# KAHUNA

IP CONFIGURATION

## Supplement Manual

13-06514-050

2020-12-18

www.grassvalley.com

## FCC Compliance

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

## Patent Information

This product may be protected by one or more patents.

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

## Copyright and Trademark Notice



## Terms and Conditions

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

Grass Valley hereby grants permission and license to owners of Kahuna 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.
(See www.grassvalley.com.)

| | |
|---|---|
| Title | Kahuna Supplement Manual |
| Part Number | 13-06514-050 |
| Revision | 2020-12-18, 15:08 |

# Important Safety Information

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

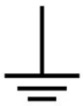
## Symbols and Their Meanings

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

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

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

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



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

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

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


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


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


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


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

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

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

## Warnings

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

•Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.

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

## Cautions

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

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

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

## Electrostatic Discharge (ESD) Protection

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

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

## Battery Handling

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

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

## Cautions for LCD and TFT Displays

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

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

# Mesures de sécurité et avis importants

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

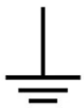
## Signification des symboles utilisés

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

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

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

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



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

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

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


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


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


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


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

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

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

## Avertissements

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

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

## Mises en garde

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

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

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

## Protection contre les décharges électrostatiques (DES)

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

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

## Manipulation de la pile

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

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

# Précautions pour les écrans LCD et TFT

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

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

# Environmental Information

European (CE) WEEE directive.

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

Visit www.grassvalley.com for recycling information.

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

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

# Lithium Batteries

## Battery Warning

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

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

### Battery Disposal

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

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

WARNING

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

## Laser Safety - Fiber Output SFP and QSFP Modules Warning

**LASER SAFETY**


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

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

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

# Safety and EMC Standards

This equipment complies with the following standards:

## Safety Standards

CE

**Information Technology Equipment - Safety Part 1**

**EN60950-1: 2006**

Safety of Information Technology Equipment Including Electrical Business Equipment.

**UL1419 (4th Edition)**

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

## EMC Standards

This unit conforms to the following standards:

**EN55032:2015 (Class A)**

Electromagnetic Compatibility of multimedia equipment - Emission requirements

**EN61000-3-2:2014 (Class A)**

Electromagnetic Compatibility - Limits for harmonic current emissions

**EN61000-3-3:2013**

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

**EN55103-2:2009 (Environment E2)**

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

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

**FCC / CFR 47:Part 15 (Class A)**

Federal Communications Commission Rules Part 15, Subpart B

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

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## EMC Performance of Cables and Connectors

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

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

### SIGNAL/DATA PORTS

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

### COAXIAL CABLES

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

### D-TYPE CONNECTORS

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

# Table of Contents

# 1 Kahuna 40 and 50GbE IPI/IPO Fins

## Kahuna IP Switchers Overview

With the introduction of the 50GbE IPI/IPO Fins, Kahuna now has a fully IP-enabled Kahuna IP switcher range with 40GbE and 50GbE input and output Fins to choose from.
The introduction of these IP Fins has enabled our customers to replace individual SDI input or output Fins on standard Kahuna systems with IP Fins. Allowing current Kahuna users to transition to IP at a rate which suits their developing needs.
Kahuna can be pure SDI, hybrid SDI/IP in any combination or pure IP, IP-enabled Kahuna's support interoperability with both uncompressed SMPTE 2022-6, SMPTE 2022-7, TR-03 and lightly compressed VC-2.
If upgrading to IP Fins, installation of the IP Fins is simple and fast - they simply slot into the mainframe in place of one or more existing SDI Fins. A scalable upgrade solution without any infrastructure headaches - Kahuna's IP Fins handle all the processing on-board with no need for extra external boxes.
The software version that supports the IPI and IPO Fins is V7.4r2 and greater.

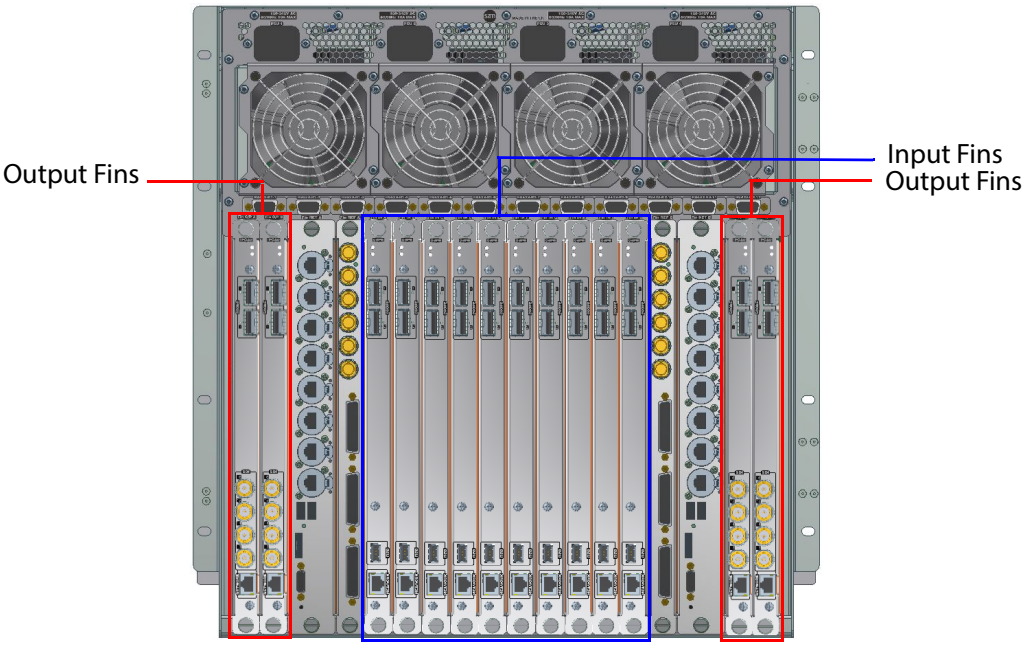
### NMOS

Kahuna is NMOS compliant.

Networked Media Open Specifications, collectively known as NMOS, have been developed to provide interoperability between a wide range of products from various manufacturers. NMOS effectively provides a control and management layer in addition to the transport layer provided by SMPTE ST2110. See www.amwa.tv/nmos for further information.

IMPORTANT: The 40GbE and 50GbE Fins can only be used with Kahuna mainframes that have the higher power (RED) backplane.
Please speak to the Grass Valley customer support team for information.

# Kahuna 9600 mainframe displaying 50GbE IPI and IPO Fins



# Kahuna IPI and IPO Fins

## 40GbE IPO40 Output Fin

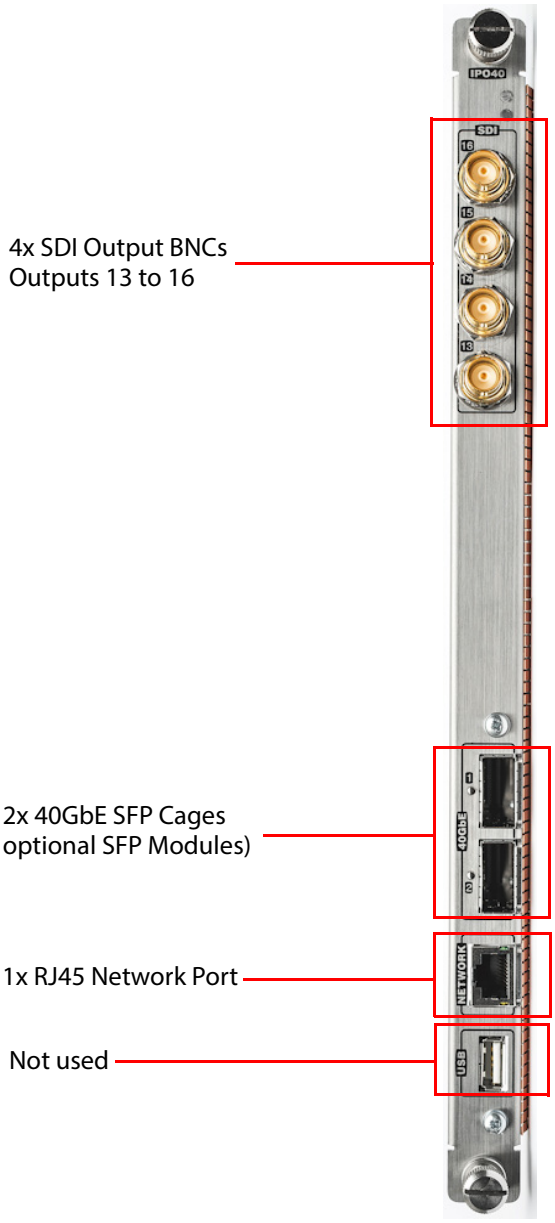
Signals supported over RTP stream per output Fin Module with 2 x 40GbE QSFP Cages.

**SMPTE 2022-6**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**VSF TR-03 (SMPTE 2110)**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2022-7**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2042 (VC-2)**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 6x 2.970Gpbs 1080p Format Sources




| Output Configuration | |
|---|---|
| **Kahuna Output** | **IPO Spigot** |
| A1 | Spigot 1 |
| A2 | Spigot 2 |
| A3 | Spigot 3 |
| A4 | Spigot 4 |
| A5 | Spigot 5 |
| A6 | Spigot 6 |
| A7 | Spigot 7 |
| A8 | Spigot 8 |
| A9 | Spigot 9 |
| A10 | Spigot 10 |
| A11 | Spigot 11 |
| A12 | Spigot 12 |
| A13 | BNC 13 |
| A14 | BNC 14 |
| A15 | BNC 15 |
| A16 | BNC 16 |

## 50GbE IPO50 Output Fin

Signals supported over RTP stream per output Fin Module with 2 x 50GbE QSFP Cages.

**SMPTE 2110-20**
4x 12Gbps Format Sources (ST2110-20/30/40)

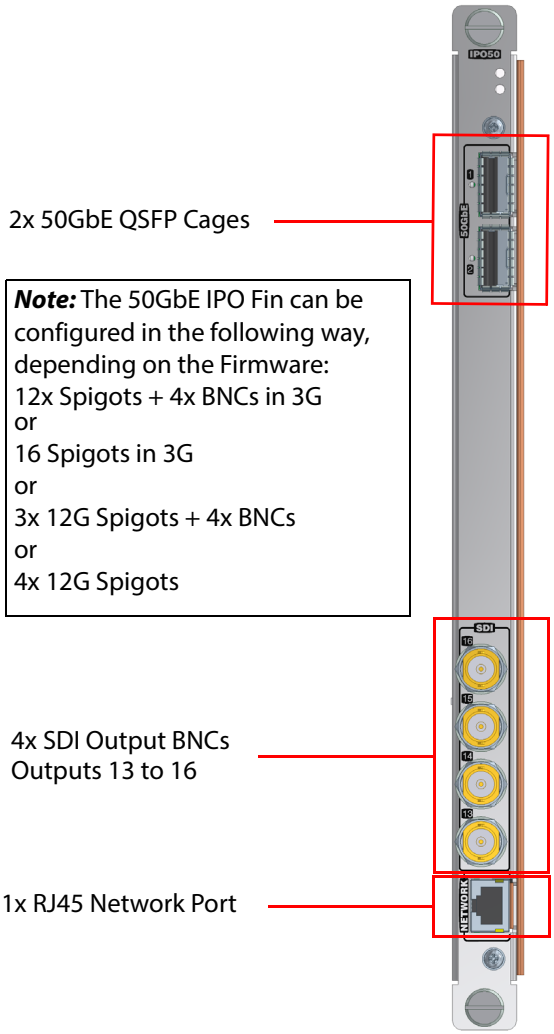
**SMPTE 2022-6**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**VSF TR-03 (SMPTE 2110)**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2022-7**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2042 (VC-2)**
Outputs - 12x 1.485Gpbs Format Sources
Outputs - 8x 2.970Gpbs 1080p Format Sources

**Ethernet Signals**
QSFP + Optical 2x 50G Ethernet
Conforms to IEEE 802.3ba – 50Gigabit over fiber.
QSFP + connected Cable 2x 50Gigabit Ethernet over twin axial cables.




***Note:*** The 50GbE IPO Fin can be configured in the following way, depending on the Firmware:
12x Spigots + 4x BNCs in 3G
or
16 Spigots in 3G
or
3x 12G Spigots + 4x BNCs
or
4x 12G Spigots

| Output Configuration | | |
|---|---|---|
| **Kahuna Output** | **IPO Spigot** | **UHD Single Link** |
| A1 | Spigot 1 | UHD Spigot 1 |
| A2 | Spigot 2 | |
| A3 | Spigot 3 | |
| A4 | Spigot 4 | |
| A5 | Spigot 5 | UHD Spigot 2 |
| A6 | Spigot 6 | |
| A7 | Spigot 7 | |
| A8 | Spigot 8 | |
| A9 | Spigot 9 | UHD Spigot 3 |
| A10 | Spigot 10 | |
| A11 | Spigot 11 | |
| A12 | Spigot 12 | |
| A13 | BNC 13 | UHD Spigot 4 |
| A14 | BNC 14 | |
| A15 | BNC 15 | |
| A16 | BNC 16 | |

## 40GbE IPI40 Input Fin

Signals supported over RTP stream per input Fin Module. 2 x 40GbE QSFP Cages.

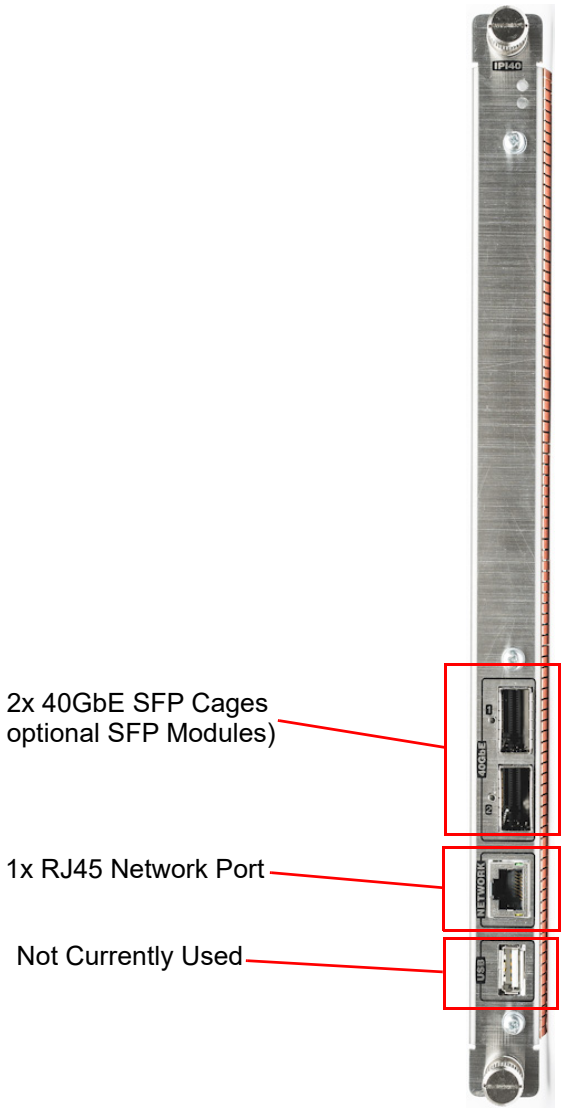
**SMPTE 2022-6**
Inputs - 12x 1.485Gpbs Format Sources
Inputs -12x 2.970Gpbs 1080p Format Sources

**VSF TR-03 (SMPTE 2110)**
Inputs - 12x 1.485Gpbs Format Sources
Inputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2022-7**
Inputs - 12x 1.485Gpbs Format Sources
Inputs - 12x 2.970Gpbs 1080p Format Sources

**SMPTE 2042 (VC-2)**
Inputs - 12x 1.485Gpbs Format Sources
Inputs - 6x 2.970Gpbs 1080p Format Sources

**Ethernet Signals**
SFP + Optical 2x 40G Ethernet
Conforms to IEEE 802.3ba – 40Gigabit over fiber.
SFP + connected Cable 2x 40Gigabit Ethernet over twin axial cables.




| Input Configuration | |
|---|---|
| **Kahuna Input** | **IPI40 Spigot** |
| A1 | Spigot 1 |
| A2 | Spigot 2 |
| A3 | Spigot 3 |
| A4 | Spigot 4 |
| A5 | Spigot 5 |
| A6 | Spigot 6 |
| A7 | Spigot 7 |
| A8 | Spigot 8 |
| A9 | Spigot 9 |
| A10 | Spigot 10 |
| A11 | Spigot 11 |
| A12 | Spigot 12 |

## 50GbE IPI50 Input Fin

Signals supported over RTP stream per input Fin Module. 2 x 50GbE QSFP Cages.

**SMPTE 2110-20**
3x 12Gbps Format Sources (ST2110-20/30/40)

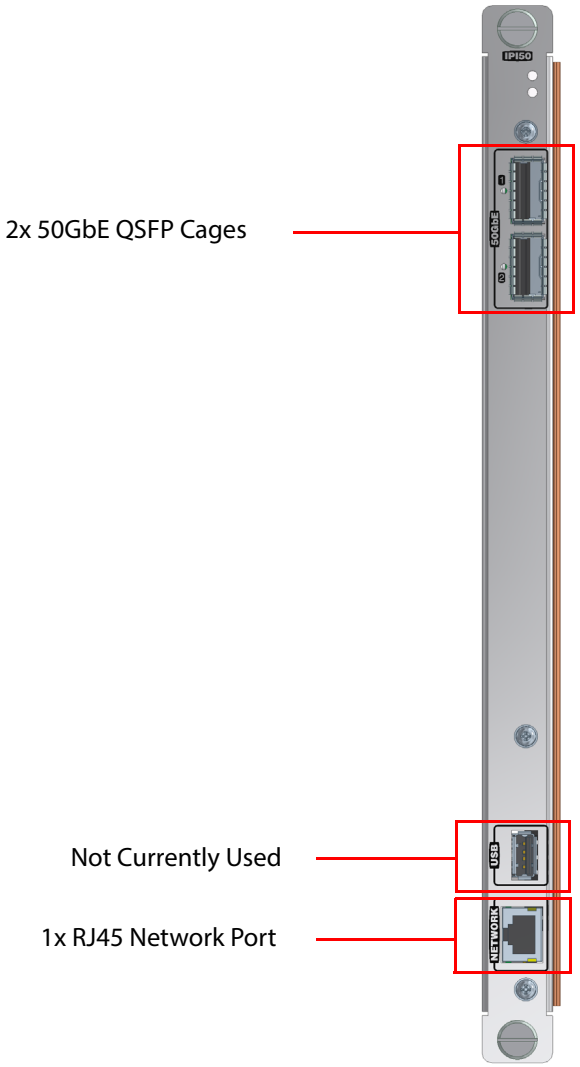
**SMPTE 2022-6**
12x 1.485Gpbs Format Sources
12x 2.970Gpbs 1080p Format Sources

**VSF TR-03 (SMPTE 2110)**
12x 1.485Gpbs Format Sources
12x 2.970Gpbs 1080p Format Sources

**SMPTE 2022-7**
12x 1.485Gpbs Format Sources
12x 2.970Gpbs 1080p Format Sources

**SMPTE 2042 (VC-2)**
12x 1.485Gpbs Format Sources
8x 2.970Gpbs 1080p Format Sources

**Ethernet Signals**
QSFP + Optical 2x 50G Ethernet
Conforms to IEEE 802.3ba – 50Gigabit over fiber.
QSFP + connected Cable 2x 50Gigabit Ethernet over twin axial cables.




| Input Configuration | | |
|---|---|---|
| **Kahuna Input** | **IPI50 Spigot** | **UHD Single Link** |
| A1 | Spigot 1 | UHD Spigot 1 |
| A2 | Spigot 2 | |
| A3 | Spigot 3 | |
| A4 | Spigot 4 | |
| A5 | Spigot 5 | UHD Spigot 2 |
| A6 | Spigot 6 | |
| A7 | Spigot 7 | |
| A8 | Spigot 8 | |
| A9 | Spigot 9 | UHD Spigot 3 |
| A10 | Spigot 10 | |
| A11 | Spigot 11 | |
| A12 | Spigot 12 | |

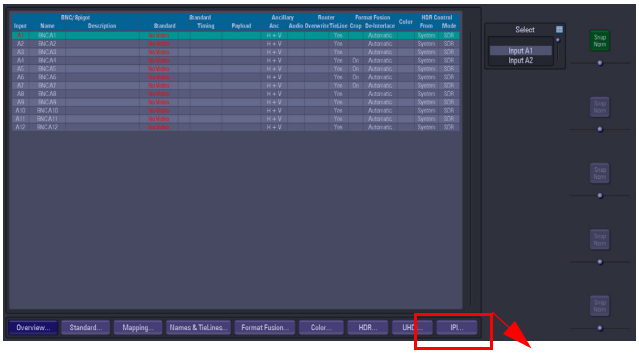
# 2 Kahuna IPI and IPO Menus

## Kahuna IPI Menus

### Using the IPI Menus

To get to the IPI menus, in the "**Engineering Config - Input Setup**" menu, in the "I**nput Standard**" menu touch the **{IPI...}** menu link button.

Note: The IPI and IPO menus will only be active if IPI and IPO Fins are fitted to the Kahuna mainframe.




