Fig. 4-50: Logging SFP Template

Table 4-34: Logging SFP Log Fields

Log Field	Description
SFP_N_FITTED	Displays presence of the SFP module. Valid values are: • OK • Missing
SFP_N_STATUS	Displays status of the SFP module. Valid values are: • OK • Fail - The reason for a failure will be appended to the fail message - as reported by the SFP module itself, per INF-8074 and SFF-8472.
SFP_N_TYPE	Displays SFP identifier from device.
SFP_N_VENDOR	Displays SFP manufacturer from device.
SFP_N_VENDOR_PN	Displays SFP model number from device.
SFP_N_SERIAL_NR	Displays the module serial number, which consists of an S followed by eight digits.
SFP_N_REVISION	Displays manufacturer revision number.
SFP_N_CONNECTOR	Displays connector type.
TEMP_N_NAME	Displays temperature sensor name.
TEMP_N_CELSIUS	Displays current temperature sensor reading.
TEMP_N_STATE	Displays temperature sensor state. Valid values are: • WARN: Disabled - Temperature sensor disabled. • WARN: Low - Low, but in tolerance. • WARN: High - High, but in tolerance. • OK. • FAIL: Low - Low and out of tolerance. • FAIL: High - High and out of tolerance.
VOLTAGE_N_NAME	Displays voltage sensor name.
VOLTAGE_N_VALUE	Displays current voltage reading.
VOLTAGE_N_STATE	Displays temperature sensor state. Valid values are: • OK. • WARN: Low - Low, but in tolerance. • WARN: High - High, but in tolerance.
SFP_N_WAVELENGTH	Displays transmit wavelength in nm.
SFP_N_X_LASER_BIAS	Displays bias level in mA.
SFP_N_X_TX_POWER	Displays transmit power level in dBm.

Table 4-34: Logging SFP Log Fields (continued)

Log Field	Description
SFP_N_X_TX_POWER_STATE	Displays transmit power level. Valid values are: • OK. • WARN: Low - Low, but in tolerance. • WARN: High - High, but in tolerance. • FAIL: Low - Low and out of tolerance. • FAIL: High - High and out of tolerance.
SFP_N_X_RX_POWER	Reports received power level in dBm.
SFP_N_X_RX_POWER_STATE	Reports received power level. Valid values are: • OK. • WARN: Low - Low, but in tolerance. • WARN: High - High, but in tolerance. • FAIL: Low - Low and out of tolerance. • FAIL: High - High and out of tolerance.
Where: • N is the input/SFP number; and • X is the lane number.	

Logging - FPGA Template

The **Logging FPGA** template shows FPGA messages reporting temperature and voltages for an FPGA device on the IQUCP25-MV module: Log field names and current log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to the RollCall network.

Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Figure 4-51 shows an example template.

Log Enable	Log Field	Log Value
☒ Temperature Sensor	TEMP_4_NAME=	FPGA
☒ Temperature	TEMP_4_CELSIUS=	71C
☒ Temperature State	TEMP_4_STATE=	OK
☒ Voltage Name	VOLTAGE_1_NAME=	VCCINT
☒ Voltage Value	VOLTAGE_1_VALUE=	0.99V
☒ Voltage Name	VOLTAGE_2_NAME=	VCCAUX
☒ Voltage Value	VOLTAGE_2_VALUE=	1.77V
☒ Voltage Name	VOLTAGE_3_NAME=	VCCBRAM
☒ Voltage Value	VOLTAGE_3_VALUE=	1.00V

Fig. 4-51: Logging FPGA Template

Table 4-35: Logging FPGA Log Fields

Log Field	Description
TEMP_N_NAME	Reports the name of temperature sensor N on the IQUCP25-MV module.
TEMP_N_CELSIUS	Reports current temperature sensor N reading (C).
TEMP_N_STATE	Reports current temperature sensor status.
VOLTAGE_1_NAME	Voltage sensor name. For example, VCCINT.
VOLTAGE_1_VALUE	Reports current voltage reading (V).
VOLTAGE_2_NAME	Voltage sensor name. For example, VCCAUX.
VOLTAGE_2_VALUE	Reports current voltage reading (V).
VOLTAGE_3_NAME	Voltage sensor name. For example, VCCBRAM.
VOLTAGE_3_VALUE	Reports current voltage reading (V).
Where: N is the temperature sensor number on the IQUCP25-MV module.	

Logging - Spigot 1 to 16 Templates

Note: An IQUCP25-MV module:

- Sends out up to 4 video IP streams on (source) spigots 1 to 4.
 - Receives up to 12 video IP streams on (destination) spigots 5 to 16.
-

The **Logging - Spigot** templates are used to view and select the Spigot log fields to be enabled for each available spigot. Log field names and current log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to the RollCall network.

Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Appropriate log fields are shown, depending on whether the spigot is:

- an IP source spigot ("Input N ...", see Figure 4-52); or
- an IP destination spigot ("Output N ...", see Figure 4-53).

A spigot can be given a user name ("Input N Name" or "Output N Name") in an additional field is provided. To specify a user name for a spigot:

- Enter a name in the **Input N Name** or **Output N Name** text field.
(Remember to click **S** or press the enter key to enter the new name.)

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.

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

- **"S"** - Locally save new, entered setting value (or press "return").
 - **"P"** - Locally save default setting value.
-

Source Spigots (Multiviewer Head Display Outputs)

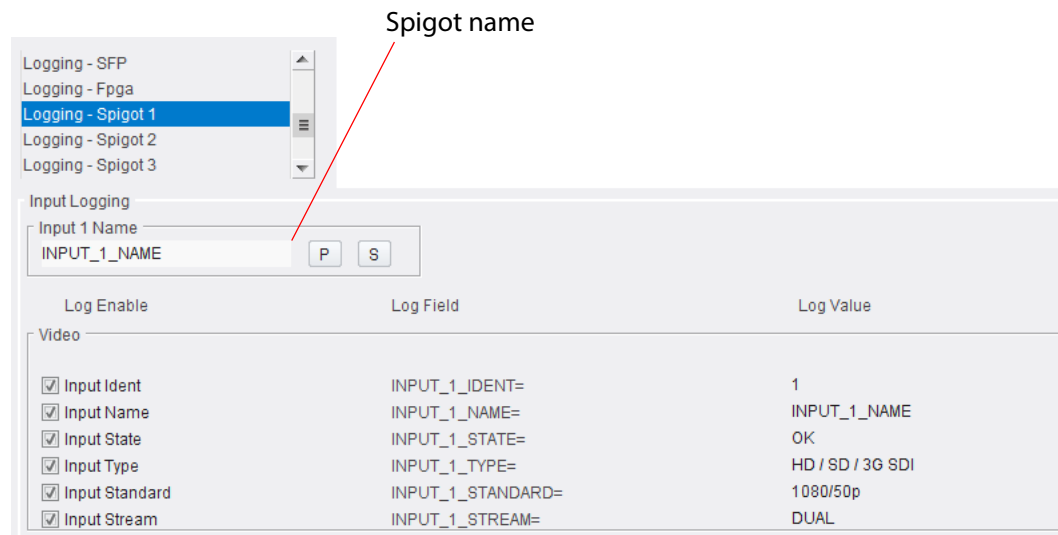


Fig. 4-52: Logging Spigot Template - Source Spigots 1 to 4

Table 4-36: Logging Spigot 1 to 4 Templates - Log Fields

Log Field (Source Spigot)	Description
INPUT_N_IDENT	System-defined identifier for the input, based on the rear ID.
INPUT_N_NAME	Name of the spigot.
INPUT_N_STATE	Valid values are: • OK: input signal good. • FAIL: input signal not detected.
INPUT_N_TYPE	HD/SD/3G SDI
INPUT_N_STANDARD	Video standard, for example, 1080p50.
INPUT_N_STREAM	The IP streaming at the spigot. This can be: • Dual (for redundancy) using both media Ethernet interfaces. • Single (no redundancy). • A or B (no redundancy) using a specific Ethernet interface.
Where: N is the input/output spigot number (1 to 16).	

Destination Spigots (Multiviewer Inputs)

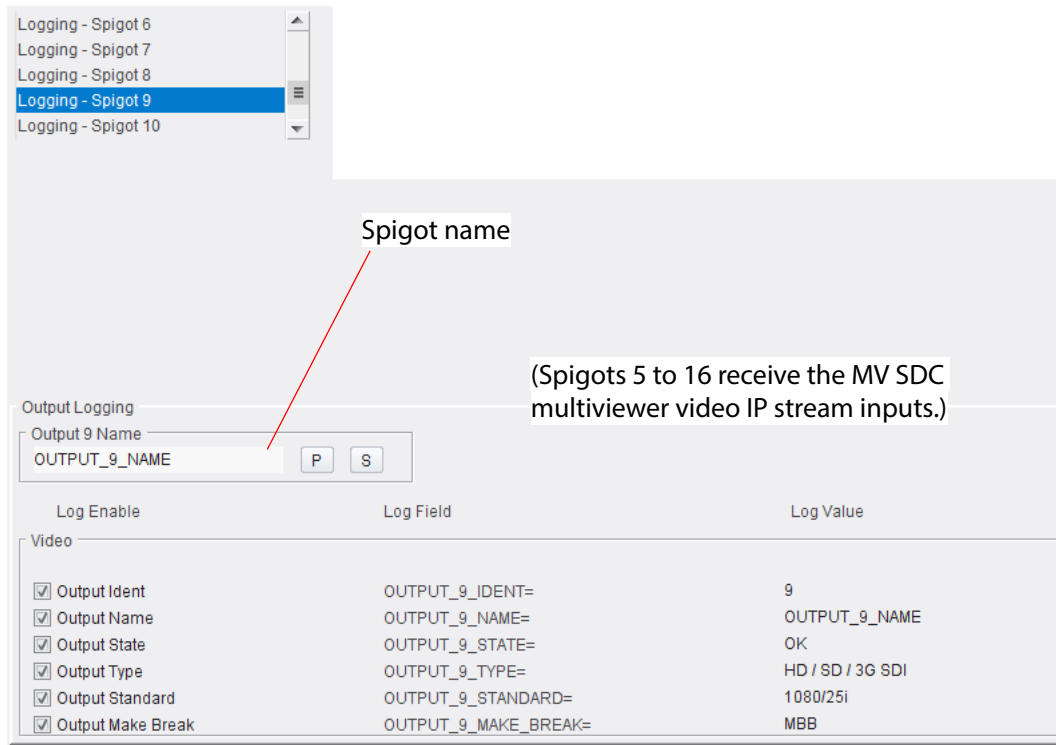


Fig. 4-53: Logging Spigot Template - Destination Spigots 5 to 16

Table 4-37: Logging Spigot 5 to 16 Templates - Log Fields

Log Field (Destination Spigot)	Description
OUTPUT_N_IDENT	Spigot number.
OUTPUT_N_NAME	Spigot name.
OUTPUT_N_STATE	Valid values are: • OK - output signal good. • FAIL - output signal not detected. • WARN: Freeze • WARN: Pattern • WARN: Black
OUTPUT_N_TYPE	Valid values are: • SD SDI • HD SDI • HD/SD/3G SDI

Table 4-37: Logging Spigot 5 to 16 Templates - Log Fields (continued)

Log Field (Destination Spigot)	Description
OUTPUT_N_STANDARD	Reports the video standard from the destination spigot, going to the MV SDC multiviewer input. Format: <Lines>(<Active>)/<Rate><i/p/sf> Where: • Lines = Total lines • Active = Active lines • Rate = Frame rate • I = interlaced • P = Progressive • SF = Segmented Frame For example: 1080/50p or 1125(1080)/25i
OUTPUT_N_MAKE_BREAK	Reports the 'Make-before-Break' or 'Break-before-Make' setting for the spigot.
Where: N is the input/output spigot number (1 to 16).	

Logging - Card Diagnostics Template

The **Logging Card Diagnostics** template is used to view log fields of the IQUCP25-MV module and select those log fields to be enabled. Log field names and current log values are listed in the 'Log Field' and 'Log Value' columns respectively. Information on several parameters can be made available to a logging device connected to the RollCall network. Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Figure 4-54 shows an example template.

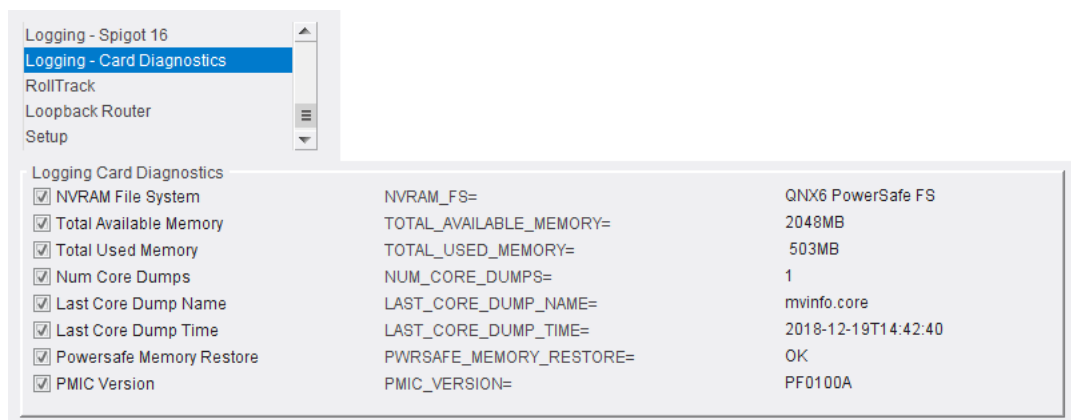


Fig. 4-54: Logging Card Diagnostics Template

Table 4-38: Logging Card Diagnostics Template Log Fields

Log Field	Description
NVRAM_FS	Reports file system type.
TOTAL_AVAILABLE_MEMORY	Reports amount of CPU free memory.
TOTAL_USED_MEMORY	Reports total amount of used CPU memory.
NUM_CORE_DUMPS	Reports number of CPU core dumps. <i>For diagnostics purposes only.</i>
LAST_CORE_DUMP_NAME	Reports name of last CPU core dump. <i>For diagnostics purposes only.</i>
LAST_CORE_DUMP_TIME	Reports time of last CPU core dump. <i>For diagnostics purposes only.</i>
PWRSAFE_MEMORY_RESTORE	Reports "OK".
PMIC_VERSION	Reports Power Management IC version. <i>For diagnostics purposes only.</i>

RollTrack Template

The **RollTrack** template sets up RollTrack settings for the IQUCP25 base module allowing information action events to be triggered by the state of multiviewer head display outputs on spigots 1 to 4.

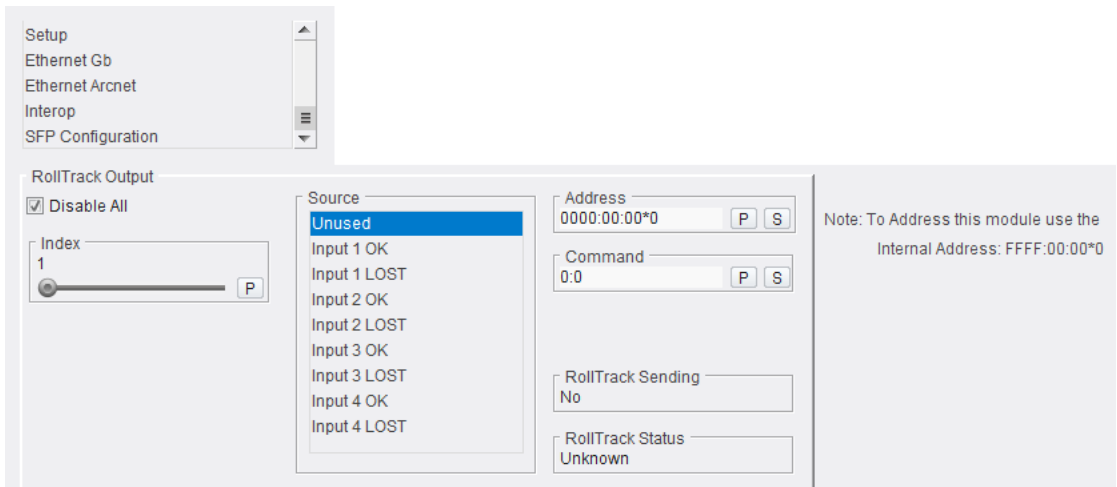


Fig. 4-55: RollTrack Template

Table 4-39: RollTrack Template

Log Field	Description
RollTrack Output:	
Disable All	Check box. Select to disable all RollTrack messages.
Index	Slider. Drag slider to select a destination index on the RollCall network. (1 to 32)
Source	Selection box. Select the source of information that triggers RollTrack messages. • Unused - No RollTrack messages sent. • Input N OK - Spigot N is good. • Input N Lost - Spigot N is bad. Where N is the spigot number 1 to 4 (for the source spigots).

Table 4-39: RollTrack Template (continued)

Log Field	Description
Address	Text box. Enter the destination RollCall address for the selected RollTrack Output Index. Click S to save the entry. Click P to return to the default preset address. RollTrack address: The RollTrack address consists of four sets of numbers, for example, 0000:10:01*99: • The first set, 0000, is the 4-digit network segment code number. • The second set, 10, is the 2-digit number identifying the (enclosure/mainframe) unit. • The third set, 01, is the 2-digit slot number in the unit. • The fourth set, 99, is a 2-digit user-definable number that is a unique identifier for the destination unit in a multi-unit system. This ensures that only the correct unit will respond to the command. Note: If left at 00, an incorrectly fitted unit may respond inappropriately.
Command	Text box. Enter the RollCall command (RollCall command number and command value) for the selected RollTrack Output Index destination. The command may be changed by: • typing a code in to the text field; and then • selecting S to save the selection. (Clicking P returns to the default preset command.) RollTrack Command: A RollTrack command consists of two sets of numbers, for example: 84:156: • The first number, 84, is the actual RollTrack command number. • The second number, 156, is the value sent with the RollTrack command.
RollTrack Sending	Shows when a RollTrack message is being actively sent. • String A string value is sent. • Number A number value is sent. • No Message not being sent. • Yes Message being sent.

