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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
dross@rossvideo.com

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.)*
Streaming Gateway · User Guide

- Ross Part Number: **3900DR-504-05**
- Release Date: August 24, 2022.

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Safety Notices

Refer to the “Important Regulatory and Safety Notices” document that accompanied your product.

EMC Notices

**US 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.

---

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

---

**Canada**

This Class “A” digital apparatus complies with Canadian ICES-003 and part 15 of the FCC Rules.

**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.

**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.

---

**Maintenance/User Serviceable Parts**

Routine maintenance to this product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the “**Contact Us**” section of this manual. All openGear products are covered by a generous 3-year warranty and will be repaired without charge for materials or labor within this period. See the “**Warranty and Repair Policy**” section in this manual for details.

---

**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.

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Introduction

This guide covers the installation, configuration, and use of the softGear Streaming Gateway. The following chapters are included:

- “Introduction” summarizes the guide and provides important terms, and conventions.
- “Before You Begin” summarizes the features of the Streaming Gateway.
- “Integration Examples” provides workflow examples for the Streaming Gateway integration.
- “Hardware Overview” presents information on the features of the front and back panels of the Streaming Gateway chassis.
- “Physical Installation” provides additional information needed for installing the Streaming Gateway and DashBoard before you can proceed to cabling and configuring your Streaming Gateway.
- “Cabling” outlines how to connect to your facility network, and peripheral devices.
- “Initial Connection” provides instructions for configuring the initial IP address for the Streaming Gateway.
- “Licensed Features” outlines the available software licensed features, and how to install and uninstall a software key for a licensed feature.
- “Updating the Network Settings” provides instructions for configuring the Gb1 port of the Streaming Gateway for communication with your facility network and NTP server.
- “Using DashBoard” provides instructions for launching DashBoard, and accessing the Streaming Gateway interfaces in DashBoard.
- “Specifying the API Control Mode” outlines the steps required to configure and enable the Streaming Gateway to communicate using the WebRTC.
- “Connections” outlines how to configure the connections for your Streaming Gateway, and then enable the connections.
- “Interstellar Setup” outlines the steps required to configure and enable the Streaming Gateway to communicate with the Ross Interstellar Remote Contributor Production Portal.
- “Upgrading the Software” provides instructions on how to upgrade the Streaming Gateway software via DashBoard.
- “DashBoard Interface Overview” summarizes the menus and parameters of the Streaming Gateway tabs in DashBoard.
- “Technical Specifications” provides the specifications for the Streaming Gateway.
- “Service Information” provides information on the warranty and repair policy for your Streaming Gateway.
- “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 Streaming Gateway:

- DashBoard User Manual, Ross Part Number: 8351DR-004
- Interstellar Production Portal Online Help
- Streaming Gateway Quick Start Guide, Ross Part Number: 3900DR-506
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 **Network** tab, click **Apply**.

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

Text set in bold and italic represent the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the **DashBoard User Manual**.

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 Ross Video 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

If you have questions pertaining to the operation of Streaming Gateway, contact us at the numbers listed in the section “Contacting Ross Video Technical Support”.

This chapter discusses the following topics:

• Overview
• Features
• DashBoard Interfaces
• Installation Overview
• Configuration Overview
Overview

The Streaming Gateway combines WebRTC and SDI encoding/decoding on COTS hardware and cloud instances. The Streaming Gateway allows you to transport content between on-premise and the cloud, in both directions, and is based on softGear™ micro-service architecture running on a Dell® server. In addition, WebRTC has a mechanism which allows for easy to use remote contribution from any browser.

Figure 1 provides a general functional block diagram of the Streaming Gateway where an SDI video signal (with embedded PCM audio) is received by an SDI port and is converted to an H264 WebRTC output.

Figure 2 provides a general functional block diagram of the Streaming Gateway where an H264 WebRTC stream is the source and is decoded to an SDI video signal (with embedded PCM audio) for an SDI output.

---

Figure 1  Functional Block Diagram — SDI Input to WebRTC Output

Figure 2  Functional Block Diagram — WebRTC Input to an SDI Output
Figure 3 provides a general functional block diagram of the Streaming Gateway where an SDI video signal (with embedded PCM audio) is received by an SDI port and is converted to an H264 SRT output.

Figure 4 provides a general functional block diagram of the Streaming Gateway where an H264 SRT stream is the source and is decoded to an SDI video signal (with embedded PCM audio) for an SDI output.

Figure 5 provides a general functional block diagram of the Streaming Gateway where an NDI stream is the source and is converted to an H264 SRT output.
**Figure 6** provides a general functional block diagram of the Streaming Gateway where an H264 SRT stream is the source and is decoded to an NDI stream for an NDI output.

**Figure 7** provides a general functional block diagram of the Streaming Gateway where an SDI video signal (with embedded PCM audio) is received by an SDI port and is sent to an NDI output.

**Figure 8** provides a general functional block diagram of the Streaming Gateway where an NDI stream is the source and is sent to an SDI video signal (with embedded PCM audio) for an SDI output.
Features

The Streaming Gateway includes the following features:

- Based on softGear™ microservices technology
- 8 SDI DIN ports, with 4 pre-defined to be inputs, 4 pre-defined to be outputs (with embedded audio), and 1 REF IN port
- Support for progressive and interlaced at 50Hz and 59.94Hz formats
- One gigabit Ethernet connection for facility network and data transmission over public networks
- WebRTC transmission and reception
- NDI transmission and reception
- CDI transmission and reception (on AWS cloud)
- Support for MPEG2-TS over SRT transmission and reception
- Intuitive control and monitoring via DashBoard

DashBoard Interfaces

The Streaming Gateway requires an Ethernet network connection between it and a computer that will run the DashBoard client. The DashBoard client software enables you to monitor and control DashBoard Connect compatible devices from a computer.

The Streaming Gateway includes DashBoard interfaces for configuration and operation. The interfaces are accessed by expanding the Streaming Gateway node in the DashBoard Tree View and selecting the appropriate sub-node.

For More Information on...
- displaying the DashBoard interfaces, refer to “Using DashBoard”.

Installation Overview

The user needs to ensure the following tasks are performed for on-premise servers:

1. Physically install the Streaming Gateway in a rack frame. Refer to the Streaming Gateway Quick Start Guide.
2. Cable the Ethernet connection on the back panel. Refer to “Connecting to a Network”.
3. Cable the video I/O. Refer to “Cabling”.
4. Connect the two power ports on the back panel. Refer to “Connecting the Power Supplies”.

Configuration Overview

Figure 9 provides a generalized work-flow of configuring your Streaming Gateway.
Assign the Network Settings

The user connects the Streaming Gateway to the network and ensures it can communicate with a computer running the latest DashBoard client software. The DashBoard client software enables you to monitor, configure, and operate your Streaming Gateway.

For More Information on...
- configure the initial network settings, refer to “Initial Connection”.
- displaying the Streaming Gateway in DashBoard, refer to “Using DashBoard”.
- the menus and parameters available in DashBoard, refer to “DashBoard Interface Overview”.

Connect to an NTP Server

Once the user can successfully access the Streaming Gateway in DashBoard, the next step is to establish a connection to an NTP Server. The Streaming Gateway requires an accurate time reference, in order to ensure correct watermarking and crediting. Refer to “Configuring the NTP Settings”.

Set the API Control Mode

Specify whether the Streaming Gateway will function in managed mode as part of the Ross Interstellar Production Portal, or unmanaged with user defined connections. Refer to “Specifying the API Control Mode”.

Configure the Connections

Configure the network streams (connection points) for the Streaming Gateway by mapping the inputs to the available outputs. Refer to “Connections”.
Integration Examples

This chapter provides a few integration examples, though your needs may differ from what is presented here.

For More Information on...
• integrating the Streaming Gateway in an Interstellar workflow, refer to “Interstellar Setup”.

This chapter discusses the following topics:
• WebRTC Input to Multiple SDI Outputs
• SDI Input to Multiple WebRTC Outputs
• Multiple On-Premise Inputs to Multiple Cloud Outputs
• Multiple Cloud Inputs to Multiple On-Premise Outputs
WebRTC Input to Multiple SDI Outputs

Figure 10 illustrates a workflow where the Streaming Gateway assigns a single WebRTC input stream to multiple SDI outputs.

This setup requires you to:
1. Cable four SDI ports on the back panel as outputs. Refer to “SDI Cabling”.
2. Set the Control mode to DashBoard. Refer to “To specify the API Control mode to DashBoard”.
3. Configure a connection with an:
   a. input from a WebRTC peer. Refer to “To specify a WebRTC stream as a source”.
   b. output to an SDI port. Refer to “To assign an SDI output as the destination”.
4. Repeat step 3 for the remaining three SDI outputs.
SDI Input to Multiple WebRTC Outputs

**Figure 11** illustrates a workflow where the Streaming Gateway assigns a single SDI input to multiple WebRTC outputs (one with video, and three with audio).

![Diagram of SDI input to multiple WebRTC outputs](image)

This setup would require you to:

1. Cable one SDI port on the back panel as an input. Refer to “SDI Cabling”.
2. Set the Control mode to DashBoard. Refer to “To specify the API Control mode to DashBoard”.
3. Configure a connection with an:
   a. input to an SDI port. Refer to “To specify the SDI input as a source”.
   b. output to a WebRTC peer. Refer to “To assign a WebRTC stream as the destination”.
4. Repeat step 3 for the remaining three WebRTC outputs.

* Only one SDI to WebRTC connection with video is permitted. The remaining connections must be audio only.
Multiple On-Premise Inputs to Multiple Cloud Outputs

Figure 12 illustrates a workflow where the Streaming Gateway assigns an on-premise SDI input and an on-premise NDI input to cloud outputs via SRT.

This setup would require you to:

1. Cable one SDI port on the back panel as an input. Refer to “SDI Cabling”.
2. Set the Control mode to DashBoard. Refer to “To specify the API Control mode to DashBoard”.
3. Configure a connection on-premise with an:
   a. input to an SDI port. Refer to “To specify the SDI input as a source”.
   b. output to an SRT peer. Refer to “To assign an SRT stream as the destination”.
4. Configure a connection in the cloud with an:
   a. input to an SRT peer. Refer to “To specify an SRT stream as a source”.
   b. output to an NDI or CDI peer. Refer to “To assign an NDI stream as the destination” or “To assign a CDI stream as the destination”.

Figure 12  Workflow — On-Premise SDI and NDI Inputs to Cloud Outputs via SRT
Multiple Cloud Inputs to Multiple On-Premise Outputs

**Figure 13** illustrates a workflow where the Streaming Gateway assigns two cloud NDI or CDI inputs to on-premise SDI outputs via SRT.

![Diagram of NDI or CDI Cloud Inputs to On-Premise SDI Outputs via SRT](image)

This setup would require you to:

1. Cable two SDI ports on the back panel as outputs. Refer to “**SDI Cabling**”.
2. Set the Control mode to DashBoard. Refer to “**To specify the API Control mode to DashBoard**”.
3. Configure a connection in the cloud with an:
   a. input to an NDI or CDI peer. Refer to “**To specify the NDI stream as a source**” or “**To specify the CDI stream as a source**”.
   b. output to an SRT peer. Refer to “**To assign an SRT stream as the destination**”.
4. Configure a connection on-premise with an:
   a. input to an SRT peer. Refer to “**To specify an SRT stream as a source**”.
   b. output to an SDI port. Refer to “**To assign an SDI output as the destination**”.
5. Repeat steps 3 and 4 for the remaining SDI output.
Hardware Overview

This chapter presents information on the Streaming Gateway hardware. Note that for cloud instances, Amazon EC2 is used instead of the Dell® hardware.

This chapter discusses the following topics:

• Front Panel Overview
• Back Panel Overview
Front Panel Overview

This section provides a general overview of the features of the Streaming Gateway front panel.

![Front Panel Overview Image](image)

**POWER Button**

This is the main power button for the Streaming Gateway.

Back Panel Overview

This section provides an overview of the features of the Streaming Gateway back panel.

![Back Panel Overview Image](image)

1. **SDI Ports**
   
   This area includes the DIN ports that are predefined as an SDI input or SDI outputs. Refer to Figure 15 for cabling designations.

2. **REF IN Port**
   
   This port connects to an independent analog video reference source.