#### Ethernet Menu (above)

At the top of the menu, use the "**IP Input Fin**" buttons A to J to select the Fin that is going to be setup. The Fin letters A to J correspond with the Fin ports at the rear of the mainframe.
The **Ethernet** menu is used to setup the IP addresses for the following:

- 1G Control - this is the IP address for the RJ45 network port on the IPI Fin
- Primary - this is the QSFP cage number 1
- Secondary - this is QSFP cage number 2

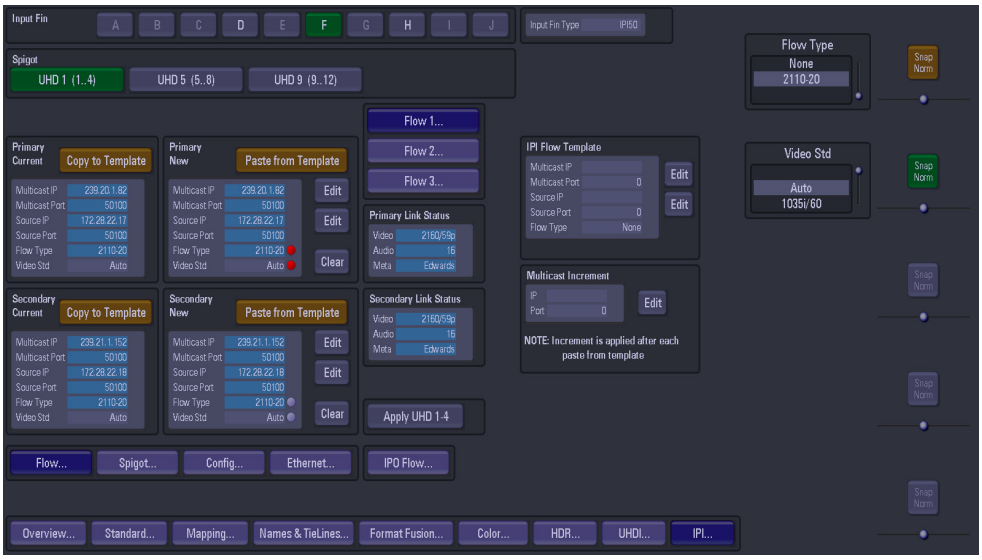
The IP addresses have to be setup for each Ethernet Interface set (1G Control, Primary and Secondary) for each IPI Fin. Once the IP address has been set for the 1G Control, touch the **{Copy to Primary/Secondary}** will copy the IP information to the Primary and Secondary sets. After using copy, it is necessary to modify the Primary and Secondary IP addresses to make sure that they are different. Typically, these are incremented by 1.
If an existing IP address exists, the user can touch the **{Copy to New}** button and the IP address info will be copied across to the "New" IP address box.

Once the IP addresses for the IPI Fin are set, touch the **{Apply All Interfaces & Restart Fin}**, this has to has to be done to restart the IPI Fin.

## Flow Menu

The Flow menu allows the user to setup each individual "Spigot" IP address, Source IP address. Each Flow needs to have a Multicast IP address and Port as well as the IP address and Port of the source.

> Note: The menu below displays the "Spigot" buttons for a Fin in UHD Single Link mode. Spigot numbers will vary depending on the format the Fin is set to.



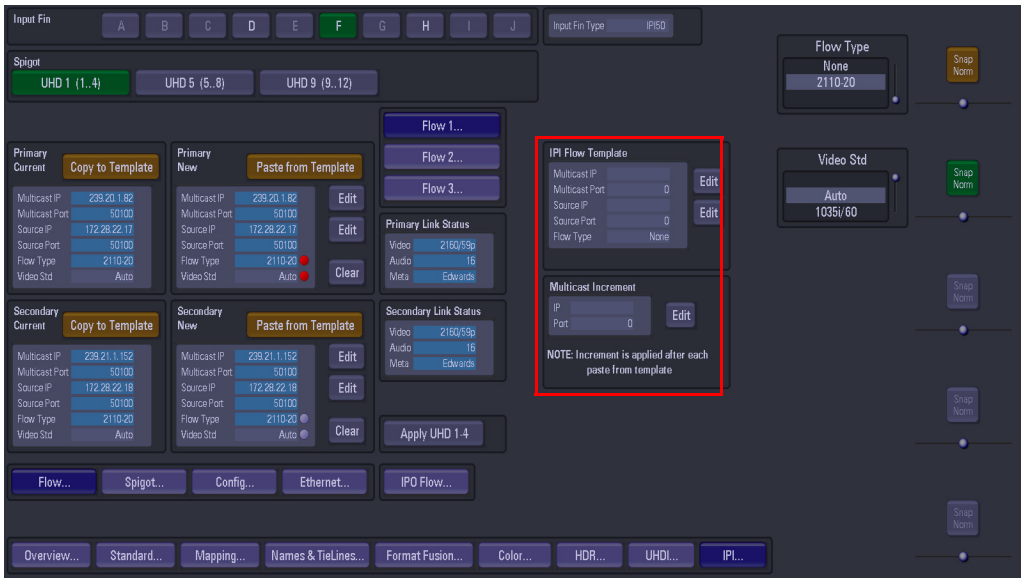

The number of Spigots that are available as inputs are restricted to the type of "**Flow Type**" that is selected. When selecting a Flow Type settings, refer to the number of channels listed in the "**Number of IP Inputs**" tables, as listed earlier in this section. This will display the number of inputs available to the selected Fin.

- **Flow 1** - This is used for **Video**
- **Flow 2** - This is used for **Audio**
- **Flow 3** - This is **Metadata**

The "**Links**" "**Primary**" and "**Secondary**" buttons allow separate data to be added for the Primary and Secondary Links.

The IP addresses, Port numbers and Flow Types can be entered manually, but there is a template tool which can be used to speed up the setup process.
Once the information is entered into the "**New**" data field, these settings are set as "**Current**" by touching the **{Apply Spigot}** button.

The IPI Flow Template, allows the user to set the Multicast IP address (this is user specific). The Source IP is the IP address of the incoming source.




When the information is input into the IPI Flow Template, set the "Multicast Increment" to increment by "1", the Template tool allows an address or port number to be incremented each time the **{Paste from Template}** button is touched.
For example enter the Multicast IP address - 120.14.10.01, then setting the increment to 1, then when the **{Paste from Template}** button is pressed, the Multicast IP address will increment by 1 automatically. This is handy and less time consuming if the user is setting up a lot of spigots.

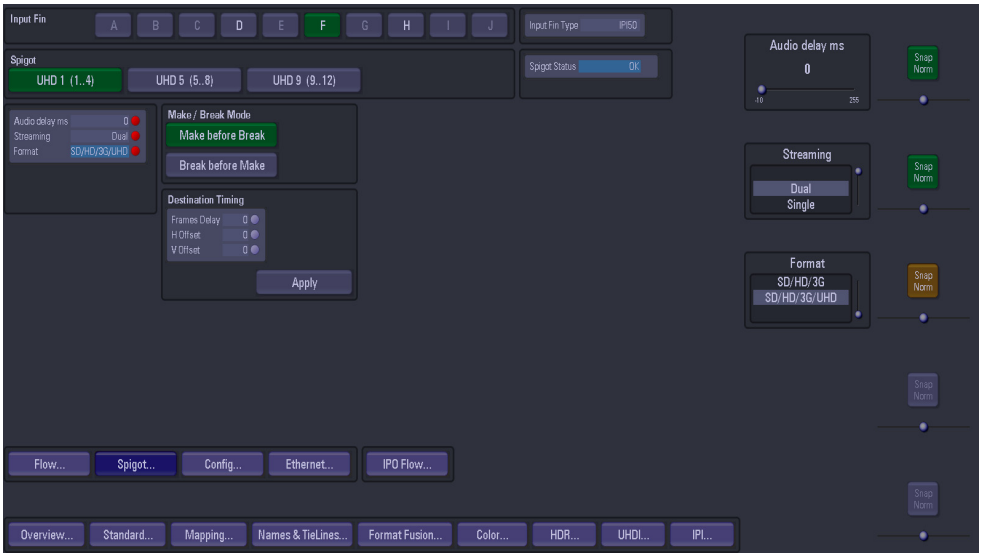
This has to be done for each Flow for each Spigot.

These have to be setup for each spigot.
It is recommended "**Video Standard**" parameter is set to "**Auto**", which as suggested will automatically select the video standard for the selected spigot.
The "**Link Status**" window displays the incoming video standard, the number of audio channels and the metadata status.

## Spigot Menu

In the Spigot menu, the user is able to set the video standard for individual Spigots using the "**Format**" parameter. Setting this parameter will allow more or less spigots to be used, depending on the type of format that is selected for the spigot.

> Note: The menu below displays the "Spigot" buttons for a Fin in UHD Single Link mode. Spigot numbers will vary depending on the format the Fin is set to.




The "**Streaming**" parameter will set whether there are 1 or 2 SFP cages being used on the selected IPI Fin.

The "**Audio Delay**" parameter can be adjusted, if for instance the "Lip Sync" is out between audio and video signals.

**Make before Break** - this sets up the new flow before breaking the old one. It should be noted that this will use extra band width as the new flow is established.

**Break before Make** - this simply breaks the old flow before setting up the new one. This will not result in a clean cut but will not use anymore bandwidth.

## Config Menu

The Config menu allows the user to see the software/firmware versions and build, and change the current “DDS Domain ID”.

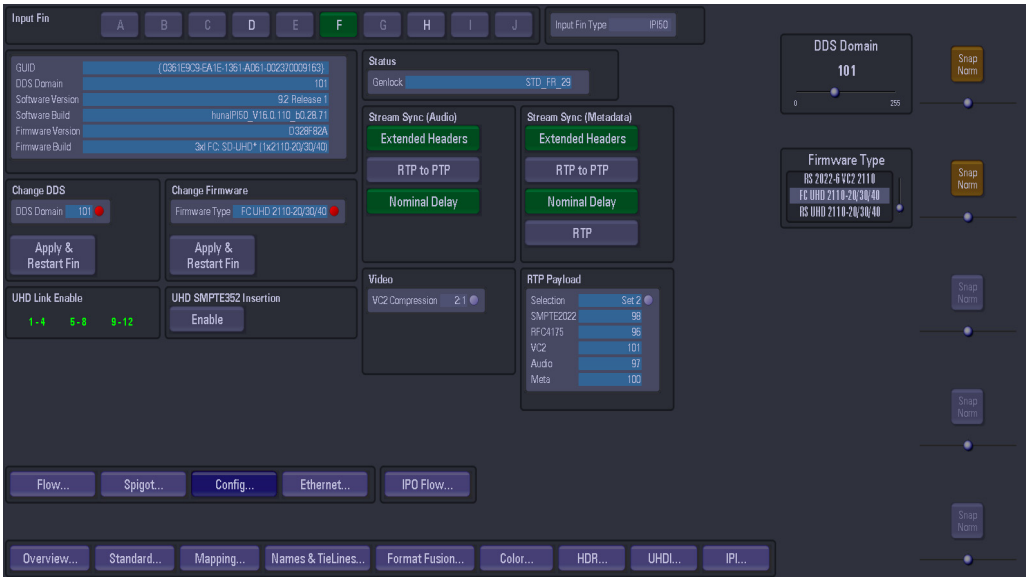
> Note: In order to use VC2 , the firmware for VC2 will need to be selected in this menu and the {Apply and Restart} button pushed which will reboot the Fin

The “UHD Link Enable” displays the four inputs linked together to create a UHD input. These are “Quad Link” indicators set in the “Eng Config - Input Setup - Standard” menu when in UHD mode.

- '1 - 4'
- '5 - 8'
- '9 - 12'

To insert a UHD SMPTE352 payload identifier into a video IP output stream, touch the “UHD SMPTE352 Insertion” **{Enable}** button.
This inserts the same timestamp information is inserted into each of the four 'quad-linked' video IP streams

> Note: The software on the IPI Fin has to be updated through RollCall either directly to the IPI FIN via the RJ45 Network port or directly to the SD card on the IPI Fin.




Use the “Firmware Type” parameter to select the firmware that you wish to run on the Fin. Each software version may contain multiple firmware images.
The correct firmware should be selected depending on the type of signals the IPI fin will be used for. i.e. SMPTE2022-6, ST2110, VC2 or 12G single link UHD. When selected, touch the **{Apply and Restart Fin}** button to restart the Fin in the selected firmware version. The number of spigots available depends on the type of firmware selected; ST2110 & SMPTE 2022-6 = 12 spigots, VC2 = 8 Spigots and Single link 12G "UHD" = 3 Spigots.

**Stream Sync (Audio):-**

- **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.

**Stream Sync (Metadata):-**

- **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.

# Kahuna IPO Menus

## Using the IPO Menus

To get to the IPO menu, touch the **{IPO Setup...}** menu link button.

> Note: The IPI and IPO menus will only be active if IPI and IPO Fins are fitted to the Kahuna mainframe.


### Ethernet Menu (above)

At the top of the menu, use the "**IP Output Fin**" buttons A to D to select the Fin that is going to be setup. The Fin letters A to D correspond with the output Fin ports at the rear of the mainframe.
The **Ethernet** menu is used to setup the IP addresses for the following:

- 1G Control - this is the IP address for the RJ45 network port on the IPO Fin
- Primary - this is the SFP cage number 1
- Secondary - this is SFP cage number 2

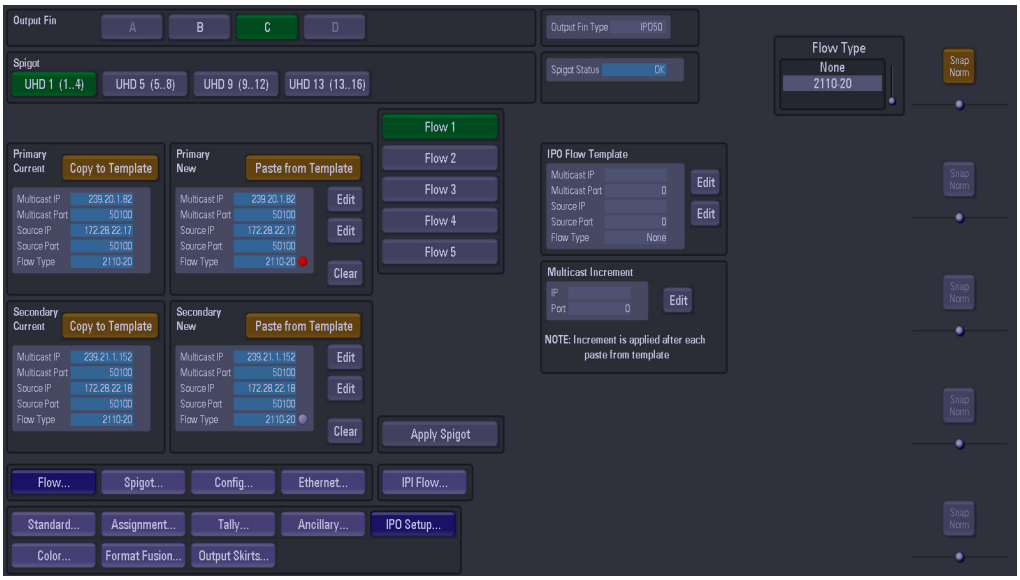
The IP addresses have to be setup for each Ethernet Interface set (1G Control, Primary and Secondary) for each available IPO Fin. Once the IP address has been set for the 1G Control, touch the **{Copy to All 1G}** will copy the IP information to the Primary and Secondary sets. After using copy, it is necessary to modify the Primary and Secondary IP addresses to make sure that they are different. Typically, these are incremented by 1.
If an existing IP address exists, the user can touch the **{Copy to New}** button and the IP address info will be copied across to the "New" IP address box.

Once the IP addresses for the IPO Fin are set, touch the **{Apply All Interfaces & Restart}**, this has to has to be done to restart the IPO Fin.

## Flow Menu

The Flow menu allows the user to setup each individual "**Spigot**" IP address, Source IP address. Each Flow needs to have a Multicast IP address and Port as well as the IP address and Port of the source.

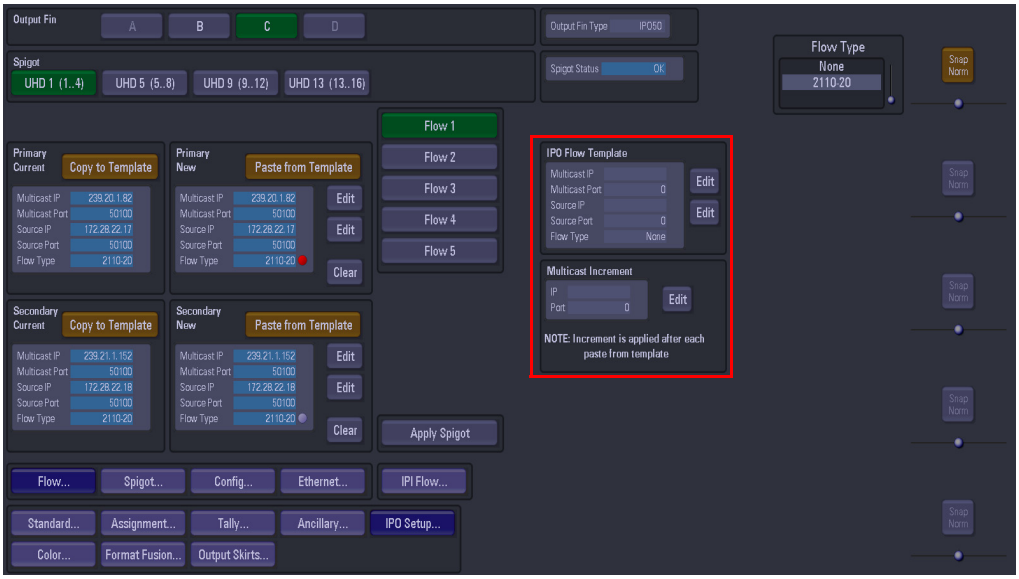
> Note: The menu below displays the "Spigot" buttons for a Fin in UHD Single Link mode. Spigot numbers will vary depending on the format the Fin is set to.




The number of Spigots that are available as outputs are restricted to the type of "**Flow Type**" that is selected. When selecting a Flow Type settings, refer to the number of channels listed in the "**Number of IP Outputs**" tables, as listed earlier in this section. This will display the number of inputs available to the selected Fin.

The "**Links**""**Primary**" and "**Secondary**" buttons allow separate data to be added for the Primary and Secondary Links.The IP addresses, Port numbers and Flow Types can be entered manually, but there is a template tool which can be used to speed up the setup process. Once the information is entered into the "**New**" data field, these settings are set as "**Current**" by touching the **{Apply Spigot}** button.This has to be done for each Flow for each Spigot

The IPO Flow Template allows the user to set the Multicast IP address (this is user specific). The Source IP is the IP address of the incoming source.




When the information is input into the IPO Flow Template, set the “Multicast Increment” to increment by “1”, the Template tool allows an address or port number to be incremented each time the **{Paste from Template}** button is touched.
For example enter the Multicast IP address - 120.14.10.01, then setting the increment to 1, then when the **{Paste from Template}** button is pressed, the Multicast IP address will increment by 1 automatically. This is handy and less time consuming if the user is setting up a lot of spigots.

This has to be done for each Flow for each Spigot.

> Note: The configuration of the Spigot dictates the type of signal carried on each of the Flows.

This has to be done for each Flow for each Spigot.

If a Spigot is capable of utilizing a VC2 Flow, the Flow configuration is as follows:

- Flow 1 - Video (either SMPTE 2022-6, or ST2110-20 or VC2)
- Flow 2 - this is Audio
- Flow 3 - this is Metadata
- Flow 4 - this is None

These have to be setup for each spigot.
The “Spigot Status” window displays the incoming video standard.

The “Current” and “New” allow the user to copy the Multicast IP address etc. to the “Edit Template” menu from the “Current” area and paste from the “Edit Template” menu to the “New” area.

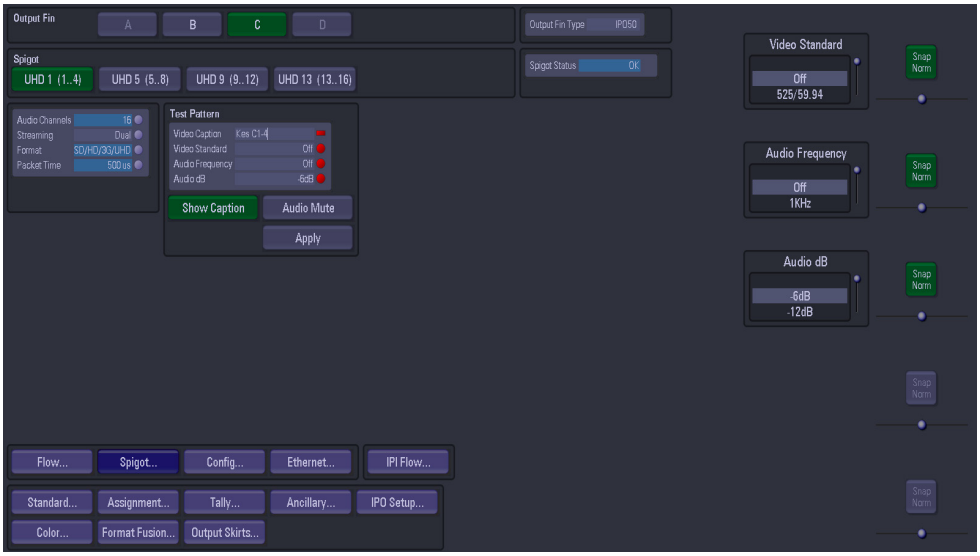
If a Spigot is not configured for VC2, the Flows are as follows:

- Flow 1 - this is SMPTE 2022-6
- Flow 2 - this is ST2110-20
- Flow 3 - this is Audio
- Flow 4 - This is Metadata

## Spigot Menu

In the Spigot menu, the user is able to set the video standard for individual Spigots using the "**Format**" parameter. Setting this parameter will allow more or less spigots to be used, depending on the type of format that is selected for the spigot.

> Note: The menu below displays the "Spigot" buttons for a Fin in UHD Single Link mode. Spigot numbers will vary depending on the format the Fin is set to.




The "**Streaming**" parameter will set whether there are 1 or 2 SFP cages being used on the selected IPO Fin.