Table 4-39: RollTrack Template (continued)

Log Field	Description
RollTrack Status	Reports the status of the currently selected RollTrack index. • OK Message sent and received OK. • Unknown Message sent, but transfer not yet completed. • Timeout Message sent but acknowledgment not received within timeout period. • Error RollCall error. • Bad Broken RollCall packet. • Disabled RollTrack sending is disabled.

Loopback Router Template

The **Loopback Router** template is used to control a basic, internal 'IP routing' facility, which will loop IP flows from source spigots back into destination spigots. This is not used in normal operation.

The flows are looped-back and are not transmitted externally: The loop-back routing is all local to the IQUCP25-MV module.

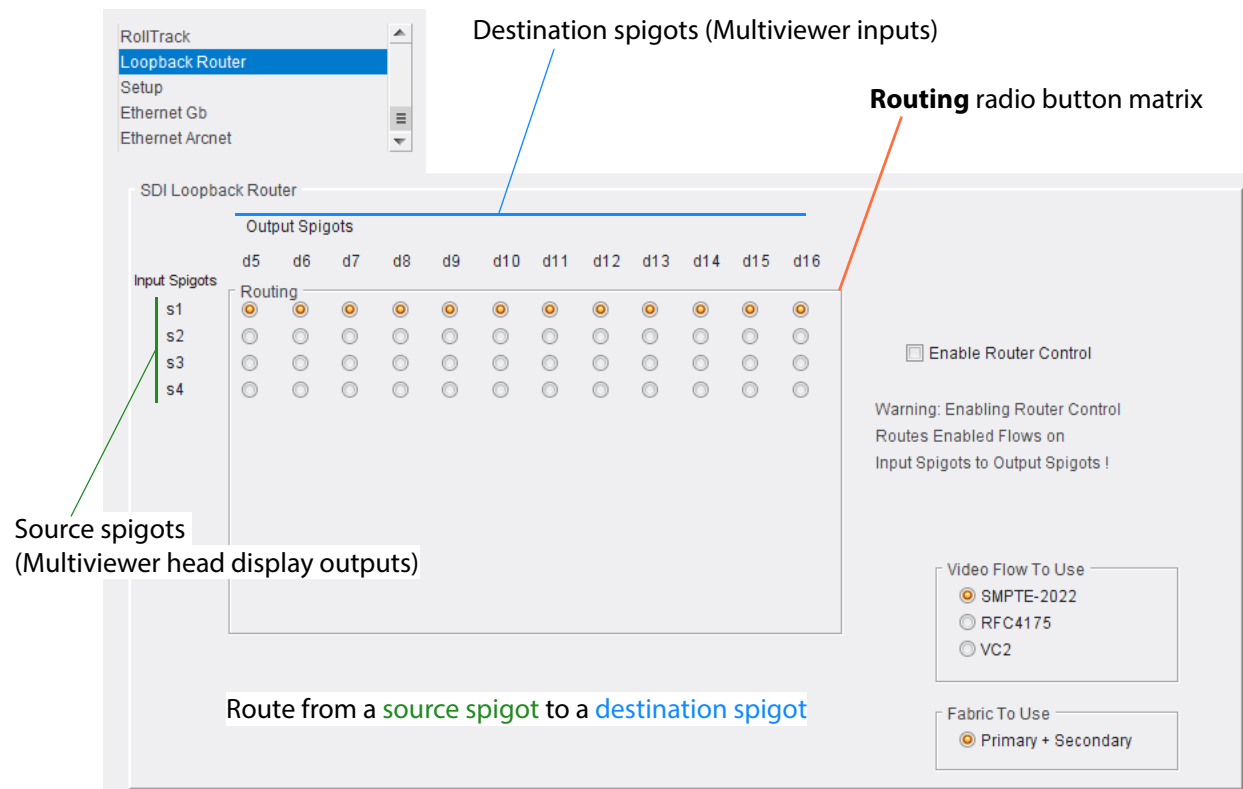


Fig. 4-56: Loopback Router Template

To use the **Loopback Router**:

- 1 In the **Routing** radio button matrix, select the source spigots to be routed to destination spigots.
(A source spigot carries a multiviewer head output video signal from the MV SDC. A destination spigot will provide a video signal to an multiviewer input of the MV SDC).
- 2 Select the **Video Flow to Use**. (SMPTE-2022, SMPTE2110-20/RFC4175)
- 3 Select the **Primary + Secondary** IP fabric to use (main/backup).

When all is set as required:

- 4 Select **Enable Router Control**.
The selected routing is activated. Flows from source spigots are sent internally to destination spigots.

Setup Template

The **Setup** template displays basic information about the IQUCP25-MV module, such as the serial number and software build number. This information may be required by Grass Valley Support if technical assistance is needed. The template displays technical information and contains some restart and default-setting controls.

The screenshot shows the 'Setup' template interface. On the left, a vertical menu lists 'Setup' (selected), 'Ethernet Gb', 'Ethernet Arcnet', 'Interop', and 'SFP Configuration'. The main area is titled 'Product' and contains several input fields for module information:

- Product:** IQUCP25_MV
- Software Version:** 14.37 .81
- Firmware Version:** EDA57A18
- Serial No.:** 858091257
- SW Build:** 0.21.46
- OS:** QNX 6.6.0
- Rear ID:** 0
- Main PCB:** RMIX251B
- Main Mod Level:** 0
- Main HW Build:** 0
- Feature PCB:** MIX25FB1
- Feature Mod Level:** 0
- Feature HW Build:** FB1

Below these fields are two sections:

- Restart:** Contains a 'Restart' button and a warning message: 'Warning: This will affect all Outputs !'.
- Defaults:** Contains 'Default Settings' and 'Factory Defaults' buttons.

At the bottom, there is a 'Remove License' section with a 'Remove License' button and a note: 'Restart Needed Afterwards to change to BASE Product'.

Fig. 4-57: Setup Template

Table 4-40: Setup Template Settings and Controls

Item	Description
Product	Name of the IQUCP25-MV module.
Software Version	Currently installed software version number.
Firmware Version	Currently installed firmware version number.
Serial No.	Serial number of the IQUCP25-MV module.
SW Build	Factory software build number. This number identifies all parameters of the IQUCP25-MV module.
OS	Name of operating system (OS) on the IQUCP25-MV module.

Table 4-40: Setup Template Settings and Controls (continued)

Item	Description
Rear ID	ID of the rear card connected to the IQUCP25-MV module in the modular frame.
Main PCB	Printed Circuit Board (PCB) name.
Main Mod Level	Main PCB modification level.
Main HW Build	Factory main hardware build number.
Feature PCB	Daughter board PCB revision number.
Feature Mod Level	Daughter board PCB modification level.
Feature HW Build	Factory daughter board hardware build number.
Restart: Restart	Button. Click to restart the IQUCP25-MV module. Note: A restart effectively power-cycles the IQUCP25-MV module, which can produce the following effects • disturbances at outputs. • disturbance to MV SDC multiviewer inputs.
Defaults: Default Settings Factory Defaults	Provides options to reset the module to its defaults. Button. Click to return all IQUCP25-MV module settings to their default values, <i>except</i> for network configuration and IP addresses. Button. Click to return all IQUCP25-MV module settings to their factory values, <i>including</i> network configuration and IP addresses.
Remove License: Remove License	Button. Click to remove the MV SDC license from the IQUCP25 base module. A restart is required for this to take effect.

Ethernet Gb Template

The **Ethernet Gb** template displays details and the status of the 'card front' network connection of the IQUCP25-MV module. This is for Grass Valley engineering use only.

Information is shown in a tabular format. DHCP or static IP address modes may be used. DHCP is the default. The template displays the current IP settings and allows new static IP details to be entered.

	Current	New Static
IP Address	10.162.51.205	10.162.51.205
Default Gateway	10.162.254.1	10.162.254.1
Subnet Mask	255.255.0.0	255.255.0.0
MAC Address	00:23:70:00:72:8E	
Mode	STATIC	
Link Status	UP	

DHCP / Static IP Changes take effect on restart

Fig. 4-58: Ethernet Gb Template

Table 4-41: Ethernet Gb Template Settings and Controls

Item	Description
IP Address	Current IP address. Enter a new (static) IP address in the text box. Click S or press the enter key to enter the new value. See Note 1 .
Default Gateway	Current default gateway IP address. Enter a new (static) IP address in the text box. Click S or press the enter key to enter the new value. See Note 1 .
Subnet Mask	Current subnet mask. Enter a new (static) subnet mask in the text box. Click S or press the enter key to enter the new value. See Note 1 .
MAC Address	MAC address of the network connection.
Mode	IP mode in use by the network connection (STATIC or DHCP).
Link Status	Link status of the network connection (UP or DOWN).
New Mode:	Radio buttons. See Note 1 .
DHCP	Select to set DHCP IP address mode. (Default)
Static	Select to set a static IP address etc.
Restart	Button. Click to restart. See Note 1 .
Note 1: DHCP / Static IP address changes take effect on a restart.	

Ethernet ArcNet Template (Not used)

The **Ethernet ArcNet** template displays details and the status of the IQ modular frame comms connection. This interface is not used for IQUCP25-MV.

Information is shown in a tabular format. DHCP or static IP address modes may be used. The template displays the current IP settings and allows new static IP details to be entered. Controls are similar to the **Ethernet Gb** template, [Ethernet Gb Template](#), on page 146.

Ethernet		Current	New Static	
Arcnet				S
IP Address	Unknown			S
Default Gateway	Unknown			S
Subnet Mask	Unknown			
MAC Address	Unknown			
Mode	DHCP			
Link Status	Unknown			

DHCP / Static IP Changes take effect on restart

Fig. 4-59: Ethernet Gb Template

Interop Template

The **Interop** template controls various settings to enable interoperability with third parties, including disabling extended headers, and setting payload types.

Setup
Ethernet Gb
Ethernet Arcnet
Interop
SFP Configuration

Information
1:172.19.81.86
2:172.19.83.86
Gb:10.162.51.205
A:

Video Selection
SDI 1 / SDI 2

Stream Synchronisation Controls

Audio
Extended Headers ☒
RTP To PTP ☐
Nominal Delay ☒

Meta
Extended Headers ☒
RTP To PTP ☐
Nominal Delay ☒
Rtp ☐

Meta Frame Delay
Spigot 5 P 0
Spigot 6 P 0
Spigot 7 P 0
Spigot 8 P 0
Spigot 9 P 0
Spigot 10 P 0
Spigot 11 P 0
Spigot 12 P 0
Spigot 13 P 0
Spigot 14 P 0
Spigot 15 P 0
Spigot 16 P 0

RTP Payload Types

Payload Selection
Set 1
Set 2

Payload Format
SMPTE2022 0x98
RFC4175 0x96
VC2 0x101
Audio 0x97
Data 0x100

Video
VC2 Compression
2:1

Fig. 4-60: Interop Template

The template displays the following panels:

- Stream Synchronization Controls (see Table 4-42).
- RTP Payload Types (see Table 4-43).
- Video (see Table 4-44).

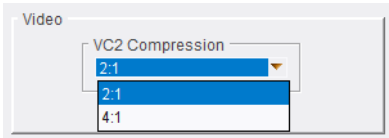
Table 4-42: Interop Template - Stream Synchronization Controls

Stream Synchronization Controls Item	Description
Audio:	Check boxes:
Extended Headers	Select to use extended headers in the RTP audio stream.
RTP to PTP	Select to synchronize RTP to PTP.
Nominal Delay	Select to set up nominal delay at the spigot.
Meta:	Check boxes:
Extended Headers	Select to use extended headers in the RTP metadata stream.
RTP to PTP	Select to synchronize RTP to PTP.
Nominal Delay	Select to set up nominal delay at the spigot.
Rtp	Select to enable the use of RTP timestamps only to synchronize metadata to video.
Meta Frame Delay:	A slider control per destination spigot (spigots 5 to 16):
Spigot N	Select the required frame delay for metadata received on the spigot. Frame delay value in range 0 to 5. Click P to select the factory default value (0).
	

Table 4-43: Interop Template - RTP Payload Types

Interop RTP Payload Types	Description
Payload Selection:	Radio buttons:
Set 1	Select to use payload set 1. (Pre-standards-ratification value)
Set 2	Select to use payload set 2. (Post-standards-ratification value, default)
Payload Format:	Hexadecimal code used for payload types:
SMPTE2022	SMPTE2022 payload type.
RFC4175	RFC4175 payload type.
VC2	VC2 payload type (not supported, possible future feature).
Audio	Audio payload type identifier.
Data	Metadata payload type.

Table 4-44: Interop Template - Video

Interop Video Item	Description
VC2 Compression	Drop-down box. Select VC2 compression ratio. (Note: VC2 is not currently supported.)  The screenshot shows a 'Video' configuration window with a 'VC2 Compression' drop-down menu. The menu is open, displaying three options: '2:1', '2:1', and '4:1'. The first '2:1' option is highlighted in blue.

SFP Configuration Template

The **SFP Configuration** template allows various parameters of fitted SFP transceiver module(s) to be adjusted, if required. The majority of SFP transceiver modules will operate correctly with the IQUCP25-MV module without any need for adjustment. Some SFP transceiver modules, however, may need to have some SFP parameters adjusted.

The screenshot displays the 'SFP Configuration' window. On the left, a sidebar menu lists 'Setup', 'Ethernet Gb', 'Ethernet Arcnet', 'Interop', and 'SFP Configuration' (which is selected and highlighted in blue). The main area is divided into two sections: 'SFP 1 Compatibility Control' and 'SFP 2 Compatibility Control'.

SFP 1 Compatibility Control

- SFP Database List:** A dropdown menu shows 'Flexoptix1'. To its right is a 'Take' button and the text 'Currently Set Flexoptix1'.
- SFP Custom Control:** A table of parameters:

Parameter	Value	Action	Currently Set
Postcursor Control (Hex)	0x0	Take	0x15
Precursor Control (Hex)	0x0	Take	0x0
Tx Diff Control (Hex)	0x0	Take	0x12
Rx LPM Enable (Hex)	0x0	Take	0x1

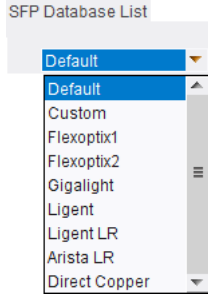
SFP 2 Compatibility Control

- SFP Database List:** A dropdown menu shows 'Default'. To its right is a 'Take' button and the text 'Currently Set Default'.
- SFP Custom Control:** A table of parameters:

Parameter	Value	Action	Currently Set
Postcursor Control (Hex)	0x0	Take	0x4
Precursor Control (Hex)	0x0	Take	0x0
Tx Diff Control (Hex)	0x0	Take	0x12
Rx LPM Enable (Hex)	0x0	Take	0x1

Fig. 4-61: SFP Configuration Template

Table 4-45: SFP Configuration Template

SFP Configuration Item	Description
SFP Database List:	Drop-down box: Select the SFP type from the drop-down list. 
Take	For Custom setting only, click to apply settings and save to memory.
Currently Set	Shows the current SFP type.
SFP Custom Control:	Custom settings are set here. Select Custom in the SFP database list above. Text boxes. Enter a new hexadecimal value for the Tx/Rx sub-circuits of the SFP transceiver module. Parameter: • Post-cursor Control (hexadecimal value) • Pre-cursor Control (hexadecimal value) • Tx Diff Control (hexadecimal value) • Rx LPM Enable (hexadecimal value) Click S or press the enter key to save the value. The new value is then shown in the text box. The Currently Set value is also shown in the same row. Buttons. Click Take to change to the new value.

SFP Transceiver Module Setting

If difficulties are encountered with a SFP transceiver module not working as expected, follow these instructions:

- 1 Select the appropriate SFP type in the **SFP Database List**, and click **Take**.
Verify whether the SFP is now working correctly.
If it is now working correctly, then no further action is required; otherwise, continue.
- 2 Select **Custom** in the **SFP Database List**.
This allows all the SFP module settings shown in the **SFP Custom Control** panel to be adjusted as required.
Change settings and click **Take** to apply each of them.
- 3 When a working settings configuration is found, click **S** beside each setting to save the setting value for future use.

RollCall Templates - MV SDC Multiviewer (on IP port 2051)

This section describes each RollCall template for the MV SDC Multiviewer of a IQUCP25-MV. (For IQUCP25 base module templates, see [RollCall Templates - IQUCP25 'Base Module' \(on IP port 2050\)](#), on page 75.)

[Introduction](#), on page 154

[System - Setup Template](#), on page 157

[Layout Template](#), on page 162

[TSL Template](#), on page 164

[Timer Control Template](#), on page 166

[Timer Request Protocol Template](#), on page 168

Introduction

RollCall templates for the MV SDC described here are accessed via IP port 2051. The templates are used to configure and control the IQUCP25-MV module's MV SDC multiviewer. Configuration/control is done using Grass Valley's RollCall Control Panel, part of the Grass Valley RollCall Suite. The MV SDC multiviewer configuration is typically performed once after IQUCP25-MV installation.

Note: Install the RollCall Control Panel software on your computer. See the RollCall Control Panel User Manual ("RollCall V4 Suite & RollCall Lite" Introduction manual) and contact Grass Valley Support for information.

