Ultricore BCS

User Guide

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ROSS

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You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support
2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross
CEO, Ross Video
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Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

Ultricore BCS · User Guide

- Ross Part Number: **2201DR-106-11**
- Revision: 6
- Release Date: May 14, 2025.
- Software Issue: **6.5**

The information contained in this Guide is subject to change without notice or obligation.

Copyright

Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Notice

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

Safety Notices

Refer to the "**Important Regulatory and Safety Notices**" document that accompanied your product.

Statement of Compliance

This product has been determined to be compliant with the applicable standards, regulations, and directives for the countries where the product is marketed.

Compliance documentation, such as certification or Declaration of Compliance for the product is available upon request by contacting techsupport@rossvideo.com. Please include the product; model number identifiers and serial number and country that compliance information is needed in request.

EMC Notices

United States of America - FCC Part 15

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.

Canada

This Class A device complies with Canadian ICES-003 and part 15 of the FCC Rules.

Cet appariel numerique de la classe “A” est conforme a la norme NMB-003 du Canada.

Notice — *Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user’s authority to operate this equipment.*

European Union

This equipment is in compliance with the essential requirements and other relevant provisions established under regulation (EC) No 765/2008 and Decision No 768/2008/EC referred to as the “New Legislative Framework”.

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

Australia/New Zealand

This equipment is in compliance with the provisions established under the Radiocommunications Act 1992 and Radiocommunications Labeling (Electromagnetic Compatibility) Notice 2008.

Korea

This equipment is in compliance with the provisions established under the Radio Waves Act.

Class A equipment (Broadcasting and communications service for business use).

This device is a business-use (Class A) EMC-compliant device. The seller and user are advised to be aware of this fact. This device is intended for use in areas outside home.

Type of Equipment	User’s Guide
A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
Class A Equipment (Industrial Broadcasting & Communication Equipment)	This equipment is **Industrial (Class A) electromagnetic wave suitability equipment** and seller or user should take notice of it, and this equipment is to be used in the places except for home.

International

This equipment has been tested under the requirements of CISPR 22:2008 or CISPR 32:2015 and found to comply with the limits for a Class A Digital device.

Notice — *This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

Warranty and Repair Policy

The Ultricore BCS system is backed by a comprehensive one-year warranty on all components.

Notice — *Changes or modifications to this equipment not expressly approved by Ross Video Limited could void the user's authority to operate this equipment.*

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Environmental Information

The equipment may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration. You can also contact Ross Video for more information on the environmental performances of our products.

This appliance may contain a Coin type battery which should not be treated as household waste.

To ensure that the battery will be treated properly use the appropriate take-back systems in your area. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

Security and Privacy

If you would like more information on how Ross Video security and privacy practices have been applied to the Ultricore BCS, what you should know about maintaining security of this product, and how we can partner with you to ensure security throughout this product's life-cycle, contact techsupport@rossvideo.com.

Ross Video has implemented reasonable administrative, technical, and physical safeguards to help protect against security incidents and privacy breaches involving a Ross Video product provided those products are used in accordance with Ross Video instructions for use. However, as systems and threats evolve, no system can be protected against all vulnerabilities and we consider our customers the most important partner in maintaining security and privacy safeguards. If you have any concerns, we ask that you bring them to our attention, and we will investigate. Where appropriate, we will address the issue with product changes, technical bulletins and/or responsible disclosures to customers and regulators. Ross Video continuously strives to improve security and privacy throughout the product life-cycle using practices such as:

- Privacy and Security by Design
- Product and Supplier Risk Assessment
- Vulnerability and Patch Management
- Secure Coding Practices and Analysis
- Vulnerability Scanning
- Access Controls appropriate to Customer Data
- Incident Response
- Clear paths for two-way communication between customers and Ross Video

If you would like to report a potential product related privacy or security issue (incident, breach, or vulnerability), contact techsupport@rossvideo.com.

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Contents

Introduction

This guide covers the installation, and configuration of the Ultricore BCS Central Controller in a routing system.

✶ For information on creating and managing databases for your routing system, refer to the ***Ultrix and Ultricore Database Guide***.

The following chapters are included:

- "**Introduction**" summarizes the guide and provides important terms, and conventions.
- "**Before You Begin**" provides an overview for creating a routing system with Ultricore BCS, and general information to keep in mind before installing and configuring your Ultricore BCS panel.
- "**Hardware Overview**" provides a basic introduction to the Ultricore BCS front and rear panels.
- "**Physical Installation**" provides instructions for the basic physical installation of the Ultricore BCS panel.
- "**Getting Started**" provides instructions for adding the Ultricore BCS to the DashBoard Tree View, and basic global settings in DashBoard.
- "**Using DashBoard**" outlines the Ultricore BCS tree view in DashBoard, and how to navigate the nodes.
- "**Role-Based Access Control**" outlines the use of the RBAC feature within the DashBoard software application for the Ultricore BCS.
- "**Navigating the Product Info Interfaces**" summarizes the Product Info interfaces (formerly the System Status interfaces in software versions prior to v6.0).
- "**Navigating the System Configuration Interfaces**" summarizes the interfaces used to configure the connection points in your routing system.
- "**Navigating the Device Configuration Interfaces**" summarizes the options and fields to configure and monitor global settings of your hardware.
- "**Connecting to an ULTRIX-FR12**" summarizes the required steps to setup communication between the Ultricore BCS and the ULTRIX-FR12.
- "**Software License Keys**" outlines the available software licensed features, and how to install a software key for a licensed feature.
- "**Timing Setup**" outlines how to specify a time source, and adjust the time offset for your Ultricore BCS.
- "**Ultricore-IP**" outlines how to configure receivers and senders to be used in video and audio streaming.
- "**Enabling a Service**" outlines how to enable a communication service (protocol), and configure the additional settings on the Ultricore BCS for each protocol (if required). A summary of the supported commands is also provided.
- "**User Assigned Parameters**" provides information on the User Assigned Parameters feature that enables you to configure quick access custom Ultritouch panels for input/output signal control in your system.
- "**Ultricore-Tally Setup**" provides information on the Ultricore-Tally licensed feature for the Ultricore BCS.
- "**Ultricore-Tally and Ultriscape**" outlines how to configure the Ultricore-Tally to work with Ultriscape UMD tallies.
- "**Operation with Ross Devices**" provides general information for operating the Ultricore BCS in a routing system that also includes Ross NK Series devices.
- "**Setting up a Redundant System**" outlines how to configure two Ultricore BCS panels into a single standby redundant system.

- "**System Integration Examples**" provides generalized examples of integrating Ultricore BCS into existing routing systems.
- "**Monitoring**" describes the alarms and status indicators in the DashBoard interface for the Ultricore BCS. General information is also provided on the Ethernet port LEDs.
- "**Panel Menu System Overview**" outlines the menus available using the hard panel.
- "**Technical Specifications**" provides the specifications for the Ultricore BCS.
- "**Software Licenses**" provides third-party software license information for your Ultricore BCS.
- "**Glossary**" provides a list of terms used throughout this guide.

Related Publications

It is recommended to consult the following Ross documentation before installing and configuring your Ultricore BCS:

- ***DashBoard User Manual***, Ross Part Number: 8351DR-004
- ***Tally System Console User Guide***, Ross Part Number: 2201DR-016
- ***Ultricore BCS Quick Start Guide***, Ross Part Number: 2201DR-109
- ***Ultricore-Tally Device Setup Guide***, Ross Part Number: 2201DR-015
- ***Ultrix and Ultricore Database Guide***, Ross Part Number: 2201DR-108
- ***ULTRIX-FR1, ULTRIX-FR2, and ULTRIX-FR5 Installation Guide***, Ross Part Number: 2101DR-003
- ***ULTRIX-FR1, ULTRIX-FR2, and ULTRIX-FR5 User Guide***, Ross Part Number: 2101DR-004
- ***ULTRIX-FR12 Installation Guide***, Ross Part Number: 2101DR-603
- ***ULTRIX-FR12 User Guide***, Ross Part Number: 2101DR-604
- ***Walkabout Application Note***, Ross Part Number: 2201DR-003

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Edit** dialog, click **Insert Above**.

User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **Language** box, enter **`English`**.

Referenced Guides

Italic text is used to identify the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***Ultrix User Guide***.

Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**File** > **Save As**," you would click the **File** menu and then click **Save As**.

Important Instructions

Star icons are used to identify important instructions or features. For example:

✶ Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your device.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Technical Support**: (+1) 613-652-4886
- **After Hours Emergency**: (+1) 613-349-0006
- **E-mail**: techsupport@rossvideo.com
- **Website**: http://www.rossvideo.com

Before You Begin

Ultricore BCS is a fully featured connectivity control system that is designed to handle all the usual router requirements as well as harness the power of Ultrix. Ultricore BCS makes it quick and easy to configure a system and gives your staff an intuitive and powerful set of controls to make operations run smoothly. If you have questions pertaining to the operation of Ultricore BCS, contact us at the numbers listed in "**Contacting Technical Support**".

Typical System Equipment

Use Ultricore BCS in topologies where routers and remote control panels are distributed throughout a facility. In this scenario some of the routers and panel are physically located a great distance from the Ultricore BCS. You would use Ethernet connections to the Ultricore BCS.

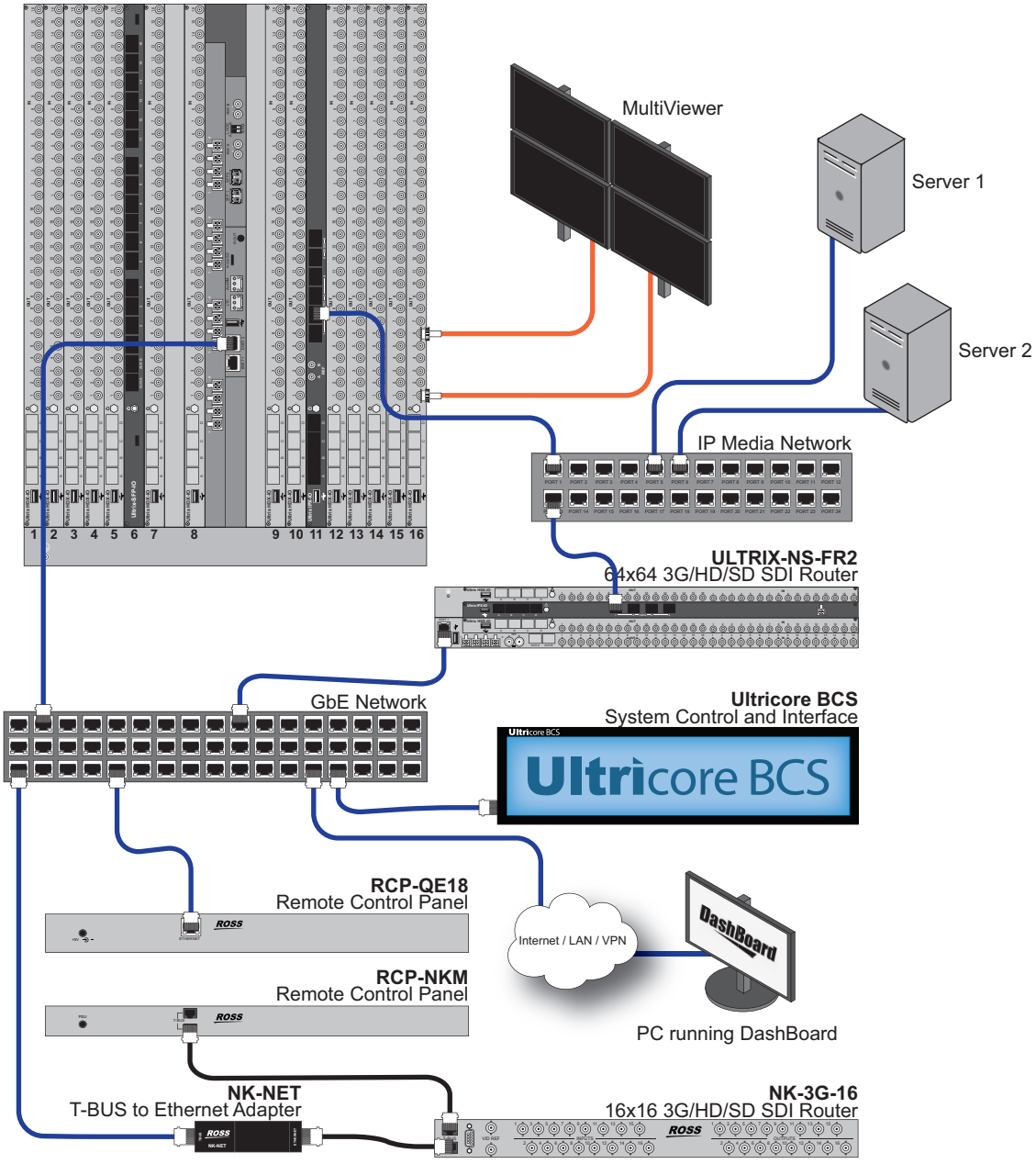


Figure 1 Example of a Possible Routing System with Ultricore BCS

General Overview

Ultricore BCS is the central system controller for Ross Video's routing systems. It allows the connection of Ethernet based routers and remote control panels, and third-party automation systems.

By collating the potentially complex aspects of a system's switching scheme, Ultricore BCS allows for minimal out-of-the-box configuration of routers. This not only makes it easier to initially setup a system, but it also makes it easier to change configuration as needed.

The DashBoard client software enables you to monitor and control your Ross routing system components, from a computer. DashBoard communicates with the Ross routing system through Ethernet TCP/IP connections.

IP Connectivity

Ultricore BCS provides simple, familiar configuration options paired with sophisticated discovery and registration to facilitate adding IP into systems.

- Optional software licenses.
- Scalable based on the number of streams required for control in the system.
- Use the same work-flows regardless of transport to enable easier integration in hybrid operations using the same logical configuration, and control surfaces.
- Ultricore IP

Before You Begin

Before configuring and operating the Ultricore BCS, you must first:

1. Download and install the latest version of the DashBoard client software. The DashBoard software and user manual are available from our website.

✶ Contact your IT department before connecting to your facility network to ensure that there are no conflicts.

2. Connect your routers and panels to your facility network.
3. Launch DashBoard.
4. Ensure that your routers and remote control panels are available/visible in DashBoard.

✶ Ross Video recommends a Memory Allocation of at least 4GB in DashBoard to ensure reliable operation. Refer to the ***DashBoard User Guide*** for details on setting the Memory Allocation value.

For More Information on...

- downloading and installing DashBoard, refer to the ***DashBoard User Guide***.
- planning and installing your routing system, refer to the user documentation that accompanied your devices.
- installing and configuring an Ultrix router, refer to the ***Ultrix Installation Guide*** and ***Ultrix User Guide*** for your router model(s).

Installation and Setup Overview

The generalized work flow of installing and configuring your Ultricore BCS is:

1. Implement your routing system plan by installing the devices and configuring their network settings.
2. Use Walkabout to establish communications between Ultricore BCS and DashBoard.

3. Ensure that DashBoard discovers the routing system and all its devices.
4. Configure individual device settings in DashBoard.
5. Define the routing system database using the options in the Ultricore BCS interfaces in DashBoard. Refer to the ***Ultrix and Ultricore Database Guide*** for details on configuring your databases.
6. Set up control panels.

Implementing a System Plan

Once the topology of the system has been decided with respect to routers, panels, connecting devices (NK-NET, NK-IPS) etc. the components are connected and configured. Once all the Ross routing system components are configured for network communication, the required information is entered into the Ultricore BCS's databases through its DashBoard interfaces.

An example use topology would be a broadcast facility or studio where there are routers and panels distributed throughout a building or a campus with the Ultricore BCS collating the system's components.

✶ Ultricore BCS acts as a central system controller for up to 10 DashBoard clients and up to 50 hardware clients (routers and/or remote control panels).

Establish Communications

Ultricore BCS supports the Walkabout system for initial configuration of IP settings. Once you establish communications over Ethernet between the Ultricore BCS panel and DashBoard, you can proceed to use the interfaces in DashBoard that enable Ultricore BCS to communicate with the other devices in your routing system.

For More Information on…

- establishing a network connection to Ultricore BCS, refer to "**Using Walkabout to Assign an IP Address to the Ultricore BCS Panel**".

Define the Routing System Database in Ultricore BCS

The Database interface in DashBoard for Ultricore BCS enables you to create system input and output lists, assign those signals to system sources and destinations, define multiple levels and matrices. You can create multiple databases, each one with unique parameters, that are saved to the Ultricore BCS panel memory. This provides the flexibility of recalling a database and editing parameters as needed. You may wish to use the following process when defining the database for your routing system.

✶ Ultricore BCS supports a maximum of 64 levels, with a maximum matrix of 4096 sources and 4096 destinations.

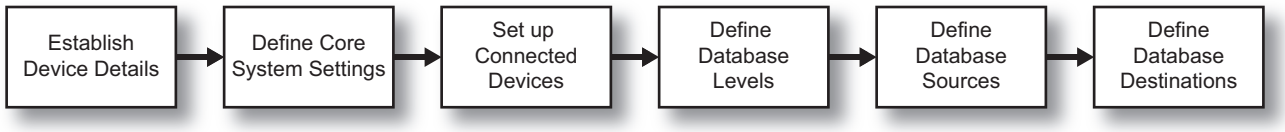


Figure 2 Process for Configuring an Ultricore BCS

✶ Ultricore BCS does not support Unicode characters.

For More Information on…

- databases, refer to the ***Ultrix and Ultricore Database Guide***.

Set up Virtual Control and Resource Management in Ultricore BCS

Once your router connections are defined, and a database is established, you can start building a map of several different physical devices that become one virtual device. When a switch request is made for a virtual device, all the physical devices that are mapped to the virtual device are switched.

Ultricore BCS enables you to map inputs and outputs from routers for control via any remote control panel. These parameters can be saved to a database, enabling you to change configurations easily and quickly, allowing devices to used in a number of different operating scenarios.

Operation

Once configured, the Ultricore BCS provides central controller functionality for the routing system, including:

- the storage and implementation of routing system configurations, which collect a series of routing matrices into a system and provide a logical database view of the whole system
- switching the physical crosspoints of the routers according to the system configuration
- the control and system database interface for devices that control and/or display routing status (e.g. remote control panels, switchers, master control, automation systems, multi-viewers, and tally systems)
- virtual routing, matrix partitioning, and mapping
- label support for protocols supporting labels
- system control through DashBoard
- connection and status logging
- single Ultricore BCS operation or dual redundant mode

Hardware Overview

This chapter presents information on the Ultricore BCS front and back panels.

Front Panel Overview

The Ultricore BCS front panel is a touchscreen display that enables you to monitor Ultricore BCS communication status and routing system the panel is connected to. (**Figure 3**)

✶ This information is also reported in the System Monitor interface in DashBoard. Refer to "**Monitoring via DashBoard**" and "**Monitoring via the Front Panel**" for more information.

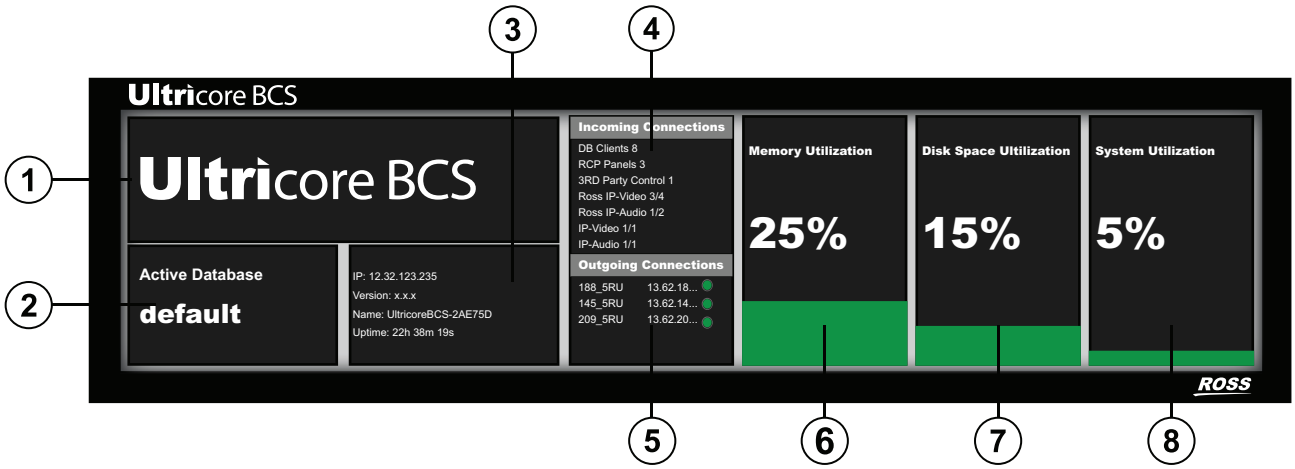


Figure 3 Ultricore BCS — Example of the Front Panel

1) Product Name	4) Incoming Connections	7) Disk Space Utilization
2) Active Database	5) Outgoing Connections	8) System Utilization
3) Panel Status	6) Memory Utilization	

1. Product Name

Indicates the Ultricore BCS product name.

2. Active Database

Reports the database currently loaded on this Ultricore BCS.

3. Panel Status

Displays the following information:

› **IP** — the IP Address assigned to this Ultricore BCS.

› **Version** — the build version of the Ultricore BCS.

› **Name** — the unique identifier assigned to the Ultricore BCS.

› **Uptime** — the number of hours, minutes, and seconds since the last reboot of the Ultricore BCS.

4. Incoming Connections

Reports the connected external devices currently sending data to the Ultricore BCS:

› **DashBoard Clients** — the total number of DashBoard clients communicating with this Ultricore BCS.

- **RCP Panels** — the total number of remote control panels communicating with this Ultricore BCS.
- **3rd Party Control** — the total number of third-party automation control devices communicating with this Ultricore BCS.
- **Ross IP-Video** *x/y* — where *x* represents the current number of Ross Video IP Connectivity video devices (e.g. NEWT-IPX) communicating with this Ultricore BCS and *y* represents the total number of devices the Ultricore BCS is licensed to communicate with.
- **Ross IP-Audio** *x/y* — where *x* represents the current number of Ross Video IP Connectivity audio devices (e.g. IGGY-MADI) communicating with this Ultricore BCS and *y* represents the total number of devices the Ultricore BCS is licensed to communicate with.
- **IP-Video** *x/y* — where *x* represents the current number of third-party IP Connectivity video devices communicating with this Ultricore BCS and *y* represents the total number of third-party video devices the Ultricore BCS is licensed to communicate with.
- **IP-Audio** *x/y* — where *x* represents the current number of third-party IP Connectivity audio devices communicating with this Ultricore BCS and *y* represents the total number of third-party audio devices the Ultricore BCS is licensed to communicate with.

5. Outgoing Connections

Reports the name and IP address of each external device that the Ultricore BCS is transmitting data to.

6. Memory Utilization

Reports the percentage of system RAM currently in use and will vary depending on the size of your routing system.

7. Disk Space Utilization

Reports the percentage of available storage space and will vary depending on the complexity of your routing system, the features enabled on the Ultricore BCS, and the stored database(s).

8. System Utilization

Reports on the level of traffic and communications the Ultricore BCS is managing. For example, this value is low when the system is idle or during periods of low activity. An increase in activity, such as when a user changes configurations, the system is busy switching or processing lots of parameter changes, there was a burst of network traffic will impact the System Utilization value reported.

Back Panel Overview

The Ultricore BCS back panel provides connections for power supplies, communications, and network connections.

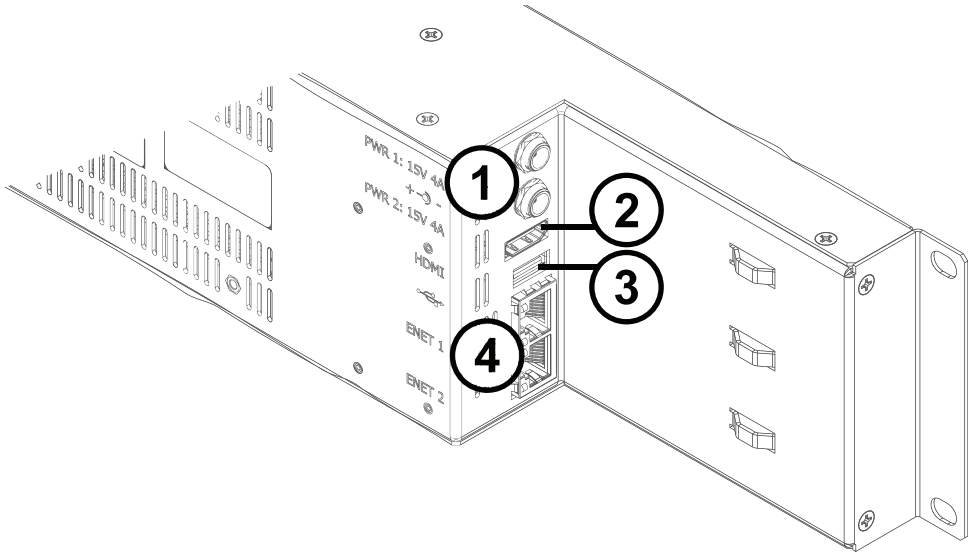


Figure 4 Ultricore BCS — Back Panel, Side View

1) PWR1 and PWR2 Connections	3) USB Port
2) HDMI Port	4) ENET1 and ENET2 Ports

1. PWR1 and PWR2 Connections

There are two power supply connectors located on the back of each Ultricore BCS. Each connector requires a 15VDC connection to an external power supply. Refer to **Table 47** for power specifications.

Notice — *The Ultricore BCS automatically powers on when power is applied.*

The Ultricore BCS ships with one power supply. An option is available to order a second power supply.

2. HDMI Port

This port is not implemented.

3. USB Port

This port is used with supported dongles for serial communication. Refer to "**Supported USB-Serial Converters**" for a list of supported devices.

4. ENET1 and ENET2 Ports

Each ENET port is an RJ45 connector 1GbE network interface. The **ENET 1** port is a standard 10/100/1000 RJ45 Ethernet connector and is used to exchange data and communicate with other devices in your router system.

Notice — *The ENET ports do not provide, nor make use of, Power-over-Ethernet (PoE).*

Physical Installation

If you have questions pertaining to the installation of Ultricore BCS, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

Before You Begin

These installation guidelines assume the following:

- The relevant Ross equipment is installed into a ventilated rack frame. The relative humidity in the environment of the equipment should be <70% (non-condensing). The ambient temperature of the air entering the front panel should not exceed 40°C (104°F), and should not fall below 0°C (32°F).
- The install location of the panel should be accessible, dry, and dust-free.
- The socket/outlet should be installed near the equipment and be easily accessible.
- Valid IP addresses are available for the equipment.

Static Discharge

Throughout this chapter, please heed the following cautionary note:

ESD Susceptibility — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Mounting Requirements

The Ultricore BCS panel is designed for installation into a standard 19" equipment rack. It has integrated rack ears, allowing it to be screwed in using standard screws and cage nuts.

The Ultricore BCS panel mounts in the rack frame by means of four rack screws fastened through the front mounting ears. This should normally be sufficient to carry the load, including the weight of accompanying cables.

Under some conditions, the ambient air temperature inside rack-mount cabinets can be greater than the ambient temperatures within a room. For safe long term reliability, adequate ventilation within a rack frame must also be maintained.

For More Information on...

- the technical specifications for the Ultricore BCS, refer to "**Technical Specifications**".

Connecting the Ultricore BCS to a Network

The **ENET 1** port is a standard 10/100/1000 RJ45 Ethernet connector and is used to exchange data and communicate with other devices in your router system.

✶ Contact your IT department before connecting to your facility network to ensure that there are no conflicts. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your device.

The Ultricore BCS is connected directly to your network so that it can interface with the devices in your routing system. After a physical connection is established, use the DashBoard client to configure the network settings for the Ultricore BCS.

✶ If difficulties or problems are experienced when connecting the Ultricore BCS to a network hub, or with assigning IP addresses, please contact your network administrator.

To establish a physical connection to the network

1. Connect one free end of the straight through CAT5/5e/6 cable to a free port of the network hub.
2. Connect the other end of the same cable to **ENET 1** on the Ultricore BCS back panel.

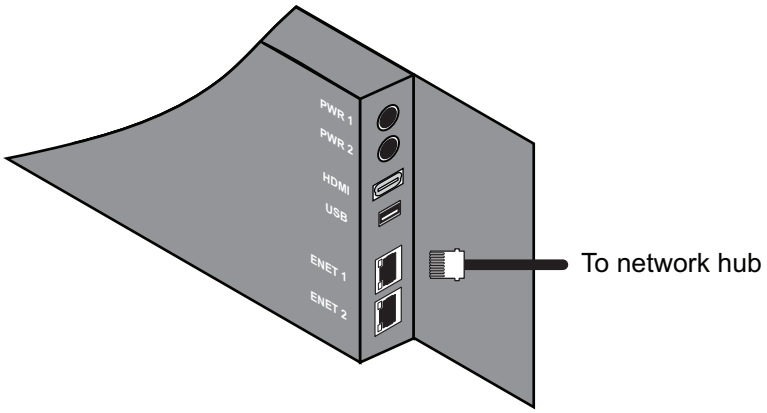


Figure 5 Ultricore BCS — Network Connection

Connecting to a Power Supply

The Ultricore BCS panel is powered by one +15V DC, 30W PSU, with an optional PSU available.

Each power cord should be connected to a separate power source for protection against failure of the A/C power circuit. In the event of one power supply failure, the panel load is seamlessly transferred to the other connected redundant power supply.

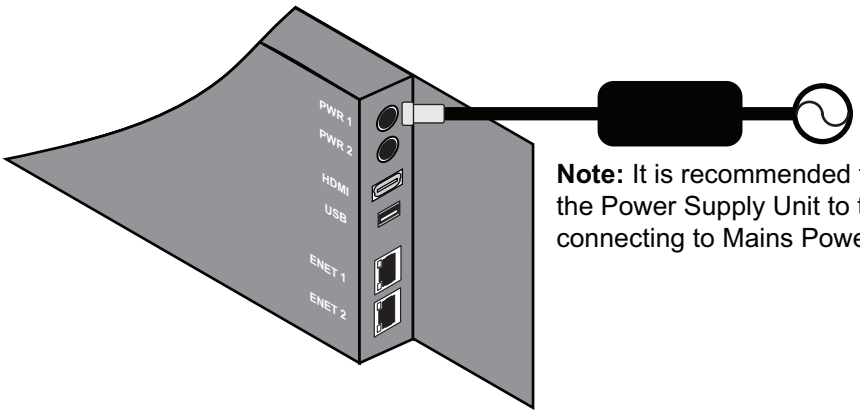
Warning Hazardous Voltages — *The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the ground conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground connector must be connected to an earthed ground.*

Warning — *In some countries it may be necessary to supply the correct mains supply cord. Use only certified cords for the country of use.*

To connect the power cables to the Ultricore BCS panel

1. Connect the male end of the provided power cable into the socket marked **PWR1** on the Ultricore BCS back panel.

Notice — *The Ultricore BCS automatically powers on when power is applied.*



Note: It is recommended that you always connect the Power Supply Unit to the Ultricore BCS before connecting to Mains Power.

Figure 6 Ultricore BCS — Primary Power Connection

2. Connect the second power cable into the **PWR2** power supply socket if a second power supply is required.
3. Connect the supplied AC power cable into the power modules.
4. Connect the supplied power cable's three-prong male connector to an AC outlet.

Getting Started

The Ultricore BCS system controller with the DashBoard client software allows configuration and control of the Ultricore BCS and other routing system devices, enhancing the capability of any installed Ross products by providing access to the entire range of functions. Ultricore BCS provides a basic platform operation with SLP discovery and manual configuration of connection to DashBoard.

This chapter provides instructions on basic set up that includes launching DashBoard, using Walkabout to assign an IP address to the Ultricore BCS panel, adding the Ultricore BCS to the Tree View in DashBoard, and accessing the Ultricore BCS interfaces in DashBoard.

Launching DashBoard

DashBoard must be run on a computer that has a physical wired Ethernet connection. Wireless connections do not allow device discovery.

For More Information on...

- the DashBoard client software and user documentation are available on our website.

To launch DashBoard

1. Ensure that you are running DashBoard software version 9.14 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Using Walkabout to Assign an IP Address to the Ultricore BCS Panel

Once the Ultricore BCS panel is physically installed and cabled to your facility network, you will need to assign it a static IP Address to enable DashBoard to locate it on your network. Establishing an IP Address enables DashBoard to communicate with the Ultricore BCS and update the Basic Tree View with the Ultricore BCS nodes.

To assign a static IP address to the Ultricore BCS panel

1. Launch DashBoard.
2. From the DashBoard client main toolbar, select **File** > **Show Walkabout**.

   The DashBoard window displays the **Walkabout** table.
3. Click **Refresh**, located at the bottom of the **Walkabout** tab, to ensure the list in the **Walkabout** table is current.
4. In the **Walkabout** table, find the entry for the Ultricore BCS you want to configure.
5. Use the **Name** field to assign a unique identifier to the Ultricore BCS panel. This is the name displayed in the Tree View of DashBoard.

✶ After editing a cell in the **Walkabout** table, press **Enter** to confirm your edits. To verify your changes, wait up to 1 minute, then click **Refresh**.

6. Use the **Address** field to specify the IP Address supplied by your IT Department for this device.
7. Ensure the **Netmask** field is set to match your network requirements.
8. Use the **Gateway** field to specify the IP Address for connection outside of the local area network (LAN).
9. Click **Reboot** in the row of the **Walkabout** table for the Ultricore BCS to reboot the device.

Adding the Ultricore BCS to the Tree View in DashBoard

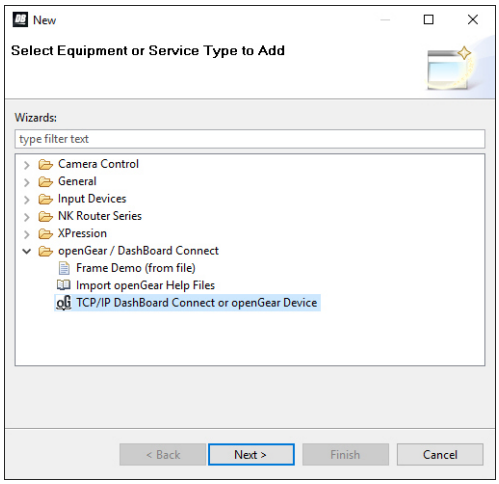
Once you have assigned the Ultricore BCS panel to a static IP Address via Walkabout, you can then manually add it to the Tree View in DashBoard. Manually adding the Ultricore BCS panel displays its node in the Tree View, granting you access to the interfaces described in "**Using DashBoard**".

To manually add the Ultricore BCS to the Tree View in DashBoard

1. In the **Basic Tree View** toolbar of DashBoard, click .

   The **Add New Connections** dialog opens.

2. Expand the **openGear/DashBoard Connect** node.



3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog opens.

5. Enter the IP Address for the Ultricore BCS in the **IP Address** field assigned in "**To assign a static IP address to the Ultricore BCS panel**".
6. Click **Detect Frame Information**.

   The fields in the **TCP/IP DashBoard Connect/openGear Device** dialog are auto-populated with data retrieved from the Ultricore BCS panel.

7. Click **Finish**.

   The Ultricore BCS panel displays in the **Tree View**.

Reviewing the Network Settings for the Ultricore BCS Panel

Once you establish initial communications with the Ultricore BCS panel, and it displays in the DashBoard Tree View, you may wish to alter the network settings according to your facility network requirements.

To update the network settings for the Ultricore BCS panel

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.

2. Select the **Network** tab.
3. Locate the **Settings** area of the tab.
4. Use the **Address** field to specify the new static IP Address for the Ultricore BCS panel.

5. Use the **Subnet Mask** field to specify the subnet mask for your network.
6. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN).
7. Click Network Settings **Apply**.

Re-naming the Ultricore BCS

Each Ultricore BCS can be given a unique name that is used on internal menus and as the identifier in the tree views of DashBoard.

✶ Changing the Ultricore BCS name *after* database configuration takes time to propagate through the system, and for DashBoard to reconnect, resuming stable system operation. Sufficient time must be allowed when making this change before attempting to use the system. This time will vary depending on features, matrix size, and configuration. In the case of a system with an ULTRIX(-NS)-1RU and ULTRIX(-NS)-2RU, the worst case will be 3-4 minutes. In the case of a system with an ULTRIX(-NS)-5RU, the worst case is 10 minutes. The Ultricore BCS name is typically assigned during initial commission and very rarely ever changed again.

To re-name the Ultricore BCS in DashBoard

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.
2. Select the **Setup** tab.
3. Use the **Device Name** field to specify the new name for the Ultricore BCS.
4. Press **Enter** to apply the new name.

Configuring Access for DashBoard Clients

You can specify which DashBoard clients on your network can access and connect to your Ultricore BCS. By default, the **Permitted Clients** list is blank, allowing all DashBoard clients on your network to connect to your Ultricore BCS.

To enable access for a DashBoard client

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.
2. Select the **Network** tab.
3. Locate the **Permitted Clients** area of the **Network** tab.
4. Click **Add** in the Permitted Clients area of the **Network** tab.

   The **Add Address** dialog opens.
5. Use the **IP Address** field to specify the IP Address of the DashBoard client you wish to grant access to your Ultricore BCS.
6. Click **Apply**.

   The **Add Address** dialog closes.

   The **Dashboards** list in the Permitted Clients area updates to display the specified IP Address.
7. Repeat steps 4 to 6 for each DashBoard client you want to allow access.

✶ Ensure that the IP Address for your DashBoard client machine is also added.

8. Click **Apply** in the **Permitted Clients** area to apply the change.

To disable access for a DashBoard client

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.

2. Select the **Network** tab.
3. From the **Dashboards** list, select the IP Address for the DashBoard client you want to disable access for.

✶ Do not delete the IP Address for your DashBoard client machine.

4. Click **Delete** in the Permitted Clients area of the **Network** tab.
5. Click **Apply** in the Permitted Clients area to apply the change.

Using DashBoard

This chapter outlines the Ultricore BCS tree view in DashBoard, and how to navigate the nodes.

If you have questions pertaining to the operation of Ultricore BCS, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

For More Information on…

- the DashBoard client software, refer to the ***DashBoard User Manual***.
- the database interfaces in DashBoard, refer to the ***Ultrix and Ultricore Database Guide***.

Overview

Ultricore BCS groups the configuration, monitoring, and operating features in a Tree View in the DashBoard client window. (**Figure 7**) Each node of the tree opens to reveal one or more sub-nodes, giving access to the features for your router.

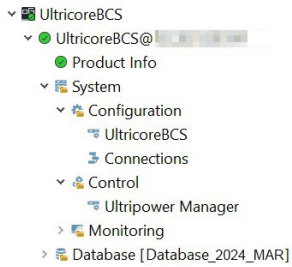


Figure 7 Example of the Ultricore BCS Nodes in a DashBoard Window

Ultricore BCS includes the following interfaces, as separate nodes, in the DashBoard Tree View.

Product Info

Double-clicking the Product Info node displays two types of tabs within the same DashBoard window: Status (read-only) tabs located on the left, and a series of configuration options (tabs) located on the right. Refer to "**Navigating the Product Info Interfaces**".

System

The System tree includes three sub-nodes: Configuration, Control, and Monitoring.

- The Configuration sub-node enables you to set up communications with devices in the routing system. Refer to "**Navigating the System Configuration Interfaces**" and "**Navigating the Device Configuration Interfaces**".
- The Control sub-node provides access to the Ultripower Manager sub-node. Double-click this sub-node to display the interface for grouping Ultripower units together to safely power on/off the ULTRIX-FR12. Refer to the ULTRIX-FR12 user documentation for details.
- The Monitoring sub-node enables you to monitor the status of your Ultricore BCS and the routing system. Refer to "**Monitoring**".

Database

Expanding the Database node enables you to configure the databases, matrices, destinations, sources, levels, soft panels, and salvos for the routing system. Refer to the ***Ultrix and Ultricore Database Guide*** for details.

Navigating the Ultricore BCS Interfaces in DashBoard

The interfaces are accessed by expanding the Ultricore BCS node in the DashBoard Tree View and selecting the appropriate sub-node. Several of the interfaces are organized in a table layout with a toolbar on the bottom, and a toolbar on the left side of the tab.

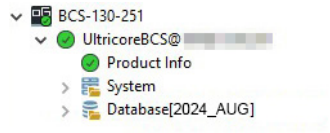
For More Information on...

- the database interfaces for your routing system, refer to the ***Ultrix and Ultricore Database Guide***.

To access the Ultricore BCS interfaces in DashBoard

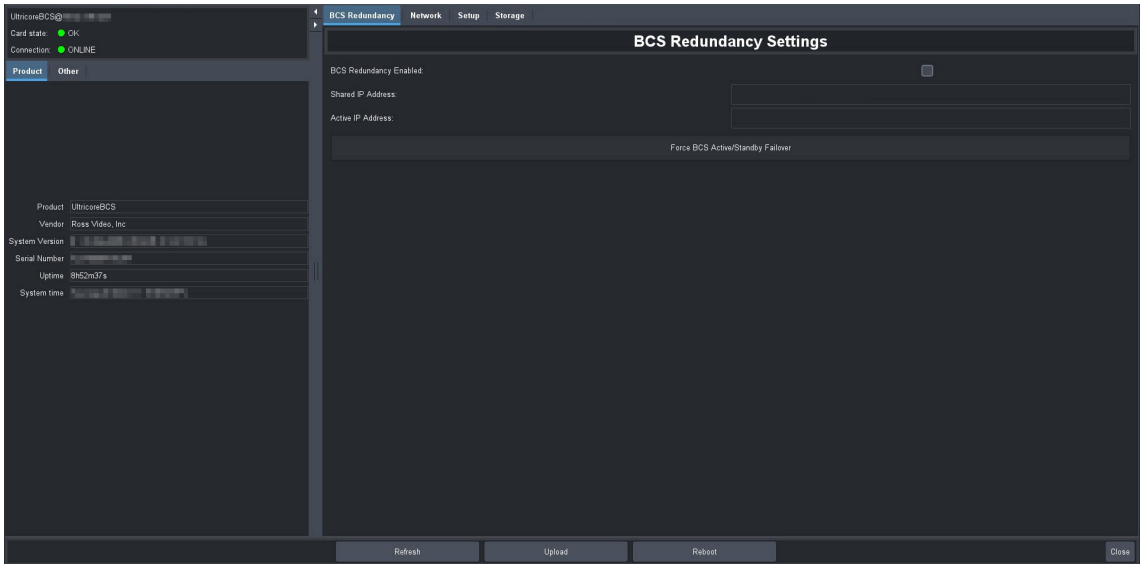
1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.
3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.

   Each sub-node is an Ultricore BCS interface.



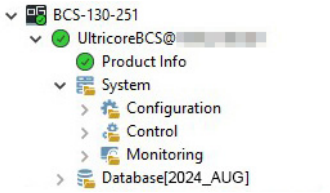
4. Double-click the **Product Info** sub-node to display that interface in the right pane of the DashBoard window.

   The Product Info interface displays two panes within the same DashBoard window: status (read-only) fields in the left pane, and a series of tabs with configurable menus and settings in the right pane. Refer to "**Navigating the Product Info Interfaces**" for an overview of the available tabs, menus, and settings.



5. Expand the **System** sub-node to access the functions of the interface.

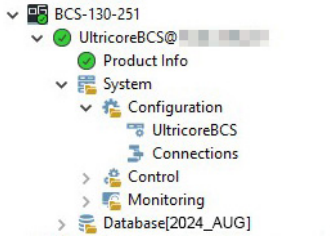
   The System tree includes three sub-nodes: Configuration, Control, and Monitoring.



6. Expand the **Configuration** sub-node.

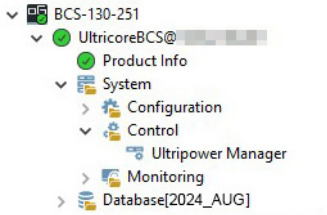
   The Configuration tree includes two sub-nodes: Ultricore BCS and Connections.

   - The Configuration > Ultricore BCS node provides access to the Device Configuration interfaces. Refer to "**Navigating the Device Configuration Interfaces**" for details.
   - The Configuration > Connections node enable you to manage the auto-detected devices in your routing system. Refer to "**Navigating the System Configuration Interfaces**" for details.



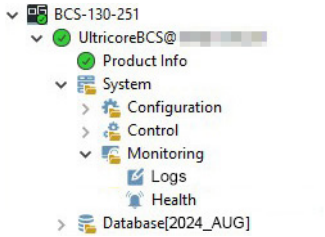
7. Expand the **Control** sub-node.

   The Ultripower Manager sub-node displays. Double-click this node to display the options for configuring multiple Ultripowers in an ULTRIX-FR12 workflow. Refer to "**Connecting to an ULTRIX-FR12**" for details.



8. Expand the **Monitoring** sub-node.

   The Logs and Health sub-nodes display. Double-click a node to display the monitoring information for your routing system. Refer to "**Monitoring via DashBoard**".



Role-Based Access Control

This chapter outlines the use of Role-Based Access Control (RBAC) within the DashBoard software application for the Ultricore BCS.

✶ This feature requires software version 6.1.0 or higher.

Before You Begin

Ensure the following:

- The Ross Platform Manager and appropriate licenses are purchased to use RBAC features.
- The RPM Server is configured and added to DashBoard.
- The permissions for the devices in your routing system are defined via the Ross Platform Manager.

For More Information on...

- configuring the Ross Platform Manager and Server, refer to the ***DashBoard RPM User Guide***.
- the Ultricore Profiles feature, refer to the ***Ultrix and Ultricore Database Guide***.

Enabling RBAC for an Ultricore BCS

The RBAC feature determines access to an individual devices (Ultrix or Ultricore) via a DashBoard instance (client). Once RBAC is enabled, any DashBoard without RPM will not be allowed to connect to the device unless the user enters a 'master password'.

- If a DashBoard instance has RPM and the account for the current user is configured to allow access to the device, the user will be able to continue using the device.
- If the user does not have access, the device will be disconnected from DashBoard until a user with access rights is signed-in.

To enable RBAC on an Ultricore BCS

1. Launch DashBoard.
2. Locate the Ultricore BCS node in the Tree View.
3. Expand the Ultricore BCS node to display a list of sub-nodes.
4. Expand the Ultricore BCS sub-node.
5. Double-click the **Product Info** sub-node.

   The Product Info interface displays.
6. Select the **Setup** tab.
7. Locate the **RPM Role Based Access Control Required** area.
8. Click **Role Based Access Settings**.

   The Change RBAC Settings dialog opens.
9. From the **RPM Role Based** options, select **On**.

✶ The **RPM Role Based** is set to **Off** by default.

10. Use the **Client Master Password** field to specify the text string a user can enter to gain access to this device when RPM is not present in DashBoard or if DashBoard is unable to connect to the RPM Server.

11. Click **Done**.
    - The Change RBAC Settings dialog closes.
    - On the Setup tab, the **RPM Role Based Access Control Required** field now reports **On**.

To verify that RBAC is enabled

1. Close the **Product Info** interface in DashBoard.
2. Locate the device node in the DashBoard Tree View.
3. Right-click the device node.
4. Select **Disconnect**.

   The device node displays a grayed out icon.
5. Right-click the device node.
6. Select **Connect**.

   The device node displays with a lock icon. Any user attempting to access this device will be prompted to enter the password specified in step 10 in the previous procedure.

Accessing a Device with RBAC Enabled

Once the Ultricore BCS is accessed through DashBoard are configured to require connection to an authenticated DashBoard instance (client), connection requests from unauthenticated sources are declined. A Lock icon displays next to the Ultricore BCS node in the Basic Tree View to indicate that RBAC is enabled for that device. If RBAC is enabled but your system is not using an RPM Manager or Server or the RPM Server is unavailable, you will need to enter a Client Master Password to gain access to the device. This section outlines how to use a Client Master Password to access a device when RBAC is enabled.

✶ If RPM is used, access to the device is based on the privileges of the current user signed into DashBoard.

For More Information on...

- managing access control in DashBoard, refer to the ***DashBoard RBAC User Guide***.

To access an Ultricore BCS when RBAC is enabled

1. Locate the Ultricore BCS node in the Tree View of DashBoard.

   Notice that the node displays an icon with a lock symbol.
2. Double-click the Ultricore BCS node.

   The Password dialog opens.
3. Enter the password as defined in step 10 of "**To enable RBAC on an Ultricore BCS**".
4. Click **Login**.