The **Test Pattern** attacher is able to output a Color Bar signal test pattern on the selected Spigot.
**Video Caption** - allows the user to place text onto the test pattern. The caption also appears on any video when not in TPG mode

**Video Standard** - allows the user to set the video standard of the test pattern.

**Audio Frequency** - sets the audio frequency of the test signal.

## Config Menu

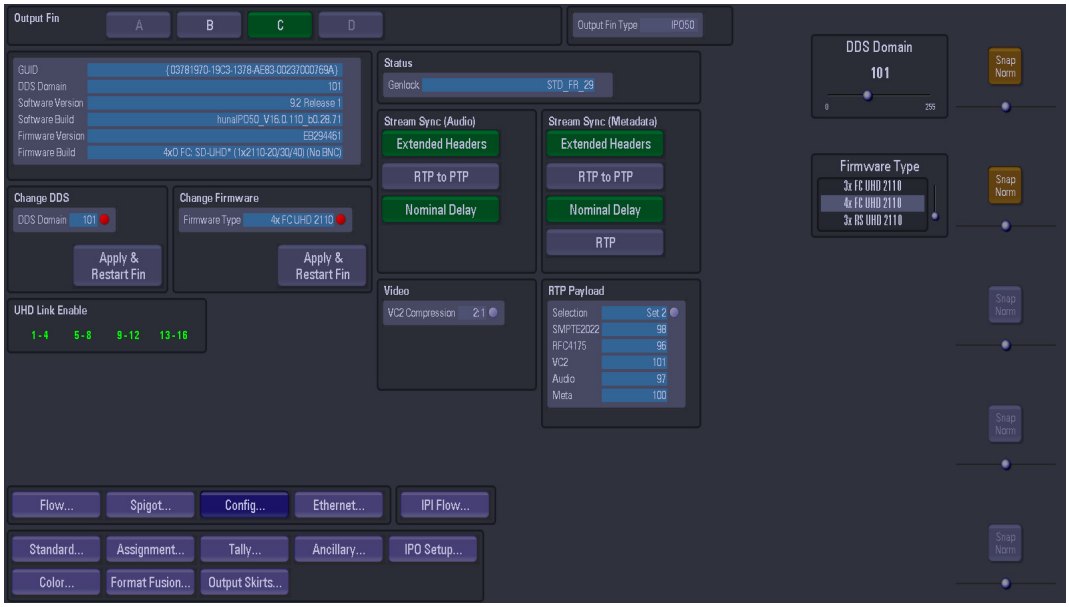
The Config menu allows the user to change the current “DDS Domain ID”.

The “UHD Link Enable” displays the four inputs linked together to create a UHD input. These are “Quad Link” indicators set in the “Eng Config - Output Setup - Standard” menu when in UHD Quadrant mode.

- '1 - 4'
- '5 - 8'
- '9 - 12'

To insert a UHD SMPTE352 payload identifier into a video IP output stream, touch the “UHD SMPTE352 Insertion” **{Enable}** button.
This inserts the same timestamp information is inserted into each of the four 'quad-linked' video IP streams

> Note: The software on the IPO Fin has to be updated through RollCall either directly to the IPO FIN via the RJ45 Network port or directly to the SD card on the IPO Fin.




Use the “Firmware Type” parameter to select the firmware that you wish to run on the Fin. Each software version may contain multiple firmware images.
The correct firmware should be selected depending on the type of signals the IPI fin will be used for. i.e. SMPTE2022-6, ST2110, VC2 or 12G single link UHD. When selected, touch the **{Apply and Restart Fin}** button to restart the Fin in the selected firmware version. The number of spigots available depends on the type of firmware selected; ST2110 & SMPTE 2022-6 = 12 spigots, VC2 = 8 Spigots and Single link 12G "UHD" = 3 Spigots.

**Stream Sync (Audio):-**

- **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.

**Stream Sync (Metadata):-**

- **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.

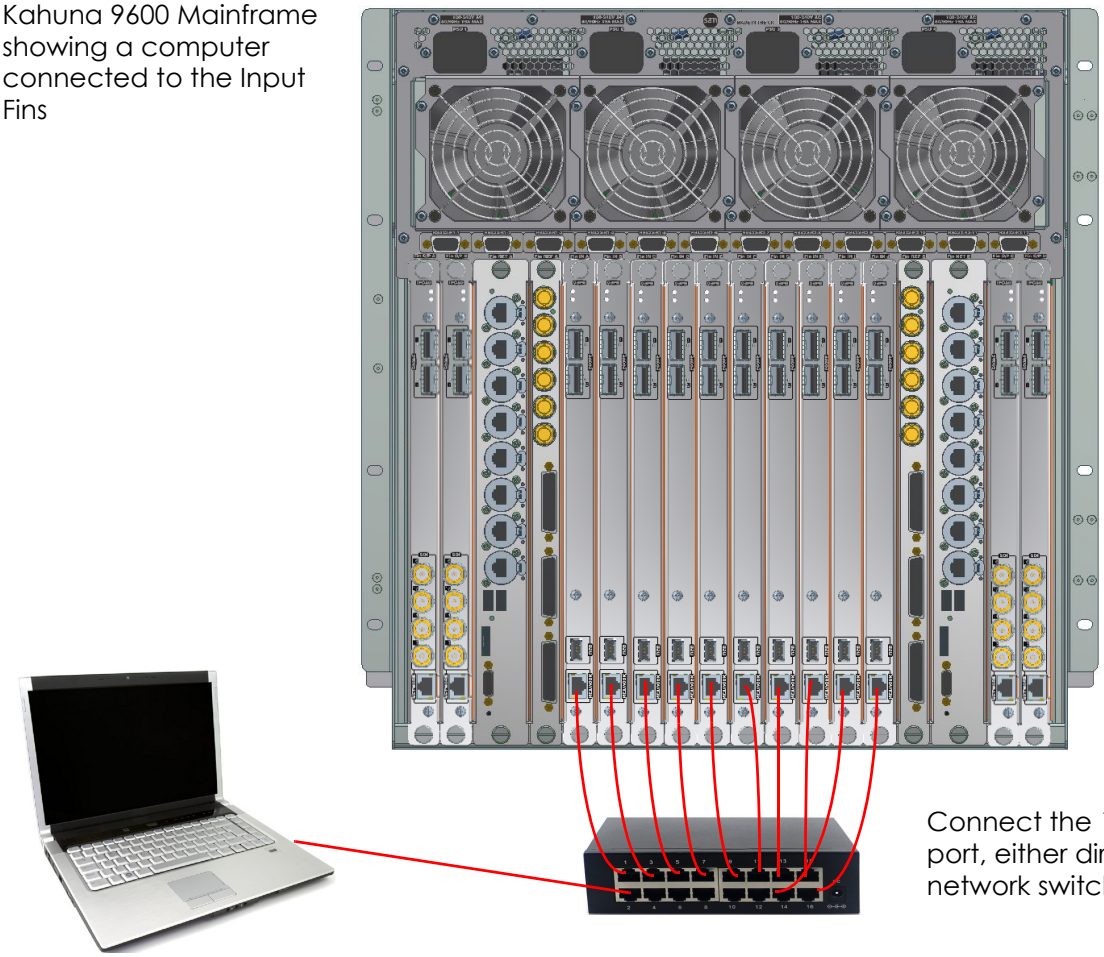
# 3 Using the RollCall Templates

## How RollCall is used with Kahuna IPI and IPO Fins

IPI and IPO Fin software updates are done on an individual Fin by Fin basis, using RollCall software. The RollCall software is run on a computer which has to be connected to the Kahuna mainframe, either directly to the 1G Fin RJ45 port, or via a network. The diagram below shows a computer connected to one of the Net Fin RJ45 connectors, the diagram also shows one of the IPI Fins directly connected to the Net Fin using an RJ45 to RJ45 lead.

### Connecting the IPI/IPO Fins to update the Firmware

Kahuna 9600 Mainframe showing a computer connected to the Input Fins



Connect the 1G RJ45 IPI or IPO port, either directly or via a network switch.

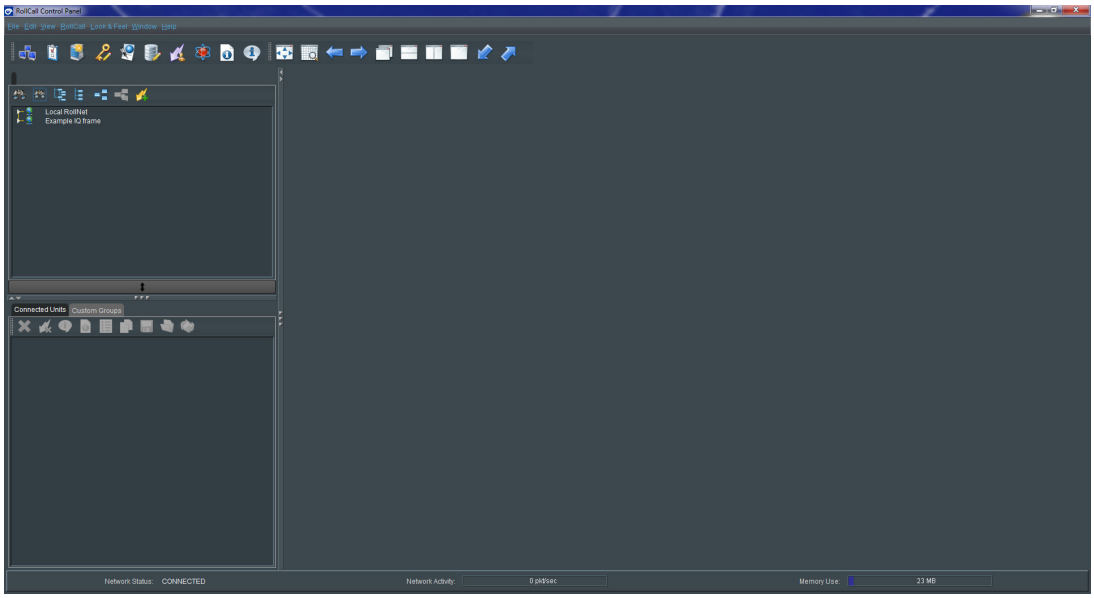
Once RollCall is setup and communicating to the IPI/IPO Fin, the user can then update the Fin software and set the IPI/IPO spigot inputs and outputs. This has to be done on an individual IPI and IPO Fin basis, as explained on the following pages.

# RollCall Setup and Connection to Kahuna

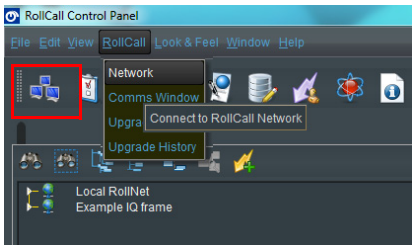
Note: Please speak to the Grass Valley customer support team regarding downloading the latest RollCall software.

IMPORTANT: Upgrade the Mainframe before upgrading the IP Fins

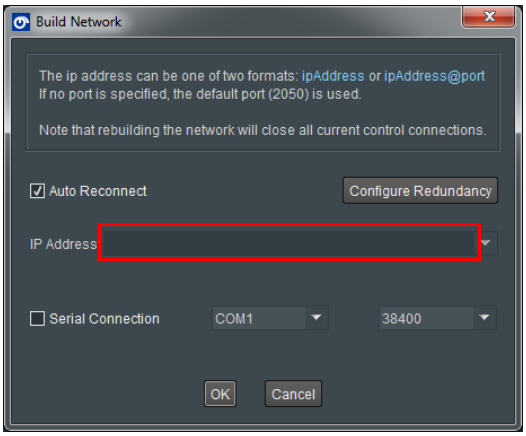
Before starting, make a note of all the 1G Port IP addresses on each Fin that need upgrading. You will need to give your PC a static IP address in the same subnet as the Fin you are connected to, then it is a good idea to ping the 1G IP address of the Fin to check the connection.
Start the RollCall software installed on the PC. The fist menu that is displayed is the un-connected RollCall menu.



At the top right of the menu are the user controls. Click on “RollCall” and in the drop down window, select “Network” (as shown below). You can also click on the “Build Network” icon.



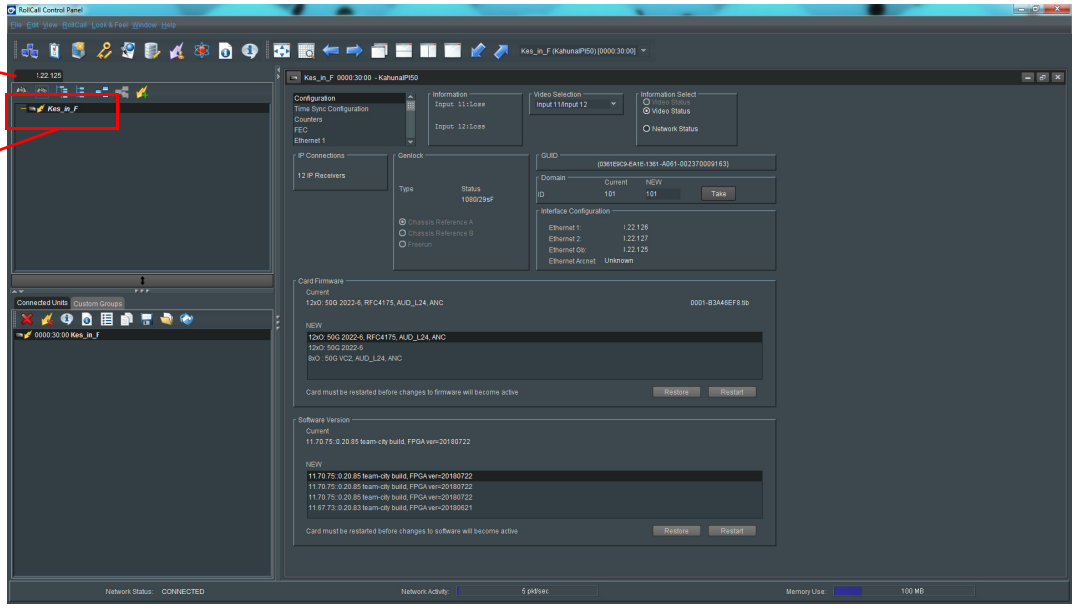
This will display the “Build Network” dialog box. Enter the 1G Port IP address of the IPI or IPO Fin you are connected to. You should not have to alter any other parameter in this menu.




Once the IP address is entered, click on the **{OK}** button and RollCall will connect to the IPI/IPO Fin.

IP Fin
IP address

Kahuna Mainframe that RollCall is connected to

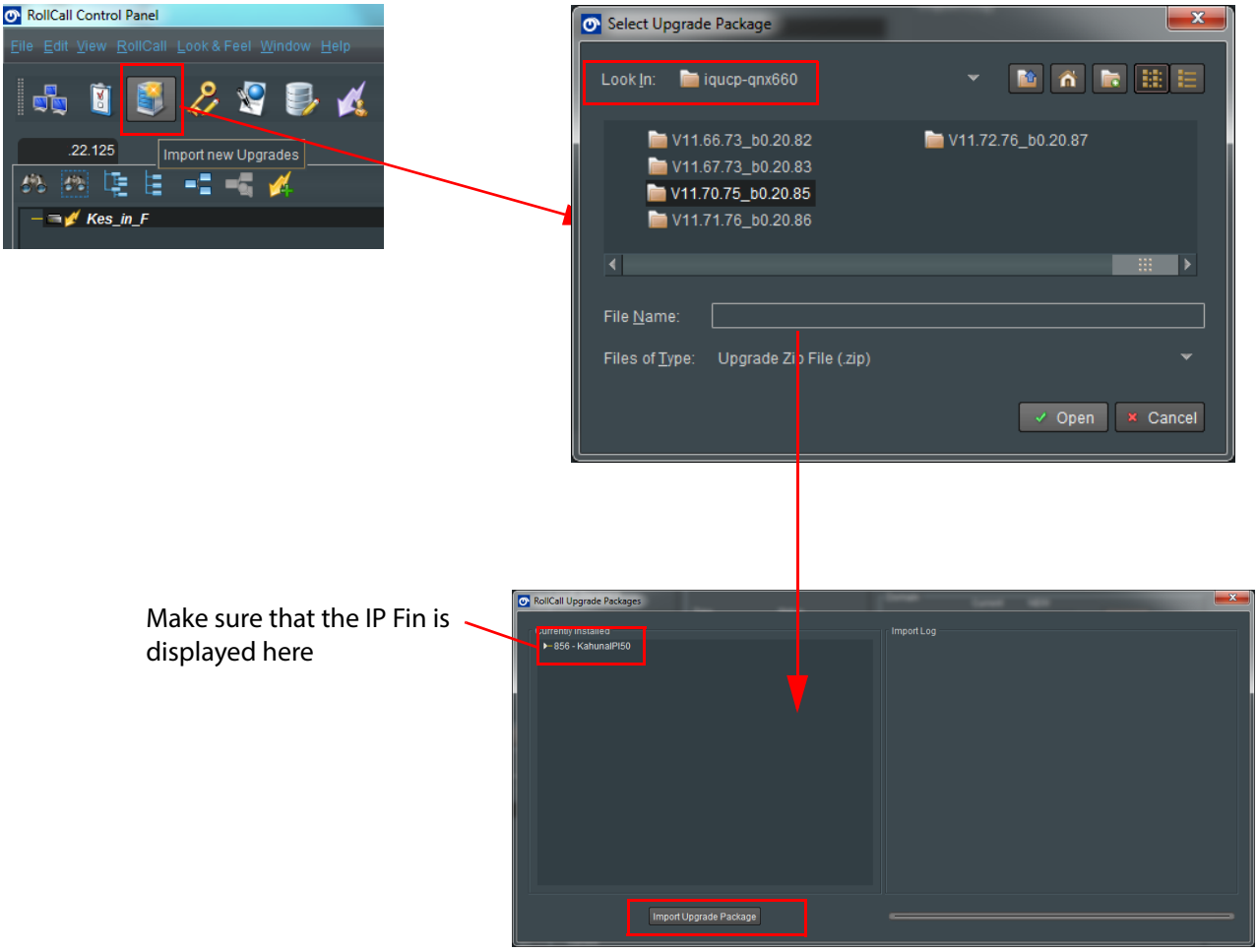


In the menu above, the IP Fin IP address, the name of the Kahuna mainframe is displayed. Double click on the mainframe name and RollCall will start to “Render” the template menus.

## Updating the Software on the IP Fins

From the icon bar at the top of the menu, click on the “Import new Upgrades” icon.

This will display the “RollCall Upgrade Package” menu.




Make sure that the IP Fin is displayed here

In the “Select Upgrade Package” menu, you can either browse to where the latest Kahuna Software Upgrade Package is stored on your hard drive, open the Kahuna software folder and select the upgrade package from there, or you can browse to a network folder where the required software is stored. Then click on the {Open} button.

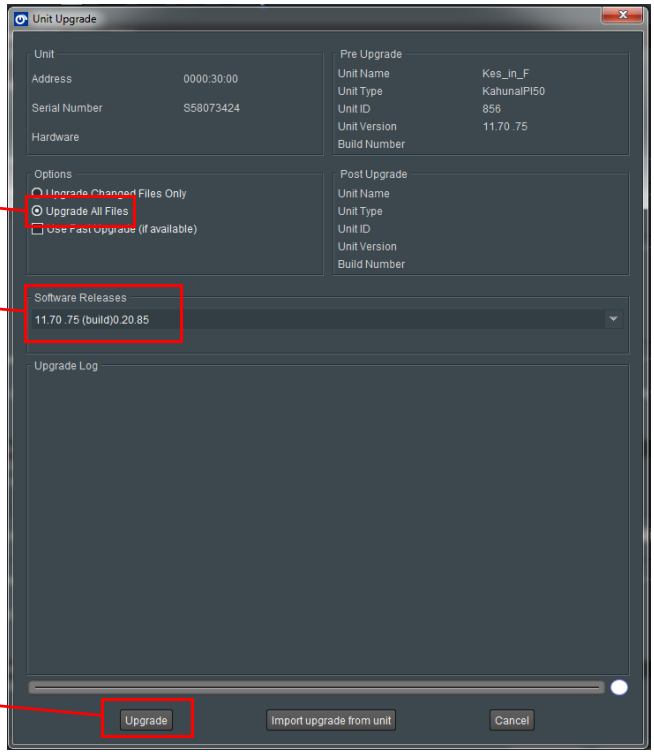
Select the “Upgrade Package” and click on the **{Import Upgrade Package}** button.

Once the software Zip file has imported, the software the “Unit Upgrade” dialog box is displayed.

Select Upgrade All Files

Software Release Software Build Version

Upgrade Button




In the “Options” box, select “Upgrade All Files”
The new software release version that has just been downloaded is displayed in the “Software Release” area. This is a drop down box which will display all previous versions of software downloaded. Finally to upgrade the software on the selected Fin, press the **{Upgrade}** button.

The Upgrade Log will display the upgrade status.