RollCall Control Panel may be used to configure and control various IQUCP25-MV multiviewer items, including:

- selection of video wall layouts;
- monitoring alarm status;
- acknowledging alarms; and
- control of timer widgets on the video wall.

Navigating to Templates

Navigating to the various templates is done the same way as the IQUCP25 base module templates, described at [Navigating to RollCall Template Screens](#), on page 77.

To navigate to a template:

- click on the template name in the **Template Selection** box. See Figure 4-62.

or:

- Right-click in the **Template Selection** box to display a list of templates (see Figure 4-63) and click on the template required.

Template Selection box

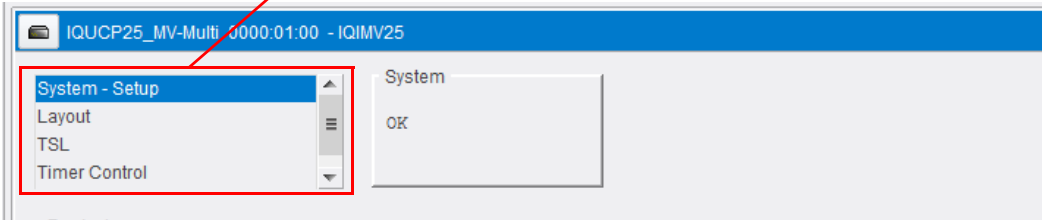


Fig. 4-62: Template Selection Box

Right-click in the **Template Selection** box for a **List of Templates**

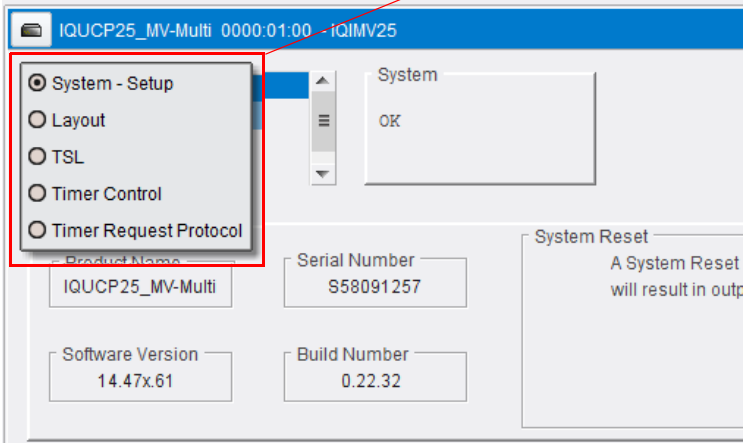


Fig. 4-63: List of Templates

Common Information System Box

System box

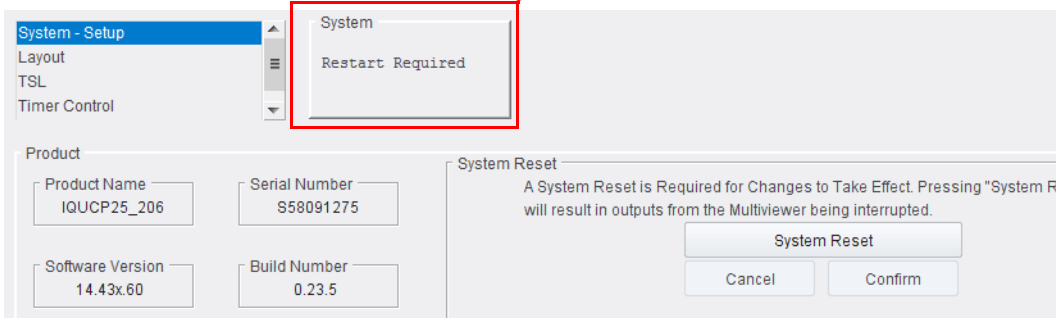


Fig. 4-64: RollCall Template System Box

The **System** box (see Figure 4-64) displays the MV SDC system status at the top of each template page:

- **OK** - the MV SDC multiviewer is working correctly.
- **Fail** - the MV SDC multiviewer has a problem.
- **Restart Required** - the MV SDC application on the IQUCP25 Module requires a module restart. (This is indicated after making changes in the template for some configuration changes to take effect.)

Entering Some Settings

Some settings must be saved on the template. This is indicated by an adjacent **S** button. Click **S** to save a setting on the template. Click **P** to save the factory default setting.

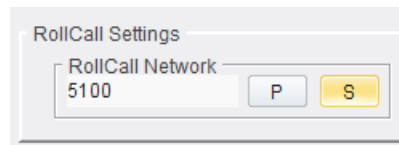


Fig. 4-65: S (and P) buttons

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. (Note: 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.

Template Sections

The following IQUCP25-MV MV SDC multiviewer templates may be selected:

- [System - Setup Template](#), on page 157.
- [Layout Template](#), on page 162.
- [TSL Template](#), on page 164.
- [Timer Control Template](#), on page 166.
- [Timer Request Protocol Template](#), on page 168.

System - Setup Template

Note: The MV SDC multiviewer must be **System Reset** for any saved setting changes on this template to take effect. See [System Reset Box](#), on page 158.

The **System-Setup** template (see Figure 4-66) comprises various information boxes which display basic information about the MV SDC multiviewer (for example, system status, product name and software version). It is also used to setup the following MV SDC system details:

- System reset of the MV SDC multiviewer.
- RollCall settings.
- Multiviewer monitor output format.
- Multiviewer name.

The screenshot shows the 'System - Setup' window for 'IQUCP25_MV-Multi'. The interface includes a sidebar with 'System - Setup', 'Layout', 'TSL', and 'Timer Control'. The main area contains several sections:

- Product:** Displays 'Product Name' (IQUCP25_MV-Multi), 'Serial Number' (S58091257), 'Software Version' (14.43x60), and 'Build Number' (0.21.46).
- System Reset:** A warning box stating 'A System Reset is Required for Changes to Take Effect. Pressing "System Reset" will result in outputs from the Multiviewer being interrupted.' It includes 'System Reset', 'Cancel', and 'Confirm' buttons.
- RollCall Settings:** Includes fields for 'RollCall Network' (5100), 'RollCall Unit' (1), 'RollCall Port' (00), 'RollCall IP Port' (0), and 'Domain ID' (205), each with 'P' and 'S' buttons.
- Output Format:** A 'Format Selection' dropdown menu currently set to '1080p60'.
- Information:** Includes 'Name' (IQUCP25_MV-Multi), 'Location', and 'Notes' fields, each with 'P' and 'S' buttons.

Fig. 4-66: System Setup Template

Product Information Box

Displays MV SDC multiviewer details:

- **Product Name** - The name of the module, for example, 'IQUCP25_206'.

- **Serial Number** - The IQUCP25-MV module's serial number.
- **Software Version** - The currently installed IQUCP25-MV software version number.
- **Build Number** - The build number of the currently installed IQUCP25-MV software.

System Reset Box

This box contains a **System Reset** button which resets (reboots) the IQUCP25-MV's MV SDC multiviewer. This is used to make any **System-Setup** template configuration setting changes take effect. Performing a system reset makes the multiviewer use the new settings.

A system reset reboots the multiviewer by *effectively* powering it down and then powering it back up. This will produce a picture disturbance on all IQUCP25-MV multiviewer outputs.

IMPORTANT:

A system reset of the multiviewer will affect all multiviewer head display outputs and network connections.

Carrying Out a System Reset

Once all changes in the **System-Setup** template have been done, carry out a system reset:

- 1 Click on the **System Reset** button.
The **Confirm** button is now active (i.e. ungrayed out).
- 2 Then click **Confirm** to perform a system reset.
Or click **Cancel** to abort the system reset.

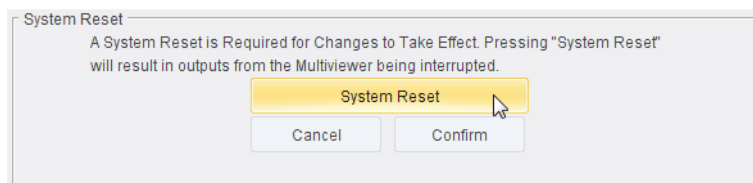


Fig. 4-67: System Reset Controls

(See [STEP 4: Booting Up](#), on page 173, for more information on module booting.)

RollCall Settings

The RollCall settings in the **System-Setup** template are used to allow Grass Valley Orbit software applications to control the MV SDC multiviewer and should normally be changed if you have multiple IQUCP25-MV modules on the same RollCall network.

Table 4-46: RollCall Settings

Setting	Description
RollCall Network	Text box. Enter the RollCall network number. The network number forms part of the unit's RollCall address, which is <i>not</i> an IP network address.
RollCall Unit	Text box. Enter the RollCall unit number. The unit number must be unique for each Multiviewer being configured. The initial default value is "01".
RollCall Port	This parameter is not used.
RollCall IP Port	Text box. This parameter is not used.
Domain ID	Text box. Enter RollCall domain ID.

Note: RollCall address:

This is not an IP network address.

A RollCall address has the form: NNNN:UU:PP

where:

NNNN is the RollCall network number.

UU is the RollCall unit number.

PP is the multiviewer input number (01, 02 etc).

Note: RollCall Domain ID:

RollCall uses the concept of domains to partition a RollCall network. Only those RollCall-enabled devices on the same RollCall Domain can communicate with one another.

A domain is uniquely identified with a **Domain ID** number.

Domain ID is also used by Orbit software when connecting to an IQUCP25-MV.

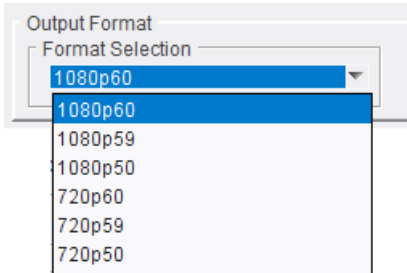
- The **Domain ID** can typically be left at its default value, 100. (Reserved for multiviewer RollCall traffic.)
- To reset the **Domain ID** to the default value of 100 click on the **P** button.

To set the **Domain ID**, enter the Domain ID number in the text box and click the **S** button to locally save the new setting.

Output Format

The **Output Format** of multiviewer head display outputs is set for *all* of the multiviewer display outputs. All outputs share the same format.

Table 4-47: Output Format Settings

Setting	Description
Format Selection	Drop-down box. Select the display output format. 

Note: 4K/UHD Output:

When driving a 4K/UHD monitor, each IQUCP25-MV multiviewer head display output drives one quadrant of the UHD monitor.

Some 4K/UHD monitors have four 1080P inputs, so they can be fed from four IQUCP25-MV 1080p outputs. If this is not the case, a separate adapter must be used to convert four IQUCP25-MV multiviewer display outputs to a single 4K signal suitable for the monitor.

Information Box

The **Information** box contains text fields which can be set up by the user, enabling the user to enter name, location and notes about their multiviewer unit.

To enter/modify text in the text box, type directly into the editable text field and click the **S** button. To return to the default text, click the **P** button.

Table 4-48: Information Box

Setting	Description
Name	Text box. A meaningful name may be given to the multiviewer unit, making it easier to identify. Maximum 32 characters. Remember to press S or press return to save the name locally.
Location	Text box. Multiviewer location details may be entered, to make it easier for the user to locate the multiviewer. Maximum 64 characters. Remember to press S or press return to save the name locally.
Notes	Text Box. Extra user information about the multiviewer may be entered. Up to 64 characters can be displayed in the notes field. Remember to press S or press return to save the name locally.

System Reset to Effect Changes

After all **System-Setup** window settings changes have been made, an MV SDC System Reset is required. See [System Reset Box](#), on page 158.

Layout Template

The **Layout** template allows the user to select which MV SDC multiviewer video wall layout to apply to each multiviewer head display output. A user may also use a RollCall soft- or hard-panel to remotely control which video wall layout is used.

The on-screen transition between two wall layouts is selectable; it can be:

- a simple cut; or
- a fade through black.

Video walls are designed in the Orbit application and different wall layouts may be generated for the same wall. These are all contained within an Orbit multiviewer project.

- Each *video wall* in an Orbit multiviewer project has a **Name** property which is set to "Wall 1", "Wall 2" etc. The wall name may be edited in Orbit by the user.
- Each *wall layout* in an Orbit multiviewer project has a **Name** property which is set to "Layout1", "Layout2" etc. This is *not* editable by the user.

The wall layout to be used for each wall can be selected in the respective drop-down box of the **Layout** template.

Note: Wall layout names are case-sensitive.

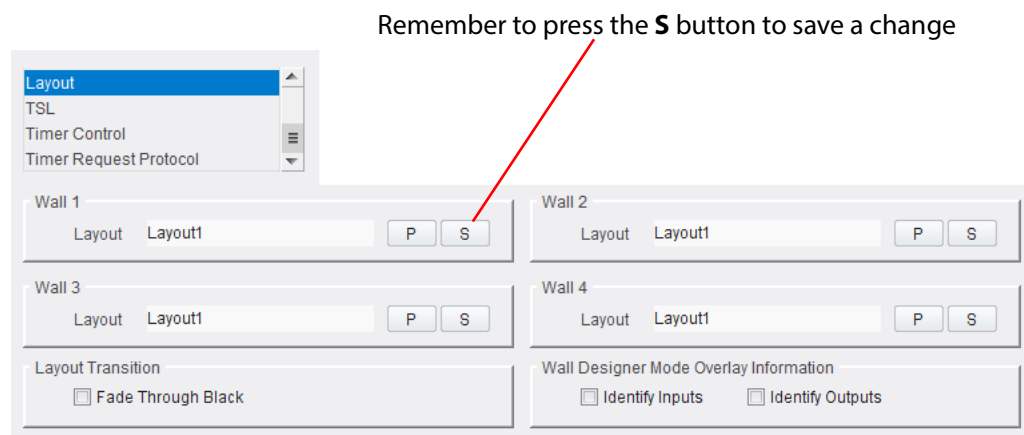


Fig. 4-68: Layout Template

Table 4-49: Layout and Controls Settings

Setting	Description
Wall 1 to Wall 4:	
Layout	Text box. Enter the wall layout name to use. Layout1, Layout2, etc. (Case sensitive)

Table 4-49: Layout and Controls Settings (continued)

Setting	Description
Layout Transition: Fade Through Black	Check box. Controls the type of on-screen transition seen when changing between wall layouts. • Select to fade down to black; then fade up to new wall layout. • Deselect to cut from current to new wall layout.
Wall Designer Mode Overlay Information:	
Identify Inputs	Controls the display of overlay information on each multiviewer display output. See Figure 4-69. Check box. Select to display overlay information which identifies each video input on the display output screen.
Identify Outputs	Check box. Select to display overlay information which identifies each head display output screen.

Identify Inputs:

An overlay which identifies a video input in a video wall tile.

Identify Outputs:

An overlay which identifies each multiviewer head display output.

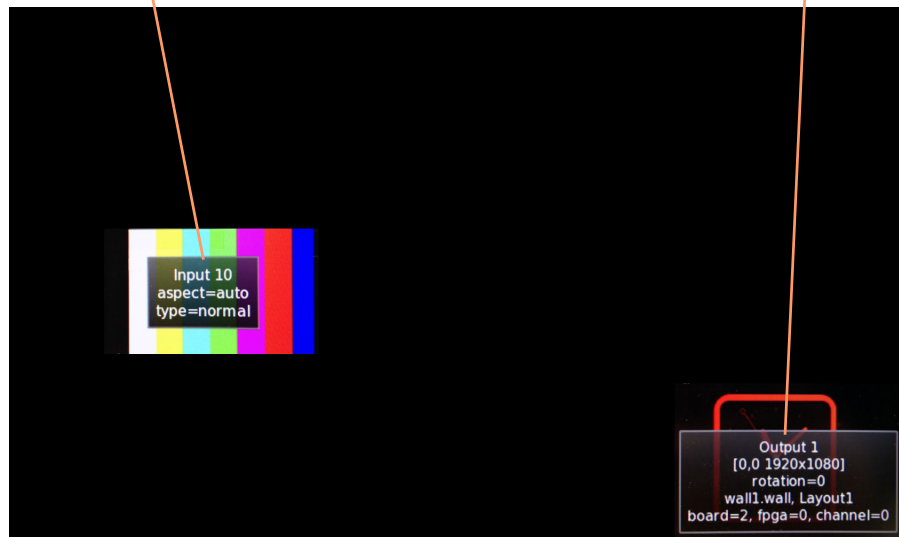


Fig. 4-69: Multiviewer Head Display Output Overlays

TSL Template

The **TSL** template allows the user to select settings related to IQUCP25-MV support of the TSL protocol.

The screenshot shows the TSL Template configuration window. On the left is a sidebar with a list of templates: Layout, TSL (selected), Timer Control, and Timer Request Protocol. The main area is divided into two sections: UDP and TCP. The UDP section contains a dropdown for 'Ethernet Interface' set to '1G1', and two rows of port settings. Each row has a text box for the port number (7755 for 3.1 Port, 7756 for 5.0 Port), 'P' and 'S' buttons, and a 'Mode' dropdown set to 'Server'. The TCP section has an 'IP Address' text box with '10.162.51.205' and 'P'/'S' buttons. It also has similar port settings for 3.1 Port (1024) and 5.0 Port (1025). At the bottom right of the TCP section, it says 'Server: Local IP Address' and 'Client: Remote IP Address'.

Fig. 4-70: TSL Template

TSL protocol is supported in TSL Server Mode or TSL Client Mode, see [TSL Support](#), on page 193.

For two types of Ethernet protocols (UDP and TCP), the user can separately set up IP address and network port information.