   The Password dialog closes and the Ultricore BCS node displays a green icon and its tree nodes are accessible.

✶ Entering an incorrect password denies access and the device icon is lit red.

Navigating the Product Info Interfaces

This chapter summarizes the Product Info interfaces (formerly the System Status interfaces in software versions prior to v6.1).

Overview

The Product Info interface displays two panes within the same DashBoard window: status (read-only) fields in the left pane, and a series of tabs with configurable menus and settings in the right pane. (**Figure 8**)

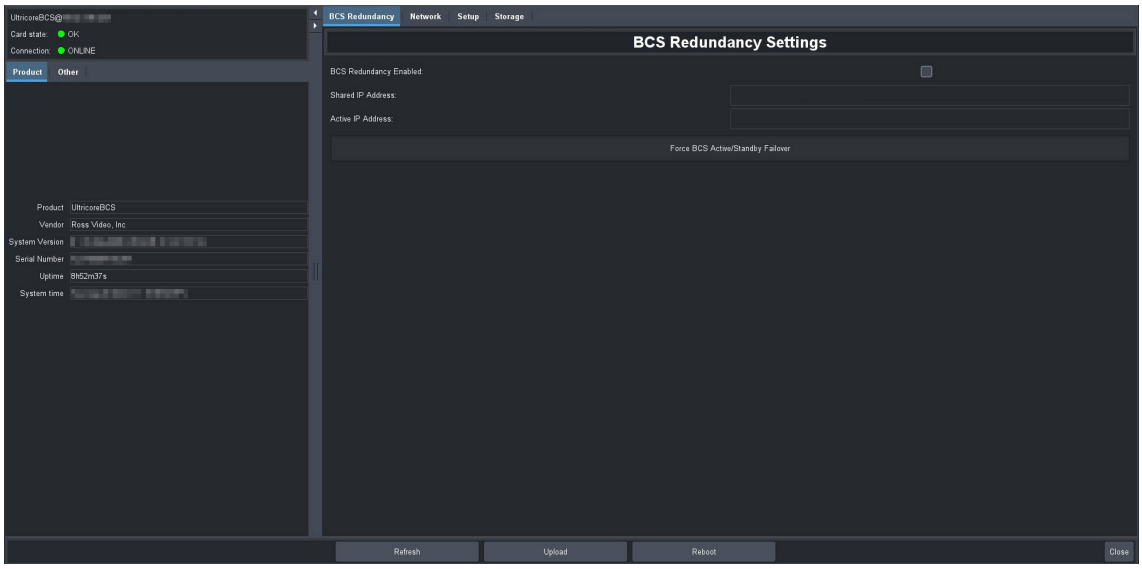


Figure 8 Example of the Product Info Interface for an Ultricore BCS

The following sections briefly outline each tab displayed on the Product Info interface starting with the leftmost tab.

Product Tab

The Product tab provides read-only information about the general hardware and software status.

Table 1 summarizes the read-only information displayed in the Product tab.

Table 1 Product Info — Product Tab

Item	Parameters	Description
Product	<text>	Indicates the product name
Vendor	<text>	Indicates the supplier/manufacturer
System Version	#	Indicates the build version
Serial Number	#	Indicates the serial number

Table 1 Product Info — Product Tab (Continued)

Item	Parameters	Description
Uptime	#h #m #s	Indicates the number of hours since the last reboot
System Time	DD mm dd yyyy hh:mm:ss	Indicates the current date based on the internal clock (if no connection to an NTP Server is available) where: • DD represents the calendar day • mm represents the month • dd represents the day • yyyy represents the year • hh:mm:ss represents the current local time

Other Tab

Table 2 summarizes the read-only information displayed in the Other tab.

Table 2 Product Info — Other Tab

Item	Parameters	Description
Frontend Software Date	#	Read-only information used by Ross Technical Support.
Backend Software Date	#	
Device FW Rev	#	

BCS Redundancy Tab

The BCS Redundancy tab enables you to establish a failover system between two physical Ultricore BCS panels. Refer to "**Setting up a Redundant System**" for details on using this tab.

Network Tab

The options in the Network tab are organized into two sections: Settings (editable fields), and Ethernet Redundancy (read-only fields). **Table 3** summarizes the fields and menus displayed in the Network tab.

Table 3 Product Info — Network Tab

Item	Parameters	Description
Information		
Active ENET	ENET #	Indicates which Ethernet port on the rear panel is the primary Ultricore BCS network connection
ENET # LINK	Connected (x, y)	Indicates that a valid network link is configured on the specified Ethernet port of the Ultricore BCS rear panel where: • x represents the speed in number of Mbps • y represents the link type (e.g. full duplex)

Table 3 Product Info — Network Tab (Continued)

Item	Parameters	Description
ENET # LINK	Not Connected	Ethernet communications for the Ultricore BCS are invalid. The Ethernet cable may be disconnected on the rear panel or the Ethernet network may be down or experiencing problems.
ENET MAC (read-only)	#	Indicates the MAC Address for the Ultricore BCS
Settings		
Address	#	Specifies the IP address for the Ultricore BCS panel
Subnet Mask	#	Specifies the subnet mask for the Ultricore BCS panel
Gateway	#	Specifies the gateway for communication outside of the local area network (LAN)
Apply	Updates the Address, Subnet Mask, and Gateway settings	
Cancel	Ignores any unsaved changes made to the Address, Subnet Mask, and Gateway settings and reverts back to the current running values.	
Services		
SSH	Selected	Enables system administrators to securely log onto remote systems and execute commands over an unsecured network via the Secure Shell (SSH) Login client-server protocol
	Cleared	Disables this service
FTP	Selected	Enables devices to transfer of files over a network connection
	Cleared	Disables this service
Walkabout	Selected	The Walkabout configuration software can be used to configure the basic network communications settings for the Ultricore BCS
	Cleared	Disables this service
Change	Click this button to edit the services	
SNMP		
Enable SNMP	Selected	Enables the SNMP Agent on the Ultricore BCS
	Cleared	Disables the SNMP Agent on the Ultricore BCS
SNMP Community Name	#	Specifies the SNMP Agent identifier for communications
SNMP Trap Destination IP Address	#	Specifies the target address the Ultricore BCS sends SNMP traps to
Permitted Clients		
DashBoards:	#	Lists the IP Address of each DashBoard client that is allowed to communicate with this Ultricore BCS

Table 3 Product Info — Network Tab (Continued)

Item	Parameters	Description
Add		Enables you to add a new DashBoard client to the Permitted Clients list
Delete		Deletes the selected DashBoard client from the Permitted Clients list
Delete All		Clears all entries in the Permitted Clients list
Edit		Enables you to modify the selected entry in the Permitted Clients list
Cancel		Ignores any unsaved changes made to the Permitted Clients list and reverts back to the current running values.
Apply		Updates the Permitted Clients list settings

Setup Tab

Table 4 summarizes the options displayed in the Setup tab.

Table 4 Product Info — Setup Tab

Item	Parameters	Description
Device Identification		
Device Name	<name>	Provides a unique identifier for the Ultricore BCS in the Tree View
System Name	<name>	Provides a unique identifier for the routing system
Log Settings		
Logging	Selected	Enables the Ultricore BCS to update the entries in the System Logs interface
	Cleared	Disables this feature
Output Debug Messages	Selected	Only use this feature under the guidance of Ross Technical Support.
	Cleared	
DashBoard Interface		
DashBoard Timeout	30-300s	Sets the maximum number of seconds that DashBoard waits until it queries the Ultricore BCS. The default is 70 seconds.
Update	Applies the new value in the DashBoard Timeout menu.	
Status		
mm/dd/yy ERROR: Duplicate device name [abc] for ID [#]		Reports when multiple devices, with the same name, are communicating with the Ultricore BCS where: • **mm/dd/yy** represents the date of the error • **[abc]** represents the device name • **[#]** represents the ID number assigned to the device
Clear	Clears the Status field entry	
Routing Behavior		

Table 4 Product Info — Setup Tab (Continued)

Item	Parameters	Description
Salvo/Multi-Crosspoint Take Completion	Require All Crosspoints	The Take operation will fail entirely if any destinations are locked or protected
	Best Effort	The Take operation will be performed for any valid routes and fail for locked or protected routes

Navigating the System Configuration Interfaces

This chapter summarizes the System > Configuration interfaces.

For More Information on...

- the System > Configuration > Ultricore IP sub-node, refer to "**Ultricore-IP**".

Configuration Tree Overview

Expanding the top **Configuration** node enables you to access the sub-nodes that manage the available devices in your routing system that are auto-detected by your Ultricore BCS. (**Figure 9**)

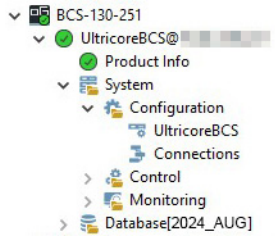


Figure 9 Expanded Ultricore BCS Configuration Nodes in the Tree View

Double-click the first sub-node to display the **Device Configuration** interface in the right pane of the DashBoard window.(**Figure 10**) Refer to "**Navigating the Device Configuration Interfaces**" to learn more about the features of the Device Configuration interface.

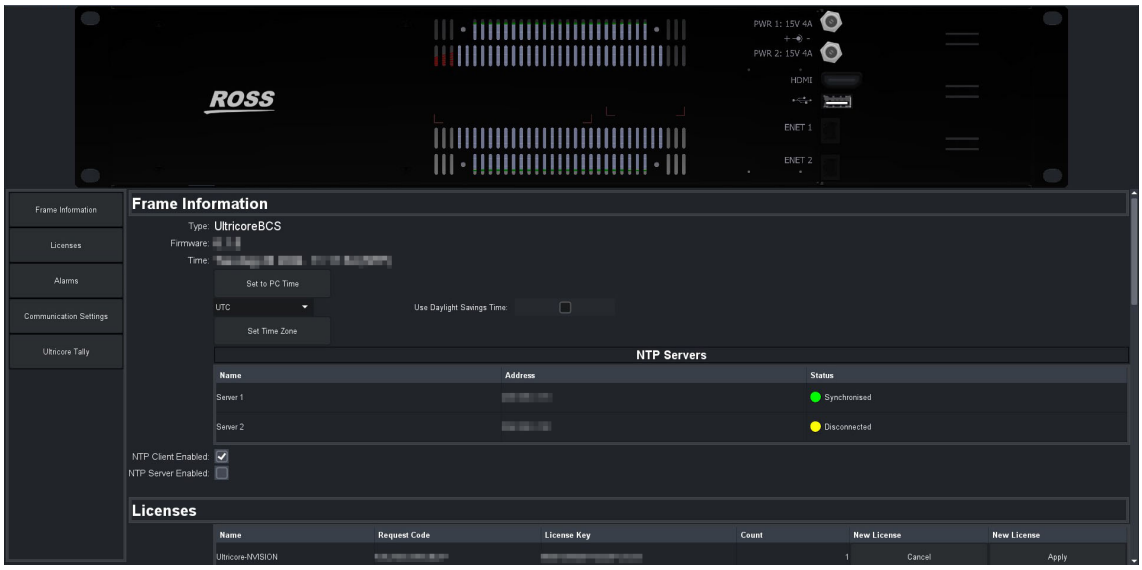


Figure 10 Example of a Device Configuration Interface

Double-click the **Connections** sub-node to display a series of tabs in the right pane of the DashBoard window. (**Figure 11**)

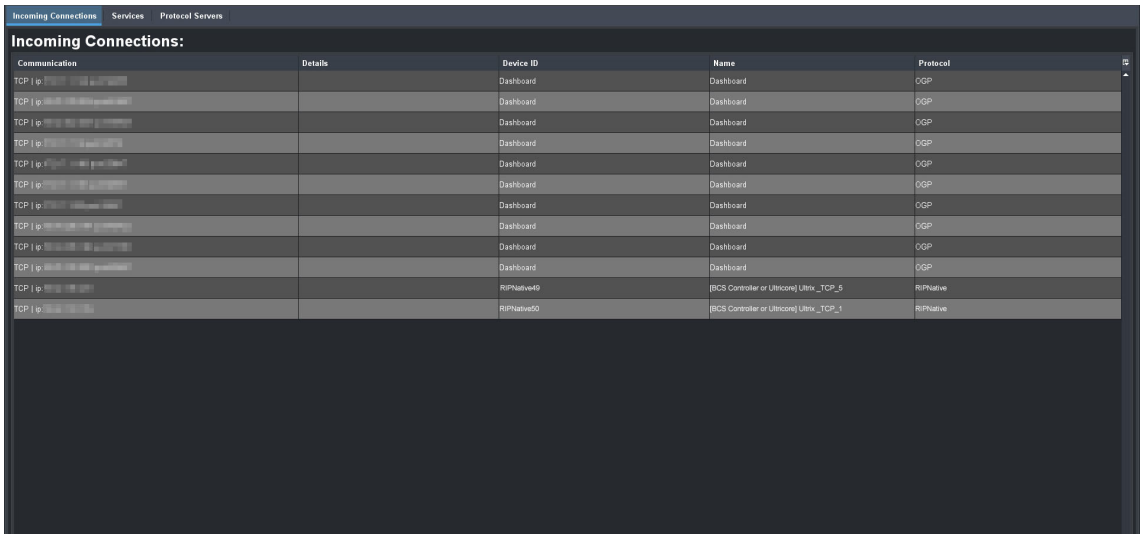


Figure 11 Example of the Ultricore BCS > Connections > Incoming Connections Interface

The following sections outline the tabs, fields, and settings available in the **Connections** interface.

Connections Interface

The Connections interface lists and configures the connection points in your routing system. The interface is organized into three tabs: Incoming Connections, Services, and Protocol Servers. The following sections outline each tab.

✶ Prior to software version 6.1, the Connections interface tabs and fields were included in the Database > Connections and Database > Third-Party Matrices interfaces.

Incoming Connections Tab

The Incoming Connections table lists the connection details of remote client devices under the supervision of the active database currently communicating with the router. (**Figure 12**)

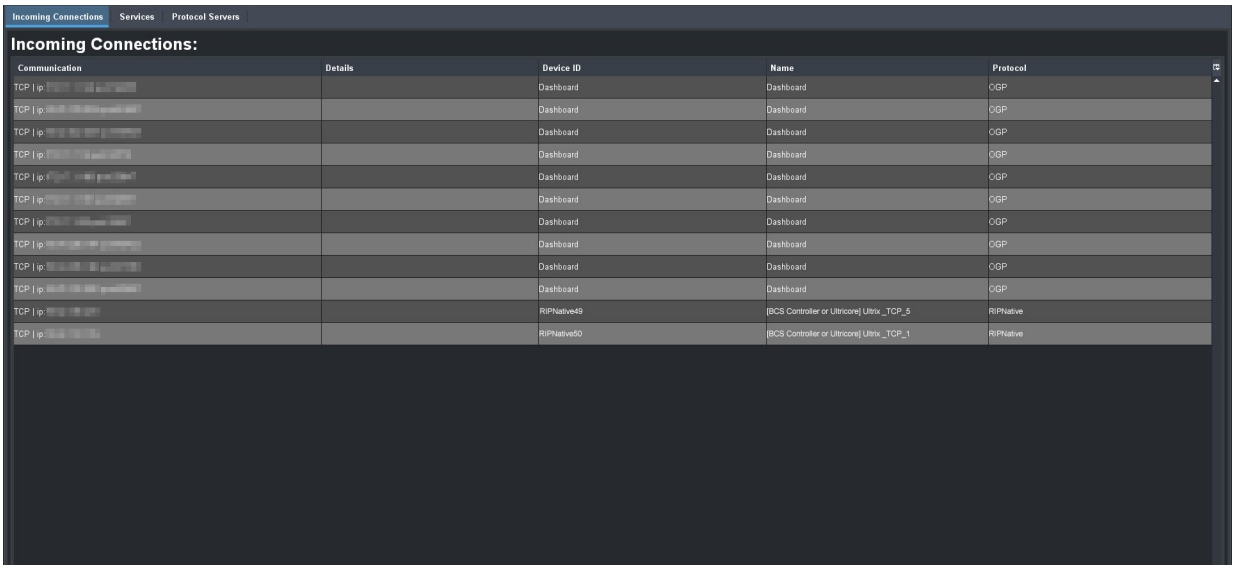


Figure 12 Example of Entries in a Connections > Incoming Connections Interface

Table 5 summarizes the fields displayed in the Incoming Connections tab.

Table 5 Connections — Incoming Connections

Item	Parameters	Description
Communication	tcp	The device is communicating over a network connection. Note that the DashBoard client computer, the router, and the external device must be on the same network.
	ip: #	Specifies the IP Address of the device on the network
	ip: localhost	Specifies that the device is the router you are currently configuring
	port:#####	Specifies the ethernet port the devices is associated with on the network
	TBUS | port:	The device is communicating via the specified T-Bus port
Description	<text>	Provides a short textual description of the device
Device ID	<name>	Specifies the external device for the connection point
Name	<name>	Assigns a unique identifier for the device in the routing system. This name is also used when matrices are defined in the system.
Protocol	GVG Native	The device uses the third-party GVG protocol to communicate
	NVISION	This device communicates via the third-party NVISION protocol
	OGP	This device uses the openGear Protocol to communicate
	Probel SW-P-08	The device communicates via the Probel SW-P-08 protocol
	Ross NK	The device uses the Ross NK protocol to communicate (T-Bus or TCP only)
	TSL UMD v3.1	The device uses TSL UMD protocol version 3.1
	TSL UMD v4.0	The device uses TSL UMD protocol version 4.0
	TSL UMD v5.0	The device uses TSL UMD protocol version 5.0
	Ultrix	The device uses the Ross Ultrix protocol to communicate (TCP only)

Services Tab

The Services tab lists the available communications protocols and provides options for enabling/disabling each communication protocol. (**Figure 13**)

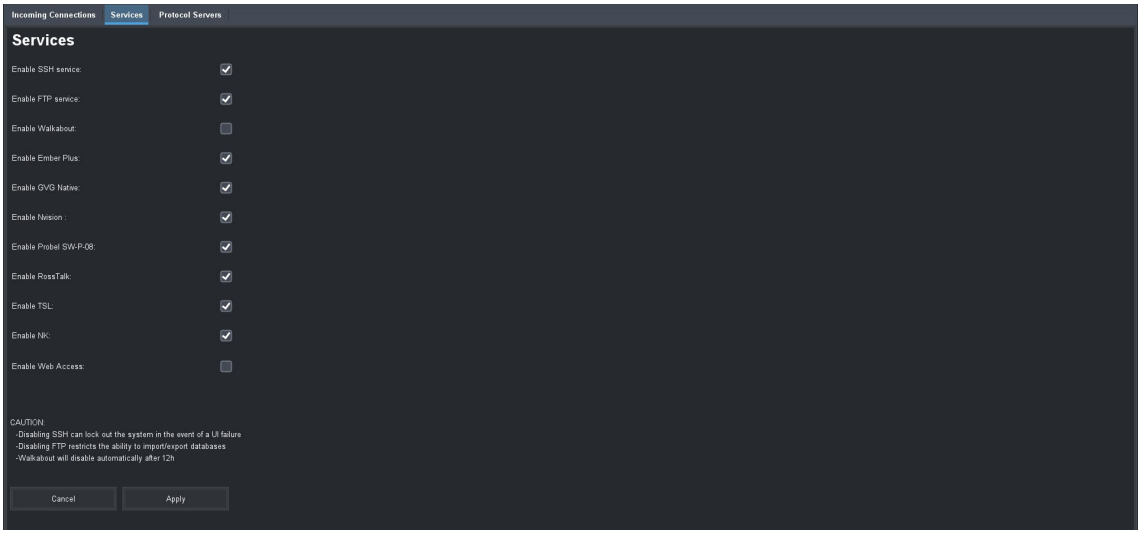


Figure 13 Example of the Connections > Services Tab

Table 6 summarizes the options displayed on the **Services** tab.

Table 6 Connections — Services

Item	Description
SSH service	Enables the ability to log onto the primary device via an SSH server. Secure Shell (SSH) Login is a client-server protocol used by system administrators to securely log onto remote systems and execute commands over an unsecured network. SSH may also be used by Technical Support for advanced troubleshooting.
FTP service	Enables the ability to communicate with the Ultricore BCS over an FTP connection
Walkabout	Enables the primary device to communicate with devices in the Walkabout system
Ember Plus	Enables the primary device to communicate with a third-party control system via the Ember+ media distribution protocol
GVG Native	Enables the primary device to communicate via the GVG Series 7000 Native protocol and is available over an RS-422 or RS-232 serial connection, as well as ethernet connection.
Nvision	Enables the primary device to communicate via a limited sub-set of the NVISION serial NP0010 protocol, and the NVISION NP16 Ethernet protocol. Requires the Ultricore-NVISION license.
Probel SW-P-08	Enables the primary device to communicate via the Probel SW-P-08 protocol. This protocol is available over an RS-422 or RS-232 serial connection, as well as an ethernet connection.
RossTalk	Communications via the RossTalk protocol (a plain text based protocol that allows control of Ross Video equipment)

Table 6 Connections — Services (Continued)

Item	Description
TSL	Enables the primary device to communicate via the TSL UMD v3.1, TSL UMD v4.0, and TSL UMD v5.0 protocols.
NK	Enable this option if there are Ross NK series devices or signal types the primary device itself does not handle. The Ross NK series devices must be connected to the Ethernet network by virtue of an Ross NK-IPS or NK-NET devices to enable communication with the primary device.
Web Access	Remote access and upgrades are disabled by default (the Upload button is disabled in the DashBoard interfaces). Remote upgrades may optionally be enabled through DashBoard via this option. ✶On bootup or power cycle, this option will default back to disable (box is unselected). You must select the box again if you wish to enable web access and firmware upgrades after a bootup or power cycle.

Protocol Servers Tab

The Protocol Servers tab lists the currently active servers running in the routing system. This tab is auto-populated based on the external devices on the same network as your primary device. (**Figure 14**)

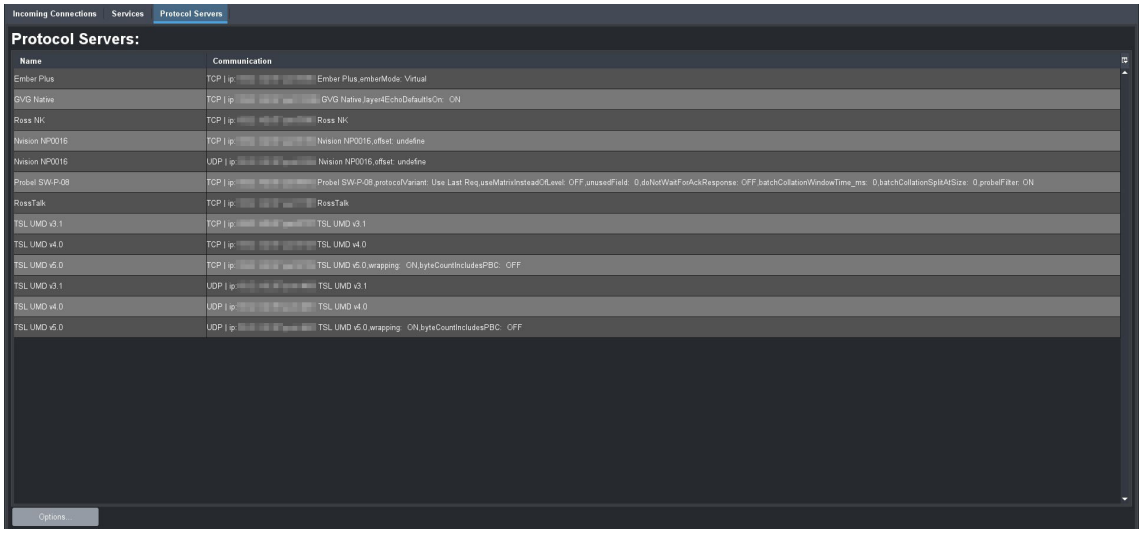


Figure 14 Example of the Connections > Protocol Servers Interface

Table 7 summarizes the fields displayed in the **Protocol Servers** tab.

Table 7 Connections — Protocol Servers

Item	Description
Name	Indicates the unique identifier for the device in the routing system. This name is also used when matrices are defined in the system
Communication	Indicates the communication protocol, IP Address, Port Number, and configuration details of the device.

Server Options Dialog

Click **Options** (located in the bottom left corner) to display the **Server Options** dialog. (**Figure 15**) This dialog provides additional settings for the supported protocol servers.

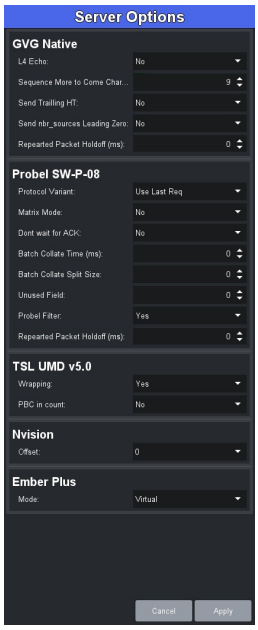


Figure 15 Example of the Services > Server Options Dialog

Table 8 summarizes the fields displayed in the **Server Options** dialog.

Table 8 Connections — Protocol Servers > Server Options

Item	Parameters	Description
GVG Native		
L4 Echo	No	The Ethernet Layer 4 acknowledge is disabled. This is the default.
	Yes	The Ethernet Layer 4 acknowledge is enabled
Sequence More to Come Character	#	Enables the user to assign a number to the `seq_flag` field in a packet that will indicate more messages to come. The default value is 9. A value of 0 (zero) indicates the last or only packet.
Send Trailing HT	Yes	Includes the trailing `<HT>` character (Horizontal Tab (0x09)) in the packet
	No	The trailing `<HT>` character is not included in the packet
Send nbr_sources Leading Zero	Yes	Always forces the `nbr_sources` field to be 2 ASCII characters (e.g. 1 becomes 01). This supports fragmentation of large message streams.
	No	Allows the `nbr_sources` field to be a single ASCII character
Repeated Packet Holdoff (ms)	#	Ultricore BCS detects repeated identical packets, and will skip processing if the packets are repeated within the specified delay. The default is 0.
Probel SW-P-08		

Table 8 Connections — Protocol Servers > Server Options (Continued)

Item	Parameters	Description
Protocol Variant	Use Last Req	The Ultrix will respond using protocol variant (extended/non-extended) as per the received request format. This is the default.
	Non-Extended	Ultrix will always replay using non-extended formatting
	Extended	Ultrix will respond with extended formatting
Matrix Mode	No	Ultrix will use information from the LEVEL section of the protocol to control Ultrix levels
	Yes	Ultrix will use information from the MATRIX_ID section of the protocol to control Ultrix levels
Do not wait for ACK	No	Ultrix will wait for message acknowledgments between connect responses. This is the default
	Yes	Ultrix will not wait for message acknowledgments between connect responses
Batch Collate Time (ms)[a]	#	Wait up to 100 milliseconds for multiple commands received before processing. The default is 0 (which disables this feature).
Batch Collate Split Size (# of commands)	#	Wait up to 100 received commands before processing. The default is 0 (which disables this feature).
Unused Field	#	Send number (0-15) in either Level or Matrix field - which ever is not used as per Matrix Mode setting. The default is 0.
Probel Filter	Yes	Probel SW-P-08 crosspoint tally responses are provided when there are no status changes resulting from the crosspoint connect message.
	No	Removes the Probel Crosspoint Switch filter
Repeated Packet Holdoff (ms)	#	Ultricore BCS detects repeated identical packets, and will skip processing if the packets are repeated within the specified delay. The default is 0.
TSL UMD v5.0		
Wrapping	No	The DLE/STX wrapping is not enabled. This is the default.
	Yes	Enables the DLE/STX wrapping for TCP/IP transport
PBC in Count	No	Packet Byte Count is not included in total byte count. This is the default.
	Yes	Packet Byte Count is included in total byte count
Nvision		
Offset	0	The Ultrix level matches the NVISION level
	1	The Ultrix level is the NVISION level plus 1
Ember+		

Table 8 Connections — Protocol Servers > Server Options (Continued)

Item	Parameters	Description
Mode	Virtual	Each level is represented by a Matrix and the Labels will be the one defined in the Destinations and Sources interfaces
	Physical	The whole router is represented as a single Matrix and the physical socket labels are used. The external control system using Ember+ commands bypasses the virtual IO mapping and directly controls the Ultrix physical socket connections. Therefore the Ultrix should not be switched by any other devices

a. When the Batch Collate Split Size and Batch Collate Time are both active, the option that occurs first will release the batch, and the Batch Collate Split Size and the Collate Time values are reset.

Navigating the Device Configuration Interfaces

The Device Configuration interfaces provides options and fields to configure and monitor global settings of your hardware. This chapter briefly summarizes the Device Configuration interfaces.

Overview

The Device Configuration interfaces are accessed via the System > Configuration tree in DashBoard. (**Figure 16**)

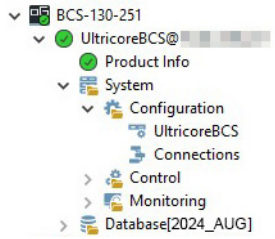


Figure 16 Expanded Ultricore BCS Configuration Nodes in the Tree View

Double-click the Ultricore BCS sub-node to display the Device Configuration interfaces in the DashBoard window. (**Figure 17**)

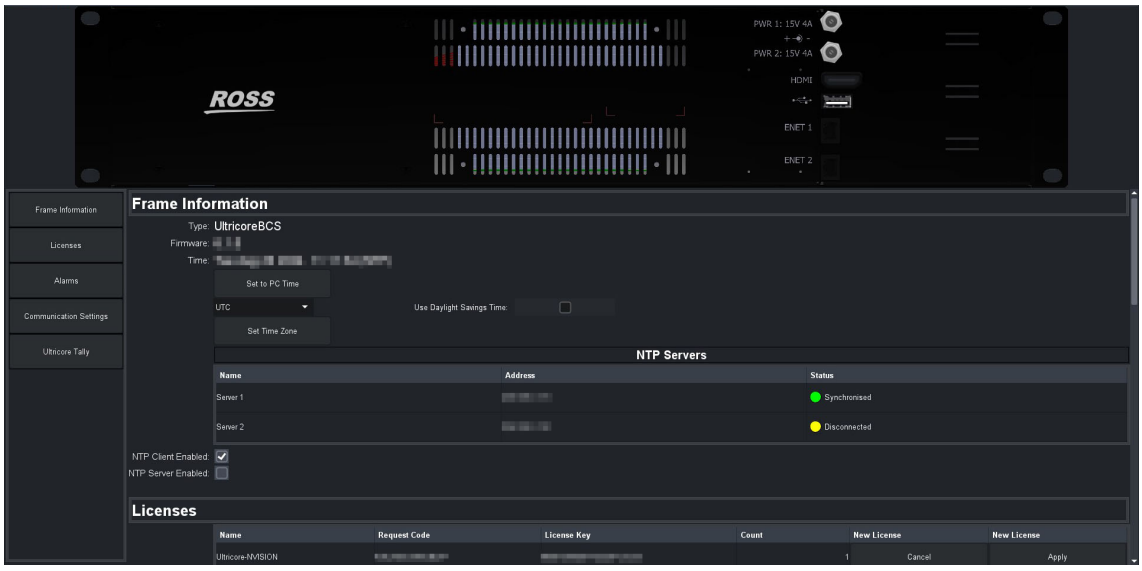


Figure 17 Example of an Ultricore BCS Device Configuration Interface

A toolbar always displays at the left of the Device Configuration interface. Use this toolbar to navigate between the Device Configuration interfaces. Selecting a button from the toolbar displays that area at the top of the interface (but below the rear panel image). The following sections outline the areas starting with the topmost button on the toolbar.

Frame Information

When the Device Configuration interface is first displayed in the DashBoard window, the Frame Information area automatically displays at the top of the interface. This area provides options for configuring the global time settings.

Table 9 outlines the read-only fields and menus in the Frame Information area.

Table 9 Device Configuration — Frame Information

Item	Description	
Type (read-only)	<text>	Indicates the product name
Firmware (read-only)	#	Indicates the build version
Time	DD mm dd yyyy hh:mm:ss	Indicates the current date based on the internal clock (if no connection to an NTP Server is available) where: • DD represents the calendar day • mm represents the month • dd represents the day • yyyy represents the year • hh:mm:ss represents the current local time
Set to PC Time	Assigns the DashBoard client computer as the time source for the Ultricore BCS	
Use Daylight Saving Time	Select to add one hour to the currently selected UTC Offset (and enable Daylight Saving Time to the clocks displayed in the System Clock and Device interfaces)	
Set Time Zone	Manually specify the time zone your DashBoard client computer is located in	
NTP Servers		
Name (read-only)	Server #	Reports the identifier for the NTP server the Ultricore BCS can access
Address	#	Indicates the IP address for the NTP server the Ultricore BCS can access
Status	Synchronized (Green)	The Ultricore BCS has a valid connection to this NTP server
	Disconnected (Yellow)	The Ultricore BCS cannot connect to the NTP server specified at the IP address

Licenses

Use the fields in this area to manage the licenses for your Ultricore BCS. From here you can view which licensed features are enabled, and enter license keys for new features. Refer to "**Software License Keys**" for details on this interface.

Alarms

From the Alarms area you can specify what components the Ultricore BCS monitors such as the network status, and the storage capacity. (**Figure 18**)

By default, the Ultricore BCS monitors the following components (these options are enabled): Storage Space and ENET 1.

The Alarms area also displays the read-only State columns that report the status of each enabled alarm using color indicators which vary in severity from green (valid), yellow (caution), to red (alarm).

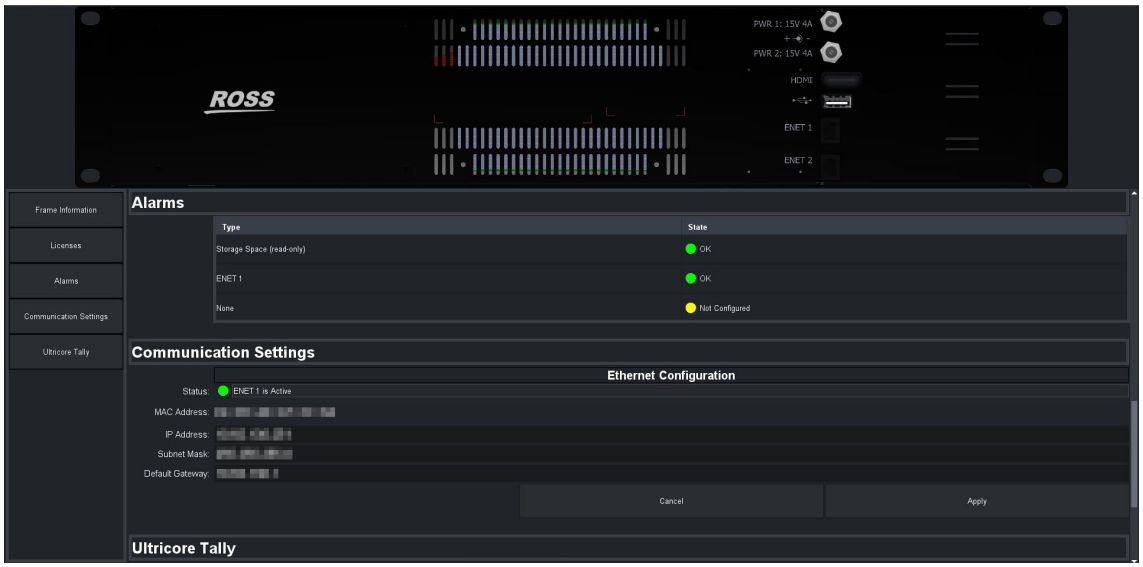


Figure 18 Example of the Alarms Area

Communication Settings

The Communication Settings area provides fields for assigning the IP address, subnet mask, and gateway to the ENET port on the Ultricore BCS. (**Figure 19**) You can also quickly monitor the status of the active ENET port. Refer to "**Reviewing the Network Settings for the Ultricore BCS Panel**" for details.

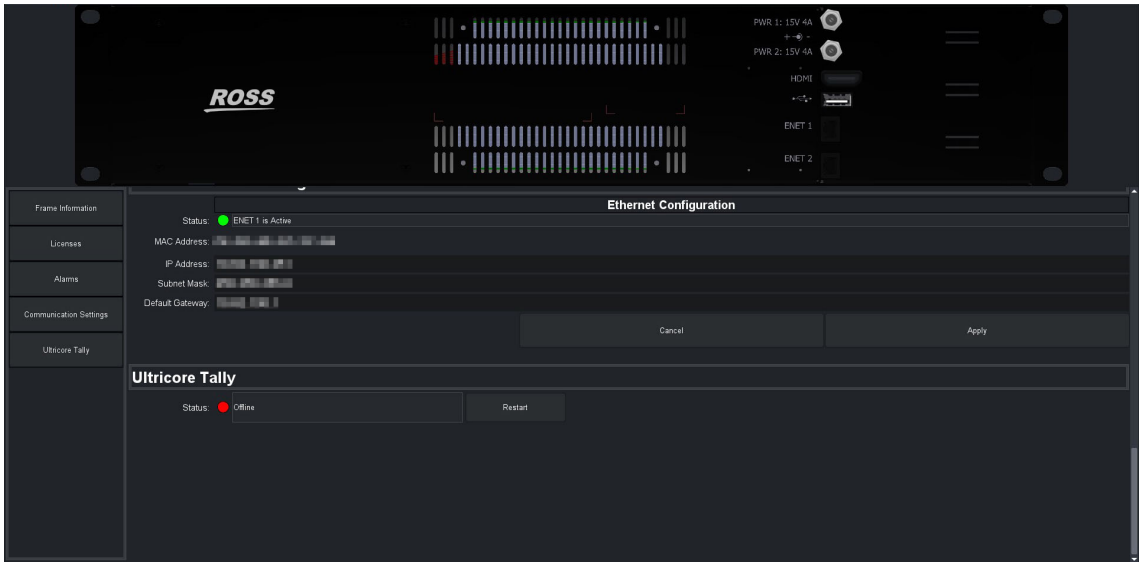


Figure 19 Example of the Communication Settings Area

Ultricore-Tally

If the Ultricore-Tally licensed feature is enabled, this area provides a read-only field to monitor the status of the tally system. Refer to "**Ultricore-Tally Setup**" for details.

Connecting to an ULTRIX-FR12

The Ultricore BCS acts as a primary controller for one or more ULTRIX-FR12. A connection is made from the controlling Ultricore BCS panel to each ULTRIX-FR12. The controlling Ultricore BCS (primary) contains the full database configuration for the entire operation of the routing system.

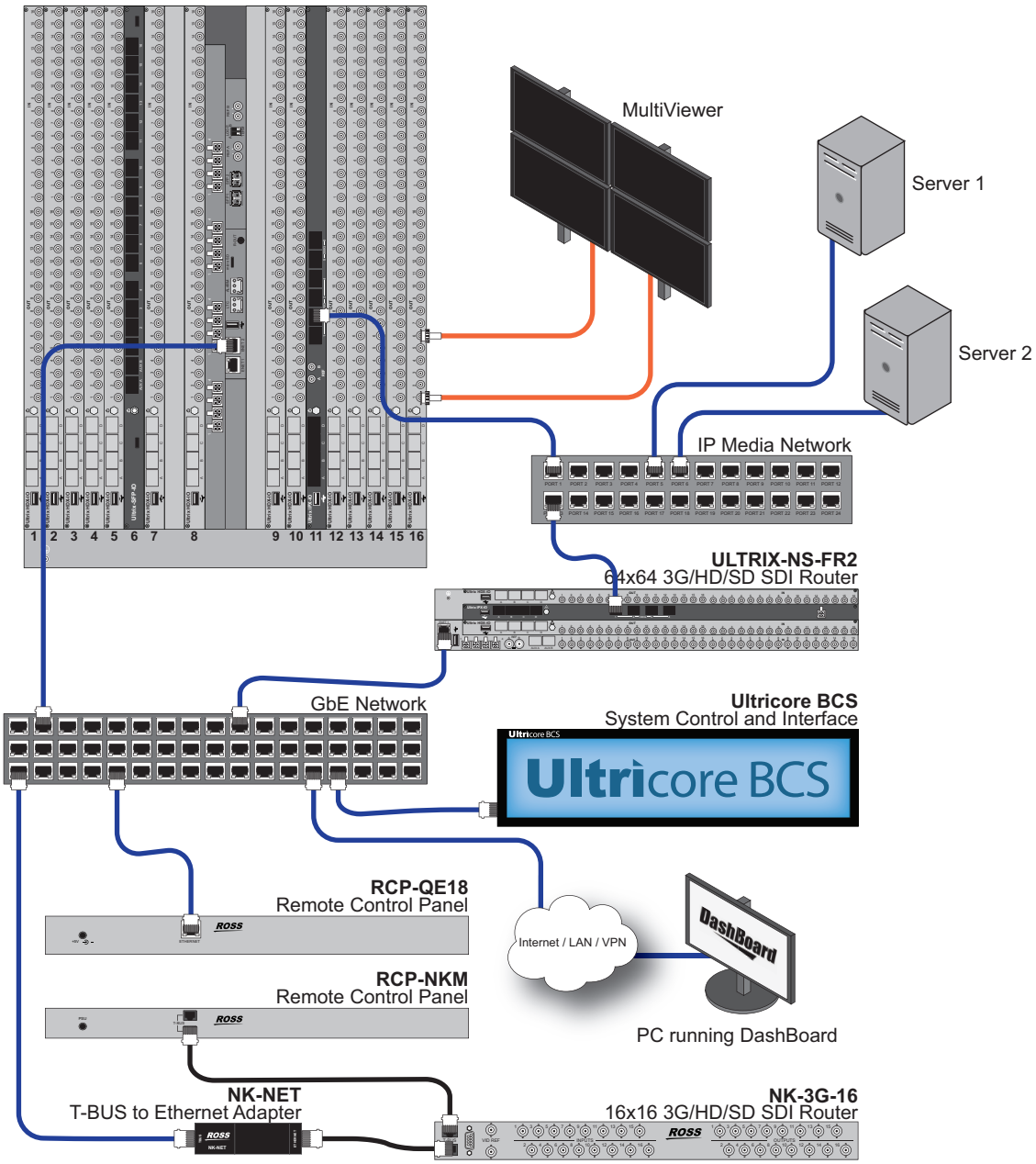


Figure 20 Example Workflow with an ULTRIX-FR12 and Ultricore BCS

All client devices, such as a remote control panel (RCP) or third-party controllers, must be configured for and communicate with the primary Ultricore BCS. Each ULTRIX-FR12 configured as a client device will only accept control commands via the Ultricore BCS. To configure an ULTRIX-FR12 as a client device, the Remote Controller Mode must be first enabled on the ULTRIX-FR12.

An Ultricore BCS with the Ultricore-IP license also enables the video senders/receiver endpoints to be reported as available ports to the routing database. The video senders/receivers are seen as part of a single video-IP matrix, and the audio senders/receivers are part of a single audio-IP matrix.

✶ When a video sender stream is active and the video format changes on the SDI input of that stream, the Ultricore BCS will automatically detect the update and then updates all the receivers subscribed to that sender. This allows the existing streams to adapt.

Setup Overview

1. Configure the Ultripower Manager feature to group the Ultripower units together to safely power on/off the ULTRIX-FR12. Refer to the ***ULTRIX-FR12 Installation Guide*** for details.
2. Set up any licensing requirements for the ULTRIX-FR12. Refer to the ***ULTRIX-FR12 User Guide***.
3. Set up any Ultriscape requirements for the ULTRIX-FR12. Refer to the ***Ultriscape User Guide***.
4. Enable Remote Controller Mode on the ULTRIX-FR12. Refer to the ***ULTRIX-FR12 User Guide***.
5. Create a database within the Ultricore BCS to accommodate the I/O of the ULTRIX-FR12. Refer to the ***Ultrix and Ultricore Database Guide***.
6. Create a connection point from the Ultricore BCS to the ULTRIX-FR12. Refer to the ***Ultrix and Ultricore Database Guide***.
7. Edit the Ultricore BCS database to map logical sources and destinations to ULTRIX-FR12 inputs/outputs. Refer to the ***Ultrix and Ultricore Database Guide***.
8. Map the Ultriscape heads/PiPs. Refer to the ***Ultriscape User Guide*** for details.

Software License Keys

The Ultricore BCS includes software options that license functions and features. This chapter outlines the available software licensed features, and how to install a software key for a licensed feature.

Before You Begin

When installing a software license key on the Ultricore BCS:

- You must have the DashBoard client installed and communicating with the Ultricore BCS that you wish to install the key for.
- Ensure that you are using DashBoard version 9.13 or higher. This information is available by selecting **Help** > **About DashBoard** from the DashBoard main toolbar.

License Keys Overview

Table 10 provides a brief summary on the types of licensed features available for the Ultricore BCS.

Table 10 List of Ultricore BCS Licensed Features

License	Description
Ultricore-NVISION	Enables the use of the NVISION protocol on Ultricore BCS
Ultricore-SNMP	Enables basic SNMP monitoring on Ultricore BCS
Ultricore-EMBER+	A license that enables the use of the EMBER+ protocol for video and audio streaming
Ultricore-BCS-CLIENT	Each seat adds support for 25 device connections (panels, routers, DashBoard clients) to a maximum of 100 connections
Ultricore-IP	Enables RDS and basic NMOS-IS-04 discovery support for the Ultricore-IP feature. You must install this license to enable the Ultricore-IP feature for the Ultricore BCS. Refer to "**Ultricore-IP**" for details on this feature. Depending on your routing system, you will also need to install one of the following IP licenses.
Ultricore-IP+V	Each seat adds support for 16 video streams between Ross Video devices
Ultricore-IP+A	Each seat adds support for 384 audio streams between Ross Video devices
Ultricore-IP+V3RD	Each seat adds support for 16 video streams from third-party devices
Ultricore-IP+A3RD	Each seat adds support for 384 audio streams from third-party devices
ULTRICORE-TLX	Enables the Tieline Builder feature for the Ultricore BCS. Refer to the ***Ultrix and Ultricore Database Guide***.
Ultricore-Tally	Enables the Ultricore-Tally feature. Refer to "**Ultricore-Tally Setup**".

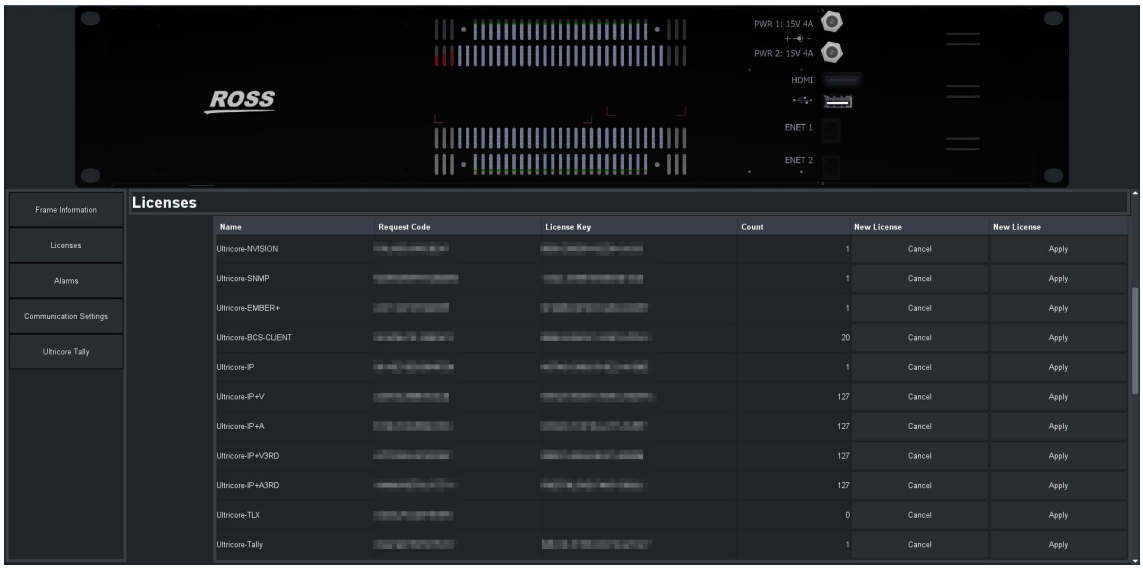
Installing a License Key

Ross Video uses license keys to control user access to specific Ultricore BCS features. You can obtain a key for an Ultricore BCS licensed feature from Ross Video Technical Support.

