



IGGY-MADI User Guide

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IGGY-MADI · User Guide

- Ross Part Number: **1000DR-814-04 rev2**
- Software Version: 2.2
- Release Date: June 13, 2024.

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

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Safety Notices

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

Statement of Compliance

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

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

Cet appareil numérique de la classe "A" est conforme à la norme NMB-003 du Canada.

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.

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

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

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

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

International

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



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

Maintenance/User Serviceable Parts

Routine maintenance to this Ross 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 in "**Contacting Technical Support**". This product is covered by a generous 1-year warranty and will be repaired without charge for materials or labor within this period. See "**Warranty and Repair Policy**" for details.

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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.

Security and Privacy

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

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

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

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

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Introduction

This guide covers the installation, configuration, and use of the IGGY-MADI. The following chapters are included:

- **“Introduction”** summarizes the guide and provides important terms, and conventions.
- **“Before You Begin”** provides a brief product overview and installation requirements for the IGGY-MADI.
- **“Audio Mapping Examples”** provides three examples of possible audio map scenarios and a brief summary of how to configure each example in DashBoard.
- **“Quick Start”** helps you get started quickly with your IGGY-MADI.
- **“Hardware Overview”** describes the IGGY-MADI hardware features and physical connections.
- **“Physical Installation”** provides information when installing the IGGY-MADI in your system.
- **“Cabling”** provides an overview of connecting external devices to the IGGY-MADI.
- **“Getting Started”** outlines how to display the IGGY-MADI interfaces in DashBoard.
- **“Configuring the Ethernet Settings”** provides instructions for configuring the IGGY-MADI settings for basic network communications.
- **“Protocol Setup”** provides information for setting up media distribution via the IGGY-MADI using third-party protocols.
- **“Configuring the Timing Settings”** provides instructions for configuring the IGGY-MADI to use Precision Time Protocol, and specifying a reference source.
- **“Configuring the Destinations”** provides instructions for configuring the destination channels on the IGGY-MADI.
- **“Configuring the Senders”** provides instructions for configuring the sender channels on the IGGY-MADI.
- **“Configuring the Network Sessions”** outlines how to define the network streams as presets for the IGGY-MADI to access and assign to destinations/outputs.
- **“Operation”** provides general information for operating the IGGY-MADI.
- **“Upgrading the Software”** provides instructions for upgrading the software via DashBoard.
- **“DashBoard Interface Overview”** summarizes the functions, menus, and parameters of the IGGY-MADI in DashBoard.
- **“Web User Interface Overview”** summarizes how to access the WebUI tabs for the IGGY-MADI.
- **“Technical Specifications”** provides the specifications for the IGGY-MADI.
- **“Supported SFP Models”** provides additional information on the Small Form Pluggable (SFP) modules that can be installed in the **MADI** port of the IGGY-MADI.
- **“Service Information”** provides information on the warranty and repair policy for your IGGY-MADI.
- **“Software Licenses”** provides third-party software license information for your IGGY-MADI.
- **“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 IGGY-MADI:

- ***DashBoard User Manual***, Ross Part Number: 8351DR-004
- ***IGGY-MADI Quick Start Guide***, Ross Part Number: 1000DR-806

- IGGY-MADI video tutorials, available from the Ross View website (<http://www.rossvideo.com>)

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, or menu. Bold text set in Arial font is used to identify a button. For example:

In the **Edit** dialog, 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

Italic text is used to identify 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 "**Advanced > Timing**," you would select the **Advanced** tab and then select the **Timing** sub-tab.

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 IGGY-MADI.

Contacting Technical Support

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

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

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

Before You Begin

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

Features

Some features of the IGGY-MADI include:

- Bi-directional MADI SFP port capable of supporting 64 channels in/out
- Dual redundant Gigabit Ethernet audio interfaces, and optional GE control interface
- 32 audio receivers, 32 audio senders
 - › SMPTE ST 2022-7 hitless 1+1 redundancy per sender and receiver
 - › Packet times: 125µs, 250µs, and 1ms
 - › Samples/packet: 6, 12, and 48
 - › Sample rates: 48kHz and 44.1kHz with ASRC
 - › 1-64 channels, configurable per audio stream
 - › Audio formats: L24, L16, L32, and AM824, configurable per audio stream
 - › WAN-capable buffering: 30ms per receiver stream
- Support for SMPTE ST 2110-31 AES3 Transparent Transport
- Support for SMPTE ST 2110-30, including all conformance levels: A, B, and C
- Supports discover and registration via:
 - › RAVENNA
 - › ANEMAN (Audio Network Manager)
 - › NMOS
 - › Dante/SAP (only in AES67 mode)
- Connection control via:
 - › Ember+
 - › ANEMAN
 - › NMOS
- Configuration via Ember+, and DashBoard
- Flexible mounting options
- Full DashBoard control

Work Flow Diagram

Figure 1 provides an example work flow of the IGGY-MADI.

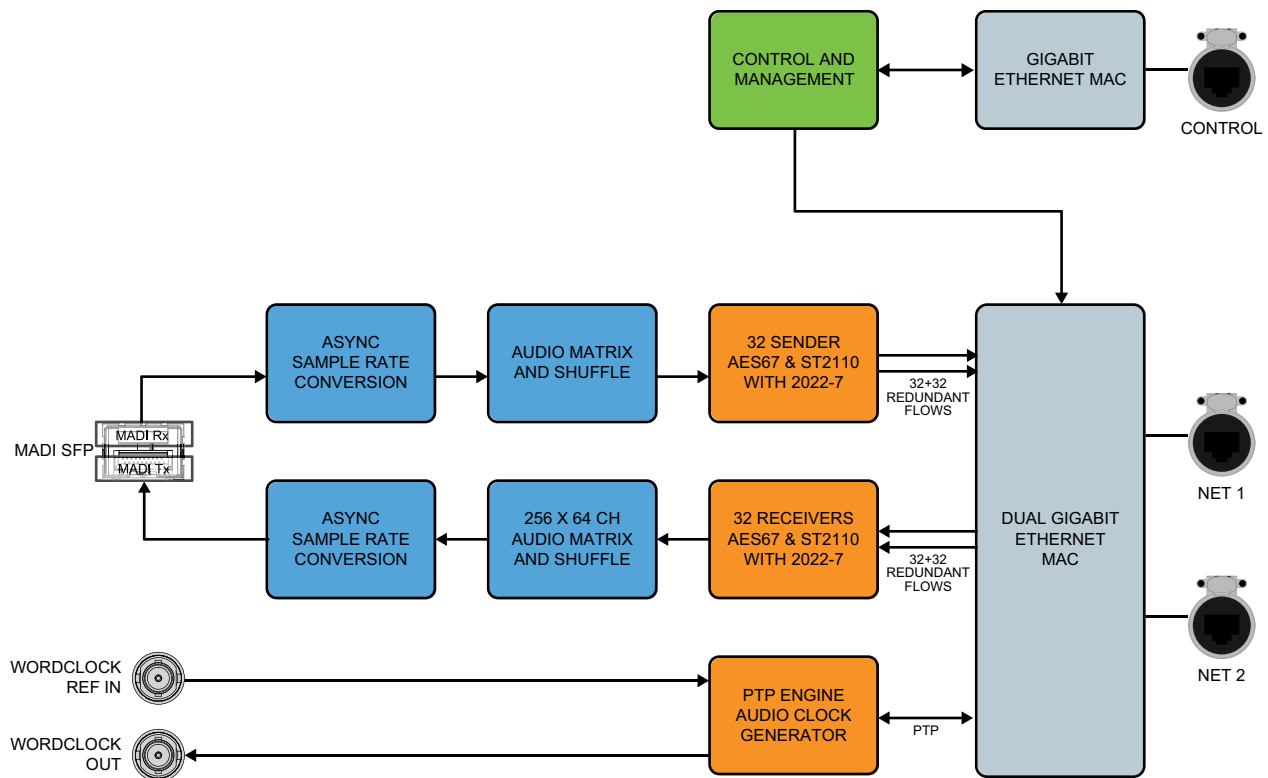


Figure 1 IGGY-MADI Work Flow Diagram

What are Receivers, Senders, and Streams?

The following terms are used throughout this user guide:

Device

A physical, virtual, or software application that may include multiple sources, destinations, senders, or receivers.

Essence

A single elementary logical media signal. For example, a video essence is one video channel. An audio essence is a single audio (mono) channel.

Flow

The continuous raw media content. It can contain more than one essence (e.g. an audio flow can contain multiple channels).

A flow is independent of the transport protocol. For example, 48kHz LPCM audio is a flow; AES67 is one type of stream which can carry the flow.

Flows cannot generally be passed around natively, and need to be encapsulated in a stream. Flows from the same source are considered “editorially equivalent”, but may be encoded differently.

Receiver

An element within a device that receives exactly one stream, which contains one flow from a network.

Sender

An element within a device which presents exactly one flow, packaged as a stream onto a network.

Stream

One flow, encapsulated within a transport protocol. Examples include SMPTE ST 2022-6, SMPTE ST 2110-20 Video, or SMPTE ST 2110-30 Audio (AES67).

Installation and Setup Overview

The generalized work flow of installing and configuring your IGGY-MADI is:

1. Download and install the latest version of the DashBoard client software.
2. Contact your IT department for the required IP addresses for your IGGY-MADI.
3. Physically install and cable the IGGY-MADI.
4. Use DashBoard to access the IGGY-MADI.
5. Use the IGGY Setup Wizard to configure the basic settings for your module.
6. Define the Network Stream Sources as Presets.
7. Make your connections.

Audio Mapping Examples

This chapter provides three examples of possible audio map scenarios and a brief summary of how to configure each example in DashBoard. Your requirements may differ from what is presented here.

Direct Audio Mapping

This example assumes the IGGY-MADI automatically detects the available network streams, and the streams have the same number of audio channels as the destinations. (**Figure 2**)

Network Audio Streams

Detects the Advertised Streams

1 Configure the Destinations

2

3 1:1 Map to the MADI Outputs

Figure 2 Setup Example — Direct Audio Mapping

To apply direct audio mapping

1. Configure the Destinations on the IGGY-MADI. Refer to “**Configuring the Destinations**”.
2. On the **Connections** tab, select the **Advertised Streams** option from the **Stream** area.
3. Use the **Connections** tab to map the Destinations to the IGGY-MADI outputs. Refer to “**Routing the Signals**”.

One-to-Many Direct Audio Mapping

This example assumes the IGGY-MADI automatically detects a specified network stream, and the streams match the number of audio channels of the destinations. (**Figure 3**)

In this example, the user maps the same stream to multiple destinations. In **Figure 3**, the user mapped SRC-04.16 to Destinations 1-4.

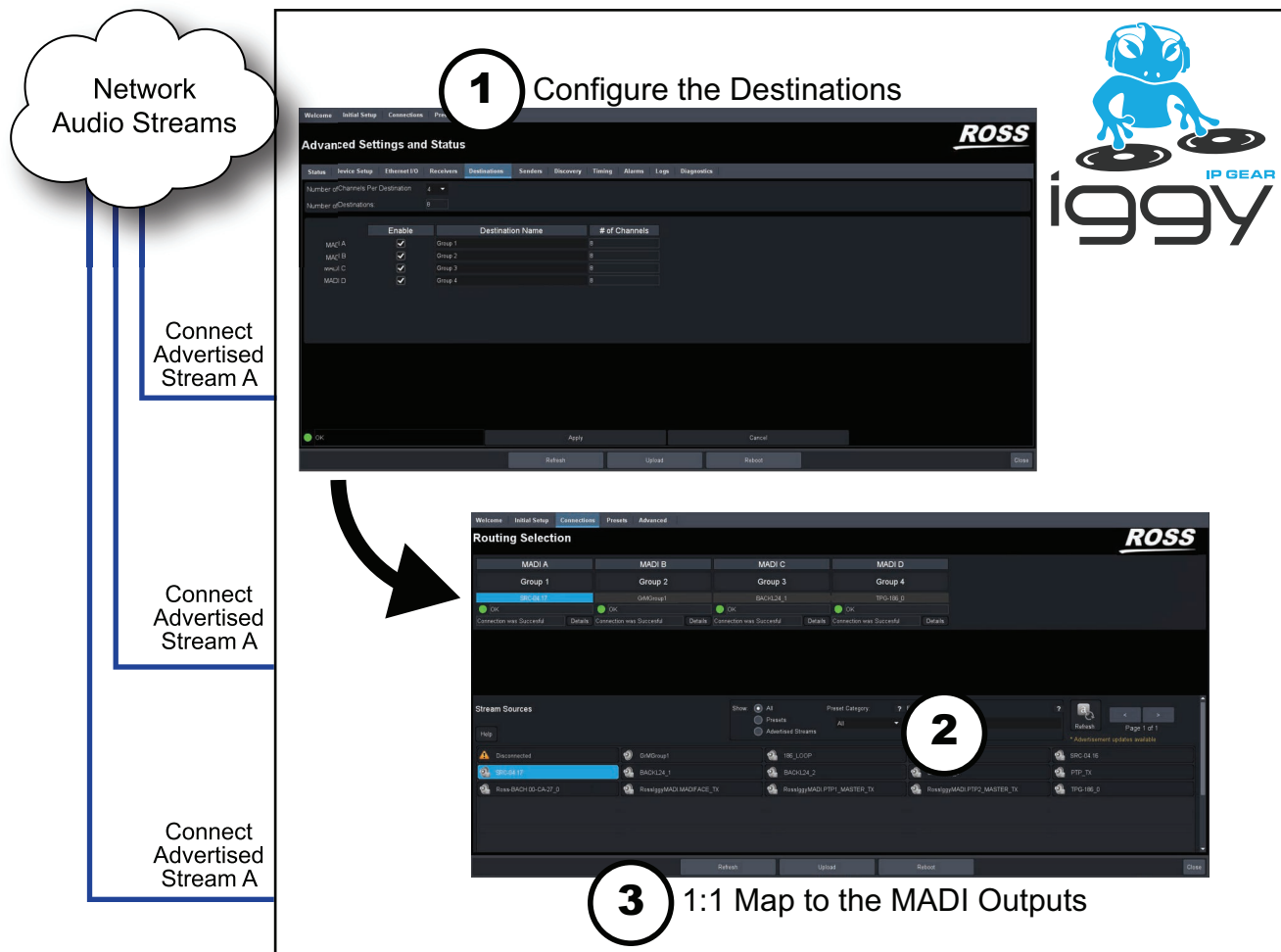


Figure 3 Setup Example — One to Many Direct Audio Mapping

To apply one-to-many direct audio mapping

1. Configure the Destinations on the IGGY-MADI. Refer to “**Configuring the Destinations**”.
2. On the **Connections** tab, select the **Advertised Streams** option from the **Stream** area.
3. Map the same Destination to each of the IGGY-MADI outputs. Refer to “**Routing the Signals**”.

Custom Network Streams

This example assumes the user must manually define the available network streams and the number of audio channels in each stream differs from the destinations. The user must map the audio channels differently for each network stream (Preset). (**Figure 4**)

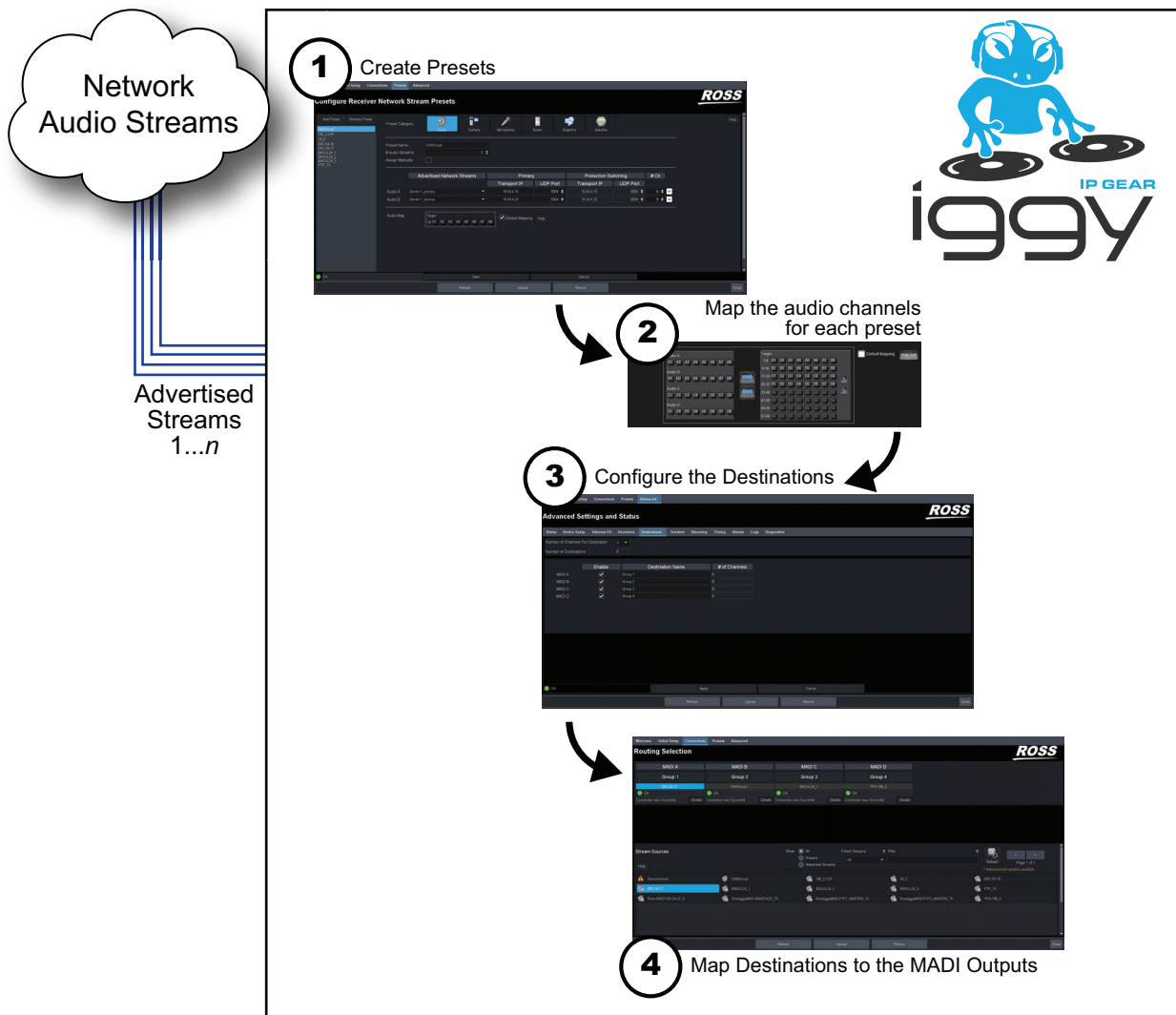


Figure 4 Setup Example — Custom Network Stream Presets

To customize the network stream presets and audio mapping

1. Manually define the Network Streams Presets for the IGGY-MADI. Refer to **"Manually Assigning a Stream"**.
2. Map the Audio Channels to each Preset. Refer to **"Mapping the Audio Channels"**.
3. Configure the Destinations on the IGGY-MADI. Refer to **"Configuring the Destinations"**.
4. Map the Destinations to the IGGY-MADI outputs. Refer to **"Routing the Signals"**.

Quick Start

This chapter is intended to help you get started quickly with your IGGY-MADI.

For More Information on...

- installing your IGGY-MADI, refer to the **IGGY-MADI Quick Start Guide**.

What is an IGGY?

Each IGGY model is a device that allows audio data to travel across an ethernet network with professional quality AES67 and ST2110 protocols. Different IGGY models connect to different types of audio devices (using connection types such as MADI and AES3), but the network features and setup remain the same.

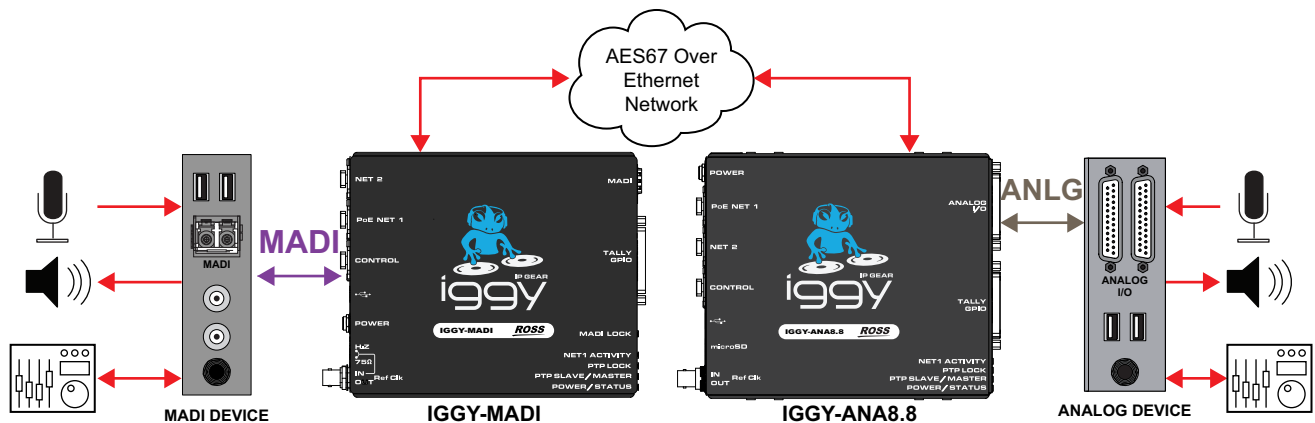


Figure 5 Possible Workflow with an IGGY-MADI and an IGGY-ANA8.8

What are AES67 and ST2110?