Table 4-50: TSL Mode Settings

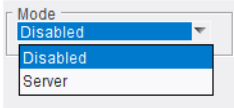
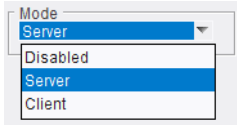
Setting	Description
UDP:	
Ethernet Interface	Drop-down box. Select Ethernet port to use - port1 (1G1) or port 2 (1G2).
3.1 Port	Text box. Enter the IP port to receive TSL 3.1 messages on.
5.0 Port	Text box. Enter the IP port to receive TSL 5.0 messages on.
Mode	Drop-down box. Select "Server", or "Disabled". 

Table 4-50: TSL Mode Settings (continued)

Setting	Description
TCP:	
IP Address	Text box. For Server Mode: Enter the local IP address of the IQUCP25-MV module to be used for TSL messages. For Client Mode: Enter the IP address of the remote TSL Controller in the system.
3.1 Port	Text box. Enter IP port to receive TSL 3.1 messages on.
5.0 Port	Text box. Enter IP port to receive TSL 5.0 messages on.
Mode	Drop-down box. Select " Server ", " Client " or "Disabled". 

Remember to press the **S** button when entering settings.

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

S - Press to locally save new setting value (or press "return").

P - Press to locally save default setting value.

Timer Control Template

The **Timer Control** template allows a user to set up timers on a video wall and then remotely control them with a RollCall soft- or hard-panel. (For example, to remotely start and stop the timers.)

The template is shown in Figure 4-71 and, for each **Timer**, the settings shown in Table 4-51 are available.

The interface displays 16 timer controls, each with the following components:

- Layout Menu:** Includes 'Layout', 'TSL', 'Timer Control' (selected), and 'Timer Request Protocol'.
- Timer Controls:**
 - Timer 1:** Running, 99:59:00, P, S, Count Up (selected), Count Down.
 - Timer 2:** Running, 99:59:00, P, S, Count Up (selected), Count Down.
 - Timer 3:** Running, 99:59:00, P, S, Count Up (selected), Count Down.
 - Timer 4:** Running, 99:59:00, P, S, Count Up (selected), Count Down.
 - Timer 5:** Running, 99:59:00, P, S, Count Up (selected), Count Down.
 - Timer 6:** Running, 22:33:44, P, S, Count Up, Count Down (selected).
 - Timer 7:** Running, 99:57:00, P, S, Count Up, Count Down (selected).
 - Timer 8:** Running, 44:55:55, P, S, Count Up, Count Down (selected).
 - Timer 9:** Running, 11:22:33, P, S, Count Up, Count Down (selected).
 - Timer 10:** Running, 22:33:44, P, S, Count Up, Count Down (selected).
 - Timer 11:** Running, 11:22:33, P, S, Count Up (selected), Count Down.
 - Timer 12:** Running, 11:11:11, P, S, Count Up (selected), Count Down.
 - Timer 13:** Running, 22:33:33, P, S, Count Up (selected), Count Down.
 - Timer 14:** Running, 33:33:33, P, S, Count Up (selected), Count Down.
 - Timer 15:** Running, 44:44:44, P, S, Count Up (selected), Count Down.
 - Timer 16:** Running, 55:55:55, P, S, Count Up (selected), Count Down.

Fig. 4-71: Timer Control Template

Table 4-51: Timer Control Settings

Setting	Description
Running	Check box. • Select to start the timer. • De-select to stop the timer.
Reset	Check box. Select to reset the timer.
(Target time)	Text Box. Enter the timer's target time. When the target time is changed, the timer is reset. Target time format: HH:MM:SS For example,12:30:00
Count Up	Radio button. Select to reset the timer and count up.
Count Down	Radio button. Select to reset the timer and count down.

Note: On the multiviewer video wall, **Timers** are implemented with **Timer** widgets.
All **Timer** widget on-screen styling and the configuration of trigger points etc are set up through the Orbit application.

Timer Request Protocol Template

The **Timer Request Protocol** template allows a user to define the IP address of an 'eTimer' server device and the IP port number to use. The protocol used is the Plura™ Timer Request Protocol.

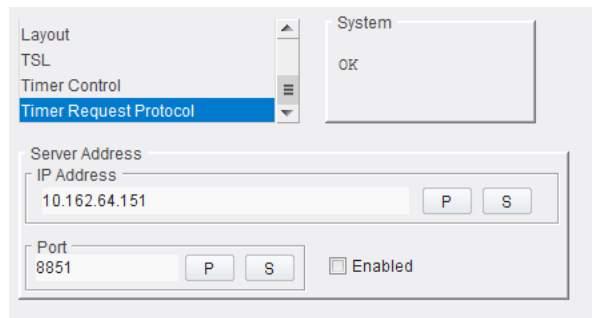


Fig. 4-72: Timer Request Protocol Template

Table 4-52: RollCall Timer Request Protocol Settings

Setting	Description
IP Address	Text box. Enter IP Address of an 'eTimer' server device. Press S .
Port	Text box. Enter IP port number to use for Timer Request Protocol messages.
Enabled	Check box. Select to enable use of Timer Request Protocol messages.

Remember to press the **S** button when changing the target time.

Note:	"S" and "P" buttons - "S" - Locally save new setting value (or press "return"). "P" - Locally save default setting value.
Note:	Configuring an 'eTimer': An Orbit Timer widget can be configured on a video wall tile in Orbit to be connected to an 'eTimer' service.

Getting Going

This section contains:

- [Introduction](#), on page 169
- [STEP 1: Module Hardware Installation](#), on page 170
- [STEP 2: Configuring IQUCP25 to be an IQUCP25-MV](#), on page 171
- [STEP 3: IQUCP25-MV Physical Connections](#), on page 171
- [STEP 4: Booting Up](#), on page 173
- [Default IQUCP25-MV Video Wall](#), on page 173
- [STEP 5: Preliminary IQUCP25-MV Configuration](#), on page 174
- [STEP 6: IQUCP25-MV Media Interface\(s\) Setup \(Video IP Streams\)](#), on page 179
- [STEP 7: Make a Change to the Video Wall](#), on page 181

Introduction

This “Getting Going” section describes a quick set up procedure to carry out basic setting up of the IQUCP25 module and basic exercising of the IQUCP25-MV module.

The generic IQUCP25 Module from the factory must be licensed to carry out one of the software-defined core functions it is capable of. A new IQUCP25 Module contains all available software-defined cores, including the MV SDC, but no licenses are present.

A new module defaults to the Essence Processing SDC functionality and will need to be licensed for the MV SDC.

Procedure

The procedure below will carry out some basic setting up of a IQUCP25 module to configure it be a IQUCP25-MV; this includes selecting the multiviewer core and setting up Ethernet interfaces. The procedure will then describe how to configure the IQUCP25-MV for receiving and sending video IP streams and modifying the multiviewer video wall.

The ‘Getting Going’ procedure includes:

- [STEP 1: Module Hardware Installation](#), on page 170.
- [STEP 2: Configuring IQUCP25 to be an IQUCP25-MV](#), on page 171.
- [STEP 3: IQUCP25-MV Physical Connections](#), on page 171.
- [STEP 4: Booting Up](#), on page 173.
- [STEP 5: Preliminary IQUCP25-MV Configuration](#), on page 174.
- [STEP 6: IQUCP25-MV Media Interface\(s\) Setup \(Video IP Streams\)](#), on page 179.
- [STEP 7: Make a Change to the Video Wall](#), on page 181.

Assumptions

It is assumed that:

- The IQUCP25-MV module is new and from the factory.
- There is a corresponding MV SDC license for the module.
- The IQUCP25-MV module is to be fitted into a slot in an IQ frame.
- A control network is available to perform some preliminary configuration via the IQ modular frame.
- A media network is available to:
 - carry out remaining module configuration; and
 - source video IP streams for the module; and
 - receive multiviewer head display output video IP streams from the module.

STEP 1: Module Hardware Installation

Module installation into the IQ frame is described in the

- Grass Valley 'IQH4B High Power 4U Modular Enclosure Installation and User Manual'.
(See the manual sub-sections on 'Installing and Removing Modules' and 'Slots'.)

When the IQUCP25 module is installed into the IQ frame, one of its control interfaces is accessible via the IQ Gateway connection: The module can be accessed by RollCall Control Panel and the IQUCP25 base module templates can be accessed.

(Note: The IQUCP25 MV SDC multiviewer templates are *not* accessible at this stage.)

STEP 2: Configuring IQUCP25 to be an IQUCP25-MV

The generic IQUCP25 module is supplied with software which contains each of the available software defined cores, *unlicensed*. By default, a new IQUCP25 module starts up with the Essence Processing core selected *but unlicensed*.

First of all, the IQUCP25 module must be configured to be an IQUCP25-MV module by licensing it with a MV SDC license.

This is done via the IQ Gateway interface and is described below:

STEP 2.1: Install MV SDC License onto a Module

The process for installing a license on a IQUCP25 module is similar to the process for a general IQ module.

This is described in [Installing a License onto a Module](#), on page 204, and uses the IQ frame's IQ Gateway interface.

STEP 2.2: Selecting/Loading an MV SDC License

The process for selecting a license on a IQUCP25 module is similar to the process required for a general IQ module.

This is described in [Loading \(Selecting\) Software Version on a Module](#), on page 204, and uses the IQ frame's IQ Gateway interface.

STEP 2.3: Restart

Restart the module. After the module has restarted, it will be a IQUCP25-MV and a media network connection is used for further configuration steps.

STEP 3: IQUCP25-MV Physical Connections

The sub-section includes the following connections for a IQUCP25-MV module:

[STEP 3.1: HD-BNC - Multiviewer Head Display Outputs](#), on page 172

[STEP 3.2: Control Connection](#), on page 172

[STEP 3.3: Media Connections - Multiviewer Inputs and Outputs](#), on page 172

After the module has restarted with an MV SDC selected, it is a IQUCP25-MV and may be connected up as such.

Note: When the module restarts it becomes a IQUCP25-MV with the interfaces described in [Interfaces](#), on page 64.

The IQUCP25-MV interface connections to be made are described below.

STEP 3.1: HD-BNC - Multiviewer Head Display Outputs

To view the multiviewer head display outputs directly:

- Connect the four rear HD-BNCs to SDI video monitors.

(For HD-BNC rear connector numbers, see [Table 4-5](#) on page 67 and [Figure 4-5](#) on page 67.)

Other connections to the module are via media Ethernet interfaces and these interfaces are configured in the next sub-section before these connections can be realized.

STEP 3.2: Control Connection

The IQ Gateway interface accesses only the IQUCP25 base module RollCall templates. For all control connections to the IQUCP25-MV module, including to *all* the RollCall templates, use the media network interfaces.

The two rear media network Ethernet interfaces (SFP-1 and 2) are the normal operational control connections (i.e. 'in-band' control). These are used by Grass Valley Orbit and can access *both* the:

- IQUCP25 base module RollCall templates; and
- MV SDC Multiviewer RollCall templates.

See [STEP 3.3: Media Connections - Multiviewer Inputs and Outputs](#), on page 172, for media interface connection.

Note: The 'card front' Ethernet interface is for Grass Valley engineering use only. It can access both the IQUCP25 base module and the MV SDC Multiviewer RollCall templates.

STEP 3.3: Media Connections - Multiviewer Inputs and Outputs

The video IP stream connections to/from the module are via the rear media Ethernet interfaces (SFP-1 and SFP-2). The IP stream settings for the all source and destination spigots that use the media interfaces is all done later in this 'Getting Going' procedure (see [STEP 6: IQUCP25-MV Media Interface\(s\) Setup \(Video IP Streams\)](#), on page 179).

Spigots:

- 5 to 16 will receive video IP streams from the media network; and
- 1 to 4 will source video IP streams - the multiviewer head display outputs.

This connection is also used for control and configuration.

STEP 4: Booting Up

- The IQUCP25-MV module boots up:
- after power is applied; or
 - after fitting or re-seating the module in a powered-up IQ Modular frame; or
 - following a system reset.
(A 'System Reset' may be performed from a RollCall template - for example, via RollCall Control Panel.)

Booting takes about 75 seconds to complete.
Note: Module outputs are interrupted during booting,

- After booting is complete at this stage:
- All the card edge LEDs show module status. (See [Card Edge LEDs](#), on page 9.)
 - A multiviewer video wall is shown on the head display outputs.
(For a new module, a default video wall is shown, see [Default IQUCP25-MV Video Wall](#), on page 173.)

Default IQUCP25-MV Video Wall

The MV SDC is shipped with a default Orbit multiviewer project. Its video wall layout displays all multiviewer video inputs. This is shown in Figure 4-73.

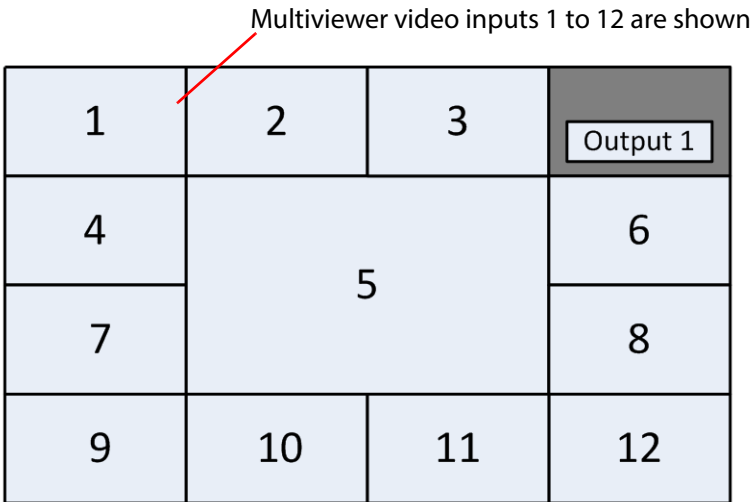


Fig. 4-73: Default Project - Head Display Outputs 1 to 4 (Output 1 shown)

The layout is repeated across the four head display outputs ("Output 1", "Output 2", "Output 3", Output 4") with the same wall layout.

CAUTION

Re-sizing a video input on one output will re-size it on the other outputs because each video input only undergoes one scaling.

STEP 5: Preliminary IQUCP25-MV Configuration

The sub-section carries out some preliminary configuration of a IQUCP25-MV module and includes:

[STEP 5.1: Preliminaries - IQUCP25 Base Module Templates](#), on page 175

[STEP 5.2: Preliminaries - MV SDC Multiviewer Templates](#), on page 177

To enable the IQUCP25-MV module to be fully hosted in a system, ready for further configuration, some preliminary settings need to be set up. This section configures some preliminary settings via RollCall templates and the IQ Gateway interface of an IQ frame.

Note: Following [STEP 1: Module Hardware Installation](#), on page 170, the IQUCP25 base module RollCall templates are accessible via the IQ frame's IQ Gateway card and the RollCall Control Panel application.
These templates show the settings of the various IQUCP25 Ethernet interfaces.

Configuration items include:

- Basic configuration of other Ethernet interfaces.
- Video reference selection.
- RollCall settings, including domain.
- Multiviewer head display output video standard selection.

STEP 5.1: Preliminaries - IQUCP25 Base Module Templates

This sub-section uses the IQ Gateway interface and accesses the IQUCP25 base module RollCall templates.

- 1 Open the IQUCP25 base module templates with RollCall Control Panel.

Frame Slot Number

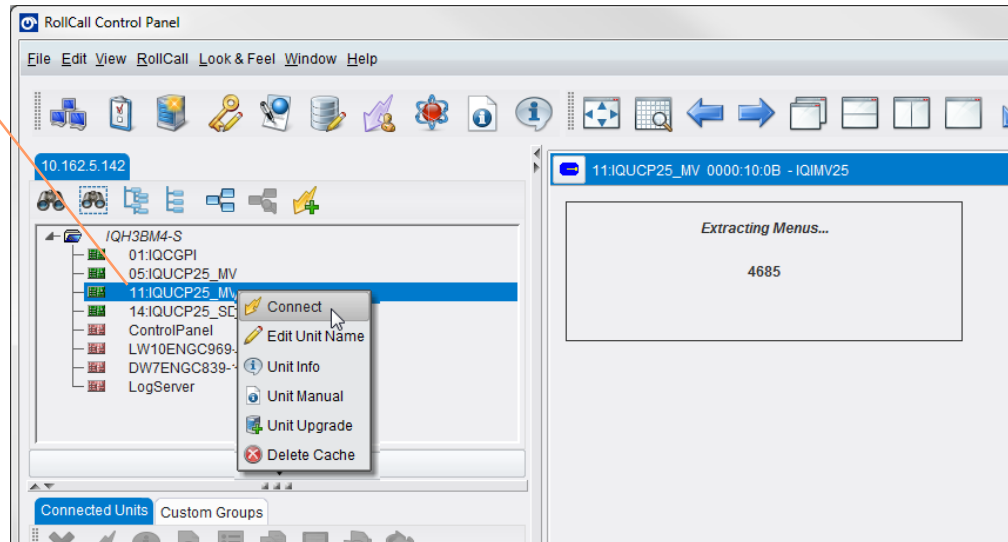


Fig. 4-74: Connecting to IQUCP25 Base Module RollCall Templates from RollCall Control Panel via IQ Gateway

- 2 In the **Configuration** template, configure settings as shown in Table 4-53.

Table 4-53: Preliminary Settings Configuration Template

Panel / Setting	Action
Genlock	Select the video reference signal to use.
Domain ID	Specify the RollCall Domain ID to use and click 'Take'.
Software Version	Verify that the current software version for the IQUCP_MV product has the license 'loaded OK'. Product IQUCP25_MV License Loaded OK

- 3 In the **Ethernet 1** template, in the 'Ethernet' panel (see Figure 4-75), define the following for the SFP-1 rear Ethernet interface:
 - IP address,
 - default gateway IP address,
 - subnet mask,

- DHCP/Static addressing mode,
- etc.

