Thank You for Choosing Ross

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

Our mission is to:
1. Provide a Superior Customer Experience
   • offer the best product quality and support
2. Make Cool Practical Technology
   • develop great products that customers love

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

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

David Ross
CEO, Ross Video
dross@rossvideo.com

Ross Video Code of Ethics

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

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

• Ross Part Number: 3900DR-404-01
• Release Date: April 5, 2021.

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

Copyright

©2021 Ross Video Limited, Ross®, and any related marks are trademarks or registered trademarks of Ross Video Limited. All other trademarks are the property of their respective companies. PATENTS ISSUED and PENDING. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Ross Video. While every precaution has been taken in the preparation of this document, Ross Video assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

©2021 The Nielsen Company. All rights reserved.

Trademarks

Manufactured under license from Dolby Laboratories. Dolby, Dolby Audio, and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Patents


Notice

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

Safety Notices

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

EMC Notices

US FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in
a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

**Canada**

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

**European Union**

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

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

**Australia/New Zealand**

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

**International**

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

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

**Maintenance/User Serviceable Parts**

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

**Environmental Information**

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

The crossed-out wheeled bin symbol invites you to use these systems.
If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration. You can also contact Ross Video for more information on the environmental performances of our products.

Company Address

**Ross Video Limited**
8 John Street
Iroquois, Ontario
Canada, K0E 1K0

**Ross Video Incorporated**
P.O. Box 880
Ogdensburg, New York
USA 13669-0880

General Business Office: (+1) 613 • 652 • 4886
Fax: (+1) 613 • 652 • 4425

Technical Support: (+1) 613 • 652 • 4886
After Hours Emergency: (+1) 613 • 349 • 0006

E-mail (Technical Support): techsupport@rossvideo.com
E-mail (General Information): solutions@rossvideo.com
Website: http://www.rossvideo.com
# Contents

## Introduction
- Related Publications ................................................................. 11
- Documentation Conventions ...................................................... 11
- Interface Elements ........................................................................ 12
- User Entered Text ........................................................................ 12
- Referenced Guides ........................................................................ 12
- Menu Sequences .......................................................................... 12
- Important Instructions ................................................................... 12
- Contacting Ross Video Technical Support .................................... 12
- Contacting the Nielsen Encoder Support Group .......................... 12

## Before You Begin
- Overview ..................................................................................... 13
- Features ....................................................................................... 13
- Channel Mapping Overview .......................................................... 14
- Dolby Encoder Work-flow Overview ............................................. 14
  - Embedding Dolby Digital or Dolby Digital Plus Data ................. 14
  - Embedding PCM Data .................................................................. 15
- DashBoard Interfaces .................................................................... 16
- Planning the Installation ................................................................. 16
- Configuration Overview ............................................................... 16

## Integration Example
- Basic Physical Setup .................................................................... 17
- Configure the Initial Network Settings ........................................ 17
- Connect to an NTP Server ............................................................. 18
- Configure the SDI Outputs .......................................................... 18

## Hardware Overview
- Front Panel Overview ................................................................. 19
- Rear Panel Overview .................................................................. 19

## Physical Installation
- Installing the BAP in a Rack Frame .............................................. 21
- Before You Begin ......................................................................... 21
- Connecting to your Facility Network .......................................... 21
- Connecting the Power Supplies .................................................. 22

## Cabling
- Connecting a Reference Source to the BAP ................................. 23
- Video Signal Cabling .................................................................... 23
- SDI Inputs ..................................................................................... 23
- SDI Outputs ................................................................................ 23