These are protocols for sending audio data across an ethernet network. Input audio channels (from the MADI or analog audio ports) are grouped and converted to data packets by IGGY and sent out across the network as source streams. Other IGGY models can be configured to listen to these packet streams, receive and process the data, and then pass the audio out the destination port(s).

For this streaming to work, the IGGY needs a little configuration. Your IGGY ships with default configurations that work well in many scenarios. A Configuration Wizard simplifies the set up.

Connect the IGGY-MADI

1. Connect the IGGY-MADI to a power source. Refer to **“Connecting to a 15V PSU”**.
2. Connect the **NET1** port of your IGGY-MADI to the same local network that your PC is connected to (i.e., connected to the same ethernet switch).

Set up the IGGY-MADI

1. Locate the serial number label on the side of your IGGY-MADI.
 - Scan the QR code on the serial number label, or
 - Use a browser to go to: www.rossvideo.com/device and enter the serial number.
2. Review the information reported about your IGGY-MADI.
3. Select **Local Link** to launch the IGGY-MADI web UI and open the Welcome page.
4. Select the **Initial Setup** tab at the top.
5. Follow the on-screen instructions to quickly set up the IP address and user settings.

Hardware Overview

This chapter presents information on the IGGY-MADI hardware components and features.

Faceplate Overview

The chassis faceplate of the IGGY-MADI provides a silk-screen map of the connections and LEDs available. **Figure 6** illustrates the IGGY-MADI faceplate top. From the top you can see that the chassis has two areas:

- the power connection, REF BNC, NET ports, and CONTROL port are located on the left side
- the status LEDs, and MADI port are located on the right side

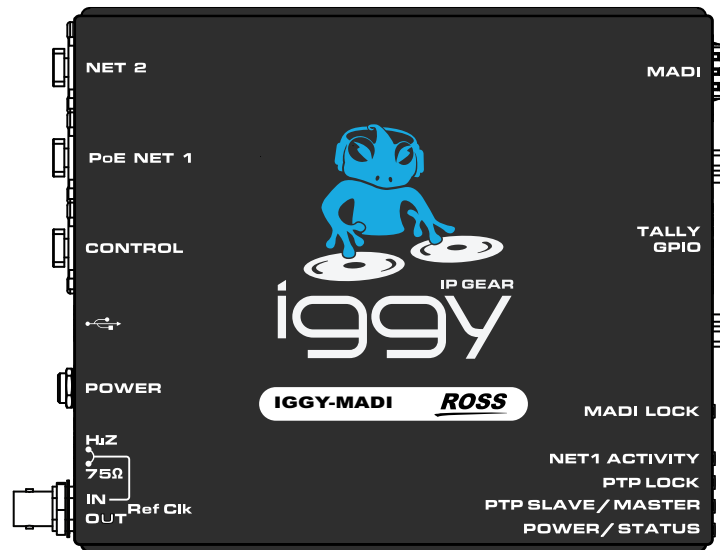


Figure 6 IGGY-MADI — Faceplate Components

PSU Connection and PWR Status LED

The PSU port is located on the left-side of the IGGY-MADI chassis. (Figure 7)

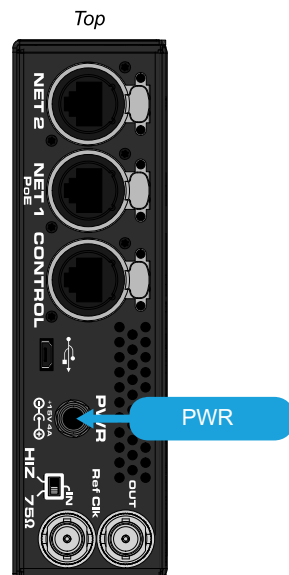


Figure 7 PWR Connection



Figure 8 PWR/STAT LED

PWR 15V 4A Connection

The IGGY-MADI can be powered from an external 15V PSU. This port is a standard miniature power jack (center pin positive). Refer to “**Connecting to a 15V PSU**” for details.

PWR/STAT LED

A PWR/STAT LED is located on the left side of the IGGY-MADI chassis and reports on general communication and status conditions. (**Figure 8**)

Table 1 describes the possible status information the PWR/STAT LED reports.

Table 1 PWR/STATUS LED

Status	Description
Green	When this LED is continually lit green, the IGGY-MADI is receiving +15VDC on the PSU (DC) port of its chassis. No errors are detected in the communication activity between the IGGY-MADI and external devices. The IGGY-MADI is locked to PTP.
Yellow/Green	The IGGY-MADI is initializing.
Red	A communication error is detected or the IGGY-MADI is currently in reboot mode. Monitor the IGGY-MADI status before taking action.
Off	A valid power connection is not connected to the POWER port.

CONTROL Port

The CONTROL port is a GigE XLR RJ45 port that connects to your facility network. This connection is used to communicate with a DashBoard client for configuration and monitoring purposes.

Connect IGGY-MADI to the same network as your DashBoard client computer or to a network that has a route to the network your DashBoard client computer is on.

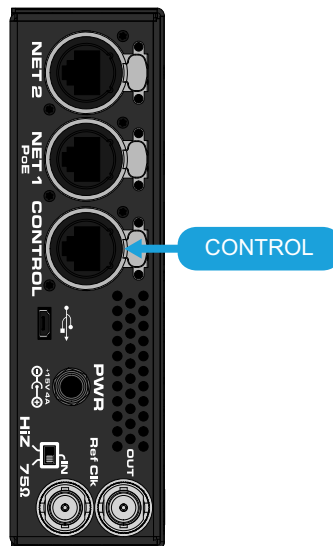


Figure 9 CONTROL Port

NET 1, NET 2 Ports

Each NET port is a GigE XLR RJ45 port. There are options provided for configuring the NET ports as a receiver and/or transmitter. (**Figure 10**)

The NET 1 port is PoE Type 1, Class 3 (802.3af) connector that provides up to 13W of power. The NET 1 port is also the primary audio transport link.

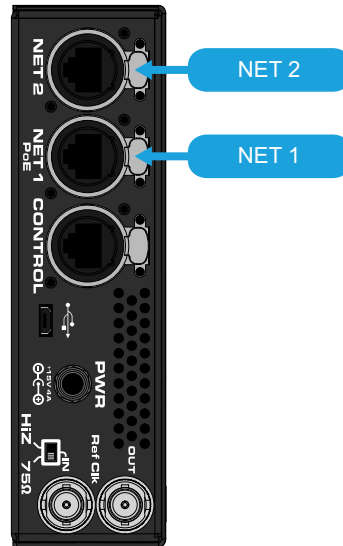


Figure 10 NET Ports

NET 1 ACT LED

The status of the NET 1 signal is reported in DashBoard and via the NET 1 ACT LED. (**Figure 11**)



Figure 11 NET 1 ACT LED

Table 2 describes the possible status information the NET 1 ACT LED will report.

Table 2 NET 1 ACT LED

Status	Description
Blue	No errors are detected in the communication activity between the IGGY-MADI and external devices
Off	The IGGY-MADI is not powered on or there is no activity on this port

MADI Connection

The MADI port can be populated with Small Form-factor Pluggable (SFP) module that is an LC transceiver. (**Figure 12**)



Figure 12 MADI Port and LED

MADI LOCK LED

The status of the MADI input signal is reported in DashBoard and via the MADI LOCK LED. (**Figure 12**) **Table 3** describes the possible status information the MADI LOCK LED will report.

Table 3 MADI LOCK LED

Status	Description
Green	The signal detected on the MADI port is valid and locked
Red	The port is not populated with an SFP module
Off	The IGGY-MADI is not powered on

1. LEDs on the Main PCB Card-edge

Table 4 lists the LEDs starting with the topmost LED on the card-edge.

Table 4 Main PCB — Card-edge LEDs

LED	Status	Description
ERROR/OK	Green	The card is functioning correctly and that no errors are detected.
	Red	The card is powering on or there is a fault condition.
	Off	There is a lack of power to the card.
INPUT #	Green	The specified SDI input signal is valid.
	Red	The specified SDI input signal is not present or is invalid.
REF STATUS	Green	The reference signal is valid.
	Red	The reference signal is not present or is invalid.

Reference Connections

The left-side of the IGGY-MADI chassis also provides two 75ohm BNC connectors (**Figure 13**):

- one BNC for a word clock reference input
- one BNC for a work clock reference output on a 5V TTL signal

Use the DIP Switch to select between high impedance input and a 75ohm termination.

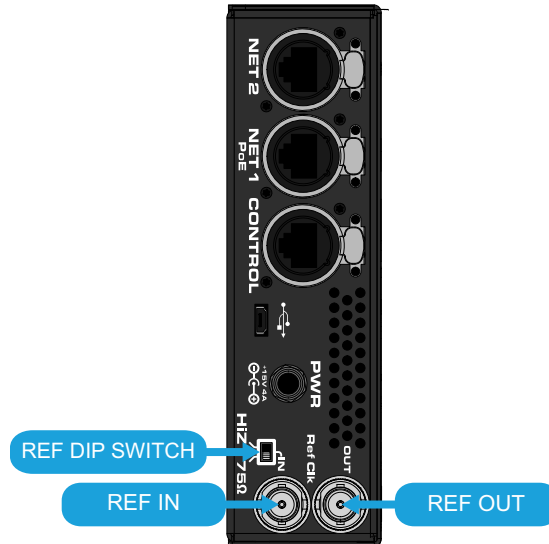


Figure 13 Reference Connections and DIP Switch

PTP LEDs Overview

On the right-side of the IGGY-MADI chassis there are two PTP status LEDs enable you to monitor the PTP communication traffic on the IGGY-MADI. (**Figure 14**)

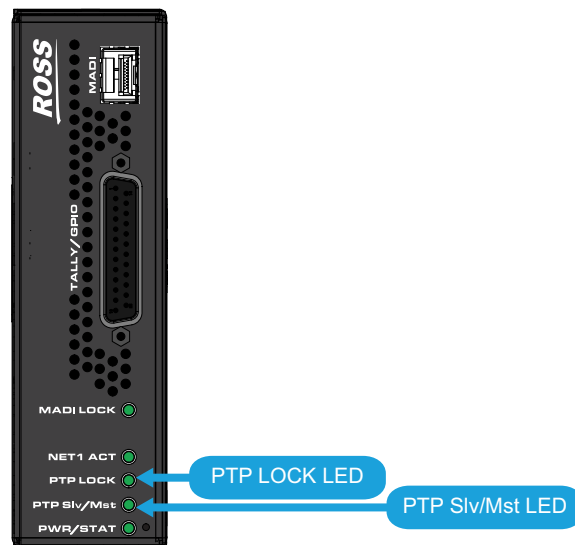


Figure 14 PTP Status LEDs

PTP Slv/Mst LED

Table 5 describes the possible status information the PTP Slv/Mst LED will report.

Table 5 PTP Slv/Mst LED

Status	Description
Green	The IGGY-MADI is communicating with the PTP Grandmaster and PTP is following a Grandmaster
Blue	The IGGY-MADI is acting as the Master on the network
Red	The IGGY-MADI is not configured correctly (is not a PTP follower or master on the network). Verify the network connection and PTP settings.
Off	The IGGY-MADI is not powered on

PTP LOCK LED

Table 6 describes the possible status information the PTP LOCK LED will report.

Table 6 PTP LOCK LED

Status	Description
Green	The IGGY-MADI is locked to a valid PTP connection
Red	The IGGY-MADI cannot establish a PTP connection and is not locked to a timing reference
Off	The IGGY-MADI is not powered on

TALLY/GPIO Port

This port is a 25-pin multi-way female connector with 4-40 jack-screws for locking the connector. (**Figure 15**)

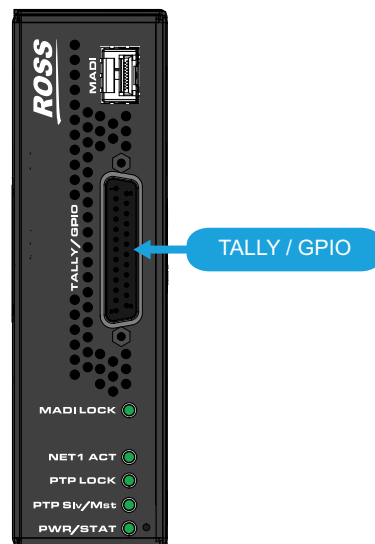


Figure 15 IGGY-MADI — TALLY/GPIO Port

For More Information on...

- the TALLY/GPIO port, refer to **“Connecting an External Device to the TALLY/GPIO Port”**.

Other Features

The left-side of the IGGY-MADI chassis also provides a Reset button and an USB port.

★ The USB port is not implemented.

Reset Button

Press and hold this button for 5 seconds to reset the microprocessor and re-initialize the IGGY-MADI. **(Figure 16)** This is a hard reset of the module settings, including the IP address, to the factory default values.

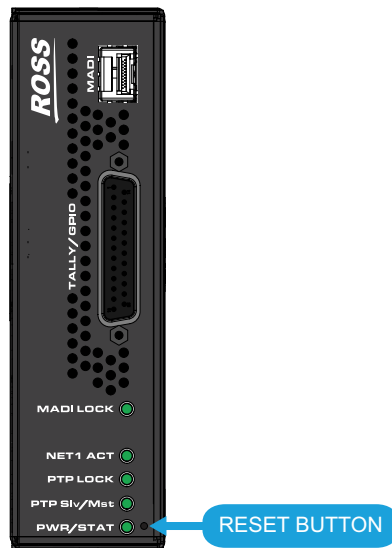


Figure 16 Reset Button

Physical Installation

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

For More Information on...

- the technical specifications for the IGGY-MADI, refer to “**Technical Specifications**”.

Static Discharge

Throughout this guide, please heed the following cautionary note:



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

Working with Fiber Optic Connectors

Keep the following in mind when working with fiber optic connectors:

- Every time you are required to insert a connector into a device or mating sleeve, you must clean the connector. All exposed surfaces of the ceramic ferrule must be clean. Follow your facility practices of cleaning fiber optic connectors.
- Connectors must always be inserted into a device or have a dust cap on.
- A poor optical connection is often similar to a poor electrical connection. Try removing the connector, cleaning, and re-inserting the connector. A bad connection can result in experiencing instability of signal, high loss, or a noisy signal.

Unpacking

Unpack each IGGY-MADI you received from the shipping container and ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video directly.

Mounting and Installing the IGGY-MADI

IGGY-MADI can be mounted in any convenient location. However, to ensure long life for this product, observe the following precautions and operating requirements:

- Maintain an ambient temperature of 0°C to 40°C (32°F to 104°F).
- Allow for air circulation around the chassis for convectional cooling.

Many different mounting positions are possible. Some installation options are permanent and require careful consideration of the final positioning before installation. Cable ties may be necessary in some applications to relieve strain on the mounting hardware and the connectors.

- ★ In some mounting locations, the power adapter must be affixed in a similar manner as the chassis.

For More Information on...

- installation and mounting your IGGY-MADI, refer to the **IGGY-MADI Quick Start Guide**.
- installing the IGGY-MADI with an optional mounting kit, refer to the guide for your kit.

Cabling

If you have questions pertaining to the setup of IGGY-MADI, contact us at the numbers listed in **“Contacting Technical Support”**. Our technical staff is always available for consultation, training, or service.

For More Information on...

- the technical specifications for the IGGY-MADI, refer to **“Technical Specifications”**.
- notices to service personnel, refer to the document **Important Regulatory and Safety Notices** that shipped with your IGGY-MADI.

Before You Begin

Keep the following in mind before cabling the IGGY-MADI:

- 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.
- If difficulties or problems are experienced when connecting the IGGY-MADI to a network hub, contact your network administrator.

Connecting to a 15V PSU

The IGGY-MADI is shipped with an external power supply. The DC Power cord has a locking connector that securely fastens into the PWR DC jack on the IGGY-MADI chassis.



Warning — *The power supply connector of the IGGY-MADI power supply module must be fully inserted into the IGGY-MADI PWR port and the locking collar fully secured before use. Failure to do so may damage the PWR port on the IGGY-MADI chassis.*



Caution — *Ensure to connect the DC Power cord of the power supply to the PWR jack on the IGGY-MADI before connecting the power supply to the power source.*



Caution — *Use of improper adapters may damage the IGGY-MADI and will void the warranty.*

Cabling the NET Ports

The primary function of each NET port is to provide a network interface that can be configured as a Receiver and/or a Sender in DashBoard. Use the NET 1 port if you choose to power the IGGY-MADI with an optional PoE connection to your network.

Cabling NET 1 as a PoE Connection

If you wish to power the IGGY-MADI via a PoE connection to your facility network, you will need an RJ45 PoE connector. You may also wish to use a cable with a push-pull locking connector for connection to the NET 1 port on the IGGY-MADI chassis.

★ Ross Video does not supply this cable.

Connecting the NET Ports to a Network

You will need an Ethernet cable with a standard RJ45 connector for each NET port.

Cabling the CONTROL Port

The IGGY-MADI is connected directly to your network so that it can interface with the devices and the computer running the DashBoard client. After a physical connection is established via the CONTROL port, DashBoard is used to configure the network settings for the IGGY-MADI.

The exact steps for connecting your IGGY-MADI to your facility via an Ethernet network depend on the network requirements of your facility.

Cabling the MADI Port



Caution — *Never attempt to look down the barrel of a connected fiber or device transmitting an optical signal. The transmitted light is not in the visible spectrum and may cause permanent eye damage. Turn off all laser sources before disconnecting devices.*

To cable the MADI port



Caution — *Every time you are required to insert a connector into a device or mating sleeve, you must clean the connector. All exposed surfaces of the ceramic ferrule must be clean. Follow your facility practices of cleaning fiber optic connectors. Connectors must always be inserted into a device or have a dust cap on.*

1. Remove the dust caps from the MADI port connector on the IGGY-MADI chassis.
- ★ Refer to the document **Important Regulatory and Safety Notices** that shipped with your module, for safety information when handling fiber optic components.
2. Ensure that the exposed surface of the ceramic ferrule of each connector is clean. Refer to **“Working with Fiber Optic Connectors”** for cleaning tips.
3. Cable your MADI module as required. (**Figure 17**)

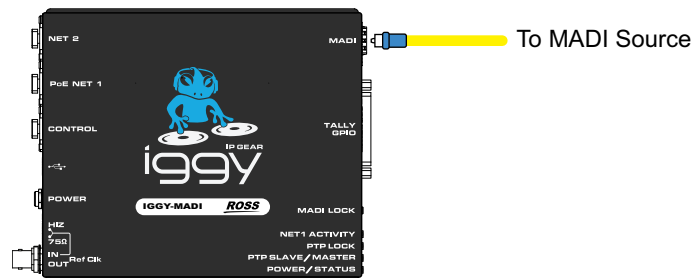


Figure 17 IGGY-MADI — MADI Port Connections

Cabling the Reference Ports

The IGGY-MADI provides two reference BNCs: a REF OUT and a REF IN.

Connecting a Reference Source to the IGGY-MADI

Use the REF IN BNC if you wish to use a local SDI reference input signal for the IGGY-MADI timing. This signal must be a 48kHz word clock signal. You will also need to configure the DIP Switch on the IGGY-MADI.

To connect the IGGY-MADI to an SDI reference source

1. Connect one end of a Belden 1694A cable with a female BNC to the **REF IN** BNC on the IGGY-MADI chassis.
2. Connect the other end of the same Belden 1694A to the reference source for the IGGY-MADI.

3. Configure the DIP Switch on the IGGY-MADI as follows:
 - 75Ω — Select this position if you are using a point-to-point cabling or the reference input signal is 75ohm. The reference is terminated with an 75ohm resistor.
 - Hi-Z — Select this position if the reference input signal is high-impedance.



Figure 18 IGGY-MADI Cabling — DIP Switch

Cabling the Reference Output

Use the REF OUT BNC if you wish the IGGY-MADI to output either a 44.1kHz, or 48kHz work clock signal synchronized to PTP. This reference can be used by external devices.

For More Information on...

- on specifying the **Audio Sampling Frequency**, refer to “**Configuring the Device Settings**”.

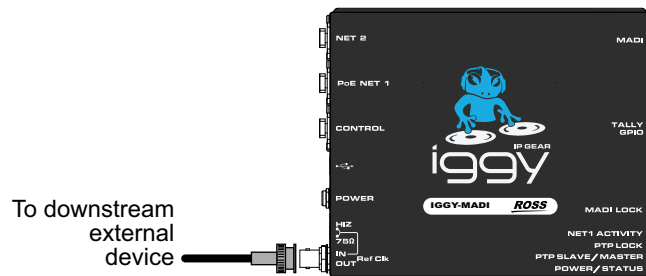


Figure 19 IGGY-MADI Cabling — REF OUT

Connecting an External Device to the TALLY/GPIO Port

The IGGY-MADI can interface with external equipment over the TALLY/GPIO port. The TALLY/GPIO connector requires a male 25-pin DC sub-miniature connector with 4-40 jack-screws for mating connector locking. (Figure 20)

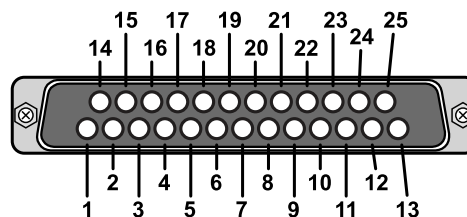


Figure 20 TALLY/GPIO Port — Pin-out Designations

GPIO Pin Designations

Table 7 outlines the pin assignment for the eight GPIOs.