(This SFP-1 interface will be connected to the media network.)

Fig. 4-75: Ethernet Pane Example

- 4 In the **Ethernet 2** template, in the 'Ethernet' panel, define the IP address etc for the SFP-2 rear Ethernet interface.
(This interface, if required, will also be connected to the media network.)
- 5 In the **Time Sync Configuration** template, configure the:
 - **PTP Network Interface** to use; and the
 - **PTP Configuration** items, including **PTP Domain**, **PTP Delay Request Frequency** and **PTP Multicast** IP address.
- 6 Click **Restart**
and wait for the module to reboot.

Wait for the module to restart and the SFP-1 (and SFP-2) rear Ethernet interfaces are then set up ready to be installed in a target system. The MV SDC Multiviewer RollCall templates should now be accessible via the media network SFP-1 / SFP-2 interfaces.

Note: The IP routing *multicast IP addresses* are *not* yet set up. This is done later in this procedure, in [STEP 6: IQUCP25-MV Media Interface\(s\) Setup \(Video IP Streams\)](#), on page 179.

- 7 Proceed to [STEP 5.2: Preliminaries - MV SDC Multiviewer Templates](#), on page 177.

STEP 5.2: Preliminaries - MV SDC Multiviewer Templates

This sub-section uses a IQUCP25-MV media network interface (rear media Ethernet interface SFP-1 or SFP-2) and a media network to access MV SDC multiviewer RollCall templates and configure some multiviewer settings.

- 1 Open the MV SDC Multiviewer templates with RollCall Control Panel.

Specified Ethernet interface IP address

IP port 2051

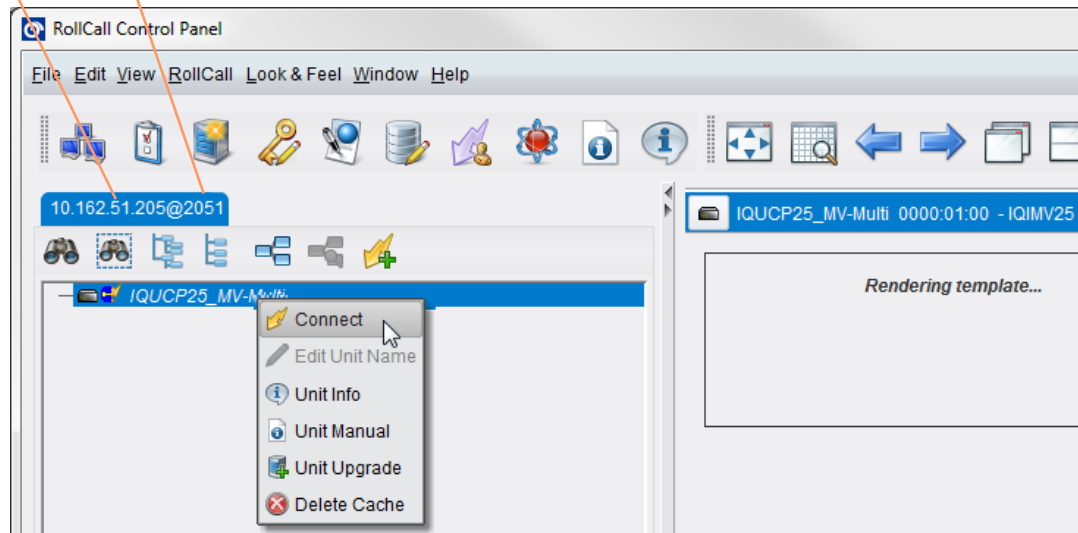


Fig. 4-76: RollCall Control Panel Connecting to RollCall MV SDC Multiviewer Templates

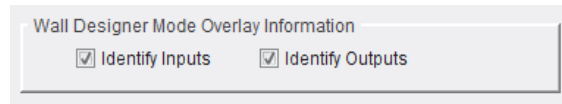
- 2 In the **System-Setup** template, configure settings as shown in Table 4-54.

Table 4-54: Preliminary Settings System-Setup Template

Setting	Action
RollCall Settings:	
RollCall Network	Select the RollCall network to use.
RollCall Unit	Select the RollCall unit number to use.
Domain ID	Specify the RollCall Domain ID to use.
Output Format	
Format Selection	Select the required multiviewer head display output video format.
Information	If required, enter a name, location, and/or user notes about the module. (This may be done later.)

3 In the **System-Setup** template:

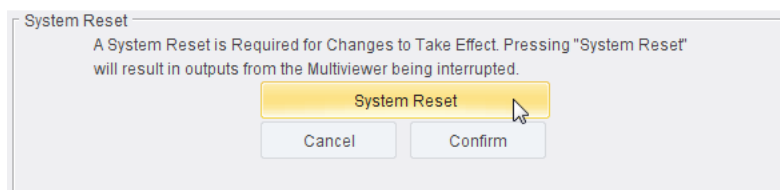
- Select **Identify Inputs**; and
- Select **Identify Outputs**.



This will add an overlay onto the head display outputs, to help identify head display outputs (1 to 4) and the video inputs they contain (1 to 12). It is useful during initial set up of a module.

(The overlays can be turned off later without a system restart being required.)

4 Return to the **System-Setup** template and click **System Reset** and click **Confirm**.



The module restarts for all the settings changes to take effect. Wait for the module to complete its restart.

STEP 6: IQUCP25-MV Media Interface(s) Setup (Video IP Streams)

This sub-section contains:

[Manual Procedure Overview](#), on page 179

[STEP 6.1: Manual Procedure - Source Spigots](#), on page 179

[STEP 6.2: Manual Procedure - Destination Spigots](#), on page 180

[STEP 6.3: 'Take' to Restart](#), on page 180

After the rear SFP-1 (and SFP-2) Ethernet interfaces are set up in [STEP 5: Preliminary IQUCP25-MV Configuration](#), on page 174, the various spigots of the IQUCP25-MV module need configuring for:

- Sending Spigots 1 to 4.
(Source spigots - these transmit multiviewer head display output video IP streams.)
- Receiving Spigots 5 to 16.
(Destination spigots - these receive multiviewer input video IP streams.)

This is done with a media network connection (via SFP-1 or SFP-2).

Setting up may be done:

- Automatically with 'Orbit for IP Routing' (via SFP-1 or SFP-2).
(See the Grass Valley 'Orbit for IP Routing' user manual, 'Getting Started' chapter.)

Or:

- Manually via a media network connection (via SFP-1 or SFP-2).
(See [Manual Procedure Overview](#), on page 179.)

Manual Procedure Overview

This uses a media network connection.

STEP 6.1: Manual Procedure - Source Spigots

Source spigot settings are defined on the IQUCP25 base module RollCall templates **Spigot 1** to **Spigot 4**, see [Source Spigot Template \(Spigots 1 to 4\)](#), on page 111.

For each source spigot, on its corresponding 'Spigot' template, define:

- video (and audio) primary (and secondary) flows.

In the template for each spigot, for each flow:

Video flow:

- 1 Determine to use SMPTE 2022 or SMPTE 2100-20(RFC4175) flow type and select the corresponding Video pane.

All Flows:

- 2 Configure the following settings:

- Multicast IP address.
- Multicast IP port.
- Source IP address.
- Source IP port.
- Flow type.

Note: Remember to press **S** to enter each setting.

Typically, destination spigots settings also need to be made, so proceed to [STEP 6.2: Manual Procedure - Destination Spigots](#), on page 180.

STEP 6.2: Manual Procedure - Destination Spigots

Destination spigot settings are defined on the IQUCP25 base module RollCall templates in a similar way to the source spigots but using templates **Spigot 5** to **Spigot 16** (see [Destination Spigot Template \(Spigots 5 to 16\)](#), on page 117).

For each destination spigot, on its corresponding 'Spigot' template, define:

- video (and audio and metadata) primary (and secondary) flows.

In the template for each spigot, for each flow:

All Flows:

- 1 Configure the following settings:
 - Multicast IP address.
 - Multicast IP port.
 - Source IP address.
 - Source IP port.
 - Flow type.

Note: Remember to press **S** to enter each setting.

STEP 6.3: 'Take' to Restart

Finally:

- 1 Press **Take** on a Spigot template when all spigot setting changes are done in the template. This restarts the module.

Once the module has restarted, the new spigot settings are applied and spigots are set to transmit and receive video multicast IP streams

STEP 7: Make a Change to the Video Wall

This sub-section uses a media network connection.

It uses the Grass Valley Orbit Client to get the video wall from a module, make a change and push it back to the module. It contains:

[Introduction](#), on page 181

[STEP 7.1: Get Orbit Multiviewer Project from IQUCP25-MV](#), on page 182

[STEP 7.2: Quick Edit of Project](#), on page 185

[STEP 7.3: Push a Project from Orbit to a Device](#), on page 189

[Pull a Project into Orbit from a Device](#), on page 191

Introduction

This sub-section will:

- Get the Orbit multiviewer project from the IQUCP25-MV module (= the default project for a factory module).
- Make a simple, visible change to the video wall.
- Push the amended project back to the unit.
- See changed project working on-screen.

And finally:

- Pull a project from IQUCP25-MV module.

Assumptions

This sub-section assumes that:

- The IQUCP25-MV module is connected to a media network and receiving/sending video IP streams.
- IP addresses of the IQUCP25-MV module's media Ethernet interfaces are known.
- Grass Valley Orbit is installed on a client computer connected to the media network.
(**Note:** Access to an Orbit license is not required for basic Orbit operation.)

STEP 7.1: Get Orbit Multiviewer Project from IQUCP25-MV

To get the IQUCP25-MV module's Orbit multiviewer project:

- 1 Run Orbit and click **File > New project**,

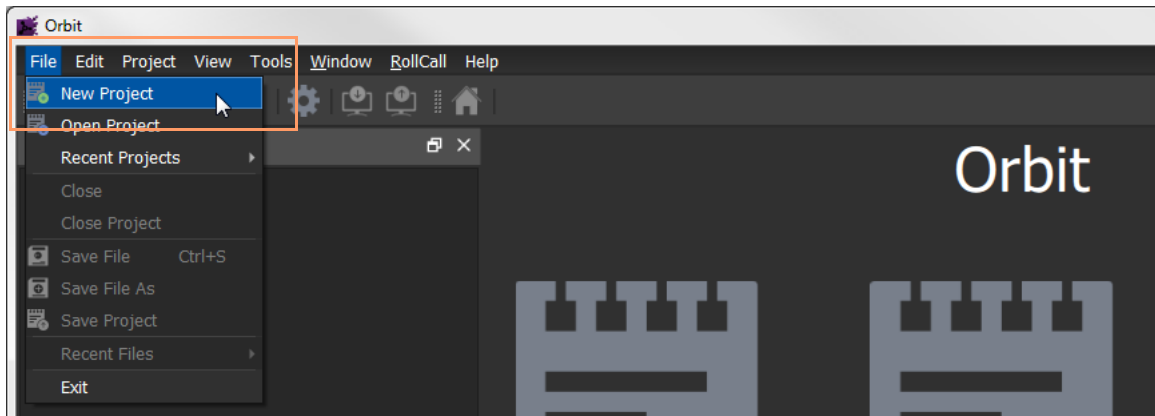


Fig. 4-77: Orbit File > New Project

- 2 Select **Connected Multiviewer Project**.
- 3 Browse to a new, empty folder and click **Choose**.

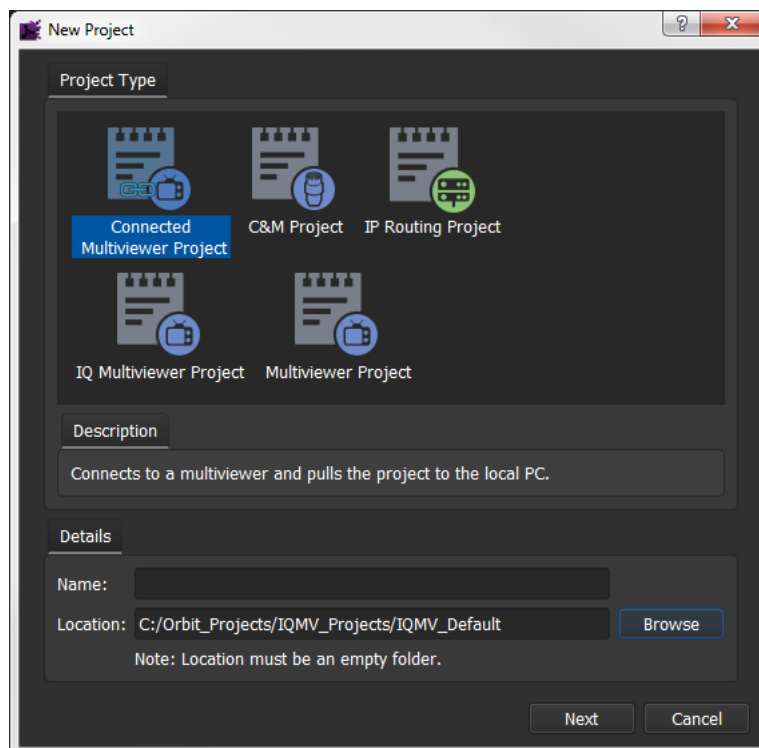


Fig. 4-78: New Project Dialog - Connected Multiviewer Project

- 4 Click **Next**.
All accessible multiviewer devices are listed.

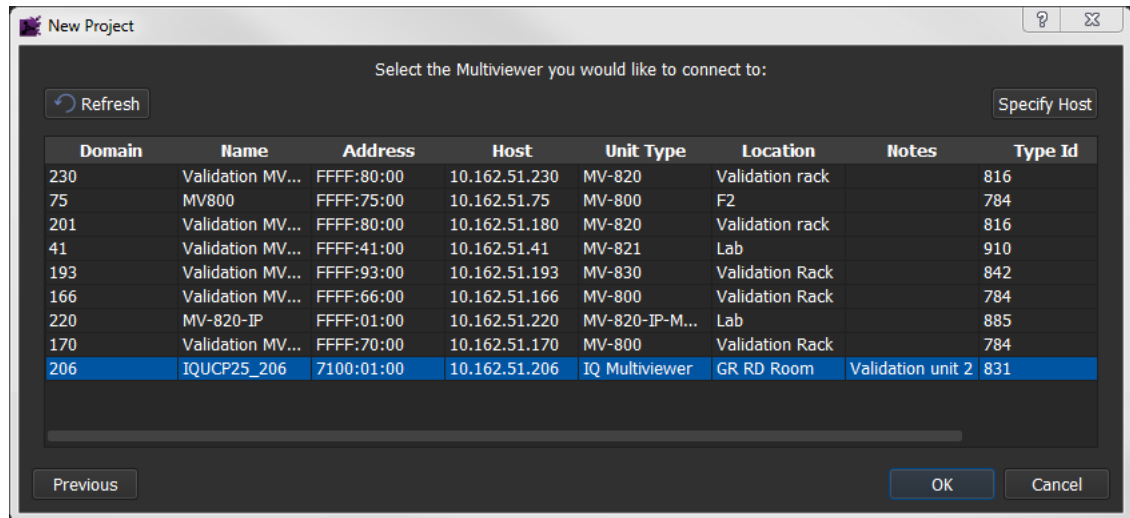


Fig. 4-79: New Project Dialog - Multiviewer List

- 5 Select a device in the list and click **OK**.

If a device is not listed, then:

- 6 Click **Specify Host** and enter the device's RollCall **domain** number and **IP address**.
- 7 Click **Refresh**.
- 8 Select the device in the new list and click **OK**.

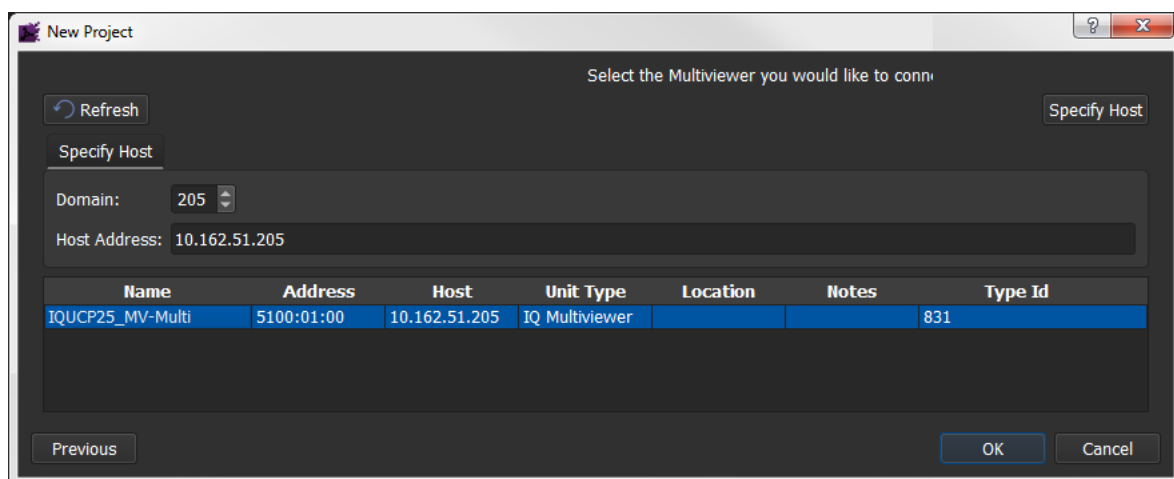


Fig. 4-80: New Project Dialog - Multiviewer List

Orbit connects to the device and pulls the Orbit multiviewer list from the device.