To install an Ultricore BCS license key

1. Launch the DashBoard client.
2. Locate the Ultricore BCS node in the Tree View.
3. Expand the Ultricore BCS node to display a list of sub-nodes in the Tree View.
4. Expand the **Systems** sub-node.
5. Expand the **Configuration** sub-node.
6. Double-click the node for your Ultricore BCS.

   The **Device Configuration** interface opens.
7. Click **Licenses** from the left toolbar.



8. Make a note of the character string in the **Request Code** field for the feature you wish to enable.
9. Contact Ross Video Technical Support using the information found in "**Contacting Technical Support**".
   a. When you speak to your Technical Support representative, tell them your name, your facility name, and the **Request Code** from the **Licenses** table.
   b. You will be given a License Key that must be entered in the applicable field in the **Licenses** table.
10. Enter the provided License Key in the applicable **License Key** field in the **Licenses** table.

✶ You can also right-click on the row for the License Key you are installing, and copy the Request Code to or paste the License Key from the Microsoft® Windows® clipboard.

11. Click **Apply** in the row for the License Key you entered in step 10.
12. Verify that the **Count** field is updated to report each installed License Key.

Timing Setup

This chapter outlines how to specify a time source, and adjust the time offset for your Ultricore BCS.

Specifying the Time Source

The Ultricore BCS requires an external time source in order to accurately report the time-of-day. The options in the Device Configuration interface enable the selection of time source via an NTP Server in your facility, or you can set the device time to match the computer which is running the current DashBoard client.

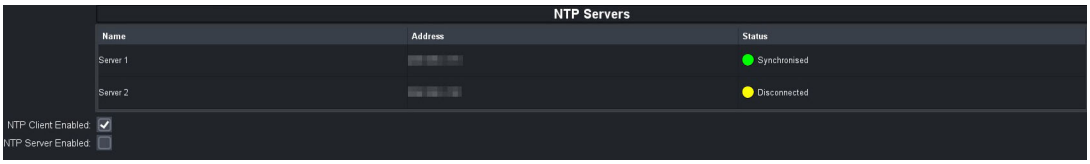
Using an NTP Server as the Time Source

✶ Before proceeding, contact your IT Department to learn the IP address(es) of the NTP server(s) in your facility.

To specify an NTP Server as the time source for the Ultricore BCS

1. Expand the Ultricore BCS node to display a list of sub-nodes in the Tree View.
2. Expand the **Systems** sub-node.
3. Expand the **Configuration** sub-node.
4. Double-click the **Ultricore BCS** node.

   The **Device Configuration** interface opens.
5. Locate the **NTP Servers** area.



6. If you are using one NTP server, enter the IP address in the **Address** field of the **Server 1** row.
7. If using a backup NTP server:
   a. Enter the IP address of the first NTP server in the **Address** field of the **Server 1** row.
   b. Enter the IP address of the backup NTP server in the **Address** field of the **Server 2** row.
8. Select the **NTP Client Enabled** box.
9. Verify that the **Status** field(s) in the **NTP Servers** table report a valid connection to the listed IP address(es). You may need to refresh the interface as follows:
   a. Close the **Device Configuration** interface.
   b. Re-open the **Device Configuration** interface by repeating steps 1 to 4 to update the field(s).

Using the DashBoard Client Computer as the Time Source

This section outlines how to set the Ultricore BCS to the local time without using an NTP Server. Instead, you will set the time to the values reported by the DashBoard client computer you are using.

✶ The time the Ultricore BCS reports is not linked to this computer. It is a once off setting of the time to match the computer time when the **Set to PC Time** button is selected on the Ultricore

BCS interface. If the DashBoard client computer time changes, you will need to update the time reported on the router by repeating the procedure below.

To specify the DashBoard client computer as the time source for the Ultricore BCS

1. Expand the Ultricore BCS node to display a list of sub-nodes in the Tree View.
2. Expand the **Systems** sub-node.
3. Expand the **Configuration** sub-node.
4. Double-click the **Ultricore BCS** node.

   The **Device Configuration** interface opens.
5. Locate the **Frame Information** area.
6. Click **Set to PC Time**.

Configuring a Timing Offset

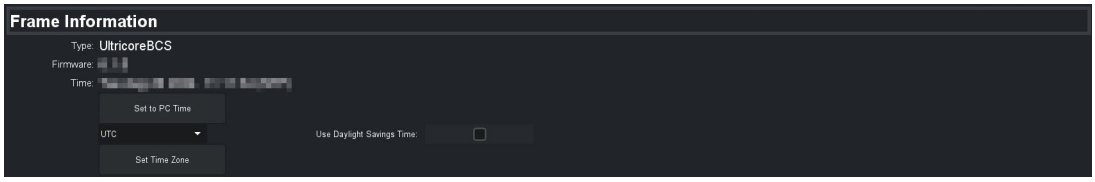
You can choose to offset the System Status and Device interfaces with respect to UTC Time or Daylight Saving Time. Note that the UTC offset does not include any Daylight Saving offset that may be in force. The Daylight Saving Time offset is enabled separately.

✶ At startup, the UTC Offset is set to 0 to ensure the displayed time matches the system time.

To specify an offset

1. Expand the Ultricore BCS node to display a list of sub-nodes in the Tree View.
2. Expand the **Systems** sub-node.
3. Expand the **Configuration** sub-node.
4. Double-click the **Ultricore BCS** node.

   The **Device Configuration** interface opens.
5. Locate the time offset options at the top of the **Frame Information** area.



6. To specify an UTC offset, select your current time zone offset from the **UTC** drop-down menu.

   Once set, the offset will be added or subtracted based off of the system clock, including NTP.
7. To add one hour to the currently selected UTC Offset (and enable Daylight Saving Time to the clocks displayed in the System Clock and Device interfaces), select the **Use Daylight Saving Time** box.

Ultricore-IP

Ultricore-IP discovers, exposes, and controls multicast streams found on your IP network. This licensed feature allows scalable, easy integration of IP signals into hybrid or pure IP environments. The required streams can be added to your routing database as available ports. This chapter outlines how to configure the Ultricore-IP options, the discovery of NMOS devices, and how to manage the IP matrix for your routing system.

✶ Ensure that you have the required software licenses installed and are connected to an Ultrix router with at least one Ultrix-IP-IO or ULTRIX-IPX-IO blade installed. Refer to the ***Ultrix User Guide*** for your router to learn more.

What are Receivers, Senders, and Streams?

The following terms may be used throughout this chapter:

- **Receiver** — an element within a device that receives exactly one stream, which contains one flow from a network. If redundancy is enabled, then both sender and receiver can represent the two flows.
- **Sender** — an element within a device which presents exactly one flow, packaged as a stream onto a network.
- **Stream** — one flow, encapsulated within a transport protocol. Examples include SMPTE ST 2110-20 Video, or SMPTE ST 2110-30 Audio.

Functional Overview

Ultricore-IP is an optional software license that runs on the Ultricore BCS panel that uses the same routing work flow regardless of the transport protocol. The number of video and/or audio streams the Ultricore-IP recognizes depends on the software license(s) installed for the Ultricore BCS. Refer to "**License Keys Overview**" for a list of available licenses.

✶ The connection between Ultricore BCS and Ultricore-IP is via Registration and Discovery Service (RDS).

Once the required software licenses are installed, the RDS instance running on Ultricore BCS is activated and all devices that support NMOS IS-04 can register themselves with it. Once Ultricore-IP connects within the RDS, it can add the detected devices and resources to the router matrix much like SDI ports.

Setup Overview

The generalized work flow of configuring the Ultricore-IP feature is:

1. Download and install the latest version of the DashBoard client software.
2. Install the Ultricore-IP software license key to enable RDS and basic NMOS-IS-04 discovery. Refer to "**Installing a License Key**".
3. Install the additional Ultricore-IP software license key(s) to enable support for video and/or audio streams as per your system requirements. Refer to "**License Keys Overview**".
4. Configure the PTP settings for the router (with at least one ULTRIX-IPX-IO blade) that the Ultricore BCS will communicate with. Refer to the ***Ultrix User Guide*** for your router.
5. Configure the IP device(s) in your routing system. Refer to the ***Ultrix User Guide*** for your router.

6. Use the Ultricore-IP interface to discover each advertised network stream via the NMOS IS-04 or IS-05 protocol. Refer to "**Configuring the NMOS Discovery Options**", "**Configuring the RDS Options**", and "**Discovery of the RDS and NMOS Devices**".
7. Verify that the NMOS detected ports are added to the list of available ports for the routing system. Refer to "**Monitoring via Ultricore-IP**".
8. Add the discovered NMOS ports to your database. Refer to the ***Ultrix and Ultricore Database Guide***.

System Overview

The Ultricore-IP feature enables the video senders/receiver endpoints to be reported as available ports to the router database. The video senders/receivers can be seen as part of a single video-IP matrix, and the audio senders/receivers are part of a single audio-IP matrix. Or the streams belong to the same matrix with video and audio on different levels where each stream is reported as a single level despite how many channels it transports.

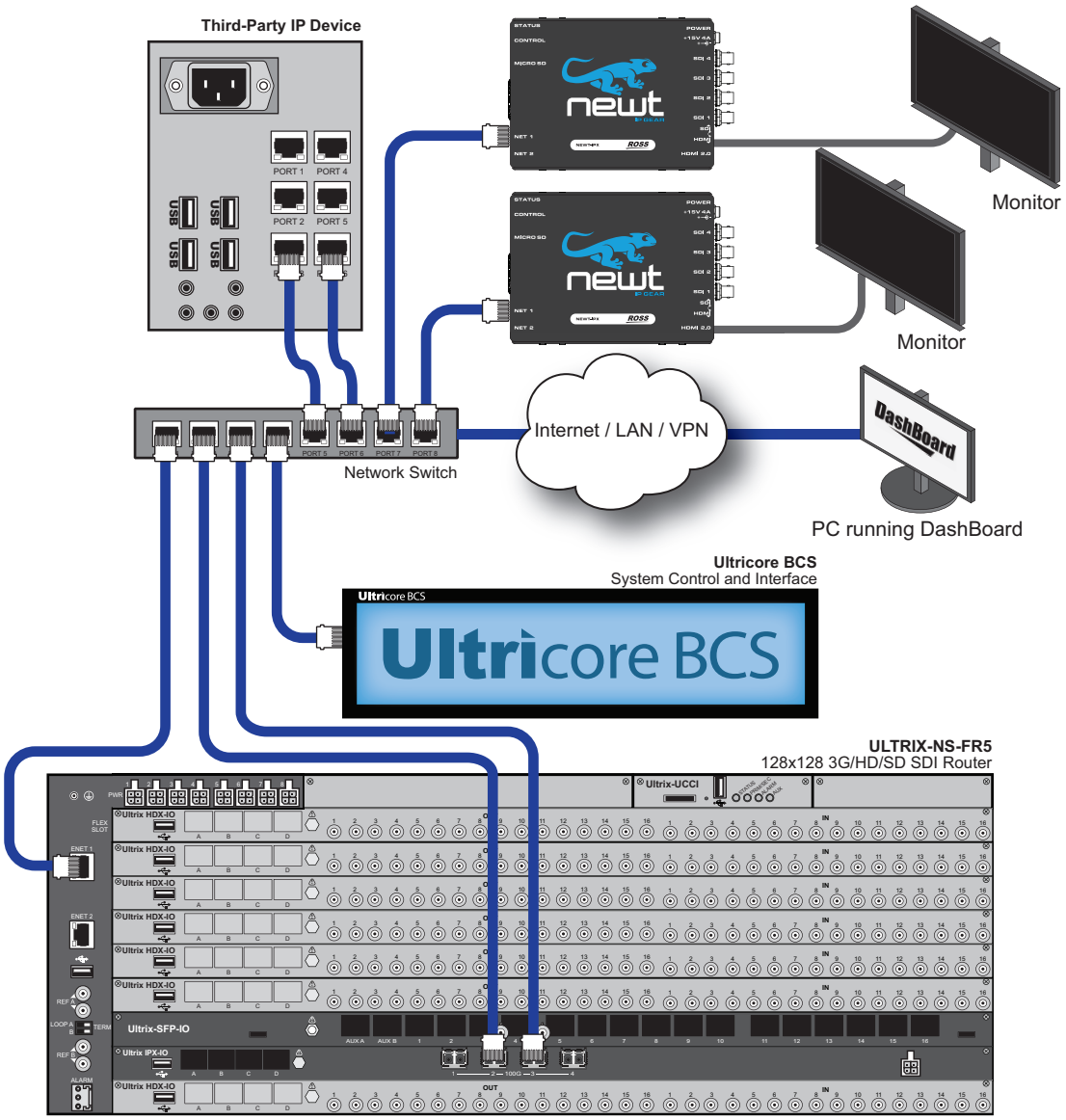


Figure 21 Example of a Simplified IP System with an Ultricore BCS

Install the Ultricore-IP License on the Ultricore BCS

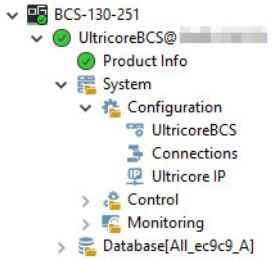
Refer to "**Installing a License Key**" for details on the available Ultricore-IP licenses and how to install them for your Ultricore BCS.

Accessing the Ultricore-IP Interface

Once the Ultricore-IP license is installed, and a connection is made with an Ultrix with at least one ULTRIX-IPX-IO blade, the **Ultricore IP** sub-node displays in the Tree View of DashBoard.

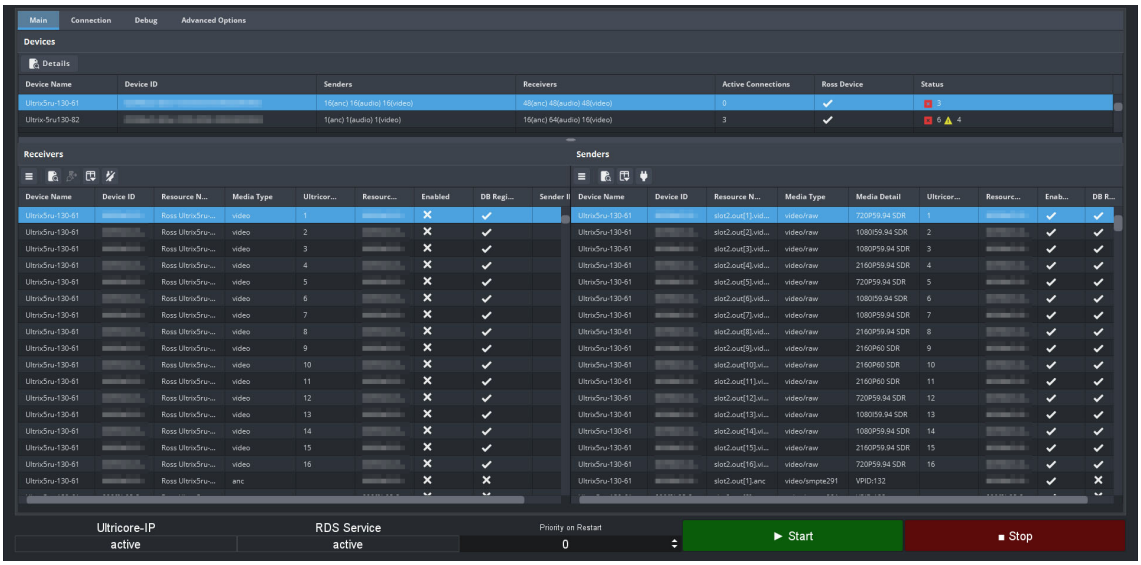
To access the Ultricore-IP interface in DashBoard

1. Launch DashBoard.
2. Locate the Ultricore BCS node in the Tree View.
3. Expand the main Ultricore BCS node to display a list of sub-nodes.
4. Expand the second Ultricore BCS sub-node.
5. Expand the **System** sub-node.
6. Expand the **Configuration** sub-node.



7. Double-click the **Ultricore IP** sub-node.

   The **Ultricore IP** interface displays with the **Main** tab automatically selected.



For More Information on...

- the available tabs and menus in DashBoard, refer to "**Ultricore-IP Interface Overview**".

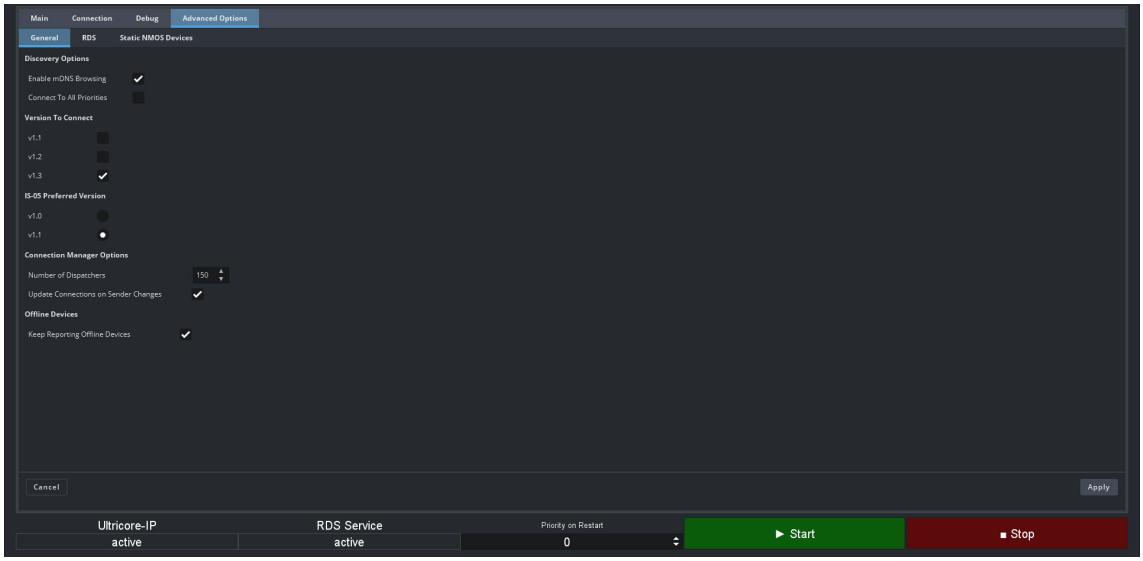
Configuring the NMOS Discovery Options

This section outlines how to specify the Network Media Open Specifications (NMOS) version that the Ultricore-IP will use to communicate with the Registration and Discovery Service (RDS) for your network. The Ultricore-IP will detect the advertised streams of NMOS devices in your network (on the same subnet as the Ultricore BCS) and report them in the **Ultricore IP** interface.

To specify the NMOS Version

1. Display the **Ultricore-IP** interface.
2. Select the **Advanced Options** tab.

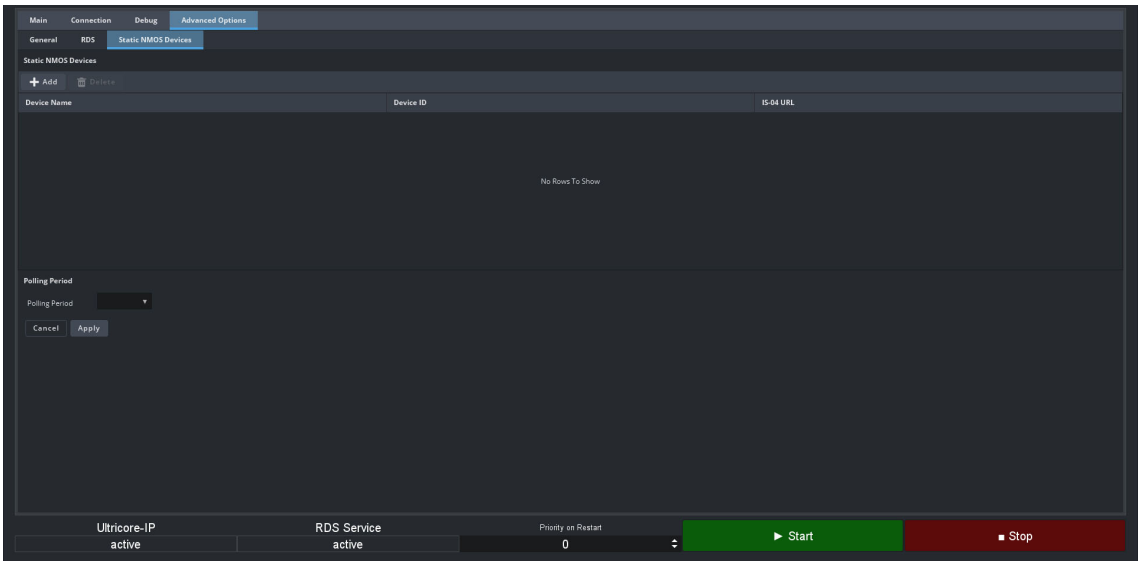
   The **General** sub-tab is automatically selected.



3. Use the **Version to Connect** options to select each NMOS version that the Ultricore BCS will use to detect streams on your network.
4. If required, use the **IS-05 Preferred Version** options to specify the NMOS IS-05 Connection service.
5. Click **Apply** (located in the bottom right corner of the tab).

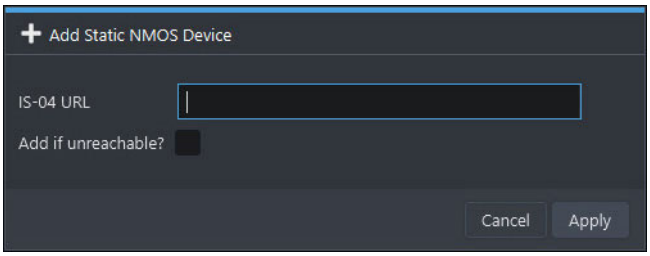
To manually add a connection to an NMOS device

1. Display the **Ultricore-IP** interface.
2. Select the **Advanced Options** tab.
3. Select the **Static NMOS Devices** tab.



4. Click **Add**.

   The **Add Static NMOS Device** dialog opens.



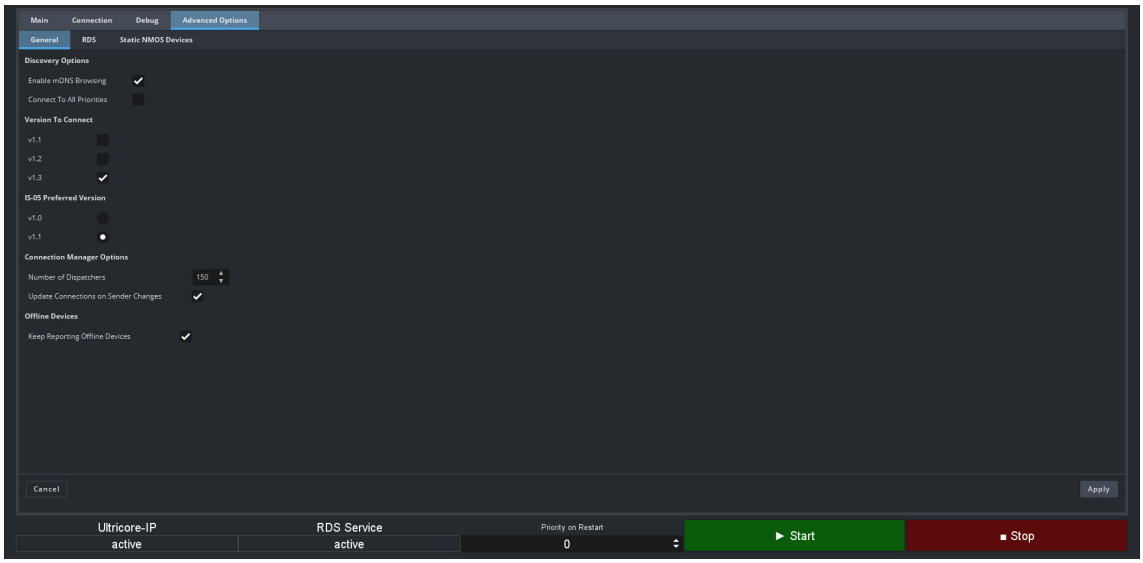
5. Use the **IS-04 URL** field to specify the IS-04 URL of an NMOS device that you wish to connect to.
6. Select the **Add if Unreachable?** box to report the device to the Ultricore BCS even if a valid connection cannot be established.
7. Click **Apply**.

   The **Add Static NMOS Device** dialog closes and the **Static NMOS Devices** tab updates with a new row for the added device.

To configure the NMOS connection options

1. Display the **Ultricore-IP** interface.
2. Select the **Advanced Options** tab.

   The **General** sub-tab is automatically selected.



3. Locate the **Connection Manager** area of the tab.
4. Use the **Number of Dispatchers** field to set the maximum number of connections that can be triggered in parallel. Each dispatcher can handle one connection at a time.
5. Select the **Update Connections on Sender Changes** box to enable the SDP Updates feature.

   When an active sender, that is associated with any receiver, is updated, the system will issue a connection update to all affected receivers. This update includes the latest information about the sender, including the updated SDP data.
6. Select the **Keep reporting offline devices** box to report a NMOS device even if a connection is lost to the device. The Ultricore BCS reports the device as inactive in the Debug > General tab.
7. Click **Apply** (located above the Stop button).

Configuring the RDS Options

This section outlines how to configure the Ultricore BCS will register in a Registration and Discovery Service (RDS). This allows the Ultricore-IP to detect the RDS advertised streams in your network and report them in the **Ultricore IP** interface.

✶ If your network has more than one Ultricore BCS running or if a third-party RDS is present, ensure that there is only one instance of the RDS with the same priority on the network.

To configure the Ultricore BCS registration options for RDS

1. Display the **Ultricore-IP** interface.
2. Select the **Advanced Options** tab.

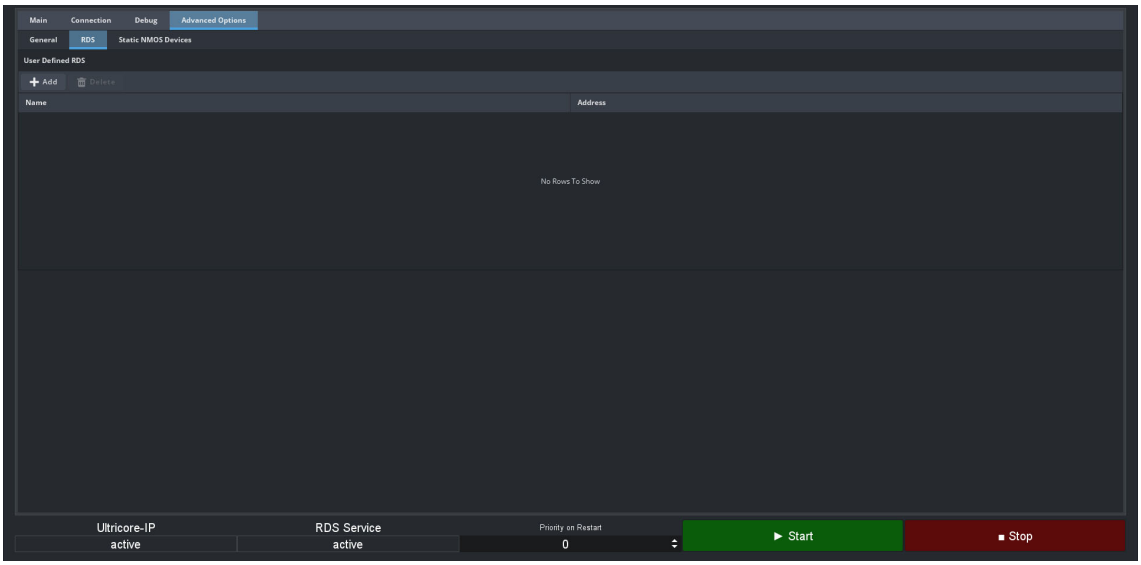
   The **General** sub-tab is automatically selected.
3. Locate the **Discovery Options** area of the tab.
4. To determine how the Ultricore BCS will register in an RDS system:
   - Select the **Enable mDNS Browsing** box to configure the Ultricore BCS to use mDNS to automatically register in an RDS on the network with the lowest priority; or
   - Clear the **Enable mDNS Browsing** box to allow the user to set an RDS IP in the Registry Service Address field and forces the Ultricore BCS to register to this specific RDS.
5. Select the **Connect to All Priorities** box to enable the Ultricore BCS to communicate with devices registered with the RDS at any priority.

6. Click **Apply** (located above the Stop button).

To manually specify a connection to an RDS

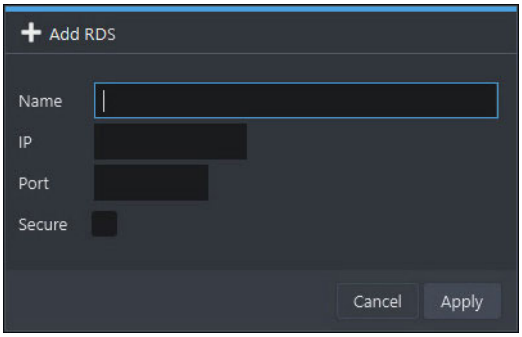
1. Display the **Ultricore-IP** interface.
2. Select the **Advanced Options** tab.

   The **General** sub-tab is automatically selected.
3. Select the **RDS** tab.



4. Click **Add**.

   The **Add RDS** dialog opens.



5. Use the **Name** field to assign a unique identifier to this RDS. This name is used in the Ultricore-IP interface tabs to identify this RDS.
6. Use the **IP** field to specify the IP address of the RDS that the Ultricore BCS is forced to register to.
7. Use the **Port** field to specify the port used for the corresponding RDS.
8. Select the **Secure** box to indicate that the RDS uses the HTTPS protocol for data transfer.
9. Click **Apply**.

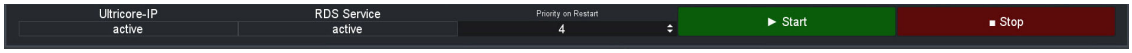
   The **Add RDS** dialog closes and the **RDS** tab updates with a new row for the added RDS.

Discovery of the RDS and NMOS Devices

The Ultricore-IP provides a quick method for establishing communication between the Ultricore BCS and your RDS. You can also choose to stop communication, or restart as required.

To start communications

1. Locate the bottom toolbar on the Ultricore-IP interface.



2. Click **Start**.
   - Communication is established between Ultricore BCS and devices in the NMOS system of your network. The menus and fields in the Ultricore-IP tab will be automatically updated.
   - Communication is established between Ultricore BCS and RDS in your network. The menus and fields in the Ultricore-IP tab will be automatically updated.

To stop communications

1. Locate the bottom toolbar on the Ultricore-IP interface.
2. Click **Stop**.
   - Stops communication between Ultricore BCS and devices in the NMOS system. The menus and fields in the Ultricore-IP tab are no longer updated.
   - Stops communication between Ultricore BCS and RDS in your network. The menus and fields in the Ultricore-IP tab are no longer updated.

To restart communications

1. Locate the bottom toolbar on the Ultricore-IP interface.
2. Use the **Priority on Restart** field to assign a priority to the Ultricore BCS when it uses mDNS to automatically register with an RDS on the network.
3. Click **Restart**.
   - Disconnects and re-connects communication between Ultricore BCS and the devices in the NMOS system.
   - Disconnects and re-connects communication between Ultricore BCS and the RDS in your network.

Automatic Sender Session Description Protocol (SDP) Updates

By default, a receiver is automatically updated when the associated sender changes. The Ultricore BCS monitors all active connections on the system. When an active sender, that is associated with any receiver, is updated, the system will issue a connection update to all affected receivers. This update includes the latest information about the sender, including the updated SDP data.

Overview

This feature is helpful to avoid receivers to be configured with a stale version of a sender. If the parameters of a sender changes, an SDP update is trigged. This update is then forwarded to all receivers that Ultricore BCS detects as subscribed to the updated sender.

✶ This feature is enabled by default via the Advanced Options > General > Update Connections on Sender Changes setting.

ULTRIX-IPX-IO Senders Adaptive Input

On an ULTRIX-IPX-IO blade, the senders have a configuration option that allows the stream to update itself following its SDI input format detected (as long as it is a valid video format). You can choose to limit the video format changes on a bandwidth base or just allow one fixed video format. In the case where the sender can follow the video that is on its input, the SDP is updated on all interfaces/protocols where it is available (such as NMOS, Ember+, etc.)

This update of the sender is identified by the Ultricore BCS, which in turn forwards it to all subscribed receivers.

For More Information on...

- cabling the ULTRIX-IPX-IO blade, refer to the ***Ultrix Installation Guide*** for your router.
- configuring the ULTRIX-IPX-IO blade, refer to the ***Ultrix User Guide*** for your router.

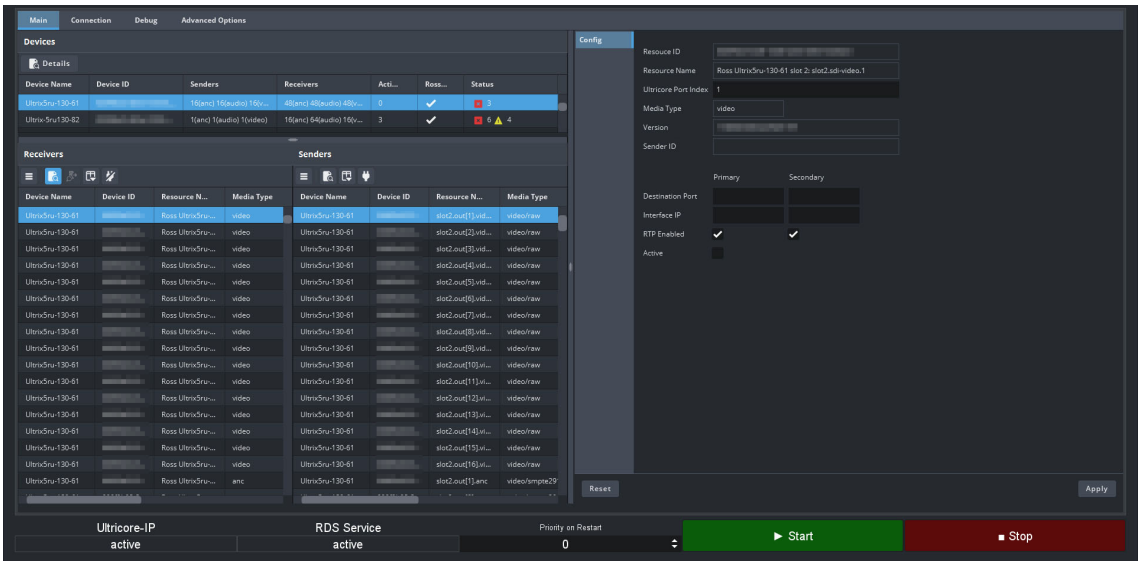
Editing a Stream

You can edit the streams detected and reported on your IP network via the Ultricore-IP > Main or Connections interfaces in the DashBoard client software.

To edit a receiver stream

1. Display the **Ultricore-IP** interface.
2. Ensure the communications between Ultricore BCS and the RDS and NMOS devices is not active. Refer to "**To stop communications**".
3. Select the **Main** tab.
4. Locate the **Receivers** area of the tab.
5. Select the row for the stream you wish to edit.
6. Click  .

   The **Config** tab opens.



✶ The settings and values in the Receiver Details are automatically provided by the RDS system.

7. If you are operating a redundant system, use the applicable Destination Port, Interface IP, Multicast IP, Source IP, and RTP Enabled fields to edit the **Primary** connection (first column), and/or the **Secondary** connection (second column).

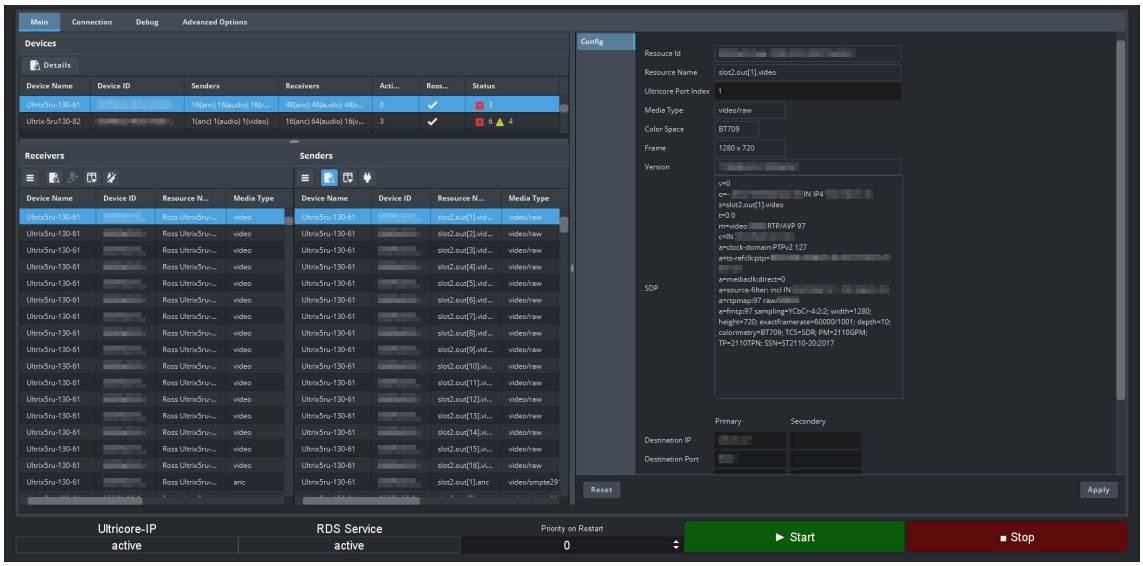
8. To disable a stream, clear the **Active** box.
9. Click **Apply** to update the receiver stream details.

   The **Receiver Details** dialog closes and the stream is updated.
10. Start the communications between Ultricore BCS and the RDS and NMOS devices. Refer to "**To start communications**".

To edit a sender stream

1. Display the **Ultricore-IP** interface.
2. Ensure the communications between Ultricore BCS and the RDS and NMOS devices is not active. Refer to "**To stop communications**".
3. Select the **Main** tab.
4. Locate the **Senders** area of the tab.
5. Select the row for the stream you wish to edit.
6. Click  .

   The **Config** tab opens.



✶ The settings and values in the Sender Details are automatically provided by the RDS system.

7. Use the **Ultricore Port Index** field to specify the label is reported in the Ultricore BCS database for this stream.
8. To disable a stream, clear the **Active** box.
9. If you are operating a redundant system, use the applicable Destination Port, Interface IP, Multicast IP, Source IP, and RTP Enabled fields to edit the **Primary** connection (first column), and/or the **Secondary** connection (second column).
10. Click **Apply** to update the sender stream details.

    The **Sender Details** dialog closes and the stream is updated.
11. Start the communications between Ultricore BCS and the RDS and NMOS devices. Refer to "**To start communications**".

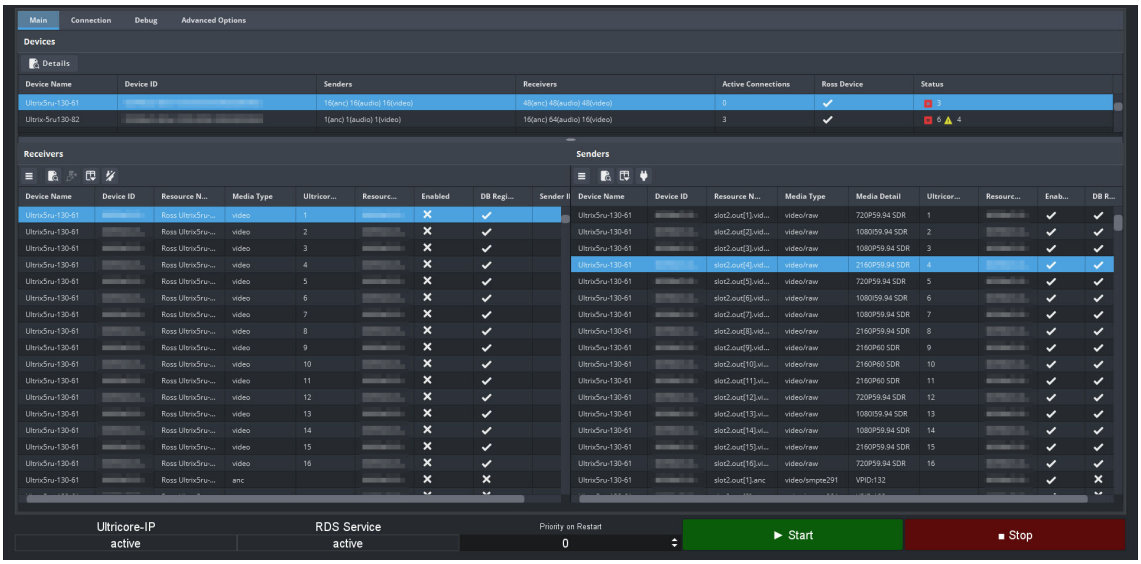
Mapping the Streams

You can map the Ultricore-IP receiver and sender streams using the options in the Main tab.

✶ This procedure does not impact the active database of the Ultricore BCS nor does it perform a crosspoint switch. This procedure is meant to map the data from one device to another in your IP system before adding the streams to your routing matrix (via the database).

To route a receiver to a sender stream

1. Display the **Ultricore-IP** interface.
2. Select the **Main** tab.
3. To select the receiver stream:
   a. Locate the **Receivers** area of the tab.
   b. Select the row(s) for each source you wish to route.
4. To select the sender stream:
   a. Locate the **Senders** area of the tab.
   b. Select the row(s) for each destination you wish to route.



5. Click  in the **Senders** area.

✶ To stop routing the streams, select the streams and click  in the **Receivers** area.

Monitoring via Ultricore-IP

The Ultricore-IP interface reports diagnostic information for each stream and NMOS device that is detected by the Ultricore BCS. This information is helpful for troubleshooting connections, verifying communications, and monitoring memory statistics, stream interrupts, and other errors. This section outlines how to access the Ultricore-IP monitoring features.

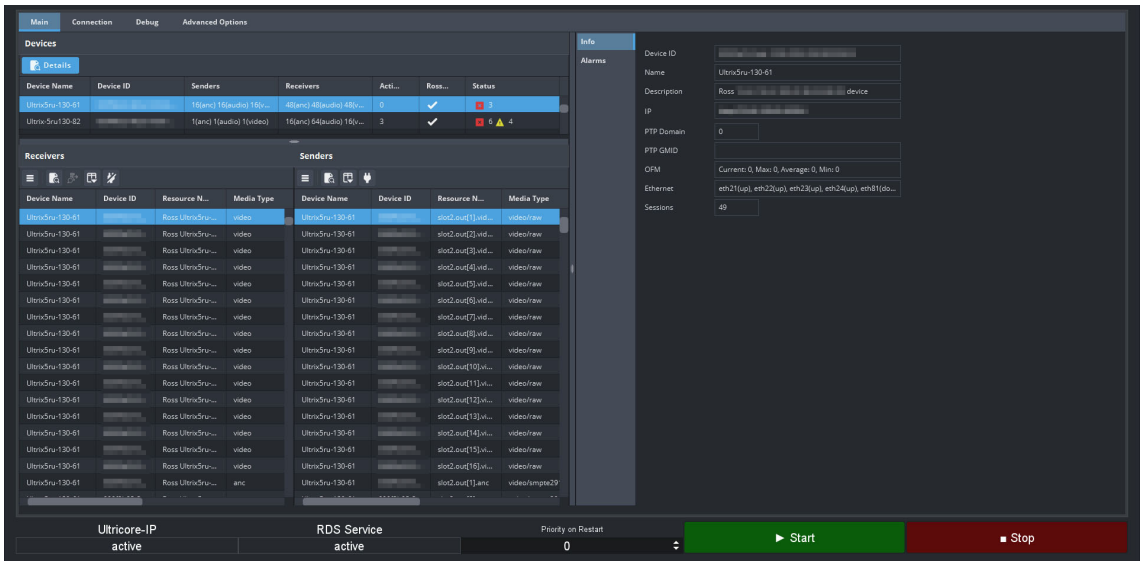
✶ Primary and redundant stream information is monitored individually.

To view the settings for a device

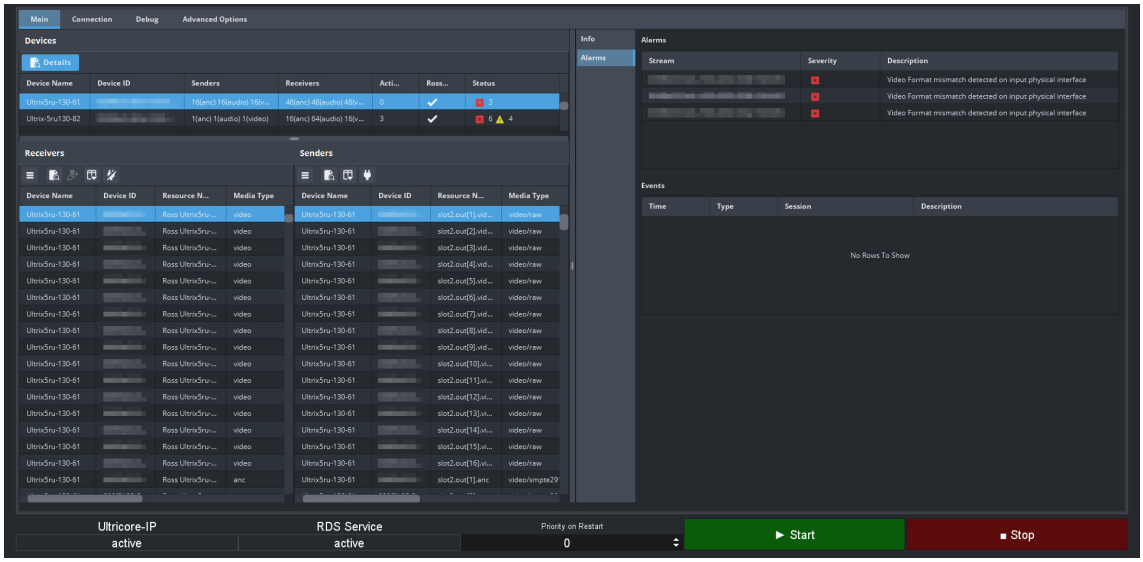
1. Display the **Ultricore-IP** interface.
2. Select the **Main** tab.

3. In the **Devices** area, select the row for the device.
4. Click **Details**.

   The **Info** and **Alarms** tabs display.
5. Use the **Info** tab to review the IP settings, PTP settings, number of sessions, and active ethernet ports.



6. Select the **Alarms** tab to review the reported error conditions. A short description is provided for each error.



To view the traffic from a device

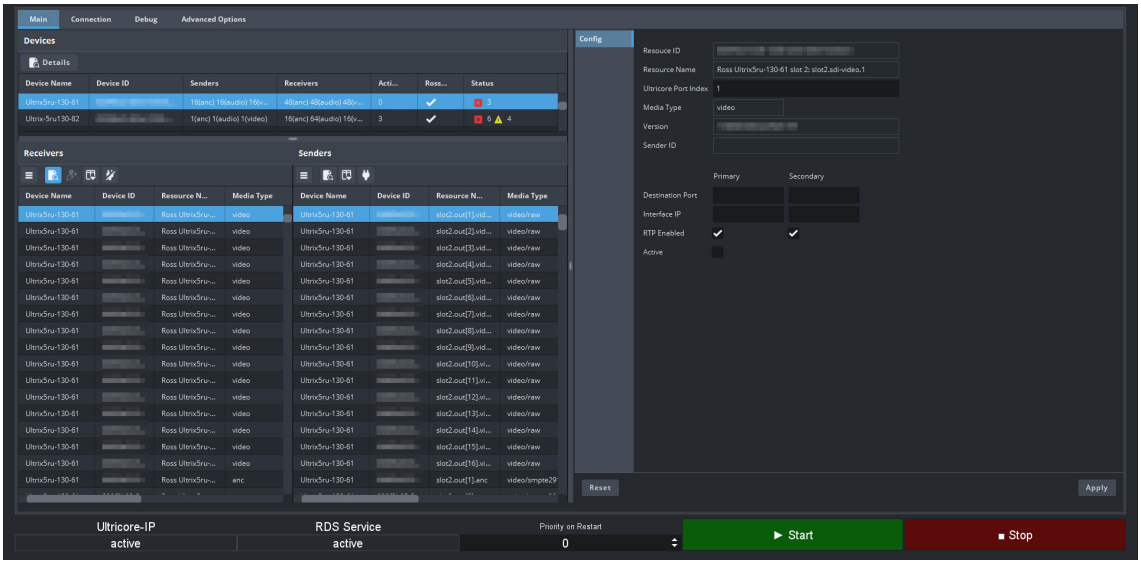
1. Select the **Debug** tab.
2. Select the **Connection Statistics** tab.