## Initial Connection
- Physical Connections to the BAP ............................................... 25
- Manually Adding the BAP to the DashBoard Tree View ............ 25
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using DashBoard</td>
<td>27</td>
</tr>
<tr>
<td>Overview</td>
<td>27</td>
</tr>
<tr>
<td>Launching DashBoard</td>
<td>28</td>
</tr>
<tr>
<td>Accessing the BAP Interfaces in DashBoard</td>
<td>28</td>
</tr>
<tr>
<td>Updating the Network Settings</td>
<td>33</td>
</tr>
<tr>
<td>Network Connections to the BAP</td>
<td>33</td>
</tr>
<tr>
<td>Updating the Gb1 Port Settings</td>
<td>33</td>
</tr>
<tr>
<td>Specifying the Video Format</td>
<td>35</td>
</tr>
<tr>
<td>Frame Rate Compatibility</td>
<td>35</td>
</tr>
<tr>
<td>Specifying a Video Format</td>
<td>35</td>
</tr>
<tr>
<td>Channel Mapping</td>
<td>37</td>
</tr>
<tr>
<td>Before You Begin</td>
<td>37</td>
</tr>
<tr>
<td>Using the Default Channel Mapping</td>
<td>38</td>
</tr>
<tr>
<td>Customizing the Audio Channel Mapping</td>
<td>38</td>
</tr>
<tr>
<td>Mapping the Output Paths to an SDI Output</td>
<td>38</td>
</tr>
<tr>
<td>Real-Time Loudness Leveling</td>
<td>41</td>
</tr>
<tr>
<td>Configuring the RTLL Settings for an SDI Output</td>
<td>41</td>
</tr>
<tr>
<td>Bypassing the RTLL</td>
<td>41</td>
</tr>
<tr>
<td>Monitoring the Audio Levels</td>
<td>42</td>
</tr>
<tr>
<td>Watermark Encoders Setup</td>
<td>43</td>
</tr>
<tr>
<td>Overview</td>
<td>43</td>
</tr>
<tr>
<td>Changing the Watermark Encoder Channel Names</td>
<td>43</td>
</tr>
<tr>
<td>Configuring the Global Encoder Settings</td>
<td>43</td>
</tr>
<tr>
<td>Configuring a Watermark Encoder Channel</td>
<td>44</td>
</tr>
<tr>
<td>Configuring the Dolby Encoders</td>
<td>45</td>
</tr>
<tr>
<td>Enabling a Dolby Encoder Channel for an SDI Output</td>
<td>45</td>
</tr>
<tr>
<td>Specifying the Bitstream</td>
<td>45</td>
</tr>
<tr>
<td>Preprocessing</td>
<td>45</td>
</tr>
<tr>
<td>Specifying the Preferred Stereo Downmix Mode</td>
<td>46</td>
</tr>
<tr>
<td>Loudness</td>
<td>46</td>
</tr>
<tr>
<td>Outputting PCM Data</td>
<td>47</td>
</tr>
<tr>
<td>Bypassing a Dolby Encoder Channel for an Output Path</td>
<td>47</td>
</tr>
<tr>
<td>Re-map the Output Path Channels</td>
<td>47</td>
</tr>
<tr>
<td>Upgrading the Software</td>
<td>49</td>
</tr>
<tr>
<td>DashBoard Interface Overview</td>
<td>51</td>
</tr>
<tr>
<td>Global Interface</td>
<td>51</td>
</tr>
<tr>
<td>Ethernet Tab</td>
<td>51</td>
</tr>
<tr>
<td>Timing Tab</td>
<td>52</td>
</tr>
<tr>
<td>About Tab</td>
<td>53</td>
</tr>
<tr>
<td>SDI IO Interface</td>
<td>53</td>
</tr>
<tr>
<td>SDI Input Tab</td>
<td>54</td>
</tr>
<tr>
<td>SDI Output Tab</td>
<td>55</td>
</tr>
<tr>
<td>Device Info Tab</td>
<td>56</td>
</tr>
<tr>
<td>Channel Mapper Interface</td>
<td>56</td>
</tr>
</tbody>
</table>
Channel Mapper Tab ............................................................................................................................. 56
Device Info Tab ........................................................................................................................................ 57
Dolby RTLL Interface ............................................................................................................................... 57
Config Tab ............................................................................................................................................... 57
Device Info Tab ...................................................................................................................................... 58
Nielsen Watermarker Encoder Interface ............................................................................................... 58
Watermarker Table Tab .......................................................................................................................... 59
Status Tab ............................................................................................................................................... 60
Device Setup Tab ................................................................................................................................... 60
DD DDP Encoder interface ...................................................................................................................... 61
Config Tab ............................................................................................................................................... 62
Device Info Tab ...................................................................................................................................... 64