3. **1G Ethernet Port**
   
   This standard 10/100/1000 Base-TX RJ45 connector is used to connect the Streaming Gateway to your primary facility network. This is required to bridge the external Ethernet network to the local communication bus for monitoring and controlling the Streaming Gateway using DashBoard.

4. **10G Ethernet Port**
   
   This port is not implemented.

5. **Power Supplies**
   
   The Streaming Gateway comes standard with two power supplies.
Physical Installation

This chapter provides additional information needed for installing the Streaming Gateway and DashBoard before you can proceed to cabling and configuring your Streaming Gateway. Note that for cloud instances, Amazon EC2 is used instead of the Dell® hardware, meaning there is no physical installation.

This chapter discusses the following topics:

• Installing the Streaming Gateway in a Rack Frame
• Connecting to a Network
• Connecting the Power Supplies
Installing the Streaming Gateway in a Rack Frame

Refer to the *Streaming Gateway Quick Start Guide* that accompanied your device and its mounting kit for installation information.

Connecting to a Network

The Streaming Gateway is connected to your network via the 1G port on the back panel. The 1G port enables the Streaming Gateway to interface with other devices in your facility (such as an NTP server), and the computer running the DashBoard client.

Before You Begin

Contact your IT department before connecting to a 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 Streaming Gateway.

If difficulties or problems are experienced when connecting the Streaming Gateway to a network hub, contact your network administrator.

**For More Information on...**

• downloading and installing DashBoard, refer to the *DashBoard User Manual*.

Connecting to your Facility Network

Ensure that the Streaming Gateway is on the same network as your DashBoard client computer and the Ross Interstellar Remote Contributor Production Portal.

To connect the Streaming Gateway to your facility network

1. Connect one end of a standard RJ45 cable to the 1G port on the Streaming Gateway back panel.
2. Connect the other end of the same RJ45 cable to your Local Area Network (LAN).

Connecting the Power Supplies

For redundancy, 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 frame load is transferred to the other redundant power supply.

**Warning** — In some countries, it may be necessary to supply the correct mains supply cord. Use only an approved IEC 320 C-13 type A/C line cord rated for a minimum 10A at 250V and certified for the country of use.

The power supply plugs into the right-hand section of the Streaming Gateway back panel. The universal power supply supports all worldwide AC power voltages, and no power adjustments are required.
To connect the Streaming Gateway to the power supplies

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

1. Connect the cable’s female IEC connector to the right power socket.
2. Plug the second IEC connector into left power socket.
3. Connect each supplied power cable’s three-prong male connector to an AC outlet.
4. Power on the Streaming Gateway by pressing the **POWER** button on the front panel. Refer to “**Front Panel Overview**” for the location of this button.

    ✴ The fans run at full speed for a short period at the startup.
Cabling

If you have questions pertaining to the installation of Streaming Gateway, contact us at the numbers listed in the section “Contacting Ross Video Technical Support”. Our technical staff is always available for consultation, training, or service.

This chapter discusses the following topics:

• Connecting a Reference Source to the Streaming Gateway
• SDI Cabling
Connecting a Reference Source to the Streaming Gateway

The Streaming Gateway back panel also includes a **REF IN** DIN port that can connect to a CVBS BLS or TLS reference source.

* Ross Video provides a DIN-to-BNC Adapter Cable for this connection.

**To connect a reference source to the Streaming Gateway**

1. Connect one end of the provided cable to the **REF IN** port on the Streaming Gateway.
2. Connect the other end of the same cable to the applicable output port on the external reference source device.

SDI Cabling

The Streaming Gateway provides DIN ports that can be connected to SDI sources or downstream devices.

* Ross Video provides DIN-to-BNC Adapter Cables for these connections.

**To cable your SDI signals**

1. Connect your SDI source device to the DIN port as indicated below.
2. Connect your downstream SDI devices to the DIN ports as indicated below.
Initial Connection

The Streaming Gateway is configured and operated via its interfaces in DashBoard. Once the Streaming Gateway is physically installed and connected to your facility network, you must manually add the Streaming Gateway to the Tree View in DashBoard. The Tree View lists all DashBoard Connect devices that the DashBoard client can communicate with. Once you add the Streaming Gateway to the Tree View, you can access its interfaces.

* If you have questions pertaining to the operation of Streaming Gateway, contact us at the numbers listed in the section “Contacting Ross Video Technical Support”. Our technical staff is always available for consultation, training, or service.

This chapter discusses the following topics:

- Physical Connections to the Streaming Gateway
- Launching DashBoard
- Manually Adding the Streaming Gateway to the Tree View
Physical Connections to the Streaming Gateway

Before proceeding, ensure that the Streaming Gateway is:
- connected to your network. Refer to “Connecting to a Network”.
- powered on. Refer to “Connecting the Power Supplies”.

Launching DashBoard

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

To launch DashBoard

1. Ensure that you are running DashBoard software version 9.2 or higher.
2. Ensure the DashBoard client computer has an IP address of 192.168.x.x. This will allow it to communicate with the Streaming Gateway.
3. Launch DashBoard by double-clicking its icon on your computer desktop.

Manually Adding the Streaming Gateway to the Tree View

The Streaming Gateway does not automatically display in the DashBoard Tree View. You must manually add it to the Tree View.

To manually add the Streaming Gateway to the Tree View in DashBoard

1. From the main toolbar in DashBoard, select **File > New > TCP/IP DashBoard Connect or openGear Device**.
   - The **New TCP openGear Frame Connection** dialog opens.
2. In the **IP Address** field, enter the default IP Address of **192.168.0.100**.
3. Click **Detect Frame Information**.
4. If you wish to assign a unique name for the Streaming Gateway, enter it in the **Display Name** field.
5. Click **Finish** to close the dialog.
6. Verify that the **softGear Streaming Gateway** node displays in the DashBoard Tree View, along with the **System** sub-node below it.
7. Continue to “Licensed Features” to license your server.
Licensed Features

The Streaming Gateway has software licenses for enabling functions and features. To access the SSG sub-node where you can make use of these functions and features, it is required that you first license your server. This chapter outlines the available software licensed features, and how to install a product key for a licensed feature.

This chapter discusses the following topics:

- Licensing Overview
- Floating Licensing
- Product Keys Overview
- Installing a Product Key
- Uninstalling a Product Key
Licensing Overview

There are two kinds of licensing supported: nodelocked (for on-premise servers) and floating (for cloud servers).

The licensing component provides an alarm (shown on DashBoard) which indicates the current state of licensing, along with the status field on the Licensing tab in the System sub-node. These fields will always be populated for a licensed system and warn the users of any changes or issues, such as licenses expiring soon (within a week), or in the case of floating licensing, if the connection between the Streaming Gateway and the Ross Platform Manager (RPM) has been lost.

* Expired or invalid licenses will result in the immediate termination of all features.

Floating Licensing

Floating licensing is integrated with the RPM, and requires a constant connection with the RPM.

The Streaming Gateway re-activates licenses on a regular interval with the RPM. If an activation fails as a result of being unable to reach the RPM, the Streaming Gateway will kick off a 2-day grace period before terminating the features. During this time, the Streaming Gateway will operate as normal. A reboot will remove any Streaming Gateway grace period in effect and the Streaming Gateway will start without any features. If an activation fails as a result of the RPM being unable to reach the activation server, the RPM will kick off a grace period where the Streaming Gateway will be able to continue activating the licenses without issues. After the RPM’s grace period is over, the features will be terminated. The Streaming Gateway can be rebooted safely while the RPM grace period is in effect. See the RPM documentation for more information.

* When the Streaming Gateway is rebooted or turned off, it will deactivate all of its licenses with the RPM.

Product Keys Overview

Table 1 provides a brief summary on the types of licensed features available for the Streaming Gateway.

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<th>Description</th>
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<tr>
<td>Platform</td>
<td>Basic license for the softGear product line</td>
</tr>
<tr>
<td>NDI Receiver</td>
<td>Enables the Streaming Gateway to receive network streams via the NDI protocol</td>
</tr>
<tr>
<td>NDI Sender</td>
<td>Enables the Streaming Gateway to transmit network streams via the NDI protocol</td>
</tr>
<tr>
<td>WebRTC Transceiver</td>
<td>Enables the Streaming Gateway to transmit and receive network streams via the WebRTC protocol</td>
</tr>
<tr>
<td>BlackMagic SDI Global</td>
<td>For BNC configurations (SDI Input and Output ports) (for on-premise servers only)</td>
</tr>
<tr>
<td>BlackMagic SDI Input</td>
<td>Enables the SDI ports on the back panel to be configured and used as SDI inputs (for on-premise servers only)</td>
</tr>
<tr>
<td>BlackMagic SDI Output</td>
<td>Enables the SDI ports on the back panel to be configured and used as SDI outputs (for on-premise servers only)</td>
</tr>
<tr>
<td>CDI Receiver</td>
<td>Enables the Streaming Gateway to receive network streams via the CDI protocol (for AWS cloud only)</td>
</tr>
</tbody>
</table>
Installing a Product Key

Ross Video uses product keys to control user access to specific Streaming Gateway features. You can obtain a key for a Streaming Gateway licensed feature from Ross Video Technical Support.

To install a Streaming Gateway Product Key
1. In the Basic Tree View of DashBoard, locate the softGear Streaming Gateway node.
2. Expand the softGear Streaming Gateway node.
3. Double-click the System sub-node.
4. Select the Licensing tab.
5. Enter the Product Key in the Product Key field.
6. Click Activate.
7. Verify that the Status field updates to Activation Successful and the Licensing Table populates.
8. Click Factory Default.

* Factory Default will reset ALL configuration settings. Note that there is no restore settings function in this release.

   The SSG sub-node will now be available in the Basic Tree View of DashBoard under the softGear Streaming Gateway node.
9. Continue to “Updating the Network Settings” to assign new static network settings as determined by your IT Department.

Uninstalling a Product Key

Whether your use of Streaming Gateway features has changed, or you are switching to using another device, you will need to uninstall the product key that you were using.

To uninstall a Streaming Gateway Product Key
1. In the Basic Tree View of DashBoard, locate the softGear Streaming Gateway node.
2. Expand the softGear Streaming Gateway node.
3. Double-click the System sub-node.

---

Table 1  List of Streaming Gateway Licensed Features

<table>
<thead>
<tr>
<th>License</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI Sender</td>
<td>Enables the Streaming Gateway to transmit network streams via the CDI protocol (for AWS cloud only)</td>
</tr>
<tr>
<td>Uhura Centralized UI Controller</td>
<td>For communication between MPUs and DashBoard UI, and handling connection management</td>
</tr>
<tr>
<td>SRT Transceiver</td>
<td>Enables the Streaming Gateway to transmit and receive MPEG-TS streams via SRT protocol</td>
</tr>
<tr>
<td>SDI-NDI Conversion</td>
<td>Enables the Streaming Gateway to convert between SDI and NDI</td>
</tr>
<tr>
<td>MPEG2-TS Muxer</td>
<td>Enables the Streaming Gateway to encode video and audio and multiplex them to the MPEG2-TS stream</td>
</tr>
<tr>
<td>MPEG2-TS Demuxer</td>
<td>Enables the Streaming Gateway to demultiplex the MPEG2-TS stream and decode video and audio</td>
</tr>
</tbody>
</table>
4. Select the **Licensing** tab.
5. Click **Deactivate**.
6. Click **Yes** when prompted.
   The Product Key has been uninstalled.
7. Click **Factory Default**.
   **Factory Default** will reset ALL configuration settings. Note that there is no restore settings function in this release.
Updating the Network Settings

Once the Streaming Gateway is communicating via DashBoard, it is recommended to assign a different static IP address from the factory default values. These default values were used to initially establish a connection point to the Streaming Gateway, as outlined in your *Streaming Gateway Quick Start Guide*.

This chapter provides instructions to change the default network settings for the Streaming Gateway to communicate with your facility network and streaming devices.

* Contact your IT Department for more information on changing these settings.

This chapter discusses the following topics:

- Updating the Network Settings
- Configuring the NTP Settings
Updating the Network Settings

The 1G port enables the Streaming Gateway to interface with other devices in your facility, and the computer running the DashBoard client. Once the Streaming Gateway is communicating via DashBoard using the default values, it is recommended to assign a different static IP Address from the default to one that adheres to your IT requirements.