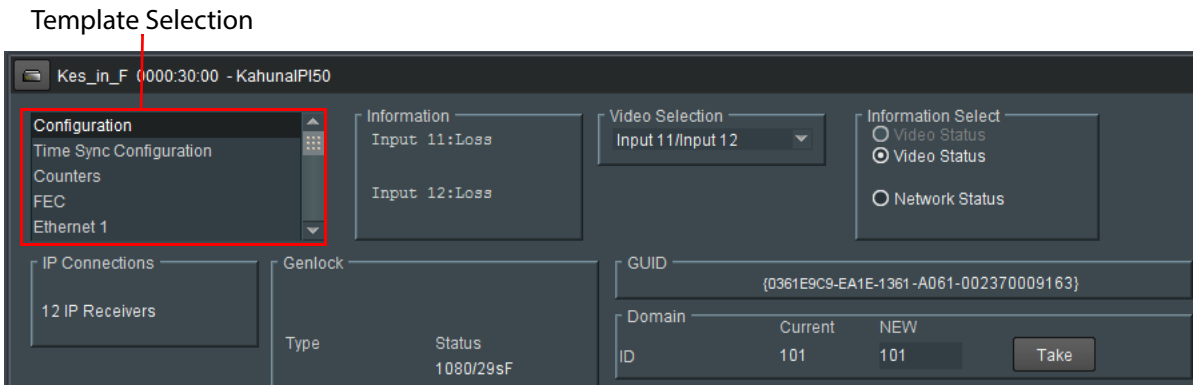
**IMPORTANT: Do not reboot the Kahuna Mainframe until all IP fin upgrades are complete!**

# Navigating RollCall Template Screens

> Note: The RollCall templates are used to setup 50GbE IPI Fins or IPO Fins. The menus displayed in the following sections are for the 50GbE IPI Fins. The RollCall templates for the IPO Fins are exactly the same.

When RollCall has connected to the Kahuna mainframe and IP Fin, several template screens are available: The initial screen is shown.

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




Alternatively, to navigate to another template:

1. Right-click anywhere in a template screen.
   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.

## Setting Values

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

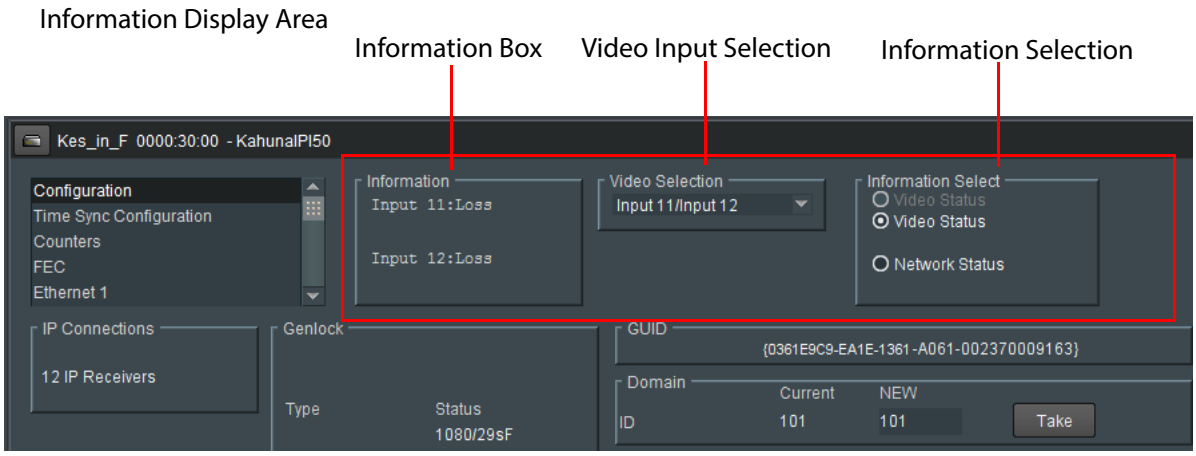
When setting a value in a field, the value, whether text or a number, must be set by pressing the ENTER key, or clicking the S **Save Value** button.

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

## Common Information Display

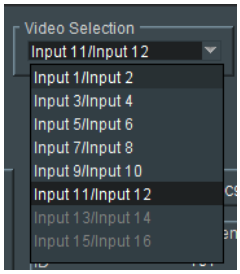
An **Information Display** area appears at the top of each template screen and shows basic information about the input, standard and status of the Video IP blocks.

Information is displayed in an **Information** box and is selected in the **SDI Selection** and **Information Selection** sections of the **Information Display**.

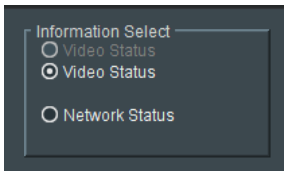



## Selecting the Information to Display

- Select the Inputs to display data for from the **Video Selection** drop-down list.

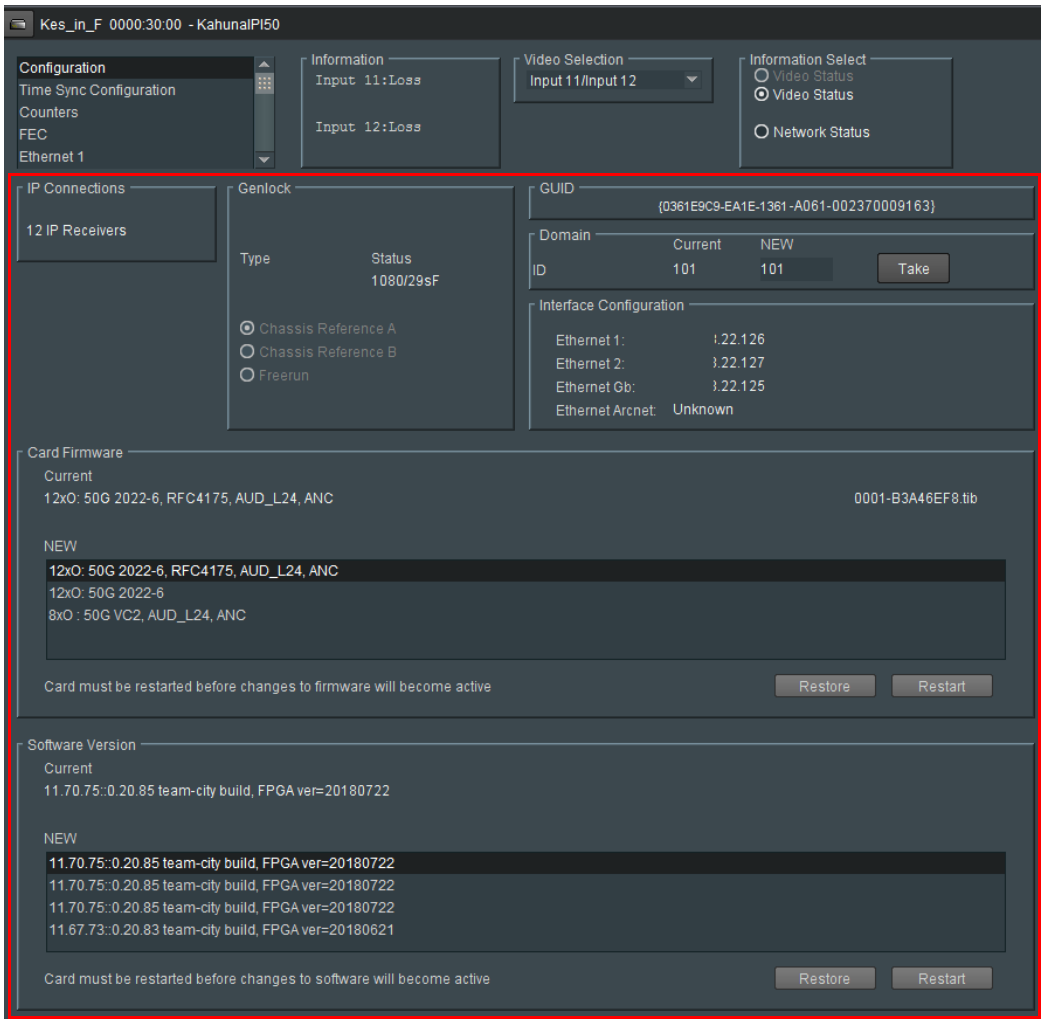



- Select **Video Input Status**, **Video Output Status** or **Network Status** from the **Information Selection** pane, as required.



## Configuration Template

The **Configuration** template screen allows basic Video IP block parameters to be set.




The following facilities are available from this template:

| Configuration Setting | Operation |
|---|---|
| **IP Connections** | Displays the number of IP Receivers. |
| **Genlock** | Select **Genlock** type:<br>• **Chassis Reference A/B** - click to select which external reference to use.<br>• **Freerun** - click to allow free running. |
| **GUID** | Displays the absolute unique identifier associated with the 50GbE Fin |

| Configuration Setting | Operation |
|---|---|
| **Domain** | RollCall+ uses domains to partition a RollCall+ network; only nodes on the same RollCall+ domain can communicate with one another. A domain is uniquely identified with a number and a friendly name/alias.<br>1. Set a new RollCall+ ID as required.<br>2. Press **Take** to confirm the change. |
| **Interface Configuration** | Displays the IP address for each of the network interfaces. |
| **Card Firmware** | The current firmware version is shown.<br>Each software version may contain multiple firmware images. Typically, there is one firmware image for an IP Fin. Although, multiple images are possible (for example, for different spigot input and flow standard combinations).<br>For this example, the IPI Fin, the firmware configures 4x 12 x0 50G 2022-5SDI inputs. |
| **Software Version** | Each software version may contain multiple firmware images.<br>The current software version is shown. |

### Loading a Different Card Firmware Version

**Note:** Selecting a firmware version is *not* normally required.

To use a new card firmware:

1. Select the firmware item in the list displayed in the **Card Firmware** pane.

   **Note**: **Restore** and **Restart** buttons are displayed only when a 'not-currently-loaded' firmware item is selected.

2. Click **Restore** to load the selected firmware.
3. Click **Restart** to restart the Video IP block.

### Loading a Different Software Version

To use a new software version:

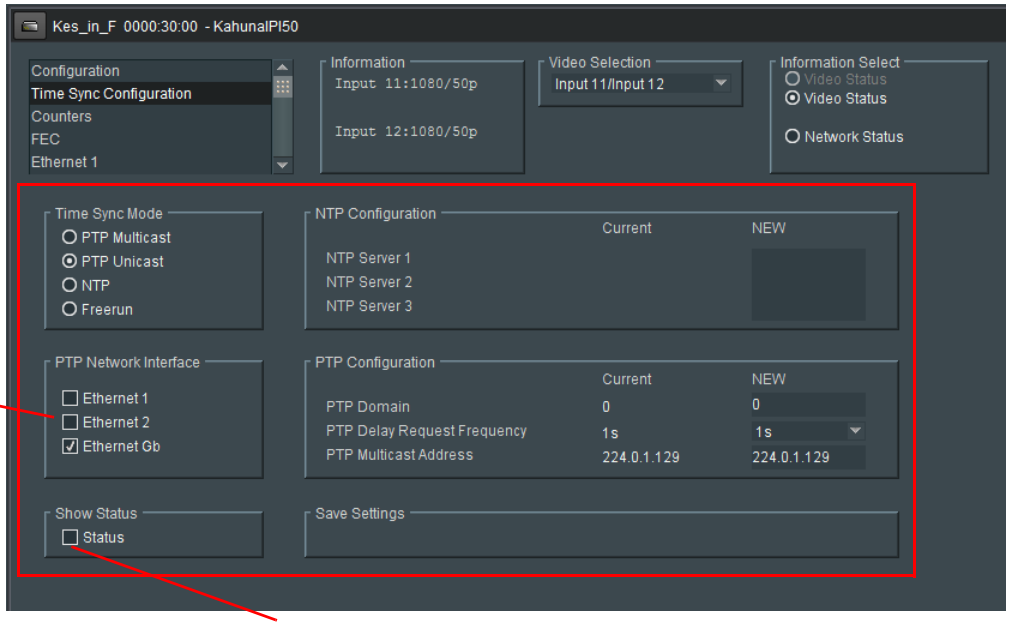
1. Select the required software in the **Software Version** pane.

   **Note**: **Restore** and **Restart** buttons are displayed only when a 'not-currently-loaded' software item is selected.

2. Click **Restore** to load the required software version.
3. Click **Restart** to restart the Video IP block.

## Time Sync Configuration Template

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




Media interfaces to IP Fins

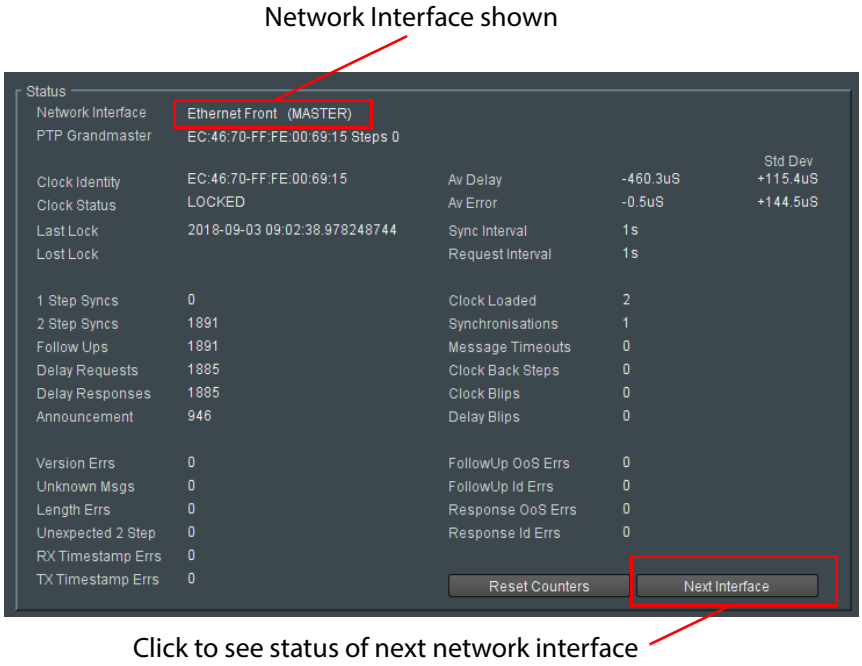
Select "**Show Status**" to see extra panels

**Time Sync Configuration Template Settings**

| Time Sync Configuration Setting | Operation |
|---|---|
| **Time Sync Mode** | Select the required time sync mode.<br>**Note:** PTP options require a grandmaster clock to be present in the network system. |
| **NTP Configuration** | NTP servers are listed.<br>To add a new NTP server:<br>• Enter server's IP address into the **New** field. |
| **PTP Network Interface** | Select one or more required network interfaces for PTP data traffic.<br>If a network interface fails, the next interface on the list will be switched to automatically for PTP data traffic. |
| **PTP Configuration** | **PTP Domain:** Enter the PTP clock domain number.<br>**PTP Delay Request Frequency**: Select the duration in the drop-down list, as required.<br>**PTP Multicast:** Enter the appropriate IP address into the **PTP Multicast** address field. |
| **Show Status** | Select to display time sync status information in the template. |

## Time Sync Status Panel

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




To see the status of another network interface of the Video IP block 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.

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 Video IP block's own clock and the network system's PTP grandmaster clock. The histogram is available when a Video IP block is locked.

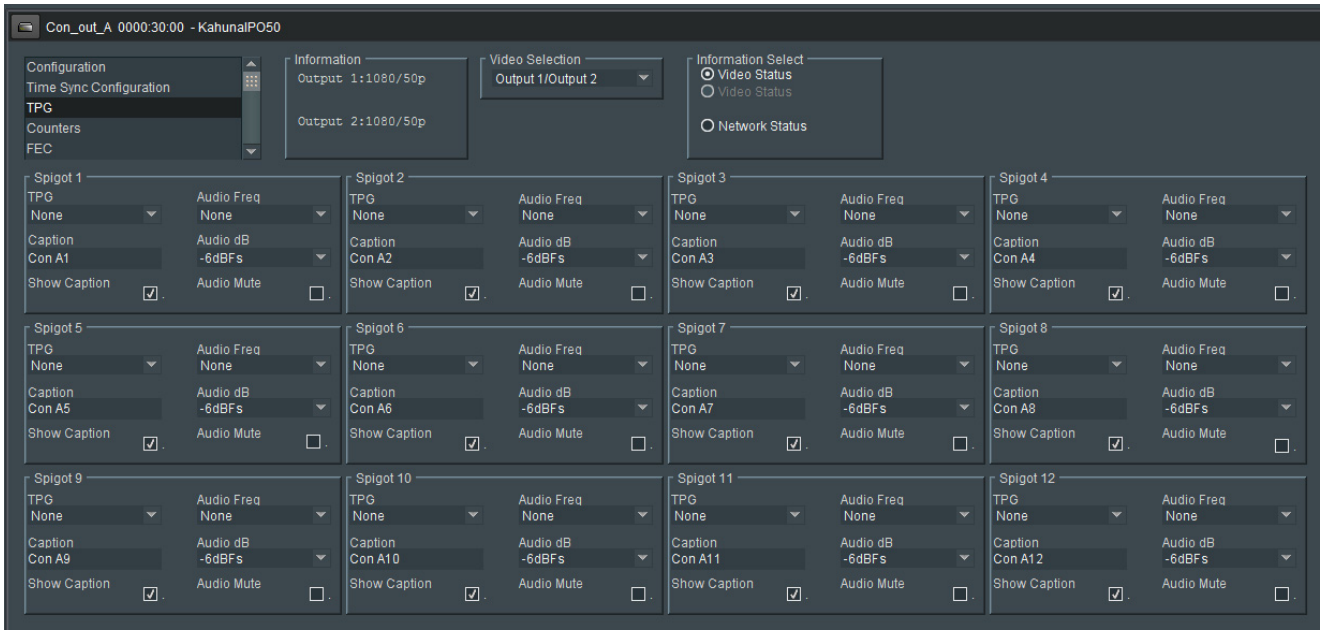
- Use the **Zoom-in** and **Zoom-out** controls to see the corresponding histogram.


Every time a clock 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.

## TPG (Test Pattern Generator) Template (50GbE IPO Fin ONLY)

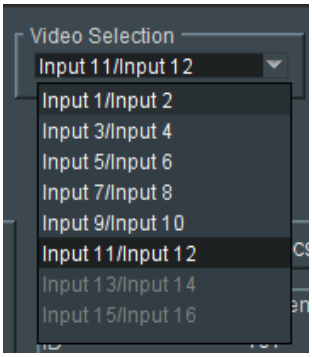
The **TPG** template allows test patterns to be applied on a spigot-by-spigot basis for IP output. For a 50G IPO Fin, there are 12 spigot test pattern panels.

> 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.

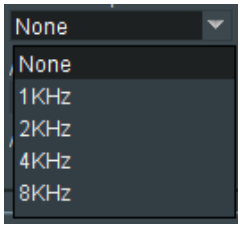
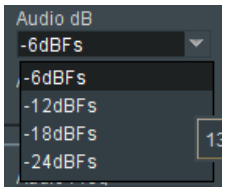



The following options are available for each spigot:

**Spigot Test Pattern Panel Settings**

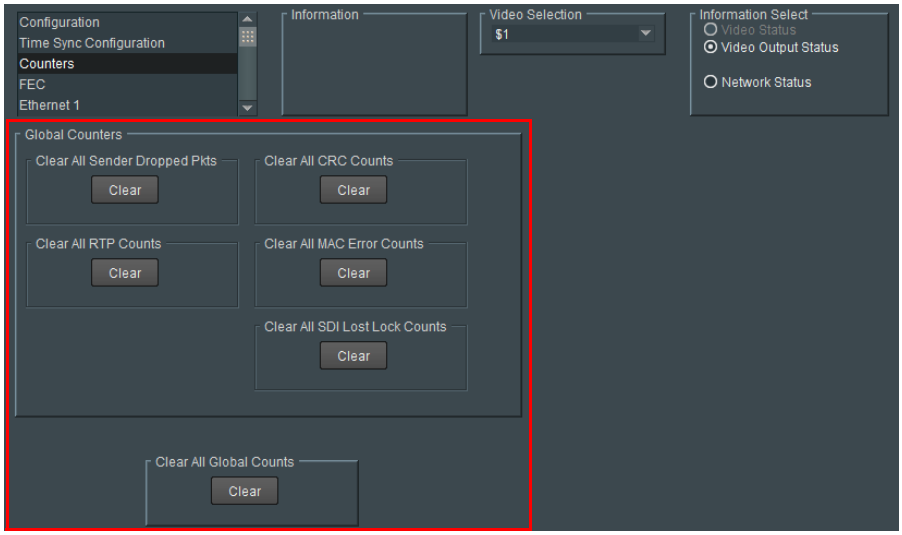
| Spigot Test Pattern Setting | Operation |
|---|---|
| **TPG** | Select the video standard of the 'moving color bars' test pattern to apply to the spigot from the drop-down list. Select 'None' to turn off the test pattern.  |

**Spigot Test Pattern Panel Settings *(continued)***

| Spigot Test Pattern Setting | Operation |
|---|---|
| **Audio Freq** | Select the audio frequency to apply to the spigot from the drop-down list.<br>  |
| **Caption** | Enter a caption (maximum 19 characters) to optionally be overlaid onto the test pattern. |
| **Audio dB** | Select the dB level to apply to the spigot from the drop-down list.<br>  |
| **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 Video IP block templates, which count various types of error conditions that might occur.