Table 7 GPIO Pinouts

GPIO	Pin on TALLY/GPIO Port
1	7
2	20
3	8
4	21
5	9
6	22
7	10
8	23

Tally Pin Designations

Table 8 outlines the pin-out assignment for the four tallies.

Table 8 Tally Pinouts

Tally	Pin on TALLY/GPIO Port
1A	1
1B	14
2A	2
2B	15
3A	3
3B	16
4A	4
4B	17

Ground Pin Designations

Table 9 outlines the pins assigned to ground.

Table 9 Ground Pin Designations

Pin
12
13
24
25

Getting Started

This chapter provides instructions for launching DashBoard, assigning an initial IP address to the IGGY-MADI, and accessing the tabs and menus in DashBoard.

Before You Begin

These installation guidelines assume the following:

- a valid IPV4 address is available for the IGGY-MADI
 - a PTP Grandmaster is configured and accessible for the IGGY-MADI
 - a network switch is configured in Boundary Clock mode and available for communicating with the IGGY-MADI
- ★ Ensure that your facility IT Department provided the required network settings to be assigned to the IGGY-MADI and each NET port you plan to enable.

Configuration Overview

Figure 21 summarizes the generalized work flow of configuring your IGGY-MADI.

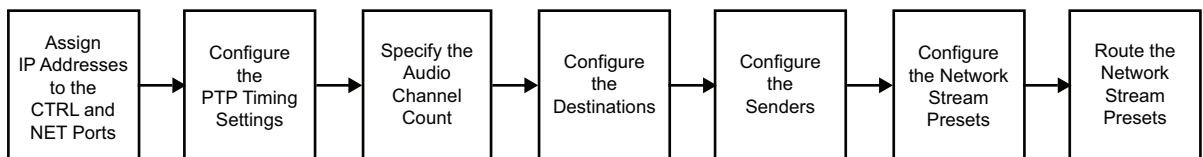


Figure 21 Process for Configuring a IGGY-MADI

Launching DashBoard

- ★ DashBoard must run on a computer that has a physical wired Ethernet connection directly to the IGGY-MADI and configured with an IP address in the same range as the default address of the IGGY-MADI (192.168.0.100).

For More Information on...

- downloading and installing the DashBoard client software, refer to the ***DashBoard User Manual***.
- the IGGY-MADI interfaces in DashBoard, refer to **"DashBoard Interface Overview"**.

To launch DashBoard

1. Ensure that you are running DashBoard software version 9.5.0 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Using Walkabout to Assign the Initial IP Address to IGGY-MADI

Once the IGGY-MADI is physically installed and cabled to your facility network, you will need to assign it an initial static IP Address to enable DashBoard to locate it on your network. Establishing an initial IP Address enables DashBoard to communicate with IGGY-MADI.

To use Walkabout to assign the initial static IP address to the IGGY-MADI

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

The DashBoard window displays the **Walkabout** table.

3. Click **Refresh**, located at the bottom of the Walkabout tab, to ensure the list in the Walkabout interface is current.
4. In the **Walkabout** table, find the entries for the IGGY-MADI you want to configure.
- ★ Each IGGY-MADI has three entries in the table: CTRL, NET 1, and NET 2. These are the physical ports on the IGGY-MADI chassis. You need only assign an IP Address to the CTRL port for initial setup of the IGGY-MADI.
5. Use the **Name** field to assign a unique identifier to the IGGY-MADI. This will be the name displayed in the Tree View of DashBoard.
6. Use the **Address** field to specify the IP Address supplied by your IT Department for this device.
- ★ After you edit a cell in the **Walkabout** table, it is recommended to wait approximately 1 minute, then click **Refresh** to apply the new settings.
7. Ensure the **Netmask** field is set to match your network requirements.
8. Use the **Gateway** field to specify the IP Address for connection outside of the local area network (LAN).
9. Click **Reboot** in the row of the **Walkabout** table for the IGGY-MADI.

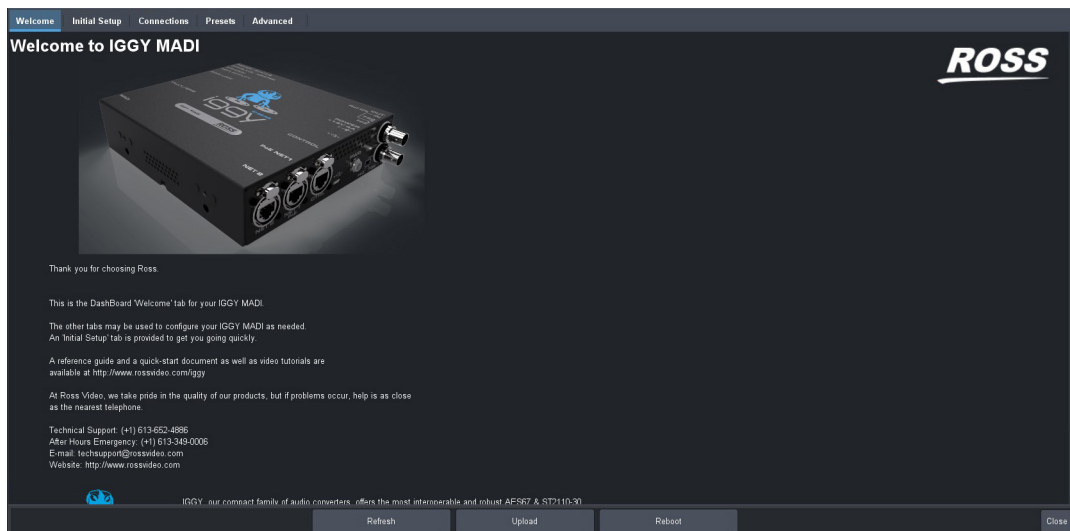
Manually Adding the IGGY-MADI to the Tree View

The IGGY-MADI does not automatically display the DashBoard Tree View. You must manually add it to the Tree View.

To manually add the IGGY-MADI 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 IP Address that you specified in “To use Walkabout to assign the initial static IP address to the IGGY-MADI”.
3. Enter a unique identifier for the IGGY-MADI in the **Display Name** field or click **Detect Frame Information**.
- ★ This is the name displayed in the DashBoard Tree View.
4. Click **Finish** to close the dialog.
5. Verify that the IGGY-MADI node displays in the DashBoard Tree View.
6. Right-click the **IGGY** node (with the name assigned in step 3) in the Tree View.
A dialog opens.
7. Select **Open** from the dialog.

The IGGY-MADI interface displays in DashBoard with the **Welcome** tab automatically selected.



Using the IGGY MADI Setup Wizard

The **IGGY MADI Setup Wizard** is displayed when the **Initial Setup** tab is selected in DashBoard.

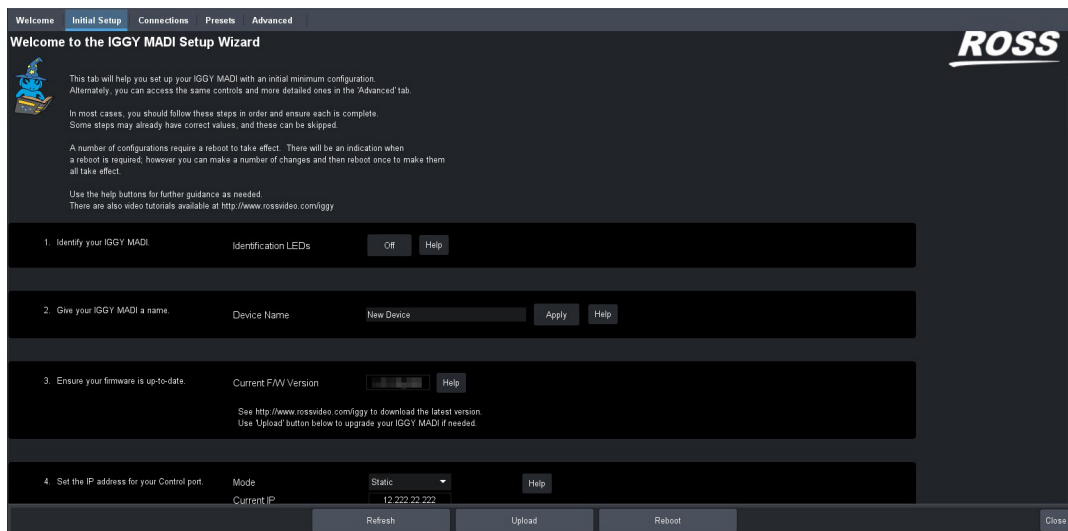


Figure 22 Example of the Initial Setup Tab

Use the **IGGY Setup Wizard** to configure the following settings (further described in the proceeding chapters):

- Specifying the device name
- IP Address for the CONTROL port and each NET port
- PTP Timing System
- Audio Packet Time
- Default number of audio channels per stream
- Destination channel mapping
- Default Audio Codec
- Sender Sources

Accessing the IGGY-MADI in DashBoard

The IGGY-MADI groups the configuration, monitoring, and operating features as a series of tabs in the DashBoard client window. Each tab provides access to specific configuration options for your IGGY-MADI.

The tabs are accessed by double-clicking the IGGY-MADI node in the DashBoard Tree View. This procedure assumes that you have launched DashBoard on your computer and a valid IP Address assigned to the IGGY-MADI.

To access the IGGY-MADI in DashBoard

1. In the Basic Tree View of DashBoard, expand the top IGGY node.
2. Expand the **IGGY_MADI** sub-node.
3. Double-click the second **IGGY_MADI** sub-node to display the IGGY-MADI interface in the right pane of the DashBoard window.

When first accessing the IGGY-MADI, the **Welcome** tab is automatically displayed in DashBoard.

- ★ Once the initial settings are configured and applied to the IGGY-MADI, you can hide the Welcome and Initial Setup tabs by selecting **Advanced > Device Setup > Hide Welcome Tab** and/or **Hide Initial Setup Wizard Tab**.

Configuring the Device Settings

It is recommended to edit the global device settings such as setting the audio packet time, the number of audio channels that each menu defaults to.

To update the global device settings for the IGGY-MADI

1. Display the IGGY-MADI in DashBoard as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Advanced > Device Setup** tab.
3. Use the **Device Name** field to assign a unique identifier to your IGGY-MADI.
 - ★ This is the name used to identify the streams the IGGY-MADI is managing within your system.
4. Use the **Audio Packet Time** field to specify the amount of digital audio that is buffered and encapsulated into a single Ethernet packetized frame on a Sender. Note that a longer packet time increases the latency of the audio stream.
 - ★ When setting up a receiver stream on the IGGY-MADI, ensure that you configure a receiver to match the audio packet time of the sender.
 - ★ This impacts all connected audio streams. Applying a new Audio Packet Time automatically disconnects all audio streams. It is recommended to set the Audio Packet Time before configuring your audio streams.
5. Use the **Audio Sampling Frequency** to specify the number of samples of audio carried per second.
6. Use the **Default Codec Type** menu to specify the audio compression format.
7. Use the **MADI Interface Sync Mode** field to determine if the Asynchronous Sample Rate Converter (ASRC) is enabled or bypassed on the receivers/transmitters.
8. Use the **SMPTE ST 2110-30 Sender Payload Type** field to specify the RTP payload format to be used for transporting audio via SMPTE ST 2110-30.
9. Enable the **Auto Generate Sender Multicast** feature to avoid having to manually set a multicast IP address when creating IGGY-MADI senders.

- ★ If the **Auto Generate Sender Multicast** box is not selected, you will need to manually set the multicast IP addresses for senders created in the Senders tab.
10. Click **Apply** to save the new settings.
- ★ You may need to reboot the IGGY-MADI to apply your changes.

Setting the Audio Channel Count Mode

The Audio Channel Count feature is useful when all the audio network streams in your network have the same channel count. You select from a preset number (1, 2, 8, 16, 64, or Mixed) that matches your network configuration. This number is then used to determine the appropriate defaults to apply when setting up your streams and essences.

- ★ When NMOS is enabled, the Device Setup > Audio Channel Count Mode must be set to a fixed number of channels (and not Mixed mode).
- ★ Select Mixed mode if your audio network streams do not have a consistent channel count.

To set the audio channel count mode

1. Display the IGGY-MADI interfaces in DashBoard as outlined in “**To access the IGGY-MADI in DashBoard**”.
 2. Select the **Advanced > Device Setup** tab.
 3. Use the **Audio Channel Count Mode** field to specify the maximum number of audio channels available for each stream. The default is 8.
- ★ This field assumes that all audio streams in your network contain the specified number of channels. This automatically determines the maximum channel count of each network stream for the Receivers, and Senders tabs. Note that the size of the Destination stream is specified independently via the options on the **Advanced > Destinations** tab.

Configuring the Ethernet Settings

The IGGY-MADI provides two NET ports that are populated with Ethernet RJ45 connectors. The chassis also provides a third Ethernet RJ45 (CONTROL) port that is used to connect to your facility network for DashBoard communication. This chapter outlines how to configure each of these ports.

- ★ Contact your network administrator if difficulties or problems are experienced when assigning IP addresses.

For More Information on...

- the location of the NET ports, refer to “**NET 1, NET 2 Ports**”.
- the location of the CONTROL port, refer to “**CONTROL Port**”.

Configuring the CONTROL Port

The CONTROL port is located on the right side of the IGGY-MADI chassis. Once the IGGY-MADI is communicating via DashBoard, you may wish to assign a different static IP address from the factory default value (which was used to initially establish a connection point to the IGGY-MADI).

- ★ The IGGY-MADI ships with the default IP address of 192.168.0.100. You may wish to change the IP address from the factory default after you establish this initial connection.

To update the static network settings for the CONTROL port

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Initial Setup** tab.

- ★ You can also change these settings via the **Advanced > Ethernet I/O** tab.

The screenshot shows the 'Initial Setup' tab of the IGGY-MADI Setup Wizard. The interface is dark-themed with a 'ROSS' logo in the top right. The wizard is titled 'Welcome to the IGGY MADI Setup Wizard' and includes instructions. It contains four steps: 1. Identify your IGGY MADI (Identification LEDs: Off), 2. Give your IGGY MADI a name (Device Name: New Device), 3. Ensure your firmware is up-to-date (Current FW Version: 1.0.0), and 4. Set the IP address for your Control port (Mode: Static, Current IP: 192.222.22.222). The interface also features a 'ROSS' logo and a 'Close' button.

3. Locate the menus for the CONTROL port (step 3 on the tab).
4. Use the **Mode** menu to select **Static**.
- ★ If you want the network settings for the CONTROL port to be automatically obtained, and DHCP service is available on your control network, select **DHCP** from the **Mode** menu.
5. Use the **Static IP Address** field to assign a unique IP address to the IGGY-MADI.

6. Use the **Subnet Mask** field to assign the subnet mask for the IGGY-MADI.
 7. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN) the IGGY-MADI will use.
 8. Click **Apply**.
 9. Click **Reboot** to apply the new settings. This button is located at the bottom of the interface.
- ★ The IGGY-MADI is temporarily taken off-line during the reboot.
10. Verify the new network settings reported on the **Advanced > Ethernet I/O** tab.
 11. Add the IGGY-MADI to the DashBoard Tree View using the new settings. Refer to “**Manually Adding the IGGY-MADI to the Tree View**”.

Configuring the NET Ports

By assigning an IP address to each NET port (NET 1, NET 2), you are able to uniquely identify it on the network and control it via DashBoard. Each NET port can be configured for media traffic for the IGGY-MADI.

This section outlines how to configure the network settings for the NET ports on the chassis.

To update the network settings for a NET port

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
 2. Select the **Initial Setup** tab.
- ★ You can also change these settings via the **Advanced > Ethernet I/O** tab.
3. Locate the options for the NET port you wish to configure (step 4 on the tab).
 4. If you are manually configuring the Ethernet settings:
 - a. Use the **Mode** menu to select **Static**.
 - b. Use the **Static IP Address** field to specify the new static IP address for the IGGY-MADI. This is the IP address that is used to control and communicate with the specific NET port.
 - c. Use the **Subnet Mask** field to specify the subnet mask for the NET port.
 - d. Use the **Gateway** field to specify the gateway for communications outside of the local area network (LAN) the IGGY-MADI will use.
 5. If you want the network settings for the NET port to be automatically obtained, and DHCP service is available on your control network, select **DHCP** from the **Mode** menu.
 6. Click **Apply** to save the new settings.
 7. Repeat this procedure for the second NET port you wish to configure.
 8. Click **Reboot** to apply the new settings. This button is located at the bottom of the interface.

The IGGY-MADI is temporarily taken off-line during the reboot.
 9. Verify the new settings reported on the **Advanced > Ethernet I/O** tab.

Protocol Setup

The IGGY-MADI supports media distribution based on NMOS, RAVENNA, RTSP, Ember+, SAP, and SLP. This chapter outlines how to specify which outputs to enable on the IGGY-MADI, and configure the IGGY-MADI for a specific media distribution protocol.

NMOS Support

This section outlines the required settings on the IGGY-MADI to establish communications via the Network Media Open Specifications (NMOS).

To configure the IGGY-MADI as a NMOS device

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select **Advanced** > **Discovery** tab.

The screenshot displays the 'Advanced Settings and Status' window for the IGGY-MADI, with the 'Discovery' tab selected. The 'NMOS' section is expanded, showing various configuration fields. The 'Device Name' is set to 'DeviceName1'. The 'Registry Service Discovery' is set to 'Automatic'. The 'Registry Service Address' is empty. The 'Registry API Version' is set to 'v1.1'. The 'Registry Service Port' is set to '3212'. The 'Node Port' is set to '3000'. The 'Connection Port' is set to '4000'. The 'Enable' checkbox for NMOS is checked. The 'RAVENNA' section shows 'Board Name' as 'MADI23123', 'Port' as '80', and 'Enable' checked. The 'RTSP' section shows 'Port' as '8554'. The 'SAP' section shows 'Enable' checked. The 'LIVEWIRE+' section shows 'Enable' checked. The 'Ember+' section shows 'Port' as '9035'. The 'SLP' section shows 'Enable' checked. The 'Walkabout' section shows 'Enable' checked. At the bottom, there are buttons for 'OK', 'Apply', 'Cancel', 'Refresh', 'Upload', 'Reboot', and 'Close'.

3. Locate the **NMOS** area in the tab.
 4. To assign a name to the IGGY-MADI for use in the NMOS network, perform one of the following:
 - Use the **Device Name** menu to specify a unique identifier for the IGGY-MADI in the NMOS network; or
 - Click **Use System Device Name** to use the identifier provided by the master NMOS device.
- ★ The default name is **IGGY_MADI_#** where **#** represents the module serial number.
5. Use the **Interface** menu to specify what physical port the IGGY-MADI uses for NMOS communications.
 6. Select the **Enable** box.
 7. Click **Apply** to save the new settings.
- ★ When NMOS is enabled, the Device Setup > Audio Channel Count Mode must be set to a fixed number of channels (and not Mixed mode).

RAVENNA Support

This section outlines how to configure the IGGY-MADI for the open standard for real-time media over IP (AES67).

To configure the IGGY-MADI as a RAVENNA device

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select **Advanced > Discovery** tab.
3. Locate the **RAVENNA** area in the tab.
4. Use the **Port** menu to specify the port assigned to the IGGY-MADI within the RAVENNA network.
5. Select the **Enable** box.
6. Click **Apply** to save the new settings.

ANEMAN Communication

An Audio Network Manager (ANEMAN) controller enables you to manage and monitor audio streams and PTP connections on a RAVENNA network.

To enable ANEMAN communications on the IGGY-MADI

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select **Advanced > Device Setup**.
3. Use the **ANEMAN Mode** menu to specify how sender sessions are created by the ANEMAN controller. Choose from the following:
 - **Receivers Only Mode** — The sender sessions are first created through a web interface. This is the default.
 - **Dual Receivers Mode** — Select this mode when the ANEMAN controller creates two receivers.
 - **Duplex Mode** — Select this mode when the ANEMAN controller creates the sources for one-to-many connections.
4. Click **Apply** to save the new settings.

RTSP Support

This section outlines the required settings when establishing communications between IGGY-MADI and an external device via the Real Time Streaming Protocol (RTSP).

To configure the IGGY-MADI as an RTSP device

1. Display the IGGY-MADI interfaces outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select **Advanced > Discovery** tab.
3. Locate the **RTSP** area in the tab.
4. Use the **Port** field to specify the TCP port the protocol uses to send and receive messages.
5. Click **Apply** to save the new settings.

Ember+ Support

- ★ IGGY-MADI implements BESS v1.1 for Ember+ support to communicate with third-party controllers.

Keep the following in mind when setting up an Ember+ connection with IGGY-MADI:

- Ensure that all network streams have a consistent channel count.
- Audio shuffling is not supported in Ember+ setups.
- IGGY-MADI supports one-to-many connection (where one source can be routed to multiple targets).

Channel Mapping for Ember+

Channels in the network stream are mapped to the corresponding MADI channels in the Ember+ client in a 1-to-1 mapping.

In each channel count mode, the Sender configuration must first be created in DashBoard to show up in the Ember+ tree. If a Sender has not been set up through DashBoard for one of these sets of channels then these Audio sub-groups will contain no SDP file. If a Sender is created without following the channel mapping configuration above, the Ember+ tree contents will not be correct.