✶ You may wish to click **Refresh Statistics** to update the tab contents.

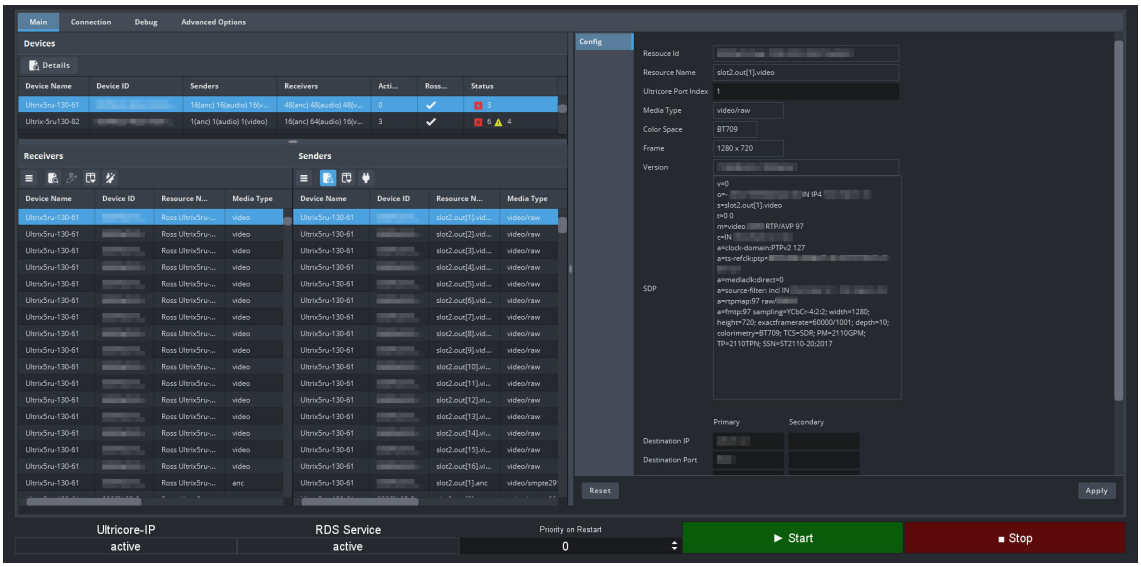
3. In the **Resources** area, locate the row for the device.

To monitor a stream

1. Display the **Ultricore-IP** interface.
2. Select the **Main** tab.
3. To monitor a receiver stream:
   a. In the **Receiver** area, select the row for the stream.
   b. Click **Details**.

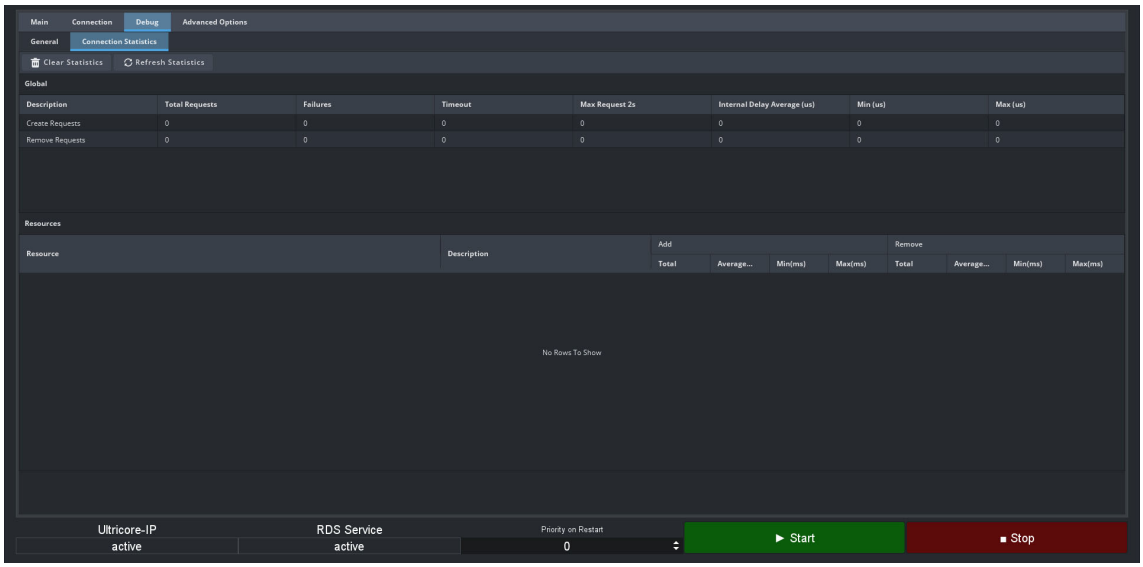


4. To monitor a sender stream:
   a. In the **Sender** area, select the row for the stream.
   b. Click **Details**.



To monitor a connection

1. Display the **Ultricore-IP** interface.
2. Select the **Debug** tab.
3. Select the **Connections Statistics** sub-tab.



To monitor the NMOS traffic

1. Display the **Ultricore-IP** interface.
2. Select the **Debug** tab.
3. Select the **General** sub-tab.

Ultricore-IP Interface Overview

The Ultricore-IP interface in DashBoard is organized into a series of tabs at the top: Main, Connections, Debug, and Advanced Options. The bottom toolbar provides read-only information and global settings. (**Figure 22**) This section summarizes these tabs, and the bottom toolbar features.

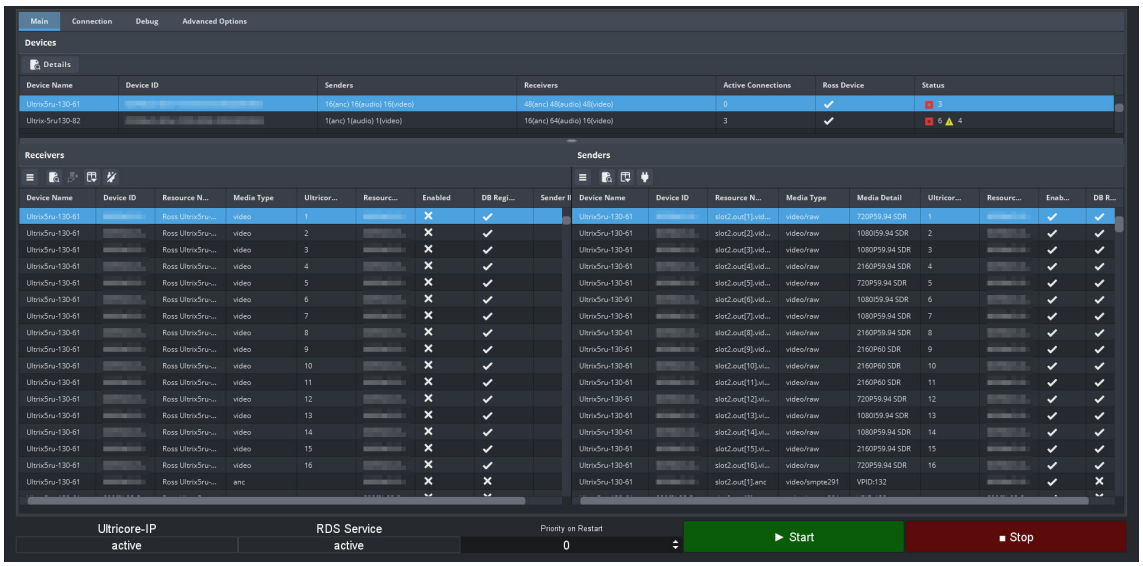


Figure 22 Example of the Ultricore-IP Interface

Main Tab

The **Main** tab is organized into three areas: Devices (top), Receivers (left), and Senders (right). **Table 11** summarizes the areas and fields of the **Main** tab.

Table 11 Ultricore-IP — Main Tab

Item	Description
Devices	
Details	Opens the Info and Alarms tabs on the right side of the window. The Info tab reports additional read-only information that is not reported on the Main tab for this device. This includes information such as the IP address, PTP Domain, number of active sessions, and detected error conditions. The Alarms tab provides additional information on any error conditions with the selected device.
Device Name	Reports the unique identifier of the device as assigned by the master NMOS device
Device ID	The Node ID assigned to the device for NMOS communication
Senders	The total number of advertised audio and video sender streams from this device
Receivers	The total number of audio and video receiver streams available from this device
Active connections	The number of active NMOS connections on this device
Ross	Indicates if the device is a Ross Video product or not
Status	A summary of the alarms detected on the device. The most severe alarm is noted and the total number of alarms is also reported.
Receivers	
Details	Opens the Config tab on the right side of the window. The Config tab provides reports read-only information that is not reported on the Main tab for this receiver stream. This includes information such as the Sender ID, Destination Port, Interface IP, Multicast IP address, and Source IP address. You can also enable/disable RTP, edit the database label, enable/disable this stream, configure the primary and secondary settings when operating in a redundancy setup.
Column Visibility	Displays a dialog that enables you to specify the Receivers columns to show/hide on the Ultricore-IP > Main interface
Connect/Disconnect	Click the Connect button to create a connection between the selected Receiver and Sender streams. Click the Disconnect button to cancel the connection between the selected Receiver and Sender streams.
Device Name	Reports the unique identifier of the device (as assigned by the master NMOS device) that is receiving this stream
Device ID	The unique ID assigned to the NMOS device that is transmitting this stream to the Ultricore-IP
Resource Name	The NMOS node label assigned to this receiver stream. When referring to an Ultrix router, the nomenclature of **`Slot.Port.ip-Type.Channel`** is used. For example, **`slot1.out[2].ip-video.ch1`**.
Media Type	Specifies the type of data that the receiver stream will transport (video, audio, ancillary, etc.)

Table 11 Ultricore-IP — Main Tab (Continued)

Item	Description
Ultricore Port Index	Specifies the label is reported in the Ultricore BCS database for this stream
Resource ID	The unique ID assigned to this receiver stream
Enabled	This receiver stream is active and is available to the Ultricore-IP
DB Registered	This receiver stream is made available to the Ultricore BCS database
Senders	
Details	Opens the Config tab on the right side of the window. The Config tab provides additional read-only information that is not reported on the Main tab for this sender stream. This includes information such as the Color Space, the aspect ratio, SDP value, and Destination IP. You can also edit the database label, enable/disable this stream, and set up a redundant system by configuring the Primary and Secondary settings.
Column Visibility	Displays a dialog that enables you to specify the Senders columns to show/hide on the Ultricore-IP > Main interface
Connect/Disconnect	Click the Connect button to create a connection between the selected Receiver and Sender streams. Click the Disconnect button to cancel the connection between the selected Receiver and Sender streams.
Device Name	Reports the unique identifier of the device (as assigned by the master NMOS device) that is sending this stream
Device ID	The ID assigned to the sending device for NMOS communications
Resource Name	The NMOS node label assigned to this sender stream. When referring to an Ultrix router, the nomenclature of **`Slot.Port.ip-Type.Channel`** is used. For example, **`slot1.out[2].ip-video.ch1`**.
Media Type	Specifies the type of data that the sender stream will transport (video, audio, ancillary, etc.)
Media Detail	Provides a summary of the resource media type (video format, audio codec, etc.)
Ultricore Port Index	Specifies the label is reported in the Ultricore BCS database for this stream
Resource ID	The unique ID assigned to this sender stream
Enabled	The sender stream is active and is available to the Ultricore-IP
DB Registered	This sender stream is made available to the Ultricore BCS database

Connection Tab

The Connection tab provides a list of all connections that are created on the system which includes: what device this connection belongs to, the ID of the receiver and sender, and any alarms that might be present on that connection.

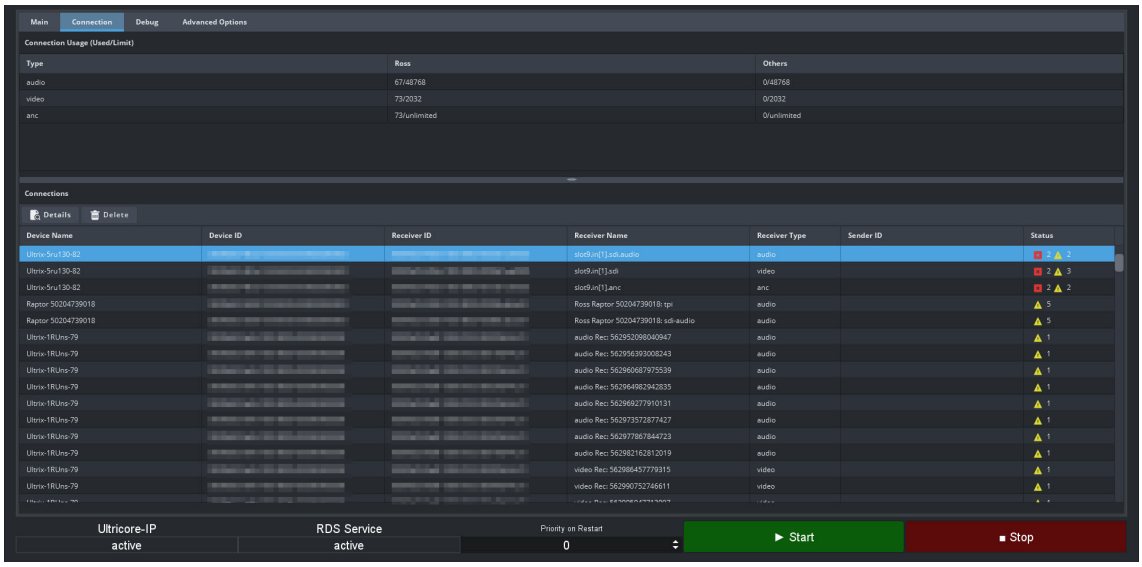


Figure 23 Ultricore-IP — Connection Tab

Table 12 summarizes the fields and menus of the **Connection** tab.

Table 12 Ultricore-IP — Connection Tab

Item	Description
Connection Usage (Used/Limit)	
Type	Specifies the type of data that the connections are transporting (video, audio, ancillary)
Ross	Reports the number of connections to a Ross Video product (such as Ultrix-IPX, NEWT-IPX, and IGGY-MADI)
Others	Reports the number of connections to a third-party NMOS device
Connections	
Details	Opens the Connections Details tab. This tab provides additional read-only information that is not reported on the tab for this connection. This includes information such as
Delete	Removes the connection from the list
Device Name	Reports the unique identifier of the device (as assigned by the master NMOS device) for a specific connection
Device ID	The ID assigned to the device for NMOS communications
Receiver ID	The unique ID assigned to this receiver stream of this connection
Receiver Name	Reports the connection label that will be reported in the Ultricore BCS database. When referring to an Ultrix router, the nomenclature of **`Slot.Port.ip-Type.Channel`** is used. For example, **`slot1.out[2].ip-video.ch1`**.
Receiver Type	Specifies the type of data that the connection transports (video, audio, ancillary)
Sender ID	The unique ID assigned to the sender stream of this connection
Status	Provides a summary of the error conditions detected on the specified connection. To view a detailed summary of the errors, select the row for the connection and click .

Debug Tab

The Debug tab enables you to monitor and troubleshoot the RDS session(s) of the Ultricore BCS. There are two sub-tabs: General and Connection Statistics.

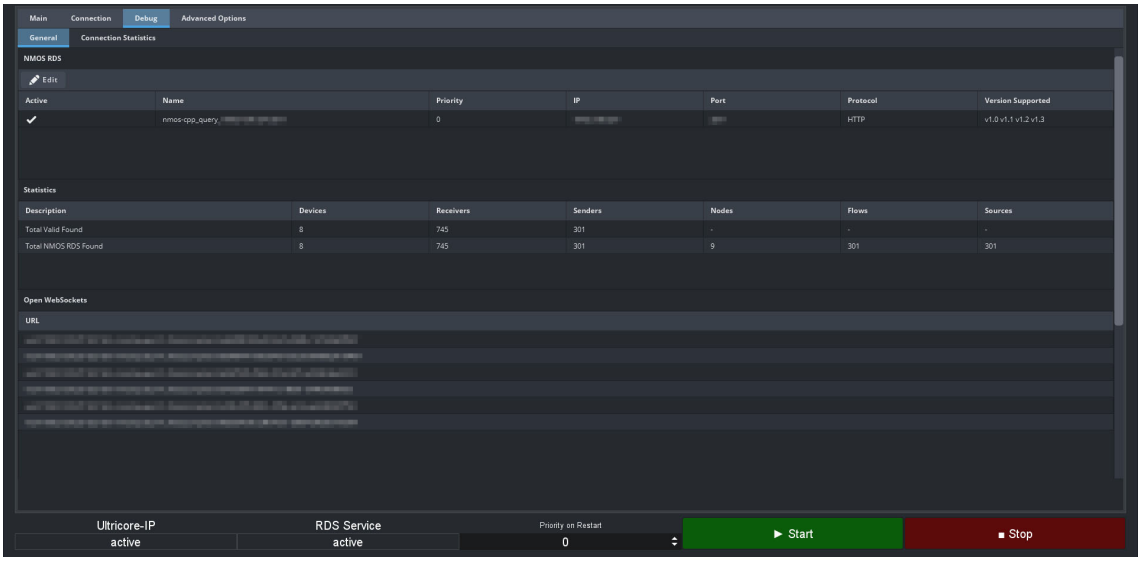


Figure 24 Ultricore-IP — Debug > General Tab

Table 13 summarizes the fields and menus of the **Debug** > **General** tab.

Table 13 Ultricore-IP — Debug > General Tab

Item	Description
NMOS RDS	
Active	Determines if the specific RDS session is enabled or disabled
Name	Reports the unique identifier of the detected RDS
Priority	The RDS priority (selected from a range of 0 to 99 where 0 is the highest priority). Note that when there is more than one RDS with the same priority, problems may arise on the network because devices and controllers cannot differentiate RDS with the same priority and they might connect to different ones, generating situations where the controllers do not see the devices.
IP	Reports the IP Address of the detected RDS
Port	Reports the UDP port of the detected RDS
Protocol	Reports the transfer protocol the RDS is using for its Application Programming Interface (API)
Version Supported	Indicates the NMOS version the RDS can support for communications
Statistics	
This area reports the resources found on the RDS it is connected to and how many of those devices the Ultricore BCS was able to parse as valid. If the device type or the resource type is not valid or not recognized by the Ultricore BCS, the Total Valid Found field will report smaller numbers than the line reporting the numbers found on the RDS.	

Table 13 Ultricore-IP — Debug > General Tab (Continued)

Item	Description
Open Web Sockets	
Ultricore-IP connects to the RDS using web sockets. This area lists the detected open connections. For example, if you select **Advanced Options** and set the NMOS IS-04 version to v1.2 and v1.3, this field reports the entries for each connected version.	

Table 14 summarizes the fields and menus of the **Debug** > **Connection Statistics** tab.

Table 14 Ultricore-IP — Debug > Connection Statistics Tab

Item	Description
Clear Statistics	Resets all fields on the Connection Statistic tab
Refresh Statistics	Updates the fields on the Connection Statistic tab
Global	
Description	Provides a summary of the type of request the Ultricore BCS issued on all connections
Total Requests	Reports the total number of requests the Ultricore BCS sent of this type via all connected RDS
Failures	Reports the number of failed attempts the Ultricore BCS made of this request type via all connected RDS
Timeout	Reports how long the Ultricore BCS waited before declaring the request ignored and re-sending the request on the RDS
Max Request 2s	Reports the number of requests the Ultricore BCS sent of this type within a 2 second period
Internal Delay Average (us)	Reports the average delay length between issuing the request and the acknowledge that it was received
Min (us)	Reports the lowest number of requests the Ultricore BCS issued
Max (us)	Reports the highest number of requests the Ultricore BCS issued
Resources	
Resource	Reports the Device ID of a connected NMOS device
Description	Reports if the connection is a transceiver, receiver, or sender, and the type of data (audio, video, ancillary)
Add	This area summarizes the connection statistics for all connection requests made by this resource
Remove	This area summarizes the disconnect/remove statistics for all connection requests made by this resource

Advanced Options Tab

The **Advanced Options** tab provides additional settings for RDS discovery, NMOS communication, and connection management. You can also create connections to specific RDS and NMOS devices in your IP system. These settings are organized into three sub-tabs: General, RDS, and Static NMOS Devices.

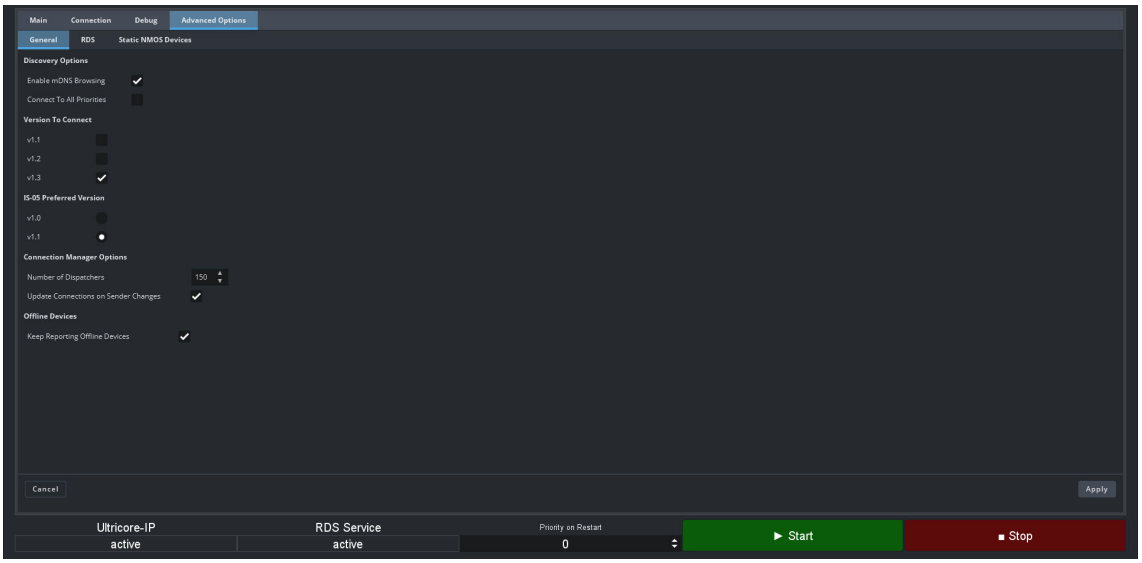


Figure 25 Ultricore-IP — Advanced Options > General Tab

Table 15 summarizes the fields and menus of the **Advanced Options** > **General** tab.

Table 15 Ultricore-IP — Advanced Options > General Tab

Item	Description
Discovery Options	
Enable mDNS Browsing	Select the box to configure the Ultricore BCS to use mDNS to automatically register in an RDS on the network with the lowest priority; or Clear the box to allow the user to set an RDS IP in the Registry Service Address field and forces the Ultricore BCS to register to this specific RDS.
Connect to all Priorities	Select the box to enable the Ultricore BCS to communicate with devices registered in the RDS at any priority; or Clear the box to configure the Ultricore BCS to communicate with devices registered in the RDS at a specific priority
Version to Connect	
Specifies the version of NMOS the Ultricore BCS will use to communicate with devices on the network	
IS-05 Preferred Version	
Specifies the NMOS IS-05 connection service the Ultricore BCS will use to communicate	
Connection Manager Options	
Number of Dispatchers	Sets the maximum number of connections that can be triggered in parallel. Each dispatcher can handle one connection at a time
Update Connections on Sender Changes	Select this box to enable the SDP Updates feature. When an active sender, that is associated with any receiver, is updated, the system will issue a connection update to all affected receivers. This update includes the latest information about the sender, including the updated SDP data.

Table 15 Ultricore-IP — Advanced Options > General Tab (Continued)

Item	Description
Offline Devices	
Keep reporting offline devices	If a connection is lost to an NMOS device, the Ultricore BCS will still reports the device and its streams, but the device is noted as inactive in Debug > General tab.

Table 16 summarizes the fields and menus of the **Advanced Options** > **RDS** tab.

Table 16 Ultricore-IP — Advanced Options > RDS Tab

Item	Description
User Defined RDS	
Add	Displays the Add RDS dialog. Use this dialog to manually define a specific Registration and Discovery Service (RDS). This will force the Ultricore BCS to register to this specific RDS.
Name	Reports the unique identifier of the specified RDS
Address	Reports the IP address of the specified RDS

Table 17 summarizes the fields and menus of the **Advanced Options** > **Static NMOS Devices** tab.

Table 17 Ultricore-IP — Advanced Options > Static NMOS Devices Tab

Item	Description
Static NMOS Devices	
Add	Displays the Add Static NMOS Device dialog. Use this dialog to specify the IS-04 URL of a device that you wish to connect to. This is useful if you wish to add a device that is available on a separate RDS system.
Device Name	Reports the unique identifier of the device (as assigned by the master NMOS device) for a specific connection
Device ID	Reports the ID assigned to the device for NMOS communications
IS-04 URL	Reports the IP address of this NMOS device
Polling Period	
Polling Period	Determines how often the Ultricore BCS will contact this device to verify the connection
Reset	Sets the Polling Period to the previous value
Apply	Updates the Polling Period with the edited value

Bottom Toolbar

The bottom toolbar of the Ultricore-IP interface provides a quick method for establishing communication between the Ultricore BCS and your RDS. You can also choose to stop communication, or restart as required.

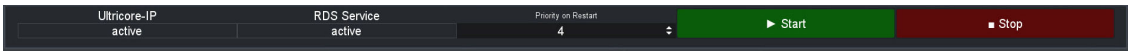


Figure 26 Example of the Bottom Toolbar on the Ultricore-IP Interface

Table 18 summarizes the bottom toolbar features of the Ultricore-IP interface.

Table 18 Ultricore-IP — Bottom Toolbar

Item	Parameters	Description
Ultricore-IP		
Status (read-only)	active	• Ultricore-IP is running • If an RDS is present on the network, Ultricore-IP will connect to it and show the content found for the selection NMOS versions it is configured to
	inactive	Ultricore-IP does not detect an RDS running on the network
RDS Service		
Status (read-only)	active	The RDS instance for this Ultricore BCS is running and waiting for devices to register
	inactive	The RDS instance for this Ultricore BCS is disabled and not available for use
Priority on Restart		
#	After the Restart button is selected, the Ultricore BCS uses mDNS to automatically register in an RDS on the network with the specified priority	
Start	Communication is established between Ultricore BCS and devices in the NMOS system of your network. The menus and fields in the Ultricore-IP tab will be automatically updated. Communication is established between Ultricore BCS and RDS in your network. The menus and fields in the Ultricore-IP tab will be automatically updated.	
Stop	Stops communication between Ultricore BCS and devices in the NMOS system. The menus and fields in the Ultricore-IP tab are no longer updated. Stops communication between Ultricore BCS and RDS in your network. The menus and fields in the Ultricore-IP tab are no longer updated.	
Restart	Disconnects and re-connects communication between Ultricore BCS and the devices in the NMOS system. Disconnects and re-connects communication between Ultricore BCS and the RDS in your network.	

Enabling a Service

The Ultricore BCS supports a set of third-party communications protocols that allow the Ultricore BCS to communicate with devices in your routing system. Before creating a connection point to each device, you must first enable the required protocol(s) on the Ultricore BCS, and configure any settings required for communication. This chapter outlines how to enable a communication service (protocol), and configure the additional settings on the Ultricore BCS for each protocol (if required). A summary of the supported commands is also provided.

If you have questions about the operation of your Ross devices, contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

For More Information on...

- establishing a connection point to a device in your routing system, refer to the ***Ultrix and Ultricore Database Guide***.

Enabling a Communication Service

Use the options in the System > Configuration > Connections > Services interface to enable or disable each required service (protocol). This allows the Ultricore BCS to communicate with an external device that uses each enabled third-party protocol.

To enable a service

1. Locate the Ultricore BCS node in the Tree View of DashBoard
2. Expand the Ultricore BCS node to display a list of sub-nodes.
3. Expand the **System** sub-node.
4. Expand the **Configuration** sub-node.
5. Double-click the **Connections** sub-node.
6. Select the **Services** tab.

   The Services tab lists the available communications protocols and provides options for enabling/disabling each protocol for the Ultricore BCS.

✶ Some services require that a license key is also enabled. Refer to "**Software License Keys**".

7. Enable or disable a service by selecting or clearing the associated box. Choose from the following:
   - SSH service — Enables the ability to log onto the Ultricore BCS via an SSH server. Secure Shell (SSH) Login is a client-server protocol used by system administrators to securely log onto remote systems and execute commands over an unsecured network. SSH may also be used by Ross Technical Support for advanced troubleshooting.
   - FTP service — Enables the ability to communicate with the Ultricore BCS over an FTP connection.
   - Walkabout — Enables the Ultricore BCS to communicate with Ross Video devices in the Walkabout system.
   - Ember Plus — Enables the Ultricore BCS to communicate with a third-party control system via the Ember+ media distribution protocol.
   - GVG Native — Enables the Ultricore BCS to communicate via the GVG Series 7000 Native protocol and is available over an RS-422 or RS-232 serial connection, or ethernet connection.
   - Nvision — Enables the Ultricore BCS to communicate via a limited sub-set of the NVISION serial NP0010 protocol, and the NVISION NP16 ethernet protocol.

- Probel SW-P-08 — Enables the Ultricore BCS to communicate via the Probel SW-P-08 protocol. This protocol is available over an RS-422 or RS-232 serial connection, as well as an ethernet connection.
- RossTalk — Communications via the RossTalk protocol (a plain text based protocol that allows control of Ross Video equipment).
- TSL — Enables the Ultricore BCS to communicate via the TSL UMD v3.1, TSL UMD v4.0, and TSL UMD v5.0 protocols.
- NK/RCP — Enable this option if there are Ross NK series devices or signal types the Ultricore BCS itself does not handle. The Ross NK series devices must be connected to the ethernet network by virtue of an Ross NK-IPS or NK-NET devices to enable communication with the Ultricore BCS.

✶ Select the Enable Upgrades & Support Access option if you wish to upgrade the Ultricore BCS or as directed by Ross Technical Support. This option is disabled by default.

8. Click **Apply**.

Configuring the Service Settings

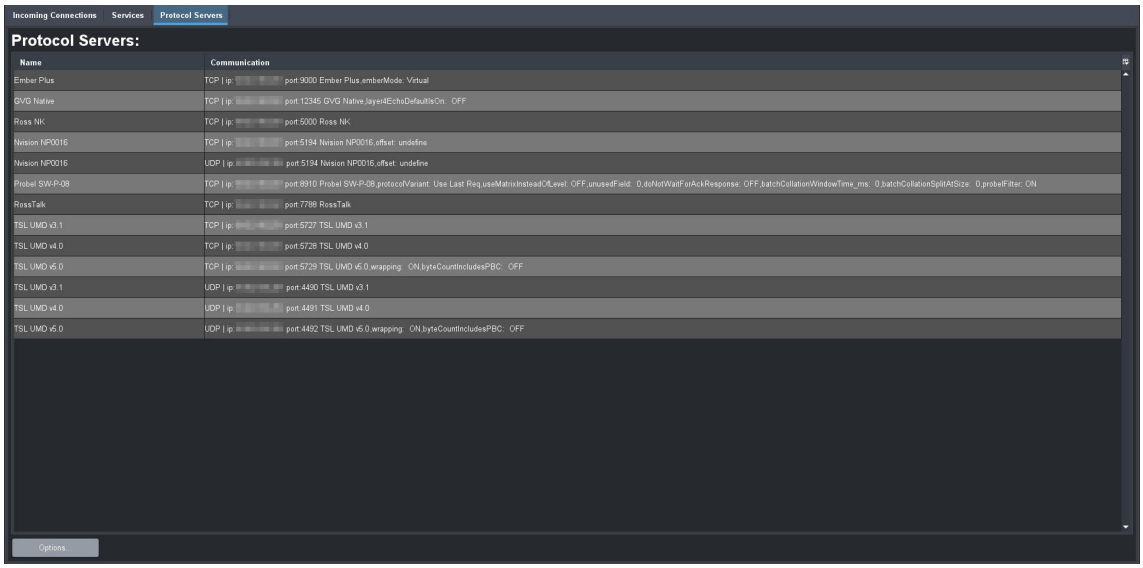
The Protocol Servers tab lists the currently active servers running in the routing system. This tab is auto-populated based on the external devices on the same network as your router and using the protocols enabled in the Services tab. Some services require you to configure additional settings on the router. This section briefly summarizes those additional settings.

For More Information on...

- the supported protocols, refer to "**Server Options and Supported Commands**".

To configure the protocol settings

1. Locate the Ultricore BCS node in the Tree View of DashBoard
2. Expand the Ultricore BCS node to display a list of sub-nodes.
3. Expand the **System** sub-node.
4. Expand the **Configuration** sub-node.
5. Double-click the **Connections** sub-node.
6. Select the **Protocol Services** tab.



7. Click **Options** (located in the bottom toolbar).

   The **Server Options** dialog opens.

8. Locate the options for the third-party protocol you wish to configure for communications.
9. Refer to the following sections for a summary of the settings based on the protocol.
10. Click **Apply**.

    The **Server Options** dialog closes and the new settings are applied.

Server Options and Supported Commands

Some protocols require additional settings be configured on the router. The following sections outline these required settings based for each protocol.

GVG Series 7000 Native Protocol Commands

The router supports the GVG Series 7000 Native protocol and is available over an RS-422 or RS-232 serial connection, as well as an ethernet connection. Refer to **Table 19** for connection details.

Table 19 Default GVG Native Connection Types

	Setting
Serial	
Connection Type	RS422 or RS232
Baud	38400
Data Bits	8
Parity	None
Stop Bits	1
Ethernet	
Port (incoming)	12345
Port (outgoing)	12345[a]

a. For outgoing connections, port 12345 is the default value but is user configurable.

Table 20 summarizes the Server Options for the GVG Series 7000 Native protocol.

Table 20 Server Options — GVG Series 7000 Native

Option	Setting	Notes
L4 Echo	Yes	Send command acknowledgments on protocol layer 4 (Ethernet only)
	No	Do not send acknowledgments. This is the default.
Sequence More to Come Character	#	Enables the user to assign a number to the `seq_flag` field in a packet that will indicate more messages to come. The default value is 9. A value of 0 (zero) indicates the last or only packet.

Table 20 Server Options — GVG Series 7000 Native (Continued)

Option	Setting	Notes
Send Trailing HT	Yes	Includes the trailing <HT> character (Horizontal Tab (0x09)) in the packet
	No	The trailing <HT> character is not included in the packet
Send nbr_sources Leading Zero	Yes	Always forces the nbr_sources field to be 2 ASCII characters (e.g. 1 becomes 01). This supports fragmentation of large message streams.
	No	Allows the nbr_sources field to be a single ASCII character
Repeated Packet Holdoff (ms)	#	Ultricore BCS detects repeated identical packets, and will skip processing if the packets are repeated within the specified delay. The default is 0.

Refer to **Table 21** for a list of supported GVG Native Protocol commands.

Table 21 GVG Native Protocol Commands

Message Command	Description	Notes
BK[,parameter]		
BK,D	Force next QD command to return status of all destinations	Clears the flags associated with the D,no_parameter command. After BK,D is sent, the next QD,no_parameter command will result in destination statuses or all destinations being returned.
BK,E	Request status of level 4 echo setting	
BK,E,ON	Set level 4 echo to on	An err=00 response will be returned for successful commands that do not generate their own response (e.g. Take commands). This is a per session setting.
BK,E,OFF	Set level 4 echo to off (default)	No response will be given for commands that do not generate their own response.
PR,dest_name,level_bitmap	Protects a specific destination from having its source changed	ER error-code response is currently not supported.
QC[,dest_name]	Query Combined Destination status by name	
QD[,dest_name]	Query Destination status by name	No information is returned for unmatched destination levels
Qd[,dest_name]	Query Destination status by name	Sets response src_name to NO_XPT for unmatched destination levels
QI,destIndex,lvlIndex	Query Destination status by index[a]	
Qi,destIndex,lvlIndex	Query Destination status by index[a]	The srcIndex returned will be 0xfffe if an error condition applies to the crosspoint being reported.
QJ[,destIndex]	Query Destination status by index[a]	No information is returned for unmatched destination levels
Qj	Query Destination status by index[a]	Sets response srcIndex to 0xFFFe for unmatched destination levels
QN,parameter		
QN,S	Query source names/labels	As defined inactive database
QN,D	Query destination names/labels	As defined inactive database
QN,L	Query level names/labels	As defined inactive database

Table 21 GVG Native Protocol Commands (Continued)

Message Command	Description	Notes
QN,IS	Query names via source index[a]	
QN,ID	Query names via destination index[a]	
QT	Query date and time[a]	
TA,dest_name,nbr_sources,src_name_entry1[,...src_name_entryn]	Takes sources (on specified levels) to specified destination, by name rather than index	Src_name_entryn = src_name,level_bitmap
TD,dest_name,src_name_entry	Takes same source to all or specified levels	Src_name_entryn = src_name[,levelbitmap] No levelbitmap=all destination levels
TI,destIndex,srcIndex[,levelIndex]	Request take by index with level index[a]	
TJ,destIndex,nbr_sources,srcIndex,level_bitmap[,...,srcIndex,level_bitmap]	Takes sources (on specified levels) to specified destinations by index rather than name; allows breakaways	
TS,salvo_name	Request Take Salvo	TS,salvo_name
UP,dest_name,level_bitmap	Removes Protect from specified destination	ER, error-code response is currently not supported.

a. Zero-based hex logical index numbering.

For More Information on...

- these commands, refer to the GVG protocol documentation.

NVISION Commands

This section outlines the NVISION protocol commands supported by the router.

✶ Ensure that the Ultricore-NVISION license is installed for your router. Refer to the ***Ultrix User Guide*** for details.

Table 22 summarizes the settings in the **Server Options** dialog for the NVISION protocol.

Table 22 Server Options — NVISION Protocol

Option	Setting	Notes
Offset	0	The Ultricore BCS level matches the NVISION level
	1	The Ultricore BCS level is the NVISION level plus 1

NVISION NP16 Ethernet Protocol

The router supports the NVISION NP16 Ethernet protocol. **Table 23** outlines the default values for the router when using NP16.

Table 23 Default Connection Types — NVISION NP16

	Setting
TCP Port	5194

NP16 Commands

The NP16 protocol defines the message format as follows:

`Protocol ID | Sequence Number | byte count | Command`

Each field consists of a 32bit number where:

- **`Protocol ID`** — 0x0000000C (Router Control Protocol)
- **`Sequence number`** — controller generated and added to Ultricore BCS response message
- **`byte count`** — total number of bytes in message including header (<8176)
- **`Command`** — refer to **Table 24**.

✶ The protocol is zero based, meaning that destination 0 in the protocol relates to destination ID#1 in Ultrix. This is true for sources, destinations, and level values.

Refer to **Table 24** for a list of supported NP16 commands.

Table 24 NP16 Protocol Commands

Message		
Command	**Description**	**Notes**
0x0000 0050	Performs a TAKE	
0x0000 0051	Set Output LPR	Sets or releases a lock or protect on a destination
0x0000 0052	Get Status of Outputs	Retrieves the crosspoint status
0x0000 0059	Router Partition Information	
0x0000 005E	Crosspoint Tally	Retrieves the crosspoint status
0x0000 0070	Machine Control Take	Format 1 only

NVISION NP0010 Serial Protocol

The router supports a limited sub-set of the NVISION serial NP0010 protocol.

Table 25 outlines the router default values for an NP0010 serial connection.

Table 25 Default Connection Types — NVISION NP0010 Serial

	Setting
Connection Type	RS232, RS422
Baud	9600, 19200, 38400, 56700, 115200
Data Bits	8
Parity	No
Stop Bits	1

Refer to **Table 26** for a list of supported NP0010 commands.

Table 26 NP0010 Protocol Commands

Message		
Command	**Description**	**Notes**
0x50	Take	Non-timestamped version only
0x51	Destination status	Get destination status
0x55	Lock destination	Assert a destination lock
0x56	Protect destination	Assert a destination protect

Table 26 NP0010 Protocol Commands (Continued)

Message Command	Description	Notes
0x58	Release destination lock/protect	Releases the destination lock and protect
0x66	Destination LPR state	Get destination locked/protect/released status

Probel SW-P-08 Protocol Commands

The router supports the Probel SW-P-08 protocol and is available over an RS-422 or RS-232 serial connection, as well as ethernet connection. **Table 27** provides the default values for this protocol.

Table 27 Default Probel SW-P-08 Connection Types

	Setting
Serial	
Connection Type	RS422 or RS232
Baud	38400
Data Bits	8
Parity	None
Stop Bits	1
Ethernet	
Port (incoming)	8910
Port (outgoing)	8910[a]

a. For outgoing connections, port 8910 is the default value but is user configurable.

✶ When Ultricore BCS is the controller, Probel SW-P-08 System 1 is implemented. When Ultricore BCS is not the controller, Probel SW-P-08 System 3 is implemented (where equipment functions exist).

Table 28 summarizes the settings in the **Server Options** dialog for the Probel SW-P-08 protocol.

Table 28 Server Options — Probel SW-P-08 Protocol

Option	Setting	Notes
Protocol Variant	Non-extended	Use non-extended commands only
	Extended	Use extended commands only
	Use Last Request	Use command set as per last received command format (e.g. if received a non-extended command, reply in a non-extended format). This is the default.
Matrix Mode	Yes	Swap matrix and level fields
	No	Do not swap matrix and level fields. This is the default.
Unused Field	#	Send number (0-15) in either Level or Matrix field - which ever is not used as per Matrix Mode setting. The default is 0.

Table 28 Server Options — Probel SW-P-08 Protocol (Continued)

Option	Setting	Notes
Do not wait for ACK	Yes	Ultricore BCS will not wait for message acknowledgments between connect responses
	No	Ultricore BCS will wait for message acknowledgments between connect responses. This is the default.
Batch Collate Time[a]	# milliseconds	Wait up to 100 milliseconds for multiple commands received before processing. The default is 0 (which disables this feature).
Batch Collate Split Size	# received commands	Wait up to 100 received commands before processing. The default is 0 (which disables this feature).
Repeated Packet Holdoff (ms)	#	Ultricore BCS detects repeated identical packets, and will skip processing if the packets are repeated within the specified delay. The default is 0.

a. When both Batch Collate Split Size and Batch Collate Time are both active, the option that occurs first will release the batch, and the Batch Collate Split Size and the Collate Time values are reset.

Table 29 lists the supported Probel SW-P-08 Serial Protocol commands.

Table 29 Probel SW-P-08 Native Protocol Commands

Request Message		Response Message		
Cmd ID	Description	Cmd ID	Description	Notes
01	Crosspoint Interrogate	03	Crosspoint Tally	Get single crosspoint status
02	Crosspoint Connect	04	Crosspoint connected	Take single crosspoint
10	Protect Interrogate	11	Protect Tally	Get destination protect status
12	Protect Connect	13	Protect connected	Set destination protect
14	Protect Disconnect	15	Protect dis-connected	Turn off destination protect
17	Protect Device Name Request	18	Protect Device Name Response	Get name of device that hold protect
19	Protect Tally Dump Request	20	Protect Tally Dump	Get all protect status
21	Crosspoint Tally Dump Request	22, 23	Crosspoint Tally Dump	Get all crosspoint status Cmd22: Byte max dest 191 Cmd23: Word max. dest. 65535
97	Implementation Request	98	Implementation Status	Get list of commands supported
100	All Source Names Request	106	Source Name Response	Get all source names (8 char. max.)
101	Single Source Name Request	106	Source Name Response	Get single source names (8 char. max.)
102	All Destination Association Name Request	107	Destination Association Name Response	Get destination names (8 char. max.)
103	Single Destination Association Names Request	107	Destination Association Name Response	Get single destination name (8 char. max.)
104	All UMD Labels Request	108	UMD Label Response	Only one set of labels is currently supported. UMD Labels replicate source labels. (16 char. max.)

Table 29 Probel SW-P-08 Native Protocol Commands (Continued)

Request Message		Response Message		
Cmd ID	**Description**	**Cmd ID**	**Description**	**Notes**
105	Single UMD Labels Request	108	UMD Label Response	Get single source label (16 char. max.)
120	Crosspoint Connect On Go Group Salvo	122	Crosspoint Connect On Go Group Salvo Acknowledge	Add crosspoint to preset group
121	Crosspoint Go Group Salvo	123	Crosspoint Go Done Group Salvo Acknowledge	Switch/clear preset group
124	Crosspoint Salvo Group Interrogate	125	Crosspoint Group Salvo Tally	Preset group status
EXTENDED				
129	Extended Crosspoint Interrogate	131	Extended Crosspoint Tally	Get crosspoint status
130	Extended Crosspoint Connect	132	Extended Crosspoint Connected	Take single crosspoint
138	Extended Protect Interrogate	139	Extended Protect Tally	Get destination protect status
140	Extended Protect Connect	141	Extended Protect Connected	Protect a destination
142	Extended Protect Disconnect	143	Extended Protect Disconnected	Turn off protect for a destination
147	Extended Protect Tally Dump	148	Extended Protect Tally Dump Message	Get all protect status for given level
149	Extended Crosspoint Tally Dump	151	Extended Crosspoint Tally Dump Word Message	Get destination status for given level
228	Extended All Source Names	234	Extended Source Name Response	Get source names (8 char max.)
229	Extended Single Source Name	234	Extended Source Name Response	Get single source name (8 char max.)
230	Extended All Destination Association Names	235	Extended Destination Association Names Response	Get all destination names (8 char. max.)
231	Extended Single Destination Association Name	235	Extended Destination Association Names Response	Get single destination name (8 char. max.)
232	Extended Single UMD Label Request	236	Extended UMD Labels Response	Get all source labels (16 char. max.)
233	Extended Single UMD Label Request	236	Extended UMD Labels Response	Get single source label (16 char. max.)
248	Extended Crosspoint Connect On Go Group Salvo	250	Extended Crosspoint Connect On Go Group Salvo Acknowledge	Preset group acknowledge
124	Crosspoint Group Salvo Interrogate	253	Extended Crosspoint Group Salvo Tally	Preset group status

RossTalk Commands

The RossTalk protocol is a plain text based protocol that allows control of Ross Video equipment.

✶ Each command should be terminated by a carriage return and a line feed (CR/LF).

To send RossTalk commands to the router

1. Create a network connection to the Ultricore BCS on **Port 7788**.
2. At the prompt, enter the commands you wish to send. Refer to **Table 30** for a list of supported commands.

Table 30 RossTalk Protocol Commands

Message		
Command	**Description**	**Notes**
GPI ##	Execute the salvo number corresponding to the numerical ## extension of the command	For example, GPI 04 triggers the salvo <salvo_name>[4] as listed in the Ultricore BCS database
TIMER ##:RUN	Request Timer ID to start/resume	
TIMER ##:STOP	Request Timer ID to stop	
TIMER ##:PAUSE	Request Timer ID to pause	
TIMER ##:END	Request Timer ID to end	
TXTLABEL ID:<id>; TEXT:<text>; BGCLR:<bgcolor>; TXTCLR:<textcolor>	Where: • <id> is a unique "rosstalk id" associated with an Ultriscape RossTalk display object. This field is compulsory. • <text> is the text to be displayed. This field is optional. • <bgcolor> is the background color of the text label. Specified in comma separated RGB format using 2 byte hex values (e.g. RR,GG,BB). This field is optional. • <textcolor> is the text color of the text label. Specified in comma separated RGB format using 2 byte hex values (e.g. RR,GG,BB). This field is optional.	There is a 20 character maximum. Messages with only the id field will be ignored. The following is an example of a message: TXTLABEL ID:25; TEXT:CAM1; BGCLR:0x00,0x00,0x00; TXTCLR:0xFF,0xFF,0xFF Note that <bgcolor> and <textcolor> are specified as R,G,B triplet. For example: • 255,255,255 or 0xff,0xff,0xff is white • 0,0,0 or 0x0,0x0,0x0 is black • 255,0,0 or 0xff,0x0,0x0 is red
XPT D:<dest> S:<source> I:<user_id> [L:<levels>]	Crosspoint command for a router TAKE where: • <dest> is the logical destination ID from the active database (1-based) • <source> is the logical source ID from the active database (1-based) • <user_id> is the numeric user/panel ID that will be used to request the switch • <levels> is an optional parameter specifying comma-separated list of 1-based level IDs to switch (for breakaway, e.g. L:1,2,4). If no levels are specified, a follow switch (all valid levels) is requested. • <levels> supports ranges specified by two numbers separated by dash (e.g. L:1-16)	Range start value must be less than the end value Single levels and ranges can be mixed in the list (e.g. L:1,3,4-8,12-17) There are no spaces between numbers or ranges Invalid numbers or improperly specified ranges will be ignored An argument is separated from its value using a single colon (:) Command arguments are separated single spaces The arguments may be specified in any order, (e.g. these are equivalent: XPT D:1 S:4 I:2 and XPT S:4 I:2 D:1) Examples: • ID 7 requesting to switch Dest 2 to Source 1 on Levels 1,3,5 and 12-16 • XPT I:7 D:2 S:1 L:1,3,5,12-16

For More Information on...