**To update the network settings for the Streaming Gateway**

1. Display the **System** sub-node as outlined in “To display the System sub-node in DashBoard”.
2. Ensure the **Ethernet** tab is selected.
3. Use the **IPv4 Address** field to specify the new static IP Address for the **1G** port.
4. Use the **Subnet Mask** field to specify the subnet mask for the **1G** port.
5. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN) the Streaming Gateway will use.
6. Use the **DNS** field to specify the IP address of the DNS server that the Streaming Gateway will communicate with.
7. Click **Apply**.

   The Streaming Gateway automatically reboots and applies the changes.

   ∗ If a DHCP address is preferred, set the **Method** menu to **DHCP**, and ensure that all IP settings are retrieved successfully from the DNS server.

Configuring the NTP Settings

You have the option to set the current date and time on the system clocks of the Streaming Gateway by using a Network Time Protocol (NTP) server. This requires you to enter the IP address of up to two (2) Network Time Protocol (NTP) servers. The Streaming Gateway must be able to access these IP addresses to get the time from an NTP server.

**To set the system time of the Streaming Gateway**

1. Display the **System** sub-node as outlined in “To display the System sub-node in DashBoard”.
2. Select the **Timing** tab.
3. In the **NTP Server 1** field, enter the IP Address of the first NTP server you want to add.
4. If required, in the **NTP Server 2** field, enter the IP Address of the second NTP server you want to add.
5. Click **Apply Changes**.
6. Wait until the Streaming Gateway is synchronized to the new NTP server and OK displays in the **NTP Status** field. If OK is not displayed, check:
   - that the time displayed in the **Current Time** field is correct.
   - that the IP address is correct;
   - that the Streaming Gateway has access to the address.
Using DashBoard

The Streaming Gateway interfaces and settings are accessed by expanding the main softGear Streaming Gateway node in the Basic Tree View, and then selecting the appropriate sub-node. The System sub-node provides settings for setting up the Streaming Gateway. The SSG sub-node provides interfaces for configuring and monitoring the Streaming Gateway. This chapter provides instructions for accessing both sub-nodes of the Streaming Gateway and their contents in DashBoard.

This chapter discusses the following topics:

• Accessing the System Sub-Node in DashBoard
• Accessing the SSG Sub-Node in DashBoard
Accessing the System Sub-Node in DashBoard

The System sub-node in Dashboard is organized into a series of tabs. The main top toolbar displays the Ethernet, Licensing, Timing, Features, and About tabs.

To display the System sub-node in DashBoard

1. In the Basic Tree View of DashBoard, locate the softGear Streaming Gateway node.
2. Expand the softGear Streaming Gateway node.
3. Double-click the System sub-node.
   The Ethernet tab is automatically selected.
   The Ethernet tab provides options and information to configure the network settings for the 1G port on the back panel.
4. Select the Licensing tab.
   The Licensing tab allows you to license your server, and provides options to manage the features that require a valid Product Key.
5. Select the **Timing** tab.

The **Timing** tab provides information regarding NTP timing.

6. Select the **Features** tab.

The **Features** tab provides information on all of the running features.
7. Select the **About** tab.

The **About** tab provides general system information, such as the serial number and product version, and also allows you to download an archive of the logs.

---

**Accessing the SSG Sub-Node in DashBoard**

The SSG sub-node in DashBoard is organized into a series of tabs and sub-tabs. The main top toolbar displays the **Connections Control**, **Source Configuration**, **Destination Configuration**, and **Configuration** tabs. When the **Configuration** tab is selected, additional sub-tabs are displayed on a toolbar located at the bottom of the interface.

**To display the SSG sub-node in DashBoard**

1. In the **Basic Tree View** of DashBoard, locate the **softGear Streaming Gateway** node.
2. Expand the **softGear Streaming Gateway** node.
3. Double-click the SSG sub-node.

The Connections Control tab is automatically selected.

The Connections Control tab enables you to specify which connections are active (online) or not (offline), and monitor the connection points of the Streaming Gateway.

4. Select the Source Configuration tab.

The Source Configuration tab enables you to manage the input signals that the Streaming Gateway will have access to. The tab is organized into two areas. The table lists all the configured sources. Selecting a row in the table displays the options for the selected source in the right pane of the window.

5. Select the Destination Configuration tab.
The **Destination Configuration** tab enables you to manage the output signals that the Streaming Gateway will have access to. The tab is organized into two areas. The table lists all the configured destinations. Selecting a row in the table displays the options for the selected destination in the right pane of the window.

6. Select the **Configuration** tab.

From this tab you can access the Global Settings, API Control, Preset Connections, and About sub-tabs (located in the bottom toolbar). By default, the Global Settings sub-tab is automatically selected.
Specifying the API Control Mode

You must specify whether the Streaming Gateway will function as a WebRTC client of DashBoard or as a client to Interstellar. This chapter outlines the steps required to specify the API Control mode to enable the Streaming Gateway to communicate using the WebRTC codec.

For More Information on...

• setting up communications for an Interstellar workflow, refer to “Interstellar Setup”.

This chapter discusses the following topics:

• Specifying the API Control Mode
Specifying the API Control Mode

The Web Real-Time Communication (WebRTC) codec enables the Streaming Gateway to stream audio and video over the web for a peer-to-peer communication setup using an API. Setting the API Control mode to DashBoard allows the Streaming Gateway to subscribe to multiple WebRTC peer devices through the DashBoard client interface. You will then need to manually subscribe to WebRTC streams using the options in the Connections tab.

To specify the API Control mode to DashBoard

1. Display the Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Select the API Control sub-tab.
3. Use the Control menu to select DashBoard.

   All fields are now read-only.
4. Click Apply.

Note that when the API Control is set to DashBoard, all licensed transcoders allow connections using licensed transcoder transmission types. When the API Control is set to Interstellar, only WebRTC and SDI or WebRTC and NDI transcoding are allowed, based on which Preset Connection type is selected in the Preset Connections sub-tab.
Connections

This chapter outlines how to configure the sources (inputs) and then assign them to destinations (outputs) to create connections for your Streaming Gateway. The source types displayed will depend on the license used for your server. Once all connections are assigned, you can then enable each connection as required.

* The procedures in this chapter assume that the API Control mode is set to DashBoard. Refer to “Interstellar Setup” for details on setting up the Streaming Gateway with Interstellar.

This chapter discusses the following topics:

- Overview
- Configuring the Sources
- Configuring the Destination for a Connection
- Customizing the Audio Channel Mapping
- Enabling a Connection
- Editing an Existing Connection
- **Deleting a Connection**
- Troubleshooting
Overview

A connection is created by mapping a source to a destination where:

- the SDI input can be mapped to any SDI (if on-premise), CDI (if in the cloud), NDI, SRT, or WebRTC output
- any NDI stream can be mapped to any SDI (if on-premise), CDI (if in the cloud), SRT, or WebRTC output
- any CDI source can be mapped to any NDI, WebRTC, or SRT output
- any SRT stream can be mapped to any SDI (if on-premise), CDI (if in the cloud), NDI, SRT, or WebRTC output
- any WebRTC stream can be mapped to any SDI (if on-premise), CDI (if in the cloud), NDI, SRT, or WebRTC output

Configuring the Sources

Each connection is configured independently, allowing you to assign different types of sources as the source for a connection. This section outlines how to assign the SDI input signal, or the NDI, CDI, SRT, or WebRTC stream as a source. Once all the sources are configured, you can proceed to assign each source to an output (destination) to create a connection.

Specifying the SDI Input as a Source

Ensure that you connected the SDI source to Port 1 on the Streaming Gateway. Refer to “SDI Cabling” for details.

To specify the SDI input as a source

1. Display the Source Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click Create Source.

   A new row displays in the source table (left pane) and the DashBoard window updates to display the Source Configuration options (right pane).

   ![Source Configuration Interface]

   ✪ By default, there are two sources populated in DashBoard. You may edit one of these preexisting sources instead of creating a new one, if desired.
3. Use the **Name** field to specify a unique identifier for the source. The source name is used to identify the available sources on the **Destination Configuration** tab.

4. Use the **Type** menu to select **SDI**. The **Source Configuration** area updates to display options for configuring the source as an SDI input signal.

![Source Configuration](image)

5. Use the **Port** menu to specify the physical SDI port on the back panel that will be the input signal for this source.

- The **Video Format** field reports the signal format on the selected Port. This field is read-only.

6. Click **Apply**.

7. Continue to “**Configuring the Destination for a Connection**”.

### Specifying the NDI Stream as a Source

The Global Settings sub-tab (located in the Configuration tab in the SSG sub-node) has a section for NDI Global Source Discovery. If you are using a private group or an external server, ensure that the NDI Global Source Discovery is set accordingly.

- When the setup forms a loop where NDI is a sender, this can lead to an issue when rebooting or switching the connection offline then online. An example of the setup would be:
  
  - On-Premise Server: SDI --> SRT (caller)
  - Cloud Instance 1: SRT (listener) --> NDI (sender)
  - Cloud Instance 2: NDI (receiver) --> SRT (listener)
  - On-Premise Server: SRT (caller) --> SDI

  After a reboot or being switched offline then online, the NDI receiver on Cloud Instance 2 in this example will report no signal because the designated port has changed. There are two ways to fix this:

  - **Option 1:**
    1. Turn off Cloud Instance 2.
    2. Change the Port to the next Port in the range of 5961-6061 until the NDI receiver detects the signal and the status reports it.
Option 2:
1. Turn the connection offline.
2. On the Source Configuration tab, clear the Create NDI Source box.
3. Click the Update button beside the NDI Source menu.
4. Use the NDI Source menu to select the desired source.
5. Select the Create NDI Source box.
6. Click Apply.
7. Turn the connection back online.

* Note that the NDI External IP field on the Configuration tab must contain the IP address of the NDI Sender for this to work. For more information on the NDI External IP field, refer to Table 24.

To specify the NDI stream as a source
1. Display the Source Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click Create Source.
   A new row displays in the source table (left pane) and the DashBoard window updates to display the Source Configuration options (right pane).

* By default, there are two sources populated in DashBoard. You may edit one of these preexisting sources instead of creating a new one, if desired.
3. Use the Name field to specify a unique identifier for the source.
   The source name is used to identify the available sources on the Destination Configuration tab.
4. Use the Type menu to select NDI.
   The Source Configuration area updates to display options for configuring the source as an NDI stream.
5. Click the **Update** button beside the **NDI Source** menu.

6. Use the **NDI Source** menu to select the desired source.

   The **IP Address** field populates with the IP Address for the selected source.

   ✴ If you want to create an NDI source instead of selecting an existing one, select the **Create NDI Source** box and manually fill the **IP Address** and **Port** fields.

7. Click **Apply**.

8. Continue to “Configuring the Destination for a Connection”.

Specifying the CDI Stream as a Source

CDI is only used in the AWS cloud. Make sure that you are using an instance with EFA and that the driver has been installed.

**To specify the CDI stream as a source**

1. Display the **Source Configuration** interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.

2. Click **Create Source**.

   A new row displays in the source table (left pane) and the DashBoard window updates to display the Source Configuration options (right pane).
By default, there are two sources populated in DashBoard. You may edit one of these preexisting sources instead of creating a new one, if desired.

3. Use the **Name** field to specify a unique identifier for the source.
   
The source name is used to identify the available sources on the Destination Configuration tab.

4. Use the **Type** menu to select **CDI**.
   
The **Source Configuration** area updates to display options for configuring the source as a CDI stream.

5. Use the **Port** menu to specify the port for the input signal of this source.
   
The **Video Format** field reports the signal format on the selected Port. This field is read-only.

6. Click **Apply**.
7. Continue to “Configuring the Destination for a Connection”. 
Specifying an SRT Stream as a Source

To establish an SRT-to-SRT connection, one of the peers must operate in listener mode while the other operates as caller. The mode of operation for the peer is determined by network configuration. It is not important which mode either the source or destination operates in. The SRT peer operating in listener mode must be reachable over UDP on the port specified in the “Local Port” field for listener mode. The SRT peer operating in caller mode simply calls the listener at the “Target URL:Port” specified.

To specify an SRT stream as a source

1. Display the Source Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click Create Source.
   A new row displays in the source table (left pane) and the DashBoard window updates to display the Source Configuration options (right pane).