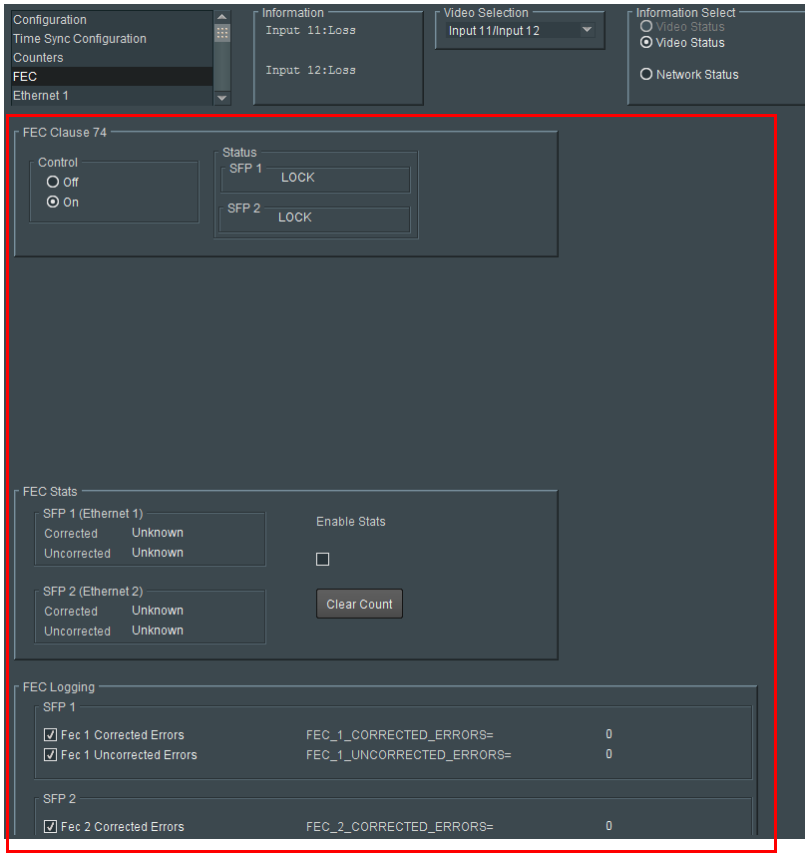



**Counters Template Settings**

| Control | Click to clear the counters for ... |
|---|---|
| **Clear All Sender Dropped Pkts** | Sender dropped data packets counters.<br><br>Counts the number of data packets an IP sender has had to drop. For example, if an IP connection were oversubscribed, a sender may drop data packets to prevent the total IP sending bandwidth being exceeded. |
| **Clear All CRC Counts** | CRC counters.<br>These count any IP video CRC errors in the *internal* multiviewer display output video signals. |
| **Clear All RTP Counts** | All RTP packet counters.<br><br>Counts jumps in an RTP packet ID sequence in an IP flow. This indicates any lost, dropped or out-of-sequence RTP packets.<br><br>Counters are found on RTP Receiver and Ethernet templates. |
| **Clear All MAC Error Counts** | All MAC error counters.<br><br>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.<br><br>Counts the number of times an (internal) SDI input to the IP block comes and goes.<br><br>Counters found on the SDI input spigot templates and published via RollCall log fields. |
| **Clear All Global Counts** | All the global counts. |

# FEC Template

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




### FEC Template Settings

| FEC Setting | Description |
|---|---|
| **FEC Clause 74** | **Allows low-latency FEC Clause 74 error correction to be used.**<br>• Select **On** to enable FEC.<br>• Select **Off** to disable FEC. |
| **Status** | Displays lock status for the QSFP modules. |
| **FEC Stats** | Displays the number of corrected and uncorrected errors received via the QSFP modules.<br>• Select **Enable Stats** to activate the display.<br>• Click **Clear Count** to clear the counters. |
| **FEC Logging** | Information on several parameters can be made available to a logging device connected to the RollCall network. Select the check boxes to activate log fields, as required.<br>Available log fields are shown in Table . |

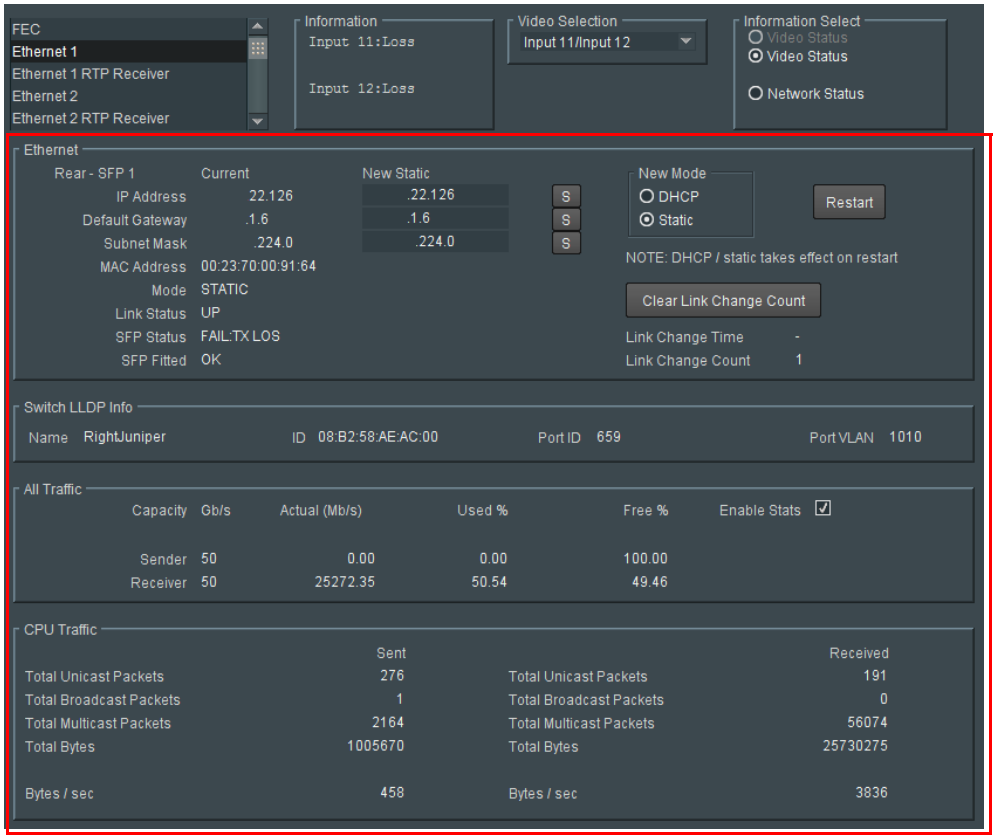
**FEC Log Fields**

| Log Field | Description |
|---|---|
| FEC_1_CORRECTED_ERRORS | Number of corrected errors for FEC 1. |
| FEC_1_UNCORRECTED_ERRORS | Number of uncorrected errors for FEC 1. |

# Ethernet 1 and 2 Templates

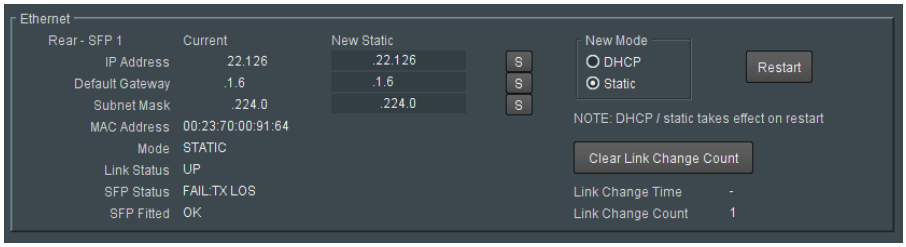
Note: **Ethernet 1 and 2** templates refer to two the media network connections (primary/secondary or main/backup) to the IP Fin.

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



## Ethernet Panel

The **Ethernet** panel displays details of the currently selected media network interface and allows a static IP address to be defined. Additionally some summary link status and QSFP status is shown.




**Ethernet Panel Settings and Controls**

| Ethernet Panel Item | Description |
|---|---|
| **IP Address** | Shows current IP address of the network interface.<br><br>Allows entry of a new, static IP address.<br>Click **S** to enter a new value into the text box. |
| **Default Gateway** | Shows current default gateway IP address.<br><br>Allows entry of a new default gateway IP address. |
| **Subnet Mask** | Shows current subnet mask of the network interface.<br><br>Allows entry of a new mask. |
| **MAC Address** | Shows the MAC address of the interface. |
| **Mode** | Shows the current mode of the network interface:<br>DHCP or Static. |
| **New Mode** | Radio buttons.<br>Note: Changes take effect after clicking Restart. |
| **DHCP** | Select for DHCP interface mode. |
| **Static** | Select for static interface mode. |
| **Restart** | Button.<br>Click to make IP address and mode change take effect. |
| **Link Status** | Reports network link status:<br>UP or DOWN. |
| **SFP Status** | Reports the status of the designated QSFP cage/transceiver:<br>• OK<br>• Fail |
| **SFP Fitted** | Reports the fitted status of a QSFP cage/transceiver:<br>• OK<br>• Not Fitted |
| **Clear Link Change Count** | Button. Click to clear the link change count. |

**Ethernet Panel Settings and Controls *(continued)***

| Ethernet Panel Item | Description |
|---|---|
| **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). |

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 Video IP block is restarted.

## Switch LLDP Info Panel

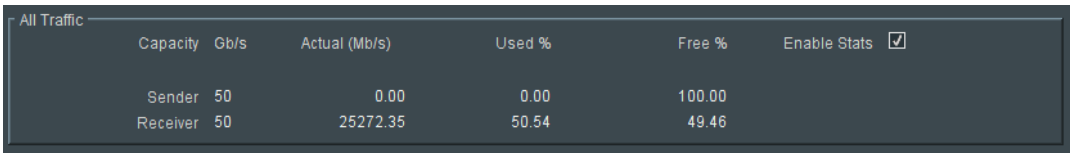
The **Switch LLDP Info** panel displays information about the IP switch connected to the Video IP block's network interface. Information is obtained via the LLDP (Link Layer Discovery) protocol.


**IP Switch LLDP Panel Settings**

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

## All Traffic Panel

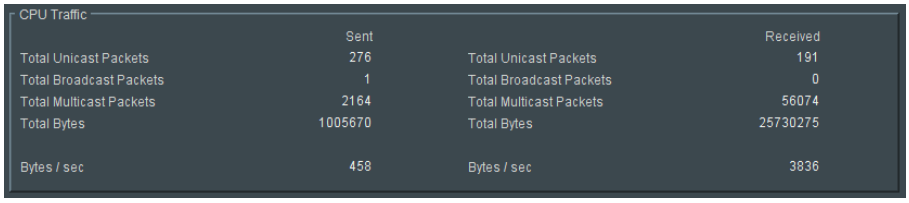
Select **Enable Stats** in the panel to display information on traffic through the Kahuna IP Fin network interface link.




## 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 IP Fin

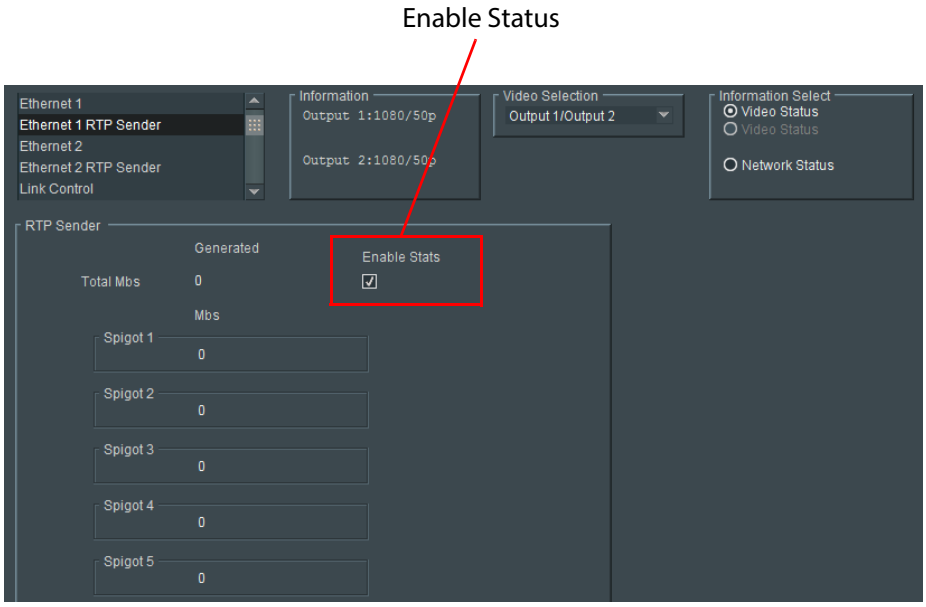
.



# Ethernet 1 and 2 RTP Sender Templates (50GbE IPO Templates ONLY)

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

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



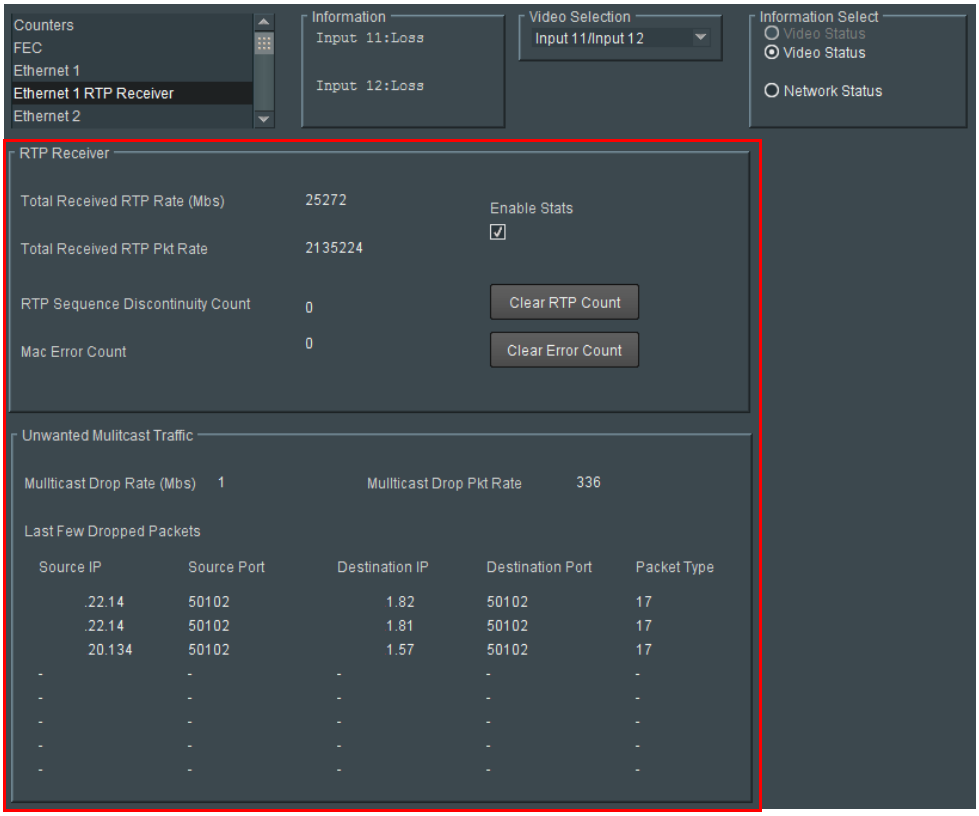
## Ethernet 1 and 2 RTP Receiver Templates

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 megabits per second.

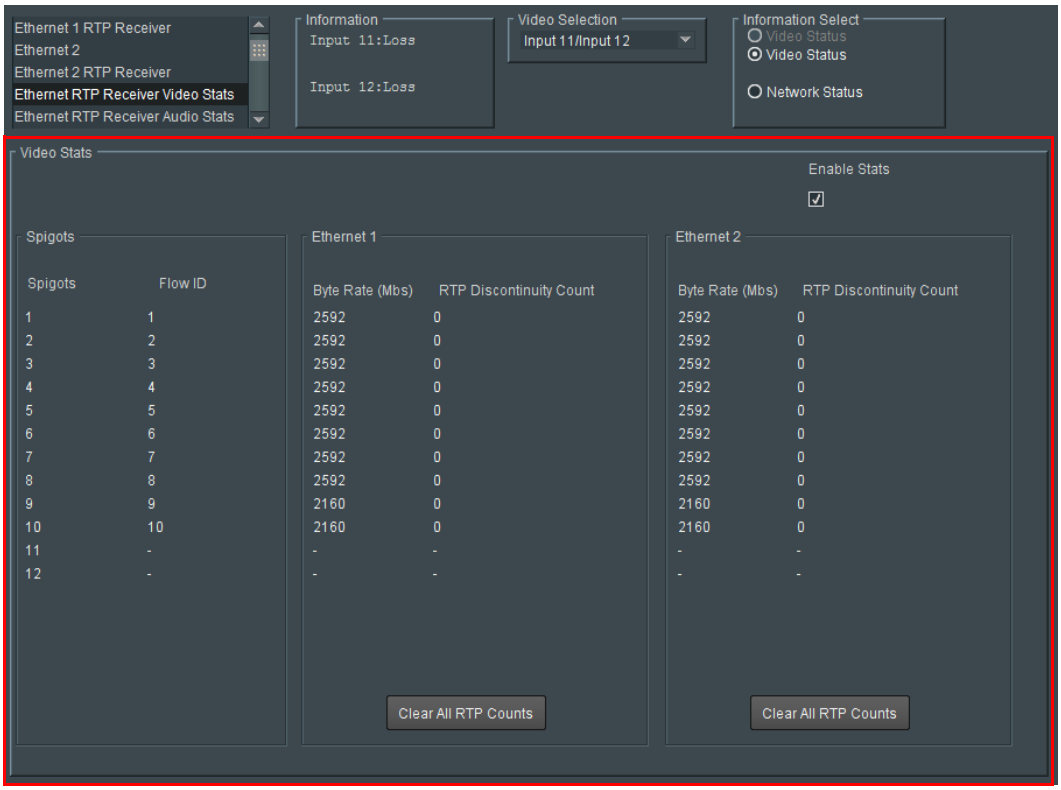
- Select **Enable Stats** to display the values.



# 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 IP block on a spigot-by-spigot basis.

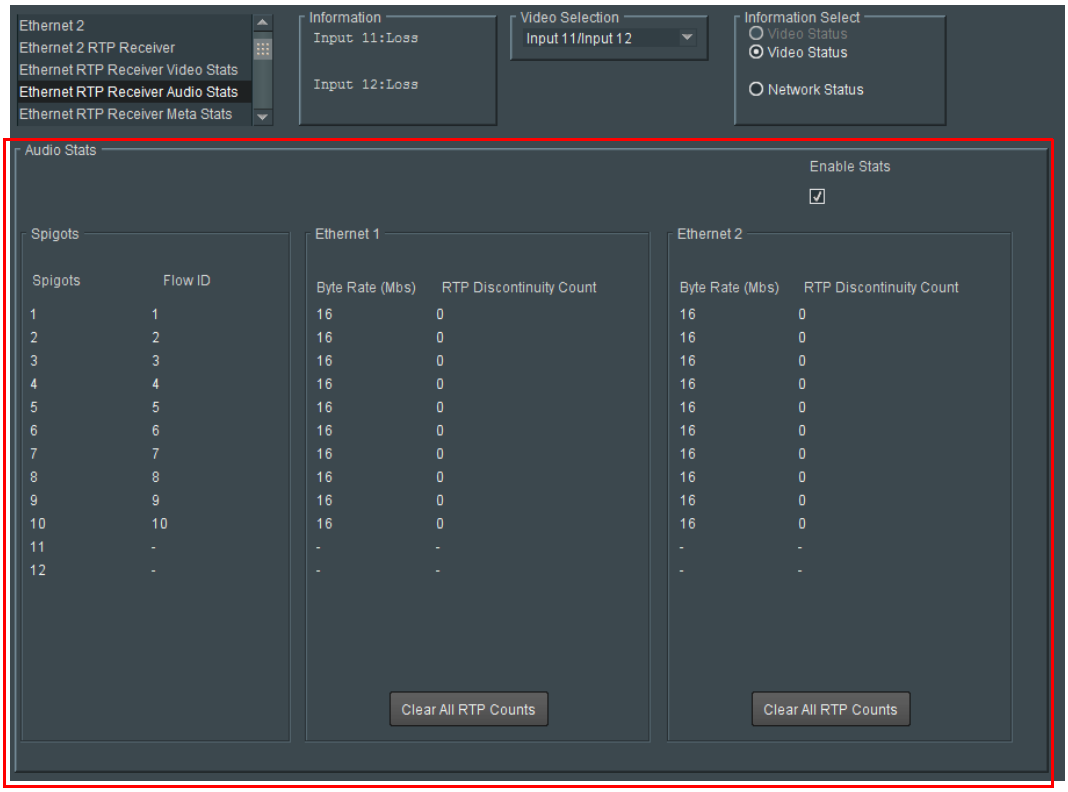
- Select **Enable Stats** to display the values.



## 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 IP block on a spigot-by-spigot basis.

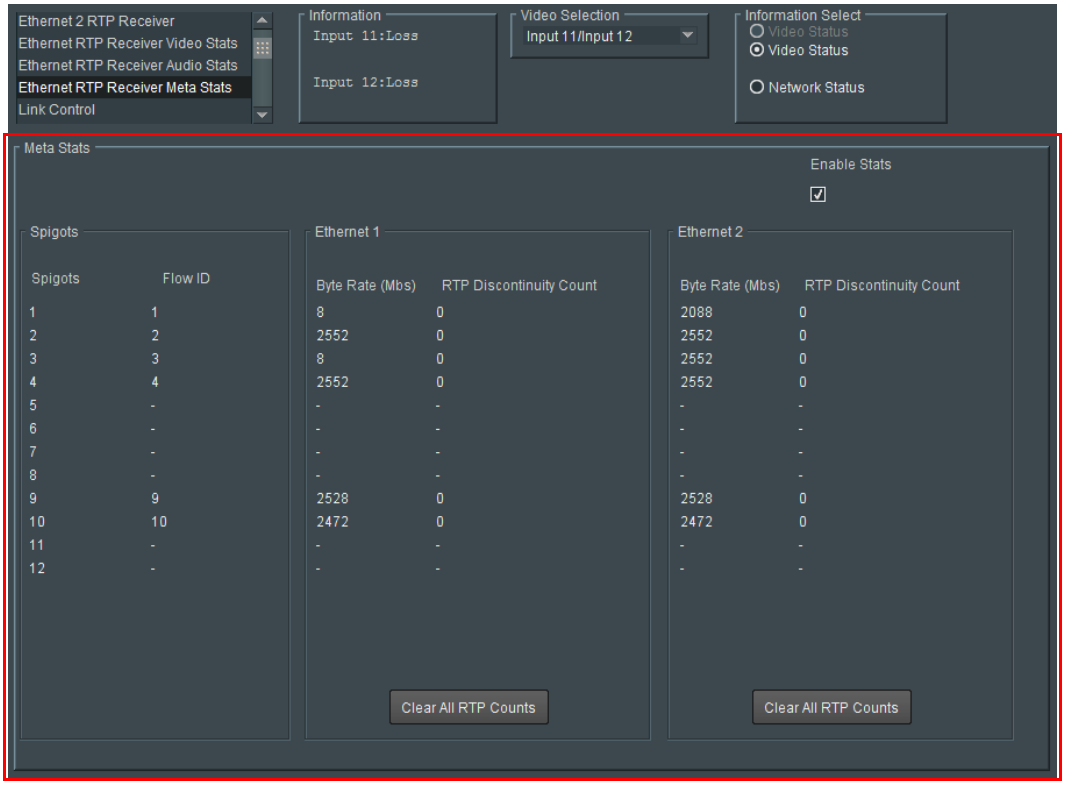
- Select **Enable Stats** to display the values.