- adding a RossTalk label to an Ultriscape layout, refer to the ***Ultriscape User Guide***.

TSL UMD Protocol v3.1 Commands

Table 31 outlines the default values for the router when using TSL UMD v3.1.

Table 31 Default Connection Types — TSL UMD v3.1

	Setting
Serial	
Connection Type	RS422
Baud	38400

Table 31 Default Connection Types — TSL UMD v3.1 (Continued)

	Setting
Data Bits	8
Parity	Even
Stop Bits	1
Ethernet	
TCP Port	5727
UDP Port	4490

Protocol Implementation

The router implements the protocol with the following structure:

```
DisplayID|Control|DisplayData
```

Table 32 lists the supported TSL UMD Protocol v3.1 commands.

Table 32 TSL UMD Protocol v3.1 Commands

Protocol Breakdown	Description	Ultriscape System Use
Display Address	0 - 126 display identification enumeration	DisplayID associated with source or destination
Control Byte		
Bit 0	Tally 1 status (1=on, 0=off)	Tally 1 (Red)[a]
Bit 1	Tally 2 status	Tally 2 (Green)[a]
Bit 2	Tally 3 status	Not used
Bit 3	Tally 4 status	Not used
Bits 4-5	Brightness value	Not used
Bit 6	Reserved	Not used
Bit 7	0	Not used
Display Data	16 ASCII display characters (20h-3Eh)	UMD display text

a. Green/Red may be swapped by configuring the Global Tally Settings in the Ultriscape Head interface.

Refer to **Table 33** when using TSL UMD v3.1 and configuring PiP Tallies in an Ultriscape Head.

Table 33 Ultriscape Tally Display — TSL UMD v3.1

Red Tally	Green Tally	Display
ON	ON	RED IS ON
ON	OFF	RED IS ON
OFF	ON	GREEN IS ON
OFF	OFF	OFF (no tallies are lit)

TSL UMD Protocol v4.0 Commands

Table 34 outlines the default values for the router when using TSL UMD v4.0.

Table 34 Default Connection Types — TSL UMD v4.0

	Setting
Serial	
Connection Type	RS422
Baud	38400
Data Bits	8
Parity	Even
Stop Bits	1
Ethernet	
TCP Port	5728
UDP Port	4491

Protocol Implementation

The router implements the protocol with the following structure:

```
Header | Control | DisplayData | VBC | XData
```

Table 35 lists the supported TSL UMD Protocol v4.0 commands.

Table 35 TSL UMD Protocol v4.0 Commands

Protocol Breakdown	Description	Ultriscape System Use
Header	0x80 + 0 - 126 display address	DisplayID associated with source or destination
Control Byte		
Bit 0	Tally 1 status (1=on, 0=off)	Not used
Bit 1	Tally 2 status	Not used
Bit 2	Tally 3 status	Not used
Bit 3	Tally 4 status	Not used
Bit 4-5	Brightness value	Not used
Bit 6	0=display data, 1=command data	Display data only (0)
Bit 7	0	Not used
Display Data	16 ASCII display characters (20h - 7Eh)	UMD display text
VBC		

Table 35 TSL UMD Protocol v4.0 Commands (Continued)

Protocol Breakdown	Description	Ultriscape System Use
Bits 3-0	Byte count of XData	
Bits 6-4	Minor protocol version (v4.0=0)	
Bit 7	0	
XData1		
Bits 0-1	Right Hand tally value[a]	Not implemented
Bits 2-3	Text display value[a]	Sets text background color
Bits 4-5	Left hand tally value[a]	Displayed in either border or text background; can be either or both
Bit 6	Reserved	
Bit 7	0	
XData2		
Bits 0-1	Right Hand tally value	Not implemented
Bits 2-3	Text display value	Not implemented
Bits 4-5	Left hand tally value	Not implemented

a. Where 0=off, 1=Red, 2=Green, 3=Amber

TSL UMD Protocol v5.0 Commands

Table 36 outlines the default values for the router when using the TSL UMD v5.0 protocol.

Table 36 Default Connection Types — TSL UMD v5.0

	Setting
Serial	
Connection Type	RS422
Baud	38400
Data Bits	8
Parity	Even
Stop Bits	1
Ethernet	
TCP Port	5729
UDP Port	4492

Table 37 summarizes the settings in the **Server Options** dialog for the TSL UMD v5.0 protocol.

Table 37 Server Options — TSL UMD v5.0 Protocol

Option	Setting	Notes
Wrapping	Yes	Wrap commands for TCP mode
	No	Do not wrap commands (UPD mode). This is the default.

Table 37 Server Options — TSL UMD v5.0 Protocol (Continued)

Option	Setting	Notes
PBC in Count Value	Yes	Include the Packet Byte Count field when calculating the byte count value
	No	Do not include the Packet Byte Count field in the byte count value. This is the default.

Protocol Implementation

Ultricore BCS implements the protocol with the following structure:

```
PBC | Ver | Flags | Screen | DMSG (Index, Control, Length, Text)
```

Table 38 lists the supported TSL UMD Protocol v5.0 commands.

Table 38 TSL UMD Protocol v5.0 Commands

Protocol Breakdown	Description	Ultriscape System Use
PBC	Total byte count of packet	
Ver.	Minor version number (0=v5.00)	
Flags		
Bit 0	0=ASCII strings, 1=UTF-16LE	
Bit 1	0=display data, 1=screen control	Display data only (0)
Bits 2-7	Reserved (0)	Not used
Screen	16bit Screen ID	ScreenID associated with source or destination
DMSG		
Index	16bit Display Address	DisplayID associated with source or destination
Control		
Bits 0-1	Right hand tally value[a]	Sets right-hand tally indicator color
Bits 2-3	Text display value[a]	Sets text background and border color
Bits 4-5	Left hand tally value[a]	Sets left-hand tally indicator color
Bits 6-7	Brightness value (0-3)	Not implemented
Bits 8-14	Reserved (0)	
Bit 15	0=display data, 1=command data	Display data only (0)
Length	Byte count of text	
Text	Text as defined by Flag 0 setting	UMD display text

a. Where 0=Off, 1=Red, 2=Green, 3=Amber

User Assigned Parameters

✶ User Assigned Parameters is considered a beta feature as of software v5.1.0.

The User Assigned Parameters feature enables you to easily configure quick access custom Ultritouch panels for input/output signal control in your system. User Assigned Parameters can help you to:

- Simplify live production workflows by placing select audio and video signal control parameters right at an operator's fingertips.
- Quickly adjust the signal levels from any audio/video input or output device in a signal path (e.g incoming encoder from a satellite feed).
- Review input signal level adjustments in an UltriScape window before cutting to the next shot.
- Efficiently deploy operator workflows that safeguard live productions while providing optimal utility.

For More Information on...

- configuring User Assigned Parameters for UltriProc, refer to the ***ULTRIX-FR1, ULTRIX-FR2, and ULTRIX-FR5 User Guide*** or the ***ULTRIX-FR12 User Guide***.

Overview

A typical television production system includes many devices, physical or virtual, connected into signal paths that allow operators to create and adjust those signals to deliver the look, feel and sound needed for their respective productions.

As these systems get larger, the user environment to manage and operate them also gets exponentially more complex to navigate through the correct controls on the correct device. More complex systems invariably need more console real estate for dedicated control surfaces and pressure builds to use flexible, rout-able control surfaces such as Ultritouch. However, these alone do nothing to simplify the assignment to the many devices that may be needed during normal operations.

User Assigned Parameters leverages the inherent efficiency of the Ultritouch touchscreen panels. Ultritouch can already display custom control panels, but they are complex to build and require the user to carefully select the appropriate device for the signal they wish to monitor or adjust. This manual custom configuration and association with devices needs to be set up well in advance with changes during a production being either potentially slow or error prone.

User Assigned Parameters dramatically reduces these risks by switching the functions of the panel quickly and efficiently to a targeted subset of controls and doing that in lock step with the signals being routed or monitored and hence the devices being used at that moment in the production.

Figure 27 Examples of a User Assigned Parameters Panel and Drawers

User Assigned Parameters in DashBoard

✶ User Assigned Parameters is maintained separately from the Ultricore BCS routing database.

The custom soft panel system within DashBoard involves the creation of grid files for each complete soft panel. While very powerful, these tend to be built for a specific device. The implementation in User Assigned Parameters uses DashBoard custom widget functionality and adds the ability to embed widgets in any Ultritouch soft panel, dynamically switch those widgets, and assign them to any appropriate device on the fly.

To accomplish this, User Assigned Parameters maintains data in the following interfaces:

- **Product Catalog** — maintains product specific data common to all devices of that product type. For example, Ultrix and RAPTOR are two different products. The Product Catalog includes:
  - › **Widgets** area — maintains all available widgets linked to products. Widgets are user-defined controls within a device's DashBoard window (e.g. numeric keypad).
  - › **Parameters** area — a generic widget (e.g. uapslider, uapnumslider) is used with a product, any openGear protocol (ogp) parameter can be linked to a control within that widget, the Parameters table tracks that association. This area is not yet fully implemented.
- **Device Manager** — manages all instances of products in the client system. This table links a device to its product type and its IP address and associated communications parameters. For example, an ULTRIX-FR12 is a device in the Ultrix product group, and an MC1-UHD in the RAPTOR product group.
- **Signal Paths Manager** — maintains the assignment of devices to the signal path (source/destination) they are wired into.

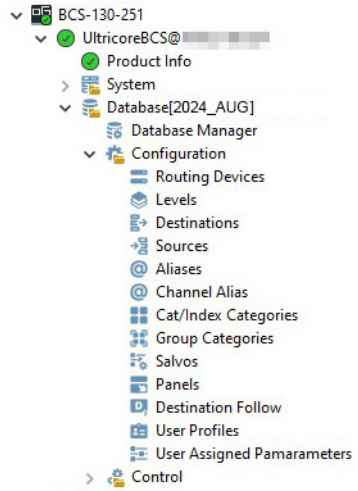
Accessing the User Assigned Parameters Interfaces

Each User Assigned Parameters interface is represented by a tab in the main User Assigned Parameters window as selectable buttons. Configuration of these interfaces are only required at initial system build or subsequent system reconfiguration.

✶ User Assigned Parameters is maintained separately from the Ultricore BCS database.

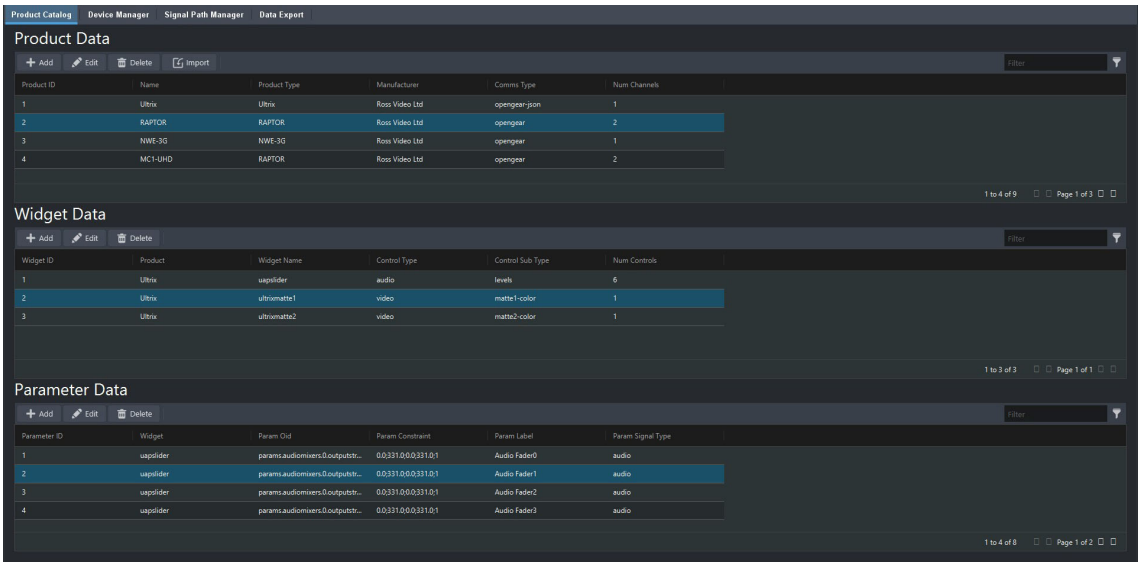
To access the User Assigned Parameters interfaces

1. Expand the Ultricore BCS node in the Tree View of DashBoard
2. Expand the **Database** sub-node.
3. Expand the **Configuration** sub-node.



4. Double-click the **User Assigned Parameters** sub-node.

   The **User Assigned Parameters** interface opens in the DashBoard window with the Product Catalog tab automatically selected.



The following sections briefly outline the areas and options on each page.

Product Catalog

This page enables you to add products (devices), define the communication protocol, and set the product name/type required for context for control.

- Product area — A product catalog can be imported as a spreadsheet (*.xlsx) to quickly get things started. Or you can define products by manually adding new entries to the Product area.
- Widget area — Control widgets (panels) are associated with products as part of the product catalog configuration. The system has initial support for generic widgets that then have individual parameters from products assigned to them (e.g. such as sliders for the Ultrix Audio control).

Device Manager

Devices in User Assigned Parameters are instances of product that make up your system and are auto-populated on the page. Each device to be controlled has an entry in the Device Data table. (**Figure 28**) Each entry includes:

- a name for reference
- the IP address and port assigned the device uses for communication
- a specific OGP Device ID
- the slot number the card is located in (for openGear cards in a frame)

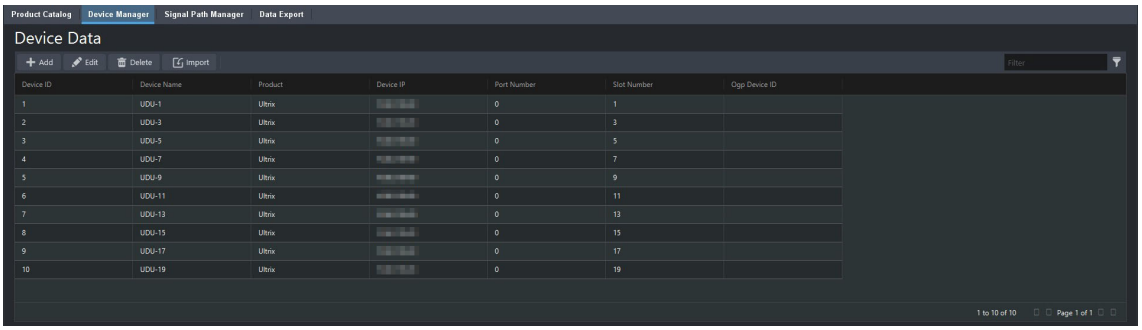


Figure 28 Example of the User Assigned Parameters > Device Manager in DashBoard

Signal Path Manager

In order to ensure that the control panel is controlling functions that relate to the signals being routed, devices are associated with the signal paths they are part of. This is configured in the Signal Path Manager. (**Figure 29**)

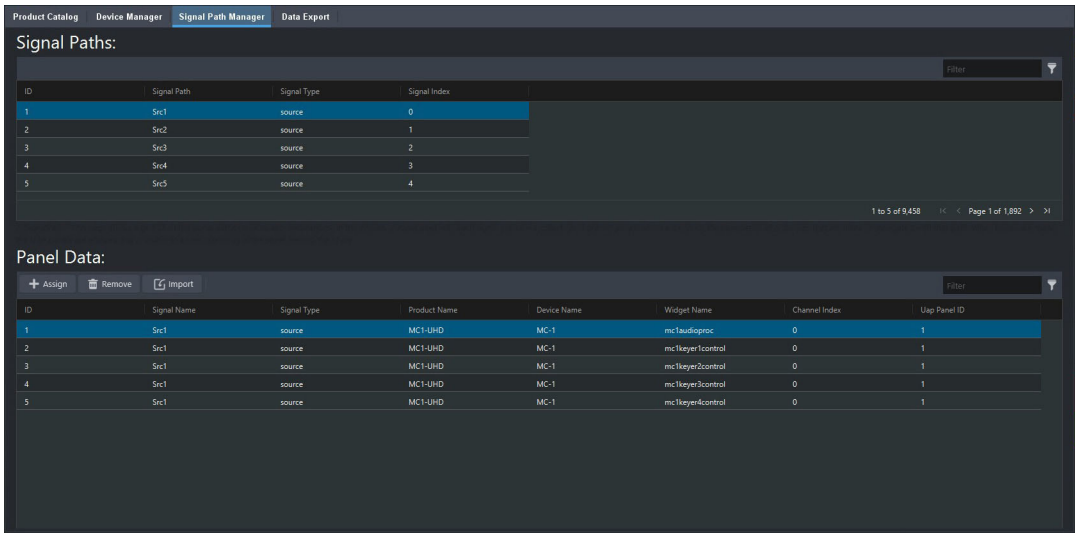


Figure 29 Example of the User Assigned Parameters > Signal Path Manager in DashBoard

The Signal Name is the name used when routing on the router panel. The Signal Type and Signal Index are there for information purposes only but may be useful especially when differentiating signals where the names may be similar or the same for a source and destination.

This information is ultimately defined by the facility system configuration (wiring) at your location. For example, a signal is wired into the input that is linked to SRC 2 and goes through a GATOR-TOOLBOX card labeled as GTB-1. Whenever a router panel selects SRC 2 or a destination that has SRC 2 routed to it, the available controls for GTB-1 are made available on the panel. Multiple devices can be in that path, the operator will get all controls for all devices in the SRC 2

path similarly devices wired in the output path associated with the DST selected on the same router panel are also available to the user.

Data Export Manager

Use the Data Export interface to create a backup of User Assigned Parameters data as well as system updates and configuration. You can choose the type of data to export by selecting its button from the top toolbar, and saving the data as an *.xlsx file. This file can then be imported to the corresponding User Assigned Parameters interface via the **Import** button.

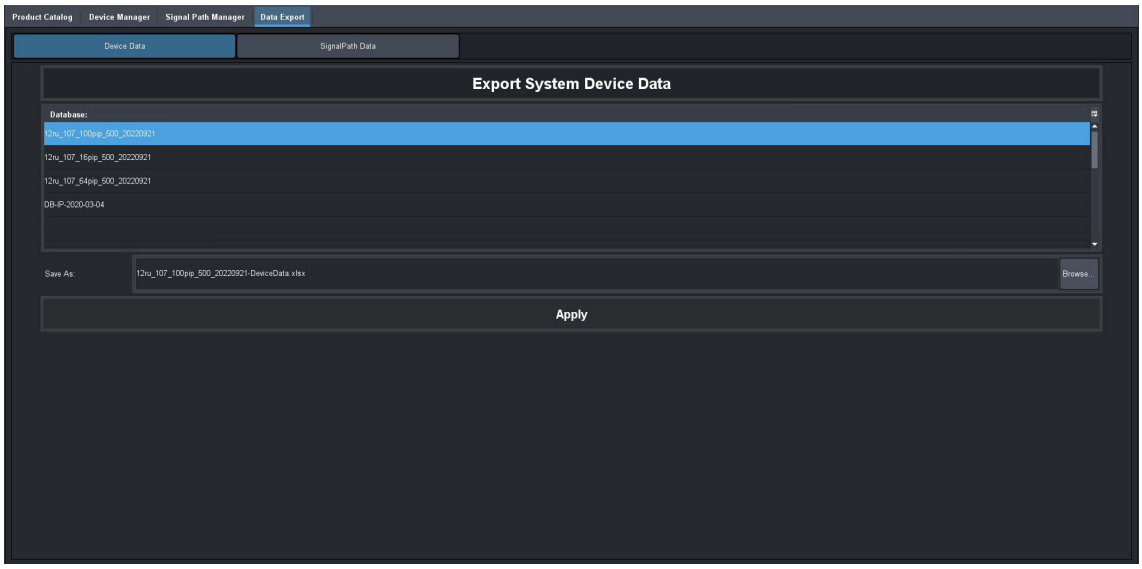


Figure 30 Example of the User Assigned Parameters > Data Export Manager in DashBoard

Defining the User Assigned Parameters Product Catalog

You begin by defining the Product Catalog for the User Assigned Parameters database. The Product Catalog can be defined by importing an existing catalog (an *.xlsx file) or by manually defining the product entries via the Add Product option on the Product Catalog page. This section outlines both methods.

Creating a Product Catalog File

A Product Catalog file is a spreadsheet that captures the data used by the User Assigned Parameters database. This file must contain the following information for each product you want to define.

For More Information on...

- exporting an existing Product Catalog to an *.xlsx file, refer to "**Exporting User Assigned Parameters Data**".

Importing a Product Catalog

Importing an *.xlsx file enables you to quickly define the Product Catalog for your Ultricore BCS by using an existing data set.

To import a product catalog

1. Display the User Assigned Parameters interfaces as outlined in "**To access the User Assigned Parameters interfaces**".

   The **Product Catalog** tab is automatically selected.

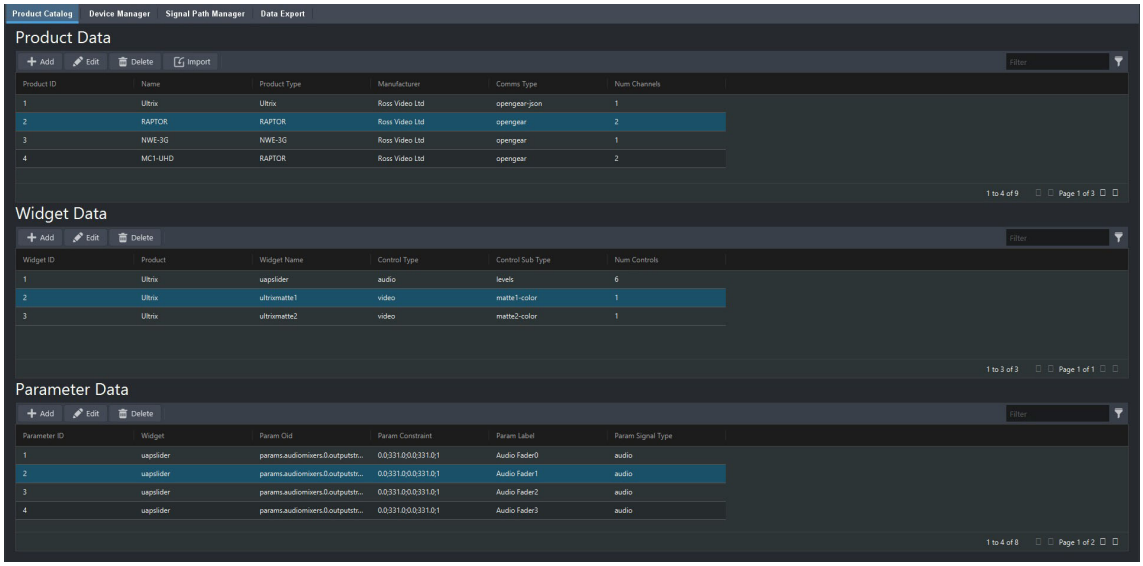
2. From the Product Data toolbar, click **Import**.

   The **Open** dialog opens on your desktop.

3. Navigate to the *.xlsx file you wish to import.

4. Click **Open**.

   The **Product Data** page updates to display the data imported from the selected file.



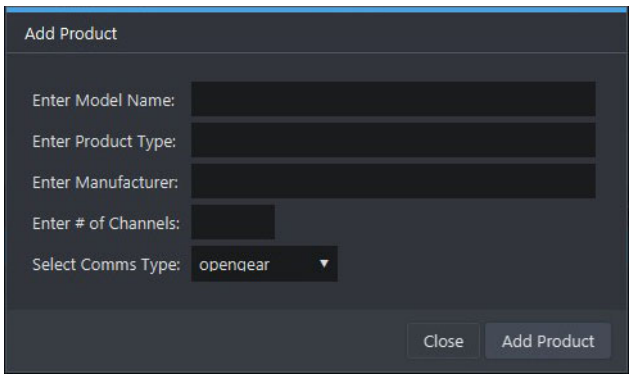
Manually Defining a Product Catalog in DashBoard

You can update the Product Catalog by defining a new product by suppling the name. Before proceeding, consider what devices that the new product will apply to and how to best describe them consistently. For example, openGear cards provide a variety of functions (e.g. Frame Syncs, Up/Down Converters, Master Control, Distribution Amplifiers, etc.). You can create a product type for the product line (openGear), or a function (e.g. Up/Down Converters), or the card model (e.g. UDC-8225A, UDC-8625A).

To add a new entry to the Product Catalog

1. From the Product Catalog > Product Data toolbar, click **Add**.

   The **Add Product** dialog opens.



2. Use the **Model Name** to assign a unique identifier to this product.

   For example, if you have multiple MC1-UHD cards, you could assign "`MC1-#`" to each card where `#` represents the frame slot the card is located in. This identifier is also searchable via the Filter options in all User Assigned Parameters pages.

3. Use the **Product Type** field to classify the product.

   For example, enter "`Ultrix`" for all models ULTRIX-NS-FR1, ULTRIX-NS-FR2, ULTRIX-NS-FR5, and ULTRIX-FR12 in your system.

4. Use the **Manufacturer** field to specify the vendor who manufactures the product.
5. Use the **Channels** field to specify the number channels the device will provide in the signal path.
6. User the **Comms Type** menu to specify the protocol the device uses to communicate within your routing system.
7. Click **Add Product**.

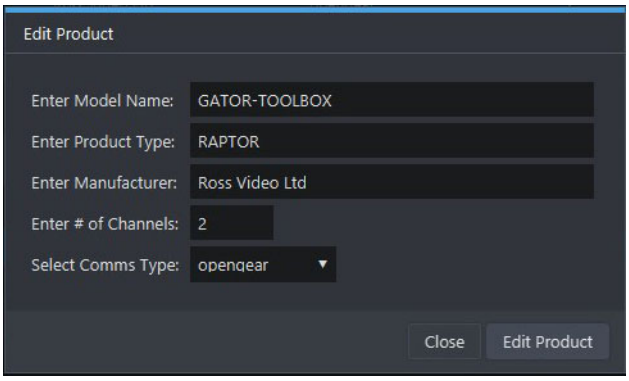
   The Product Catalog updates to display a row for the newly added product.

8. Repeat steps 2 to 7 for each new product.
9. Click **Close** to exit the **Add Product** dialog.

To edit a product entry

1. In the Product Catalog > Product Data area, select the row for the product to edit.
2. From the Product Data toolbar, click **Edit**.

   The **Edit Product** dialog opens.



3. Update the required field(s).
4. Click **Edit Product** to apply your changes.
5. Click **Close** to exit the **Edit Product** dialog.

Managing the Widgets

Once the product data is defined, widgets are added in the Widget Data area. Those widgets already designed are supplied with the spreadsheet import so no configuration is required unless a new widget is needed after the import.

✶ In this section, the term "CustomPanel" refers to the interface a specific device (e.g. openGear card) displays within the DashBoard window. This term is not interchangeable with "soft panel" which refers to a panel that is created and used in the Ultrix system.

Creating a Grid File

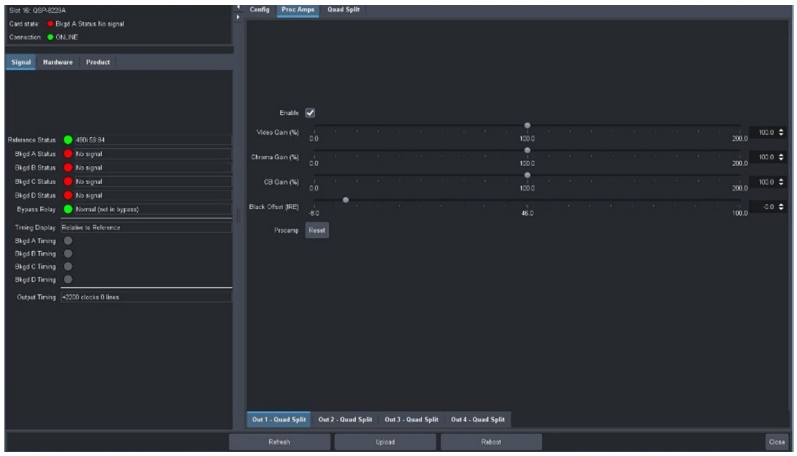
A CustomPanel is a user interface you create in the PanelBuilder feature of the DashBoard client software. CustomPanels are saved as *.grid files to a folder on your DashBoard client computer. Widgets are DashBoard panel elements stored within the *.grid file.

✶ This process is similar to creating a CustomPanel in the DashBoard system by cutting and pasting controls from one device control page into the grid file. Once pasted, all normal editing options are available as long as the resulting grid file is contained in an <abs> or <table> element.

To create a grid file

1. Display the device's interface in the DashBoard window. Refer to the user guide for your device for details.

   In the example below, the QSP-8229A is displayed.



2. In DashBoard, select **File** > **New** > **New CustomPanel File**.

   The **Create new CustomPanel File** dialog box opens.

3. In the **File name** box, type a unique name for the new grid file.

4. Use the **Template** list to select **Blank Self-Contained Data Source Panel (XPression)**.

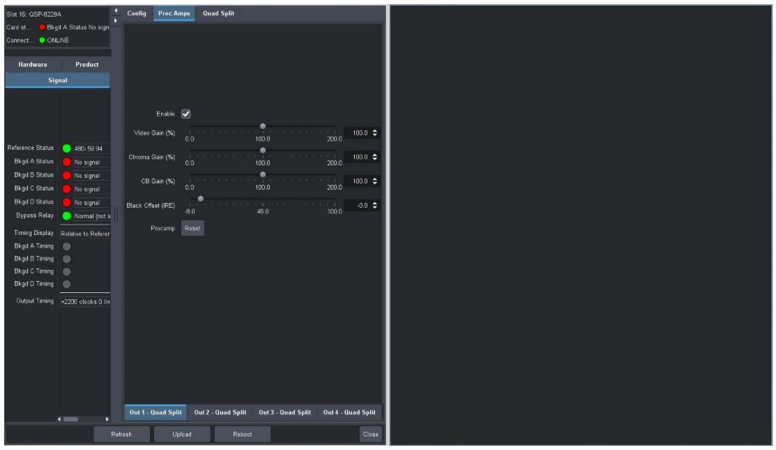
   This creates an empty panel which stores only the device data, timers, and/or local parameters data to the grid file.

5. If the folder in which you are saving the grid file is not already listed in the File Navigator tab and you want it to be, select the **Add to File Navigator** box.

6. Click **Finish**.

   The new panel appears as a new tab in the DashBoard window.

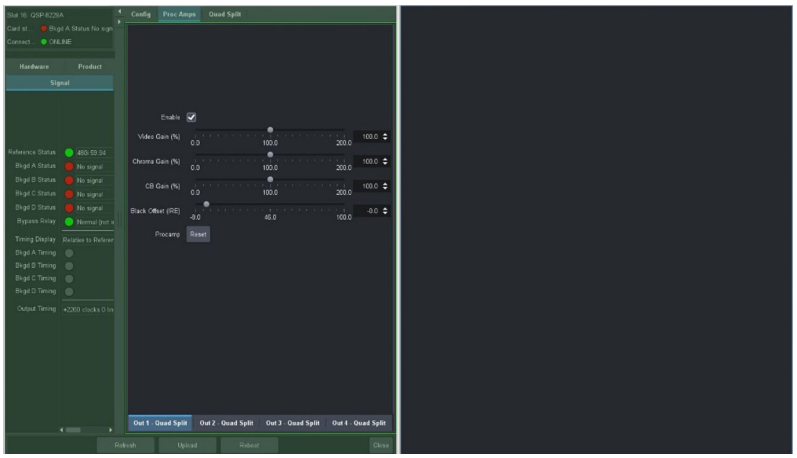
7. Use your mouse pointer to grab the new panel tab and drag it to the right side of the screen until the split screen line displays. Then release the new panel tab.



8. Select the QSP-8229A pane.

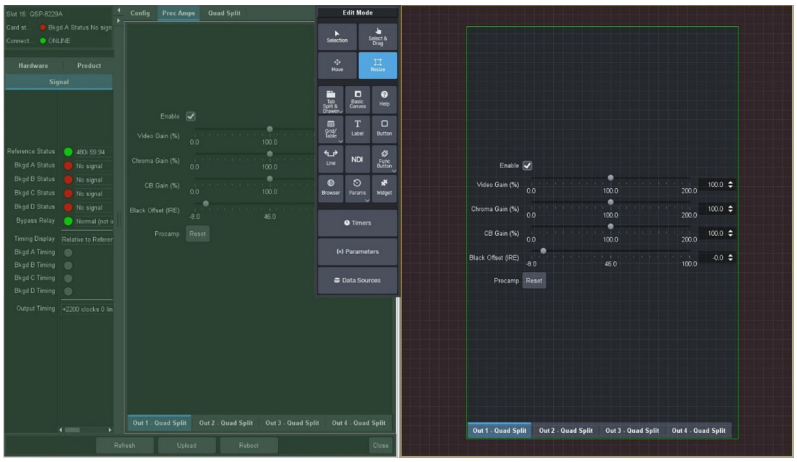
9. Click **PanelBuilder** from the DashBoard main toolbar.
10. Select the area in the device panel that you want to make the widget for.

    In the following example, the user selected an area on the Proc Amps > Out 1 tab.



11. Drag the selected block over to the grid file window and drop.

    This will set the grid file into PanelBuilder Edit mode.



    In some cases a dialog opens to confirm if certain components should be included or linked to. You can include them for now and delete later if they are not relevant.

12. If the grid file needs editing, close the device page and proceed to edit using the PanelBuilder feature. Refer to the ***DashBoard User Guide*** for details on editing grid files.

✶ Resizing the element can help determine if the widget is going to be appropriate when displayed on the Ultritouch panel however this a useful guide not absolute.

13. Once editing is complete, save and close the grid file.
14. To convert and install the widget open the User Assigned Parameters database page on the BCS and go to the Product Catalog tab. Assuming the product is in the catalog, following the above instruction to add it if not, select the product the widget applies to. Click on the Import Grid button, navigate to and select the grid file created and click open.

Adding a New Widget

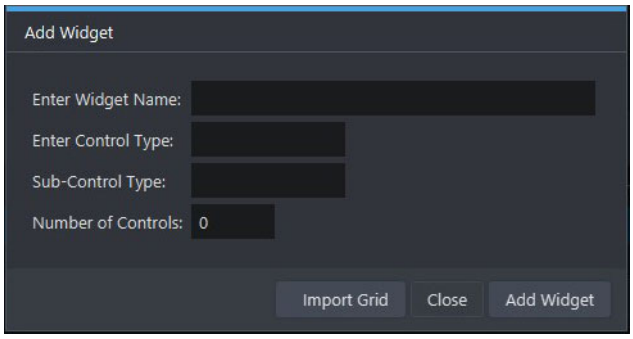
Once created, the grid file is converted to a widget by clicking **Import Grid** button in the Panel Catalog > Add Widget dialog. This enables you to navigate to the location of the grid file, select and open it. The conversion to the widget, placement in BCS and update of all panels occurs

immediately. The name of the grid file is the subsequent name of the widget that will be inserted in the name field of the dialog.

To add a new widget to the Product Catalog

1. Verify that the product for the widget is listed in the Product Catalog.
2. From the Product Catalog > Widget Data toolbar, click **Add**.

   The **Add Widget** dialog opens.



3. Set the **Control Type** and **Sub-control Type** fields to meaningful text.

   The text will be used to filter controls relative to a function i.e. enter `audio` for Control Type to only show audio controls to audio operators, this is not used at this time. Sub-control type is used to indicate the type of control, gain, timing, config, status.

✶ Grid files for conversion need to be cleanly contained in an <abs> or <table> tag to convert so care is needed, see creation notes below.

4. Click **Import Grid**.
5. Navigate to the grid file you created in the previous section.
6. Click **Open**.

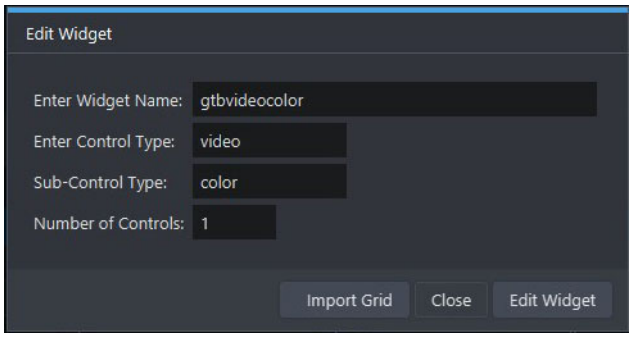
   The widget is added to the product it applies to. All devices based on the product will immediately have the new widget associated with them.

7. Click **Close** to exit the **Add Widget** dialog.

To edit a widget

1. In the Product Catalog > Widget Data area, select the row for the product to edit.
2. From the Widget Data toolbar, click **Edit**.

   The **Edit Widget** dialog opens.



3. Update the required field(s).
4. Click **Edit Widget** to apply your changes.

5. Click **Close** to exit the **Edit Widget** dialog.

Defining the Devices for User Assigned Parameters

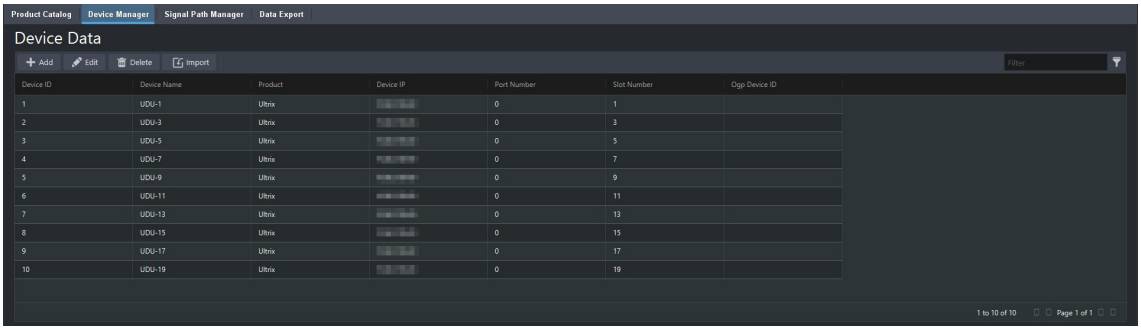
The Device Manager page enables you to manage all instances (devices) of product types in the DashBoard client system. Each device is linked to its product type and enables you to specify its IP address and associated communications parameters.

- In the case of an openGear card, the IP address of the frame and the slot number in which the card resides.

You can choose to import an *.xls spreadsheet that includes entries for all the devices in your system, or you can manually add devices to the User Assigned Parameters database. This section outlines both methods.

To import a device entry

1. Select the **Device Manager** tab.



2. From the Device Manager toolbar, click **Import**.

   The **Open** dialog opens on your desktop.

3. Navigate to the *.xlsx file you wish to import.
4. Click **Open**.

   The Device Manager page updates to display the data imported from the selected file.

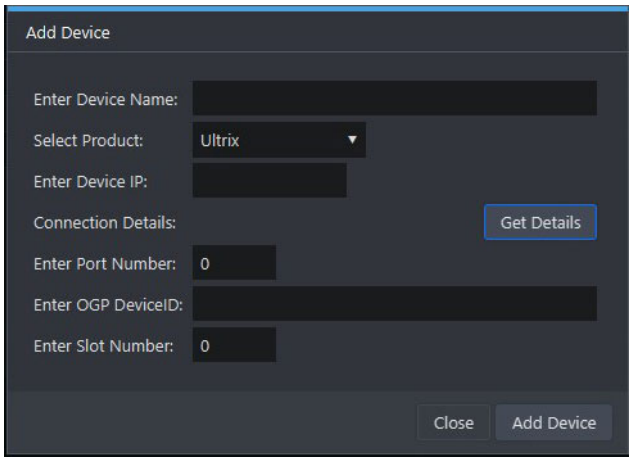
Manually Adding a Device Entry

Before proceeding, ensure that you have the IP Address, port number, and OGP DeviceID for each device. This information can be obtained by locating the device in the DashBoard Tree View and right-clicking its node and selecting **View Frame Information**.

To add a new device entry to the Device Manager

1. From the Device Manager toolbar, click **Add**.

   The **Add Device** dialog opens.



2. Use the Enter **Device Name** field to assign a unique identifier for the device within User Assigned Parameters. This does not impact the device name reported in the main Database system.

   The **Device Name** is to identify which device is being associated with a signal path and should be meaningful in the context of your system. All other data, IP address, Port number, OGP/node ID and slot number are specific to and required to properly communicate with the device in question.

3. Use the Select **Product** menu to assign the device to a product type as defined in the Product Catalog.

✶ The Product Catalog entries determine the list available in the Select Product menu.

4. Use the Enter **Device IP** field to specify the IP Address assigned to the specific device you want to add.

✶ If the device is an openGear card in a frame, you must enter the IP Address of the frame.

5. If the device is accessible to the Ultricore BCS, click **Get Details** to auto-fill the remaining fields.
6. Click **Add Device**.

   The Device Data table updates to display a row for the new device.

7. Repeat steps 2 to 6 for each device you want to add.

✶ After adding the details from the frame information, each card can be added by changing the Device Name, selecting the product from the Select Product menu, entering the slot number of the card, and clicking Add Device.

8. When all cards and frames are added, click **Close** to exit the **Add Device** dialog.

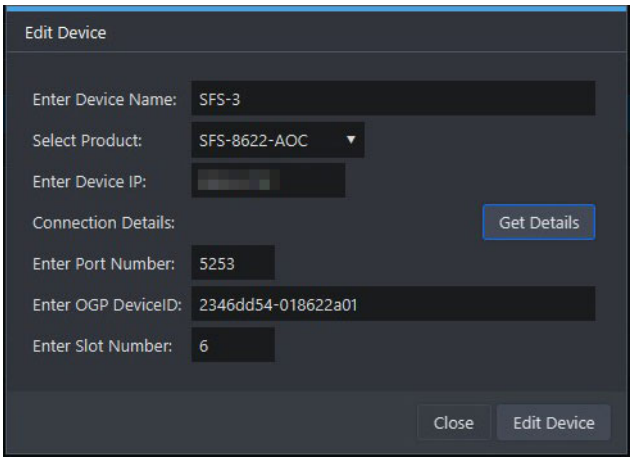
Editing a Device Entry

✶ Use the **Filter** field, located in the top right corner of the page, to display entries with the specified text (searches all fields in the page). For example, typing "GATOR" would display instances in the Device Name and Product fields of the Device Data table.

To edit a device entry

1. In the Device Manager > Device Data table, select the row for the device to edit.
2. From the Device Data toolbar, click **Edit**.

   The **Edit Device** dialog opens.



3. Edit the field(s) as required.
4. Click **Edit Device** to apply your changes.
5. Click **Close** to exit the **Edit Device** dialog.

Defining the Signal Path

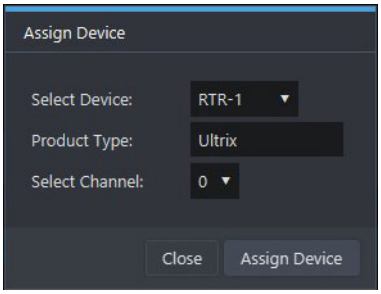
The Signal Path Manager is where devices configured in the previous section are associated with signal paths (logicals). This allows you to filter only those devices relevant to the current panel routing context as configured in the current database.

The Signal Path data is an association to ensure the correct device is controlled when a source or destination is selected. Since this is dynamically assigned (or removed), openGear cards that might be patched into a path even for a single production, can be easily added to the signal they are patched into for the duration of the production and removed immediately after. With this in mind, it may be advantageous to add all devices that might be used in this way to the Device Data table in advance, not just those hard wired into router I/O paths.

To assign a device to a signal path

1. From the Signal Path Manager > Signal Paths area, select the logical you want to assign the device to.
2. From the Panel Data toolbar, click **Assign**.

   The **Assign Device** dialog opens.



3. Use the **Select Device** menu to specify the device.
4. Specify the **Product Type** that the device belongs to.
5. If the device has multiple processing paths through it that are independently addressable, select the appropriate channel in the **Select Channel** menu.

✶ The channel selection is a 0 based index derived from the number of channels set for the product in the Product Catalog interface.

6. Click **Assign Device**.
7. Click **Close**.

   The **Assign Device** dialog closes and the Signal Path Manager table updates.

Exporting User Assigned Parameters Data

Use the Data Export interface to create a backup of User Assigned Parameters data. This data is captured in an *.xlsx file that can be imported to the corresponding User Assigned Parameters interface.

✶ A list of available files (databases) is provided in each page of the Data Export interface. It should be noted that this is just an association by name, User Assigned Parameters data and system data are not automatically created or restored together, i.e. they need to be managed separately at all times.

To export a database to an *.xlsx file

1. From the **Data Export** toolbar, select the data type you wish to export. Choose from the following:
   - Device Data
   - Signal Path Data
2. To create a new file:
   a. In the **Save As** field, specify the name for the *.xlsx file.

      By default, the filename includes a suffix that helps to identify the data type. For example, *-DeviceData.xlsx would capture data from the Device Manager.

   b. Click **Browse**.

   c. Navigate to the location to save the file to.

   d. Click **Save**.

   e. Click **Apply**.
3. To replace a current file:
   a. Select a file from the **Database:** table.

   b. Click **Apply**.

Operating an Ultritouch Soft Panel with User Assigned Parameters

User Assigned Parameters enables a user to customize the window and drawer contents of an Ultritouch soft panel. This enables you to easily configure custom panels that associate channel control parameters to the devices in the signal. Panels can include or restrict controls for audio and/or video based on the source type or operator requirements, and can be re-used on multiple signal paths to reduce configuration effort.

Creating a Soft Panel

The process of creating an Ultritouch Push Button soft panel does not change. The User Assigned Parameters data is added to the drawer(s) during the soft panel configuration.

By default, an Ultritouch soft panel includes one drawer on the right. **Figure 31** displays the On-Air Controls of an MC1-UHD.

Figure 31 Example of a Soft Panel with the Right Drawer Configured with User Assigned Parameters

When creating the soft panel, adding the User Assigned Parameters data on the left side for instance will present the parameters on the left side. **Figure 32** shows the control options for SRC 2 which is linked to DST 1 on an Ultrix router.

Figure 32 Example of a Soft Panel with the Left Drawer Configured with User Assigned Parameters

You can also create separate drawers, each with different User Assigned Parameters data. **Figure 33** shows the left drawer with audio sliders, and the right drawer displays the On-Air Controls of an MC1-UHD.

Figure 33 Example of a Soft Panel with Two Drawers Configured with User Assigned Parameters

For More Information on…

- creating soft panels, refer to the ***Ultrix and Ultricore Database Guide***.
- UltriProc, refer to the ***ULTRIX-FR1, ULTRIX-FR2, and ULTRX-FR5 User Guide*** or the ***ULTRIX-FR12 User Guide***.

Ultricore-Tally Setup

This chapter provides information on the Ultricore-Tally licensed feature for the Ultricore BCS.

✶ Ultricore-Tally requires Ultricore BCS software version 6.1 or higher.

Overview

In professional broadcasting, the high volume of video signals requires the reliable and accurate identification of signal origin and utilization to ensure the seamless operation of productions and network distribution. This crucial role is filled by the tally display system. Everyone involved, in the control room, in the studio, in remote locations, and in front of a camera, relies on the tally display system to know what is really happening moment to moment. This is especially true where multiple simultaneous productions share resources and conflicting usage can make a production look unpolished or lead to delays.

The tally system gathers information from equipment all over a facility and presents it so as to maximize assistance and minimize clutter, bringing order to an intricate production landscape. The Ultricore-Tally licensed feature makes this happen. It tells control room staff what they are sending to air now, how it is getting there, what they expect to send next, what other productions are sending to air, and when their production's images are leaving the facility. It tells people in front of and behind the camera when they are directly contributing their image and, just as importantly, when they are not.