   ![Source Configuration Interface]

   By default, there are two sources populated in DashBoard. You may edit one of these preexisting sources instead of creating a new one, if desired.
3. Use the Name field to specify a unique identifier for the source.
   The source name is used to identify the available sources on the Destination Configuration tab.
4. Use the Type menu to select SRT.
   The Source Configuration area updates to display options for configuring the source as an SRT stream.
5. Use the Mode menu to select either Caller or Listener.

6. Use the Latency (ms) field to define the minimum receiver buffering delay before delivering an SRT data packet from a receiving SRT socket to stream decoder.

7. If the Mode selected in step 5 was Caller, use the Target URL:Port fields to define the IP and the port.
   If the Mode selected in step 5 was Listener, use the Local Port field to define the port.

8. (optional) For configurations in which the Listener expects a specific Stream ID to be present, set the Stream ID field on the Caller to define the Stream ID for the connection.

   If you are using encryption, continue to step 9. If you are not using encryption, continue to step 12.

9. Select the Encryption box.

10. Use the Key Length menu to select the desired key length to encrypt the data.

11. Use the Passphrase field to specify a string between 10-80 characters long. The passphrase must match for both peers.

12. Click Apply.

13. Continue to “Configuring the Destination for a Connection”.

Specifying a WebRTC Stream as a Source

When the API Control mode is set to DashBoard, you must manually specify the WebRTC credentials for each stream you wish to use as a source.

To specify a WebRTC stream as a source

1. Display the Source Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.

2. Click Create Source.
   A new row displays in the source table (left pane) and the DashBoard window updates to display the Source Configuration options (right pane).
By default, there are two sources populated in DashBoard. You may edit one of these preexisting sources instead of creating a new one, if desired.

3. Use the Name field to specify a unique identifier for the source.

4. Use the Type menu to select WebRTC.

   The Source Configuration area updates to display options for configuring the source as a WebRTC stream.

5. Use the Stream Name field to specify the unique identifier that the WebRTC application uses for this connection.

6. Use the Video Format menu to specify the video format of the stream.

7. Use the Websocket URI field to specify the Uniform Resource Identifier (URI) when connecting the Streaming Gateway to the remote WebRTC peer.

8. If required, use the Websocket Token field to specify the unique identifier that the Streaming Gateway will use for this specific connection.
9. Select the **Has Video** box if the stream includes video data.
10. Select the **Has Audio** if the stream includes audio data.
11. Click **Apply**.
12. Continue to “Configuring the Destination for a Connection”.

Configuring the Destination for a Connection

A destination for a connection can include only the video, only the audio, or both the audio and video from a single source. Each destination is configured independently.

Assigning an SDI Output as the Destination

Before proceeding, ensure that you have assigned at least one SDI port as an output on the Streaming Gateway.

**To assign an SDI output as the destination**

1. Display the **Destination Configuration** interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click **Create Destination**.
   
   A new row displays in the destination table (left pane) and the DashBoard window updates to display the Destination Configuration options (right pane).

![Destination Configuration Interface](image)

* By default, there are two destinations populated in DashBoard. You may edit one of these preexisting destinations instead of creating a new one, if desired.

3. Use the **Name** field to specify a unique identifier for the destination.
   
   This name is used to quickly identify connections on the Connections Control tab.

4. Use the **Type** menu to select **SDI**.
   
   The **Destination Configuration** pane updates to display options for configuring the destination as an SDI output signal.
5. Use the **Video Source** menu to specify the source for the destination.
6. Use the **Port** menu to assign the physical SDI output port to the destination.
7. Use the **Video Format** menu to specify the video format of the SDI signal.
8. Select the **Output Audio** box to output the audio data in this destination.
9. Select the **Output Video** box to output the video data in this destination.
10. Click **Apply**.
11. If you selected the **Output Audio** box in step 8, proceed to “Mapping the Audio Channels for an SDI, NDI, or SRT Output”.

**Assigning an NDI Stream as the Destination**

In the same way that an SDI output needs a cable connection to work, an NDI stream needs a network card and a network connection for use as the destination.

* When switching a connection with an NDI stream online and offline on a cloud server, the Port will change.

**To assign an NDI stream as the destination**

1. Display the **Destination Configuration** interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click **Create Destination**.
   
   A new row displays in the destination table (left pane) and the DashBoard window updates to display the Destination Configuration options (right pane).
By default, there are two destinations populated in DashBoard. You may edit one of these preexisting destinations instead of creating a new one, if desired.

3. Use the **Name** field to specify a unique identifier for the destination.
   This name is used to quickly identify connections on the Connections Control tab.

4. Use the **Type** menu to select **NDI**.
   The Destination Configuration pane updates to display options for assigning an NDI stream to a destination.

5. Use the **Video Source** menu to select the desired source.

6. Use the **Stream Name** field to assign a unique identifier to the NDI stream.

7. Use the **Group Name** field to specify a private group name for the Receiver to join to get the stream.

8. Use the **Video Format** field to specify the video format of the NDI signal.
9. Select the **Output Audio** box to output the audio data in this destination.
10. Select the **Output Video** box to output the video data in this destination.
11. Select the **Deinterlace** box to enable deinterlacing using linear interpolation.
12. Click **Apply**.
13. If you selected the **Output Audio** box in step 9, proceed to “Mapping the Audio Channels for an SDI, NDI, or SRT Output”.

Assigning a CDI Stream as the Destination

CDI is only used in the AWS cloud. Make sure that you are using an instance with EFA and that the driver has been installed.

**To assign a CDI stream as the destination**

1. Display the **Destination Configuration** interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click **Create Destination**.
   A new row displays in the destination table (left pane) and the DashBoard window updates to display the Destination Configuration options (right pane).

   ![Destination Configuration Interface](image)

   By default, there are two destinations populated in DashBoard. You may edit one of these preexisting destinations instead of creating a new one, if desired.

3. Use the **Name** field to specify a unique identifier for the destination.
   This name is used to quickly identify connections on the Connections Control tab.
4. Use the **Type** menu to select **CDI**.
   The **Destination Configuration** pane updates to display options for assigning a CDI stream to a destination.
5. Use the **Video Source** menu to select the desired source.
6. Use the **IP** field to identify the IP address of the receiver.
7. Use the **Port** menu to assign the output port to the destination.
8. Use the **Video Format** field to specify the video format of the CDI signal.
9. Select the **Output Audio** box to output the audio data in this destination.
10. Select the **Output Video** box to output the video data in this destination.
11. Select the **Output ANC** box to output the ancillary data in this destination.
12. Use the **Bit-Depth** menu to select the desired bit-depth.
13. Click **Apply**.
14. If you selected the **Output Audio** box in step 9, proceed to “Mapping the Audio Channels for a CDI Output”.

### Assigning an SRT Stream as the Destination

To establish an SRT-to-SRT connection, one of the peers must operate in listener mode while the other operates as caller. The mode of operation for the peer is determined by network configuration. It is not important which mode either the source or destination operates in. The SRT peer operating in listener mode must be reachable over UDP on the port specified in the “Local Port” field for listener mode. The SRT peer operating in caller mode simply calls the listener at the “Target URL:Port” specified. Refer to Table 21 for further information on the menus and fields involved in assigning an SRT stream as the destination.

**To assign an SRT stream as the destination**

1. Display the **Destination Configuration** interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Click **Create Destination**.
   
   A new row displays in the destination table (left pane) and the DashBoard window updates to display the Destination Configuration options (right pane).
By default, there are two destinations populated in DashBoard. You may edit one of these preexisting destinations instead of creating a new one, if desired.

3. Use the **Name** field to specify a unique identifier for the destination. This name is used to quickly identify connections on the Connections Control tab.

4. Use the **Type** menu to select SRT. The **Destination Configuration** pane updates to display options for assigning an SRT stream to a destination.

5. Use the **Video Source** menu to select the desired source.

6. Use the **Mode** menu to select either **Caller** or **Listener**.

7. Use the **Bandwidth Limit(B/s)** field to define the maximum sender bandwidth.

8. Use the **Bandwidth Overhead(%)** field to define the recovery bandwidth overhead.

9. If the **Mode** selected in step 6 was **Caller**, use the **Target URL:Port** fields to define the port.
If the **Mode** selected in step 6 was **Listener**, use the **Local Port** field to define the port.

10. (optional) For configurations in which the Listener expects a specific Stream ID to be present, set the **Stream ID** field on the **Caller** to define the Stream ID for the connection.

11. Use the **Input Rate(B/s)** field to define the anticipated bitrate of your live stream.

12. Use the **Encoding Profile** field to select the H264 profile to be used.

13. Use the **Video BitRate(kbps)** fields to define the video bitrate and mode.

14. Use the **Audio BitRate** field to define the audio bitrate.

* If you are using encryption, continue to step 15. If you are not using encryption, continue to step 18.

15. Select the **Encryption** box.

16. Use the **Key Length** menu to select the desired key length to encrypt the data.

17. Use the **Passphrase** field to specify a string between 10-80 characters long. The passphrase must match for both peers.

18. Click **Apply**.

19. Proceed to “**Mapping the Audio Channels for an SDI, NDI, or SRT Output**”.

**Assigning a WebRTC Stream as the Destination**

When the API Control mode is set to DashBoard, you must manually specify the WebRTC credentials for each output stream you wish to use.

**To assign a WebRTC stream as the destination**

1. Display the **Destination Configuration** interface as outlined in “**Accessing the SSG Sub-Node in DashBoard**”.

2. Click **Create Destination**.

   A new row displays in the destination table (left pane) and the DashBoard window updates to display the Destination Configuration options (right pane).

* By default, there are two destinations populated in DashBoard. You may edit one of these preexisting destinations instead of creating a new one, if desired.
3. Use the **Name** field to specify a unique identifier for the destination.  
This name is used to quickly identify connections on the Connections Control tab.

* For WebRTC connections, some media servers do not recognize stream names with white space in them. Use single-string names only, with no spaces or special characters (hyphens and underscores are allowed).

4. Use the **Type** menu to select **WebRTC**.

The Destination Configuration pane updates to display options for assigning a WebRTC stream to a destination.

5. Use the **Video Source** menu to assign a source to the destination.

6. Use the **Stream Name** field to assign a unique identifier to the WebRTC stream. This name is then entered in the WebRTC peer window to access the stream.

* For WebRTC connections, some media servers do not recognize stream names with white space in them. Use single-string names only, with no spaces or special characters (hyphens and underscores are allowed).

7. Use the **Websocket URI** field to specify the Uniform Resource Identifier (URI) to use when connecting the Streaming Gateway to the remote WebRTC peer device.

8. If required, use the **WebRTC Token** field to assign a unique identifier for this specific WebRTC connection.

9. Select the **Output Audio** box to include the audio data from the source in this destination.

10. Select the **Output Video** box to include the video data from the source in this destination.

* To configure an audio-only output, clear the **Output Video** box. To configure a video-only output, clear the **Output Audio** box.

11. Click **Apply**.

12. If you selected the **Output Audio** box in step 9, proceed to “Mapping the Audio Channels for a WebRTC Stream”.
Customizing the Audio Channel Mapping

This section outlines how to customize the audio channel mapping for a destination when the Output Audio box is selected for any output type.

Mapping the Audio Channels for an SDI, NDI, or SRT Output

The number of audio channels you can map to the destination depends on the audio data from the assigned source.

**To map the audio channels for an SDI, NDI, or SRT output**

1. Locate the **Audio Channel Mapping** area on the **Destination Configuration** tab.
2. Use the **Channel** menu to assign a source audio channel to a destination audio channel.
   - The Streaming Gateway supports up to two audio channels in a WebRTC stream. These audio channels can then be mapped to any of the 16 output audio channels.
3. Use either the first or second menu to enable (On) or disable (Off) the channel in the output path.
   - Selecting Off will mute the channel in the output.
4. Repeat the procedure for the other audio channels if required.
5. Click **Apply**.

Mapping the Audio Channels for a CDI Output

The number of audio channels you can map to the destination depends on the audio data from the assigned source.