- 9 At the login dialog, enter the appropriate project **Username** and **Password**.

Note: For the default project on a factory device, this is 'admin' and 'admin'.

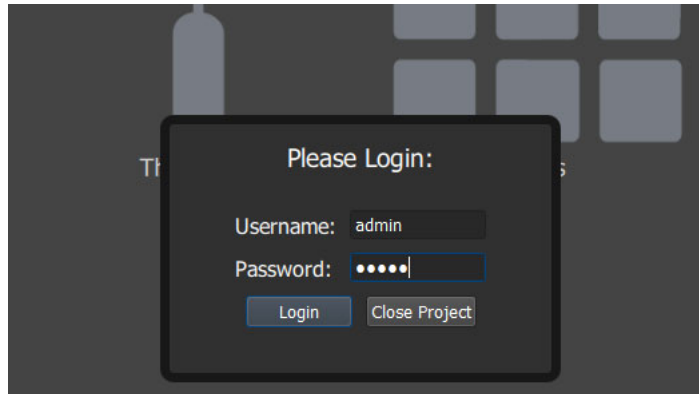


Fig. 4-81: Login Dialog

- 10 Click **Login**.

A new Orbit project has been created from a connected multiviewer and opened in Orbit.

Save Project icon

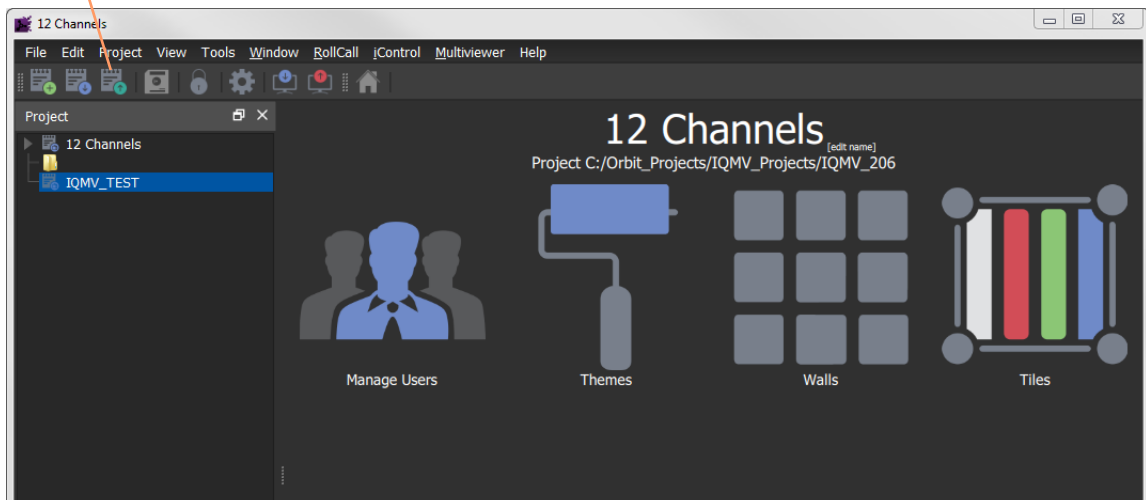


Fig. 4-82: Project Open in Orbit

To save the project on the local computer in the previously-specified folder:

- 11 Click **File > Save Project** in the main menu,
or click the **Save Project** icon in the main tool bar.

STEP 7.2: Quick Edit of Project

To make a visible change to the project:

- 1 Click the large **Walls** icon and select a wall item in the list, for example, 'Output 1'. The selected wall is opened in a Wall Editor.

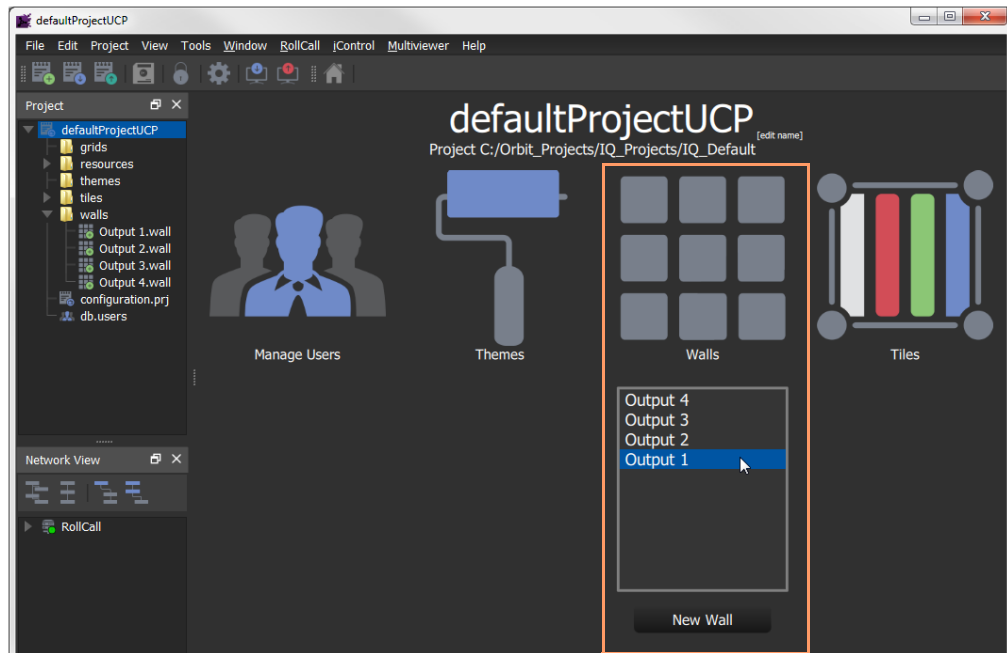


Fig. 4-83: Project Open in Orbit

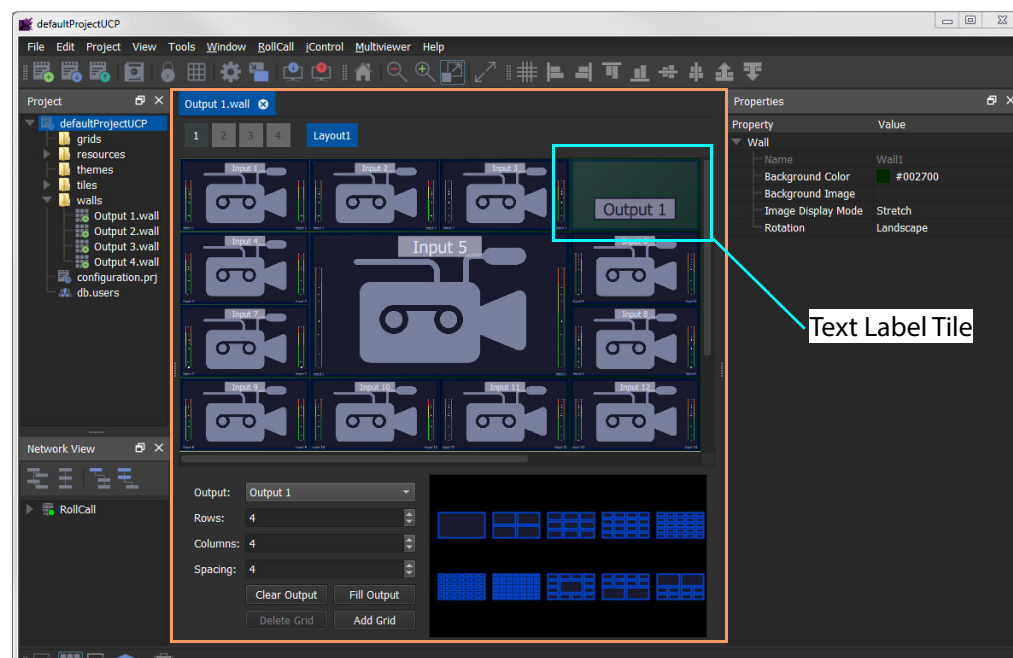


Fig. 4-84: Wall Editor

- 2 Double-click on the **Text Label Tile**.
The tile is opened in the **Tile Editor**.

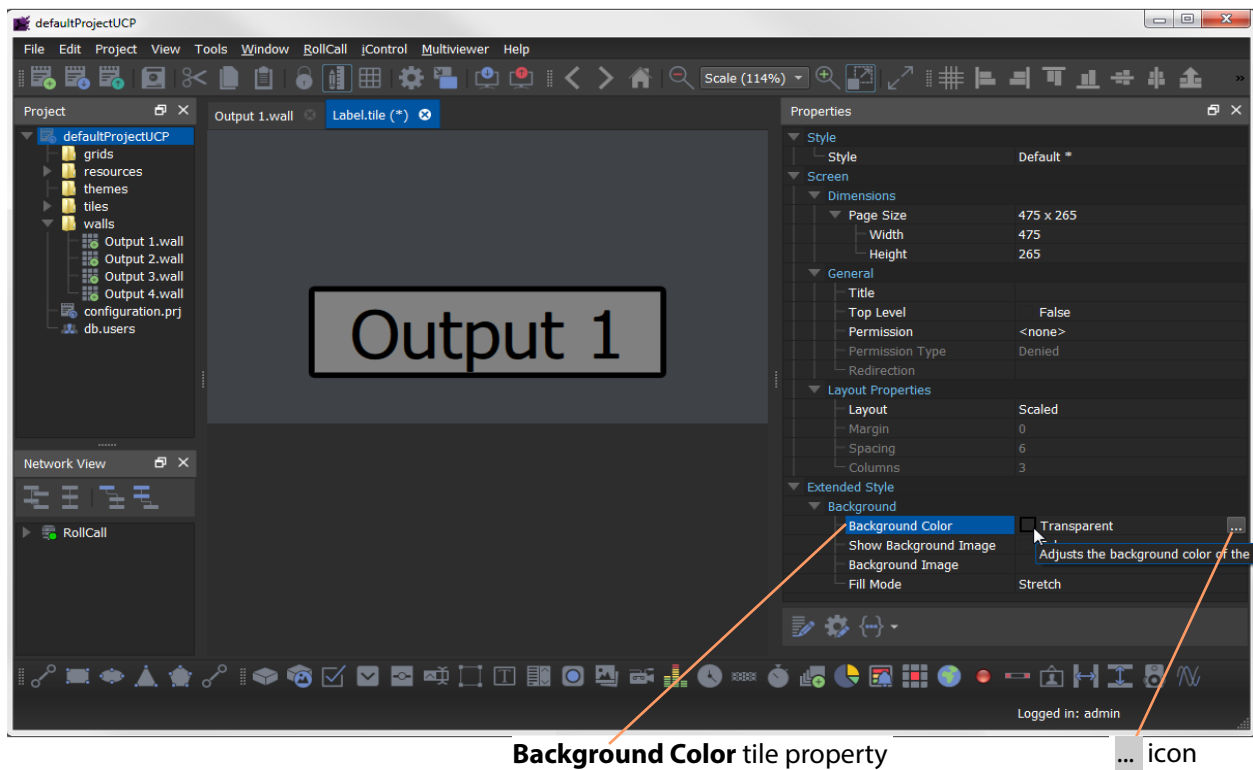


Fig. 4-85: Tile Editor

To make a change the tile:

- 3 Click on the tile background.
- 4 In the **Properties** box, select the 'Extended Style > Background Color' property.
- 5 Click on the  icon to show the **Background Color** dialog. See [Figure 4-86](#) on page 187.
- 6 Select a color and click **OK**.

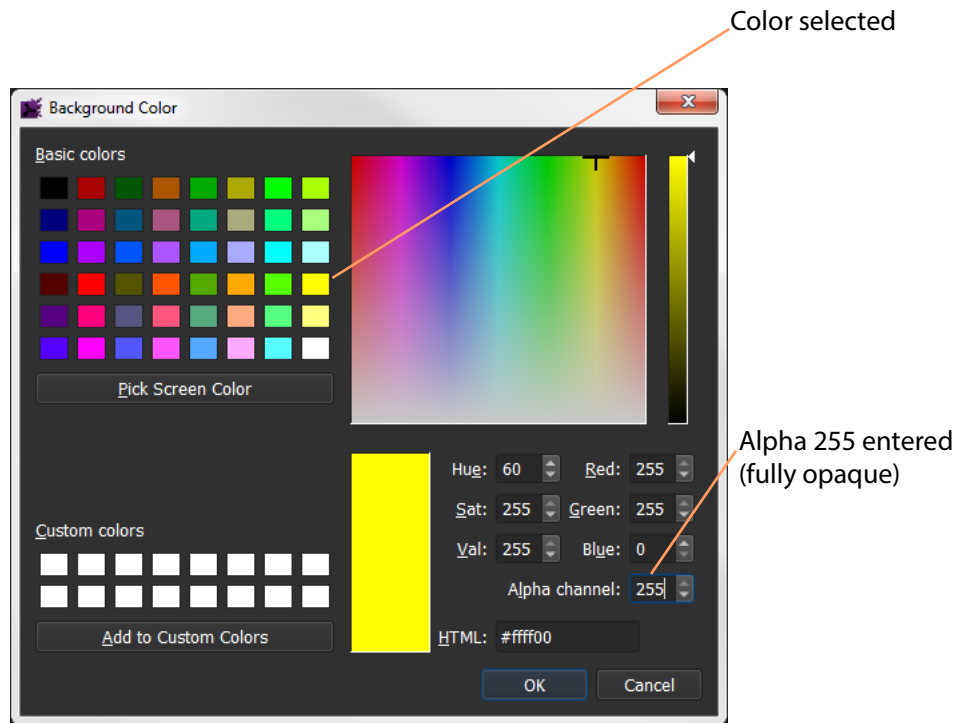


Fig. 4-86: Color Picked

- 7 Click the **Save File** icon in the main tool bar to save the tile change.

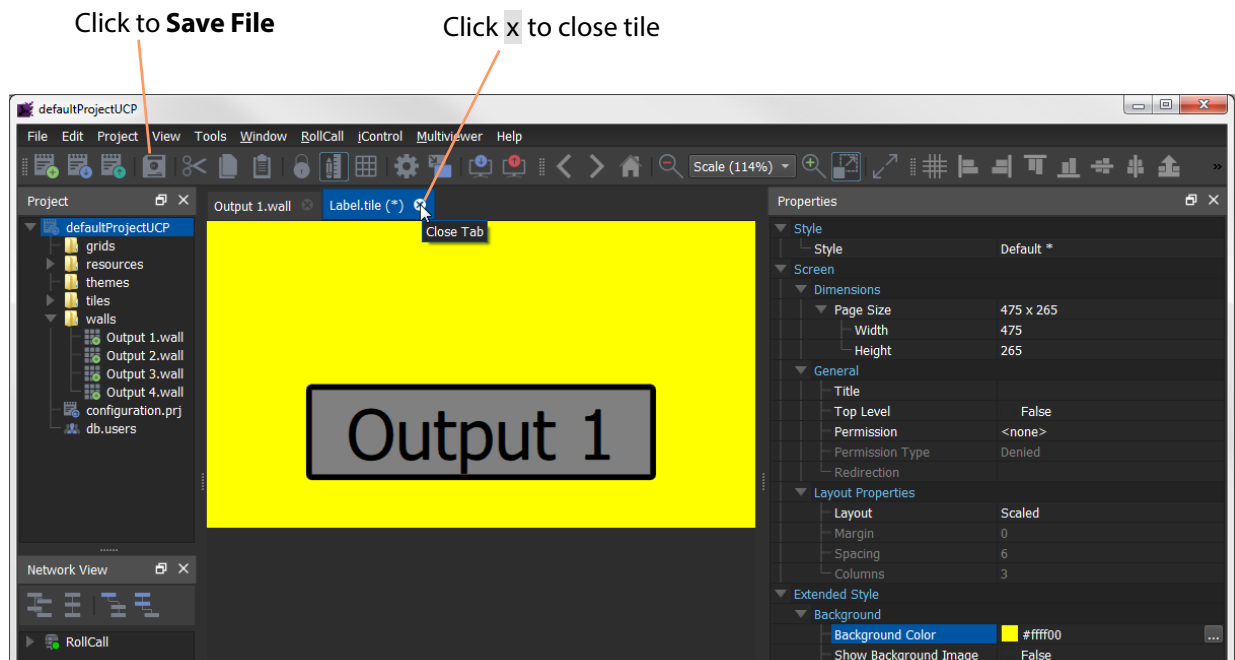


Fig. 4-87: Tile with New Background Color

- 8 Click on the **x** on the tile tab to close the tile.

- 9 Click on the **Save Project** icon in the main tool bar to save all changes.