16-channel Count Mode

If the channel count mode is set to **16**, there are 4 audio sub-groups (Audio 1-4) with 16 channels each. (**Figure 23**)

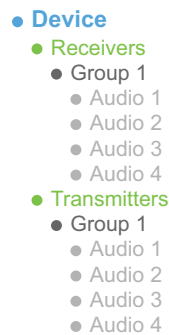


Figure 23 Ember+ Tree Example — Channel Count Mode set to 16

In **Figure 23**, the Receivers > Group 1 > Audio 1 represents the receiver that maps to MADI channels 1 to 16; Receivers > Group 1 > Audio 2 represents the receiver that maps to MADI channels 17 to 32; etc. When connecting a 16-channel network stream to one of these targets, the 16 channels from the network stream will be mapped to the corresponding MADI channels in a 1-to-1 mapping.

In **Figure 23**, the Transmitters > Group 1 > Audio 1 represents the sender that maps to MADI channels 1 to 16; Audio 2 maps to the sender that maps to MADI channels 17 to 32; etc.

8-channel Count Mode

If channel count mode is set to **8**, there are 8 audio sub-groups (Audio 1-8) with 8 channels each. (**Figure 24**)

- Device
 - Receivers
 - Group 1
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - Audio 5
 - Audio 6
 - Audio 7
 - Audio 8
 - Transmitters
 - Group 1
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - Audio 5
 - Audio 6
 - Audio 7
 - Audio 8

Figure 24 Ember+ Tree Example — Channel Count Mode set to 8

In **Figure 24**, the Receivers > Group 1 > Audio 1 represents the receiver that maps to MAD I channels 1 to 8; Receivers > Group 1 > Audio 2 represents the receiver that maps to MAD I channels 9 to 16; etc. When connecting an 8-channel network stream to one of these targets, the 8 channels from the network stream will be mapped to the corresponding MAD I channels in a 1-to-1 mapping.

In **Figure 24**, the Transmitters > Group 1 > Audio 1 represents the sender that maps to MAD I channels 1 to 8; Audio 2 maps to the sender that maps to MAD I channels 9 to 16; etc.

2-channel Count Mode

If channel count mode is set to **2**, there are 32 audio sub-groups (Audio 1-32) with 2 channels each. (**Figure 25**)

- Device
 - Receivers
 - Group 1
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - ...
 - Audio 30
 - Audio 31
 - Audio 32
 - Transmitters
 - Group 1
 - Audio 1
 - Audio 2
 - Audio 3
 - Audio 4
 - ...
 - Audio 30
 - Audio 31
 - Audio 32

Figure 25 Ember+ Tree Example — Channel Count Mode set to 2

In **Figure 25**, the Receivers > Group 1 > Audio 1 represents the receiver that maps to MAD I channels 1 and 2; Receivers > Group 1 > Audio 2 represents the receiver that maps to MAD I channels 3 and 4; etc. When connecting an 2-channel network stream to one of these targets, the 2 channels from the network stream will be mapped to the corresponding MAD I channels in a 1-to-1 mapping.

In **Figure 25**, the Transmitters > Group 1 > Audio 1 represents the sender that maps to MADl channels 1 and 2; Audio 2 maps to the sender that maps to MADl channels 3 and 4; etc.

1-channel Count Mode

If channel count mode is set to **1**, there are 64 audio sub-groups (Audio 1-64) with 1 channel each. (**Figure 26**)

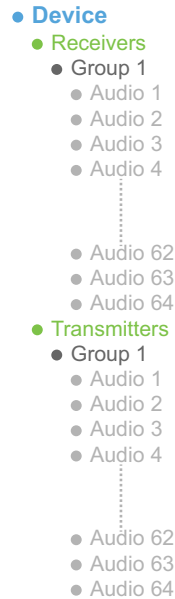


Figure 26 Ember+ Tree Example — Channel Count Mode set to 1

In **Figure 26**, the Receivers > Group 1 > Audio 1 represents the receiver that maps to MADl channel 1; Receivers > Group 1 > Audio 2 represents the receiver that maps to MADl channel 2; etc. When connecting a 1-channel network stream to one of these targets, the channel from the network stream will be mapped to the corresponding MADl channel in a 1-to-1 mapping.

In **Figure 26**, the Transmitters > Group 1 > Audio 1 represents the sender that maps to MADl channel 1; Audio 2 maps to the sender that maps to MADl channel 2; etc.

Establishing a Connection

★ Before proceeding, ensure that SDP patching is enabled with the Ember+ client to establish audio receivers on the IGGY-MADI.

To establish a connection between the Ember+ client and the IGGY-MADI

1. Add the IGGY-MADI in the Ember+ client interface using the IP Address assigned to the IGGY-MADI.
2. In DashBoard:
 - a. Navigate to IGGY-MADI **Advanced** > **Discovery** tab.
 - b. Locate the **Ember+** area in the tab.
 - c. Set the **Port** field to 9095.
3. In the Ember+ client, set the TCP port to 9095 for the IGGY-MADI.

Specifying the Audio Channel Count Mode on the IGGY-MADI

By default, the Channel Count mode is set to 8 but this value can be edited in DashBoard.

- ★ You will need to reboot the IGGY-MADI before the Ember+ tree is updated with the new Channel Count mode.

To set the Audio Channel Count mode on the IGGY-MADI

1. In DashBoard, navigate to the **Advanced > Device Setup** tab.
2. Use the **Audio Channel Count Mode** menu to specify the number of channels in each group.
3. Click **Apply**.

Configuring the IGGY-MADI for Ember+

For most setups (as seen in “**Direct Audio Mapping**”), you will only need to create the Senders in DashBoard for the IGGY-MADI. Refer to “**Configuring the Senders**” for details.

For other setup types, (as seen in “**One-to-Many Direct Audio Mapping**” and “**Custom Network Streams**”), you will need to configure the Senders, and then use the Ember+ controller interface (e.g. Lawo VSM) to map the sources to the targets. Refer to the documentation that came with your controller for details.

SLP Support

DashBoard uses the Service Location Protocol (SLP) to find devices in a local area network (LAN) without prior configuration. Enabling SLP on the IGGY-MADI allows it to announce its location on the local network, establish communications with DashBoard, and display its node in the Basic Tree View of DashBoard.

- ★ This protocol is enabled by default on the IGGY-MADI.

Livewire+ Support

You can choose to enable communications via the LiveWire+ standard. This enables the IGGY-MADI to recognize Livewire+ advertisements on the network. This populates the list of advertisements that the user can choose to connect.

Walkabout Support

The Walkabout Device Configuration Tool provides basic network communication settings and helps DashBoard to identify devices for initial IP setup. The Walkabout software is available as part of DashBoard v6.2 or higher and as a free download from our website.

- ★ This protocol is enabled by default on the IGGY-MADI. Disabling this feature (by clearing the Advanced > Discovery > Walkabout Enable box) severs the connection with Walkabout, making the IGGY-MADI no longer discoverable by Walkabout.

For More Information on...

- using Walkabout to assign the IP Address to your IGGY-MADI, refer to “**Using Walkabout to Assign the Initial IP Address to IGGY-MADI**”.

Enabling Source Specific Multicast Mode (SSM)

When SSM is enabled, the IGGY-MADI receiver will monitor traffic for a specific destination multicast address and receive traffic from only one specific source sending to that multicast address.

- ★ SSM is supported for both redundant (SMPTE 2022-7) and non-redundant traffic.

Keep the following in mind when enabling SSM:

- The IGGY-MADI follows the IGMPv3 standard as defined in **RFC3376**.
- If the network switch is configured for IGMPv2, the IGGY-MADI will communicate via Any-Source Multicast (ASM) instead of SSM.
- While SSM allows a source address to be defined, a network switch will differentiate between the network streams coming from different sources and route them independently even if they share the same Destination Multicast address.
- Specify only one source address when subscribing to a multicast stream.
- All connection protocols in a SSM-enabled system will use SSM (e.g. NMOS, DashBoard, Ember+).

To enable SSM on the IGGY-MADI

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select **Advanced > Device Setup**.
3. Select the **Enable Source Specific Multicast** box.
4. Click **Apply** to save the new settings.

A **Source IP** field displays in the **Advanced > Receivers** and **Presets** tabs.

Configuring the Timing Settings

The IGGY-MADI supports the Precision Time Protocol (PTP) as defined in the IEEE 1588-2008 standard and the SMPTE ST 2059 specification.

Configuring the PTP Settings

From the Timing tab in DashBoard, you can synchronize the IGGY-MADI to real-time clocks of other devices in the same network.

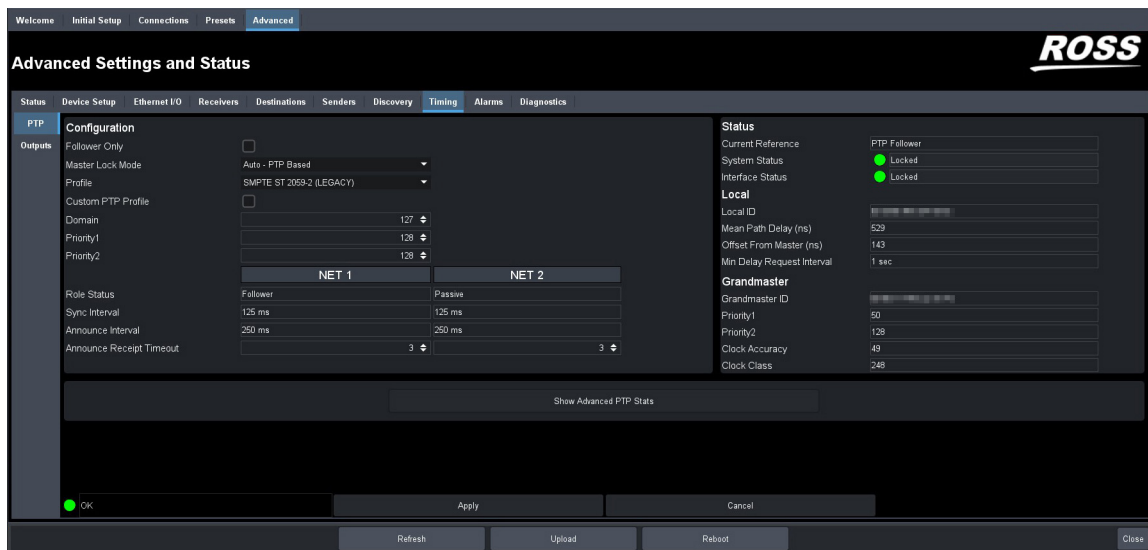
- ★ There are several criteria that PTP clocks compare to determine who will be master and who will be follower (called the Best Master Clock Algorithm, or BMCA), and they are evaluated in order: Priority1, clock class, accuracy, scaled log variance, Priority2, clock ID (similar to the MAC address). Practically, Priority1 is the only setting configured on all clocks to control the outcome of the Grandmaster election. If Priority1s are equal, the next criterion is evaluated (clock class) and the criteria are evaluated in succession until a Grandmaster is determined.

To update the PTP settings for the IGGY-MADI

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
 2. Select the **Initial Setup** tab.
- ★ You can also change these settings via **Advanced > Timing > PTP**.
3. Select the **Follower Only** box to define the IGGY-MADI as only a follower and never a Boundary Clock or Grandmaster device. (You may need to scroll down the tab to locate this box.)
 4. Use the **Profile** menu to specify the standard/specification used for PTP.
- ★ The Domain is automatically set if **Custom PTP Profile** is not selected.
5. Use the **Domain** field to specify the sub-domain the PTP clock is assigned to.
- ★ There can be multiple PTP domains operating concurrently within a network. The domain is a field in all PTP message headers. Messaging between entities are segregated by domain (e.g. The IGGY-MADI is an endpoint configured for domain 128 and ignores messages from a neighboring clock configured for domain 127).
6. If you did not select the **Follower Only** box and the IGGY-MADI matches the primary Grandmaster election criterion for your network:
 - a. Use the **Priority 1** field to define the first 8bit clock field.
 - b. Use the **Priority 2** field to define the backup 8bit clock field.

To configure the PTP settings for a specific NET port

1. Select the **Advanced > Timing** tab.
The **PTP** tab is automatically selected.



2. Select the **Custom PTP Profile** box.
The Domain, Priority1, Priority2, Sync Interval, Announce Interval and Announce Receipt Timeout fields are now editable.
3. Use the **Sync Interval** field to specify the number of seconds at which synchronization messages are sent from the master clock to the specified NET port on the IGGY-MADI.
4. Use the **Announce Interval** field to specify the rate of announce messages that the specified NET port on the IGGY-MADI requests from the master clock during a Unicast session.
5. Use the **Announce Receipt Timeout** field to specify the number of seconds the specified NET port on the IGGY-MADI waits for an announce interval message before timing out.
6. Click **Apply** to save the new settings.

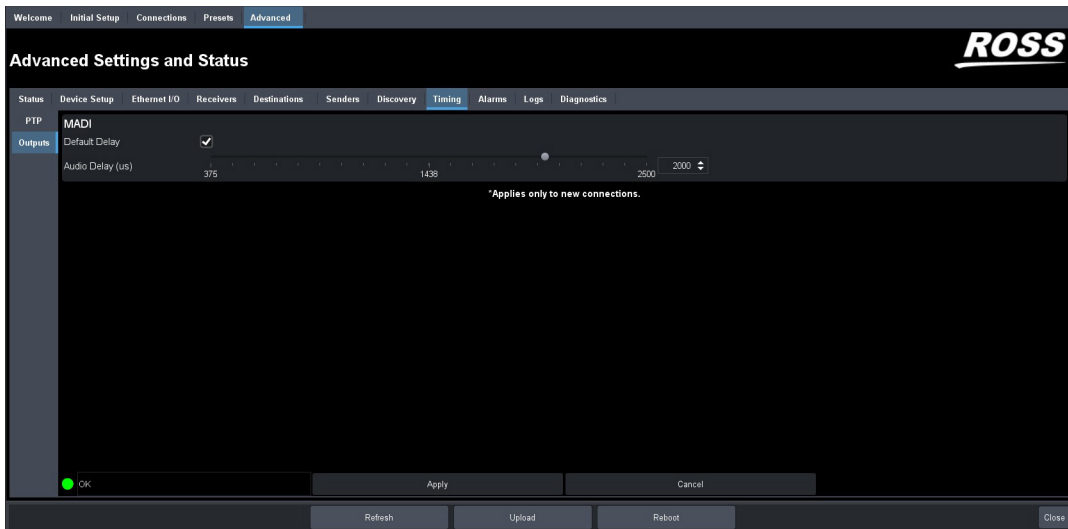
Configuring the Audio Offset for the Outputs

An output is timed relative to the input stream, and the source will be delayed a fixed offset from the sender's RTP timestamps. This allows for non-PTP aligned sources to be passed through with fixed latency.

- ★ Use this procedure if you need to adjust the timing of each output independently. Otherwise it is recommended to keep these settings at the default values.

To adjust the timing for an output

1. Display the IGGY-MADI interfaces as outlined in **"To access the IGGY-MADI in DashBoard"**.
2. Select the **Advanced > Timing** tab.
3. Click **Outputs**.
The **Timing** tab updates to display the timing options for each output.
4. Locate the options for the output you want to adjust the timing for.
5. To automatically apply the default delay value of 20000us, select the **Default Delay** box for the output.



6. To manually configure the delay and offset values for an output:
 - a. Verify that the **Default Delay** box is cleared.
 - b. Use the **Audio Offset** slider to adjust the relative position of the audio start position as an offset to the reference.

★ Audio delay is specified relative to the reference source.

7. Click **Apply** to save the new settings.
8. Refresh the connection as follows:
 - a. Select the **Receivers** tab.
 - b. Locate the row for the output you need to refresh the connection for.
 - c. Click **Disconnect**.

The applicable **Output Status** field reports "**Not in Use**" and the Destination reads "**Disconnected**" in the **Audio** field.

- d. Click **Connect**.

Setting the Audio Packet Time

You can add an offset to the audio streams if you wish to define the rate the IGGY-MADI sends packets. Keep in mind that a larger packet time results in more Ethernet packet overhead (more packets are sent) but less network delay.

★ This impacts all connected audio streams. It is recommended to set the Audio Packet Time before configuring your audio streams.

To set the audio packet time

1. Display the IGGY-MADI interfaces as outlined in "**To access the IGGY-MADI in DashBoard**".
2. Select the **Advanced > Device Setup** tab.
3. Use the **Audio Packet Time** menu to specify the amount of time that IGGY-MADI will add as an offset to the audio streams.
4. Click **Apply**.
5. Re-connect the audio streams as outlined in "**Routing the Signals**".

Configuring the Destinations

You can choose to use the default destination values or customize the number of destinations and audio channels assigned to each. This chapter outlines both methods.

Using the Default Destination Settings

The default Destination settings are as follows:

- Eight MADI outputs with assigned Destination Names (using the nomenclature **Destination #** where # is an auto-generated number).
- Each MADI output is pre-configured with 8 channels.
- Each MADI output is enabled (the corresponding box is selected).
- The Default Mapping box in the Channel Mapping area is automatically selected.
- The MADI Output Ports are automatically assigned in a 1:1 map (where 1-8 is assigned to MADI A1-8, 9-16 is assigned to MADI B1-B8, etc.)

★ The default number of channels per Destination can be defined via the **Initial Setup** tab.

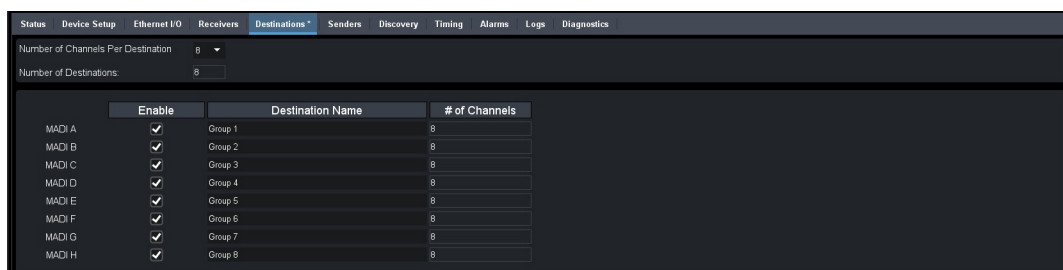
Customizing a Destination

You can customize the destination labels, and the number of audio channels assigned to each destination. This feature enables you to assign channels for specific work flow and to divide a large MADI source into more intuitive parts. For example you may need MADI channels 1-16 to go to Speaker 1, channels 17-32 to Speaker 2, channels 1-8 to Monitor 1 etc. You would then connect the network streams to these specific destinations directly.

To customize the destination list

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Advanced > Destinations** tab.
3. Use the **Number of Channels per Destinations** field, located in the top left corner of the tab, to specify the number of channels for all destinations.

The **Destinations** tab updates to display the specified number of channels. In the example below, the user selected **8**.



	Enable	Destination Name	# of Channels
MADI A	<input checked="" type="checkbox"/>	Group 1	8
MADI B	<input checked="" type="checkbox"/>	Group 2	8
MADI C	<input checked="" type="checkbox"/>	Group 3	8
MADI D	<input checked="" type="checkbox"/>	Group 4	8
MADI E	<input checked="" type="checkbox"/>	Group 5	8
MADI F	<input checked="" type="checkbox"/>	Group 6	8
MADI G	<input checked="" type="checkbox"/>	Group 7	8
MADI H	<input checked="" type="checkbox"/>	Group 8	8

4. Use the **Destination Name** field to specify a unique identifier for each destination.
- ★ This is used to identify the output within your system and in the DashBoard **Connections** tab.
5. Select the **Enable** box for the destination to display it in the **Connections** tab.
6. Click **Save**.

Configuring the Senders

For each MADI input signal, you need to specify the IP encapsulation properties for the active audio.

Configuring an Audio Sender

Before you begin, make a note of the **NET Bandwidth Allocation** for the NET ports to determine the available capacity on each port. This information is reported in the **Senders** tab.

To create a new audio essence

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Advanced > Senders** tab.
3. Select the **Setup Streams** sub-tab.
4. Click **Add Stream**.

The **Stream** list and **Source Name** field updates to include a new entry “**Sender . #**” where # is an auto-generated number.

5. Use the **Source Name** field to override the auto-detected name of the data stream with a unique identifier for the stream.

★ The Source Name is used to help identify the sender within your system and in the DashBoard **Connections** interface.

6. If the **Allow Random IP** feature is enabled (via the **Initial Setup** tab), proceed to step 9.
7. Edit the **Transport IP** and **UDP Port** fields for the Primary Stream you wish to assign the sender to.
8. If required, edit the **Transport IP** and **UDP Port** fields for the Protection Switching stream the sender will use.
9. Proceed to the next section.