# Ethernet RTP Receiver Meta Stats Template

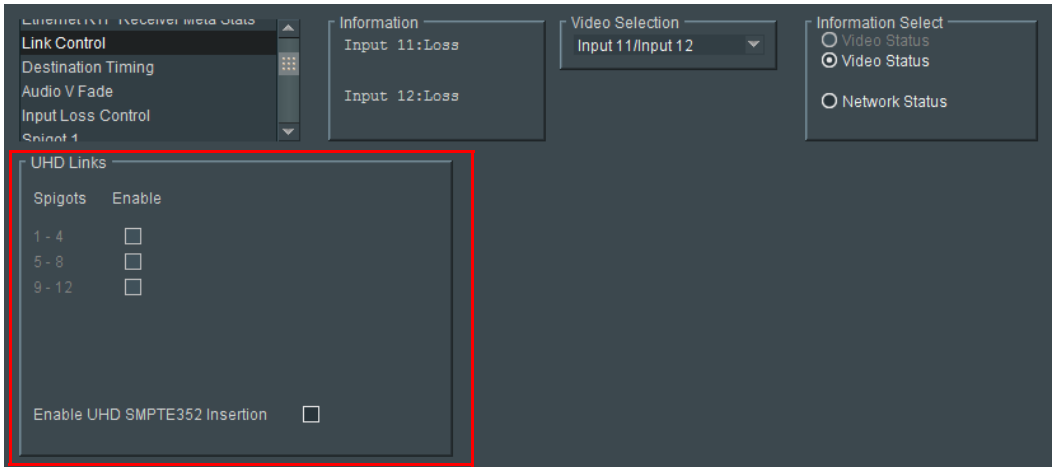
The **RTP Receiver Meta Stats** template displays information on the metadata IP flows to the network interfaces 1 and 2 of the IP block on a spigot-by-spigot basis.

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



## Link Control Template

The **Link Control** template allows quad-link UHD inputs to be aggregated and synchronized by the IP block.




To enable UHDquad-link video input IP streams on spigots:

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

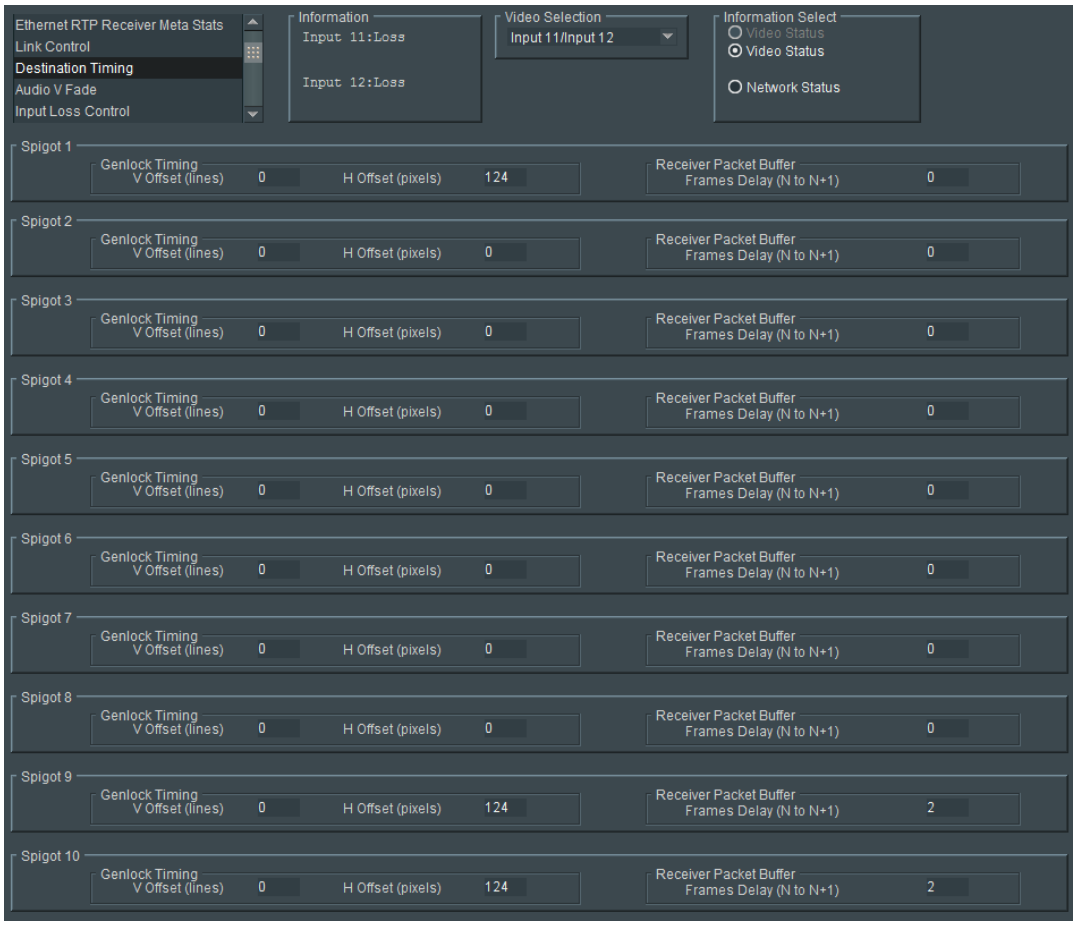
To insert a UHD SMPTE352 payload identifier into a IP stream:

- Select the **Enable UHD SMPTE352 Insertion** check box.

  This inserts the same timestamp information is inserted into each of the four 'quad-linked' IP streams.

# Destination Timing Template

The **Destination Timing** template shows video timing information for each destination spigot of the IP Fin.




**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).<br><br>Note: Adding buffering can affect the time it takes to switch between IP flows at a spigot. |

## Spigot 1 to 12 Templates (Source and Destination)

A separate template is provided for each of the active spigots. These templates are dynamically configured by the IP Fin to reflect the capabilities of its selected software version and firmware. Templates for destination spigots and source spigots are slightly different and are described separately below.

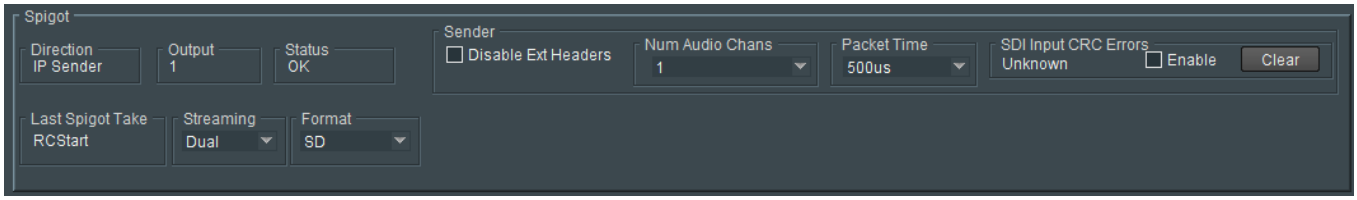
**Destination** Spigot Template

**Source** Spigot Template

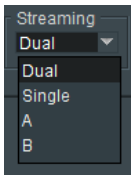
## Source Spigot Template

### Spigot Panel (Source Spigot)

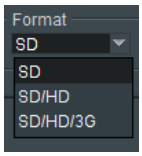
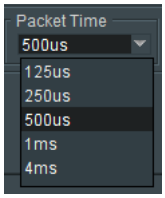
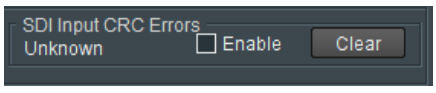
The **Spigot** panel provides basic monitoring for the selected **Spigot**.




**Spigot Panel Information (Source Spigot)**

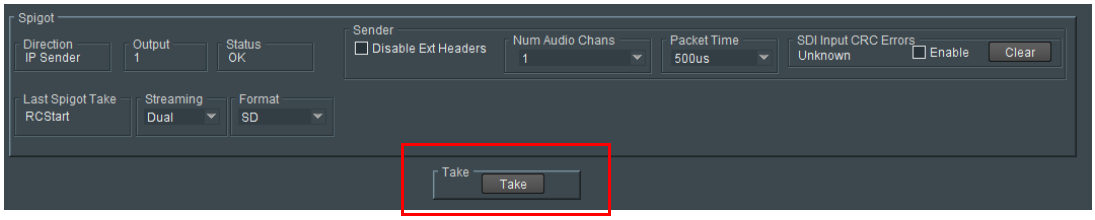
| Spigot Panel Item (Source Spigot) | Description |
|---|---|
| **Direction** | Shows the direction of the spigot.<br>• 'Output':<br>Within the IP Fin, the spigot has an output and it receives a video IP input externally. |
| **Status** | Reports the current status of the spigot.<br>• OK<br>• Warn:TPG<br>• FAIL:Lost |
| **Last Spigot Take** | Reports the 'control agency' which last performed a **Take** on the spigot.<br>• RC - RollCall. Operation from a control panel or by an external agent, like VSM.<br>• IPCtrl - Grass Valley Orbit. |
| **Streaming** | Drop down box.<br>Select the Video IP block's Ethernet connections to use for this spigot. This will also determine the bandwidth to be used.<br>Options are:<br>• **Dual** - use both connections and all the available bandwidth.<br>• **Single** - use either connection and half of the available bandwidth.<br>• **A or B** - use one particular connection and half of the available bandwidth.<br>  |

**Spigot Panel Information (Source Spigot) *(continued)***

| Spigot Panel Item (Source Spigot) | Description |
|---|---|
| **Format** | Drop down box.<br>Select the video format to be used on this spigot.<br>This will ensure that the appropriate level of bandwidth is allocated.<br>  |
| **Sender:** | |
| **Disable Ext Headers** | Check box.<br>Select to disable extended headers in the sourced IP data packets.<br>Extended header operation can be disabled for TR-03/TR-04 compatibility.<br>To disable extended headers:<br>1. Select **Disable Extended Headers**.<br>2. Click **Take**. |
| **Num Audio Chans** | Drop down box.<br>Select the number of audio channels. (1 to 12)<br>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. |
| **Packet Time** | Drop down box.<br>Select the duration of an audio data packet.<br>  |
| **SDI Input CRC Errors** | Shows a count of any CRC errors on the SDI input.<br>Select **Enable** to enable the count.<br>Click **Clear** to clear the count.<br>  |

### Take

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

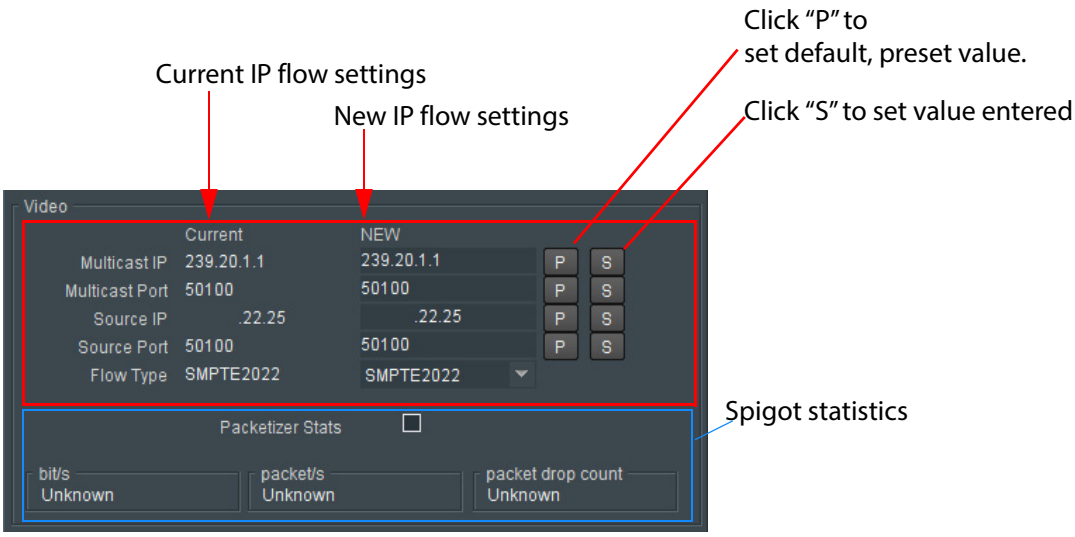


## Flow Panels (Source Spigot)

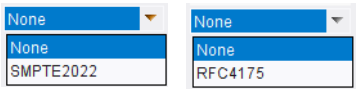
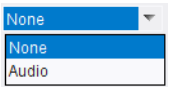
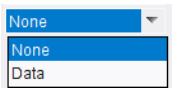
The **Flow** panels are arranged into two columns: **Primary** flows and **Secondary** flows. (Primary flows pass through one network connection to the Video IP block, secondary through the other.)

Each network connection can carry more than one flow. For IPO Fin spigots there are two video flows, one audio flow and one metadata flow. Each flow has a **Flow** panel.

The **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. Shows an example **Flow** panel.




**Flow Panel Information and Settings (Source Spigot)**

| Flow Panel Item | Description |
|---|---|
| **Multicast IP** | Multicast group IP address. |
| **Multicast Port** | Multicast group IP port number. |
| **Source IP** | Source IP address. |
| **Source Port** | Source IP port number. |
| **Flow Type** | Drop down box. Select the flow type.<br>• Video flow types: (**Note:** Two simultaneous video flows are possible from the source spigot.)  <br>• Audio flow types:  <br>• Metadata flow types:   |

**Flow Panel Information and Settings (Source Spigot)** ***(continued)***

| Flow Panel Item | Description |
|---|---|
| **Packetizer Stats** | Check box.<br>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. |

**"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.

To set multicast details:

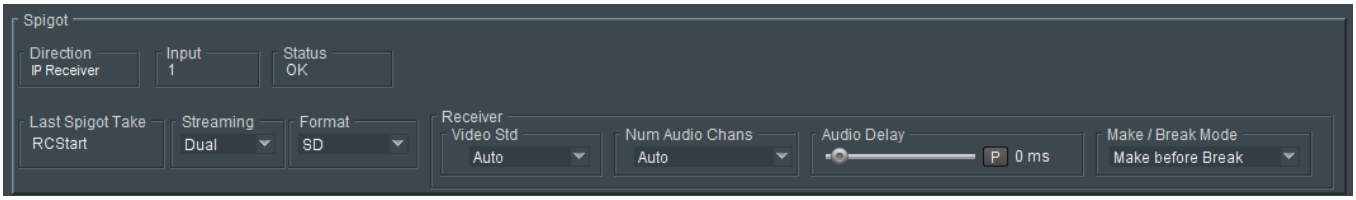
1. Enter IP address and IP port number details in the 'New settings' column, as required. (Remember to click **S** or press the enter key to enter each new value.)
2. Select the **Flow Type**.
3. Click **Packetizer Stats** to view network statistics for an outgoing flow, if required.
4. Click **Take**.

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

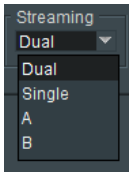
## Destination Spigot Template (Spigots 5 to 16)

## Spigot Panel (Destination Spigot)

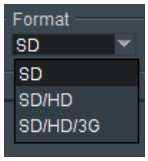
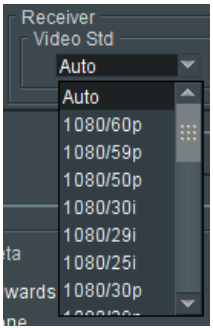
The **Spigot** panel provides basic monitoring for the selected **Spigot**.



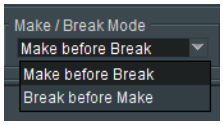

**Spigot Panel Information (Destination Spigot)**

| Spigot Panel Item (Destination Spigot) | Description |
|---|---|
| **Direction** | Shows the direction of the spigot.<br>• 'Input':<br>Within the IP Fin, the spigot has an SDI input and it provides a video IP output externally. |
| **Status** | Reports the current status of the spigot.<br>• OK<br>• Warn:TPG<br>• FAIL:Lost |
| **Last Spigot Take** | Reports the 'control agency' which last performed a **Take** on the spigot.<br>• RC - RollCall. Operation from a control panel or by an external agent, like VSM.<br>• IPCtrl - Grass Valley Orbit. |
| **Streaming** | Drop down box.<br>Select the Video IP block's Ethernet connections to use for this spigot. This will also determine the bandwidth to be used.<br>Options are:<br>• **Dual** - use both connections and all the available bandwidth.<br>• **Single** - use either connection and half of the available bandwidth.<br>• **A or B** - use one particular connection and half of the available bandwidth.<br>  |

**Spigot Panel Information (Destination Spigot) *(continued)***

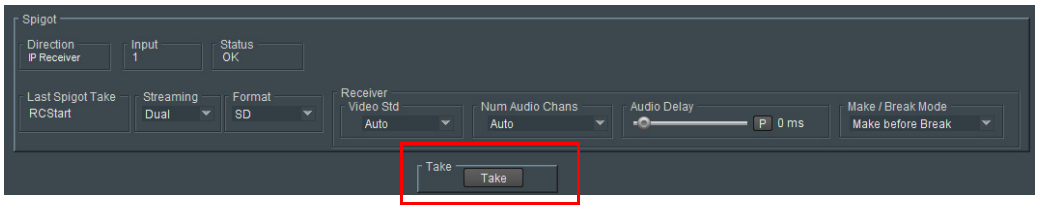
| Spigot Panel Item (Destination Spigot) | Description |
|---|---|
| **Format** | Drop down box.<br>Select the video format to be used on this spigot.<br>This will ensure that the appropriate level of bandwidth is allocated.<br>  |
| **Receiver:** | |
| **Video Std** | Drop down box.<br>Select the video standard (resolution / frame rate) for the receiving spigot.<br><br>This is the video standard output from the spigot as SDI video.<br>  |
| **Num Audio Chans** | Drop down box.<br>Select the number of audio channels to use. (1 to 32)<br><br>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.<br>Select the audio delay. (-10 ms to 255 ms)<br><br>Click **P** to set the preset, default value.<br>  |

**Spigot Panel Information (Destination Spigot)** ***(continued)***

| Spigot Panel Item (Destination Spigot) | Description |
|---|---|
| **Make / Break Mode** | Drop down box.<br>Select the make/break mode when changing the video IP signal to the spigot.<br><br>**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.<br><br>**Break before Make** - simply swaps IP data stream received at the destination spigot without buffering.<br><br>  |

### Take

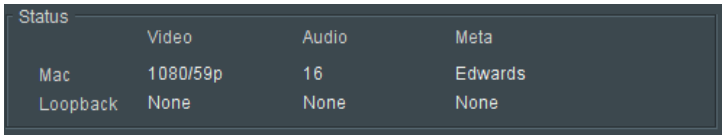
Click **Take** to apply any changes made to spigot or flow properties in the Spigot panel.



## Status and Flow Panels (Destination Spigot)

The **Flow** panels are arranged into two columns: **Primary** flows and **Secondary** flows. (Primary flows pass through one network connection to the IP block, secondary through the other.) Additionally, for each primary and secondary network connection. Each network connection can carry more than one flow.

**Status Panel:**

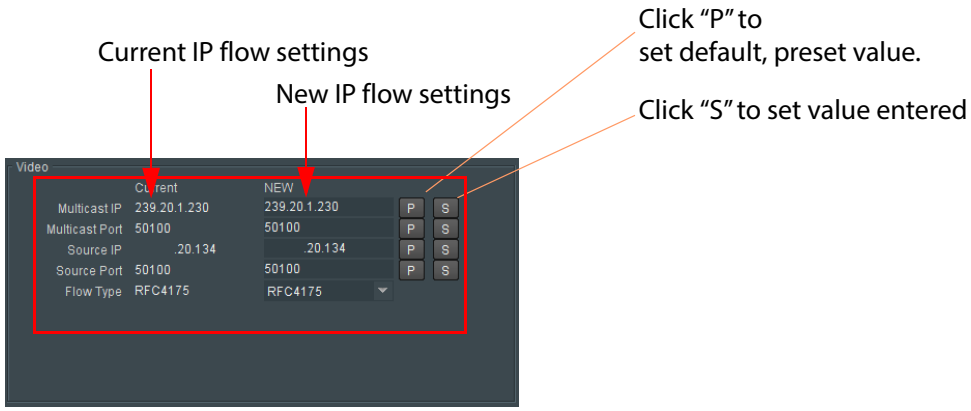



The **Status** panel reports status information for each enabled flow.

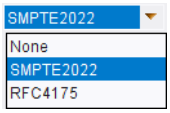
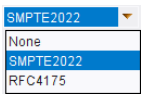
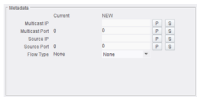
- **Mac** - IP flow received over IP network.
- **Loopback** - IP flow received looped back from the Video IP block. (Either by setting the Video IP block to receive a flow from itself, or by using the loopback router facility offered by the block.)(

**Flow Panel:**

The **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. Diagram below shows an example **Flow** panel.