**To map the audio channels for a CDI output**

1. Locate the **Audio Channel Mapping** area on the **Destination Configuration** tab.
2. Use the **Channel** menu to assign a source audio channel to a destination audio channel.
   - The Streaming Gateway supports up to two audio channels in a WebRTC stream. These audio channels can then be mapped to any of the two output audio channels.
3. Use either the first or second menu to enable (On) or disable (Off) the channel in the output path.
   - Selecting Off will mute the channel in the output.
4. Repeat the procedure for the other audio channels if required.
5. Click **Apply**.

Mapping the Audio Channels for a WebRTC Stream

The number of audio channels you can map to the destination depends on the audio data from the assigned source.

**To map the audio channels for a WebRTC stream**

1. Locate the **Audio Channel Mapping** area on the **Destination Configuration** tab.
2. Use the **Channel** menu to assign a source audio channel to a destination audio channel.
   - The Streaming Gateway supports up to two audio channels in a WebRTC stream. These audio channels can then be mapped to any of the two output audio channels. Use either the first or second menu to enable (On) or disable (Off) the channel in the output path.
   - Selecting Off will mute the channel in the output.
3. Click **Apply**.

**Enabling a Connection**

By default, a new connection is disabled (the status is reported as Offline) to ensure that a change in settings does not disrupt any downstream equipment or user portals. You must manually enable each connection by toggling its Online button on the Connections Control tab.

**Enabling a Connection**

Enabling a connection requires you to select it from the list of available connections and click the **Online** button. When the Online button is selected, the connection is published to downstream devices.

**To enable a connection**

1. Display the SSG sub-node in DashBoard as outlined in "Accessing the SSG Sub-Node in DashBoard".
2. Ensure the **Connections Control** tab is selected.
3. From the **Connections** table, select the row for the connection you wish to enable.
   
   The **Selected Connection** area updates to display the settings for the connection.
4. Click **Online** (located at the bottom of the **Connections** table).
   
   The **Status** fields for the source and destination update to report that the selected connection is now enabled.

* Only one SDI to WebRTC connection with video is permitted. The remaining connections must be audio only.

**Disabling a Connection**

Clicking the **Offline** button for a connection immediately stops that session and outputs black. This is helpful:

- to free up bandwidth
- if the source is invalid or missing
- if the source includes data that you do not want to output
- to update the connection settings

**To disable a connection**

1. Display the SSG sub-node in DashBoard as outlined in "Accessing the SSG Sub-Node in DashBoard".
2. Ensure the **Connections Control** tab is selected.
3. From the **Connections** table, select the row for the connection you wish to disable.
   
   The **Selected Connection** area updates to display the settings for the connection.
4. Click **Offline** (located at the bottom of the **Connections** table).
   
   The **Status** fields for the source and destination update to report that the selected connection is now disabled.

**Editing an Existing Connection**

Before editing an existing connection, ensure that it is currently offline (disabled) and not in use by downstream equipment or user portals. A connection must be offline before it can be edited.
To edit an existing connection
1. Disable the connection as outlined in “Disabling a Connection”.
2. Edit the source for a connection using the steps in “Configuring the Sources”.
3. Edit the destination for a connection using the steps in “Configuring the Destination for a Connection”.
4. Enable the connection as outlined in “Enabling a Connection”.

If you no longer want to save changes made to the connection, click Cancel instead of Apply. This will revert any changed field to its previous state.

Deleting a Connection
You cannot delete a connection that is currently online (active). You must first disable the connection, as outlined in “To disable a connection”, before proceeding to delete it.

To delete a connection
1. Disable the connection as outlined in “Disabling a Connection”.
2. Select the Destination Configuration tab.
3. From the Destinations table, select the row for the connection output you wish to delete.
4. Click Delete Destination (located at the bottom of the Destinations table).

If the Source for the deleted connection is no longer used by any other connection, it can also be deleted by performing steps 3-4 under the Source Configuration tab.

Troubleshooting
This section briefly summarizes some of the error messages that display on the Connections Control interface when creating the connections for your Streaming Gateway.

Audio Mapping is Invalid
The user attempted to map an unavailable (N/A) audio channel to a WebRTC stream. Ensure to map valid audio channels to your WebRTC stream as outlined in “Mapping the Audio Channels for a WebRTC Stream”.

Destination Does Not Have Output Video or Output Audio Enabled
The output video and audio sources are not detected for a Destination. Verify that the Output Video and/or Output Audio box is selected on the Destination Configuration interface for the Destination. Refer to “Configuring the Destination for a Connection”.

Destination is Online
The user attempted to edit a Destination that was assigned to a connection that is currently online and in use. You must first disable the associated connection before editing the Destination. Refer to “Disabling a Connection” and “Editing an Existing Connection”.

Maximum of 16 WebRTC Streams is Supported
The Streaming Gateway supports a maximum of 16 active WebRTC stream connections. If you wish to add a new WebRTC connection, you will first need to delete or disable a connection. Refer to “Deleting a Connection” or “Disabling a Connection”.

Source is Online

The user attempted to edit a Source that was assigned to a connection that is currently online and in use. You must first disable the associated connection before editing the Source. Refer to “Disabling a Connection” and “Editing an Existing Connection”.

Video Source is Invalid

The user attempted to assign a video source that is not available (N/A) or the source is currently assigned to another Destination. Refer to “Configuring the Sources” and “Configuring the Destination for a Connection”.

Interstellar Setup

This chapter outlines the steps required to configure and enable the Streaming Gateway to communicate with the Ross Interstellar Remote Contributor Production Portal.

This chapter discusses the following topics:

- Connecting to Interstellar Overview
- Setup on the Interstellar Portal
- Apply the Preset Connections
- Enabling Interstellar Control of the Streaming Gateway
Connecting to Interstellar Overview

The Streaming Gateway provides the ability to manage single or multiple talent work flows for Interstellar by:

- Decoding a WebRTC audio and video stream to a discreet embedded SDI output (Talent Audio/Video).
- Decoding a WebRTC audio stream to two embedded mono audio channels (Talkback).
- Encoding a WebRTC audio stream from a discreet balanced line-level audio input (IFB).
- Encoding an embedded SDI source to a WebRTC audio and video stream (Return Video).

The Return Video can be any embedded SDI signal originating on-premise such as a switcher program, a multi-viewer, or a router output. The Streaming Gateway creates the Return Video as a single video and audio stream and then sends it to Interstellar. Interstellar then forwards that stream to all talent sites.

Setup on the Interstellar Portal

The Streaming Gateway connects to Interstellar via a websocket and is identified in the Interstellar database as a Transcoder.

Ensure the following criteria are met:

- Interstellar is configured with an IP address that is accessible to the Streaming Gateway.
- A Transcode role is created on Interstellar and is assigned to a User with a valid API Key set to WebRTC.
- You know the Channel numbers that Interstellar will allocate to the Streaming Gateway. This information will be used in the Peer ID fields when configuring the Streaming Gateway.
Refer to the Interstellar user documentation for configuration details.

Apply the Preset Connections

The Streaming Gateway provides a template of preset connections already configured for communication with Interstellar. Applying the preset connections auto-populates the Connections interface with a list of network streams (connections) with the inputs and outputs already configured to match the Interstellar requirements. Applying the preset connections must be done before enabling Interstellar control of the Streaming Gateway.

You may edit the video format and audio mapping settings of a preset connection but otherwise editing the preset connections, deleting, or re-ordering the connections is not recommended.

To apply the preset connections for Interstellar control

1. Ensure all connections are set to Offline on the Connections Control interface. Refer to “Enabling a Connection” for details.
2. Display the Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
3. Select the API Control sub-tab.
4. Use the Control menu to select DashBoard.
5. Click Apply.
6. Select the Preset Connections sub-tab.
7. Select the desired preset type from the Preset Type menu.
8. Click Preset Connections.

To verify that the preset connections are loaded to the Streaming Gateway

1. Display the Connections Control interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Verify that the Connections table lists only the preset connections.

Enabling Interstellar Control of the Streaming Gateway

You must next specify that the Streaming Gateway will function as a client of Interstellar. This is done by setting the API Control mode on the Streaming Gateway to Interstellar. When the API Control mode is set to Interstellar, certain Streaming Gateway interfaces in DashBoard are changed. Refer to the “Control > Interstellar” section of Table 25 for a list of these changes.

Ensure the Streaming Gateway is configured with an IP address that is accessible to Interstellar.

To set the API Control mode to Interstellar

1. Display the Configuration interface as outlined in “Accessing the SSG Sub-Node in DashBoard”.
2. Select the API Control sub-tab.
3. Use the Control menu to select Interstellar.
4. By default, the ports are pre-defined as follows: Ports 1, 3, 5, and 7 are the SDI inputs, Ports 2, 4, 6, and 8 are the SDI outputs.
5. Use the Hostname field to specify the name used to uniquely identify the Streaming Gateway.
5. Use the **Port** field to specify the port number to be used.

6. Use the **API Key** field to specify the API Key that Interstellar assigned to the Streaming Gateway when its Transcoder Role was assigned.

7. Click **Apply**.

The example below shows the Connections Control tab when the API Control is set to Interstellar.
Upgrading the Software

The Streaming Gateway can be upgraded in the field via DashBoard.

* The Streaming Gateway is temporarily taken off-line during the upgrade process.

**To upgrade the software on the Streaming Gateway**

2. Ensure the Ethernet cable is connected to the 1G port on the Streaming Gateway.
3. Display the System sub-node as outlined in “To display the System sub-node in DashBoard”.
4. Select Upload, located near the bottom of the interface, to display the Select file Upload dialog.
5. Navigate to the *.bin file you want to upload.
6. Click Open.
7. Click Next > to display the Select Destination menu.
   - This menu provides a list of the compatible units.
8. Select the box for the Streaming Gateway you want to upload the file to.
   - The Error/Warning fields indicate any errors, such as incompatible software or product type mismatch.
9. Click Finish.
10. Monitor the upgrade.
    - An Upload Status dialog enables you to monitor the upgrade process.
11. Click OK.
    - The Upload Status dialog closes.

* If the Automatically close when complete box is selected, the Streaming Gateway automatically reboots to complete the upgrade process. Otherwise the user must click Reboot once the upload is complete.
    - The process is complete once the status indicators in the Connections Control tab return to their previous status.
DashBoard Interface Overview

This chapter summarizes the sub-nodes, interfaces, tabs, and menus available from DashBoard for the Streaming Gateway.

This chapter discusses the following topics:

• System Sub-Node
• SSG Sub-Node
System Sub-Node

The System sub-node has five main tabs with their own unique interfaces: the Ethernet, Licensing, Timing, Features, and About tabs.

Ethernet Tab

The Ethernet tab provides options to configure the network settings for the 1G port on the back panel. **Table 2** summarizes the fields displayed in the Ethernet tab (Figure 17).

![Example of the Ethernet tab](image)

**Table 2** System — Ethernet

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1G MAC Address</td>
<td>#</td>
<td>Specifies the unique Media Access Control (MAC) Address assigned to the Streaming Gateway</td>
</tr>
<tr>
<td>IPv4 Address</td>
<td>#</td>
<td>Specifies the static IP Address that the user wants to manually assign to the specified Streaming Gateway port</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>#</td>
<td>Specifies the subnet mask value for the specified port on the Streaming Gateway</td>
</tr>
<tr>
<td>Gateway</td>
<td>#</td>
<td>Specifies the gateway for communications outside of the local area network (LAN) the specified port on the Streaming Gateway will use</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>The specified port is not configured</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>The specified port is not configured</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>The specified port is not configured</td>
</tr>
</tbody>
</table>
Licensing Tab

Use the options on the Licensing tab to license your server, and to manage the features that require a valid Product Key.

Table 3 summarizes the options displayed in the Licensing tab (Figure 18).