Mapping the Audio Channels to a Sender Stream

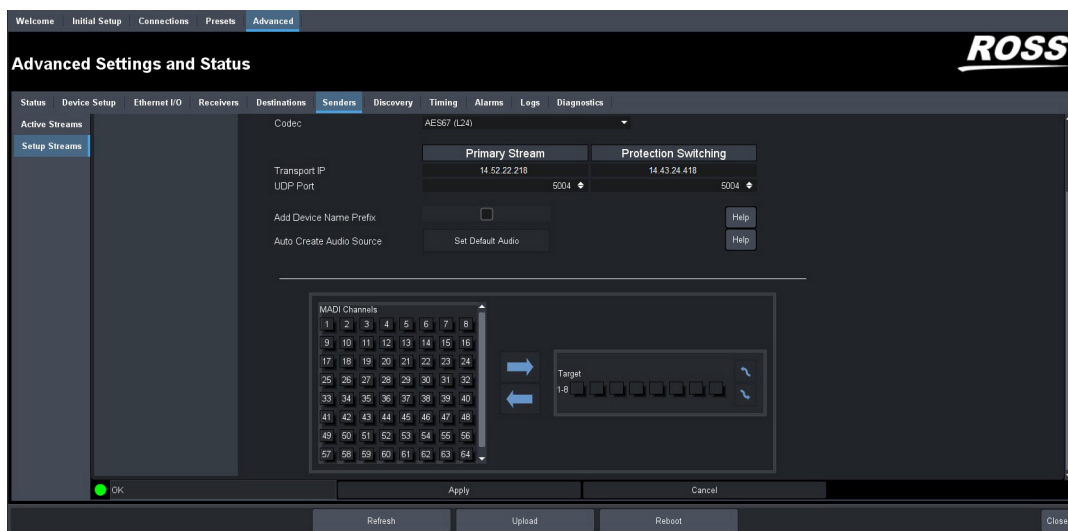
You can choose to apply the default audio channel map or assign the channels as required by your system. Both methods are described below.

To map the audio channels to a sender stream using the default channel map

1. Click **Set Default Audio**.

The **MADI Channels** map updates to display the default channel map. You may need to scroll to the bottom of the tab to display the map.


★ In the example below, the Audio Channel Count is set to 8, resulting in a target with 8 streams.



2. Click **Apply** to save the new settings.

To customize the audio channel mapping for a sender stream

★ A MADI channel can only be assigned to one sender.

1. In the **MADI Channels** map, select the channels to include in the audio stream.
2. In the **Target** map, select the sender channel(s) to assign the MADI channel to.
3. Click .
4. Click **Apply** to save the new settings.

Configuring the Network Sessions

Once you have the timing, destinations, and senders configured on the IGGY-MADI, you must specify the available IP streams as network stream source (presets) for the IGGY-MADI.

Overview

You can configure a preset for the IGGY-MADI by assigning an advertised stream or adding a stream by manually specifying the IP stream credentials. A network stream advertised by a node flows to multiple devices.

What is a Preset?

A preset allows you to create a grouping of streams on the network into a unit that can be mapped to a destination.

Presets are required if:

- the destination has more channels than a stream on the network and the user wants to drive all channels;
- the user wants to perform complicated audio shuffling.

Presets are not required if:

- the user has destinations and network streams that are the same size (i.e. channel count);
- wants to perform a 1-to-1 mapping.

Work Flow

You create presets, combine them into audio mappings with different assignments to create presets. Then each preset can be mapped to a Destination, which corresponds to a specific set of MADI channels.

Adding a Preset

A preset is identified in the Receivers and Connections tabs using the parameters specified in the Presets tab. Ensure to give each preset a unique name for easy identification within your system.

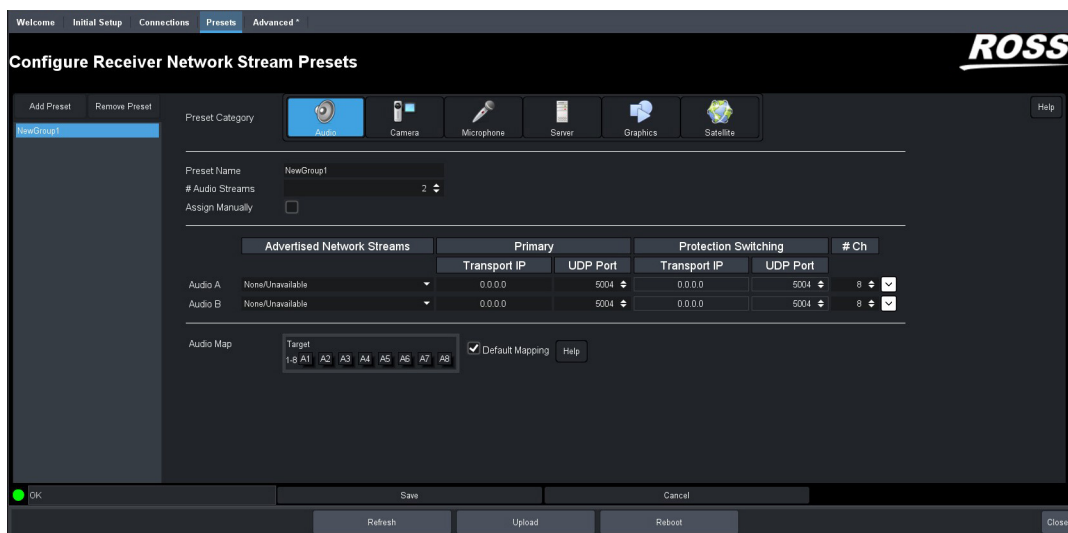
Using an Advertised Stream

The **Presets** tab automatically provides a list of advertised streams available to the IGGY-MADI. This enables you to quickly create presets using only the (detected) advertised streams.

To add a new preset using an advertised stream

1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Presets** tab.
3. Click **Add Preset**.

The fields in the **Presets** tab clear and the **Preset Name** field displays “**NewGroup#**” where # is an auto-generated character.



4. Use the **Preset Name** field to specify a unique identifier for the network stream.
5. Verify that the **Assign Manually** box is unselected (cleared).
6. Use the **# Audio Streams** menu to specify the total number of audio streams for this group.
- ★ This number determines the Audio Map options and the number of streams you can configure.
7. Use the **Advertised Network Streams** menus to specify the stream for the audio signals for the network stream.
 The **Transport IP**, **Port**, and **DSCP** fields are read-only and automatically populated when a new selection is made in the **Advertised Stream** menu.
8. Use the options in the **Preset Category** area to assign the preset to a Connections category.
- ★ Assigning presets to a specific Category enables you to later filter the sources on the Connections tab.
9. Click **Save** to update the list in the Presets tab.

Manually Assigning a Stream

An IP stream can also be manually assigned as a preset for the IGGY-MADI. You will need the Transport IP Address, Port number, and DSCP value for the IP stream you want to add. This is useful if you wish to access a network stream that is not a RAVENNA device.

To manually define a network stream for a preset

1. Display the IGGY-MADI interfaces as outlined in **"To access the IGGY-MADI in Dashboard"**.
2. Select the **Presets** tab.
3. Click **Add Preset**.

The fields in the **Presets** tab clear and the **Preset Name** field displays **"NewSource#"** where # is an auto-generated character.

4. Use the **Preset Name** field to specify a unique identifier for the network stream.
5. Select the **Assign Manually** box.

The **Transport IP**, **UDP Port**, **# Ch**, and **Codec** fields are now editable.

6. Use the **# Audio Streams** menu to specify the total number of audio streams for this preset.
- ★ This number determines the Audio Map options and the number of audio streams you can configure for this preset.

7. Use the **Transport IP** field to specify the multicast IP Address for the network stream.
- ★ IGGY-MADI receives multicast IP Addresses in the range of 225.x.x.x to 239.x.x.x. Contact Ross Technical Support if you need additional IP ranges.
8. Use the **UDP Port** field to specify the RTP port for the network stream.
9. Use the **# Ch** field to assign the total number of audio channels for the network stream.
10. Use the **Codec** menu to specify the data transmission standard that the IGGY-MADI will use for this stream.
11. Use the options in the **Category** area to assign an icon to the button on the Connections tab.
12. If required, use the **Protection Switching** fields to assign the redundant audio streams to the IGGY-MADI.
- ★ The **Protection Switching** options display as two separate rows below the manually added stream fields.
13. Click **Save** to update the list in the Presets tab.

Mapping the Audio Channels

Audio shuffling enables you to take any channels from the network streams within a preset and re-map them in any order before assigning to a destination. You can choose to apply the default audio channel map (1:1 mapping) or assign the channels as required by your system. Both methods are described below.

- ★ When you create a new network stream (preset), the audio Target Map displays the number of available channels for mapping (as defined in the Destinations tab). A single preset can be used to drive all MADI channels, but you do not need to assign all 64 channels. For example, if you are connecting to a 16-channel destination, you would assign the first 16 channels.

To assign audio channels to a preset using the default map

1. Locate the **Audio Map** area of the **Presets** tab.
2. Select the **Default Mapping** box to map the channels to audio streams as 1:1
3. Click **Save** to update the list in the Presets tab.

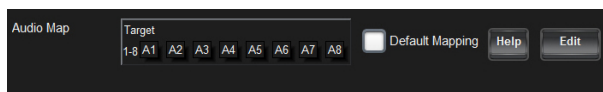
- ★ You may need to scroll down the tab to locate this button.

To customize the audio channel mapping for the preset

1. Locate the **Audio Map** area of the **Presets** tab.
- ★ You may need to scroll down the tab to fully display the **Audio Map**.
2. Clear the **Default Mapping** box.


The Channel Mapping area updates to display the mapping options based on the number of destinations and audio channels you specified using the fields on this tab.

The **Edit** button now displays.



3. Click **Edit**.
- The Audio Map area updates to provide two maps.



4. Select the network stream channel(s) on the leftmost map.
5. On the rightmost map, select the output channel(s).
6. Click  to assign the channel.
7. Repeat steps 4 to 6 to map all the channels to target channels.
8. Click **Save**.

Operation

You can route the IGGY-MADI destinations and stream sources using the options in the Connections tab.

Connections Tab Overview

The Connections tab is organized into two areas: Destinations and Stream Sources.

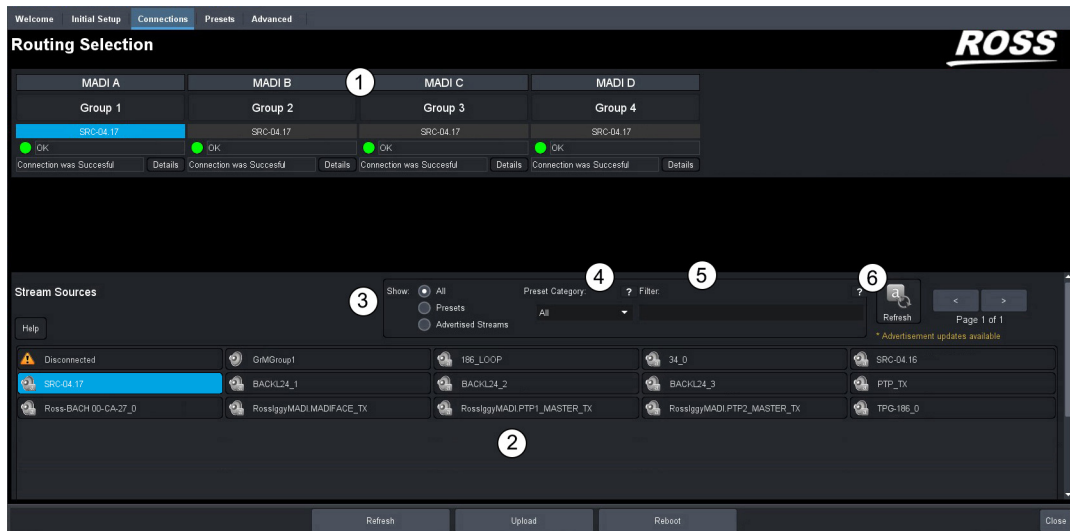


Figure 27 Example of a Populated Connections Tab

1. Destinations Area

This area displays the available outputs in a series of rows as configured in **“Configuring the Destinations”**. Each output is represented as a button which is clicked to include it in the routing switch. The Audio read-only fields report the Network Streams assigned to the output.

A Status read-only field reports overall communication status and whether any error conditions are occurring on the output.

2. Stream Sources Area

This area displays the available inputs as selectable buttons. Use the **Filter** field to narrow down the options displayed in the area.

3. Show Stream Area

Use the options in the Show area to filter the type of presets displayed. Choose from the following:

- › **All** — Select this option to display all presets and advertised streams configured on the IGGY-MADI.
- › **Presets** — Select this option to display all the network stream presets that were created in **“Configuring the Network Sessions”**.
- › **Advertised Streams** — Select this option to display only the raw advertised streams. Using this selection, you can select a destination, select an advertisement with the same number of audio channels, and connect.

4. Preset Category Area

Use the options to filter the button displayed in the Stream Sources area based on the category assigned to the stream when it was configured.

5. Filter Field

Enter text in the Filter field to search the buttons in the Stream Sources area.

6. Refresh Button

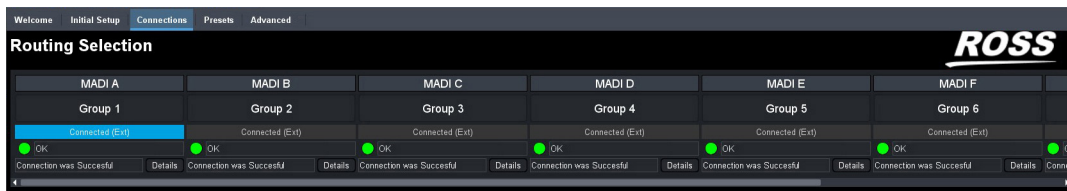
Click this button to update the list of available Stream Sources. It is recommended to refresh the list before making connections (but not between connections).

Routing the Signals

To route the audio signals you must first select a MADI output, then a network stream. Keep in mind that routing occurs automatically after a Stream button is selected.

To select an output

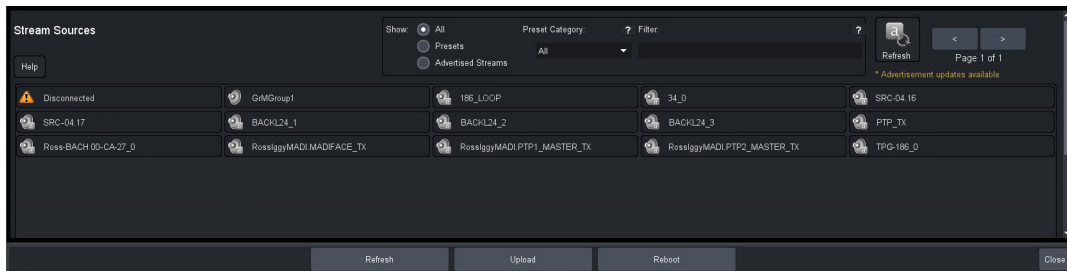
1. Display the IGGY-MADI interfaces as outlined in “**To access the IGGY-MADI in DashBoard**”.
2. Select the **Connections** tab.
3. In the **Output Name** row of the **Destinations** area, locate the button for the output you wish to route.



4. Click the required **Output** button.

To perform the switch

1. In the **Stream Sources** area, locate the button for the Network Stream you wish to route.




2. If required, filter the options in the Stream Sources area using the following:
 - **Filter** field — type text in the field to filter the items displayed in Stream Sources area to those with names containing the specified text.
 - **Show** options — select a type of stream to display. Choose from Presets (manually defined streams), Advertised Streams (streams the IGGY-MADI automatically detects), or All.
3. Click the required **Stream Sources** button to perform the switch.


Using IGGY-MADI with Ultritouch

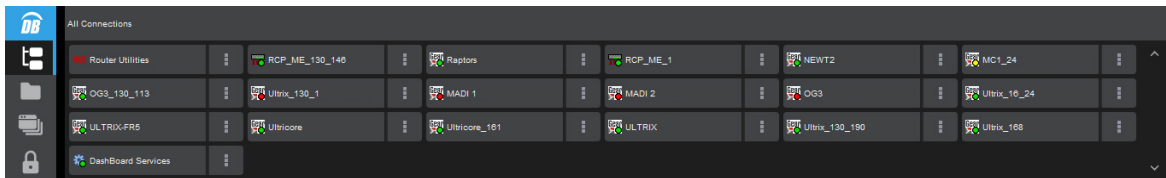
Ultritouch uses the open SLP protocol to locate devices on the same network as it is connected to. This section outlines how to manually add the IGGY-MADI to the list of connected devices by specifying its IP address. You must first set up communications between IGGY-MADI and the Ultritouch panel before you access the IGGY-MADI interfaces, including the Connections window.

To set up a connection point between IGGY-MADI and Ultrix/Ultracore

1. On the Ultritouch panel, tap .
 - ★ This button is located on the leftmost toolbar of the Ultritouch interface.
 2. Tap **Connected Devices**.
 3. Tap **Add**.
 4. Tap **Manually Add a Connection Point**.
 5. Use the **Device IP/Hostname** field to specify the IP Address for the IGGY-MADI.
 6. Tap **Add Device**.
- The device is now listed in the **Connected Devices** table.
7. Select the device from the **Connected Devices** table.
 8. Tap **Connect**.

To display the IGGY-MADI on the Ultritouch panel

1. On the Ultritouch panel, tap .
- The **All Connections** interface displays.



2. Tap the icon for the IGGY-MADI you want to control via Ultritouch.
 3. Tap the icon for the menu you wish to display on the Ultritouch panel.
- The Connections window for the selected IGGY-MADI automatically displays on the Ultritouch panel.

Accessing the IGGY-MADI Interfaces

It is recommended to use the DashBoard client software to setup and configure the IGGY-MADI and then use Ultritouch for control via the Connections interface. Keep the following in mind when using Ultritouch to control the IGGY-MADI:

- The Welcome and Initial Setup interfaces are not available on the Ultritouch panel.
- The Connections window automatically displays each time the IGGY-MADI interface is loaded onto the Ultritouch panel.
- The Connections window is re-organized when displayed on an Ultritouch with the Destination buttons in the left most window, and the Sources on the right.

To perform the switch

1. In the **Connections** window, locate the button for the output you wish to route.
2. Tap the required **Output** button.
3. Tap the required **Network Stream** button.
4. Tap **TAKE** to perform the switch.

Upgrading the Software

The IGGY-MADI software can be upgraded in the field using the **CONTROL** port and the options available in DashBoard.

To upgrade the software on the IGGY-MADI

1. Visit the Ross Video website for the latest software version file.
 2. Display the IGGY-MADI interfaces in DashBoard as outlined in “**To access the IGGY-MADI in DashBoard**”.
 3. Verify that the remote upgrade option is enabled for the IGGY-MADI:
 - a. Select the **Advanced > Device Setup** tab.
 - b. Select **Upgrades > Enable**.
 4. Select **Upload**, located near the bottom of the DashBoard interface, to display the **Select file Upload** dialog.
 5. Navigate to the file you want to upload.
 6. Click **Open > Finish**.
 7. Monitor the upgrade.
- ★ Clicking **Cancel** or **No** returns you to the **Uploading to Selected Devices** dialog without rebooting the device(s).
- The IGGY-MADI device is temporarily taken off-line during the reboot process.
 - The process is complete once the status indicators for the **Card state** and **Connection** fields in the **Status** tab return to their previous status.
- ★ If the IGGY-MADI fails to upgrade correctly, contact Ross Technical Support for assistance.

DashBoard Interface Overview

The IGGY-MADI groups the configuration, monitoring, and operating features as a series of tabs in the DashBoard client window. Each tab provides access to specific options for your IGGY-MADI.

Welcome Tab

The Welcome tab displays on initial start-up of the IGGY-MADI in DashBoard. Once the initial settings are configured and applied to the IGGY-MADI, you can hide the Welcome and Initial Setup tabs by selecting **Initial Setup > Hide Welcome** and/or **Initial Setup > Hide Initial Setup Wizard**.

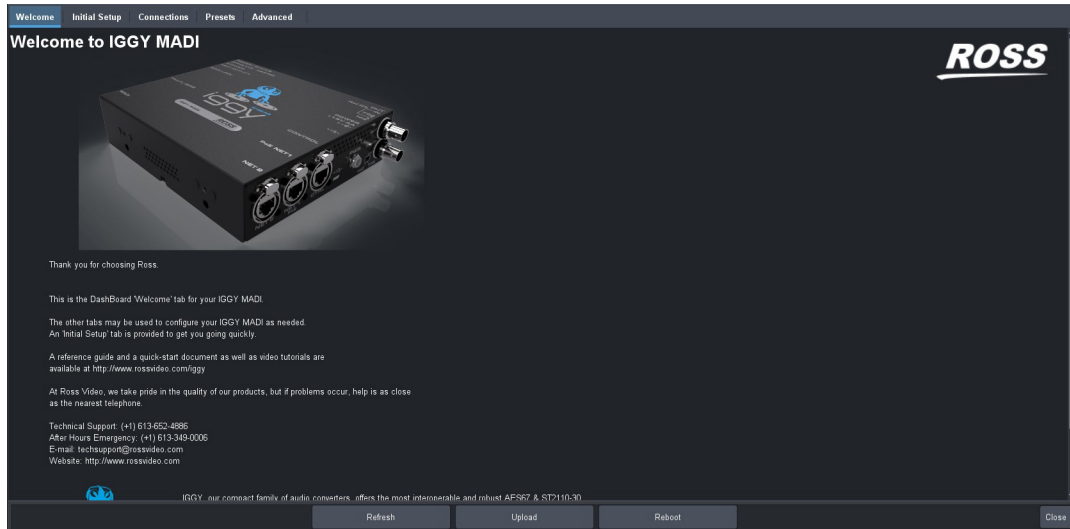


Figure 28 Example of the Welcome Tab

Initial Setup Tab

The Initial Setup tab provides access to the IGGY MADI Setup Wizard. This tab helps you to quickly set up your IGGY-MADI and proceed to configuring your Network Streams and Connections. Help buttons provide additional information on the menus and settings. The same controls are available in the Advanced tabs. Refer to **“Advanced Tabs”** for details.