Features

Ultricore-Tally offers the following features:

- Dynamic tracking of routed switcher inputs
- Tallying sources through router re-entry
- Utilizing tallies across router tielines
- Applying UMD and Switcher Button Aliases independently from the router name, with support for Unicode characters in aliases
- Controlling Ross GPI devices like the TXI-48 and GPI-8941
- Transmitting tallies to other Ross devices, such as Tria® and XPression®
- Generating advanced triggering events, such as activating non-video widgets or initiating start/stop clocks via GPIs

Interfaces

The following interfaces are used for the Ultricore-Tally setup:

- Tally System Console — the commissioning interface that operates as a Microsoft® Windows® application separate from DashBoard. The Tally System Console communicates with the Ultricore-Tally feature of the Ultricore BCS on ports 10024 and 10015. Use this interface to configure the Ross Tally System devices in your routing matrix. Once configured, each device is available to include in the Ultricore-Tally via the Ultricore-Tally Web Console.
- Ultricore-Tally Web Console — the production interface displays as a node in the Ultricore BCS Basic Tree View of DashBoard. Use this interface to configure the Ultricore-Tally feature.

System Integration

The Ultricore-Tally licensed feature engages in real-time communication with switching and routing equipment, generating a comprehensive overview of the flow of video signals to monitors. It also assesses whether these signals successfully reach on-air programs or transmission feeds.

Figure 34 shows a possible Ultricore-Tally in a workflow with Ross devices.

✶ This is provided as an example integration only. Your needs may differ from what is presented here.

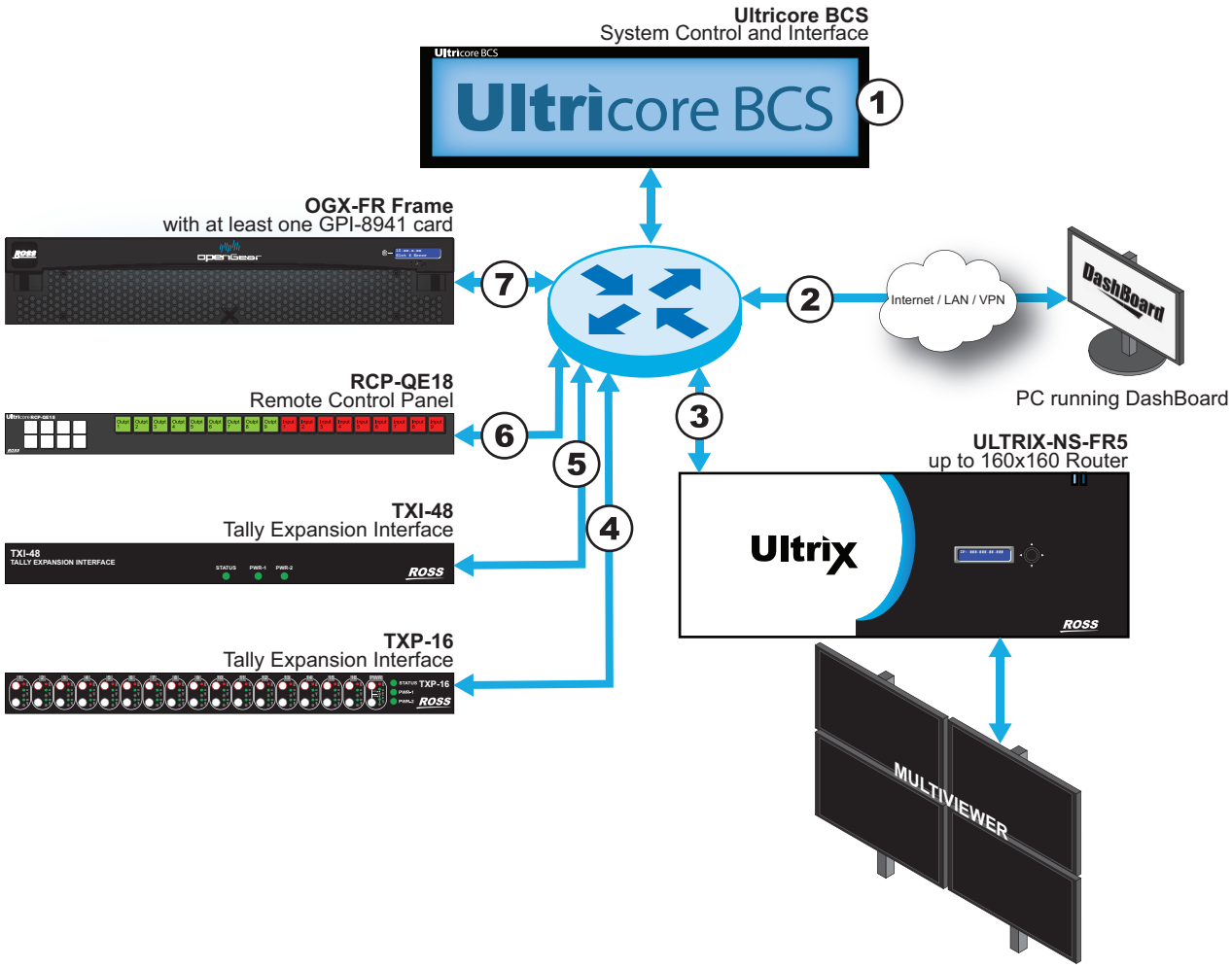


Figure 34 Example Workflow with Ultricore BCS with Ultricore-Tally and Ross Devices

1. Ultricore BCS with Ultricore-Tally

You need at least one Ultricore BCS equipped with the Ultricore-Tally license. The Ultricore BCS is responsible for monitoring the latest Tally Status messages sent by a controller through Tally Display IDs linked to router sources. Whenever a source, identified by a Tally ID, is routed to a destination also marked with a Tally ID, the router will generate Tally Status messages. These messages indicate the current tally status of the Tally ID connected to the source but are directed towards the Display ID linked to the destination.

✶ The Ultricore-Tally settings are not captured in the routing system database.

2. DashBoard Client Computer

The DashBoard client software allows you to oversee and manage Ross devices using a computer. Within the Ultricore BCS, there are DashBoard interfaces designed for both

configuration and operation. To access these interfaces, simply expand the Ultricore BCS node in the DashBoard Tree View and choose the relevant sub-node.

3. ULTRIX-NS-FR5 with a Multiviewer

The ULTRIX-NS-FR5 is capable of accepting TSL UMD tally messages and relaying tally status notifications to designated Ultriscape Heads. Tally messages linked to a router source can also be forwarded to the corresponding destination tally status. Tally information can be associated with either the sources or destinations in the routing system.

For all sources or destinations with a configured Tally ID, the ULTRIX-NS-FR5 will monitor the current tally status. In cases where Ultriscape Picture-in-Picture (PiP) features enabled tally display objects such as borders, labels, and lamps, the PiP determines the content displayed on the screen based on the configured Tally IDs for both the source and destination, along with the Tally mode setting.

Ultriscape PiPs can be set to either follow the Tally ID of the presently displayed source or operate in a direct Tally mode, overriding any information from the currently displayed source.

4. TXP-16

The TXP-16 serves as a tally expansion interface featuring 16 customizable inputs/outputs. It functions as an ethernet-enabled GPI I/O frame designed for the Ultricore-Tally System Controller. The TXP-16 includes the following:

› 16 binding posts on the front, adaptable as either input or output.

› Configure each input and output as wet or dry as needed.

› Polarity insensitivity for wet inputs.

› Choose between internal or external (front or rear) wet voltage sources.

› LED indicators show GPI status for both inputs and outputs.

› TCP/IP connectivity enables the TXP frame to be positioned at significant distances from the Tally controller.

› Optional expansion to 48 I/O (32 via rear panel).

5. TXI-48

The TXI-48 is a tally expansion interface with 48 configurable I/O. It is controlled through either the ethernet port or the RS-485 serial port. The TXI-48 includes the following:

› 48 I/O in 1 RU frame.

› 16 input or outputs per I/O connector.

› Tri-color LED indicates system status.

› Jumper-configurable input voltage (wet) or pull to ground (dry).

› Isolated dry contact closure (relay) outputs.

6. RCP-QE18

Remote control panels provide a physical switching surface to control the router switching. Each panel uses data derived from the routing system database to display text on monitors and assign functions to the buttons. The RCP-QE18 is used when you require advanced control functions from a single point. The RCP-QE18 communicates with Ross routing systems via standard 10/100/1000 ethernet network. The RCP-QE18 sends a switch request message, and receives acknowledgments and status updates, via ethernet to the configured routing system server IP address device.

7. OGX-FR with GPI-8941

The OGX-FR frame comes standard with ethernet connectivity for basic configuration and monitoring of openGear cards through the DashBoard control system. The GPI-8941 openGear

card provides an interface between openGear agents, such as DashBoard, and tally devices that communication via the General Purpose Interface (GPI).

Before You Begin

Ensure the following:

- The Ultricore BCS is installed and fully configured in your routing system.
- The Ultricore BCS and Ultrix routers are running software version 6.1 or higher.
- The tally system devices are installed and configured as per their user documentation.

Installing an Ultricore-Tally License

The Ultricore-Tally license must first be installed on the Ultricore BCS before it can be used in a tally control system.

Ross Video uses license keys to control user access to specific features. You can obtain a key for a licensed feature from Ross Video Technical Support. Use this key to assign an Ultricore-Tally license to a specific Ultricore BCS.

To install the base Ultricore-Tally license key

1. Locate the Ultricore BCS in the Tree View of DashBoard.
2. Expand the Ultricore BCS node to display a list of sub-nodes in the Tree View.
3. Expand the **Systems** sub-node.
4. Expand the **Configuration** sub-node.
5. Double-click the **Ultricore BCS** node.

   The **Device Configuration** interface opens.
6. Click **Licenses**.
7. Make a note of the character string in the **Request Code** field for the feature you wish to enable.
8. Contact Ross Video Technical Support using the information found in "**Contacting Technical Support**".
   a. When you speak to your Technical Support representative, tell them your name, your facility name, and the **Request Code** from the **Licenses** table.
   b. You will be given a License Key that must be entered in the applicable field in the **Licenses** table.
9. Enter the provided License Key in the applicable **License Key** field in the **Licenses** table.

✶ You can also right-click on the row for the License Key you are installing, and copy the Request Code to or paste the License Key from the Microsoft® Windows® clipboard.

10. Click **Apply** in the row for the License Key you entered in step 9.
11. Verify that the **Count** field is updated to report each installed License Key.

Using the Tally System Console

This section outlines how to install and use the Tally System Console to configure a new Ultricore-Tally system.

To install the Tally System Console on a PC

1. Download the Tally System Console software from the Ross Video website.

✶ The file name will be `Tally System Console 3.8-Redis-on.msi`.

2. Right-click the *.msi install file.
3. Select **Install**.
4. Launch the Tally System Console.
5. Select **Management** > **Configuration** > **General**.
6. Select the **Send configuration to TSI database** box.
7. Click **OK**.
8. Select **File** > **Merge Libraries**.
9. Select the file named `Library10.lib`.
10. Click **OK**.

To define the Ultricore BCS settings

1. Click **Management** > **Edit TSI List**.
2. Click **Add**.
3. For each Ultricore BCS:
   a. Enter a Name.
   b. Use IP Address A field to assign a valid IP address for the Ultricore BCS.
   c. If the Ultricore BCS is a redundant system, enter the IP address for the backup Ultricore BCS, otherwise leave this field blank.
   d. Select **BCS**.
   e. Select **Assume Online**.
   f. Click **OK**.
   g. Click **Done**.
4. Select **Hardware** > **Tally System Interface Units**.
5. For each Ultricore BCS system:
   a. Enter an arbitrary Name.
   b. Enter an Interface Number (usually 2).
   c. Enter an IP address for each Ultricore BCS system.

✶ For Ultricore BCS systems that are redundantly paired the Interface Number value will be the same for paired units but the IP addresses will differ. Interface Numbers for non-paired Ultricore BCS systems must differ.

Adding External Devices

This section outlines how to add devices, specify their communication protocols and IP addresses as needed.

To add a router

1. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Router**.

   The Router Device Editor dialog opens on the right-side of the application.

2. Specify a unique name/identifier that is short in length.

   Shorter names help prevent overflows in other areas of the system where the name could be used multiple times in the same area. For example, use `RTR` to represent a router.

3. Select the TSI System that will be communicating with the router.
4. Select the router protocol.

✶ For Ross Video Ultrix routers, select **Ross Ultrix Router (SW-P-08 TCP/IP port)**.

5. Set the router level.

✶ For Ross Video Ultrix routers set this value to `0`. To specify more than one router level, separate the levels with a comma. For example, `0,1,2` or `SD,HD`.

6. Verify that the IP address of the router is set in the **IP Addr #1** field of the **Device Configuration** dialog (located at the right edge of the application).
7. In cases where the router operates in a redundant system, a second IP address may be entered in the **IP Addr #2** field.
8. For Ultrix routers (only):
   a. Locate the **Resource Device Options** area of the Device Configuration dialog.
   b. Select the **Use as configuration source** box.
   c. Set the **#Inputs** field according to the input size of the Ultrix router.

To add a switcher

1. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Production & M/C Switchers**.
2. For each switcher:
   a. Specify a unique name/identifier that is short in length.

      Shorter names help prevent overflows in other areas of the system where the name could be used multiple times in the same area. For example, use `SWR` to represent a switcher.

   b. Select the TSI system that will communicate with the switcher.
   c. Select the switcher protocol.
      - Ross Video Acuity switchers — select Ross Acuity Switcher TSL 5.0 / IP (Switcher is TCP Server).
      - Ross Video Carbonite switchers — select Ross Carbonite Series auto-detecting switcher (the switcher is TCP/IP Client).
   d. If you are using a Ross Video Acuity switcher: verify that the IP address of the switcher is set in the **IP Addr #1** field of the Device Configuration dialog (located at the right edge of the Tally System Console application).
   e. If you are using a Ross Video Carbonite switcher, verify that the IP address of the controller was set when adding a tally port to Carbonite.

To add a Multiviewer

1. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Displays**.
2. For each Multiviewer system:
   a. Specify a short name/identifier such as "`MV1`". Depending on the location of the Multiviewer system, the name might reflect the name of a control room, such as "`PCR1`".
   b. Select the TSI system that will communicate with the Multiviewer.

c. Select the Multiviewer protocol.

- Ultrix-based Multiviewers — select Ross Ultrix Multiviewer (TSL v5.0-Wrapped: MV is TCP Server).
- Switcher-based for Ultrix-based Multiviewers — select Ross Ultrix Multiviewer (TSL 5.0: MV is TCP Server).

d. Verify that the IP address of the Multiviewer is set in the **IP Addr #1** field of the Device Configuration dialog (located at the right edge of the Tally System Console application).

To define UMDs and UMD monitoring styles

1. In the Tally System Console, select **UMDs** > **Display Devices**.

   This editor will contain a list of Multiviewer PiPs, one per line. Each PiP is associated with a Multiviewer system as defined in "**To add a Multiviewer**".

2. For each PiP within a Multiviewer:

   a. Specify a short name/identifier for the PiP.

   b. Use the **Port** menu to select the Multiviewer with which this PiP is associated.

   c. Enter a Tally ID into the **Serial #** column.

      In the Ultricore BCS database systems, this Tally ID will typically match a value in the router Destination > Tally ID column of the active database.

   d. For Ross (and most) Multiviewer systems, enter a value of `1` in the **Section#** column.

   e. From the **Monitoring Style** column, select **Destination**.

   f. From the **Tally Area** menu, select a **Tally Area** (typically a Control Room).

      The Tally Area determines which production switcher will generate tally information for a given Multiviewer PIP.

✶ An error icon displays in the Monitoring Description column of each PIP because a router destination is not yet assigned to the PiPs. This will be addressed later in the configuration workflow.

To save the tally system configuration

1. In the Tally System Console, select **File** > **Save as Remote Session**.

   The **Save TO TSI** dialog opens.

2. Select **BCS system** from the provided list
3. Edit the Filename as needed.
4. Perform one of the following:

   - Clear the **Upload as current config and reboot** box if the currently running configuration must remain unchanged; or
   - Make this configuration the newly effective current configuration by selecting the **Upload as current config and reboot** option.

5. Click **Save to TSI**.

Extract the I/O Matrix from the Router

Once the running Tally System Console includes the Ultrix router settings and communication with the router is established, the router I/O names configuration may be downloaded from the Ultrix router.

To download the I/O matrix from the Ultrix router

1. In the Tally System Console, select **Tools** > **Import Router Configurations**.
2. Select the **I/O and Signals** tab at the top left of the application.
3. Select the **Source Definitions** menu bar in the menu tree left part of the application.
   - The router source names display in the Source Name column of the Source Definitions Editor.
   - The router input numbers display in the Router Device column.
4. Fill in Multiviewer-friendly source names into the Long Names and Short Names column.
   - Router inputs are reported in the Source Definitions Editor and the Router - Input Names Editor.
   - Router destination names are reported in the Router - Output Names Editor.
   - Router I/O labels may also be filled into the configuration by hand.
   - All router I/O labels are available in drop-downs in the menu tree (in the left pane of the application).

To assign router destinations to UMDs/PiPs

1. In the Tally System Console, select **UMDs** > **Display Devices**.
2. In the menu tree in the left pane of the configuration, select **I/O and Signals** > **Router - Output Names**.
3. Select **+** to display a list of router destinations.
4. Select the required destinations from the menu tree.
5. Drag and drop the selected destinations into the **Monitoring Description** column of the **Display Devices Editor**.
6. Select **Assign a single parameter to each row** from the dialog.

   Each PIP will now contain a Monitoring Description reflecting the destination that is now assigned to each PIP.

Recalling Operational Configurations

See also document on Tally Web Console for a production method of changing the operational configuration.

1. From the top-level menu bar, select **File** > **Open Remote Configuration Manager**.

   The Remote Configuration Manager opens.
2. Select an Ultricore BCS system from the list on the left side.
3. Select a configuration file name from the list on the right side.
4. Click **Make Current**.
5. Click **Done**.

   The **Set running configuration to <configuration file name>** prompt displays.

   a. Choose one of the following:
      - **No** — no action is taken.
      - **Yes** — a second prompt appears: "`Reboot System?`". Proceed to step b.

b. Choose one of the following from the reboot prompt:

- **No** — the change of running configuration is deferred until the next manual reboot.
- **Yes** — the running configuration is changed and the Tally Process running on the Ultricore BCS is rebooted. This does not affect other (non-tally) operations running on the Ultricore BCS.

Basic Editing Overview

The Tally System Console application consists of the following interfaces (from left to right):

1. A menu tree which provides access to:
   - Database Editors. Select an editor to display it in the right side of the application.
   - Lists of items created by each editor. This allows items created in one editor to be assigned to items in a different editor using a drag and drop method described below.
2. Navigation tabs at the top of the menu tree, to select menu tree subsections.
3. The right side of the application is dedicated to Database Editors.
4. The standard horizontal menu bar that is present in any Microsoft® Windows® application.

To navigate between Database Editors

1. Click on the row of tabs in the top left corner of the application to select one of the following:
   - Hardware
   - UMDs
   - GPI & Interface Devices
   - I/O & Signals
   - Plant Layout
   - Tally Logic

   This displays a series of menu bars, each of which contains an Editor title. The **+** icon displays if the table is populated.
2. Select one of the menu bars to display a Database Editor in the right half of the application.

To assign database items using drag and drop

1. In the left side menu tree, navigate to one of the Database Editors as described above, from which database one or more items will be dragged.
2. Also in the left side menu tree, navigate to different Editor to which we drag database items, but (instead of clicking the menu bar) click the "**+**" icon on the menu bar to display a list of items created by the given second menu bar.
3. Press **Ctrl** + **Shift** to select multiple items from the left side menu bar.
4. Drag the multi-selected items from the menu tree to the Monitoring Description or the Control Style Description column of the Editor that is open on the right.
5. When moving multiple items, answer the prompt as to whether to "Assign as parameter to single row only" or "Assign a single parameter to each row".
6. Drop the item(s) onto the Monitoring Description column.

   The Monitoring Description column updates to report the name of the database item that was assigned to each row.

To add a record to the middle of an Editor

1. Go to the line which will follow the new line.
2. Press **Ctrl** + **Insert**.

   A new line displays above the current line.

To add a record to the end of an Editor

1. Go to the last line of the Editor, which will be empty.
2. Type a unique name/identifier in the **Name** column.

   A new line is created. Notice that a new empty line displays below the new line.

To perform a single-keystroke drop-down select

1. Go to a drop-down cell below an already-selected cell.
2. Press **Ctrl** + **Enter** to copy the above select into the current cell.
3. Press **Ctrl** + **Enter** repeatedly to quickly fill in a column.

To perform a single-keystroke mnemonic name copy and increment

1. Go to a text edit cell below any non-blank text cell.
2. Press **Ctrl** + **Enter**.

   The name from the above cell is copied into the current cell.

   The numeric end of the name is incremented. For example `CAM1` from the above cell is copied to the current cell as `CAM2`.

   If name ends in a letter, it is incremented (A, B, C, etc.). For example, `CAM_A` is copied to the next cell as `CAM_B`.

To fill in rows of a column with a mnemonic series of names

1. Press **F1**.

   A text edit field displays.
2. Fill in an expression that denotes a range of mnemonic names, using the syntax of: `<name><start number>-<end number>`.

   The range of mnemonic names will be created, one per line in the current column.
3. Click **OK** or press **Enter**.

   For example, the range expression "`CAM1-5`" will create name set `CAM1`, `CAM2`, `CAM3`, `CAM4`, `CAM5`.

To fill in a range of mnemonic names of a given length

1. Click on a text cell below a populated text cell.
2. Press **Ctrl** + **Shift** + **Enter**.
3. Enter a range length value into the resulting prompt.

   The range of mnemonic names will be created, one per line in the current column, starting with a mnemonic incremented from the previous row, of range length value in length.

   For example, press **Ctrl** + **Shift** + **Enter** below the `CAM1` cell, then enter `9` as the length value. The Mnemonic series `CAM1-CAM10` is created.

Saving the Configuration Sessions

This section outlines how to save your configuration for remote or local sessions.

To enable configurations to save to tally controller (remote sessions)

1. Select **Management** > **Configuration** > **General**.
2. Select the **Send Configuration to TSI Database** box.
3. Click **Close**.

   The **Set Active TSI-4000s to TC3 Mode?** dialog opens.
4. Click **Yes**.
5. Close and reopen the Tally System Console application.

To enable configurations to save to local PC (local sessions)

1. Select **Management** > **Configuration** > **General**.
2. Clear the **Send Configuration to TSI Database** box.
3. Click **Close**.

   The **Set Active TSI-4000s to TC2 Mode?** dialog opens.
4. Click **Yes**.
5. Close and reopen the Tally System Console application.

To save a local session to a remote session, but not as the current configuration

1. Select **File** > **Save As Remote Session**.

   The **Save to TSI** dialog opens.
2. Edit the Filename as needed.
3. Clear the **Upload as current configuration and reboot** box.
4. Click **Save to TSI**.
5. On the **Reboot System** dialog, choose one of the following:
   - Click **Reboot** immediately; or
   - Click **No** to defer the reboot.

To save a local session to remote session, as the current configuration

1. Select **File** > **Save As Remote Session**

   The **Save to TSI** dialog opens.
2. Edit the Filename as needed.
3. Select the **Upload as current configuration and reboot** box.
4. Click **Save to TSI**.
5. On the **Reboot System** dialog, choose one of the following:
   - Click **Reboot** immediately; or
   - Click **No** to defer the reboot.

Managing the Configuration Sessions

This section outlines how to open, download, and restore your remote sessions.

To open the current remote session

- Select **File** > **Open Current Remote Configuration**.

  The file loads to the Tally System Console.

✶ When viewing the current configuration, the file name in the title bar is appended with the suffix of `(current)`.

To download all the remote sessions

- Select **Tools** > **Backup Configurations from TSIs**.

  The files are exported to the User Documents folder in the following location:

  `Tally System 3.8\TC2Backups\<TSI IP address>`

To restore the remote sessions from backup sessions

- Select **Tools** > **Backup Configurations from TSIs**.

  The files will be restored to TSIs from the User Documents folder in the following location:

  `Tally System 3.8\TC2Backups\<TSI IP address>`

Using the Ultricore-Tally Web Console

The Ultricore-Tally Web Console allows production staff to change source names as displayed in UMDs, override the text in individual UMDs, monitor the on/off state of each GPIO, monitor the text and tally for each UMD, create tally maps used to map the operation of GPI outputs and UMDs, and control router crosspoints.

The console is organized into a series of pull-down menus in the top toolbar. Selecting an option displays those settings in the console interface.

This section briefly outlines how to display the Ultricore-Tally Web Console and provides a brief overview of the available functions.

✶ Access to the Ultricore-Tally Web Console requires a username and password.

To log into the Ultricore-Tally Web Console from a browser

1. Browser to the Ultricore BCS IP address at port 4000. For example, 123.123.12.23:4000.
2. Answer the login prompt page with a user and password.

To log into Tally Web Console from DashBoard

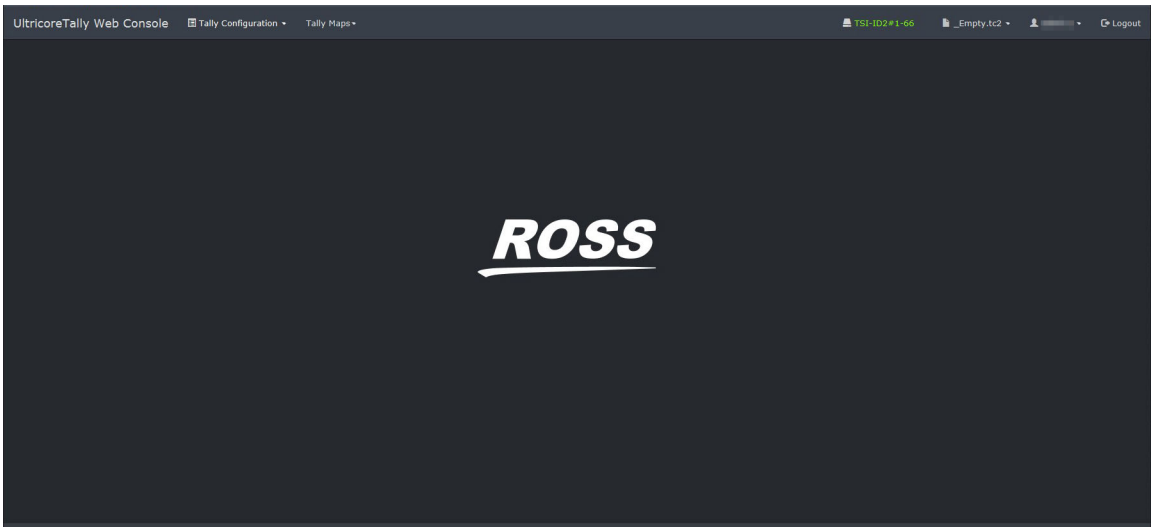
1. Launch DashBoard on your PC.
2. Click File > New > TCP/IP DashBoard Connect or openGear device
3. In the IP address field, enter <IP address>:4000. For example 123.123.12.23:4000.
4. Log Answer the login prompt page with a user and password.

To log into the Ultricore-Tally Web Console (first time)

1. Log into the Ultricore-Tally Web Console from a browser or DashBoard.

   The default login credentials are:

   - User: `admin`
   - Password: `admin`



2. Select the **User** profile menu near the top-right corner of the Ultricore-Tally Web Console.
3. Select **Administrate users**.
4. Click **New User**.
5. Enter a new username.
6. Enter a new password.
7. Confirm the new password.
8. Select **Admin privilege**.
9. Click **Add**.

   The new admin user replaces the default administrator. From here new administrators and users can be created.

To set the permissions for a new user

1. From the top toolbar on the Ultricore-Tally Web Console, select the **User** menu.
2. Select **Administrate users**.
3. Select the required user account from the provided drop-down.

   The Ultricore-Tally Web Console reports `[Editing <User name>]` in the menu bar.
4. To hide a column from the user:
   a. From the **Tally Configuration** menu, select one of the editors.
   b. Click the header downward carat icon.
   c. Select **Hide Column**.
   d. Repeat for other editors and columns.
5. To hide a row from the user:
   a. From the **Tally Configuration** menu, select one of the editors.
   b. To hide a row from the user, clear the leftmost column of the row.
   c. Repeat for other editors and rows.
6. To hide multiple rows from the user:
   a. Locate the editable field at the top of the **Name** column.
   b. Type a filter word into this field.

This will reduce visible rows to rows with Names matching the filter word. For example, typing `CAM` into the filter box will display rows with names `CAM1`, `CAM 2`, `CAM-3`, etc. and hide all other rows.

c. Use the box beside the Name header to select the visible rows for user access. If a box is cleared (unselected), the specific row will not display.

d. Type a different filter word to control a different series of rows for user access.

e. Clear the filter word to see all rows and review which are checked or unchecked for access.

7. When finished editing, log out of the admin account.

To reload the current configuration (admin only)

✶ This may refresh UMDs and momentarily stop tally operations.

1. Select the **User** profile menu near the top-right corner of the Ultricore-Tally Web Console.
2. Click **Reload Current Configuration**.

   The Reload Current Configuration dialog opens.
3. Click **Yes**.

   The tally process restarts and the configuration is reloaded.

Selecting a new current configuration (admin only)

✶ This will refresh UMDs and momentarily stop tally operations.

1. Select the **User** profile menu near the top-right corner of the Ultricore-Tally Web Console.
2. From the provided drop-down menu, select a configuration file.

   The Change Current Configuration dialog opens.
3. Click **Yes**.

   The tally process will restart and a new configuration will be reloaded.

To filter the configuration pages

- Type a filter word into the **Edit** field at the head of the **Name** column.

  This will reduce the visible rows to only those rows with Names matching the filter word.

  For example typing `CAM` into the filter box will show rows with names `CAM1`, `CAM 2`, `CAM-3`, etc. and hide all other rows.

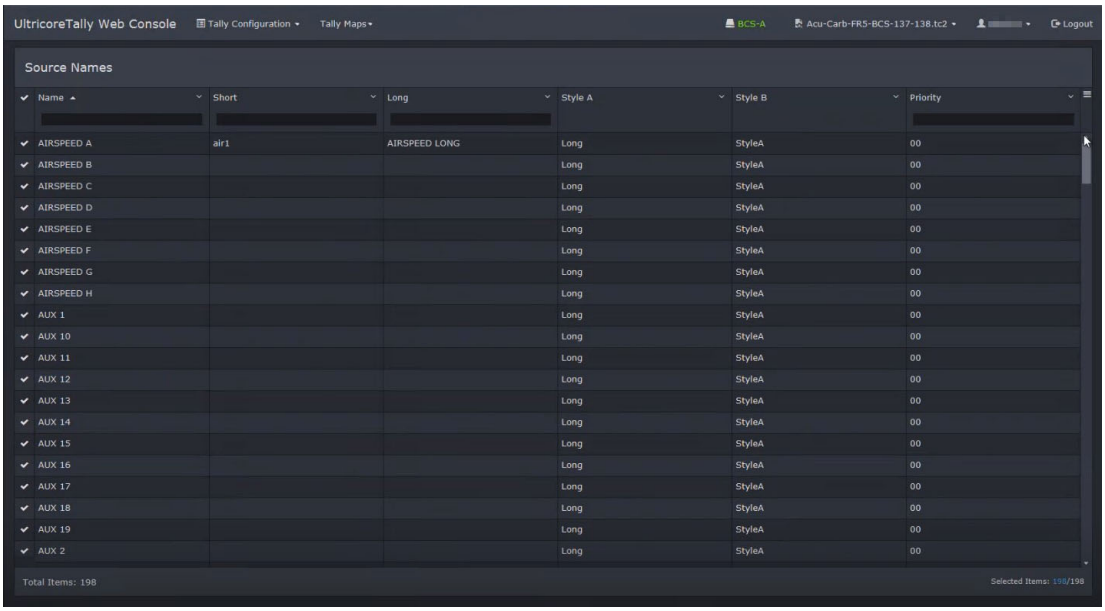
To override the source names

1. From the top toolbar on the Ultricore-Tally Web Console, select **Tally Configuration**.
2. Select **Source Names**.

   The Ultricore-Tally Web Console workspace displays the Source Names Editor. Each row represents an available source.
3. For a given Source, enter the new text into the **Long** column.

   In the following example, the user entered AIRSPEED LONG for the first source.

   For all UMDs displaying the given source, the name that is displayed from the **Name** column is immediately replaced with the new text from the **Long** column.



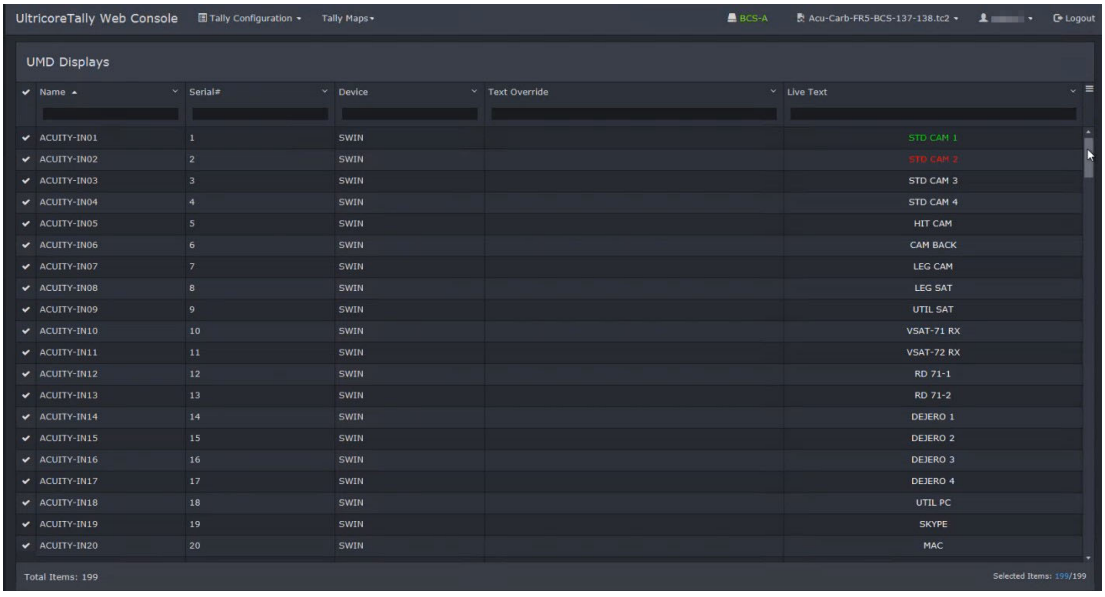
4. To restore a source to its default source name, delete the text from the **Long** column.

   For all UMDs displaying the given source, the displayed name will revert to the default source name.

To override the UMD displays

1. From the top toolbar on the Ultricore-Tally Web Console, select **Tally Configuration**.
2. Select **UMD Displays**.

   The Ultricore-Tally Web Console workspace displays the UMD Displays Editor. Each row represents an available UMD.



3. For a given UMD, enter the new text into the **Text Override** column.
   - The name displayed in the given UMD is immediately replaced with the new text from the Text Override column. Tally effects in the UMD will continue to operate as before.
   - The text override name is unaffected by various routes into the UMD, but tally effects will obey the normal rules depending on the sources routed to the UMD.

4. To restore normal operation to the UMD, delete the text from the **Text Override** column.

Creating and Using Tally Maps

Tally maps allow you to easily assign tally device inputs to tally device outputs by clicking the crosspoints of a control grid UI.

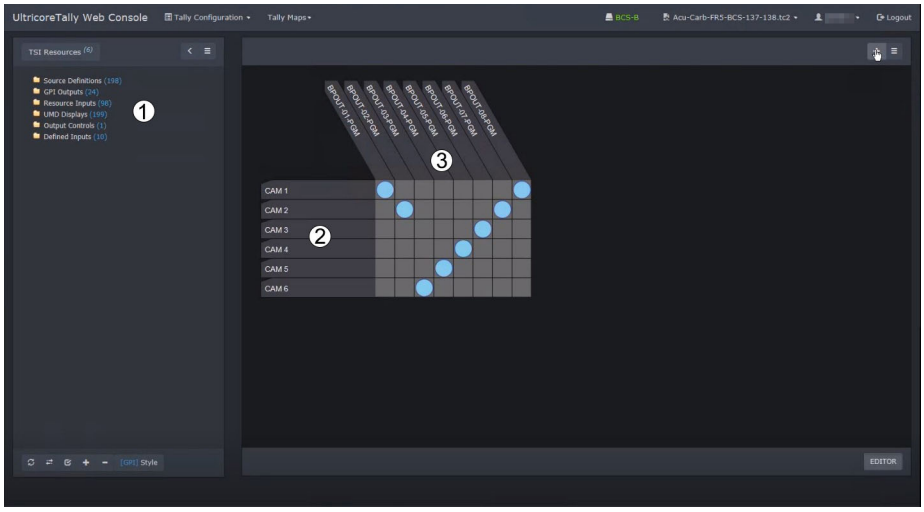


Figure 35 Example of a Tally Map

1) TSI Resources	2) Tally Device Outputs	3) Tally Device Inputs

1. TSI Resources

The TSI Resources area, the tree in the left pane, lists the tally device inputs and outputs. These resources were defined in the Tally System Console during the tally system commissioning process.

2. Tally Device Outputs

Using a drag and drop method, the horizontal axis of a tally map may be assigned with tally device outputs, which include:

› GPI outputs
› UMD Displays
› Router output controls

3. Tally Device Inputs

Using a drag and drop method, the vertical axis of a tally map may be assigned with tally device inputs, which include:

› Source definitions
› Resource inputs
› GPI inputs

Creating Tally Maps

Tally device inputs and outputs are assigned by dragging and dropping items from the TSI Resources tree into either the horizontal axis or vertical axis of a tally map.

To create a new tally map

1. From the top toolbar on the Ultricore-Tally Web Console, select **Tally Maps**.
2. Select **Editor**.

3. Select **+** (on the far right of the menu bar) to create a new tally map stub.
4. To assign tally device outputs:
    a. Expand the **TSI Resources** tree.
    b. Expand the folders to reveal the required tally device outputs (GPI Outputs, UMD Displays, or Router output controls).
    a. Select one or more items from the menu tree folder.
    b. Drag the selected items over to the tally map *horizontal* axis.
5. To assign tally device inputs:
    a. Expand the **TSI Resources** tree.
    b. Expand the folders to reveal the required tally device inputs (Source Definitions, Resource Inputs, or GPI Inputs).
    c. Select one or more items from the menu tree folder.
    d. Drag the items over to the tally map *vertical* axis.
6. At the far right of the Web Console menu bar, select **Configuration File**.
7. Click **Save Current Config Files**.

To set the control logic for each type of tally device output

1. Double-click an item in the *horizontal* row of the tally map.
2. On a row of the resulting *output* logic editor, select the **Control Style** menu.
3. Select a Control Style as per the *second* column of **Table 39**.
4. Repeat for each row of the *output* logic editor.

To set control logic for each type of tally device input

1. Double-click an item in the *vertical* row of the tally map.
2. On a row of the resulting *input* logic editor, select the **Control Style** menu.
3. Select a Control Style as per the *third* column of **Table 39**.
4. Repeat for each row of the *input* logic editor.

Table 39 Tally Map Logic

Tally Output Device Type	Tally Map Logic	
	Tally Device Output Logic	Tally Device Input Logic
GPI Outputs		
Program tally of sources (red tally)	(Tally Map) GPI single	Source on air
Preset tally of sources (green tally)	(Tally Map) GPI single	Source next to air
UMD		
UMD Displays	(Tally Map) UMD single	Source
Router Output Control		
Control of broadcast router	TAKE	(nothing to select)
Virtual, single crosspoint	(Tally Map) Take single in	Take virtual
Virtual, multiple crosspoints	(Tally Map) Take multiple in	Take virtual

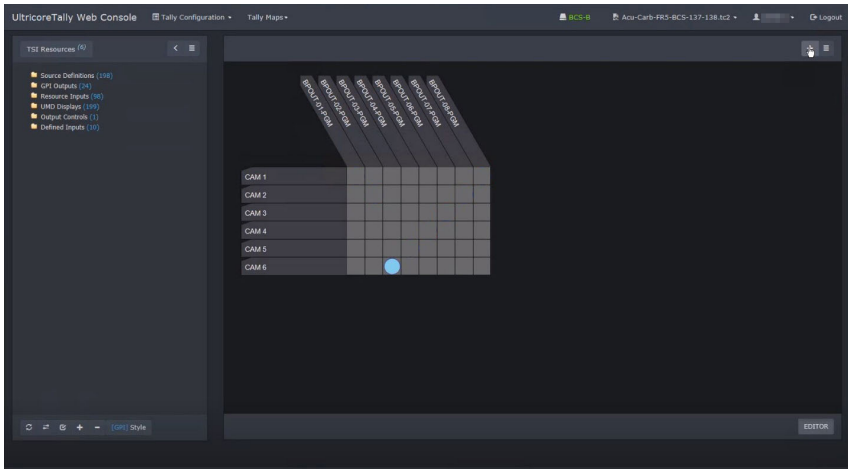
Using a Tally Map

For example, in a Source to GPO tally map, clicking a crosspoint will assign a particular broadcast Source to a particular GPO for on-air tally purposes.

To use a tally map

1. From the top toolbar on the Ultricore-Tally Web Console, select **Tally Maps**.
2. Select a tally map from Tally Maps menu.
3. To assign a tally input device item to a tally output device item, select a crosspoint on the map.

   In the following example, the user selected one crosspoint.



4. On the far right of the Web Console menu bar, select **Configuration File**.
5. Click **Save Current Config Files**.

Ultricore-Tally and Ultriscape

This chapter outlines how to configure the Ultricore-Tally to work with Ultriscape UMD tallies.

✶ The procedures in this chapter assume you have a working knowledge of the Tally System Console. Refer to the ***Tally System Console User Guide*** and the ***Ultricore-Tally Device Setup Guide*** for information on navigating this application and configuring your tally system.

Setup for Destination Based Tallies

This section outlines the required steps for configuring destination-based tallies:

1. Create a Comm Port for the Ultricore BCS in the Tally System Console.
2. Create a Comm Port for the Router.
3. Verify the Remote Controller Mode on the Router.
4. Enable the Protocols on the Ultricore BCS.
5. Confirm that TSL UMD v5 Wrapping is Enabled.
6. Verify the Connection to the Ultrix Router.
7. Configure the PiP Destinations for the Database.
8. Configure the Multiviewer Heads.
9. Define the PiP Destinations in the Tally System.
10. Define the UMD Tallies in the Tally System.
11. Assign the Ultricore BCS Tally IDs to the Tally System UMD.

Create a Comm Port for the Ultricore BCS in the Tally System Console

This section outlines how to navigate the Tally System Console to create a new Comm Port connection for the Ultricore-Tally that will communicate with the Ultriscape Multiviewer.

To create a new Comm Port in the Tally System Console for the Ultricore-Tally

1. Launch the Tally System Console on your computer.
2. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Displays**.
3. Create a new port for the Ultricore-Tally:
   a. Use the **Port Name** field to specify a name to the port.

      In the following example, the user is configuring `BCS-Tally-rtr`.

   b. Set the **TSI Tally Controller Unit** to **BCS-Tally-A**.

   c. Set the **Protocol** to **Ross Ultrix Multiviewer (TSL v5.0-Wrapped: MV is TCP Server)**.

      TSL-5.0 'wrapped' protocol is recommended, to follow default 'wrapped' option in BCS.

   d. Use the **Device Configuration** dialog to specify the IP Address assigned to your **Ultricore BCS** (do not enter the Ultrix IP address) in the **IP Addr #1** field.

Create a Comm Port for the Router

Next you will set up a Comm Port for the Ross Ultrix Router that includes the Ultriscape Multiviewer.

To create a new Comm Port in the Tally System Console for the Router

1. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Routers**.
2. Create a new port for the router:
   a. Use the **Port Name** field to specify a name to the port.

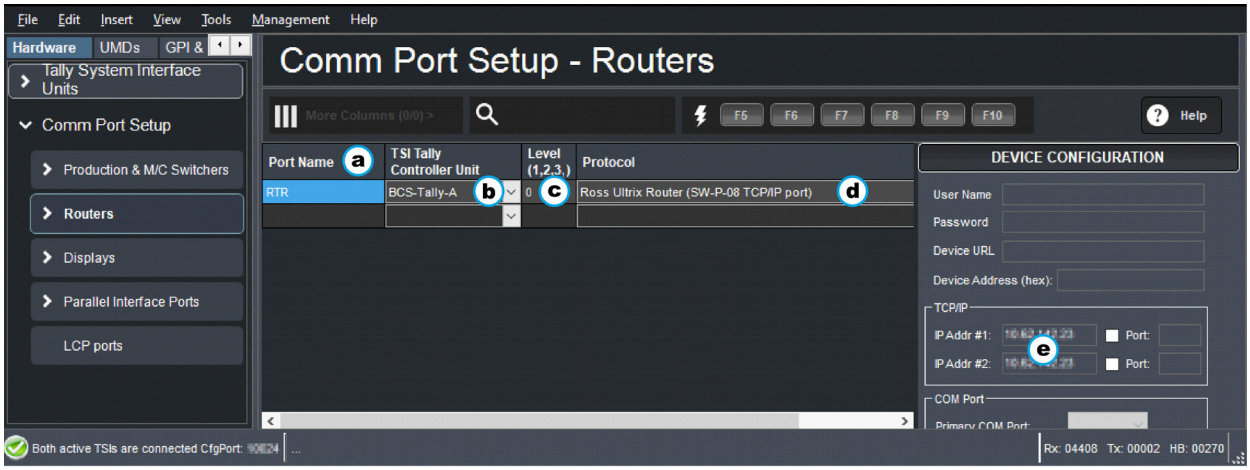
      In the following example, the user is configuring `RTR`.

   b. Set the **TSI Tally Controller Unit** to **BCS-Tally-A**.

   c. Set the **Level** to **0**.

   d. Set the **Protocol** to **Ross Ultrix Router (SW-P-08 TCP/IP port)**.

   e. Use the **Device Configuration** dialog to specify the IP address assigned to your **Ultricore BCS** (do not enter the Ultrix IP address). Ensure to enter the same value in both **IP Addr** fields.

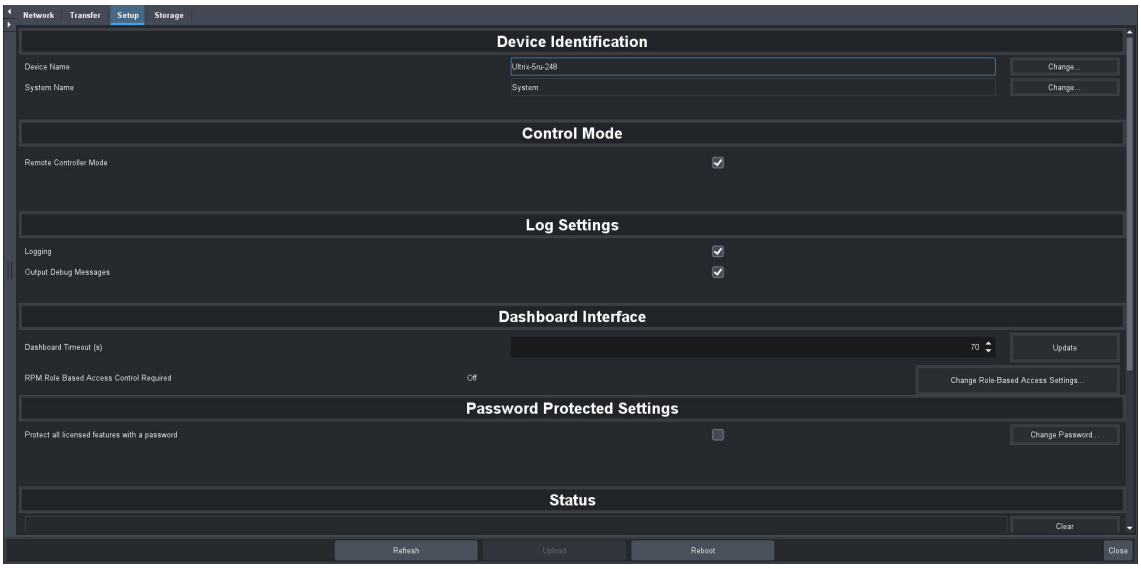


Verify the Remote Controller Mode on the Router

You must enable Remote Controller Mode on the router for the Ultriscape Multiviewer you wish to connect to.

To verify the remote control mode on the router

1. Locate the **Ultrix** node in the Tree View of DashBoard.
2. Expand the main **Ultrix** node.
3. Select **Product Info** > **Setup**.
4. Locate the **Control Mode** area of the tab.
5. Verify that the **Remote Control Mode** box is selected.