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNS</td>
<td>#</td>
<td>Specifies the IP address of the DNS server that the Streaming Gateway will communicate with</td>
</tr>
<tr>
<td>Method(^a)</td>
<td>DHCP</td>
<td>The settings will be assigned by a DHCP server in your facility</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>The user manually supplies the settings</td>
</tr>
<tr>
<td>State (read-only)</td>
<td>Activated</td>
<td>The specified port is active and is communicating with valid settings</td>
</tr>
<tr>
<td></td>
<td>Disconnected</td>
<td>Communication to the specified port is interrupted. Verify that the settings are correct and the port is physically cabled correctly.</td>
</tr>
<tr>
<td></td>
<td>Unavailable</td>
<td>The specified port is not active and is not configured for use</td>
</tr>
<tr>
<td>Apply</td>
<td></td>
<td>Click this button to apply the new settings to the 1G port</td>
</tr>
</tbody>
</table>

\(^a\) The options Unknown and Link-local are not implemented and should not be used.
### Table 3  System — Licensing

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>#</td>
<td>Used to select the Port for the Activation Server</td>
</tr>
<tr>
<td>Protocol</td>
<td>HTTP</td>
<td>Selects HTTP for the Activation Server</td>
</tr>
<tr>
<td></td>
<td>HTTPS</td>
<td>Selects HTTPS for the Activation Server</td>
</tr>
<tr>
<td>Activate</td>
<td></td>
<td>Activates the entered Product Key</td>
</tr>
<tr>
<td>Deactivate</td>
<td></td>
<td>Deactivates the Product Key</td>
</tr>
</tbody>
</table>
| Status       | <text>     | Can report the following:  
|              |            | • the validity of the Product Key used,  
|              |            | • the result of activation,  
|              |            | • and the result of checking the license per the interval defined by the licensing mode |
| Name         | <text>     | Reports the marketing code for the licensed feature |
| Description  | <text>     | Summarizes the licensed feature |
| Licensed To  | #          | Indicates the device the license applies to |
| License Key  | #          | This character string is used to obtain an Activation Key |
| Expiry       | MM/YYYY    | Reports the expiry date for the licensed feature |
| Number of Uses | #        | Represents the amount of docker containers set up and running for the specific feature |
| Validity     | Valid/Invalid | Reports if the Activation Key is valid and the feature is still licensed or not |
| Feature ID   | #          | Provides the license code that you must provide to Ross Technical Support |

### Timing Tab

**Table 4** summarizes the fields displayed in the Timing tab (**Figure 19**).
### Table 4 System — Timing

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTP Status (read-only)</td>
<td>OK (Green)</td>
<td>Indicates a valid time source is reporting to the Streaming Gateway</td>
</tr>
<tr>
<td></td>
<td>Apply Changes (Yellow)</td>
<td>At least one NTP Server address has changed. Click Apply to save the new setting(s).</td>
</tr>
<tr>
<td></td>
<td>Not Running (Red)</td>
<td>Software was not able to start NTP client</td>
</tr>
<tr>
<td></td>
<td>No Servers Configured (Red)</td>
<td>The NTP Server fields are blank</td>
</tr>
<tr>
<td></td>
<td>Cannot Resolve Server Name (Red)</td>
<td>At least one of the NTP Server host-names could not be resolved. It is recommended to specify the IP address instead of a host-name for the server.</td>
</tr>
<tr>
<td></td>
<td>No Time Server Available At Address (Red)</td>
<td>At least one NTP Server IP Address does not have a valid time server running</td>
</tr>
</tbody>
</table>
| Current Time (read-only)    | Ddd MMM ## hh : mm : ss yyyy GMT | Indicates the encoded date where:  
  - Ddd represents the day of the week  
  - MMM represents the month  
  - ## represents the day of the month  
  - hh : mm : ss reports the current encoding time as reported by the NTP Server(s)  
  - yyyy represents the year |
| NTP Server 1                | #          | Specifies the first Network Time Server (NTP) address the Streaming Gateway can use for timecode information |

*Figure 19  Example of the Timing tab*
Features Tab

Table 5 summarizes the fields displayed in the Features tab (Figure 20).

Table 5  System — Features

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>The name of the feature</td>
</tr>
<tr>
<td>Version</td>
<td>#</td>
<td>The version of the feature</td>
</tr>
<tr>
<td>Hash</td>
<td>&lt;text&gt;</td>
<td>The hash of the feature</td>
</tr>
<tr>
<td>Buildstamp</td>
<td>&lt;text&gt;</td>
<td>The buildstamp of the feature</td>
</tr>
<tr>
<td>State</td>
<td>&lt;text&gt;</td>
<td>The state of the feature</td>
</tr>
</tbody>
</table>

About Tab

Table 6 summarizes the fields and read-only information displayed in the About tab in the System sub-node (Figure 21).
**Table 6 System — About**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serial Number</td>
<td>#</td>
<td>The serial number assigned to the Streaming Gateway</td>
</tr>
<tr>
<td>Assembly Revision</td>
<td>#</td>
<td>The version of the Streaming Gateway hardware</td>
</tr>
<tr>
<td>Product</td>
<td>softGear Streaming Gateway</td>
<td></td>
</tr>
<tr>
<td>Product Version</td>
<td>&lt;text&gt;</td>
<td>The software build the Streaming Gateway is currently running</td>
</tr>
<tr>
<td>Product Hash</td>
<td>&lt;text&gt;</td>
<td>The hash of the software build</td>
</tr>
<tr>
<td>Frame Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the Streaming Gateway. This name also displays in the node for the Streaming Gateway in the Tree View of DashBoard. The default is softGear Streaming Gateway. Note that any change to this name may take up to one minute to be reflected in the Tree View of DashBoard.</td>
</tr>
<tr>
<td>Hostname</td>
<td>#</td>
<td>Uniquely identifies the Streaming Gateway within a WebRTC system</td>
</tr>
<tr>
<td><strong>Factory Default</strong></td>
<td></td>
<td>Click this button to reset all Streaming Gateway editable fields to the factory default values. This impacts all tabs except the Ethernet, Timing, and About tabs. Clicking Factory Default will also trigger a reboot.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✴ On a cloud server, selecting Factory Default will reset the activation server and all licenses. To fix this, re-enter the activation server used and select Reboot.</td>
</tr>
</tbody>
</table>
SSG Sub-Node

The SSG sub-node has four main tabs with their own unique interfaces: the Connections Control, Source Configuration, Destination Configuration, and Configuration tabs.

Connections Control Interface

The Connections Control interface is organized into four areas (from left to right): Connections table, Connection Information, Video Source Information, and Audio Channel Mapping. (Figure 22)

**Connections Table**

The Connections table reports a list of active and inactive connections that the user has configured using the Sources Configuration and Destinations Configuration tabs. Each table row is a connection with the assigned Input, Output, and a brief status message. Selecting a row displays more information in the Selected Connection area.

**Table 7** summarizes the read-only fields displayed in the Connections table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Reports the destination assigned as the output signal for the connection</td>
</tr>
<tr>
<td>SRC Type</td>
<td>Identifies the signal type of the input of the connection</td>
</tr>
<tr>
<td>Type</td>
<td>Reports the signal type assigned to the destination</td>
</tr>
</tbody>
</table>
Connection Information

Table 8 summarizes the read-only fields displayed in the Connection Information area.

For More Information on...
- the available input options, refer to “Source Configuration Interface”.
- the available output options, refer to “Destination Configuration Area”.

### Table 8 SSG — Connections Control — Connection Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current State</td>
<td>Online</td>
<td>The connection is active and no errors are detected. The connection cannot be edited.</td>
</tr>
<tr>
<td></td>
<td>Offline</td>
<td>The connection is inactive and can be edited</td>
</tr>
<tr>
<td>Destination Name</td>
<td>&lt;text&gt;</td>
<td>Reports the unique identifier assigned to the output signal of this connection. Used to identify the connection in the Manage Connections table.</td>
</tr>
<tr>
<td>Destination Type</td>
<td>SDI</td>
<td>Identifies the output of the connection as an SDI signal. Refer to Table 18 for menus and descriptions.</td>
</tr>
<tr>
<td></td>
<td>NDI</td>
<td>Identifies the output of the connection as an NDI signal. Refer to Table 19 for menus and descriptions.</td>
</tr>
<tr>
<td></td>
<td>CDI</td>
<td>Identifies the output of the connection as a CDI signal. Refer to Table 20 for menus and descriptions.</td>
</tr>
<tr>
<td></td>
<td>SRT</td>
<td>Identifies the output of the connection as an SRT signal. Refer to Table 21 for menus and descriptions.</td>
</tr>
<tr>
<td></td>
<td>WebRTC</td>
<td>Identifies the output of the connection as a WebRTC signal. Refer to Table 22 for menus and descriptions.</td>
</tr>
<tr>
<td>SDI Port</td>
<td>&lt;text&gt;</td>
<td>When the Destination Type is SDI, this field displays and reports which physical connection on the back panel is assigned as the SDI output for the connection</td>
</tr>
<tr>
<td>NDI Stream Name</td>
<td>&lt;text&gt;</td>
<td>When the Destination Type is NDI, this field displays and reports the network stream that is assigned as the output for the connection. The format of the name displayed will be: $HostName($StreamName)</td>
</tr>
</tbody>
</table>
Table 8 SSG — Connections Control — Connection Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Mode</td>
<td>&lt;text&gt;</td>
<td>When the Destination Type is SRT, this field displays and reports the connection mode that is assigned as the output for the connection</td>
</tr>
<tr>
<td>WebRTC Stream Name</td>
<td>&lt;text&gt;</td>
<td>When the Destination Type is WebRTC, this field displays and reports the network stream that is assigned as the output for the connection</td>
</tr>
<tr>
<td>Video Format (Read Only)</td>
<td>#</td>
<td>Indicates the video format of the input signal</td>
</tr>
</tbody>
</table>

Video Source Information

Table 9 summarizes the read-only fields displayed in the Video Source Information area.

Table 9 SSG — Connections Control — Video Source Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Name</td>
<td>&lt;text&gt;</td>
<td>Reports the unique identifier assigned to the input signal of this connection</td>
</tr>
<tr>
<td>Source Type</td>
<td>SDI</td>
<td>Identifies the input of the connection as an SDI signal</td>
</tr>
<tr>
<td></td>
<td>NDI</td>
<td>Identifies the input of the connection as an NDI signal</td>
</tr>
<tr>
<td></td>
<td>SRT</td>
<td>Identifies the input of the connection as an SRT signal</td>
</tr>
<tr>
<td></td>
<td>WebRTC</td>
<td>Identifies the input of the connection as a WebRTC signal</td>
</tr>
</tbody>
</table>
Audio Channel Mapping

Table 10 summarizes the read-only fields displayed in the Audio Channel Mapping area.

### Table 9 SSG — Connections Control — Video Source Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Status (read-only)</td>
<td>Online (Green)</td>
<td>The input signal is valid and no errors are detected</td>
</tr>
<tr>
<td></td>
<td>Offline (Yellow)</td>
<td>The stream was stopped or is not yet initialized. Verify your network connections.</td>
</tr>
<tr>
<td></td>
<td>No input signal detected (Yellow)</td>
<td>The specified port is assigned as an input but a valid signal is not detected on that port</td>
</tr>
<tr>
<td></td>
<td>Initializing Signal (Yellow)</td>
<td>The Streaming Gateway is in the process of establishing a connection</td>
</tr>
<tr>
<td></td>
<td>Closed to Signal Server (Yellow)</td>
<td>The input is unavailable. The connection with the media server is no longer valid.</td>
</tr>
<tr>
<td></td>
<td>Shared Memory Input Error (Red)</td>
<td>The input cannot be connected. Toggling the Offline and Online buttons may fix this.</td>
</tr>
<tr>
<td></td>
<td>Not Initialized (Red)</td>
<td>The input is no longer valid. Verify that the cable is secured to the port and that a valid signal is available on that port.</td>
</tr>
<tr>
<td></td>
<td>Packets Missing (Red)</td>
<td>The input signal is experiencing errors. Verify if a valid signal is connected to the port.</td>
</tr>
<tr>
<td>Source Format</td>
<td>#</td>
<td>Reports the input video format</td>
</tr>
</tbody>
</table>

Source Configuration Interface

The Source Configuration interface is organized into two areas: Sources table, and Source Configuration.
Sources Table

The Sources table reports a list of active and inactive sources that the user has configured. Double-clicking a row displays more information in the Sources Configuration area.

Table 11 summarizes the read-only fields displayed in the Sources table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Reports the source assigned as the input signal for the connection</td>
</tr>
<tr>
<td>Status</td>
<td>Reports the connection status of the source: online (green), offline (gray), or warning (yellow) of an error condition.</td>
</tr>
<tr>
<td>Type</td>
<td>Reports the signal type assigned to the source</td>
</tr>
<tr>
<td>Create Source</td>
<td>Select this button to define and add a new source to the database</td>
</tr>
<tr>
<td>Delete Source</td>
<td>Select this button to remove the selected source from the database</td>
</tr>
</tbody>
</table>

Source Configuration Area

The options that display in the Source Configuration area depend on the Type setting.