**Flow Panel Information and Settings (Destination Spigot)**

| 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.<br>Select the flow type.<br>• Video flow types:  <br>• Audio flow types:  <br>• Metadata flow types:  | See **Note 1**. |

**"S" and "P" buttons -**
After entering information in each text box,
always click on the adjacent "**S"** button or press "**return"** to locally 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.

**Setting Multicast Details:**

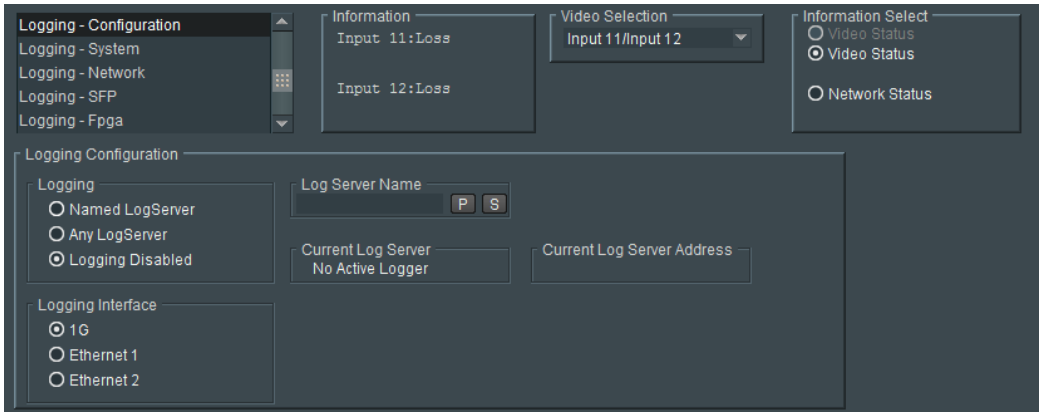
To set multicast details:

1. Select the required **Video Std** (video output standard from spigot as SDI video).
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 IP Fin. These require setting up separately.

## Logging Configuration Template

The **Logging Configuration** template configures a connection to a RollCall LogServer. Diagram below shows an example template. Logging connection is made via the Video IP block's control interface (referred to as 'Rear Ethernet Port' on the template).




**Logging Configuration Template Settings**

| Logging Configuration Item | Description |
|---|---|
| **Logging:** | |
| **Named LogServer** | Radio button.<br>Select to log to a named RollCall log server device. |
| **Any LogServer** | Radio button.<br>Select to log to any discovered RollCall log server device. |
| **Logging Disabled** | Radio button.<br>Select to disable logging. |
| **Log Server Name** | Text.<br>Enter the log server host name.<br><br>(Click **S** or press the enter key to set the name.<br>Click **P** to set the default name.) |
| **Current Log Server** | Shows the current log server name. |
| **Current Log Server Address** | |
| | Shows the current log server's RollCall address. |

**"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).

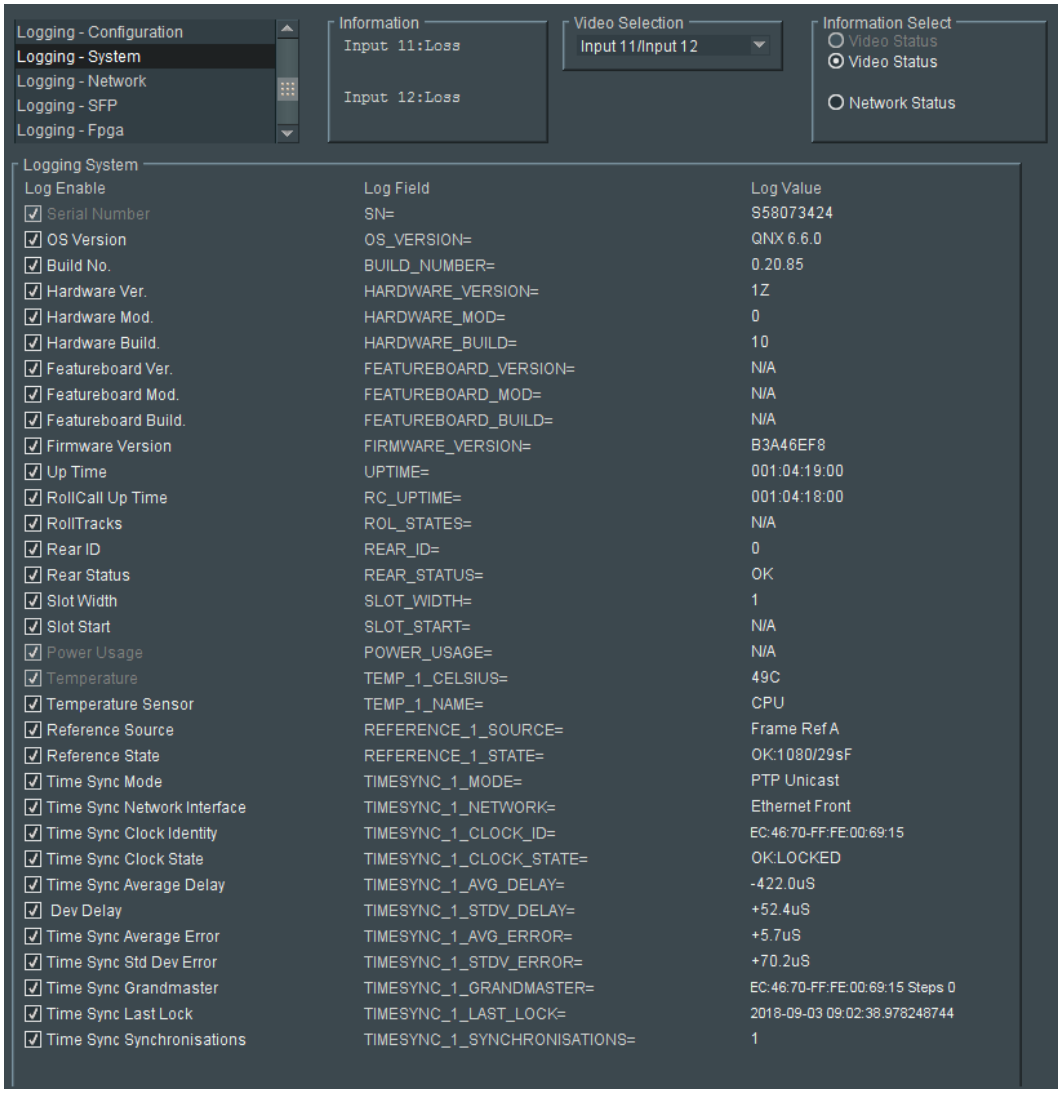
"**S**" - Locally save new, entered setting value (or press "return").

"**P**" - Locally save default setting value.

## 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.

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




**Logging System Log Fields**

| Log Field | Description |
|---|---|
| **SN** | Reports the module serial number, which consists of an *S* followed by eight digits.<br><br>**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. |

**Logging System Log Fields *(continued)***

| Log Field | Description |
|---|---|
| **HARDWARE_BUILD** | Reports the hardware build number. |
| **FIRMWARE_VERSION** | Reports the firmware version number. |
| **UPTIME** | Reports the time since the last Video IP block restart in the format *ddd:hh:mm:ss*. |
| **RC_UPTIME** | Reports the time since the last RollCall logserver restart in the format *ddd:hh:mm:ss*. |
| **TEMP_N_NAME** | Temperature measurement name. |
| **TEMP_N_CELSIUS** | Reports the temperature status. |
| **REFERENCE_N_SOURCE** | Reports time reference source. |
| **REFERENCE_N_STATE** | Valid values are:<br>• **OK: Locked**<br>• **OK: Input**<br>• **WARN: Freerun**<br>• **WARN: CrossLock** |
| **TIMESYNC_N_MODE** | Valid values are:<br>• **Free running:** Card is using its own clock with no reference to any other source**.**<br>• **PTP Multicast:** Card is synchronizing to a PTP grandmaster clock using multicast network messages.<br>• **PTP Unicast:** As **PTP Multicast** but using the delay request. Reply messages are unicast to minimize network traffic**.**<br>• **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 IQMIX modules, dependant 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:<br>• **Free running**: Card is not being synchronized.<br>• **No Lock**: PTP being used but clocks haven't synchronized within +/- 1mS.<br>• **Locked**: PTP being used and clocks are within the accepted range.<br>• **NTP**: Module using NTP to synchronize. |

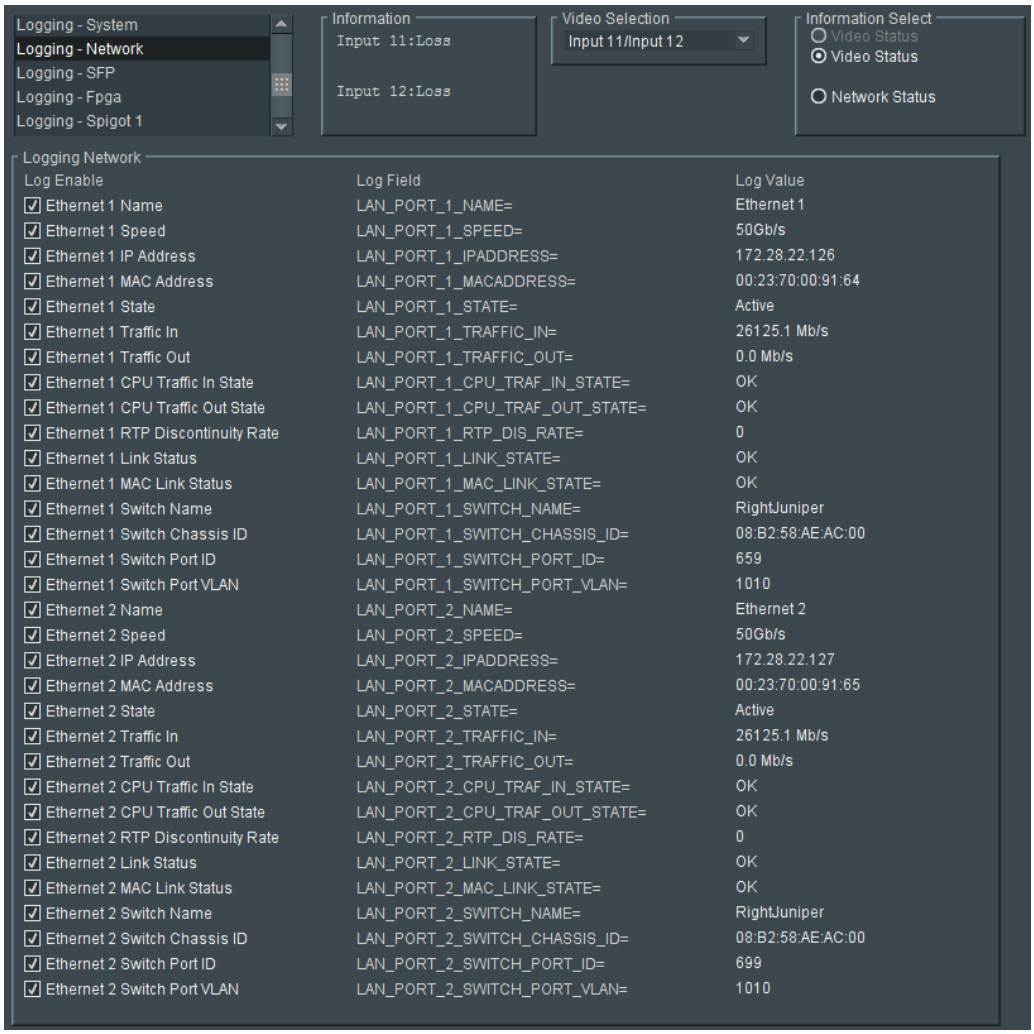
**Logging System Log Fields *(continued)***

| Log Field | Description |
|---|---|
| **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. |
| **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. |

# 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.



**Logging Network Log Fields**

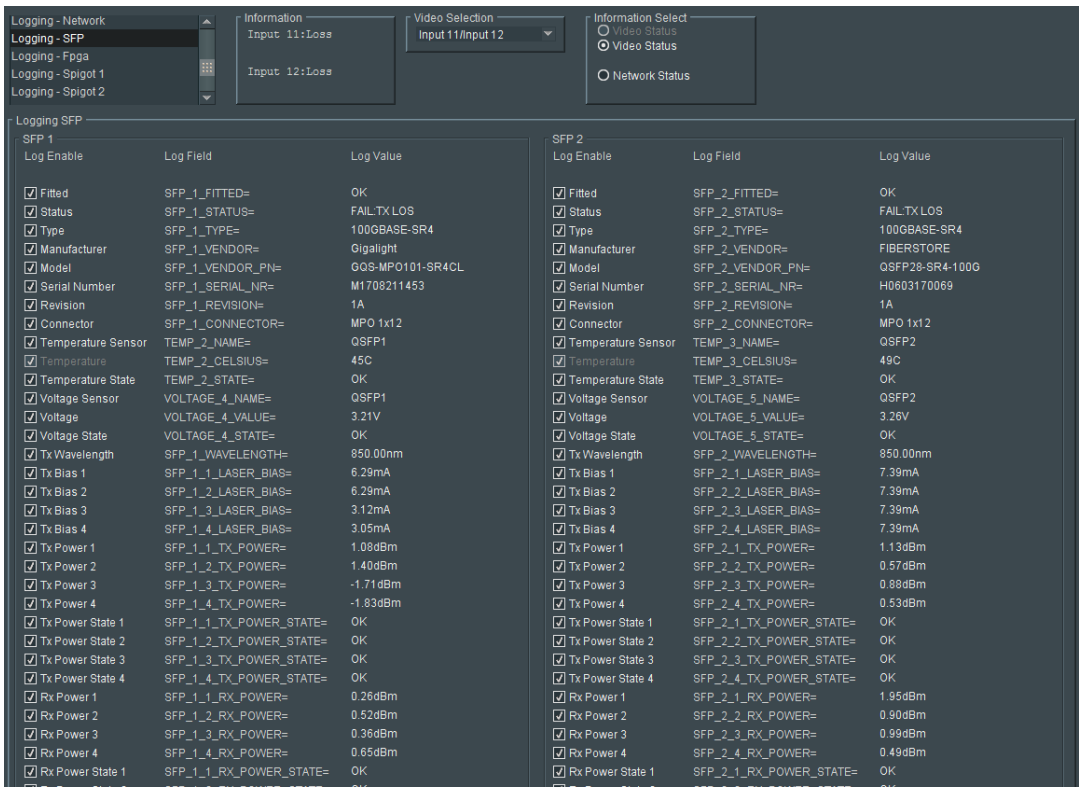
| Log Field | Description |
|---|---|
| **LAN_PORT_N_NAME** | Ethernet port name as defined by the OS running on the IP Fin. |
| **LAN_PORT_N_SPEED** | Ethernet connection speed. Valid values are:<br>• **10 Mbit/s Full Duplex**<br>• **10 Mbit/s Half Duplex**<br>• **100 Mbit/s Full Duplex**<br>• **100 Mbit/s Half Duplex**<br>• **1 Gbit/s Full Duplex**<br>• **No Link** |
| **LAN_PORT_N_IPADDRESS** | Ethernet port IP address. |
| **LAN_PORT_N_MACADDRESS** | Ethernet port MAC address. |
| **LAN_PORT_N_STATE** | Ethernet connection state. Valid values are:<br>• **Active**<br>• **Inactive** |
| **LAN_PORT_N_TRAFFIC_IN** | Traffic in. Valid values are:<br>• **NNN.n kbps, Mbps, Gbps** |
| **LAN_PORT_N_TRAFFIC_OUT** | Traffic out. Valid values are:<br>• **NNN.n kbps, Mbps, Gbps** |
| **LAN_PORT_N_CPU_TRAF_IN_STATE** | Reports whether there is an incoming control data traffic connection on port N.<br>OK, Fail. |
| **LAN_PORT_N_CPU_TRAF_OUT_STATE** | Reports whether there is an incoming control data traffic connection on port N.<br>OK, Fail. |
| **LAN_PORT_N_RTP_DIS_RATE** | Reports the number of RTP discontinuities on port N. |
| **LAN_PORT_N_LINK_STATE** | Reports the state of Ethernet link N.<br>OK, FAIL:Down. |
| **LAN_PORT_N_MAC_LINK_STATE** | Reports the state of the MAC (Media Access Controller) sub-circuit.<br>OK, FAIL:Down. |
| **LAN_PORT_N_SWITCH_NAME** | Name of IP network switch that the media network connection of the IP Fin is connected to. |
| **LAN_PORT_N_SWITCH_PORT_ID** | Name of IP network switch port that the media network connection of the IP Fin is connected to. |
| **LAN_PORT_N_SWITCH_VLAN** | Name of IP network switch VLAN number that the media network connection of the IP Fin is connected to. |

# Logging - SFP Template

The **Logging SFP** template shows SFP message types relating to the QSFP modules fitted: 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.

For a Video IP block, only the designated QSFP module is reported.

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




### Logging SFP Log Fields

| Log Field | Description |
|---|---|
| **SFP_N_FITTED** | Displays presence of the QSFP module. Valid values are:<br>• **OK**<br>• **Missing** |
| **SFP_N_STATUS** | Displays status of the QSFP module. Valid values are:<br>• **OK**<br>• **Fail** - The reason for a failure will be appended to the fail message. It is as reported by the QSFP module itself, per INF-8074 and SFF-8472. |
| **SFP_N_TYPE** | Displays QSFP identifier from device. |
| **SFP_N_VENDOR** | Displays QSFP manufacturer from device. |
| **SFP_N_VENDOR_PN** | Displays QSFP model number from device. |

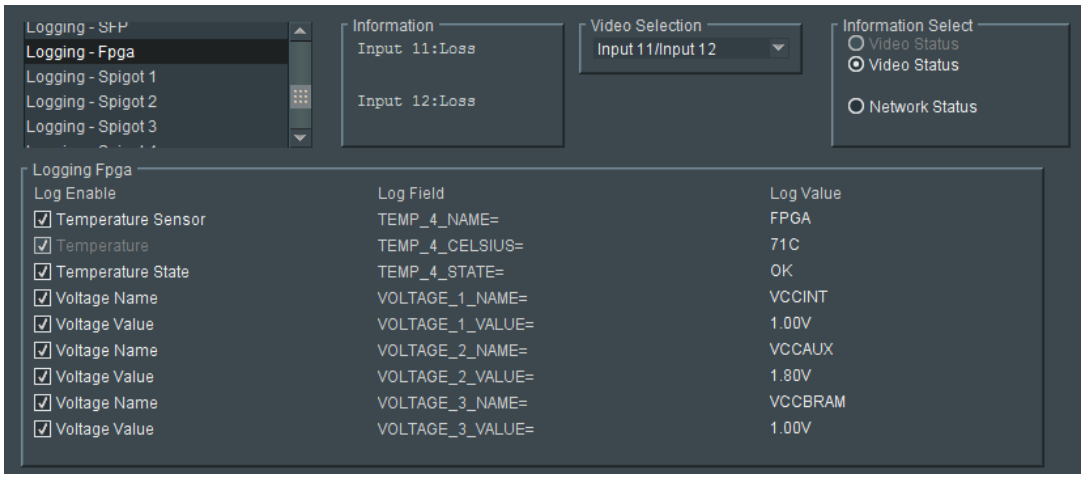
**Logging SFP Log Fields *(continued)***

| Log Field | Description |
|---|---|
| **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:<br>• **WARN: Disabled** - Temperature sensor disabled.<br>• **WARN: Low** - Low, but in tolerance.<br>• **WARN: High** - High, but in tolerance.<br>• **OK.**<br>• **FAIL: Low** - Low and out of tolerance.<br>• **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:<br>• **OK.**<br>• **WARN: Low** - Low, but in tolerance.<br>• **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:<br>• **OK.**<br>• **WARN: Low** - Low, but in tolerance.<br>• **WARN: High** - High, but in tolerance.<br>• **FAIL: Low** - Low and out of tolerance.<br>• **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:<br>• **OK.**<br>• **WARN: Low** - Low, but in tolerance.<br>• **WARN: High** - High, but in tolerance.<br>• **FAIL: Low** - Low and out of tolerance.<br>• **FAIL: High** - High and out of tolerance. |
| Where:<br>• **N** is the input/(Q)SFP number; and<br>• **X** is the lane number. | |

# Logging - FPGA Template

The **Logging FPGA** template shows FPGA message types reporting temperature and voltages on an FPGA device: 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.