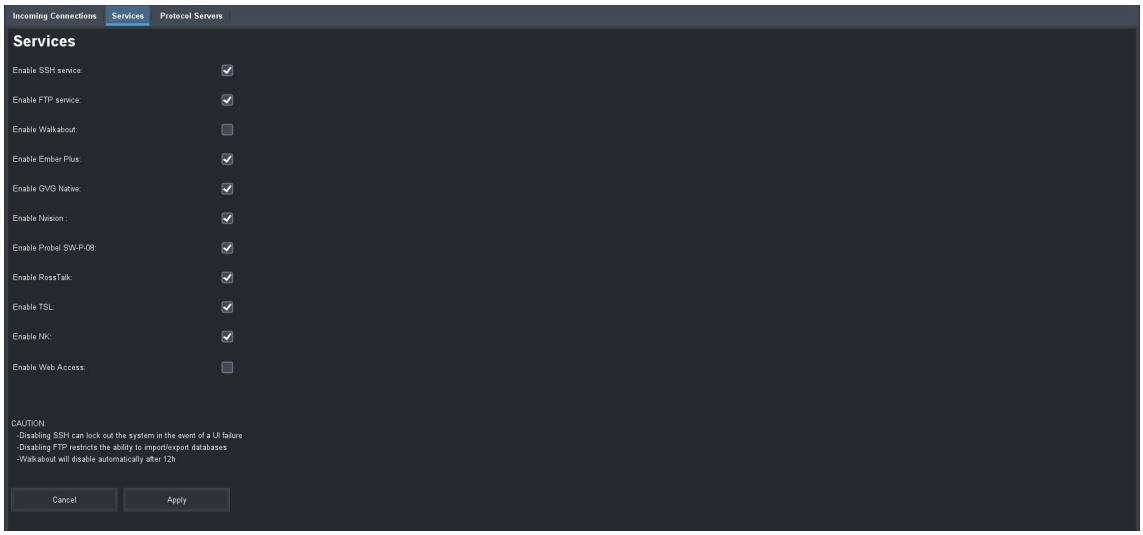


Enable the Protocols on the Ultricore BCS

Confirm that the SW-P-08 and TSL protocols are enabled on the Ultricore BCS. This will allow the Ultricore-Tally to communicate via these protocols to the Tally System devices.

To enable the protocols on the Ultricore BCS

1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.
3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
4. Select **System** > **Configuration** > **Connections**.
5. Select the **Services** tab.



6. Verify the **Enable Probel SW-P-08** box is selected.
7. Verify the **Enable TSL** box is selected.
8. Click **Apply** if you edited the settings on this tab.

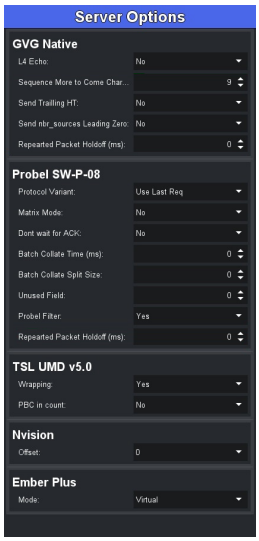
Confirm that TSL UMD v5 Wrapping is Enabled

Confirm that the TSL-5 UMD Wrapping option is enabled in both the Ultricore BCS and the Tally System Console.

To confirm on the Ultricore BCS

1. From the Ultricore BCS tree in DashBoard, select **System** > **Configuration** > **Connections**.
2. Select the **Protocol Servers** tab.
3. Click **Options**.

   The **Server Options** dialog opens.



4. In the **TSL UMD v5** area, confirm the **Wrapping** box is selected.
5. Click **Apply**.

To confirm on the Tally Console

1. In the Tally System Console, select **Hardware** > **Comm Port Setup** > **Displays**.
2. Locate the row for the Comm Port you created in "**To create a new Comm Port in the Tally System Console for the Ultricore-Tally**".
3. Locate the **Protocol** column.
4. Verify that the cell reports Ross Ultrix Multiviewer (`TSL v5.0-Wrapped: MV is TCP Server`).

Verify the Connection to the Ultrix Router

It is recommended to verify the connection between the Ultricore BCS and the Ultrix router running the Ultriscape Multiviewer.

To verify the connection

1. From the Ultricore BCS tree in DashBoard, select **Database** > **Configuration** > **Routing Devices**.
2. In the left pane, select the row for the Ultrix router with Ultriscape that is connected to the Ultricore BCS.

   The **Communication** tab in the right pane now displays the settings for the selected router.
3. Locate the **Communication** area of the tab.
4. Make a note of the router **IP Address**.

To verify the Ultriscape is enabled on your Ultrix router

1. Display the Ultrix router in the Tree View of DashBoard.

✶ If the Ultrix router is not already in the Tree View, refer to "**To manually add the Ultricore BCS to the Tree View in DashBoard**" using the IP Address from step 4 in the previous procedure.

2. Expand the Ultrix node to display a list of sub-nodes.
3. Select **System** > **Configuration** > **Ultrix**.

   The **Device Configuration** Interface displays.
4. Select 
5. Select the **UltriScape** tab.
6. Locate the row for the slot and head that will provide the Ultriscape Multiviewer.
7. Identify slot and head includes an active Ultriscape license. If it does not, refer to the ***Ultriscape User Guide*** for details on enabling a license.

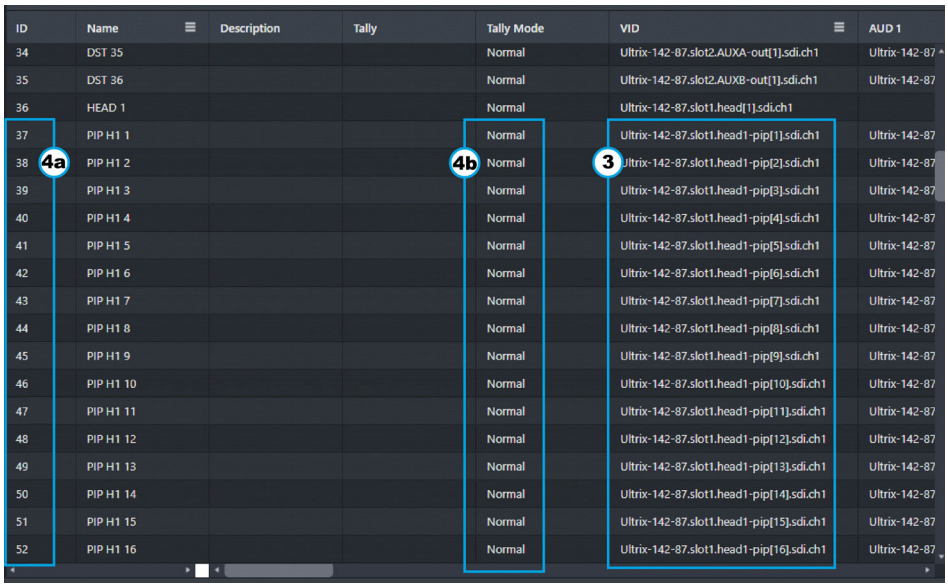
Configure the PiP Destinations for the Database

This section outlines how to define the PiP destinations in your Ultricore BCS database for inclusion in the Tally System.

To assign Tally IDs and the Tally Mode to the PiP destinations

1. Display the Ultricore BCS tree in DashBoard.
2. Select **Database** > **Configuration** > **Destinations**.
3. Identify the PIP destinations that match the Slot / Head of interest found in step 7 of the previous procedure.

   In the following example, the user is verifying the destinations assigned to Slot 1 Head 1.



4. For each PiP Destination:
   a. In the Tally column, set the **Tally ID**. A range starting from 1001 is recommended.
   b. Set the **Tally Mode** to **Normal**.

✶ This step is for destination-base UMD setup. For source based UMD setup, refer to "**Setup for Source Based Tallies**".

Configure the Multiviewer Heads

This section provides a brief overview of how to configure an Ultriscape Multiviewer Head for tallies in your routing system. Refer to the ***Ultriscape User Guide*** for more details.

To configure the Multiviewer Head for tallies

1. Display the same Ultrix router in DashBoard that you accessed in "**To verify the Ultriscape is enabled on your Ultrix router**".
2. Select **Ultriscape** > **Head Selection**.

   The Head Selection interface displays in DashBoard.
3. From the top row, select the tab for the required Multiviewer Head.
4. Assign all **PIP # Source** fields to a database source.

✶ Do not select any Destination Follow entries.

5. Click **Apply**.
6. From the **Ultriscape** tree view, double-click the **Layout Editor** node.

   The Layout Editor interface displays in DashBoard.
7. Load the layout you wish to configure for tallies.
   a. From the main toolbar, select **File** > **Load Layout Template from Ultricore**.

      The **Load Layout Template** dialog opens.
   b. Select a layout from the provided list.
   c. Click **OK**.

   The Layout Editor now displays the selected layout.

8. For each PIP of the layout:
   a. Set the **Type** to **PiP Sources**.
   b. Select the **Tally** box.
   c. Select the **Use Tally Label** box.
9. To save your layout to the system, select **File** > **Save to Ultricore**.

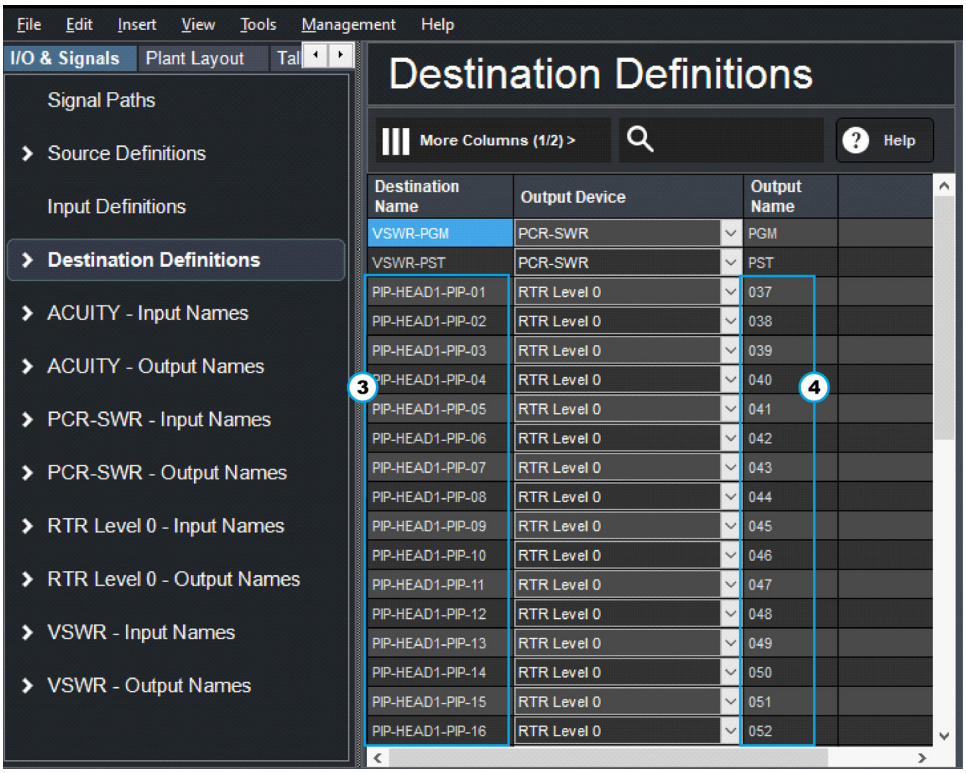
Define the PiP Destinations in the Tally System

Once you defined the tally settings for the PiP Destinations and Multiviewer Head, you will add this information to the Tally System Console.

To define the PiP Destinations within the tally system

1. In the Tally System Console, select the **I/O & Signals** tab.
2. Select **Destination Definitions**.
3. Locate the row for the first PiP Destination.
4. In the Output Name column, enter the ID values of the PIP Destinations from "**To assign Tally IDs and the Tally Mode to the PiP destinations**".

   In the following example, the Output Name value range starts with a Destinations ID of 037.



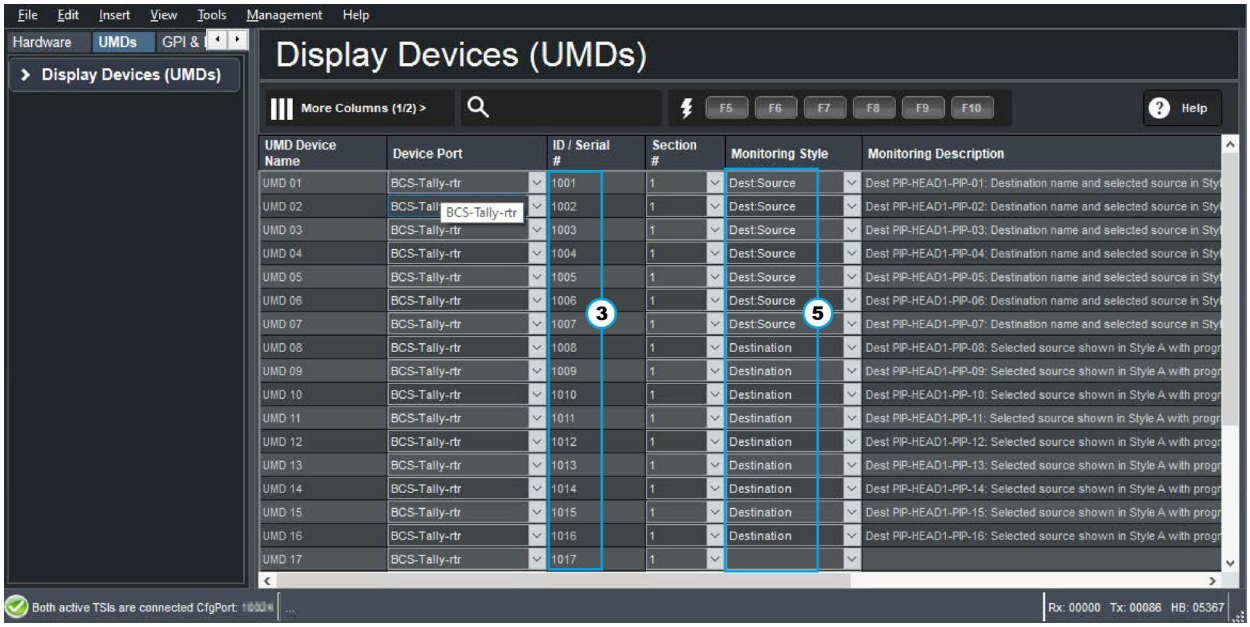
Define the UMD Tallies in the Tally System

Define the UMD tallies in the tally system using the information from the router destinations configuration. This will link the UMD tallies with the destinations in your database.

To define the UMD tallies in the Tally System

1. In the Tally System Console, select **UMDs** > **Display Devices (UMDs)**.
2. Locate the **ID / Serial#** column.

3. Enter the values from the Ultricore BCS > Database > Configure > Destinations > Tally column in "**To assign Tally IDs and the Tally Mode to the PiP destinations**" (where in this example the values of 1001, 1002, etc. were used).
4. Locate the **Monitoring Style** column.
5. Set a destination-based monitoring style (for example Destination Long or Dest:Source).

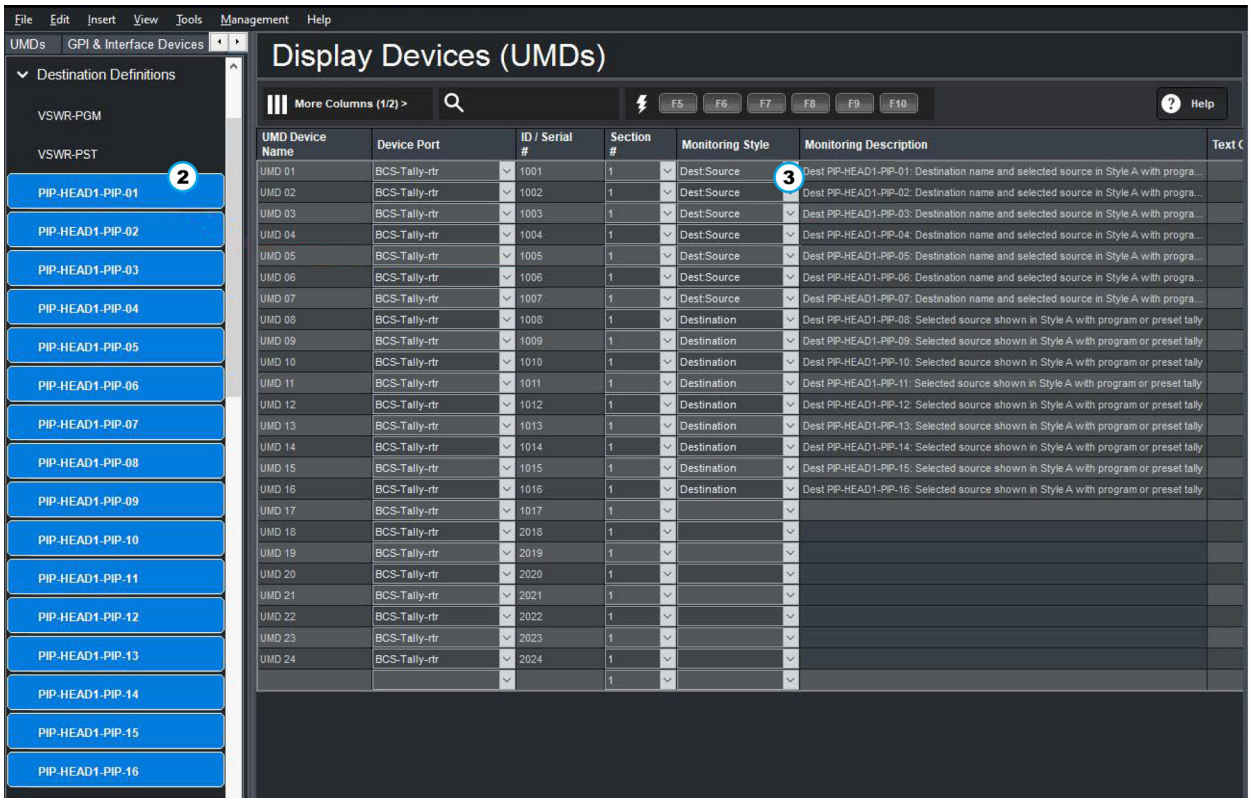


Assign the Ultricore BCS Tally IDs to the Tally System UMD

Next you will define the destination-based UMD setup in the tally system.

To assign the PiP Destinations to the Display Devices in the tally system

1. In the Tally System Console, select **Display Devices (UMD)** > **Destination Definitions**.
2. Multi-select the required PiP destinations from the router database.
3. Drag the selections into the **Monitoring Description** column.



4. When prompted, select **Assign a single parameter to each row**.

✶ This step is for destination-base UMD setup. For source-based UMD setup, refer to "**Setup for Source Based Tallies**".

Setup for Source Based Tallies

The setup for source-based tallies is similar to destination-based tallies except for the following:

1. In the Ultricore BCS > Database > Destinations, ensure for each PiP destination that the:
   a. **Tally ID** column is empty.
   b. **Tally Mode** column is set to **Redirect**.
2. In the Ultricore BCS > Database > Sources that the Tally IDs are filled in to correspond to the Tally System Console > UMDs > ID / Serial # column (usually 1, 2, 3, etc.).
3. In the Ultrix > Ultrix > System > Configuration > Tally Settings tab:
   a. Locate the **Tally Label Text Settings** area.
   b. Set the **Source Mode** to **overwrite**.
4. In the Ultrix > Ultrix > System > Configuration > Label Settings tab:
   a. Locate the **Label Settings** area.
   b. Set the **Dest Follow Label Displays** to **SRC**.
5. To verify whether the UMDs are updated in the Ultriscape controlled monitor wall:
   a. Navigate to the Ultrix > Ultriscape > Head Selection interface.
   b. Select a different layout.
   c. Click **Apply**.

d. Wait a moment to ensure the new layout is loaded.

e. Return to the layout of interest.

f. Click **Apply**.

g. Verify that the Ultriscape loaded the edited version of the layout.

6. In the Tally System Console, select **Display Devices** and perform the following:

   a. Set the **Monitoring Styles** column to **Source**.

   b. Set the **ID / Serial #** column to correspond to the Tally IDs set in step 2 of this section (typically 1,2,3 etc.).

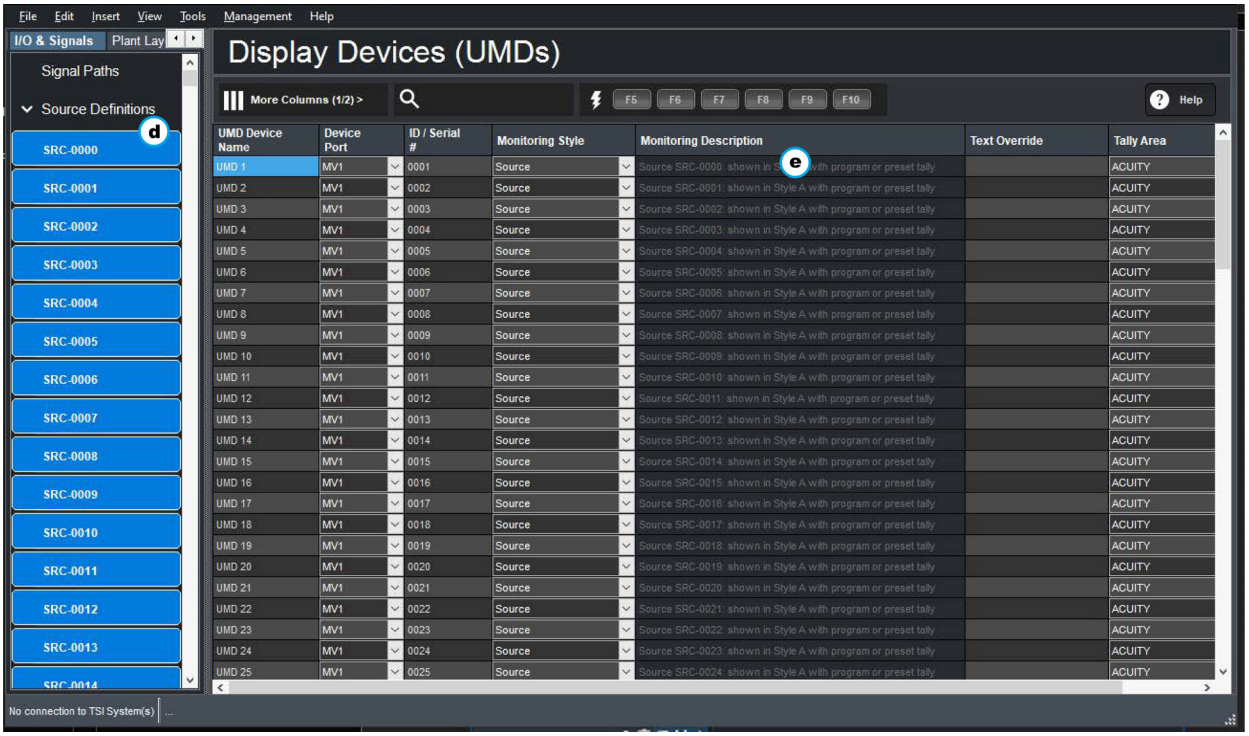
   c. In the left menu tree, select the **I/O & Signals** > **Source Definitions**.

   d. Multi-select the required **Source Definitions** to be assigned to UMDs.

   e. Drag the selected sources to the **Display Devices (UMDs)** > **Monitoring Description** column.

   f. When prompted, select **Assign a single parameter to each row**.

✶ To access the Source Definitions list in the left menu tree, select the **+** icon beside the Source Definitions title (not the Source Definitions title itself).



Operation with Ross Devices

This chapter provides additional information when connecting the Ultricore BCS to Ross devices such as the Ultrix routers, the NK series routers, and Remote Control Panels (RCPs).

For More Information on...

- setting up communications between Ultricore BCS and devices, refer to "**Enabling a Service**".

Operation with an Ultrix Router

The Ultricore BCS provides support for larger routing databases, greater client connections as well as enhanced control and connectivity capabilities. Ultricore BCS allows you to scale your control to include multiple frames, tielines, IP routing, and distributed routing systems.

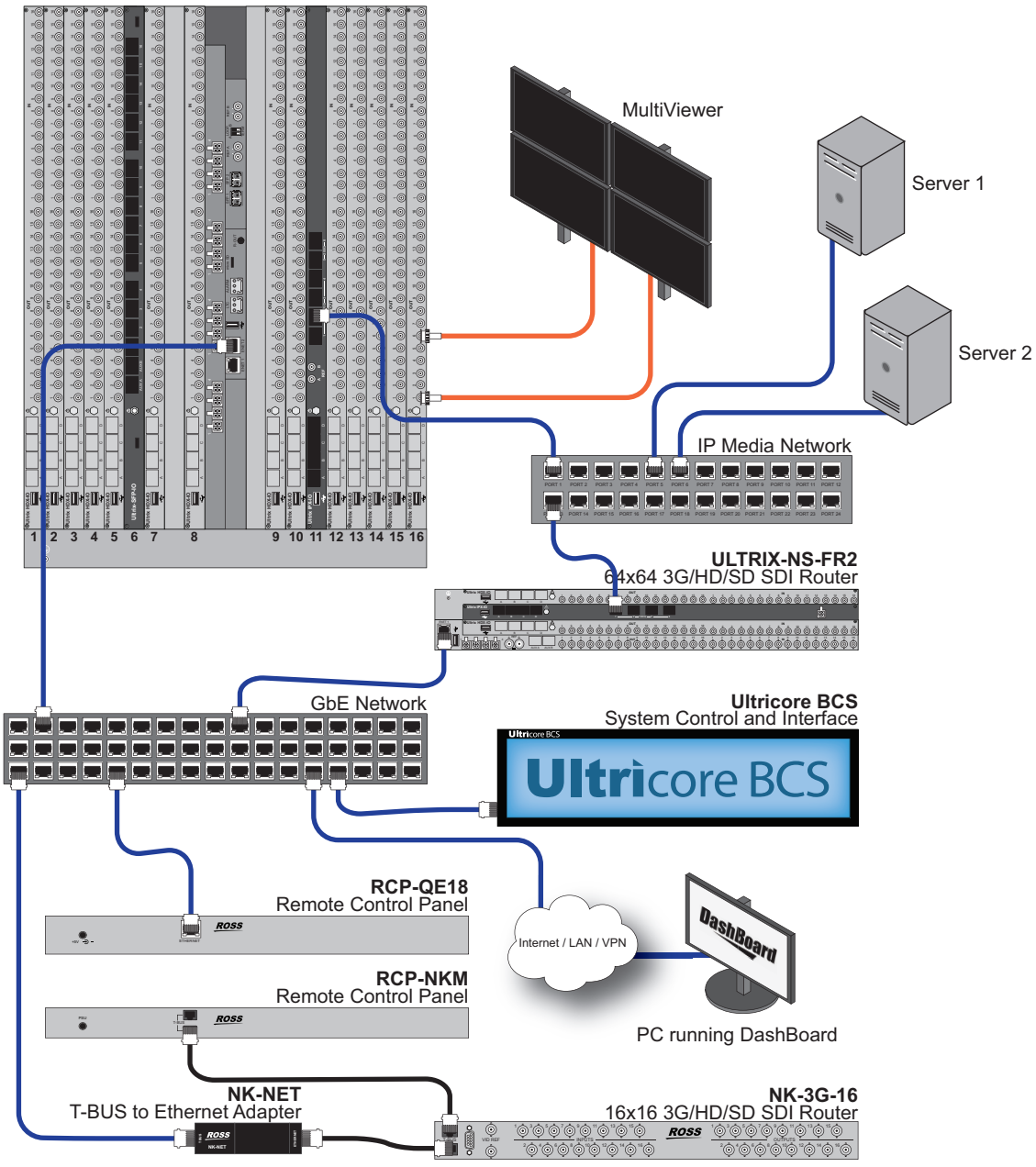


Figure 36 Example Setup Using an Ultricore BCS with Multiple Ultrix Routers and Panels

Operation Notes

Keep the following in mind when operating an Ultrix router within the Ultricore BCS routing system:

- The Ultrix hardware is configured on the Ultrix router in DashBoard.
- Device specific functions such as hardware setup, installed license keys, and Ultriscape setup remain in the DashBoard node of the Ultrix router.
- The Ultriscape (Multiviewer) licensed feature is configured on the Ultrix router in DashBoard.
- All crosspoint changes (including salvos) must originate from the master Ultricore BCS database.
- All routing commands are sent to and executed by the master Ultricore BCS. This includes any third-party communications (GVG, Probel, TSL, etc.). The Ultrix router will ignore any routing commands not originating from the master Ultricore BCS database while in this connected mode.
- If more than one Ultrix router is to be controlled from the Ultricore BCS, ensure that you assign unique device names for the Ultrix routers via the front panel. This will help to quickly identify the routers within the Ultricore BCS system. Refer to the ***Ultrix User Guide*** for your router.
- Each Ultrix router must be configured for remote control mode. Refer to the ***Ultrix User Guide*** for your router.
- All Remote Control Panels (RCP) must be configured to connect with the master Ultricore BCS.

For More Information on...

- configuring your database, refer to the ***Ultrix and Ultricore Database Guide***.

Using Tielines

A tieline is a method of connecting two routers together so that they may share sources and destinations. How many inputs and outputs that can be shared depends on how many tielines have been provisioned, if the tielines are in use, or if a user has permissions to use them.

Figure 37 represents a two-way tieline connection between routers where one (or more) outputs of Ultrix 1 are connected to the inputs of Ultrix 2, and one (or more) outputs of Ultrix 2 is connected to the inputs of Ultrix 1.

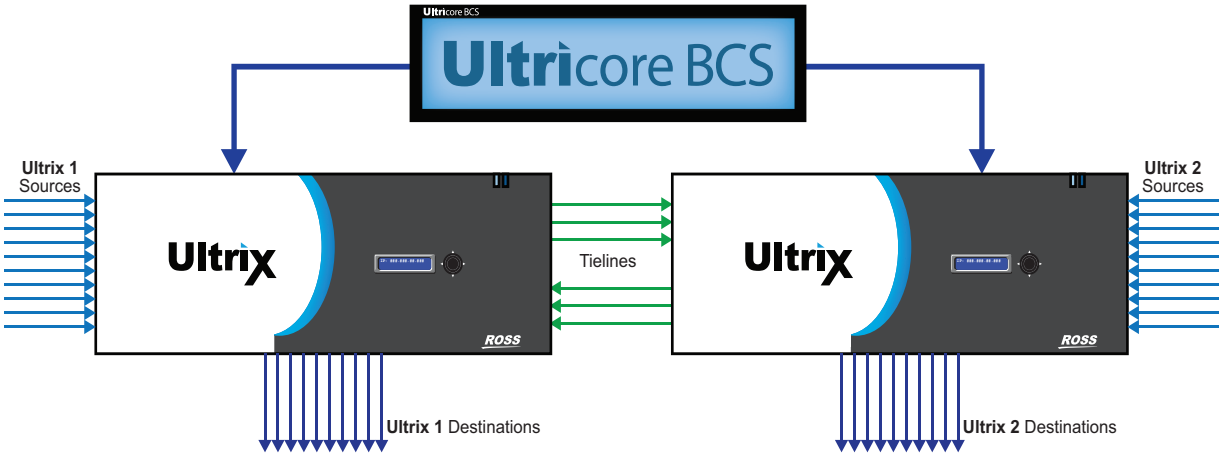


Figure 37 Example of a Distributed Routing System Work Flow with Tielines

Figure 38 illustrates a work flow where Ultrix 2 needs a source that is only present on Ultrix 1. The Ultricore BCS routes the requested source to a destination that is configured as a tieline, and on Ultrix 2, it will route the tieline source to the user selected Destination.

✶ Tielines do not have to be bi-directional as represented in **Figure 37** and **Figure 38**.

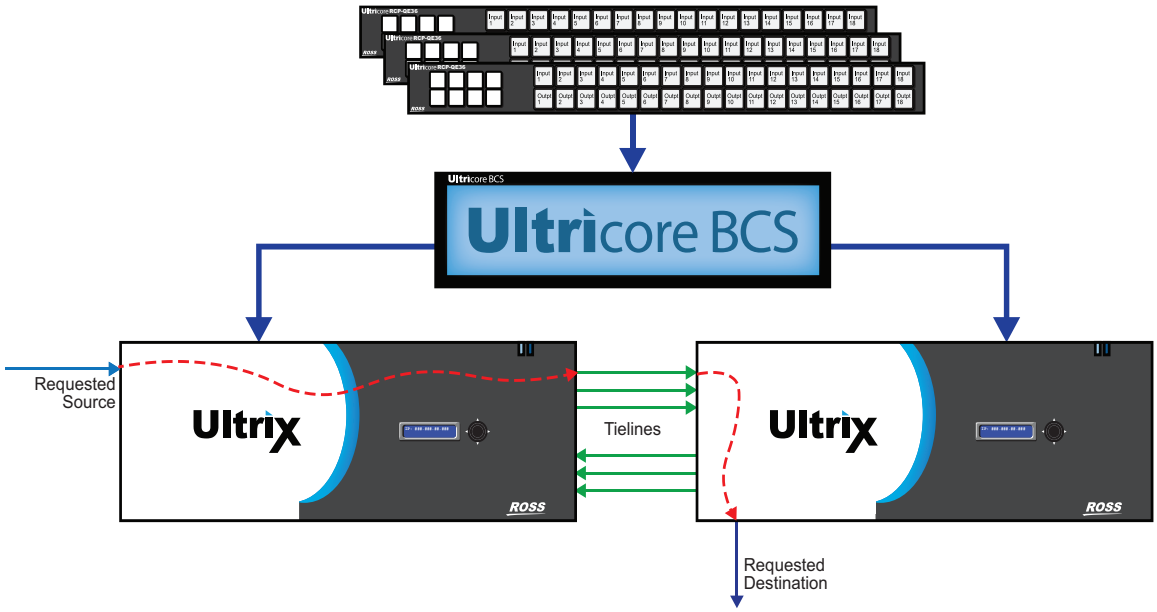


Figure 38 Example of Tielines in a Work Flow

In **Figure 38** the following occurred:

1. An RCP-QE36 panel, with access rights, made a request for a source on Ultrix 1 to be connected to a destination on Ultrix 2.
2. The Ultricore BCS determined the 'path' knowing it has to use a tieline.
3. The Ultricore BCS had a free tieline and enabled:
   a. The Ultrix 1 requested source to switch to the tieline.
   b. The Ultrix 2 tieline input to switch to the requested destination.

For More Information on...

- using the Tieline Builder feature, refer to the ***Ultrix and Ultricore Database Guide***.

Operation with Ross NK Series Routers

Ross NK series routers and RCP devices may connect to the Ultricore BCS via an NK-IPS/NK-NET over Ethernet.

★ It is recommended for optimum performance to minimize device connections to the NK-NET.

Figure 39 provides an example of a routing system with an Ultricore BCS, an NK-IPS, and several Ross NK devices. Communication between the NK-IPS and the Ross NK devices is over T-Bus, while the Ultricore BCS communicates with the NK-IPS via Ethernet.

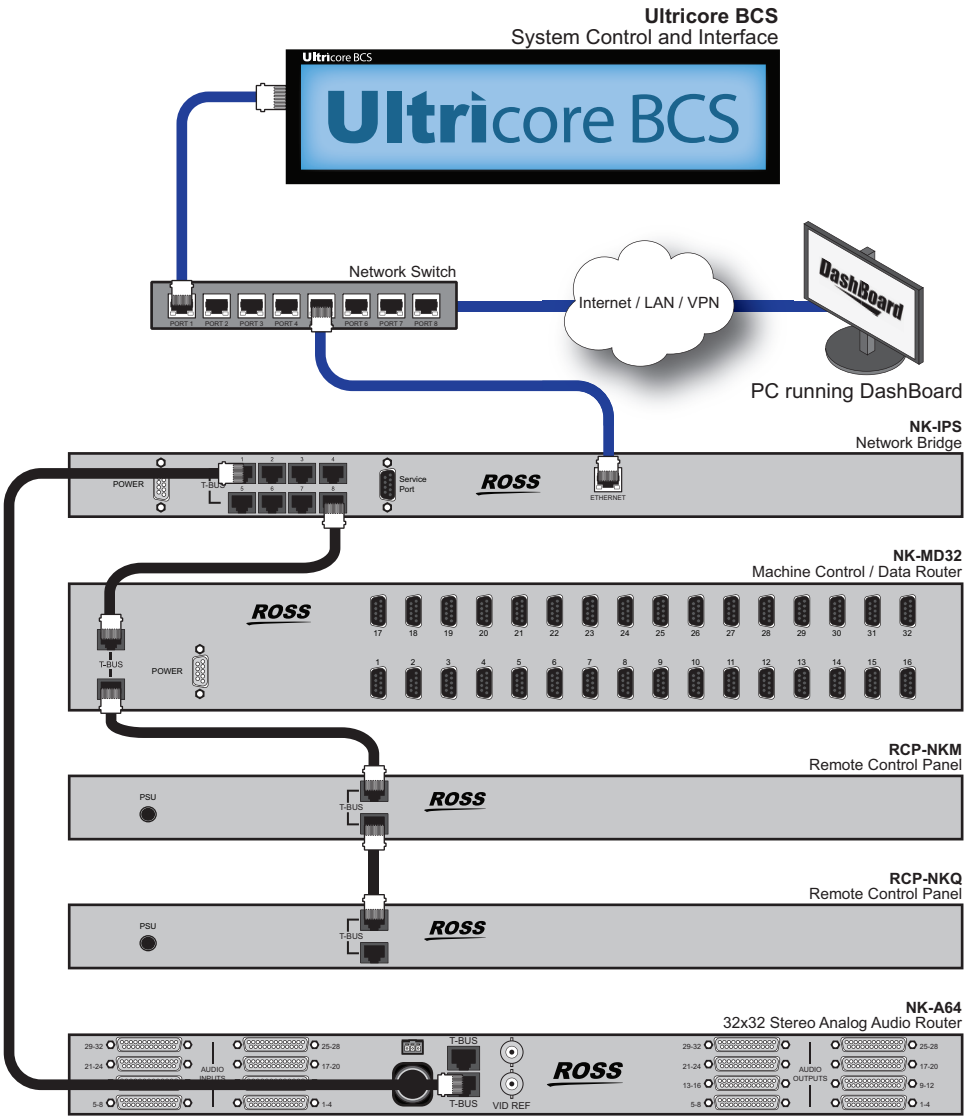


Figure 39 Connection Example with an NK-IPS

Introducing an Ultricore BCS to an existing Ross NK system requires specific configuration to enable the Ultricore BCS to manage the devices in the routing system. All Ross NK routers are automatically discovered[1] and appear in the available matrix list ready for label assignment.

Ross NK Series routers can utilize two methods of connection to the Ultricore BCS: Direct T-Bus connection and Ethernet connection via an NK-IPS or NK-NET.

Keep the following in mind:

- The NK-IPS requires version 2.23 or greater to communicate with an Ultricore BCS.
- The SCP/A is not supported.
- The SCP/K2 is not supported.
- NK-A64 control level is not supported.
- Ross NK router partitioning not supported. The logical mapping of the Ultricore BCS control system is far more capable and should be implemented there if required

1. Once an Ethernet connection point has been established for Ethernet connections.

Table 40 outlines the nomenclature that Ultricore BCS automatically uses for Ross NK devices.

Table 40 Default Ultricore BCS Naming for Ross NK Devices

Ross NK Device	Matrix Name	Port Name
NK-3Gxxx	deviceName.SDI	deviceName.slot1.in/out[socket number].SDI.ch1
NK-Axxx	deviceName.An Aud L	deviceName.slot1.in/out[socket number].An Aud L.ch1
	deviceName.An Aud R	deviceName.slot1.in/out[socket number].An Aud R.ch1
NK-Dxxx	deviceName.AES	deviceName.slot1.in/out[socket number].AES.ch1
NK-Mxx	deciceName.Machine Control	deviceName.slot1.in/out[socket number].Machine Control.ch1
NK-MDxxx	deviceName.SDI	deviceName.slot1.in/out[socket number].SDI.ch1
NK-Vxxx	deviceName.An Vid	deviceName.slot1.in/out[socket number].An Vid.ch1

Using Ross Analog Audio Devices (NK-A16, NK-A32, NK-A64)

The Ross NK Analog Audio devices (NK-A16, NK-A32, NK-A64) will present as two matrices: Left and Right respectively.

Adding Ross NK Series Routers to the Ultricore BCS

Add a Ross NK series device to the Ultricore BCS requires the following steps:

1. Define a connection point between Ultricore BCS and each NK-IPS or NK-NET.
2. Review the port label matrices for the Ultricore BCS database.
3. Assign outputs to the logical destinations in the database.
4. Assign inputs to the logical sources in the database.

For More Information on...

- configuring a database, refer to the ***Ultrix and Ultricore Database Guide***.

Integrating RCP-NK Series Panels with an Ultricore BCS

When adding the Ultricore BCS router to an existing system with one or more RCP-NK devices, each remote control must:

- have the **Virtual routing** enabled on their **Configuration** page;
- have the **Comms Retry Delay Factor** set to 80ms or greater;
- ensure that the level numbers correspond to the Ultricore BCS Level ID number in the database;

Be aware that the RCP-NK devices do not:

- support Ultricore BCS salvos;
- automatically retrieve source and destination labels from the Ultricore BCS. The labels must be entered manually or via a global labels file.

Integrating Ross RCP-ME/RCP-QE Panels with an Ultricore BCS

RCP-QE and RCP-ME Ethernet series remote control panels connect to Ultricore BCS via the facility network. The panels offer some extra features not available to RCP-NK series control panels;

- automatic source and destination labeling
- automatic level and salvo labeling
- the ability to trigger system wide salvos
- Category index source/destination selection method

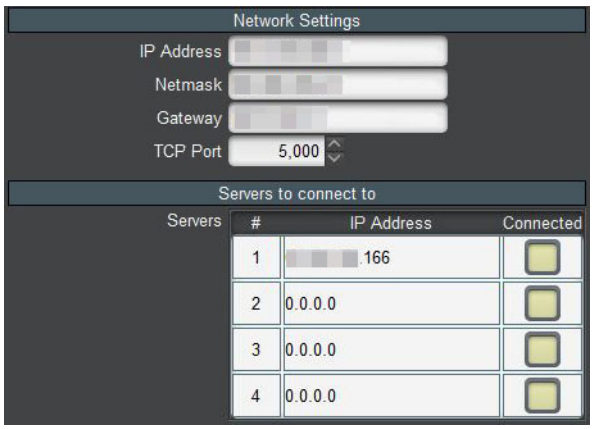
Adding a Ross RCP-ME or RCP-QE Panel to the Ultricore BCS

The **Connection Editor** interface for an RCP-ME or RCP-QE enables you to configure the connection point from the panel to Ultricore BCS. You will need DashBoard installed and running to access the Connection Editor interface.

To add an RCP-ME or RCP-QE

1. Connect the RCP to facility network and configure the network settings as outlined in the user guide for your remote control panel.
2. Open the **Connection Editor** in DashBoard for your panel as follows:
   a. In the Basic Tree View of DashBoard, expand the tree view for the remote control panel.
   b. Double-click the **Connection** icon within the device tree.

      The **Connection Editor** opens.
3. Locate the **Servers to connect to** area.



4. In a row of the provided table:
   a. Type the **IP Address** of the Ultricore BCS you want to establish a connection to.
   b. Press **Enter** to confirm the new value.

✶ Ultricore BCS may operate in a dual redundant controller mode. When operating in this mode, the IP address of the secondary Ultricore BCS is entered in the second row of the **Servers to Connect to** table. This enables the RCP to fail over to the secondary Ultricore BCS unit if the primary goes off-line.

5. Upon a successful connection and a refresh of the current DashBoard view (click the **Refresh** button), a check mark displays next to the successful connection. In the above example, an IP Address is entered for Server 1.
6. Verify in the **Connections** area that a connection is establish.
7. Configure the Remote Control Panel layout as outlined in the user guide for your panel.

Machine-Control (RS-422) Logical Mapping

Connecting an NK-M series router to Ultricore BCS requires some special consideration.

Machine control routing requires two crosspoints for a point to point connection due to the bi-directional nature of the signal. Each physical socket contains a transmit/receive pair. This can be thought of as a source-destination combination and is known as a port.

It is necessary to configure the input and output of the machine control port on the same row ID on the logical mapping tables.

ID	Name	VID
1	Port 1	NK-M32.slot1.out[1].Machine Control.ch1
2	Port 2	NK-M32.slot1.out[2].Machine Control.ch1
3	Port 3	NK-M32.slot1.out[3].Machine Control.ch1

Figure 40 Database — Destination Mapping

ID	Name	VID
1	Port 1	NK-M32.slot1.in[1].Machine Control.ch1
2	Port 2	NK-M32.slot1.in[2].Machine Control.ch1
3	Port 3	NK-M32.slot1.in[3].Machine Control.ch1

Figure 41 Database — Source Mapping

It does not matter where the machine control is mapped (either row 3 or 300), but the input and outputs physical ports must be mapped to the same row ID.

Conditions for Machine Control

Three conditions must be met before machine control can be switched.

1. The NK machine control router is attached and configured within the Ultricore BCS database (level, destination, and source maps). Refer to the ***Ultrix and Ultricore Database Guide***.
2. Selected breakaway or level must include the machine control level.
3. Machine control reciprocal must be enabled on the controller.

Setting up a Redundant System

This chapter outlines how to configure two Ultricore BCS panels into a single standby redundant system.

General Overview

The Ultricore BCS includes an option to set up a standby (backup) redundant system with two identical Ultricore BCS panels. The second panel backs up the first panel when it detects that the first panel fails. This enables reliable switching.

When configured in redundant mode, the two panels share the same IP address.

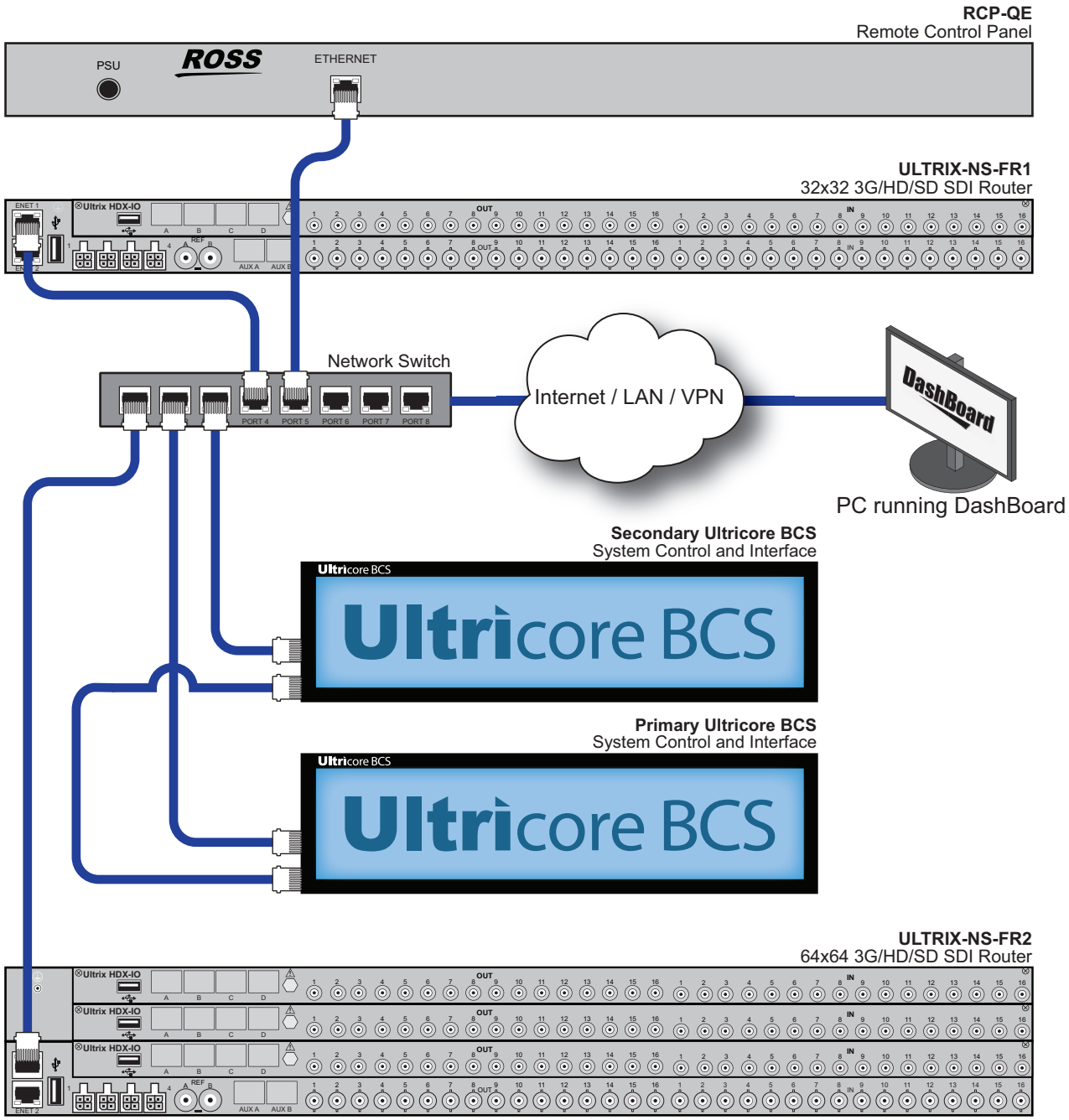


Figure 42 Example of Two Ultricore BCS Panels in a Redundant System

Before You Begin

Ensure you have the following before setting up your Ultricore BCS redundant system:

- two Ultricore BCS panels each configured with a unique IP address on the same network subnet, and both panels accessible via DashBoard
- a unique IP address is required for the units to share when in redundancy mode. This IP address must be on the same network subnet as the Ultricore BCS panels.