Click to **Save Project**

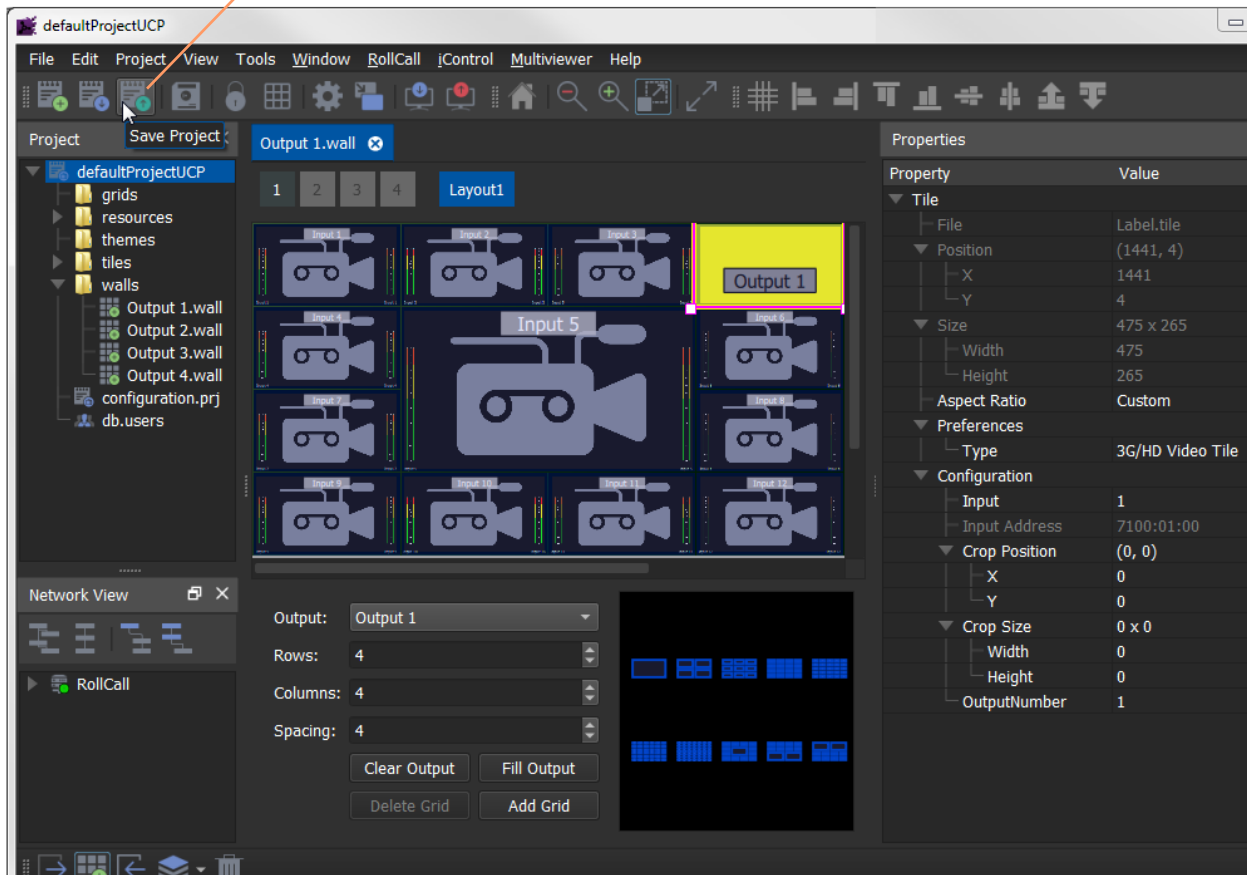


Fig. 4-88: Changed Wall 1

STEP 7.3: Push a Project from Orbit to a Device

To push a project from Orbit onto a multiviewer:

- 1 Open a project in Orbit and click **Multiviewer > Properties**.
- 2 If the multiviewer details require changing, enter the target device's:
 - IP address;
 - RollCall network number and unit number; and
 - Domain ID.

Click **OK**.

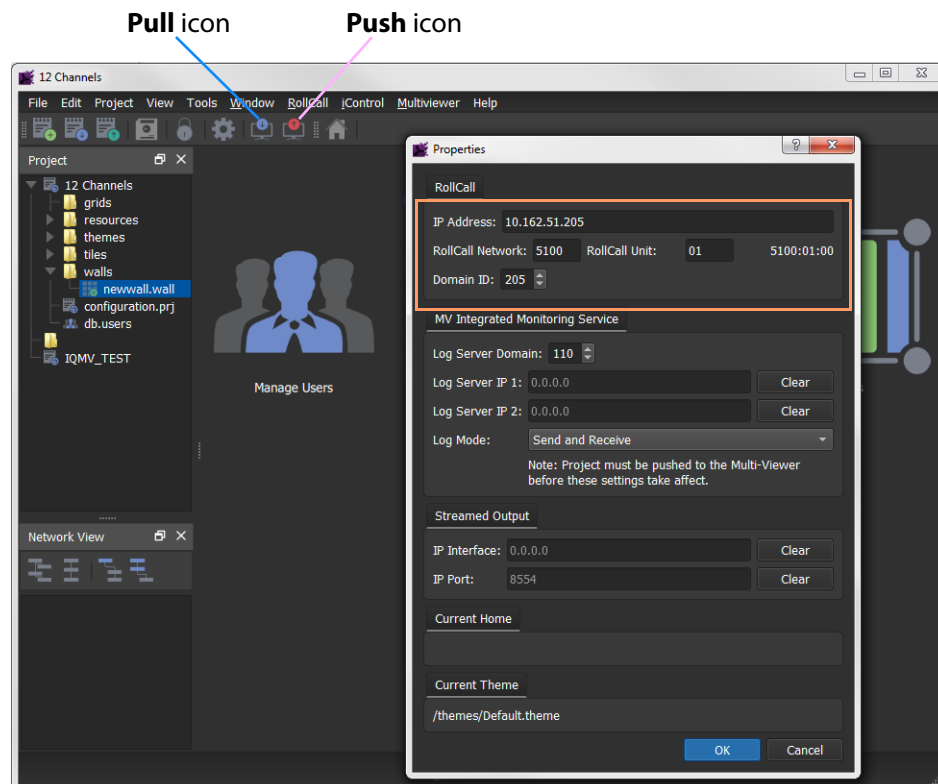


Fig. 4-89: Pull/Push Icons and Multiviewer > Properties Dialog

To push a project from Orbit to the device:

- 3 Click the **Push** icon in the main menu.
- 4 Select the project in the **Choose Projects** dialog (see Figure 4-90) and click **OK**.
The project is pushed to the device.

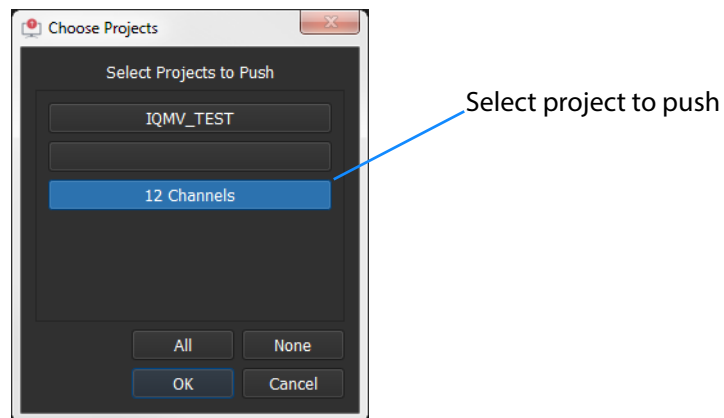
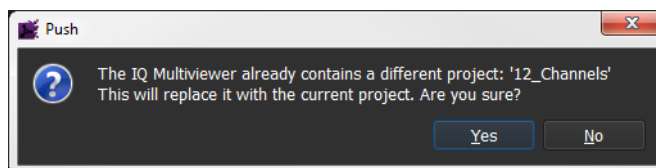


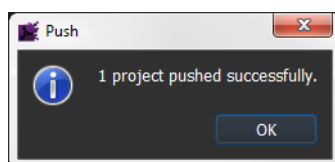
Fig. 4-90: Choose Projects Dialog

If the device already has a project of the same name, then a dialog is shown (see Figure 4-91a). Click 'Yes' to overwrite with the project from Orbit.

When the push is complete a 'pushed successfully' message is shown. See Figure 4-91b.



a) Push Message



b) Push OK.

Fig. 4-91: Push Messages

The project is now running on the target device. The tile background color is changed.

Pull a Project into Orbit from a Device

This may be useful during 'getting going': To pull a project into Orbit from a device:

- 1 Open a multiviewer project in Orbit and click **Multiviewer > Properties**.
- 2 If the multiviewer details require changing, enter the target device's:
 - IP address;
 - RollCall network number and unit number; and
 - Domain ID.

Click **OK**.

- 3 Click the **Pull** icon in the main menu.
 - 4 Select the project in the **Choose Projects** dialog (see Figure 4-92) and click **OK**.
- The project is pulled from the device.

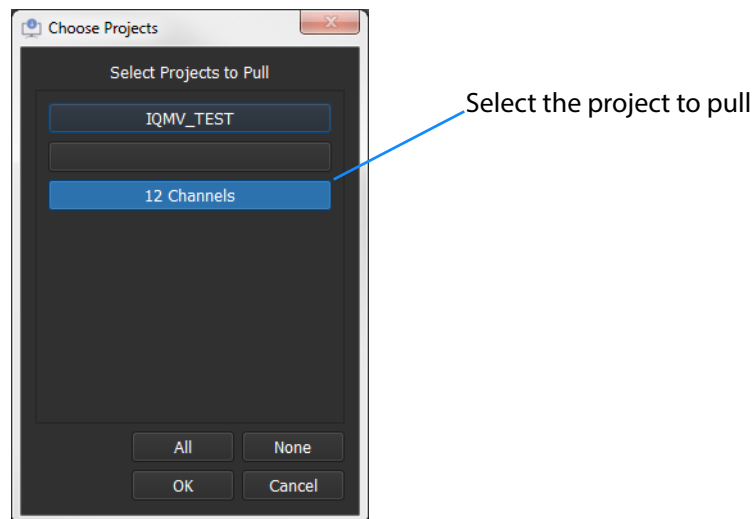


Fig. 4-92: Choose Projects Dialog

- 5 When the pull is complete a 'pulled successfully' message is shown. See Figure 4-93.

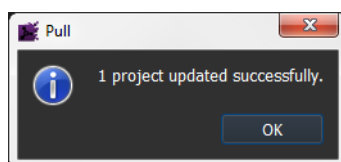


Fig. 4-93: Pull Message

The Orbit project of the same name in as the one pulled from the device has now been updated. It is now the same as that on the device.

Multiviewer Video Wall

Section contents:

[Basic Video Wall](#), on page 192

[TSL Support](#), on page 193

Multiviewer video wall layouts are designed and managed with the Grass Valley Orbit application. Please refer to the published Orbit documentation for instruction about how to use Orbit in multiviewer applications. This manual assumes the reader is familiar with the Orbit software and only outline information is given.

Basic Video Wall

Multiviewer video wall layouts are designed with the Grass Valley Orbit application and are called 'Orbit projects'. These multiviewer projects can be pushed to a multiviewer, such as an IQUCP25-MV, to be deployed and the video wall can be viewed on monitor displays directly via the HD-BNC outputs of the IQUCP25-MV, or across a media network using the video IP stream outputs.

Video wall layouts can be pulled from an IQUCP25-MV multiviewer and modified and pushed back.

The form and appearance of a video wall design on a multiviewer device may be changed through the use of Orbit 'walls', 'layouts' and 'themes'.

Procedure:

The procedure for video wall design and deployment is similar to the procedure for Grass Valley's MV-8 Series of multiviewers (MV-800 etc).

A 'basic video wall' is described in the Orbit documentation and includes:

- | | |
|-----------------------|--|
| • Initial Screen | Orbit Initial screen. |
| • New Project | Creating a new project, IQ Multiviewer Project/Connected Multiviewer Project. |
| • Existing Project | Opening an existing project. |
| • Recent Projects | Opening a recent Orbit project. |
| • Project Home Screen | The Orbit project home screen. |
| • Basic Wall | Using Orbit to create a basic video wall layout. |
| • Wall Layouts | Demonstration of different wall layouts within the same Orbit multiviewer project. |
| • Wall Themes | Demonstration of applying different themes to the same wall layout. |

For further Orbit instruction and details on using Orbit for multiviewer wall layouts, see the published "Orbit - Introduction" and "Orbit for Multiviewers" user manuals.

TSL Support

TSL Protocol Tally Settings

TSL protocols are used widely throughout the industry for communication between a TSL Tally controller and Under Monitor Displays (UMDs). The protocol enables tally lamp control and text label data to be carried to each UMD device.

A TSL Tally controller handles the tally data in a video system and provides TSL Tally control information to each UMD. The IQUCP25 Module supports two TSL protocols: TSL 3.1 and TSL 5.0. Initial TSL support settings are described here.

Setting up the multiviewer to work with a TSL tally-based system involves the following steps:

- Specify how the multiviewer gets the TSL Tally message information.
See [Specifying Multiviewer TSL Tally Mode](#), on page 193.
- Specify index parameters for each UMD on the video wall.
See [Specifying Index Parameters for each UMD](#), on page 194.

Specifying Multiviewer TSL Tally Mode

The multiviewer may get its TSL Tally information in one of two modes:

- **Server Mode** - IQUCP25-MV listens for Tally messages.
Specify the IQUCP25-MV IP address and network port to receive Tally messages on.
- **Client Mode** - IQUCP25-MV reads Tally messages from a Tally controller.
Specify the IP address and network port number of the Tally controller.

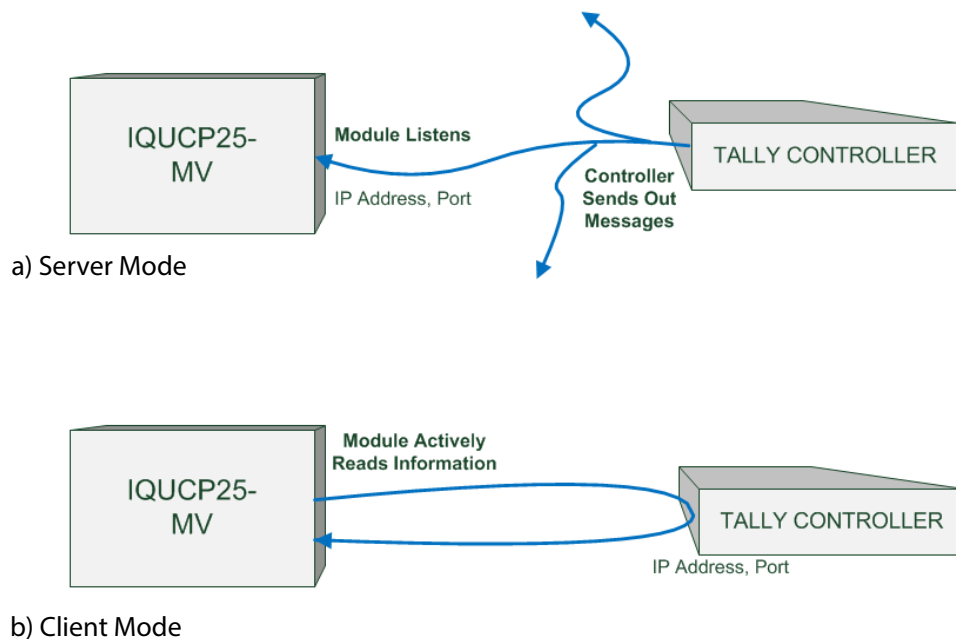


Fig. 4-94: TSL Protocol Operating Modes:

- a) Server Mode
b) Client Mode

The Grass Valley RollCall Control Panel application is used to configure the settings for an IQUCP25-MV multiviewer in the RollCall TSL screen; see RollCall [TSL Template](#), on page 164.

Specifying Index Parameters for each UMD

Use the Grass Valley Orbit application to set the properties of each UMD in a video tile on the video wall layout. The properties differ between TSL Protocol 3.1 and 5.0.

The style of the UMD widget can be selected with the **Preferences > UMD Style** property.

The index parameters used by each UMD are specifiable in the UMD properties. Values can be set manually or values can be automatically assigned as part of assigning inputs to video tiles. (Refer to Orbit documentation.)

UMD Properties - TSL Protocol Version 3.1

TSL Protocol 3.1 is the original TSL protocol for sending data over a serial comms connection or via Ethernet. The multiviewer supports an Ethernet connection.

Each multiviewer monitor screen is addressed with a Display address. Each UMD associated with a video tile must have its **3.1 Display Address** property set up.

1. Select Video Tile and Video Tile Properties are shown.

2. Set **Preferences > UMD** to 'True' and UMD properties are shown. (Expand this property item if required.)

3. Set **UMD > UMD Protocol** to 'Version 3.1' and **UMD > 3.1 Display Address** property is shown

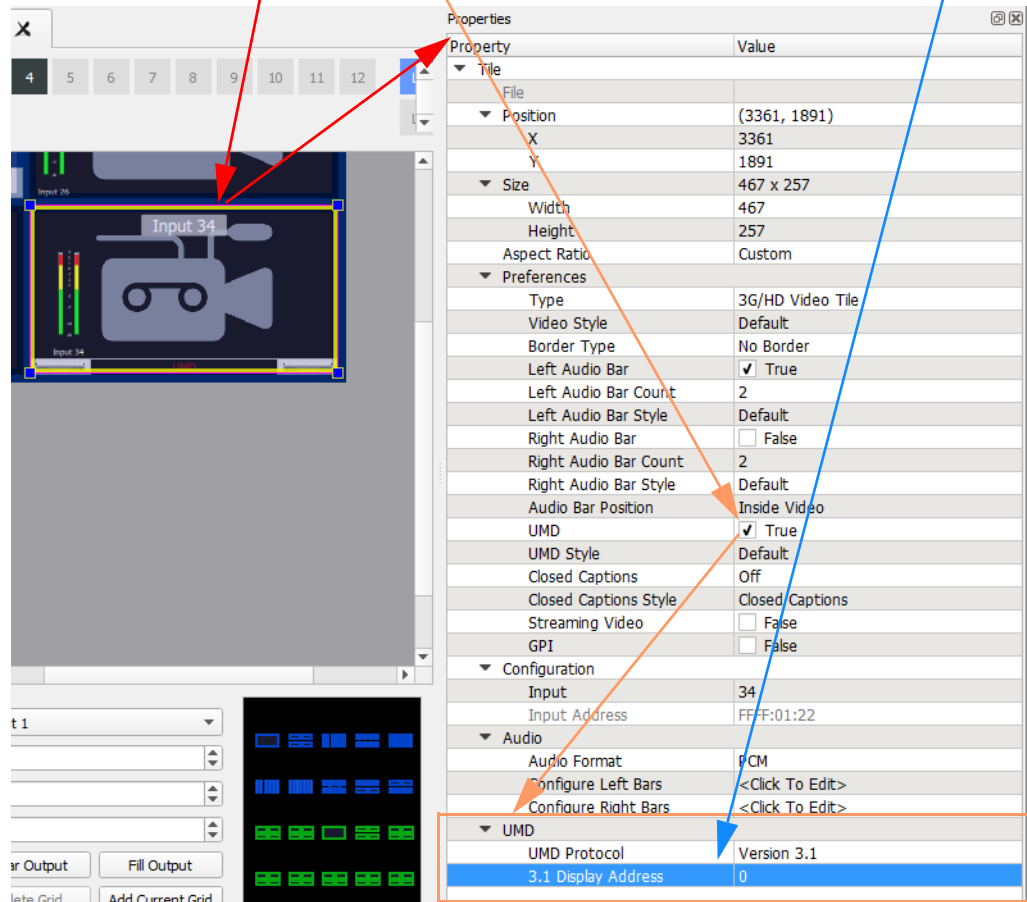


Fig. 4-95: Orbit - Video Tile - UMD TSL 3.1 Properties

UMD Properties - TSL Protocol Version 5.0

TSL Protocol 5.0 is a 16-bit protocol, introduced to handle multiviewer display devices over Ethernet. It supports ASCII or Unicode character sets, and data is sent as UDP or TCP/IP over Ethernet.