Table 12 summarizes the options when the Type is set to SDI.
Table 12  SSG — Source Configuration — Type > SDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>#</td>
<td>Specifies the SDI IN port (on the back panel) that the connection will use as the input signal. The list of available SDI inputs depends on the Configuration &gt; Global Settings options.</td>
</tr>
<tr>
<td>Video Format (read-only)</td>
<td>#</td>
<td>Indicates the video format of the input signal</td>
</tr>
</tbody>
</table>

Table 13  SSG — Source Configuration — Type > NDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Format (read-only)</td>
<td>#</td>
<td>Indicates the video format of the input signal</td>
</tr>
<tr>
<td>Create NDI Source</td>
<td>Selected</td>
<td>Allows you to create a new NDI source to use. When selected, you must manually enter the IP address and port # of the desired source.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Indicates that the source to be used is preexisting</td>
</tr>
<tr>
<td>NDI Source</td>
<td>&lt;text&gt;</td>
<td>Selects an existing source to use as the NDI Source</td>
</tr>
<tr>
<td>IP Address</td>
<td>#</td>
<td>Reports the IP address of the selected source</td>
</tr>
</tbody>
</table>

Table 14  SSG — Source Configuration — Type > CDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Format</td>
<td>#</td>
<td>Indicates the video format of the input signal</td>
</tr>
<tr>
<td>Port</td>
<td>#</td>
<td>Specifies the port for the input signal</td>
</tr>
</tbody>
</table>

Table 15  SSG — Source Configuration — Type > SRT

Table 13 summarizes the options when the Type is set to NDI.

Table 14 summarizes the options when the Type is set to CDI.

Table 15 summarizes the options when the Type is set to SRT.
Table 15  SSG — Source Configuration — Type > SRT

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Listener</td>
<td>Indicates the mode for the source is set to Listener. When in Listener mode, you are listening on a port to establish a connection.</td>
</tr>
<tr>
<td></td>
<td>Caller</td>
<td>Indicates the mode for the source is set to Caller. When in Caller mode, you are sending out a message to the IP and port to connect.</td>
</tr>
<tr>
<td>Latency (ms)</td>
<td>#</td>
<td>Defines the minimum receiver buffering delay before delivering an SRT data packet from a receiving SRT socket to stream decoder</td>
</tr>
<tr>
<td>Local Port</td>
<td>#</td>
<td>Available in Listener Mode. Specifies the local port to be used.</td>
</tr>
<tr>
<td>Target URL:Port</td>
<td>&lt;text&gt;, #</td>
<td>Available in Caller Mode. Specifies the target URL and port to be used.</td>
</tr>
<tr>
<td>Stream ID</td>
<td>&lt;text&gt;</td>
<td>Available in Caller Mode. Defines the Stream ID.</td>
</tr>
<tr>
<td>Encryption</td>
<td>Selected</td>
<td>Enables data encryption in transit using AES</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables data encryption</td>
</tr>
<tr>
<td>Key Length</td>
<td>Default</td>
<td>Defaults key length to 128-bit to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-128</td>
<td>Specifies that 128-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-192</td>
<td>Specifies that 192-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-256</td>
<td>Specifies that 256-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td>Passphrase</td>
<td>&lt;text&gt;</td>
<td>Determines the passphrase that must be matching for both peers, or the connection will be rejected by the receiver and fail. Passphrase must be 10-80 characters long.</td>
</tr>
</tbody>
</table>

Table 16 summarizes the options when the **Type** is set to **WebRTC**.

Table 16  SSG — Source Configuration — Type > WebRTC

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Format (Read Only)</td>
<td>#</td>
<td>Indicates the video format of the input signal</td>
</tr>
<tr>
<td>Stream Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the WebRTC stream. This name is used by the WebRTC client to identify the stream.</td>
</tr>
</tbody>
</table>
The Destination Configuration interface is organized into three areas: Destinations table, Destination Configuration, and Audio Channel Mapping.

### Destinations Table

The Destinations table reports a list of active and inactive destinations that the user has configured. Double-clicking a row displays more information in the Destinations Configuration area.

Table 17 summarizes the read-only fields displayed in the **Destinations** table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Websocket URI</td>
<td>#</td>
<td>Specifies the Uniform Resource Identifier (URI) to use when connecting the Streaming Gateway to the remote peer</td>
</tr>
<tr>
<td>Websocket Token</td>
<td>#</td>
<td>Specifies the unique identifier that the Streaming Gateway will use for this specific WebRTC connection</td>
</tr>
<tr>
<td>Has Video</td>
<td>Selected</td>
<td>Indicates the source has video data</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Indicates the source does not have video data</td>
</tr>
<tr>
<td>Has Audio</td>
<td>Selected</td>
<td>Indicates the source has audio data</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Indicates the source does not have audio data</td>
</tr>
</tbody>
</table>

![Image of the Destination Configuration Interface]

**Figure 24 Example of the Destination Configuration Interface**
Destination Configuration Area

The options that display in the Destination Configuration area depend on the Type setting. **Table 18** summarizes the options when *Type* is set to *SDI*.

**Table 17  SSG — Destination Configuration — Destinations Table**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Reports the destination assigned as the output signal for the connection</td>
</tr>
<tr>
<td>Status</td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
</tr>
<tr>
<td>Type</td>
<td>Reports the signal type assigned to the destination</td>
</tr>
<tr>
<td>Create Destination</td>
<td>Select this button to define and add a new destination to the database</td>
</tr>
<tr>
<td>Delete Destination</td>
<td>Select this button to remove the selected destination from the database</td>
</tr>
</tbody>
</table>

**Table 18  SSG — Destination Configuration — Type > SDI**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (read-only)</td>
<td></td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
</tr>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the connection</td>
</tr>
<tr>
<td>Video Source</td>
<td>#</td>
<td>Provides a list of the available sources as defined using the Sources Configuration tab</td>
</tr>
<tr>
<td>Port</td>
<td>#</td>
<td>Assigns an SDI OUT port (on the back panel) to the source. The list of available SDI ports depends on the Configuration &gt; Global Settings options.</td>
</tr>
<tr>
<td>Video Format</td>
<td>#</td>
<td>Selects the desired video format for the output. Only appears when input is set to WebRTC. Note that the selected video format must match the resolution.</td>
</tr>
<tr>
<td>Output Video</td>
<td>Selected</td>
<td>The output will include the video data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source video data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Output Audio</td>
<td>Selected</td>
<td>The output will include the audio data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source audio data is not included in the output signal for this connection</td>
</tr>
</tbody>
</table>
Table 19 summarizes the options when Type is set to NDI.

### Table 19 SSG — Destination Configuration — Type > NDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (read-only)</td>
<td></td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
</tr>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the connection</td>
</tr>
<tr>
<td>Video Source</td>
<td>#</td>
<td>Provides a list of the available sources as defined using the Sources Configuration tab</td>
</tr>
<tr>
<td>Stream Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the NDI stream</td>
</tr>
<tr>
<td>Group Name</td>
<td>&lt;text&gt;</td>
<td>Publishes the stream in the specified group. Receiver has to join the group in order to get the stream.</td>
</tr>
<tr>
<td>Video Format</td>
<td>#</td>
<td>Selects the desired video format for the output. Only appears when input is set to WebRTC. Note that the selected video format must match the resolution.</td>
</tr>
<tr>
<td>Output Video</td>
<td>Selected</td>
<td>The output will include the video data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source video data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Output Audio</td>
<td>Selected</td>
<td>The output will include the audio data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source audio data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Deinterlace</td>
<td>Selected</td>
<td>Enables deinterlacing using linear interpolation</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables deinterlacing using linear interpolation</td>
</tr>
</tbody>
</table>

Table 20 summarizes the options when Type is set to CDI.

### Table 20 SSG — Destination Configuration — Type > CDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (read-only)</td>
<td></td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
</tr>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the connection</td>
</tr>
<tr>
<td>Video Source</td>
<td>#</td>
<td>Provides a list of the available sources as defined using the Sources Configuration tab</td>
</tr>
<tr>
<td>IP</td>
<td>#</td>
<td>Identifies the IP address of the receiver</td>
</tr>
<tr>
<td>Port</td>
<td>#</td>
<td>Assigns the output port to the destination</td>
</tr>
</tbody>
</table>
Table 20  SSG — Destination Configuration — Type > CDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Format</td>
<td>#</td>
<td>Selects the desired video format for the output. Only appears when input is set to WebRTC. Note that the selected video format must match the resolution.</td>
</tr>
<tr>
<td>Output Video</td>
<td>Selected</td>
<td>The output will include the video data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source video data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Output Audio</td>
<td>Selected</td>
<td>The output will include the audio data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source audio data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Output ANC</td>
<td>Selected</td>
<td>The output will include ancillary data from the selected source. This is the default.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source ancillary data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Bit-Depth</td>
<td>8 Bit</td>
<td>The bit depth of the output will be 8 bit</td>
</tr>
<tr>
<td></td>
<td>10 Bit</td>
<td>The bit depth of the output will be 10 bit</td>
</tr>
</tbody>
</table>

Table 21  SSG — Destination Configuration — Type > SRT

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (read-only)</td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the connection</td>
</tr>
<tr>
<td>Video Source</td>
<td>#</td>
<td>Provides a list of the available sources as defined using the Sources Configuration tab</td>
</tr>
<tr>
<td>Mode</td>
<td>Listener</td>
<td>Indicates the mode for the source is set to Listener. When in Listener mode, you are listening on a port to establish a connection.</td>
</tr>
<tr>
<td></td>
<td>Caller</td>
<td>Indicates the mode for the source is set to Caller. When in Caller mode, you are sending out a message to the IP and port to connect.</td>
</tr>
</tbody>
</table>
### Bandwidth Limit (B/s)
- **#**
  - Defines the maximum sender bandwidth. The following values mean:
    - -1 = unlimited (default)
    - 0 = relative to input rate
    - >0 = absolute in B/s
  - For live streams it is recommended to set the value to 0 and rely on the Input Rate and Bandwidth Overhead.

### Bandwidth Overhead (%)
- **#**
  - Defines the recovery bandwidth overhead percentage. Default is 25%. Only effective if the Bandwidth Limit is set to 0.

### Local Port
- **#**
  - Available in Listener Mode. Specifies the local port to be used.

### Target URL:Port
- **<text>, #**
  - Available in Caller Mode. Specifies the target URL and port to be used.

### Stream ID
- **<text>**
  - Available in Caller Mode. Defines the Stream ID.

### Input Rate (B/s)
- **#**
  - Defines the anticipated bitrate of your live stream. Default is 0. Only effective if the Bandwidth Limit is set to 0.
  - When set to 0, the value used will be estimated from the rate of the input during transmission.

### Encoding Profile
- **Main**
  - Defines that the H264 profile used will be Main
- **High 4:2:2**
  - Defines that the H264 profile used will be High 4:2:2

### Video BitRate(kbps)
- **CBR, #**
  - Defines the video bitrate and its mode, CBR. CBR refers to constant bitrate, meaning the bitrate will be kept the same.
- **VBR, #**
  - Defines the video bitrate and its mode, VBR. VBR refers to variable bitrate, meaning the bitrate will vary. The value is the maximum bitrate allowed.