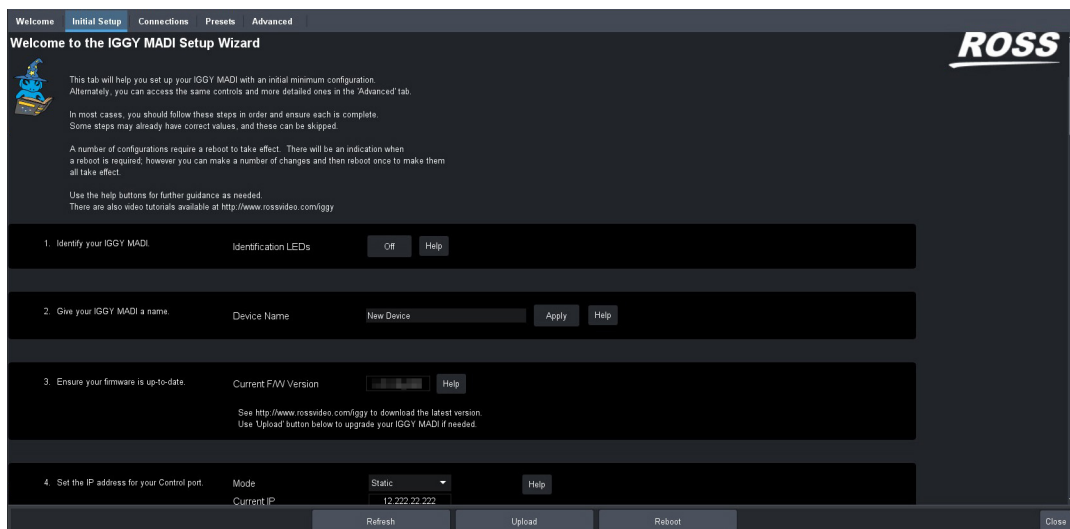


Figure 29 Example of the Initial Setup Tab

Connections Tab

The Connections tab is a patch-panel style interface that enables the IGGY-MADI to connect to available senders on the network.

Routing Selection Area

The Routing Selection area is located at the top of the Connections tab and provides options for routing audio signals to the outputs on the IGGY-MADI. From this area you can quickly select outputs and monitor the status of the output signals.



Figure 30 Connections Tab — Example of a Routing Selection Area

Table 10 summarizes the buttons, and fields available in the Routing Selection area of the Connections tab starting with the top field of the area.

Table 10 Connections Tab — Routing Selection Area

Item	Parameters	Description
MADI #		Indicates the physical connection on the IGGY-MADI
Output	#	Each button represents an output that is configured and available for switching. In Figure 30 , each button is labeled as Group #.
Audio (read-only)	#	Indicates the network stream (preset) currently assigned to the specified output. This row is located under the Output buttons.
Status (read-only)	OK (Green)	No errors are detected on this output
	Alarm Suppressed (Green)	An alarm condition is present, but the alarm is disabled on the Advanced > Alarms tab
	Network Delay Not Compatible (Yellow)	The link offset selected by the user is smaller than the propagation delay of the network
	No packets received (Yellow)	The configured destination IP stream(s) is not receiving any packets; stream might not be on the network or experiencing other issues
	System clock is in failure (Red)	The IGGY-MADI is unable to re-obtain a stable clock source. Sessions cannot be created until this condition is fixed. It is recommended to navigate to the Advanced > Timing > PTP tab to check the status of the PTP and update the Configuration settings. Once PTP is locked again, the message clears.
	Param Out of Range (Red)	A Destination was configured with an invalid setting

Table 10 Connections Tab — Routing Selection Area

Item	Parameters	Description
Status (read-only)	Not in Use (Gray)	This output is disabled
Connection (read-only)	Connection was Successful	Indicates the connection status between the selected input and output
	Disconnected	
	<blank>	
Details	Opens a dialog that provides more information about the connection	

Stream Sources Area

The Stream Sources area is located on the bottom half of the Connections tab. From this area you can route any source signal to an output, monitor its status, and filter the stream available based on type.

Each button displayed here represents a stream based on the filter criteria. You can filter what streams are displayed using the Show options, Preset Category options, or **Filter** field (filtering according to the text entered in the field).

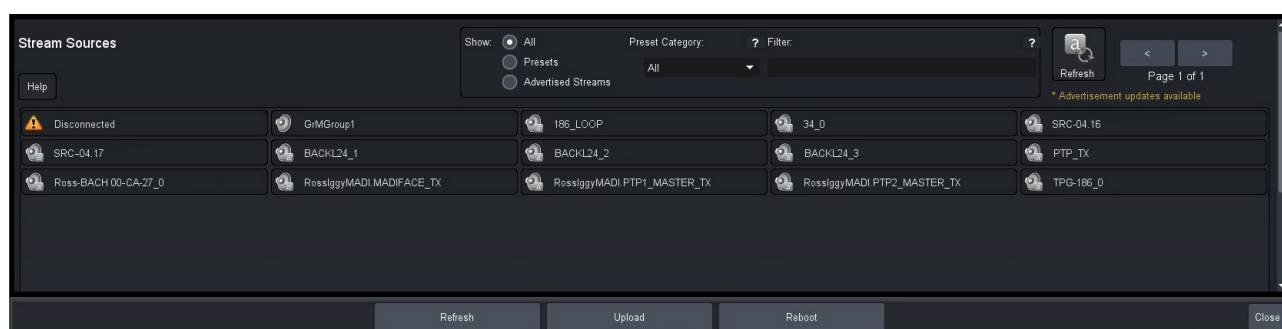


Figure 31 Connections Tab — Example of a Stream Sources Area

- ★ Once an output is selected, clicking a **Stream Source** button performs an immediate switch (a hot-punch).

Presets Tab

The options in the Presets tab enable you to create and manage the IP streams in your system. Advertised streams are those that the IGGY-MADI automatically detects as defined by the RAVENNA protocol. You can also define a stream by manually populating the Transport IP, UDP Port, and #Ch fields for the audio signals. Once a stream is defined as a preset, it is made available for use in the **Connections** tab.

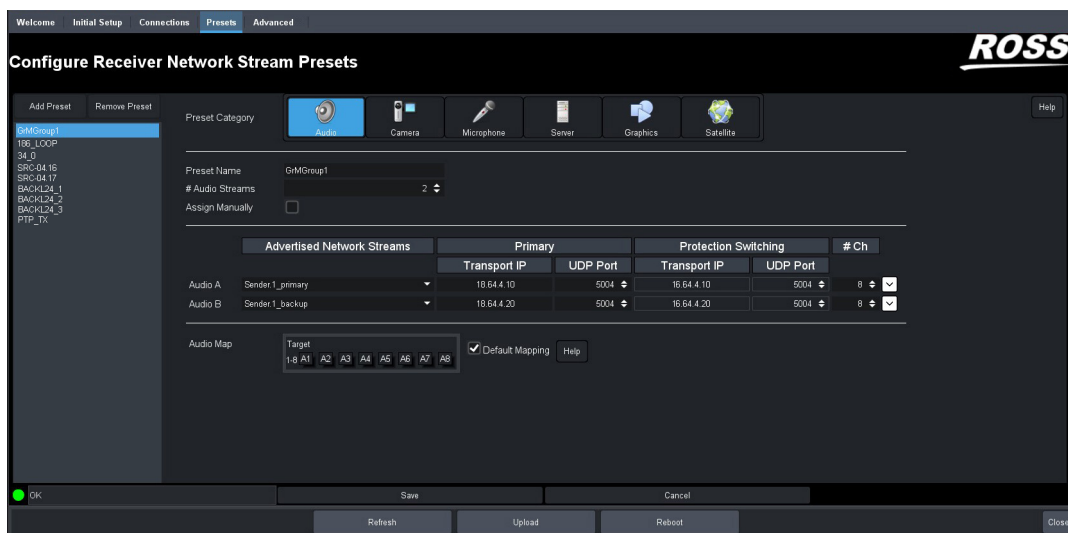


Figure 32 Presets Tab

Table 11 outlines the options displayed in the Presets tab starting from the left-most area of the tab.

Table 11 Presets Tab

Item	Parameters	Description
Configure Receiver Network Stream Presets		
List	<name>	Reports the configured Network Stream preset for this IGGY-MADI
Add Preset	Enables you to configure a new stream preset	
Remove Preset	Deletes the selected preset	
Preset Category	Assigns the stream to a type of preset. This is useful when filtering the streams on the Connections tab.	
Preset Name	<text>	Specifies a unique identifier for the preset
# Audio Streams	#	Specifies the maximum number of audio streams available in the selected preset
Assign Manually	Selected	Enables you to manually enter the Transport IP, Port, and DSCP fields for a specific session
	Cleared	The Transport IP, Port, and DSCP fields are determined by the assigned Advertised Stream
Advertised Network Streams		
Audio #	None/Unavailable	Lists the discovered RAVENNA audio sessions. Select a session to auto-fill the Audio fields.
	#	
Manually Configured Streams - Audio #		
Stream Name	<name>	Assigns a unique identifier for the stream
Transport IP	##.##.##	Specifies the network socket for the video/audio data for the session. This value is auto-populated when you select an Advertised Stream.
UDP Port	#	Specifies the source port to connect to the advertised stream. This must match the source you are attempting to connect to.

Table 11 Presets Tab

Item	Parameters	Description
# Ch		Specifies the maximum number of audio channels in the audio stream
Codec	<name>	Specifies the audio over IP technical standard that the transport stream uses
Protection Switching - Audio #		
Stream Name	<name>	Assigns a unique identifier for the stream
Transport IP	##.##.##	Specifies the network socket for the video/audio data for the session. This value is auto-populated when you select an Advertised Stream.
UDP Port	#	Specifies the source port to connect to the advertised stream. This must match the source you are attempting to connect to.
# Ch	#	Specifies the maximum number of audio channels in the audio stream
Codec	<name>	Reports the audio over IP technical standard that the transport stream uses
Audio Map		
Default Mapping	Selected	The channels in the target stream preset are populated in the order that the selected network streams are listed
Default Mapping	Cleared	Enables you to customize the audio map for the network stream
Edit	Displays when the Default Mapping box is not selected. Click this button to update the Audio Map options and to customize the audio channel mapping for the network stream preset. Refer to "Mapping the Audio Channels to a Sender Stream" .	

Advanced Tabs

The Advanced sub-tabs expand the controls available in the Initial Setup tab.

Status Tab

The Status tab is organized into two sub-tabs: Device Status and MADI Input.

Device Status Tab

The Device Status tab provides read-only hardware information, signal status, and general product information for your IGGY-MADI. The tab is organized into four distinct areas in the DashBoard window: Alarm Status, Product, and Hardware.

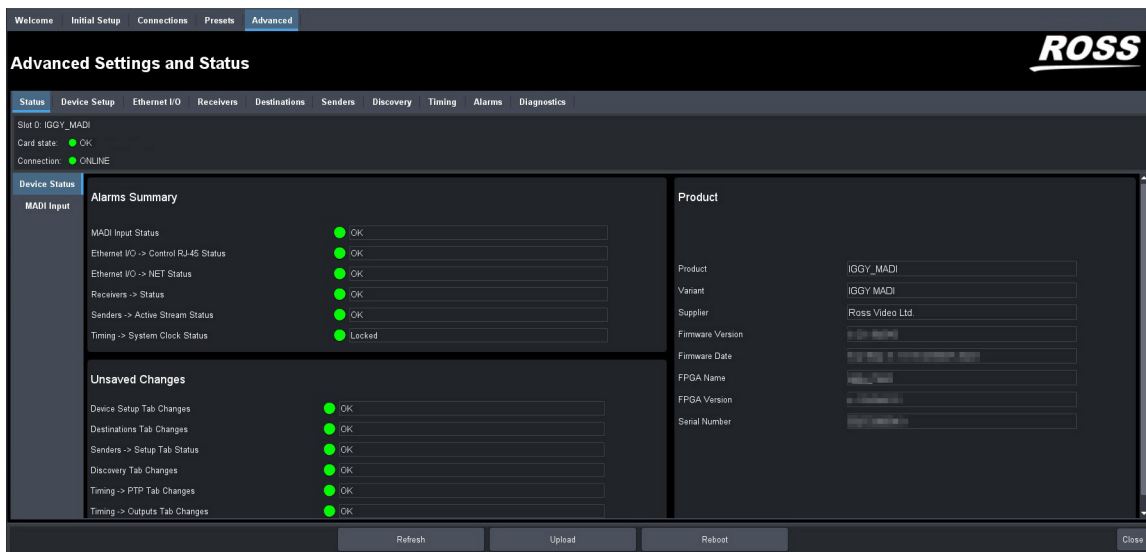


Figure 33 Example of the Advanced > Status > Device Status Tab

Table 12 summarizes the read-only information displayed in the Alarm Status area.

Table 12 Status Tab — Alarm Status

Item	Description
Device Setup Tab Changes	Reports if there are unsaved changes made to the Advanced > Device Setup tab
Discovery Tab Changes	Reports if there are unsaved changes made to the Advanced > Discovery tab
Timing PTP Tab Changes	Reports if there are unsaved changes made to the Advanced > Timing > PTP tab
Timing Output Tab Changes	Reports if there are unsaved changes made to the Advanced > Timing > Outputs tab
System Clock Status	Reports the status of the PTP Clock connection
Control RJ-45 Status	Reports the same information as the Advanced > Ethernet I/O > Control RJ-45 > Link Status field. Refer to Table 16 for more information.
NET Status	Reports the same information as the Advanced > Ethernet I/O > NET # > Link Status fields. Refer to Table 16 for more information.
MADI Input Status	Reports the same information as the Advanced > Status > MADI Input fields. Refer to Table 14 for more information.
Receivers Status	Reports the same information as the individual alarms in the Receivers tab. Refer to “Receivers Tab” .
Senders Status and Changes	Reports if there are unsaved changes made to the Advanced > Senders tab
Destinations Changes	Reports if there are unsaved changes made to the Advanced > Destinations tab

Product Area

Table 13 summarizes the read-only information displayed in the Product area.

Table 13 Status Tab — Product

Item	Parameters	Description
Product	<name>	Indicates the product name of the module
Variant		Indicates the option(s) enabled on the module
Supplier		Indicates the supplier/manufacturer of the device
Firmware Version	#	Indicates the firmware version running on the module
Firmware Date	#	Indicates the date the firmware was released
FPGA Name	#	Indicates the FPGA name running on the module
FPGA Version	#	Indicates the FPGA version running on the module
Serial Number	#	Indicates the factory installed serial number of the module

MADI Input Tab

The MADI Input tab reports read-only information on the status of the input signal detected on the MADI port.

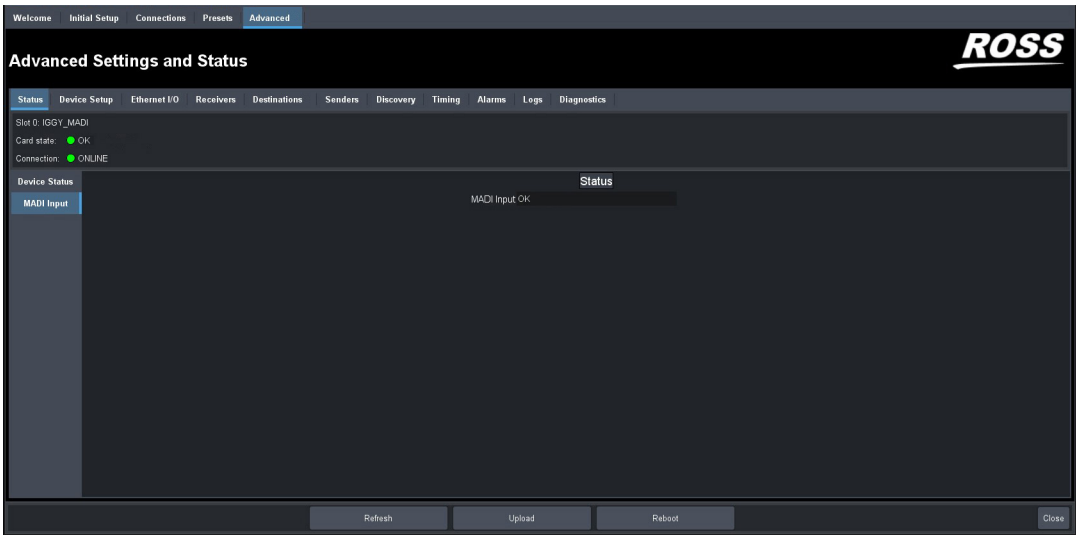


Figure 34 Example of the Advanced > Status > MADI Input Tab

Table 14 summarizes the read-only information displayed in the MADI Input tab.

Table 14 MADI Input Tab

Item	Parameters	Description
MADI Input	OK (Green)	Indicates the MADI input signal is detected and valid
	No Input (Red)	Indicates that the MADI input signal is not detected. Verify that the MADI port is cabled correctly.

Device Setup Tab

The **Device Setup** tab provides settings such as Device Name, and DashBoard display settings.

Table 15 summarizes the options displayed in the Device Setup tab.

Table 15 Device Setup Tab

Item	Parameters	Description
Device Settings		
Device Name	<text>	Specifies a unique identifier for this IGGY-MADI. This name is used to identify the streams the IGGY-MADI is managing.
Audio Packet Time	1 ms	<p>Defines the amount of time that an IGGY-MADI sender will buffer audio samples before it is packeted into an Ethernet frame.</p> <p>This impacts all connected audio streams. Applying a new Audio Packet Time automatically disconnects all audio streams.</p> <p>It is recommended to set the Audio Packet Time before configuring your audio streams.</p>
	# µs	
Audio Sampling Frequency	44 kHz	Specifies the number of samples of audio carried per second
	48 kHz	
Audio Channel Count Mode ^a	#	Specifies the maximum number of audio channels available for configuration within an IP-based stream. The default is 8.
	Mixed	
Default Codec Type	AES67 (L16)	Specifies the AES67 standard that the IGGY-MADI will default to for all IP-based streams
	AES67 (L24)	
	AES67 (L32)	
	Audio and Control (AM824)	Specifies the AM824 data transmission standard that the IGGY-MADI will default to for all streams
	Audio and Control (AM824 - AES3 Transparent)	
MADI Interface Sync Mode	RX Bypass / TX Bypass	The Asynchronous Sample Rate Converter (ASRC) on the receiver and sender is bypassed
	RX ASRC / TX Bypass	The ASRC is enabled on the receiver but bypassed on the sender
	RX ASRC / TX ASRC	The ASRC is enabled on the receiver and the sender
SMPTE ST 2110-30 Sender Payload Type	#	Specifies the 7-bit numeric value that identifies the RTP payload format the IGGY-MADI supports. The default is 97.

Table 15 Device Setup Tab

Item	Parameters	Description
ANEMAN Mode	Receivers Only Mode	The sender sessions are first created through a web interface. This is the default.
	Dual Receivers Mode	The ANEMAN controller created two receivers
	Duplex Mode	The ANEMAN controller creates the sources that will be used in an “one-to-many connection” topology
Link Offset Multiple	#	Defines the default size of the receiver buffer. It is a multiple of packet time units. For example, if set to 10 and the packet time is set to 1ms, the receiver buffer will be 10ms.
Auto Generate Sender Multicast	Selected	Allows the IGGY-MADI to generate random multicast IP addresses for audio streams
	Cleared	Disables this feature
Enable Source Specific Multicast	Selected	An SSM allows the user to specify a specific source for a receiver connection
	Cleared	Disables this feature
Upgrades	Disable	The software running on the IGGY-MADI cannot be upgraded. This also disables the Log > Captures page. This is the default.
	Enable	Provides the option to upgrade the IGGY-MADI software via the Upload button in DashBoard
Reset All	Load Factory Defaults	Sets certain editable settings to the default values
Identification LEDs	Selected	The MADI LOCK, NET1, PTP LOCK, PTP Slv/Mst, PWR/STAT LEDs will flash in two second intervals from red, to green, to blue, then remain purple until this box is cleared.
	Cleared	
DashBoard Settings		
Hide Welcome Tab	Selected	The Welcome tab does not display in the DashBoard window
	Cleared	The Welcome tab displays in the DashBoard window
Hide Initial Setup Wizard Tab	Selected	The Initial Setup tab does not display in the DashBoard window
	Cleared	The Initial Setup tab displays in the DashBoard window
Enable Beta Features	Selected	Contact Ross Technical Support for more information on enabling this option
	Cleared	

- a. The NMOS receivers are divided based on the Audio Channel Count Mode setting.

Ethernet I/O Tab

Use the Ethernet I/O tab to configure the network settings for the NET 1, NET 2, and Control RJ-45 ports on the IGGY-MADI.