**Logging SFP Log Fields**

| Log Field | Description |
|---|---|
| **TEMP_*N*_NAME** | Reports temperature sensor N name. |
| **TEMP_*N*_CELSIUS** | Reports current temperature sensor N reading. |
| **VOLTAGE_*1*_NAME** | Voltage sensor name. For example, VCCINT. |
| **VOLTAGE_*1*_VALUE** | Reports current voltage reading. |
| **VOLTAGE_*2*_NAME** | Voltage sensor name. For example, VCCAUX. |
| **VOLTAGE_*2*_VALUE** | Reports current voltage reading. |
| **VOLTAGE_*3*_NAME** | Voltage sensor name. For example, VCCBRAM. |
| **VOLTAGE_*3*_VALUE** | Reports current voltage reading. |

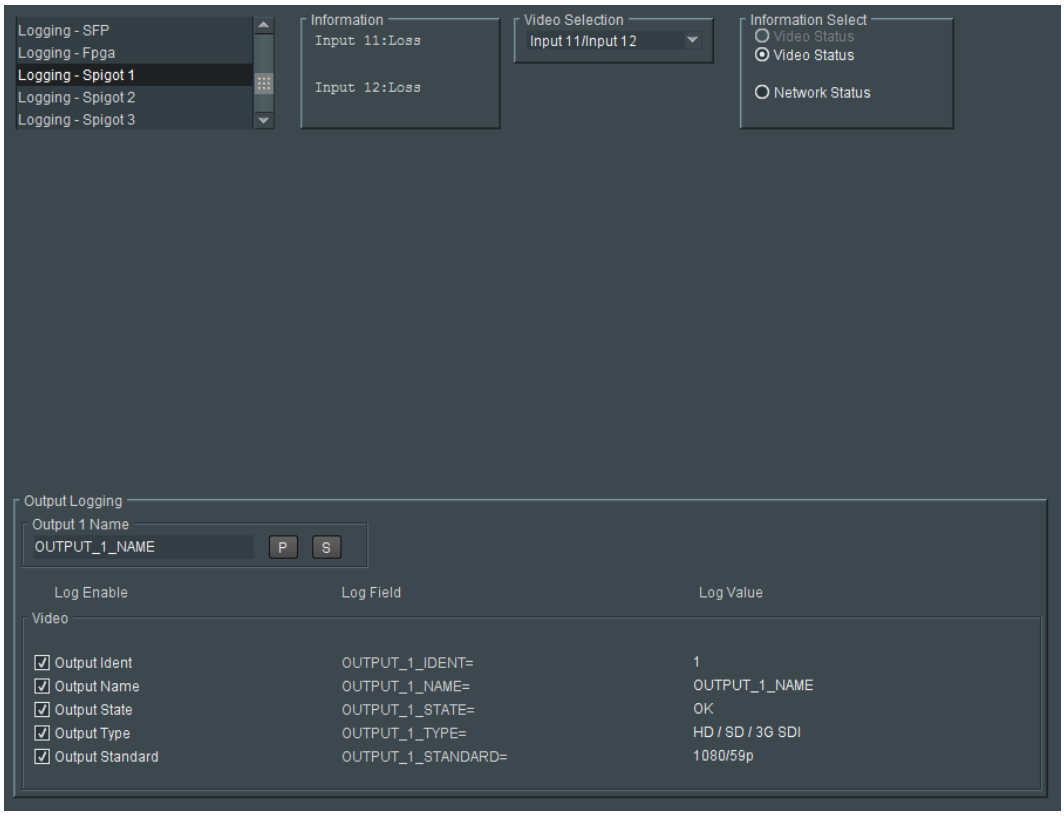
Where:

- **N** is the input number (1 to 12) for the 50GbE IP Fin.

## Logging - Spigot 1 to 12 Templates

The **Logging - Spigot** templates are used to view and select the Spigot log fields to be enabled for each available spigot. Each log message type can be enabled by selecting it in the template in the 'Log Enable' column.

Depending on whether the spigot is an IP source spigot ("Input N ...") or an IP destination spigot ("Output N ..."); the appropriate log fields are shown.The spigot can be given a name . Destination spigot names form the logging names of the IP Inputs (Input Card) and IP Outputs (Output Card)




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.

An additional field is provided for the user to optionally specify a name for the spigot.

To specify a name for a source spigot:

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

To specify a name for a destination spigot:

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

**"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.

**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 input, as defined by the user on the **Setup** template. . |
| **INPUT_*N*_STATE** | Valid values are:<br>• **OK**: input signal good.<br>• **FAIL**: input signal not detected. |
| **INPUT_*N*_TYPE** | HD/SD/3G SDI |
| **INPUT_*N*_STANDARD** | PAL/NTSC/625 Mono/525 Mono |

Where:

- **N** is the input/output spigot number (1 to 12).

**Logging Spigot 5 to 16 Templates - Log Fields**

| Log Field (Destination Spigot) | Description |
|---|---|
| **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:<br>• **OK** - output signal good.<br>• **FAIL** - output signal not detected.<br>• **WARN: Freeze**<br>• **WARN: Pattern**<br>• **WARN: Black** |
| **OUTPUT_*N*_TYPE** | Valid values are:<br>• **SD SDI**<br>• **HD SDI**<br>• **HD/SD/3G SDI** |

**Logging Spigot 5 to 16 Templates - Log Fields *(continued)***

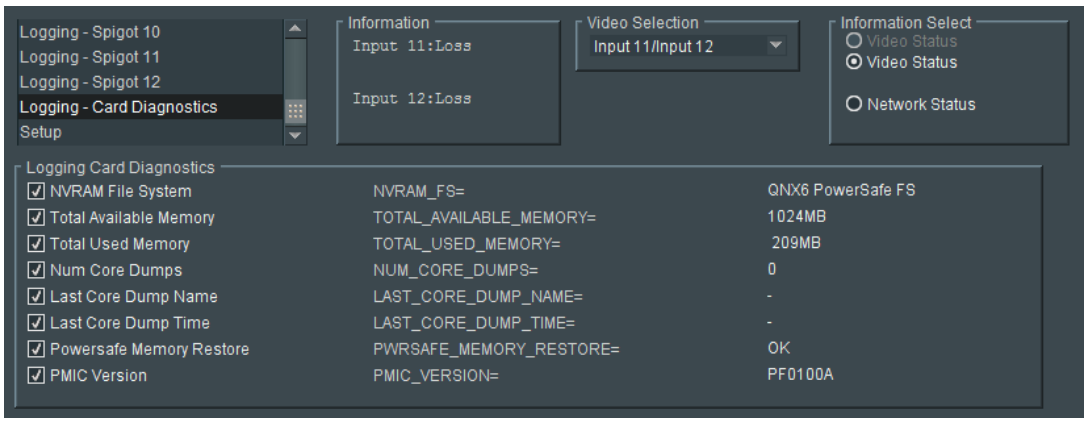
| Log Field (Destination Spigot) | Description |
|---|---|
| **OUTPUT_*N*_STANDARD** | Reports the output standard in the format:<br>**<Lines>(<Active>)/<Rate><i/p/sf>**<br>Where:<br>• **Lines** = Total lines<br>• **Active** = Active lines<br>• **Rate** = Frame rate<br>• **I** = interlaced<br>• **P** = Progressive<br>• **SF** = Segmented Frame<br>For example: **1080/50p** or **1125(1080)/25i** |
| Where:<br>• **N** is the input/output spigot number (1 to 12). | |

## Logging Card Diagnostics Template

The **Logging Card Diagnostics** template is used to view log fields of the IP Fin 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.

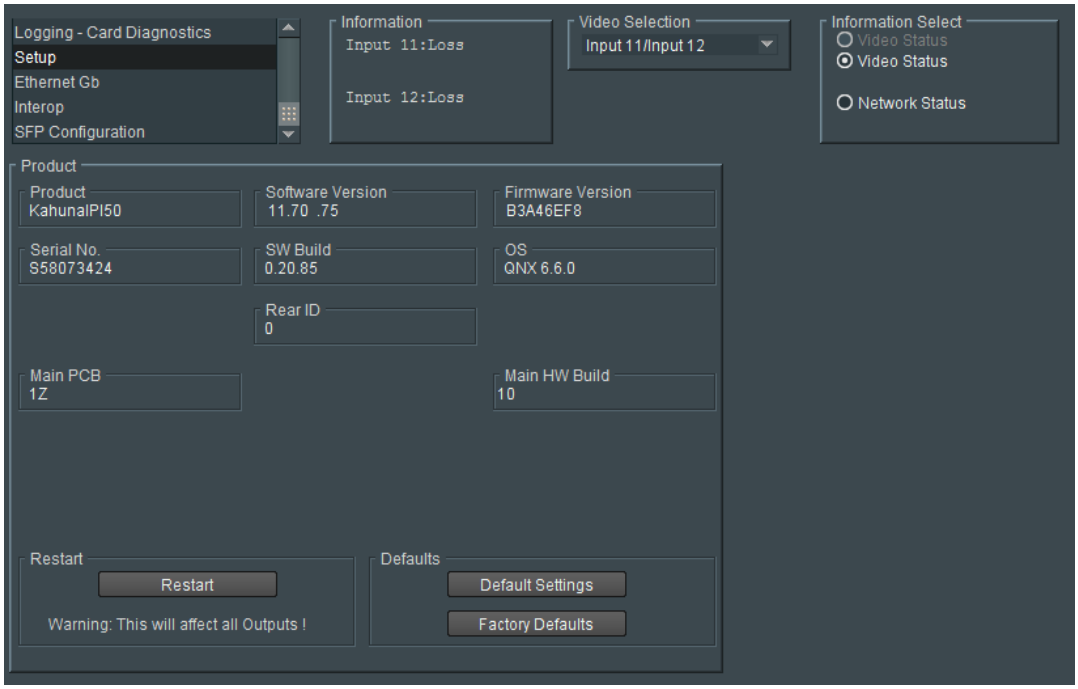



**Logging Card Diagnostics Template Log Fields**

| Log Field | Description |
|---|---|
| **NVRAM_FS** | Reports file system type.<br>FAT32, or QNX6 PowerSafe FX |
| **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.<br>For diagnostics purposes only. |
| **LAST_CORE_DUMP_NAME** | Reports name of last CPU core dump.<br>For diagnostics purposes only. |
| **LAST_CORE_DUMP_TIME** | Reports time of last CPU core dump.<br>For diagnostics purposes only. |
| **PWRSAFE_MEMORY_RESTORE** | Reports "OK". |
| **PMIC_VERSION** | Reports Power Management IC version.<br>For diagnostics purposes only. |

## Setup Template

The **Setup** template displays basic information about the IP Fin, such as the serial number and software version. This information may be required by Grass Valley Support if technical assistance is needed.




The **Product** panel displays technical information about the IP Fin, and contains some restart and default-setting controls.

**Setup Template Settings and Controls**

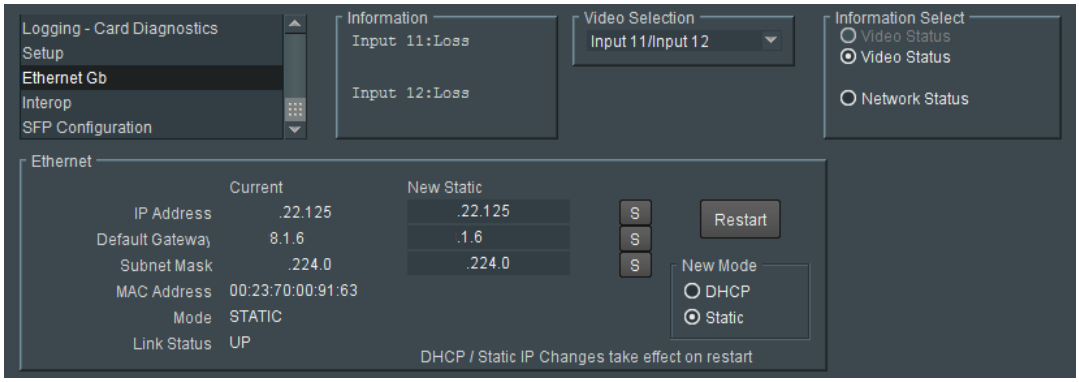
| Item | Description |
|---|---|
| **Product** | **Name of the IP Fin.** |
| **Software Version** | Currently installed software version number. |
| **Firmware Version** | Currently installed firmware version number. |
| **Serial No.** | Serial number of the IP Fin. |
| **SW Build** | Factory software build number. This number identifies all parameters of the IP Fin. |
| **Main PCB** | Printed Circuit Board (PCB) version number. |
| **Main Mod Level** | Main PCB modification level. |
| **Main HW Build** | Factory main hardware build number. |
| **Restart:**<br>**Restart** | <br>Button.<br>Click to restart the Video IP block.<br><br>**Note: Restart** power-cycles the Video IP block, producing disturbances at the block's outputs (*internal* to the IP Fin. unit). |
| **Defaults:** | Provides options to reset the module to its defaults. |

**Setup Template Settings and Controls *(continued)***

| Item | Description |
|---|---|
| **Default Settings** | Button.<br>Click to return all IP Fin settings to their default values, *except* for network configuration and IP addresses. |
| **Factory Defaults** | Button.<br>Click to return all IP Fin settings to their factory values, *including* network configuration and IP addresses. |

## Ethernet GbTemplate

The **Ethernet Gb** template displays details and the status of the control network connection of the IP Fin.




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.

**Setup Template Settings and Controls**

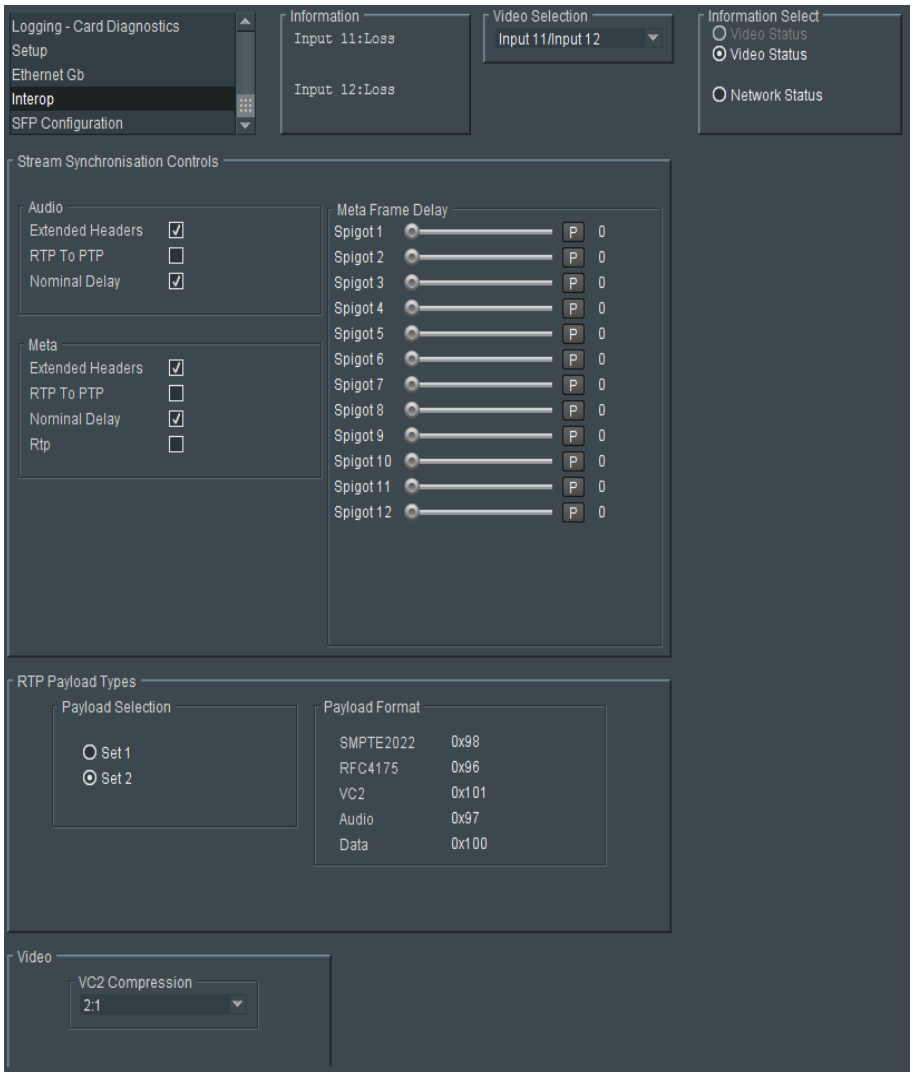
| Ethernet Rear Item | Description |
|---|---|
| **IP Address** | Displays the current IP address.<br><br>Enter a new (static) IP address in the text box.<br>Click **S** or press the enter key to enter the new value. See **Note 1**. |
| **Default Gateway** | Displays the current default gateway IP address.<br><br>Enter a new (static) IP address in the text box.<br>Click **S** or press the enter key to enter the new value. See **Note 1**. |
| **Subnet Mask** | Displays the current subnet mask.<br><br>Enter a new (static) subnet mask in the text box.<br>Click **S** or press the enter key to enter the new value. See **Note 1**. |
| **MAC Address** | Displays the MAC address of the Video IP block's control network connection. |
| **Mode** | Displays the IP mode in use by the Video IP block's control network connection (STATIC or DHCP). |
| **Link Status** | Displays the link status of the Video IP block's control network connection (UP or DOWN). |
| **New Mode:** | Radio buttons. See **Note 1**. |
| **DHCP** | Select to set DHCP IP address mode. |
| **Static** | Select to set a static IP address etc. |
| **Restart** | Button.<br>Click to restart. See **Note 1**. |
| **Note 1:** | DHCP / Static IP address changes take effect on a restart of the IP Fin. |

**“S” button -**
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.

“**S**” - Locally save new, entered setting value (or press “return”).

## Interop Template

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




The template displays the following panels:

- Stream Synchronization Controls
- RTP Payload Types
- Video.

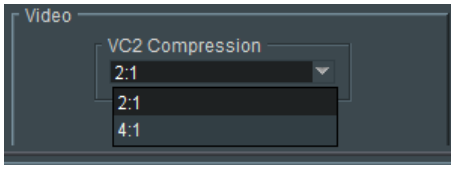
**Interop Template - Stream Synchronization Controls**

| 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 1to 12): |
| **Spigot N** | Select the required frame delay for metadata received on the spigot.<br>Frame delay value in range 0 to 5.<br>Click **P** to select the factory default value (0).<br>  |

**Interop Template - RTP Payload Types**

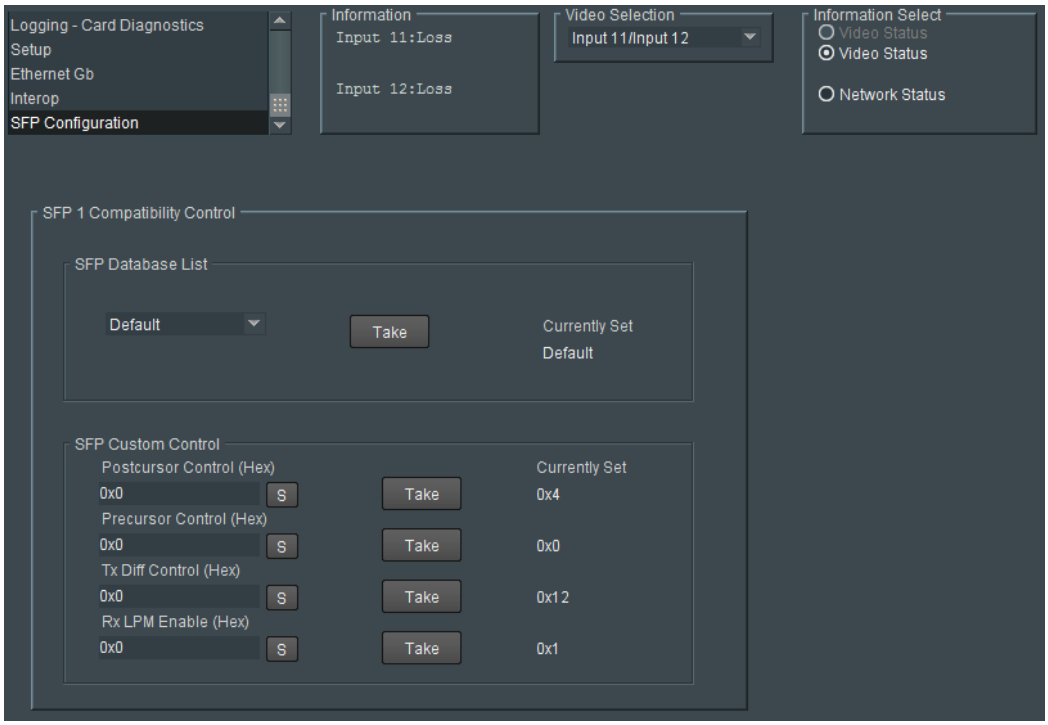
| Interop RTP Payload Types | Description |
|---|---|
| **Payload Selection:** | Radio buttons: |
| **Set 1** | Select to use payload set 1.<br>(Pre-standards-ratification value) |
| **Set 2** | Select to use payload set 2.<br>(Post-standards-ratification value, default) |
| **Payload Format:** | Hexadecimal 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. |

**Interop Template - Video**

| Interop Video Item | Description |
|---|---|
| **VC2 Compression** | Drop-down box.<br>Select VC2 compression ratio.<br>  |

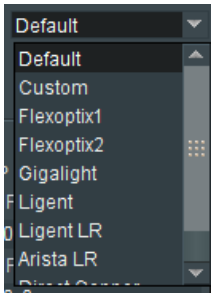
## SFP 1 and 2 Configuration Template

The **SFP Configuration** template allows various QSFP module parameters to be adjusted, if required. The QSFP module adjusted is the designated QSFP module for the IP Fin concerned.




The majority of QSFP modules will operate correctly with the IP Fin, without any need for adjustment. Some QSFP modules, however, may need to have some QSFP module parameters adjusted.

**SFP Configuration Template**

| SFP Configuration Item | Description |
|---|---|
| **SFP Database List:** | Drop-down box:<br>Select the SFP type from the drop-down list.<br>  |
| **Take** | For **Custom** setting only,<br>click to apply settings and save to memory. |
| **Currently Set** | Shows the current SFP type. |

**SFP Configuration Template *(continued)***

| SFP Configuration Item | Description |
|---|---|
| **SFP Custom Control:** | Custom settings are set here. Select **Custom** in the SFP database list.<br><br>Text boxes.<br>Enter a new hexadecimal value for the Tx/Rx sub-circuits of the QSFP module.<br><br>Parameters:<br>• Postcursor Control (Hex)<br>• Precursor Control (Hex)<br>• Tx Diff Control (Hex)<br>• Rx LPM Enable (Hex)<br><br>Click **S** or press the enter key to save the value.<br>The new value is then shown in the text box.<br><br>The **Currently Set** value is also shown in the same row.<br><br>Buttons.<br>Click **Take** to change to the new value. |

If difficulties are encountered with a QSFP 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 QSFP 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.

# Contact Us

## Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

## 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