Technical Specifications 65
Reference Input Specifications ............................................................................................................ 65
SDI Specifications .................................................................................................................................. 65
Gb1 Specifications ................................................................................................................................. 65
USB Port Specifications ......................................................................................................................... 66
Environment ........................................................................................................................................... 66
Power ...................................................................................................................................................... 66

Service Information 67
Warranty and Repair Policy ..................................................................................................................... 67

Glossary 69
Introduction

This guide covers the installation, configuration, and use of the Broadcast Audio Processor (BAP). The following chapters are included:

- “Introduction” summarizes the guide and provides important terms, and conventions.
- “Before You Begin” summarizes the features of the BAP.
- “Integration Example” provides an example of how to configure the BAP.
- “Hardware Overview” presents information on the BAP hardware.
- “Physical Installation” provides additional information for installing the BAP, and DashBoard before you can proceed to cabling and configuring your BAP.
- “Cabling” outlines how to connect to your facility network, and peripheral devices.
- “Initial Connection” provides instructions for configuring the initial IP address for the BAP.
- “Using DashBoard” provides instructions for launching DashBoard, and accessing the BAP interfaces in DashBoard.
- “Updating the Network Settings” provides instructions for configuring the Gb1 port of the BAP for communication with your facility network and NTP server.
- “Specifying the Video Format” outlines how to configure the global reference format for your BAP.
- “Channel Mapping” to apply the default audio channel map or assign the channels as required by your system.
- “Real-Time Loudness Leveling” summarizes the steps to configure the Dolby® Real-Time Loudness Leveling (RTLL) feature.
- “Watermark Encoders Setup” outlines the steps required to configuring and enabling up to four watermark encoder channels.
- “Outputting PCM Data” summarizes how to configure the BAP to embed PCM data for an output path.
- “Upgrading the Software” provides instructions on how to upgrade the BAP software via DashBoard.
- “DashBoard Interface Overview” summarizes the menus and parameters of the BAP tabs in DashBoard.
- “Technical Specifications” provides the specifications for the BAP.
- “Service Information” provides information on the warranty and repair policy for your BAP.
- “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 BAP:

- *DashBoard User Manual*, Ross Part Number: 8351DR-004
- *BAP Quick Start Guide*, Ross Part Number: NWEIPDR-002

Documentation Conventions

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

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

In the **Network** tab, click **Apply**.

User Entered Text

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

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

Referenced Guides

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

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

Menu Sequences

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

Important Instructions

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

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

Contacting Ross Video Technical Support

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

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

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

Contacting the Nielsen Encoder Support Group

- **Support**: (+1) 800-537-4872
- **E-mail**: encoders@nielsen.com
- **Website**: http://www.nielsen.com
Before You Begin

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

Overview

The BAP combines Nielsen® Watermarking, Dolby® Loudness Leveling and Dolby Digital®/Dolby Digital Plus® Encoding on COTS hardware. The Broadcast Audio Processor is your versatile play-out application based on softGear™ micro-service architecture running on commercial-off-the-shelf hardware.