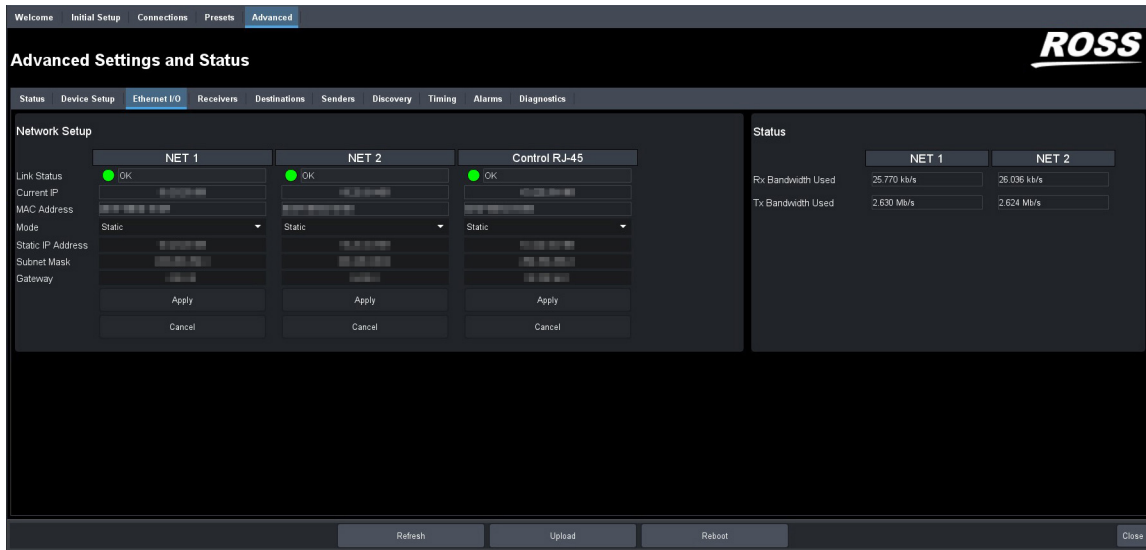


Figure 35 Example of the Advanced > Ethernet I/O Tab

Network Setup Area

Table 16 summarizes the fields and menus displayed for configuring the network settings of the CONTROL and NET ports. Note that each port is configured independently.

Table 16 Ethernet I/O — Network Setup

Item	Parameters	Description
Link Status (read-only)	OK (Green)	The link for the specified port is valid
	Alarm suppressed (Green)	The Link Status alarm is suppressed in the Device Status tab.
	Link Down (Red)	The link for the specified port is invalid (fails)
Current IP (read-only)	#	Indicates the IP address currently assigned to the IGGY-MADI for the specified port
MAC Address (read-only)	#	Indicates the MAC address currently assigned to the IGGY-MADI for the specified port
Mode	Static	The user manually supplies the network settings for the specified port
	DHCP	Automates the assignment of the network settings for the specified port
Static IP Address	#	Specifies the static IP address for the IGGY-MADI when the user wants to manually assign to the specified port
Subnet Mask	#	The subnet mask for the specified port
Gateway	#	The gateway for communications outside of the local area network (LAN)

Status Area

Table 17 summarizes the read-only fields displayed for each NET port.

Table 17 Ethernet I/O — Status

Item	Parameters	Description
Rx Bandwidth Used	#	Reports the amount of data the IGGY-MADI is currently receiving on the specified NET port
Tx Bandwidth Used	#	Reports the amount of data the IGGY-MADI is currently transmitting on the specified NET port

Receivers Tab

The **Receivers** tab provides details on each of the IP receivers (NET ports) of the IGGY-MADI.

NET Bandwidth Allocation Status

The Receivers tab displays a read-only field for each configured NET port on the IGGY-MADI. These fields report the bandwidth allocated by the Receiver NET port.



Figure 36 Receivers Tab — Example of the NET Bandwidth Bars

If the bandwidth bar is green, the allocated bandwidth is below 100%.

MADI Receiver Configuration Area

Each MADI Receiver stream is represented as a row in the tab and reports the communication status.

	Status	Name	Disconnect
MADI A	OK	Group 1	Disconnect
MADI B	OK	Group 2	Disconnect
MADI C	OK	Group 3	Disconnect
MADI D	OK	Group 4	Disconnect
MADI E	OK	Group 5	Disconnect
MADI F	OK	Group 6	Disconnect
MADI G	OK	Group 7	Disconnect
MADI H	OK	Group 8	Disconnect

Figure 37 Advanced > Receivers Tab — Example with Eight MADI Streams

Table 18 outlines the read-only fields and menus available to configure the receiver settings for the MADI signal

Table 18 Receivers Tab — Configuration Area

Item	Parameters	Description
Status (read-only)	OK (Green)	No errors are detected on this MADI connection
	Apply Changes (Yellow)	This receiver has unsaved settings. Click Apply at the bottom of the tab to save your settings.
	Network Delay Not Compatible (Yellow)	The link offset selected by the user is smaller than the propagation delay of the network
	No packets received (Yellow)	The configured receiver IP stream(s) is not receiving any packets; stream might not be on the network or experiencing other issues
	Global Channel Count Mismatch (Yellow)	The number of audio channels in the specified receiver stream does not match the Device Setup > Audio Channel Count Mode value. This may lead to connection errors or a failure to fully utilize all channels properly.
	Param Out of Range (Red)	Two receivers with the same network stream were created. IGGY-MADI can only subscribe to a stream once.
	System clock is in failure (Red)	The IGGY-MADI is unable to re-obtain a stable clock source. Sessions cannot be created until this condition is fixed. It is recommended to navigate to the Timing > PTP tab to check the status of the PTP and update the Configuration settings. Once PTP is locked again, the Network Groups will need to be disconnected and then re-connected to clear the alarm.
	Not In Use (Grey)	The receiver is not configured
Name	<text>	Assigns an unique identifier to the receiver stream
Disconnect	Stops that session and the Receiver outputs silence	

Additional Status

Table 19 summarizes the read-only information that displays when the ☐ button is selected at the end of a row.

Table 19 Receivers Tab — Additional Status

Item	Parameters	Description
Audio #		

Table 19 Receivers Tab — Additional Status

Item	Parameters	Description
Status	OK (Green)	No errors are detected on the audio signal
	No Active Sessions	The MADl output is not configured and a network stream is not assigned to it
Source Name	xx.yy.audio#	The source name is determined by the stream that is connected
Transport IP	##.##.##	Specifies the IP address for the audio stream
	<blank>	The IGGY-MADl firmware provides an IP when the session is created
Port	#	Indicates the port associated with the IP address
NET (read-only)	#	Indicates the NET port on the IGGY-MADl that the audio signal is derived from
Link Offset (µs)	#	Reports the Audio Offset and/or Audio Delay values set in the Timing > Outputs tab for the MADl output

Destinations Tab

The **Destinations** tab is organized into two areas: Destinations Setup and Channel Mapping.

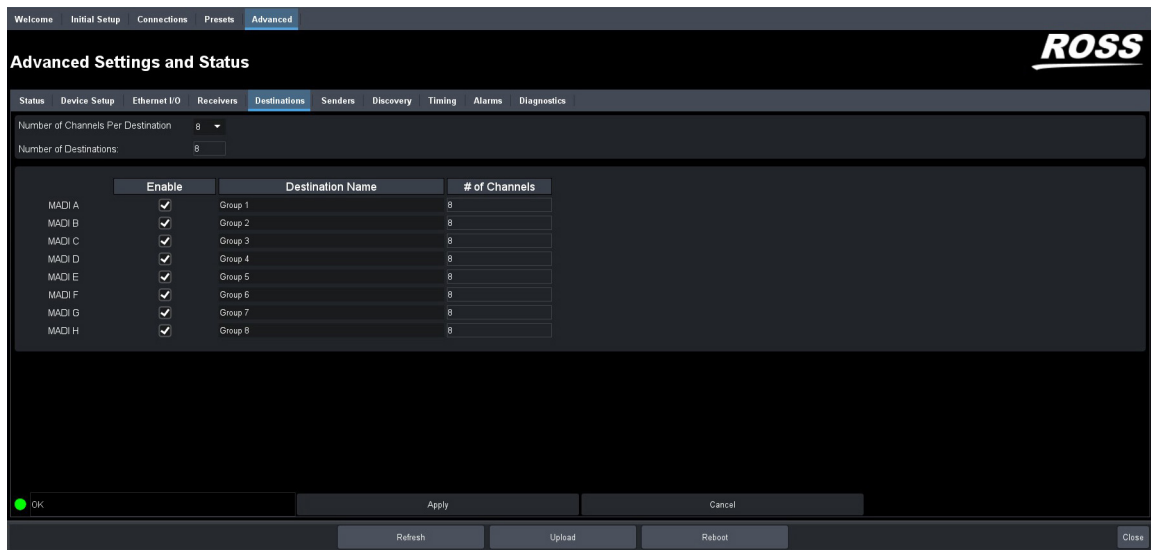


Figure 38 Example of the Advanced > Destinations Tab

Table 20 outlines the options in the Destinations tab.

Table 20 Destinations Tab

Item	Parameters	Description
Number of Channels Per Destination	#	Assigns the specified number of channels to each Destination
Number of Destinations	#	Reports the maximum number of MADI destination streams the IGGY-MADI supports
MADI #		
Enable	Selected	The specified MADI stream is enabled and available for configuration
	Cleared	The specified MADI stream is disabled and unavailable for use
Destination Name	<text>	Assigns a unique identifier to the MADI stream. This name is used on the Connections tab
Number of Channels (read-only)	#	Specifies the maximum number of audio channels for the MADI stream

Senders Tab

The **Senders** tab is organized into two sub-tabs: Active Streams and Setup Streams. The Setup Streams tab provides options for configuring the senders for each NET port of the IGGY-MADI.

Active Streams Tab

The Active Streams tab provides monitoring options and read-only status fields for the connected audio streams. **Table 22** outlines the read-only fields in the Active Streams tab.

Table 21 Senders Tab — Active Streams

Item	Parameters	Description
Audio Streams		
Status (read-only)	OK (Green)	The sender streams are operating correctly without errors
	Paused (Green)	Sender stream is paused and not sending data
	Alarm Suppressed (Green)	An alarm condition is present, but the alarm is disabled on the Alarm Enable tab
	Global Channel Count Mismatch (Yellow)	The number of audio channels in the specified sender stream does not match the Device Setup > Audio Channel Count Mode value. This may lead to connection errors or a failure to fully utilize all channels properly.

Table 21 Senders Tab — Active Streams

Item	Parameters	Description
Status (read-only)	System Clock in Failure (Red)	The IGGY-MADI is unable to obtain a stable clock source. Sessions cannot be created until this condition is fixed. It is recommended to navigate to the Advanced > Timing > PTP tab to check the status of the PTP and update the Configuration settings.
Transport IP	###.###	Indicates the IP address for the audio session
UDP Port	#	Indicates the port associated with the IP address and the communication protocol for the audio essence
Protection Switching		
Transport IP	###.###	Indicates the IP address for the audio session assigned to Protection Switching
UDP Port	#	Indicates the port associated with the IP address and the communication protocol for the audio essence assigned to Protection Switching

Setup Streams Tab

The Setup Sender Stream area provides options for enabling, re-naming, selecting the source, and the communication settings for each NET port. **Table 22** outlines the options in the Setup Streams tab.

Table 22 Senders Tab — Setup Streams

Item	Parameters	Description
Add Stream	Enables you to configure a new stream	
Remove Stream	Deletes the selected stream	
Connection Status (read-only)	Active (Green)	Sender stream is active
	Error:	Reports a specific error condition that is occurring
	Not Applied	Stream was added but not yet assigned
Source Name	<text>	Provides a unique identifier for the stream. This name is used to identify the data within your network.
Codec	#	Specifies the transmission standard the network stream will use
Primary Stream		
Transport IP	#	Specifies the IP address for the audio essence
UDP Port	#	Specifies the port associated with the IP address and the communication protocol for the audio essence

Table 22 Senders Tab — Setup Streams

Item	Parameters	Description
Protection Switching		
Transport IP	#	Specifies the IP address for the redundant audio essence. This is the same IP address that is specified for the primary audio stream.
UDP Port	#	Specifies the port associated with the IP address and the communication protocol for the redundant audio essence. This value must be different than the value specified for the primary audio stream.
Add Device Name Prefix	Selected	Updates the Device Name to include additional information
	Cleared	Disables this feature
Auto Create Audio Source		
Set Default Audio	Click this button to automatically assign the first available consecutive MADI channels (based on the Audio Channel Count Mode value) to the target stream.	
Channel Map		
MADI Channels	#	Use this area to select the audio channels available from each configured MADI stream
Target	1-#	Use this area to assign the selected MADI channels to the session you are configuring

Discovery Tab

The Discovery tab provides options for configuring communications via the supported transport protocols.

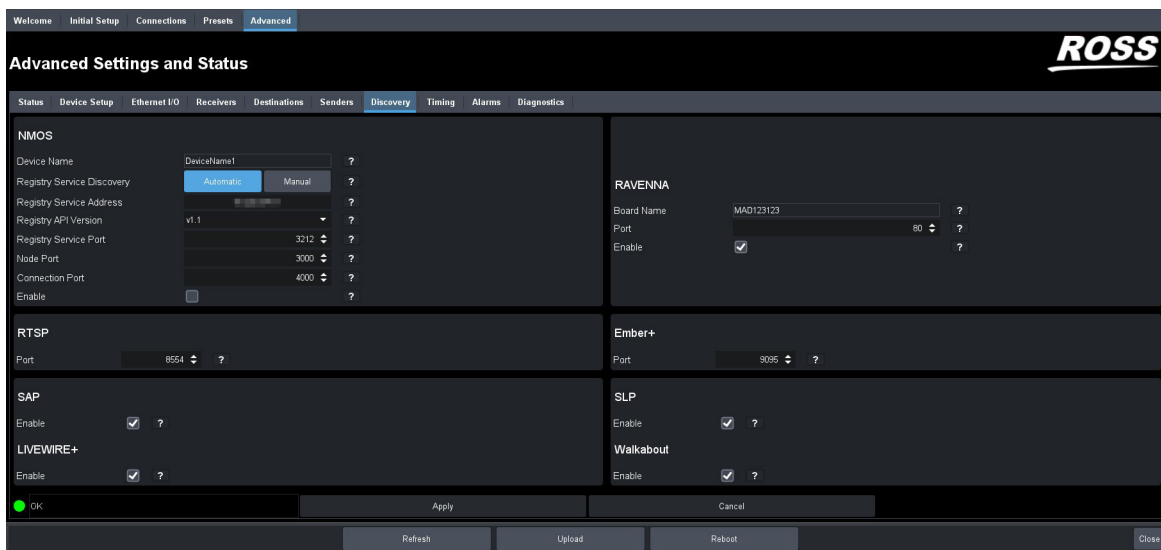


Figure 39 Example of the Advanced > Discovery Tab

Table 23 summarizes the options displayed in the Discovery tab.

Table 23 Discovery Tab

Item	Parameters	Description
NMOS		
Device Name (read-only)	<text>	Reports the unique identifier for IGGY-MADI when communicating with NMOS-based devices
Registry Service Discovery	Automatic	The IGGY-MADI uses mDNS to automatically register in an RDS on the network with the lowest priority
	Manual	Allows the user to set an RDS IP in the Registry Service Address field and forces the IGGY-MADI to register to this specific RDS
Registry Service Address	#	Specifies an RDS IP to force the IGGY-MADI to register in a specific RDS
Registry API Version	v1.0	Specifies the version of the NMOS registry API. The default is v1.3.
	v1.1	
	v1.2	
	v1.3	
Registry Service Port	0-65535	Specifies the port used for the corresponding RDS
Node Port (read-only)	#	Specifies the port the NMOS IS-04 Node service is listening on
Connection Port (read-only)	#	Specifies the port the NMOS IS-05 Connection service is listening on
Enable	Selected	The IGGY-MADI is available as an NMOS device
	Cleared	The IGGY-MADI is not advertised as an NMOS device
RAVENNA		
Board Name (read-only)	<text>	Reports the unique identifier of the IGGY-MADI when communicating with RAVENNA-based devices. This name is assigned in the Setup tab.
Port	#	Specifies the port on the network that the IGGY-MADI uses for RAVENNA communications. The default is 80.
Enable	Selected	The IGGY-MADI is available as a RAVENNA device
	Cleared	The IGGY-MADI is not advertised as a RAVENNA device
RTSP		
Port	#	Specifies the TCP port the protocol uses to send and receive messages. The default is 8554.

Table 23 Discovery Tab

Item	Parameters	Description
Ember+		
Port	#	Specifies the communications port on the network that the IGGY-MADI uses for Ember+. The default is 9095.
SAP		
Enable	Selected	The IGGY-MADI will use the Session Announcement Protocol (SAP) to broadcast multicast session information.
	Cleared	Disables this feature
SLP		
Enable	Selected	Enables the IGGY-MADI to use the Service Location Protocol (SLP) to be automatically recognized on the local area network (LAN)
	Cleared	Disables this feature
LIVEWIRE+		
Enable	Selected	Enables the IGGY-MADI to recognize LiveWire+ advertisements on the network
	Cleared	Disables this feature
Walkabout		
Enable	Selected	Enables the Walkabout feature of DashBoard to detect the IGGY-MADI on the network
	Cleared	Disables this feature

Timing Tab

The system timing options for the IGGY-MADI are organized into the following sub-tabs displayed on the left pane of the Timing tab: PTP and Outputs.

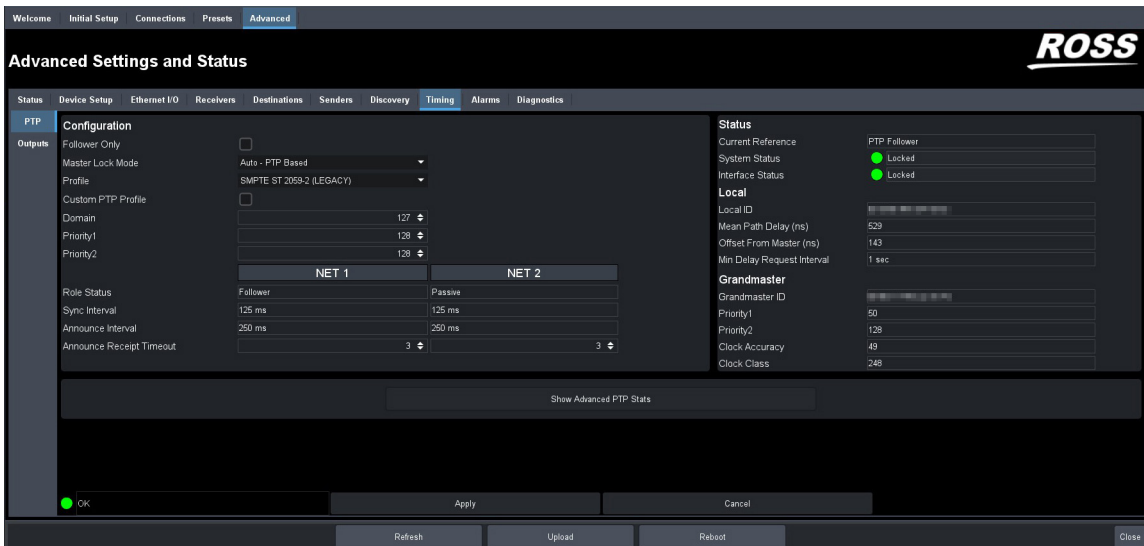


Figure 40 Example of the Advanced > Timing > PTP Tab

PTP Tab

Use the PTP tab to configure the PTP client settings for the IGGY-MADI. This is also where the IGGY-MADI displays an active Grandmaster. **Table 24** summarizes the options in the PTP tab.

Table 24 Timing Tab — PTP

Item	Parameters	Description
Configuration		
Follower Only	Selected	Defines the IGGY-MADI as a follower only device in the system; the module cannot be used as a Grandmaster or Master device
	Cleared	Enables the IGGY-MADI to be used as a Grandmaster or Master device
Master Lock Mode	Auto PTP Based	The internal oscillator is used to drive the PTP master clock
	Auto External Ref	The word clock in supplied clock is used to drive the PTP master clock
Profile	IEEE 1588 Default	Specifies the IGGY-MADI timing uses IEEE 1588 standard
	AES67 Media	Specifies the IGGY-MADI timing uses AES67 Media standard
	SMPTE ST 2059-2	Specifies the IGGY-MADI timing uses SMPTE ST 2059-2 standards. This is the recommended setting.
Custom PTP Profile	Selected	The Domain, Priority1, Priority2, Role status, Sync Interval, Announce Interval and Announce Receipt Timeout fields can be edited to create a custom PTP profile
	Cleared	The current settings in the Domain, Priority1, Priority2, Role status, Sync Interval, Announce Interval and Announce Receipt Timeout fields are set to read-only.
Domain	#	Specifies that the IGGY-MADI is within the specified group of clocks in your network
Priority1	#	Assigns the first priority level to the IGGY-MADI during a Grandmaster election where a value of: <ul style="list-style-type: none"> • 1 is the highest priority • 255 is the lowest priority This menu is applicable when the Follower Only box is not selected
Priority2	#	Assigns the secondary priority level to the IGGY-MADI during a Grandmaster election where a value of: <ul style="list-style-type: none"> • 1 is the highest priority • 255 is the lowest priority This menu is applicable when the Follower Only box is not selected

Table 24 Timing Tab — PTP

Item	Parameters	Description
NET #		
Role Status	#	Indicates the role that the specified port is assigned to in the network system
Sync Interval	#	Specifies how often the NET port on the IGGY-MADI sends Sync messages
Announce Interval	#	Specifies how often the NET port on the IGGY-MADI sends Announce messages
Announce Receipt Timeout	#	Specifies the time-length that the NET port on the IGGY-MADI waits before declaring the Grandmaster absent and initiating a new election
Status (read-only)		
Current Reference	PTP Follower	Specifies that the IGGY-MADI is a Follower; using that system clock as the reference
	Internal Oscillator	Specifies that the IGGY-MADI is a Master; using that system clock as the reference
System Status	Locked	Status of PTP on the system
	Free run	
Interface Status	Locked	Status of PTP on the interface
	Acquiring	
	Failed	
Local (read-only)		
Local ID	#	Reports the ID number assigned to the IGGY-MADI within the system
Mean Path Delay (ns)	#	Average time in nanoseconds it takes a packet to traverse end to end from the PTP master
Offset From Master (ns)	#	Correction time offset from the master in nanoseconds
Min Delay Request Interval	#	Specifies how long the IGGY-MADI will wait for a delay request
Grandmaster		
Grandmaster ID	#	Reports the ID number assigned to the Grandmaster within the system
Priority1	#	Standard PTP fields used to determine who wins a PTP election
Priority2	#	
Clock Accuracy	#	Standard PTP field that states the accuracy of the system clock on the system
Clock Class	#	Standard PTP field that states the class of the clock used on the system
Show Advanced PTP Stats	The Timing tab reports the Master Offset, Frequency Deviation, and Path Delay values	

Outputs Tab

The Outputs tab automatically displays in the DashBoard window. The Outputs tab enables you to adjust the timing of the MADI output.