Cabling Requirements

The first Ultricore BCS must be physically cabled to the second Ultricore BCS via the **ENET2** ports on each unit. This section briefly outlines the required cabling method.

To connect the first Ultricore BCS to the second Ultricore BCS

1. Plug one end of an RJ45 1GbE network cable into the **ENET2** port of the first Ultricore BCS.
2. Plug the other end of the same cable to the **ENET2** port of the second Ultricore BCS.

✶ The two Ultricore BCS panels must be directly connected via their **ENET2** ports. Do not use a network switch or router between the two panels.

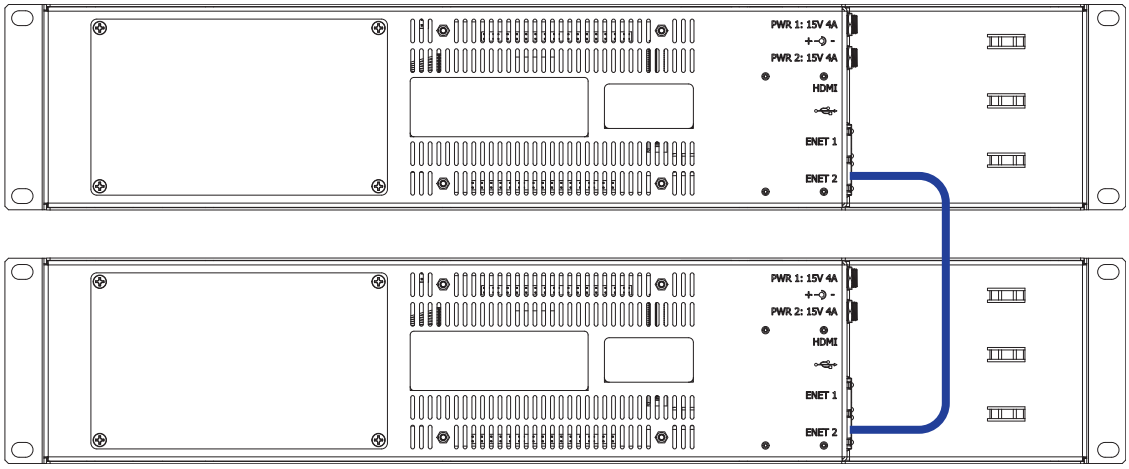


Figure 43 Cabling — Connecting Two Ultricore BCS Panels for Redundancy

Notes about Connecting

✶ Do not disconnect the tether (ethernet connection between the Ultricore BCS panels) once a redundancy connection is established. Redundancy will be lost and both will try to assume the master/primary role resulting in unpredictable behavior.

If the tether is disconnected:

1. Power down the secondary Ultricore BCS panel.
2. Reconnect the tether.
3. Wait 1 minute.
4. Power on the secondary Ultricore BCS panel.

✶ Do NOT reconnect the tether if both Ultricore BCS panels remain active.

Enabling Redundancy

When BCS Redundancy is enabled via DashBoard, the two Ultricore BCS panels will share a virtual (third) IP address. While in redundancy mode, DashBoard will connect to both panels using the shared IP address but only show one panel (the primary unit) in the Tree View of DashBoard.

There are two methods of creating a redundant system:

- Configuring a new redundancy system using two newly installed Ultricore BCS panels.
- Replacing an Ultricore BCS panel in a redundancy system already configured and running.

Both methods are outlined in this section.

Configuring a New Ultricore BCS Redundant System

Configuring a new Ultricore BCS redundant system requires you to:

1. Create a new redundant pair in DashBoard using the options in the System Status > BCS Redundancy tab.
2. Remove each Ultricore BCS node from the Tree View and power cycle each panel.
3. Add the Ultricore BCS redundant pair to the DashBoard Tree View.
4. Verify the Ultricore BCS pair connection is valid.

To create a new Ultricore BCS redundant pair

1. Locate the node for the first Ultricore BCS in the Tree View of DashBoard.
2. Expand the first Ultricore BCS node.
3. Double-click the **Product Info** node.

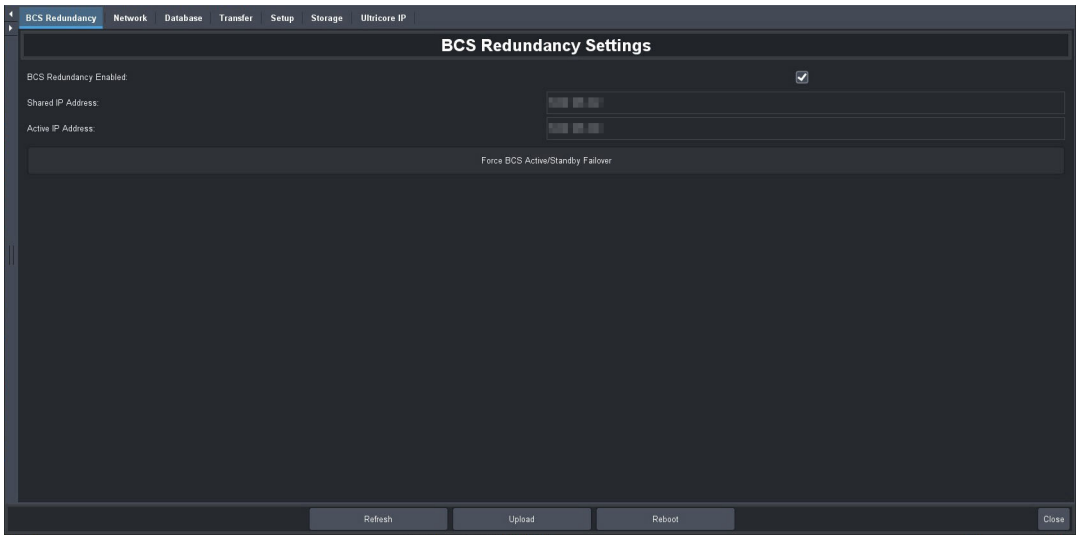
   The **Product Info** interface displays in the DashBoard window.
4. Select the **BCS Redundancy** tab.
5. Select the **BCS Redundancy Enabled** box.

   The **Enable BCS Redundancy** dialog opens.
6. Use the **Create or Join Existing Pair** menu to specify **Create New Redundant Pair**.

   The options in the **Enable BCS Redundancy** dialog update.
7. Use the **Secondary BCS IP Address** field to specify the IP address of the second Ultricore BCS panel.
8. Use the **Shared IP Address** field to specify the unique IP address that the two Ultricore BCS panels will share.
9. Click **Apply**.

   The **Enable BCS Redundancy** dialog closes.

   The fields in the **BCS Redundancy tab** update with the new values.



To remove the Ultricore BCS nodes from the Tree View

1. Locate the Basic Tree View pane in the DashBoard window.
2. Remove the first Ultricore BCS node as follows:
   a. Right-click the node for the first Ultricore BCS.
   b. Select **Remove**.

      The **Confirm tree item removal** dialog opens.
   c. Click **OK**.

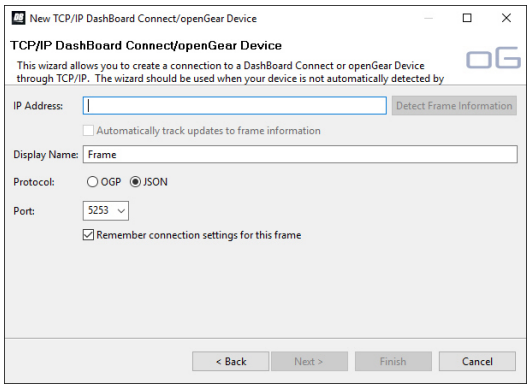
      The **Confirm tree item removal** dialog closes and the first **Ultricore BCS** node is deleted from the Tree View.
3. Repeat step 2 for the second Ultricore BCS.
4. Power cycle each Ultricore BCS panel.

To add the Ultricore BCS Redundancy System to the DashBoard Tree View

1. In the **Basic Tree View** toolbar of DashBoard, click .

   The **Add New Connections** dialog opens.
2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog opens.



5. Use the **IP Address** field to specify the **Shared IP Address** for the Ultricore BCS Redundancy System.

✶ The shared IP Address is the same value you entered in step 8 of the previous procedure.

6. Use the **Display Name** field to specify a unique name for the Ultricore BCS Redundancy System.
7. Set the **Protocol** to **JSON**.
8. Set the **Port** to **5354**.
9. Click **Finish**.

   The Ultricore BCS Redundancy System node displays in the **Tree View**.

To verify the Ultricore BCS Redundancy System is valid using DashBoard

1. Locate the node for the Ultricore BCS Redundancy System in the Tree View of DashBoard.
2. Expand the Ultricore BCS Redundancy System node.
3. Double-click the **Product Info** node under the Ultricore BCS Redundancy System node.

   The **Product Info** interface displays in the DashBoard window.
4. Select the **BCS Redundancy** tab.
5. Review the information reported in the read-only fields of the tab.

Replacing an Ultricore BCS Panel in an Existing Redundancy System

Use the procedures in this section should you need to replace an Ultricore BCS panel in a configured redundancy system.

✶ The replacement Ultricore BCS panel must be configured with its own IP Address and directly connected to the functioning panel as described in "**Before You Begin**".

To replace an Ultricore BCS in an existing redundancy system

1. Disable the Redundancy Mode on the currently active master panel as described in "**Disabling the Ultricore BCS Redundancy Mode**".
2. Create a new redundant pair as described in "**Configuring a New Ultricore BCS Redundant System**".

To verify the Ultricore BCS Redundancy System is valid

1. Locate the node for the Ultricore BCS Redundancy System in the Tree View of DashBoard.
2. Expand the Ultricore BCS Redundancy System node.
3. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.
4. Select the **BCS Redundancy** tab.
5. Review the information reported in the read-only fields of the tab.

Monitoring the Ultricore BCS Redundancy System

An alarm may be set to trigger when Ultricore BCS redundancy fails.

To enable the Standby BCS alarm

1. Locate the node for the Ultricore BCS Redundancy System in the Tree View of DashBoard.
2. Expand the Ultricore BCS Redundancy System node.
3. In the Tree View of DashBoard:

a. Expand the **System** sub-node.

b. Expand the **Configuration** sub-node.

c. Double-click the **UltricoreBCS** sub-node.

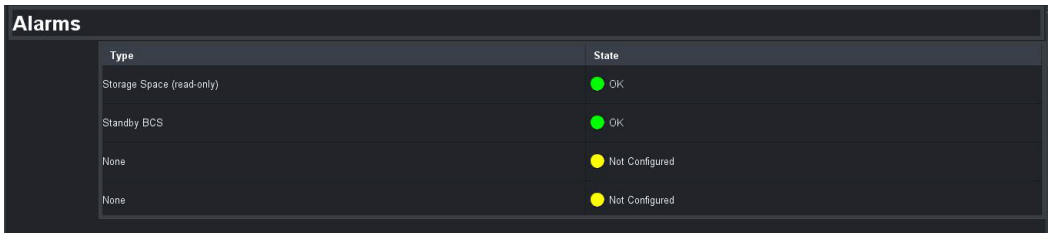
4. From the left toolbar, click **Alarms**.

   The Alarms table displays.

5. In the **Type** column of the Alarms table, select a row marked **None**.

   A drop-down menu opens.

6. Select **Standby BCS**.



Forcing a Failover Switch

You can force a switch from one Ultricore BCS panel to the second in a redundancy system via DashBoard.

✶ Failover occurs immediately for remote control panels (RCPs) and third-party controls. All instances of DashBoard may take up to a minute for control to be restored.

To disable redundancy mode on the first Ultricore BCS panels

1. Locate the node for the Ultricore BCS Redundancy System in the Tree View of DashBoard.
2. Expand the Ultricore BCS Redundancy System node.
3. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.

4. Select the **BCS Redundancy** tab.
5. Click **Force BCS Active/Standby Failover**.
6. Verify that the switch occurred by checking the values in the **Shared IP Address** and **Active IP Address** fields in the **BCS Redundancy** tab,

Disabling the Ultricore BCS Redundancy Mode

Disabling the redundancy mode between two Ultricore BCS panels requires you to:

1. Disable the redundancy mode in DashBoard.
2. Reset the IP address on each Ultricore BCS panel.
3. Manually add each Ultricore BCS panel to the Tree View in DashBoard.

To disable redundancy mode

1. Locate the node for the Ultricore BCS Redundancy System in the Tree View of DashBoard.
2. Expand the Ultricore BCS Redundancy System node.
3. In the Tree View of DashBoard, double-click the **Product Info** node.

The **Product Info** interface displays in the DashBoard window.

4. Select the **BCS Redundancy** tab.
5. Clear the **BCS Redundancy Enabled** box.

To manually add the first Ultricore BCS to the Tree View in DashBoard

1. In the **Basic Tree View** toolbar of DashBoard, click .

   The **Add New Connections** dialog opens.
2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog opens.
5. Enter the IP Address for the first Ultricore BCS in the **IP Address** field.
6. Click **Detect Frame Information**.
7. Click **Finish**.

   The first Ultricore BCS now displays in the **Tree View**.

To manually add the second Ultricore BCS to the Tree View in DashBoard:

1. In the **Basic Tree View** toolbar of DashBoard, click .

   The **Add New Connections** dialog opens.
2. Expand the **openGear/DashBoard Connect** node.
3. Select **TCP/IP DashBoard Connect or openGear Device**.
4. Click **Next >**.

   The **TCP/IP DashBoard Connect/openGear Device** dialog opens.
5. Enter the IP Address for the second Ultricore BCS in the **IP Address** field.
6. Click **Detect Frame Information**.
7. Click **Finish**.

   The second Ultricore BCS now displays in the **Tree View**.

Software Upgrades

✶ Contact Ross Technical Support before upgrading the software for your Ultricore BCS redundant system.

Upgrading your Ultricore BCS redundant system requires you to:

1. Upgrade the software on the standby Ultricore BCS.
2. Reboot the standby Ultricore BCS.
3. Wait until the standby Ultricore BCS is in sync with the primary Ultricore BCS.
4. Perform a failover to the newly upgraded standby Ultricore BCS.
5. Upgrade the software on the newly standby Ultricore BCS.
6. Reboot the newly standby Ultricore BCS.
7. Perform a failover.

System Integration Examples

There are many aspects of Ultricore BCS that you can configure to suit the needs of your organization. The properties that you are able to configure depends on your user permissions. Note that the information provided is for illustration purposes only, and the requirements for your facility may differ from what is presented.

Adding Ultricore BCS to Legacy Systems

In this example, you have legacy NK routers without remote control panels but you want to add the Ultricore BCS as a system controller. You can use Ultricore BCS and a series of NK-NETs to provide Ethernet connectivity for T-Bus based legacy systems. (**Figure 44**)

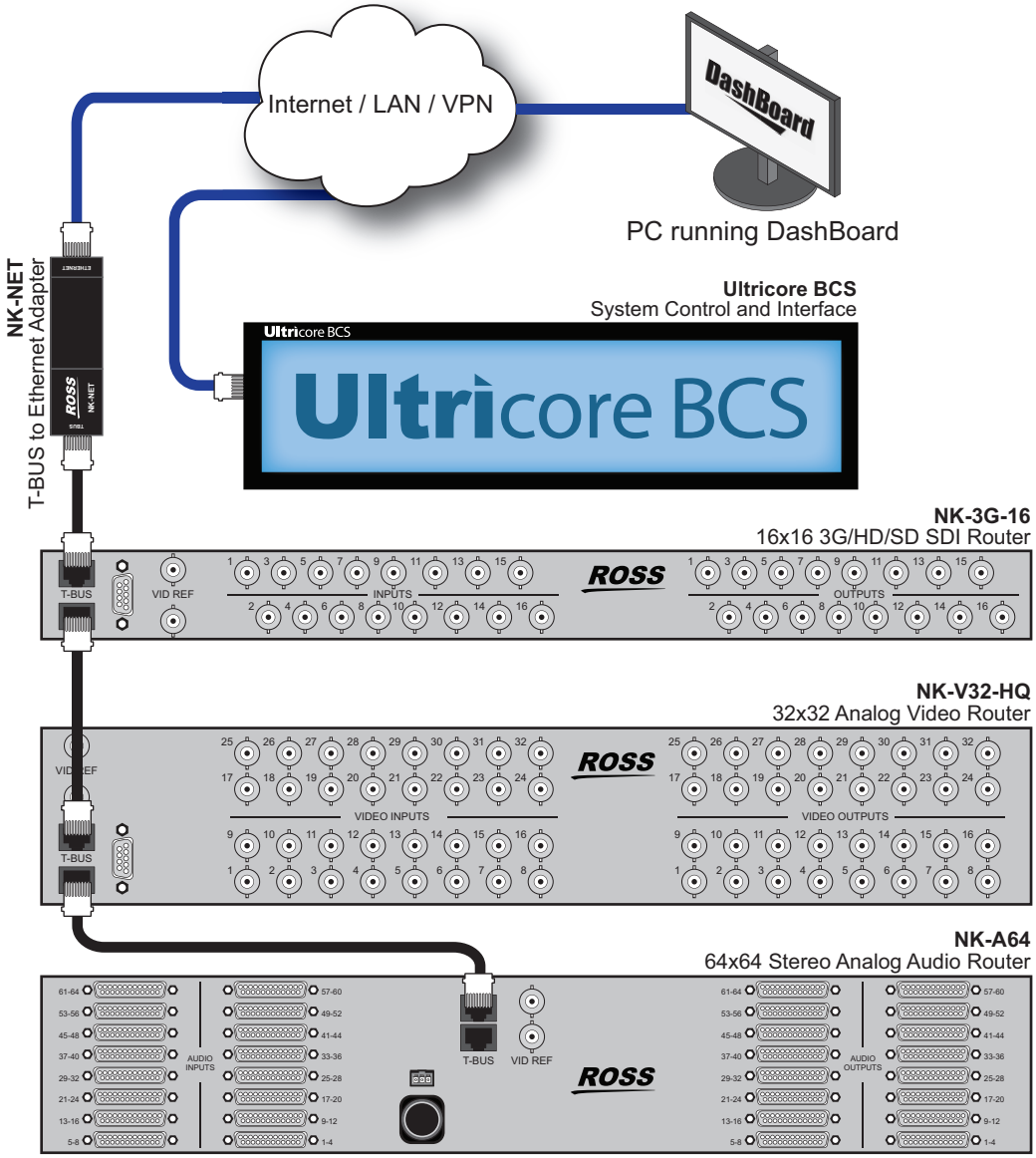


Figure 44 Adding Ethernet Communications via an Ultricore BCS

Integrating Third Party Routers with an Existing System

Ultricore BCS integrates supported third-party routers using GVG protocol translation. In **Figure 45**, the Ultricore BCS or the Ross router is the system master.

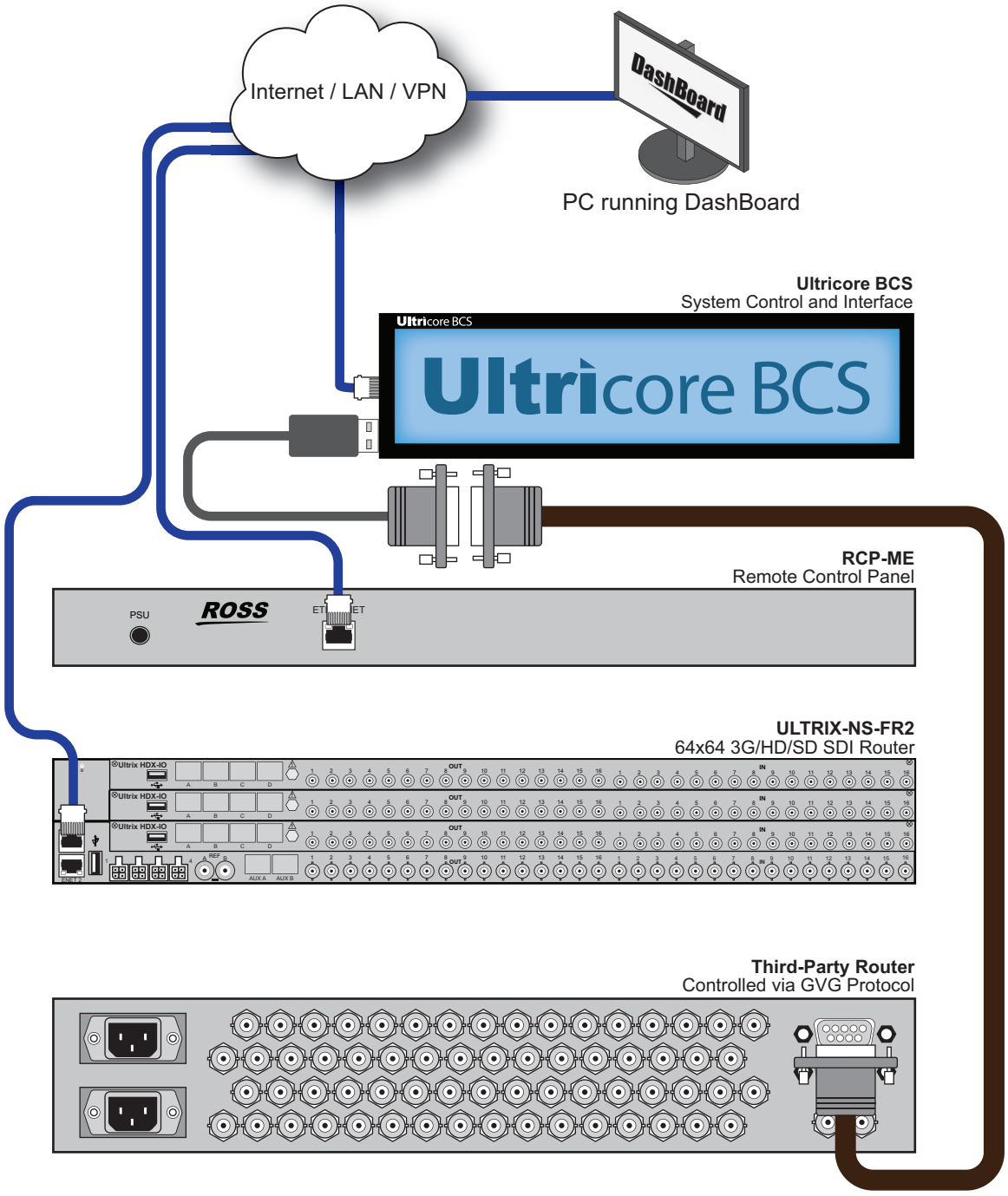


Figure 45 Integrating Third-Party Routers with an Ultricore BCS

Adding Third Party Control to Existing Systems

If you have an existing Ross routing system, you can add an external controller, such as an automation device, that is compatible with a supported third-party protocol. In **Figure 46**, the Ultricore BCS acts as the system controller and provides a protocol translation for the external third-party control device.

To add the third-party controller to your router system, connect the external controller to Ultricore BCS and configure Ultricore BCS to translate between the third-party controller and the rest of your Ross routing system.

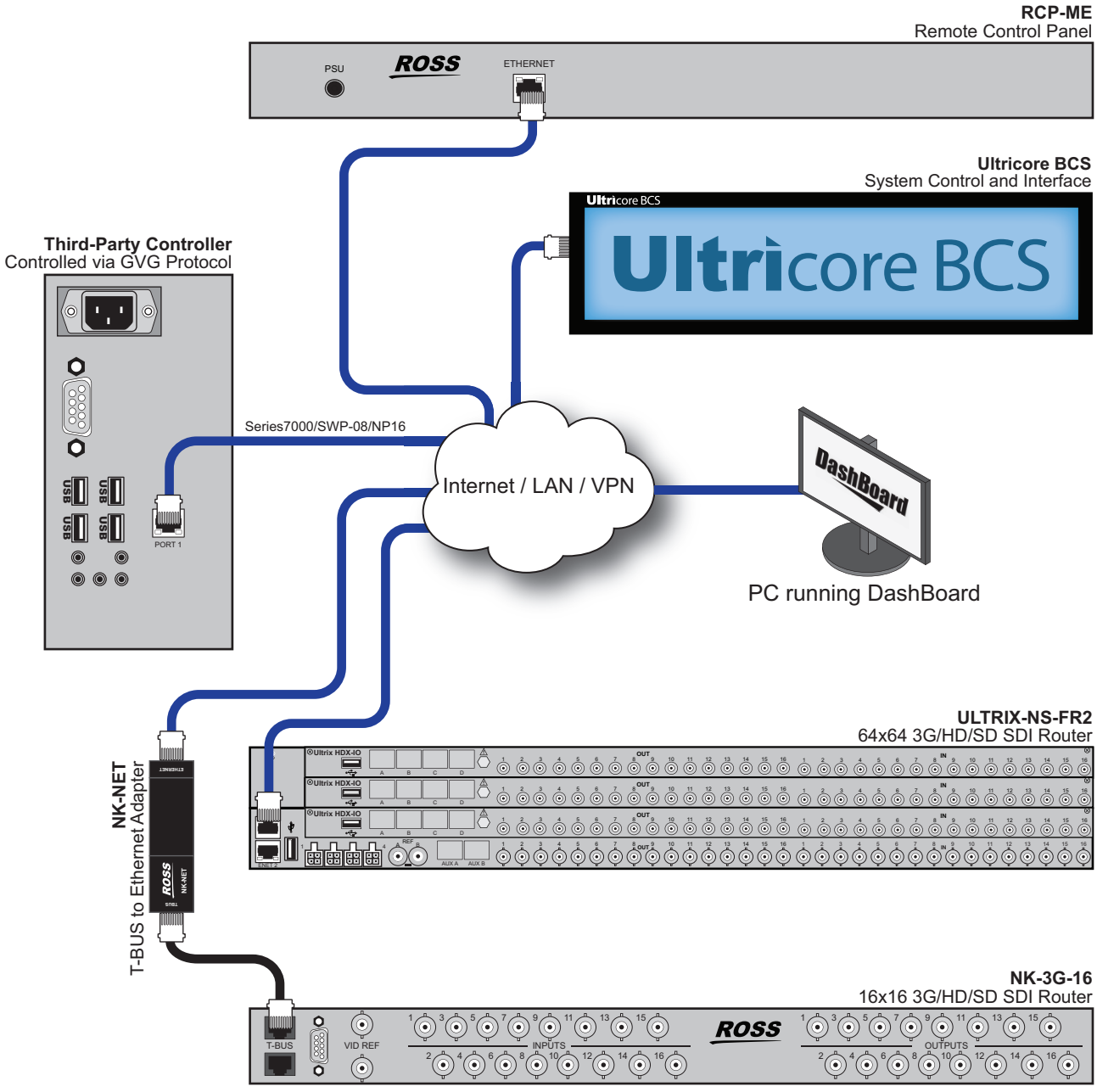


Figure 46 Adding Third-Party Control with an Ultricore BCS

Monitoring

The status of the Ultricore BCS may be monitored via its fields in the DashBoard client software or the LEDs located on the front panel of the chassis.

Enabling Logging for the Ultricore BCS

The Ultricore BCS records events in non-volatile memory. Each event includes a timestamp, and information about the event. The following events and conditions are recorded in the logs:

- Configuration changes that affect the routing path.
- Input state changes such as video presence, audio presence, video formats. In the case of audio inputs, the log entry also includes the associated audio cluster.
- Power-on or reboot cycles.
- Error conditions reported by DashBoard.

To enable the Ultricore BCS to log events

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.
2. Select the **Setup** tab.
3. Select the **Logging** box.

Monitoring the Network Status

The Ethernet ports on the Ultricore BCS rear panel are used to connect to an Ethernet network for communications.

To verify the Ethernet redundancy status via the System Status interface

1. In the Tree View of DashBoard, double-click the **Product Info** node.

   The **Product Info** interface displays in the DashBoard window.
2. Select the **Network** tab.
3. Refer to **Table 3** for a summary of the possible messages displayed in the **Network** tab.

Saving the Current Settings for the Ultricore BCS

You can save the Ultricore BCS settings to a configuration file that can be used by Ross Technical Support for troubleshooting.

✶ Use this procedure only under the guidance of Ross Technical Support.

To save your setup a new file

1. In the Tree View of DashBoard, right-click the node for the Ultricore BCS that you want to save the settings for.
2. Select **Save Configuration to File**.

   The **Save Configuration to File** dialog opens.
3. Navigate to the folder on your DashBoard computer in which you want to save the configuration file. The default location is Desktop\My Documents.
4. Click **Save**.

Monitoring via DashBoard

Devices with an established and valid communication point with Ultricore BCS are reported in the System Monitor interface. Ultricore BCS aggregates all the devices in a system under the Monitoring sub-nodes to provide system wide monitoring capabilities. (**Figure 47**)

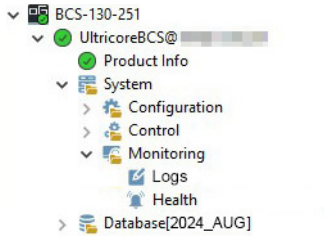


Figure 47 Example of the System > Monitoring Tree View

Logs Sub-node

Access this interface by expanding the Monitoring node and double-clicking the Logs sub-node. This interface displays the System Log, Controller Communications Log, and DashBoard Communications Log. The read-only information displayed in the logs is used by Ross Technical Support for diagnostic purposes.

Accessing the System > Logs in DashBoard

An entry in each log includes a timestamp, a code number, and a description. Messages are written to the log when significant changes occur in the operation of the Ultricore BCS. These could include: changes to video, reference, audio or time inputs; power-on or reboot cycles; configuration changes that can have an effect on the routing path; alarm conditions.

To access the system logs in DashBoard

1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.
3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
4. Expand the **System** node.
5. Expand the **Monitoring** node.
6. Double-click the **Logs** sub-node.
7. To view the communication log for the Ultricore BCS only, select the **System Log** option.
8. To view the log for communications between the Ultricore BCS and other devices, select the **Controller Communications Log** option.
9. To view the log for executed tasks in DashBoard for the Ultricore BCS, select the **DashBoard Communications Log** option.
10. Click **Refresh** to update the entries for the currently selected log.

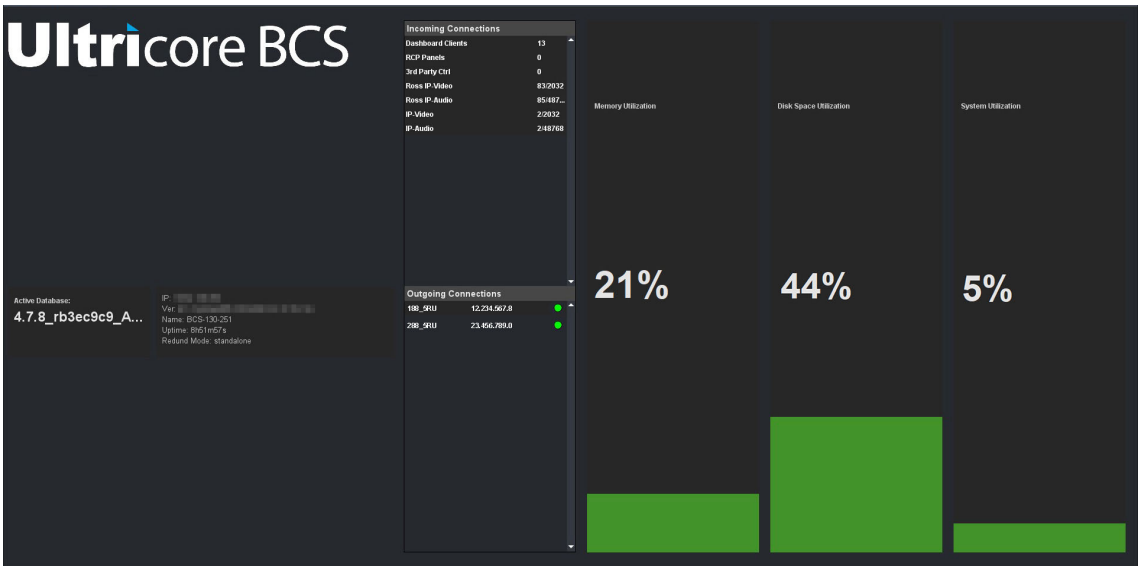
Health Sub-node

Access this interface by expanding the Monitoring node and double-clicking the Health sub-node. The Health interface enables you to check the overall health of your routing system, allowing you to notice when a steady increase of values in the Memory, Disk Space, and/or System

To monitor the external devices communicating with an Ultricore BCS via DashBoard

1. Locate the **Ultricore BCS** node in the Tree View of DashBoard.
2. Expand the main **Ultricore BCS** node.

3. Expand the **Ultricore BCS** sub-node to display a list of sub-nodes in the Tree View.
4. Expand the **System** node.
5. Expand the **Monitoring** node.
6. Double-click the **Health** sub-node.



7. Notice that each row in the Incoming and Outgoing Connections area reports a count of the number of devices currently communicating with the Ultricore BCS in the form of x /y where x represents the number of connected devices and y represents the maximum number of connections allowed (licenses installed).
8. Use the **Memory**, **Disk Space**, and **System Utilization** fields to monitor traffic and communication between the devices in your routing system. The status bars in each field report when values are rising (yellow) to critical (red).

Monitoring via the Front Panel

The Ultricore BCS front panel also reports the status information.

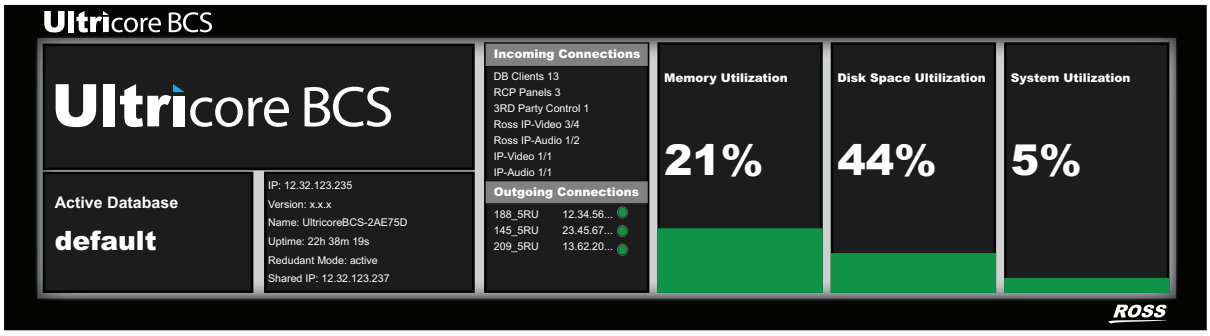


Figure 48 Ultricore BCS — Example of the Front Panel Display

For More Information on...

- the front panel display, refer to "**Ultricore BCS System Monitoring Window**".

Troubleshooting

Use the **Memory**, **Disk Space**, and **System Utilization** fields of either the front panel or the DashBoard interface to observe the routing system for a period of time when troubleshooting. While some variation in values is expected (Memory and System), the values should return to acceptable levels after a while. If the values steadily increase or remain at peak levels for extended periods, consider the following:

- Investigate the traffic in your network.
- Remove outdated or obsolete copies of system databases.
- If the value in the Memory field is high, you may wish to minimize size of the active system database by removing extra blank entries.

✶ Contact Ross Technical Support with a copy of the system logs if you need assistance.

Monitoring the Ethernet LEDs on the Rear Panel

Each RJ45 connector on the Ultricore BCS rear panel include two LEDs that report the Ethernet communication activity and speed. Refer to **Figure 49** for LED locations on the Ultricore BCS rear panel.

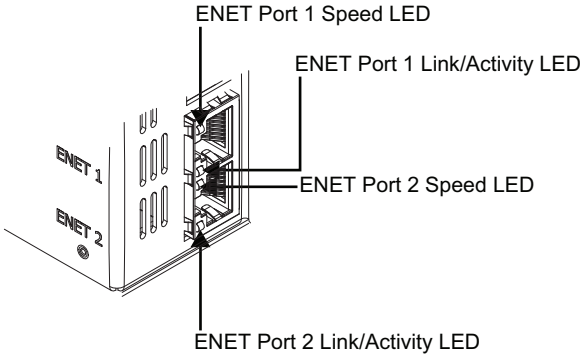


Figure 49 ENET Ports on Rear Panel — LEDs

Table 41 provides basic LED descriptions.

Table 41 ENET Port LEDs

LED	Status	Description
ENET # - Link/Activity	Green	When lit green, this LED indicates a valid link is established on the specified ENET port.
	Flashing	When flashing green, this LED indicates communication activity is occurring on the specified ENET port.
	Off	When unlit, this LED indicates an invalid link is detected on the specified ENET port. Verify the cable connection on the rear module port and your network connections.
ENET # - Port Speed	Green	When lit green, this LED indicates the ENET Port communication speed is at 1Gbps.
	Yellow	When lit orange, this LED indicates the ENET Port communication speed is at 100Mbps.
	Off	When unlit, this LED indicates the ENET Port communication speed is at 10Mbps.

If you have any questions pertaining to the installation or operation of Ultricore BCS, please contact us at the numbers listed in "**Contacting Technical Support**". Our technical staff is always available for consultation, training, or service.

Upgrading the Software

Ultricore BCS is upgraded through the DashBoard client. Contact Ross Technical Support to obtain the most recent upgrade package.

✶ Ensure that you are running DashBoard software version 9.13 or higher and that the computer running the DashBoard client is located on the same network as the Ultricore BCS panel.

Panel Menu System Overview

There are two methods for monitoring: via a DashBoard client computer or using the Ultricore BCS hard panel. This chapter outlines the status field displayed on the hard panel.

Ultricore BCS System Monitoring Window

The System Monitoring window of the Ultricore BCS hard panel is organized into groups of read-only fields. (**Figure 50**) Use this window to verify the network settings for the panel, monitor communications with devices in your routing system, and troubleshoot system status.

✶ This window reflects the same information as reported on the System Monitor tab in DashBoard. To access this interface on a DashBoard client computer, double-click the Ultricore BCS Device sub-node in the Tree View and select Database > System Monitor.

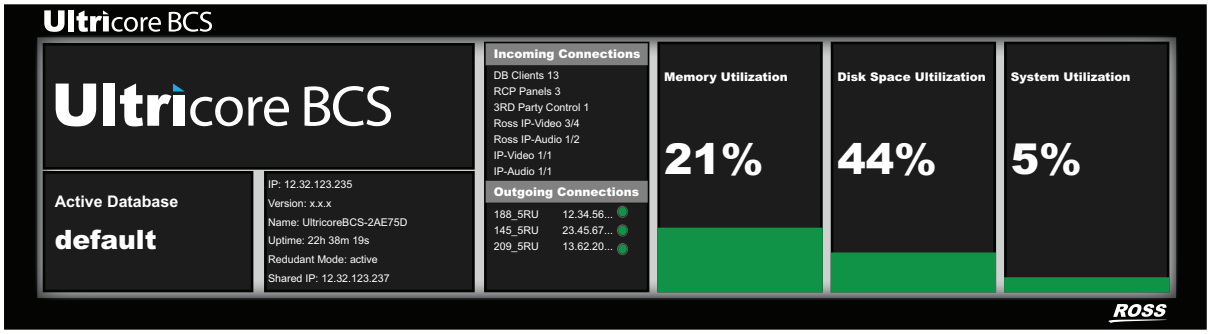


Figure 50 Example of the Ultricore BCS Panel System Monitoring Window

Table 42 summarizes the options displayed in the System Monitoring window.

Table 42 System Monitoring Window

Item	Parameters	Description
Active Database	<text>	Indicates the database currently loaded in this Ultricore BCS
IP	#.#.#.#	Indicates the IP Address assigned to this Ultricore BCS
Ver	#	Indicates the build version of the Ultricore BCS panel
Name	<text>	Indicates the unique identifier assigned to the Ultricore BCS
Uptime	#h #m #s	Indicates the number of hours, minutes, and seconds since the last reboot of the Ultricore BCS panel
Redundant Mode	active	Two Ultricore BCS panels are configured in a redundant system where they share the same IP address. Refer to "**Setting up a Redundant System**" for details.
	inactive	The current Ultricore BCS panel is not setup in a redundant system

Table 42 System Monitoring Window (Continued)

Item	Parameters	Description
Shared IP	#	When operating in a redundant system, this field indicates the IP address that the primary and secondary Ultricore BCS panels are currently using.
Incoming Connections		
DashBoard Clients	#	Indicates the total number of DashBoard clients communicating with this Ultricore BCS
RCP Panels	#	Indicates the total number of remote control panels communicating with this Ultricore BCS
3rd Party Control	#	Indicates the total number of third-party automation control devices communicating with this Ultricore BCS
Ross IP-Video	# / #	Indicates the total number of Ross Video IP Connectivity (video) devices communicating with this Ultricore BCS
Ross IP-Audio	# / #	Indicates the total number of Ross Video IP Connectivity (audio) devices communicating with this Ultricore BCS
IP-Video	# / #	Indicates the total number of third-party IP Connectivity (video) devices communicating with this Ultricore BCS
IP-Audio	# / #	Indicates the total number of third-party IP Connectivity (audio) devices communicating with this Ultricore BCS
Outgoing Connections		
<device name> #.#.#.#	Displays the unique identifier and the assigned IP address of external devices (such as Ultrix routers) that the Ultricore BCS is sending information to. The status indicator reports if the external device is reporting an error condition (red) or not (green).	
Memory Utilization		
#	Percentage of system RAM currently in use	
Disk Space Utilization		
#	Percentage of available storage space	
System Utilization		
#	Measure of the communication traffic that the Ultricore BCS is managing	

Technical Specifications

This chapter provides technical information for Ultricore BCS.

✶ Specifications are subject to change without notice.

Physical Dimensions

Table 43 Technical Specifications — Physical Dimensions

Item	Specification
Width	19” (48cm)
Depth	2.5” (6cm)
Height	3.5” (9cm)
Weight (approx.)	5.25lb (2.40kg)

Ethernet Port Connectors

Each Ultricore BCS comes standard with two ENET ports on the rear panel to interface with a local network, and Ross devices that use an Ethernet protocol for communications.

✶ The ENET 2 port is not implemented.

Table 44 Technical Specifications — Ethernet Ports

Item	Specifications
Number of Ports	2
Connector Type	8-pin, RJ45 1GbE network interface

USB Port

Table 45 Technical Specifications — USB Ports

Item	Specifications
Number of Ports	1
Connector Type	USB2.0 socket

Supported USB-Serial Converters

The following USB-Serial chip-sets are supported:

- FTDI
- Silicon Labs CP210x
- Prolific PL2303
- Belkin

Environmental

Table 46 Technical Specifications — Environmental

Item	Specifications
Maximum Ambient Temperature Range	0°C to 40°C (32°F to 104°F)
Humidity, non-condensing	< 95%

Power

Table 47 Technical Specifications — Power Supply Ratings

Item	Specifications
Number of Ports	2
Power	15VDC @ 4A
Input	100-240Vac, 50/60Hz
Input Current	1.4A

Software Licenses

This chapter provides third-party software license information for your Ultricore BCS.

General Overview

Ultricore BCS includes multiple software components which are individually licensed under one or more of the following licenses included in this section.

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zlib

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files ftp://ds.internic.net/rfc/rfc1950.txt (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format).

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libhiredis

What is it: Minimalistic C client for Redis

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libpthread

What is it: an API to allow programs to access an programming model based on execution threads.

Note: Tally processor firmware dynamically links, and does NOT statically link, this library.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a “work that uses the Library”. Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

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libevent

What is it: Event notification library

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librt

Used by Ultricore-Tally.

What is it: POSIX.1b - The RealTime extensions library

Note: Tally processor firmware dynamically links, and does NOT statically link, this library.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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APACHE2

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libcrypt

What is it: A modern library for one-way hashing of passwords.

Note: Tally processor firmware dynamically links, and does NOT statically link, this library.

Website: https://tracker.debian.org/pkg/libxcrypt

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FOSS libraries used by Tally System Console

Used in Tally System Console, which services the Ultricore-Tally.

Newtonsoft Json.NET

What is it: High-performance JSON framework for.NET applications.

Website: https://github.com/JamesNK/Newtonsoft.Json

License: https://github.com/JamesNK/Newtonsoft.Json/blob/master/README.md

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Redis Client by StackExchange

Used in Tally System Console, which services the Ultricore-Tally.

What is it: A high performance general purpose redis client for.NET languages.

Website: https://stackexchange.github.io/StackExchange.Redis/

License: https://github.com/StackExchange/StackExchange.Redis/blob/master/LICENSE

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sshnet/SSH.NET by Renci

Used in Tally System Console, which services the Ultricore-Tally.

What is it: A Secure Shell (SSH) library for .NET, optimized for parallelism.

Website: https://github.com/sshnet/SSH.NET

License: https://github.com/sshnet/SSH.NET/commit/45ab50572d8cc6d150f4507eb2cbc3abaff1da8d

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Tool chain libraries that are dependencies of the tally processor firmware

libstdc++.so.6 => /usr/lib/x86_64-linux-gnu/libstdc++.so.6

Loaded by package: libstdc++6

libgcc_s.so.1 => /lib/x86_64-linux-gnu/libgcc_s.so.1

Loaded by package: libgcc1

libc.so.6 => /lib/x86_64-linux-gnu/libc.so.6

Loaded by package: libc6

/lib64/ld-linux-x86-64.so.2

Loaded by package: libc6

libdl.so.2 => /lib/x86_64-linux-gnu/libdl.so.2

Loaded by package: libc6

libstdc++6 license:

https://metadata.ftp-master.debian.org/changelogs//main/g/gcc-10/gcc-10_10.2.1-6_copyright
Version 3.1 of the GCC Runtime Library Exception

Libgcc1 license:

https://metadata.ftp-master.debian.org/changelogs//main/g/gcc-8/gcc-8_8.3.0-6_copyright

Version 3.1 of the GCC Runtime Library Exception

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Note: Tally processor firmware dynamically links, and does NOT statically link, this library.

Glossary

The following terms are used throughout this guide:

Breakaway — an act of performing a switch on only some of the signals grouped together under one label.

Connection Point — setting to define a communication connection between Ultricore BCS and a device in the routing system.

Crosspoint — a switch within a matrix. For example, the connection of signal IN 1 to OUT 1 requires one crosspoint.

Destination — a signal output from the routing system.

Hard Panel — the physical Ultricore BCS panel that provides a touchscreen interface to the menu system.

IP Address — a setting that defines the Internet protocol address of a device within a network.

Label — text that is used by control displays to identify a signal as an input or output.

Level — refers to a section of a routing system. For example, a video router would be one level and an audio router would be a second level.

Logical (virtual) Label — a name for a group of routing system inputs or outputs.

Logical (virtual) Routing — the action of switching a group of otherwise unrelated signals via a common label (name).

Remote Control Panel (RCP) — a physical hardware panel of buttons that is used to control the routing system.

Salvo — a system wide sequence of matrix control operations and crosspoint actions.

Soft Panel — a DashBoard software interface that represents a panel of buttons that is used to control the routing system.

Source — a signal input to the routing system.

Virtual Label — a name for a group of routing system inputs or outputs.

Virtual Routing — the action of switching a group of otherwise unrelated signals via a common label (name).