### Audio Bitrate
- **8kbps - 512kbps**
  - Defines the audio bitrate

### Encryption
- **Selected**
  - Enables data encryption in transit using AES
- **Cleared**
  - Disables data encryption

---

**Table 21 SSG — Destination Configuration — Type > SRT**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth Limit (B/s)</td>
<td>#</td>
<td>Defines the maximum sender bandwidth. The following values mean:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- -1 = unlimited (default)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0 = relative to input rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- &gt;0 = absolute in B/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For live streams it is recommended to set the value to 0 and rely on the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Input Rate and Bandwidth Overhead.</td>
</tr>
<tr>
<td>Bandwidth Overhead (%)</td>
<td>#</td>
<td>Defines the recovery bandwidth overhead percentage. Default is 25%. Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>effective if the Bandwidth Limit is set to 0.</td>
</tr>
<tr>
<td>Local Port</td>
<td>#</td>
<td>Available in Listener Mode. Specifies the local port to be used.</td>
</tr>
<tr>
<td>Target URL:Port</td>
<td>&lt;text&gt;, #</td>
<td>Available in Caller Mode. Specifies the target URL and port to be used.</td>
</tr>
<tr>
<td>Stream ID</td>
<td>&lt;text&gt;</td>
<td>Available in Caller Mode. Defines the Stream ID.</td>
</tr>
<tr>
<td>Input Rate (B/s)</td>
<td>#</td>
<td>Defines the anticipated bitrate of your live stream. Default is 0. Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>effective if the Bandwidth Limit is set to 0.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When set to 0, the value used will be estimated from the rate of the input</td>
</tr>
<tr>
<td></td>
<td></td>
<td>during transmission.</td>
</tr>
<tr>
<td>Encoding Profile</td>
<td>Main</td>
<td>Defines that the H264 profile used will be Main</td>
</tr>
<tr>
<td></td>
<td>High 4:2:2</td>
<td>Defines that the H264 profile used will be High 4:2:2</td>
</tr>
<tr>
<td>Video BitRate(kbps)</td>
<td>CBR, #</td>
<td>Defines the video bitrate and its mode, CBR. CBR refers to constant bitrate,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>meaning the bitrate will be kept the same.</td>
</tr>
<tr>
<td></td>
<td>VBR, #</td>
<td>Defines the video bitrate and its mode, VBR. VBR refers to variable bitrate,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>meaning the bitrate will vary. The value is the maximum bitrate allowed.</td>
</tr>
<tr>
<td>Audio Bitrate</td>
<td>8kbps - 512kbps</td>
<td>Defines the audio bitrate</td>
</tr>
<tr>
<td>Encryption</td>
<td>Selected</td>
<td>Enables data encryption in transit using AES</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables data encryption</td>
</tr>
</tbody>
</table>
Table 21  SSG — Destination Configuration — Type > SRT

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Length</td>
<td>Default</td>
<td>Defaults key length to 128-bit to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-128</td>
<td>Specifies that 128-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-192</td>
<td>Specifies that 192-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td></td>
<td>AES-256</td>
<td>Specifies that 256-bit key length is used to encrypt the data</td>
</tr>
<tr>
<td>Passphrase</td>
<td>&lt;text&gt;</td>
<td>Determines the passphrase that must be matching for both peers, or the connection will be rejected by the receiver and fail. Passphrase must be 10-80 characters long.</td>
</tr>
</tbody>
</table>

Table 22 summarizes the options when the Type is set to WebRTC.

Table 22  SSG — Destination Configuration — Type > WebRTC

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>(read-only)</td>
<td>Reports the connection status of the connection: online (green), offline (gray), or warning (yellow) of an error condition</td>
</tr>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the connection</td>
</tr>
<tr>
<td>Video Source</td>
<td>#</td>
<td>Provides a list of the available sources as defined using the Sources Configuration tab</td>
</tr>
<tr>
<td>Stream Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the WebRTC name that is used in DashBoard to label the stream. This field is read-only when API Control is set to Interstellar.</td>
</tr>
<tr>
<td>Websocket URI</td>
<td>#</td>
<td>Specifies the Uniform Resource Identifier (URI) to use when connecting the Streaming Gateway to the downstream remote peer. This field is read-only when API Control is set to Interstellar.</td>
</tr>
<tr>
<td>Websocket Token</td>
<td>#</td>
<td>Specifies the unique identifier that the Streaming Gateway will use for this output WebRTC connection. This field is read-only when API Control is set to Interstellar.</td>
</tr>
<tr>
<td>Output Video</td>
<td>Selected</td>
<td>The output will include the video data from the selected source</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source video data is not included in the output signal for this connection</td>
</tr>
<tr>
<td>Output Audio</td>
<td>Selected</td>
<td>The output will include the audio data from the selected source</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The source audio data is not included in the output signal for this connection</td>
</tr>
</tbody>
</table>
Audio Channel Mapping

Table 23 summarizes the options displayed in the Audio Channel Mapping area.

**Table 23 SSG — Destination Configuration — Audio Channel Mapping**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Very Low - Very High</td>
<td>Indicates the output quality level. Default setting is High. Setting options are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Very Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Very High</td>
</tr>
<tr>
<td>Drop Frames</td>
<td>Selected</td>
<td>The Streaming Gateway will automatically drop frames when it detects a streaming bit rate higher than 2.5Mbps.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>The Streaming Gateway will not drop frames even if the bit rate is more than 2.5Mbps. This is the default.</td>
</tr>
</tbody>
</table>

Configuration Interface

The Configuration interface displays four sub-tabs on the bottom toolbar: Global Settings, API Control, Preset Connections, and About. Each sub-tab is described in this section.

* You may need to scroll down the window to display these sub-tabs.
Global Settings Tab

The Global Settings tab enables you to assign a function to the physical connections of the Streaming Gateway chassis. The map represents the back panel ports, enabling you to quickly select the physical ports to configure.

Table 24 summarizes the options displayed in the Global Settings tab.

### Table 24  SSG — Configuration — Global Settings

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BNCs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BNC #&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Input</td>
<td>The physical DIN port is an SDI input. SDI 1, 3, 5, and 7 are assigned as inputs by default.</td>
</tr>
<tr>
<td></td>
<td>Output</td>
<td>The physical DIN port is an SDI output. SDI 2, 4, 6, and 8 are assigned as outputs by default.</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>The physical port is disabled. Displayed when operating in the cloud.</td>
</tr>
<tr>
<td>SDI Reference (read-only)</td>
<td>#</td>
<td>Reports the video format detected on the REF IN port. Note that if it returns Unknown, there is an issue with the reference.</td>
</tr>
<tr>
<td><strong>NDI Global Source Discovery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDI Discovery Group(s)</td>
<td>&lt;text&gt;</td>
<td>Identifies the NDI Discovery Group(s) used. This field is set to Public by default, but groups created by users can also be used. Multiple Discovery Groups can be used by separating them with a comma. E.g. Public,Group1,Group2</td>
</tr>
</tbody>
</table>
The API Control tab enables you to specify the Control mode that the Streaming Gateway will use to communicate with an external device.

Table 25 summarizes the options displayed in the API Control tab.

### Table 25  SSG — Configuration — API Control

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>DashBoard</td>
<td>Streams are manually specified by the user using the options on the Source Configuration and Destination Configuration interfaces. Streams are automatically managed by Interstellar.</td>
</tr>
<tr>
<td>Control &gt; DashBoard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Host name (read-only)</td>
<td>&lt;text&gt;</td>
<td>Uniquely identifies the Streaming Gateway within a system.</td>
</tr>
<tr>
<td>Port (read-only)</td>
<td>443</td>
<td>Specifies the remote port number that the Streaming Gateway will try to connect to.</td>
</tr>
<tr>
<td>Host IP (read-only)</td>
<td>#</td>
<td>Specifies the Multicast IP Address for the network connections.</td>
</tr>
<tr>
<td>API Key (read-only)</td>
<td>#</td>
<td>The key assigned to the Streaming Gateway that identifies it as a Transcoder within the system.</td>
</tr>
<tr>
<td>Control &gt; Interstellar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Preset Connections

Table 26 summarizes the Preset Connections tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset Connections</td>
<td></td>
<td>Click this button to load the preset connections required when communicating with Interstellar. This button is disabled when Control is set to Interstellar.</td>
</tr>
</tbody>
</table>

About Tab

Table 27 summarizes the read-only information displayed in the About tab in the SSG sub-node.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDK Version</td>
<td>#</td>
<td>Reports information on the SDI IO service running on the Streaming Gateway</td>
</tr>
<tr>
<td>WebRTC SDK Version</td>
<td>#</td>
<td>Reports information on the WebRTC service running on the Streaming Gateway</td>
</tr>
<tr>
<td>Model</td>
<td>#</td>
<td>Reports the information on the hardware</td>
</tr>
<tr>
<td>Hostname</td>
<td>#</td>
<td>Uniquely identifies the Streaming Gateway system</td>
</tr>
</tbody>
</table>
Technical Specifications

This chapter provides technical information for the Streaming Gateway.

* Specifications are subject to change without notice.

Reference Input Specifications

Table 28  Technical Specifications — Reference Input

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Type</td>
<td>DIN</td>
</tr>
</tbody>
</table>

SDI Specifications

Table 29  Technical Specifications — SDI

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Inputs</td>
<td>2</td>
</tr>
<tr>
<td>Number of Outputs</td>
<td>2</td>
</tr>
<tr>
<td>Connector Type</td>
<td>DIN</td>
</tr>
</tbody>
</table>

1G Specifications

* The Gb2, NET1, and NET2 tabs are not implemented.

Table 30  Technical Specifications — Gb1

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards Accommodated</td>
<td>1000 BASE T</td>
</tr>
<tr>
<td>Connector Type</td>
<td>RJ45</td>
</tr>
</tbody>
</table>

USB Port Specifications

Table 31  Technical Specifications — USB Port

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Type</td>
<td>USB3.0</td>
</tr>
</tbody>
</table>

Environment

Table 32  Technical Specifications — Environment

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Ambient Temperature</td>
<td>40°C (104°F)</td>
</tr>
</tbody>
</table>
### Power

*Table 33  Technical Specifications — Power*

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>350W per power supply</td>
</tr>
<tr>
<td>Maximum Power Consumption</td>
<td>700W</td>
</tr>
</tbody>
</table>
Service Information

Routine maintenance to this Ross product is not required. In the event of problems with your product, the following basic troubleshooting checklist may help identify the source of the problem. If the Streaming Gateway still does not appear to be working properly after checking all possible causes, please contact the Technical Support department at the numbers listed under the “Contacting Ross Video Technical Support”.

1. **Visual Review** — Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the Streaming Gateway, and any associated peripheral equipment for signs of trouble.

2. **Power Check** — Inspect the power indicator LED on the chassis for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. If the power LED is still not illuminated, replace the power supply with one that is verified to work.

3. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.

4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.

5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

Exporting a Log File

The Streaming Gateway provides the ability to capture a log file. Entries in this file may relate to normal expected functionality or to systemic errors. This information might be useful in monitoring and diagnosing a system problem, or when troubleshooting with Ross Technical Support.

**To export a log file**

1. Display the System sub-node as outlined in “To display the System sub-node in DashBoard”.
2. Select the About tab.
3. Locate the Logs area of the About tab.
4. Click Download.
   The Download Logs dialog box appears.
5. Click Browse....
6. Choose the location you want to save the logs to.
7. Enter a File Name for the logs to be saved as.
8. Click Open.
9. Click Download.
   The logs will begin to download to the selected location.

★ If you try to export logs to the same location as a previously exported and currently opened log archive, your download will fail. To avoid this, ensure that no logs are open when exporting new ones.
Warranty and Repair Policy

The Streaming Gateway is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of THREE (3) years from the date of shipment from our factory. In the event that your Streaming Gateway proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this Streaming Gateway has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the THREE (3) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This User Manual provides all pertinent information for the safe installation and operation of your Streaming Gateway. Ross Video policy dictates that all repairs to the Streaming Gateway are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

In Case of Problems

Should any problem arise with your Streaming Gateway, please contact the Ross Video Technical Support Department. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your Streaming Gateway. If required, a temporary replacement Streaming Gateway will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.
Glossary

The following terms are used throughout this guide:

**AES** — refers to Advanced Encryption Standard.

**Amazon EC2** — refers to Amazon Elastic Compute Cloud.

**AWS** — refers to Amazon Web Services.

**DashBoard** — refers to the DashBoard Control System.

**Destination** — refers to the output.

**Device View** — refers to the area located to the far right of the DashBoard window. This area typically displays tabs that include menus and options for control and monitoring your devices.

**DHCP** — refers to Dynamic Host Configuration Protocol.

**EFA** — refers to Elastic Fabric Adapter.

**Interstellar** — refers to the Ross Interstellar Remote Contributor Production Portal.

**NTP** — refers to Network Time Protocol.

**Operator** and **User** — refer to the person who uses the Streaming Gateway.

**RPM** — refers to the Ross Platform Manager.

**Source** — refers to the input.

**Tree View** — refers to the area located to the far left of the DashBoard window. This area displays devices in a tree structure.

**URI** — refers to Uniform Resource Identifier.

**WebRTC** — refers to Web Real-Time Communication.