Table 25 summarizes the options displayed in the Outputs tab.

Table 25 Timing Tab — Outputs

Item	Parameters	Description
Default Delay	Selected	The default for audio delay change based on the audio packet time set on the device: <ul style="list-style-type: none">• If the audio packet time is 1ms (1000us) to default video delay is 20000us and audio delay is 20000us• If the audio packet time is 125us to default video delay is 2000us and audio delay is 2000us
	Cleared	IGGY-MADI applies the delay and offset settings in the Outputs tab for the specified signal
Audio Delay (read-only)	#	Reports the audio output delay relative to the selected reference

Alarms Tab

The **Alarms** tab enables you to manage the type of alarms the IGGY-MADI reports.

★ All alarms are enabled by default.

Table 26 summarizes the options displayed in the Alarms tab.

Table 26 Alarms Tab

Item	Parameters	Description
Receiver Streams - MADI #		
Audio Stream	Selected	Enables the monitoring of the audio stream. The status is reported in the Receivers area of the Connections tab.
	Cleared	Disables monitoring of this stream
Sender Streams — Primary, Protection Switching		
Audio Stream	Selected	The Advanced > Senders > Active Streams tab monitors the configured audio streams of the IGGY-MADI
	Cleared	Disables monitoring of the sender audio stream(s)
Sender Setup — Status		
Connection	Selected	Changes made to the Advanced > Senders > Setup Streams tab are reported in the Advanced > Status > Device tab

Table 26 Alarms Tab

Item	Parameters	Description
Connection	Cleared	Disables monitoring of the menus on the Advanced > Senders tab. The Senders Status and Changes field in the Advanced > Device tab does not report any issues.
MADI Input Status		
MADI Locked	Selected	Enables the monitoring of the MADI signal and when it is locked to PTP
	Cleared	Disables the global MADI Lock status reporting
Ethernet I/O — Control RJ-45		
Link Status	Selected	Enables the monitoring of the IGGY-MADI and your facility network. If a link is not detected, an error message displays in the Ethernet > Link Status.
	Cleared	Disables monitoring of the communications between the IGGY-MADI and your facility network
Ethernet I/O — NET #		
Link Status	Selected	The corresponding field in the Ethernet I/O tab reports when a link is not detected
	Cleared	Disables monitoring of the link status of the specified NET port
PTP Status — System and Interface Status		
PTP Clock	Selected	The System Clock Status field reports when the connection to the PTP clock is lost
	Cleared	Disables monitoring of the PTP Clock status

Diagnostics Tab

The Diagnostics tab provides information to troubleshoot the network communication activity.

Network Diagnostics

Table 27 summarizes the fields displayed after the **Show Network Diagnostics** button is selected.

Table 27 Diagnostics > Network Diagnostics

Item	Parameters	Description
Network Diagnostics - NET # > Link Statistics		
Rx Errors	Reports the total number of error packets which are received on the specified NET port	
Tx Errors	Reports the total number of error packets which are transmitted on the specified NET port	
Rx Bandwidth	Reports the amount of data the IGGY-MADI is currently receiving on the specified NET port	

Table 27 Diagnostics > Network Diagnostics

Item	Parameters	Description
Tx Bandwidth	Reports the amount of data the IGGY-MADI is currently transmitting on the specified NET port	
Network Diagnostics - NET # > CPU Statistics		
Rx Errors	Reports the total number of errors packets received on the 1G link	
Tx Errors	Reports the total number of errors packets sent on the 1G link	
Rx Bandwidth	Reports the packets received on the 1G link and forwarded to the processor on the specified NET port	
Tx Bandwidth	Reports the packets sent from the processor to the Ethernet links on the specified NET port	

Web User Interface Overview

The IGGY-MADI Web User Interface is a fully functional UI meant to provide access to the module when a DashBoard client is unavailable.

Accessing the WebUI

★ The Web UI is best viewed on the Google® Chrome® web browser.

To access the IGGY-MADI WebUI

1. Connect an Ethernet cable as outlined in “**Cabling the CONTROL Port**”.
2. Assign an IP address on the same subnet to the NIC of the computer that is connecting to the IGGY-MADI.
3. Once you know the IP address of the IGGY-MADI:
 - a. Open a web browser on a computer that is connected to the same network.
 - b. Enter the IGGY-MADI IP address in the address bar.

Overview

The Web UI is organized much like the DashBoard interface. The Web UI provides the following main tabs:

- Home — A top level view of the source and destination sessions
 - Patch — Where interconnections between streams on the network and digital audio interfaces are made
 - Source — Configure the device source streams
 - Destination — Manually subscribe to streams on the network
 - Sync — PTP configuration and status
 - Config — Device configuration and firmware updates
- ★ Click **Refresh** on a tab to update the settings.

Technical Specifications

This chapter provides technical information for IGGY-MADI.

★ Specifications are subject to change without notice.

CONTROL Port

Table 28 Technical Specifications — Control Port

Item	Specifications
Number of CONTROL Ports	1
Standards Accommodated	100/1000BASE-T
Connector Type	Locking GigE XLR RJ45

NET 1 and NET 2 Ports

Table 29 Technical Specifications — NET 1 and NET 2 Ports

Item	Specifications
Number of NET Ports	2
Standards Accommodated	100/1000BASE-T NET 1 port only: 802.3af (802.3at Type 1) Power Over Ethernet
Connector Type	Locking GigE XLR RJ45

TALLY/GPIO Port

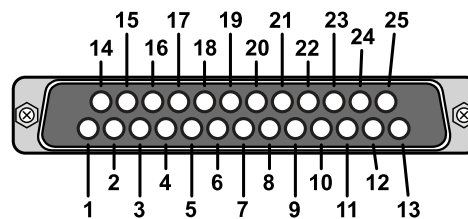


Figure 41 TALLY/GPIO Port — Pin-out Designations

For More Information on...

- the TALLY/GPIO port, refer to “**Connecting an External Device to the TALLY/GPIO Port**”.

Table 30 Technical Specifications — TALLY/GPIO Port

Item	Specifications
Tally	
Type	Contact closure
Input Voltage	35V AC/DC
Maximum Current	120mA per output
On Resistance (max.)	8ohms

Table 30 Technical Specifications — TALLY/GPIO Port

Item	Specifications
GPIO	
Type	Pull high
Vin Max Range	-0.5V to +5.5V
Vin Low	-0.5V to +0.8V
Vin High	+2V to +5.5V
Vout High	+4.0V min
Iout Low	15mA min
Iin High	

Reference Clock

Table 31 Technical Specifications — Reference Clock

Item	Specifications
Input	
Termination Options	75ohm or HiZ
Input Voltage	5V TTL compatible
Frequency	44kHz
Connector Type	DC Coupled
	75ohm BNC
Output	
Output Voltage	5V TTL compatible output, 3.8V max.
Frequency	44kHz
Connector Type	DC Coupled
	75ohm BNC

Power

Table 32 Technical Specifications — Power

Item	Specifications
NET 1 Port only	37V to 57V
PoE 802.3af (802.3at Type)	750mA max.
Wall Adapter	15V
	560mA max.
Maximum Power	8.4W

Environment

Table 33 Technical Specifications — Environment

Item	Specifications
Maximum Ambient Temperature	40°C (104°F)

Dimensions

Table 34 Technical Specifications — Dimensions

Item	Specifications
Physical Dimensions	5.74" x 6.70" x 1.63" (14.60cm x 17.1cm x 4.15cm)
Weight	2.20lb (998g)

Supported SFP Models

This chapter provides additional information on the Small Form Pluggable (SFP) modules that can be installed in the **MADI** port of the IGGY-MADI.

★ Specifications are subject to change without notice.

SFP-MADI-COAX

The SFP-MADI-COAX is an electrical SFP Transceiver module designed to transmit and receive MADI signals of 125Mbps over 75Ω coaxial cables via HD-BNC connectors.

Features

- AES10-2008 compliant
- HD-BNC 75Ω connectors
- Equalizes Belden 1694A cable up to 300m
- Integrated Tx Cable Driver with output impedance of 75Ω ±2Ω
- Hot-pluggable
- Low Power Consumption - typical 427mW
- Single Supply +3.3V
- Operating temperature range: -40°C to 80°C
- SFP package size: 58.5mm x 13.4mm x 8.6mm

Functional Description

The SFP-MADI-COAX transceiver is a Small Form Factor Pluggable (SFP) module with coaxial interface. HD- BNC connectors are used to interface the module with 75Ω coaxial cables. The SFP-MADI-COAX contains a cable driver for transmission of the MADI signal, and an automatic cable equalizer of reception of a MADI signal.

Module Installation

The module is simply inserted, small end first, under manual pressure. Controlled hot plugging is ensured by design. The module housing makes initial contact with the router board EMI shield, mitigating potential damage due to Electrostatic Discharge (ESD).

Absolute Maximum Ratings

Exceeding any of these ratings may permanently damage the module. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Table 35 SFP-MADI-COAX — Absolute Maximum Ratings

Parameter	Min.	Max.	Notes
Supply Voltage	0V	3.6V	
Operating Case Temperature	-40°C	+80°C	Measured on the top side of the module
Storage Temperature	-40°C	+85°C	

Table 35 SFP-MADI-COAX — Absolute Maximum Ratings

Parameter	Min.	Max.	Notes
Operating Relative Humidity	5%	95%	Non-condensing
ESD Rating		1kV	HBM

Recommended Operating Conditions

Table 36 SFP-MADI-COAX — Recommended Operating Conditions

Parameter	Min.	Typical	Max.	Notes
Supply Voltage	3.13V	3.3V	3.465V	
Operating Case Temperature	-40°C		+80°C	
Serial Data Rate		125Mbps		

MADI Receive Characteristics

Table 37 SFP-MADI-COAX — MADI Receive Specifications

Parameter	Min.	Typical	Max.	Notes
Input Voltage Swing	150mVp-p		950mVp-p	
Input Return Loss	30dB			Bandwidth up to 150MHz
Input Impedance	73Ω	75Ω	77Ω	Bandwidth up to 150MHz
Cable Length (Belden 1694A)		300m		MADI

MADI Transmit Characteristics

Table 38 SFP-MADI-COAX — MADI Transmit Specifications

Parameter	Min.	Typical	Max.	Notes
Output Voltage Swing	300mV		600mV	75Ω load
Output Return Loss	25dB			Bandwidth up to 150MHz
Output Impedance	73Ω	75Ω	77Ω	Bandwidth up to 150MHz
Additive Jitter		15psp-p		
Rise/Fall Time (80-20%)	1ns		3ns	75Ω load
Mismatched in Rise-Fall Time			0.5ns	75Ω load, measured at average amplitude point

Mechanical Specifications

Table 39 provides a brief list of the SFP-MADI-COAX mechanical features.

Table 39 SFP-MADI-COAX — Mechanical Features

Parameter	Specifications
Connector Type	HD-BNC (75Ω)
Plug Diameter	Up to 7.8mm external HD-BNC plug diameter (standard)
Mechanical release	Simple pull up mechanical release system to disengage the module from its cage

Figure 42 outlines the physical channel position of the SFP-MADI-COAX.

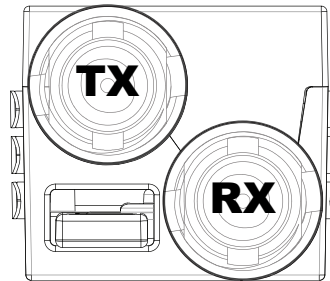


Figure 42 SFP-MADI-COAX, Front View — Channel Position

SFP-MADI-1310SM

The SFP-MADI-1310SM transmits and receives MADI signals. It contains a PIN photo diode receiver and a 1310nm Fabry-Pérot laser transmitter designed to provide error-free transmission of signals from 50Mbps to 3Gbps over single mode fiber (9/125).

Features

- Best-in-class optical receiver sensitivity: -22dBm
- Robust error free transmission of signals from 50Mbps to 3Gbps with up to 30km single-mode fiber
- Hot-pluggable
- Laser disable pin
- Single +3.3V power supply
- Operating temperature range: -25°C to 85°C
- SFP package size: 56.5mm x 13.4mm x 8.6mm

Absolute Maximum Ratings

Exceeding any of these ratings may permanently damage the module. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Table 40 SFP-MADI-1310SM — Absolute Maximum Ratings

Parameter	Value
Supply Voltage	4V
Operating Case Temperature	-25°C to 85°C

Table 40 SFP-MADI-1310SM — Absolute Maximum Ratings

Parameter	Value
Storage Temperature	-40°C to 85°C
Operating Relative Humidity	±1kV HBM
ESD Rating	5%-95% RH

Optical Performance Specifications

Table 41 SFP-MADI-1310SM — Optical Performance Specifications, Transmitter

Parameter	Min.	Typical	Max.	Notes
Wavelength	1280nm	1310nm	1340nm	Measured at 25°C
Spectral Line Width (RMS)		1.5nm	3nm	
Average Optical Output Power	-5dBm	-2dBm	0dBm	
Extinction Ratio	7dB			
Optical Signal Intrinsic Jitter	2.97Gbps, 1.485Gbps 270Mbps PRBS	30ps	60ps	
	2.97Gbps SMPTE 424M Pathological	50ps	70ps	
	1.485Gbps SMPTE 292M Pathological	60ps	100ps	
	270Mbps SMPTE 259M Pathological	110ps	180ps	
Optical Signal Rise Time (20-80%) 2.97Gbps SMPTE 424M			135ps	
Optical Signal Fall Time (20-80%) 2.97Gbps SMPTE 424M			135ps	
Laser Power Monitoring Accuracy	-2dB		+2dB	

Table 42 SFP-MADI-1310SM — Optical Performance Specifications, Receiver

Parameter	Min.	Typical	Max.	Notes
Wavelength	1260nm		1620nm	
Sensitivity (ER=7dB)		-25dBm	-22dBm	The sensitivity and the overload specifications refer to the input power levels for BER=1E ⁻¹² against PRBS and pathological pattern at SMPTE 259M, 292M, and 424M rates.
Overload	0dBm			
Loss of Signal Asserted ^a	-31dBm			

Table 42 SFP-MADI-1310SM — Optical Performance Specifications, Receiver

Parameter	Min.	Typical	Max.	Notes
Loss of Signal De-asserted ^a			-23dBm	
Loss of Signal Optical Hysteresis ^a	0.5dB			
Maximum Back Reflection			-27dB	
Input Power Monitoring Accuracy	-2dB		2dB	

a. Condition: 2.97Gbps PRBS, ER=7dB

Physical Channel Position

Figure 43 outlines the physical channel position of the SFP-MADI-1310SM.

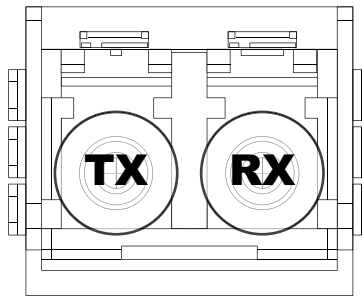


Figure 43 SFP-MADI-1310SM, Front View — Channel Position

SFP-MADI-850MM

The SFP-MADI-850MM is an optical transceiver module designed to transmit and receive electrical and optical audio signals as defined in AES10.

A highly-reliable 850nm wavelength Vertical Cavity Surface Emitting Laser (VCSEL) is used in the transmitter. The transceivers satisfy Class I Laser Safety requirements in accordance with the U.S. FDA/CDRH and international IEC-60825 standards.

Features

- Suitable for AES10 transmission and receiving
- Best-in-class optical receiver sensitivity: -22dBm
- Robust error free transmission of signals from 50Mbps to 3Gbps with up to 500m (50µm multi-mode fiber)
- Hot-pluggable
- Operating temperature range from -5°C to +70°C

Absolute Maximum Ratings

Exceeding any of these ratings may permanently damage the module. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Table 43 SFP-MADI-850MM — Absolute Maximum Ratings

Parameter	Min.	Max.	Notes
Supply Voltage	-0.5V	4V	
Case Operating Temperature	-5°C	70°C	Measured on the top side of the module at the front center vent hole of the cage
Storage Temperature	-40°C	+85°C	
Relative Humidity	5%	95%	Non-condensing

Transmitter Performance Characteristics

Table 44 SFP-MADI-850MM — Transmitter Specifications

Parameter	Min.	Typical	Max.	Notes
Data Rate	0.05Gbps		3Gbps	
Center Wavelength	830nm	850nm	860nm	
Spectral Width			1nm	
Average Optical Output Power	-8dBm		-3dBm	
Extinction Ratio	6dB			
Relative Intensity Noise		-110dB/Hz	-118dB/Hz	
Optical Signal Rise Time (20%-80%) ^a	SMPTE 424M 2.97Gbps		165ps	
	SMPTE 292M 1Gbps		270ps	
	SMPTE 344M 540Mbps		800ps	
	SMPTE 259M 143Mbps		1500ps	
Laser Power Monitoring Accuracy	-2dB		+2dB	

a. Rise/fall times are measured unfiltered.

Receiver Performance Characteristics

Table 45 SFP-MADI-850MM — Receiver Specifications

Parameter	Min.	Typical	Max.	Notes
Data Rate	0.05Gbps		3Gbps	
Center Wavelength	780nm		880nm	

Table 45 SFP-MADI-850MM — Receiver Specifications

Parameter		Min.	Typical	Max.	Notes
Sensitivity ^a	SMPTE 259M, SMPTE 344M, PRBS 2 ²³ -1			-15dBm	
	SMPTE 292M Pathological, SMPTE 424M Pathological			-13dBm	
Overload		0dBm			
LOS Thresholds ^b	Increasing Light Input			-18dBm	
	Decreasing Light Input	-28dBm			
LOS Hysteresis		1dB		6dB	
Input Power Monitoring Accuracy		-2dB		+2dB	

a. Specified at a BER of 10^{-12} .

b. Specified with a PRBS of 2.97Gbps signal, ER=7dB.

Physical Channel Position

Figure 44 outlines the physical channel position of the SFP-MADI-850MM.

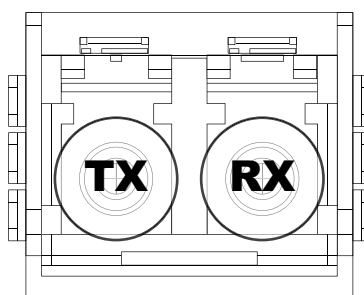


Figure 44 SFP-MADI-850MM, Front View — Channel Position

Service Information

This chapter provides information on the warranty and repair policy for your IGGY-MADI.

Troubleshooting Checklist

Routine maintenance to this Ross product is not required. In the event of problems with your IGGY-MADI, the following basic troubleshooting checklist may help identify the source of the problem. If the IGGY-MADI still does not appear to be working properly after checking all possible causes, please contact your Ross products distributor, or the Technical Support department at the numbers listed in **“Contacting 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 IGGY-MADI and any associated peripheral equipment for signs of trouble.
2. **Power Check** — Verify the PWR LED on the IGGY-MADI chassis for the presence of power. If the PWR 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 PWR 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 supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Module Exchange** — Exchanging a suspect module with a module that is known to be working correctly is an efficient method for localizing problems to individual modules.
6. **Re-load the Factory Defaults** — If the module appears to be working and reports no errors, but is not generating an active picture or outputs black, restoring the default factory configuration may fix the problem.

Warranty and Repair Policy

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Should you find that this IGGY-MADI 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 ONE (1) year warranty period.

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In Case of Problems

Should any problem arise with your IGGY-MADI, please contact the Ross Video Technical Support Department. (Contact information is supplied at in the section “**Contacting Technical Support**”.)

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 IGGY-MADI. If required, a temporary replacement 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.

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zlib

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <ftp://ds.internic.net/rfc/rfc1950.txt> (zlib format), [rfc1951.txt](ftp://ds.internic.net/rfc/rfc1951.txt) (deflate format) and [rfc1952.txt](ftp://ds.internic.net/rfc/rfc1952.txt) (gzip format).

Glossary

The following terms are used throughout this guide:

BMCA — Best Master Clock Algorithm

DashBoard — DashBoard Control System

Device — A physical, virtual, or software application that may include multiple sources, destinations, senders, or receivers.

Essence — A single elementary logical media signal. For example, a video essence is one video channel. An audio essence is a single audio (mono) channel.

Flow — The continuous raw media content. It can contain more than one essence (e.g. an audio flow can contain multiple channels, and an SDI flow may contain audio and video essences).

HTTP — Hypertext Transfer Protocol

Module — Refers to the IGGY-MADI.

Receiver — An element within a device which that receives exactly one stream, which contains one flow from a network

Sender — An element within a device which presents exactly one flow, packaged as a stream onto a network

SFP — Small Form-factor Pluggable module

Stream — One flow, encapsulated within a transport protocol

System — The mix of interconnected production and terminal equipment in your environment

TCP — Transmission Control Protocol

TTL — Time To Live

UDP — User Datagram Protocol