Each multiviewer monitor screen is addressed by a Screen Index and each UMD within it by a Display Index. Each UMD associated with a video tile must have two parameters set up:

- **5.0 Screen Index** - Index number (address) of each display monitor.
(16-bit, \$FFFF reserved. 0 = not used.)
- **5.0 Display Index** - Index number for each UMD in a display.
(16-bit, \$FFFF reserved. 0-based.)

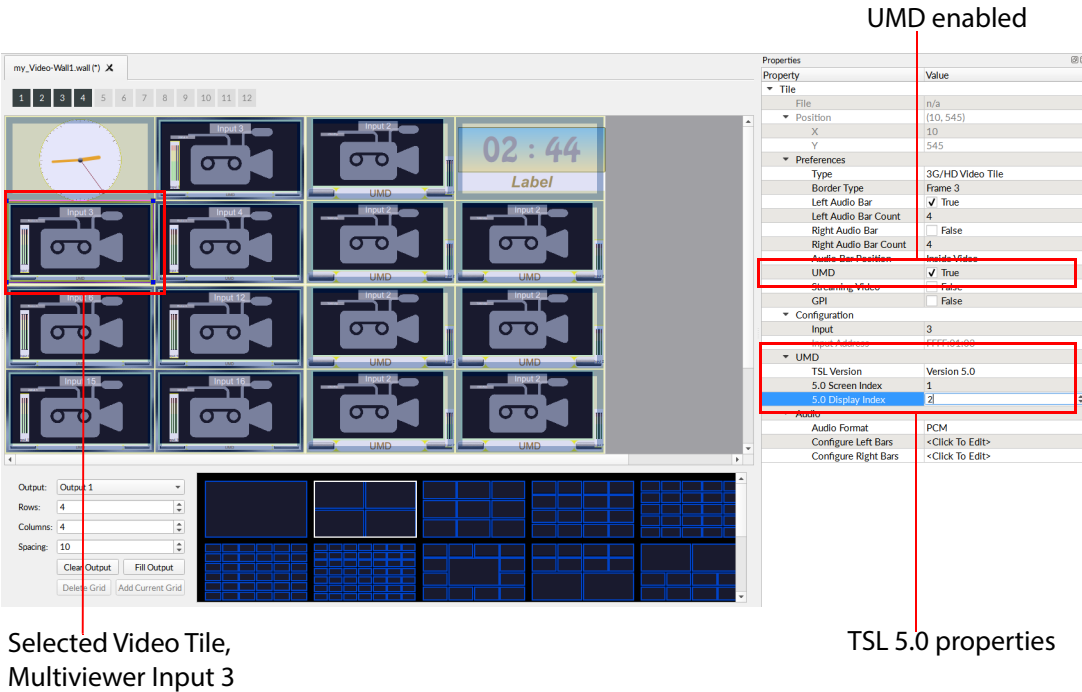


Fig. 4-96: Orbit - Video Tile - UMD TSL 5.0 Properties

Terminology

Section contents:

[Multiviewer Terminology](#), on page 197

[IP Routing Terminology](#), on page 200

Multiviewer Terminology

Table 4-55 lists some multiviewer terminology used when designing multiviewer video walls with the Grass Valley Orbit software tool for the IQUCP25-MV module.

Table 4-55: Definition of Terms

Term	Definition
Wall, Video Wall	One or more monitor display screens configured to form one large screen.
Display 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 an Orbit screen is used for the fine-positioning of graphical elements. For example, for positioning Tiles on a wall or Widgets on a tile.

Table 4-55: Definition of Terms (continued)

Term	Definition
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.
Head Display Output, Display Output	A 1080P or 720P output from the IQUCP25 Module; this can be SDI video (HD-BNC) or a video IP stream. Each head display output is connected to a monitor display that forms all or part of a multiviewer video wall. There are four head display outputs on an IQUCP25-MV module.
Video Input	One of 12 video inputs to the IQUCP25-MV module.
Multiviewer Input	One of 12 video inputs to the multiviewer block within the IQUCP25-MV module.

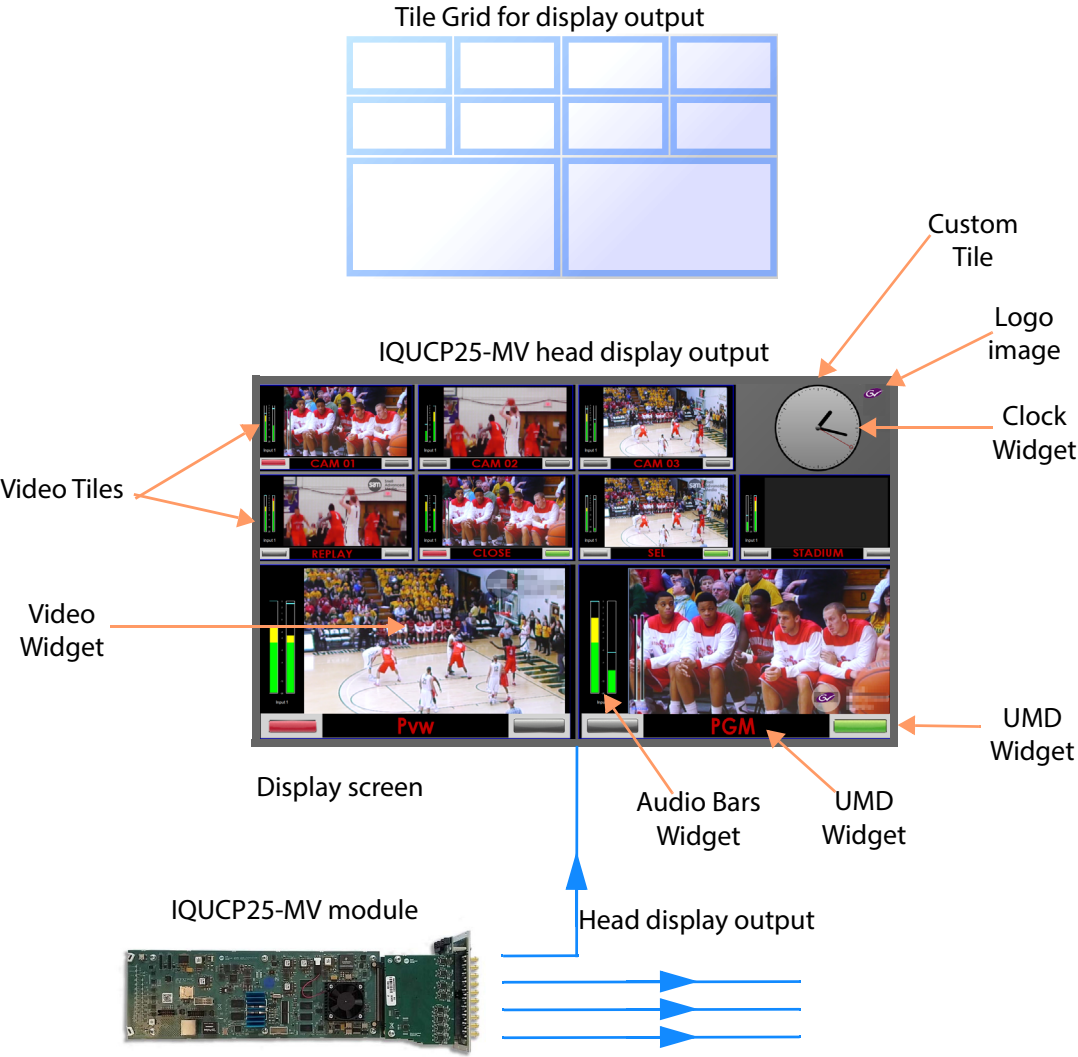


Fig. 4-97: Monitor Display Screen

IP Routing Terminology

Table 4-56: Glossary of IP Routing Terms

Control network	Typically an Ethernet network dedicated for device control.
COTS	Commercial Off-The-Shelf. Refers to hardware that is not specific to an industry, but is generic and readily available. In this case, it is high-performance IT switching equipment.
Destination	Receiver of one or more flows. Destination spigot.
Essence	A general term used to describe a component of a media signal. Video, Audio and Metadata are all essences.
Fabric	Term for the networks that can make up a redundant network system, Fabric "A" and Fabric "B".
FEC	Forward Error Correction. A technique for controlling errors in data transmission where the sender encodes message in a redundant way by using an error-correcting code. The redundancy allows the receiver to detect and correct errors.
Flow	Another term for an elementary IP stream, usually a sequence of real-time data sent as an RTP IP data stream. For example, TR-03 describes how a media stream (e.g. an original SDI stream) may be sent as three flows: Video, Audio and Ancillary essence data.
IEEE 1588	A Precision Time Protocol (PTP) to synchronize distributed clocks to within 1 microsecond via Ethernet networks. PTP runs on IP networks, transferring precision time to slave devices via a 1 GHz virtual clock (time base). It is used to synchronize TR-03 elementary streams.
IGMPv3	Internet Group Management Protocol. Communications protocol used in IP multicasting by client IP devices and an IP router to establish multicast group membership. The routing function of a traditional video router can be replicated with a IP Network Router Controller device and a COTS IP Switch which supports the IGMPv3 protocol.
In-Band Control	Sending control messages for an IP routing system in the media IP network fabric.
IP Stream	Real-time data (for example, video and/or audio) sent over a network.
IP Flow	Flows form a stream. There may be Video and Audio IP flows in an IP stream.

Table 4-56: Glossary of IP Routing Terms (continued)

IP Router	A device that connects networks together.
IP Switch	A device that connects many network lines together. Many users can communicate and more than one transaction can occur at a time on network.
LLDP	Link Layer Discovery Protocol (LLDP). This is an open IP protocol used in IEEE 802.1ab to discover a network device's identity and abilities, and to make physical network topology information available. Information is readable via standard network management protocols, such as SNMP.
MAC Address	Media Access Control (MAC) address is a unique 48-bit identifier assigned to a network interface connection of a network device. For example: 5C-26-0A-39-21-EE.
Media network	A high-capacity network dedicated to carrying high bit rate media.
Multicast Stream	A one-to-many IP stream. Devices receiving the stream subscribe to the multicast stream's IP address.
Network	A group of two or more Ethernet-enabled systems linked together via IP. In the case of broadcast video IP network, a local area network optimized for the transfer and broadcast of real-time, high bandwidth video IP streams
Out-of-Band Control	Method of sending control messages for an IP routing system in a separate control network.
RFC-4175	TR-03 uses Internet Engineering Task Force's (IETF) RFC-4175 to pack (uncompressed) active video lines into an RTP IP stream.
RollCall	Grass Valley control and monitoring system.
RollCallv3	Traditional Grass Valley RollCall messages in the Grass Valley RollCall control and monitoring system product.
RollCall+	New extension to Grass Valley RollCall. Uses RollCall+ Domains to separate data flow types. Used in MV-8 series Multiviewers, IQUCP25-MV and in IP Routing control and configuration.
RTP	Real-time Transport Protocol. An IP standard which specifies a way to manage the real-time transmission of multimedia data over a network.

Table 4-56: Glossary of IP Routing Terms (continued)

SDI	Serial Digital Interface. A method for packing real-time media (uncompressed video, audio and metadata essences) into a digital serial bit stream and sending it over a low-latency, point-to-point electrical link (typically a coaxial cable).
SMPTE 2022-6	A transport protocol for the real time transport of high bit-rate video/audio data over IP networks, where the entire payload of the SDI signal is encapsulated as one IP stream. Designed to be applied to television transport for broadcast production and is not intended for emission purposes.
SMPTE 2022-7	A standard for the seamless reconstruction of a stream from the transmission of two streams of identical content over potentially diverse paths. Enables cost-effective redundant network operation. Two network are used and a full stream is sent on each network. A receiving device can switch between two received streams and recover the content of the original full stream.
SMPTE 2110	A standard for an extensible RTP IP streams (essence streams, including uncompressed video) referenced to a common clock. Includes support for a variable raster size (up to 32Kx32K pixels), HDR, and a variety of color sampling schemes, bit depths and frame-rates.
Source	Originator of one or more flows. Source spigot.
Spigot	A generic term for a source or a destination of one or more flows.
Stream	Term usually associated with delivery of constant, real-time media (e.g. Audio, Video) over IP networks with a stream of data packets.
TR-03	A Video Services Forum (VSF) Technical Recommendation concerning the transport of time-related uncompressed media over IP. Carriage of video, audio and ancillary data in separate elementary streams to provide greater flexibility in the production of media.
TR-04	A Video Services Forum (VSF) Technical Recommendation concerning the transport of media streams and elementary streams over a network.

5 Maintenance

Summary:

Maintenance

<i>Software Upgrade</i>	page 203
<i>Software Upgrade Package</i>	page 203
<i>Software Upgrade Procedure</i>	page 203
<i>Licensing</i>	page 204
<i>License Files</i>	page 204
<i>Installing a License onto a Module</i>	page 204
<i>Loading (Selecting) Software Version on a Module</i>	page 204

Software Upgrade

Software Upgrade Package

A software upgrade package from Grass Valley is supplied by Grass Valley Support and comprises a set of data and installer files. The package is associated with a IQUCP25 software version number, for example, 14.35.80.

Software Upgrade Procedure

The IQUCP25 module software upgrading process follows the standard process for module upgrades with Grass Valley RollCall Control Panel. For more details, please see the:

- Grass Valley RollCall Control Panel User Manual; or the
- Grass Valley RollMechanic Operator's Manual.

For RollCall Control Panel, upgrade installation is a two-stage process:

- **Stage 1:** Add/import the upgrade package to RollCall Control Panel.
See the Grass Valley 'RollCall Control Panel User Manual',
in the 'Import New Upgrades' section.
- **Stage 2:** Install the upgrade on the IQUCP25.
See the Grass Valley 'RollCall Control Panel User Manual',
in the 'Upgrade Units' section.

Licensing

Licenses give access one of the IQUCP25 software-defined core (SDC) functions. Licenses need to be installed onto a module and then loaded, which selects the required SDC function.

License Files

The license files for the IQUCP25 are supplied upon purchasing a license from Grass Valley. They are small .zip files.

The license key within the file is tied to the Serial Number of a particular IQUCP25 module. Some licenses use a password.

Installing a License onto a Module

The process of installing a license to an IQUCP25 follows the standard process for a hardware module with licenses administered by Grass Valley RollCall.

For more details about importing and installing license files, please see the:

- Grass Valley 'RollCall Control Panel User Manual' (for **Import** license - see 'Licenses' section, and for **Install** license - see 'Unit License' sub-section); or the
- Grass Valley RollMechanic Operator's Manual.

Loading (Selecting) Software Version on a Module

The IQUCP25 Module is a generic module and its functionality is set by licensing and selecting a software version. A IQUCP25 Module may have more than one license and software version (for example, Essence Processing and Multiviewer).

The required functionality is selected by selecting the corresponding licensed software version on the module:

- 1 Access the 'Configuration' RollCall template of the IQUCP25 base module.
- 2 The currently-used software version is shown highlighted in the Software Version list.

To change the software version being used:

- 3 Click on the required IQUCP25-MV software version from all the listed versions.

To use a new software version:

- 4 Select the required software version in the list.

Note: The 'Restore' and 'Restart' buttons are only displayed when a 'not-currently-loaded' item is selected.

- 5 Click 'Restore' to load the selected software version.
- 6 Click 'Restart' to restart the module.

When the module has restarted, it will be using the selected software version.

- 7 In the 'Configuration' template, check that the current software version shows as 'Licensed OK'.



Grass Valley Technical Support

For details of our Regional Customer Support Offices, please visit the SAM website and navigate to Support/24/7-Support.

www.s-a-m.com/support/247-support/

Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

Corporate Head Office

Grass Valley
3499 Douglas-B.-Floreani
St-Laurent, Quebec H4S 2C6
Canada
Telephone: +1 514 333 1772
Fax: +1 514 333 9828

www.grassvalley.com