**Figure 1** provides a general functional block diagram of the BAP.

![Functional Block Diagram](image)

**Figure 1  Functional Block Diagram**

Features

The BAP includes the following features:

- Based on softGear™ OS-level virtualization technology
- Provides 8 independent Nielsen® watermark engines for reliable audience measurements
- Ability to provide multiple independent Dolby Digital® or Dolby Digital Plus® 5.1 and 2.0 work-flows
- Dolby Digital or Dolby Digital Plus encoding configurable to 2.0 and/or 5.1 processing modes
- Independent software bypass, with fixed delay, Dolby for RTLL®, Nielsen® Watermarking, and Dolby encoding
- Support for multiple concurrent audio processing paths with up to 32 channels
- On-demand audio shuffling for channel mixing on input and output
- BS-1770 real time loudness leveler for automatic and intelligent loudness processing, and true peak limiting
- Intuitive control and monitoring via DashBoard
- Hardware relay bypass (automatic on loss of power) for all processing

Channel Mapping Overview

The BAP organizes the audio channels into paths. (Figure 2) Each SDI has four output paths with the following default channel mapping:
- Output path 1 includes channels 1-6
- Output path 2 includes channels 7-8
- Output path 3 includes channels 9-14
- Output path 4 includes channels 15-16

For More Information on...
- the DashBoard interfaces, refer to “Using DashBoard” and “DashBoard Interface Overview”.
- how to map the audio channels, refer to “Channel Mapping”.

Dolby Encoder Work-flow Overview

The Dolby Encoder feature enables you to specify if an output path is encoded using Dolby Digital or Dolby Digital Plus. You also have the option to bypass the encoder and configure the output paths to include PCM data instead.

Embedding Dolby Digital or Dolby Digital Plus Data

You can configure the BAP to embed Dolby Digital or Dolby Digital Plus, using the options available in DashBoard.

The encoded audio and metadata are carried together as a data stream on two regular digital AES3 audio channels. When the Dolby encoder is enabled for an SDI path, the output from the encoder is
always a two-channel pair even if the source for that Output path includes multiple channels. (Figure 3)

**Figure 3** Example of Work Flow with Dolby Encoding Enabled

**Embedding PCM Data**

When the output path includes PCM data, you can choose to bypass the Dolby encoder for that path. When the Dolby encoder is bypassed for an output path, the number of channels in the path is no longer reduced to 2-channel pairs. **Figure 4** shows SDI IN 1 > OUTPUT PATH 1 and SDI IN 2 > OUTPUT PATH 3 with bypass enabled.

**Figure 4** Example of a Work Flow with PCM Data on Two Output Paths
DashBoard Interfaces

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

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

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

Planning the Installation

Before inserting the BAP into your program path, determine if this replaces a current hardware solution or will be used for a new service. If this will be used for a new service or distribution path, you will need to obtain a Source Identification (SID) code from Nielsen. The SID is a unique identifier assigned to each source of creative.

🌟 Contact the Nielsen Encoder Support Group to obtain a SID code by telephone at 1-800-537-4872 or by e-mail at encoders@nielsen.com. Be prepared to give them the serial number of your BAP.

To ensure that the coding remains in the audio signals, the BAP should be downstream of any equipment that may strip or modify audio. Contact Nielsen if you are unsure about the proper system installation.

Configuration Overview

Figure 5 provides a generalized work-flow of configuring your BAP.

![Figure 5 Configuration Work-flow](image-url)
Integration Example

The Broadcast Audio Processor (BAP) is your versatile play-out application based on softGear™ micro-service architecture running on commercial-off-the-shelf hardware. softGear’s flexible architecture is designed to accommodate your current and future audio needs by allowing additional processing blocks as required. The BAP offers a robust, standalone solution with transmission path protection that allows you to integrate with any playout system. As a result, you can customize your automation, master control, and graphics engine.

Basic Physical Setup

The user needs to physically install the BAP and ensure the following tasks are performed:
1. Physically install the BAP in a rack frame. Refer to the BAP Quick Start Guide.
2. Cable the Ethernet connection. Refer to “Connecting to your Facility Network”.
3. Connect the two power ports. Refer to “Connecting the Power Supplies”.

Configure the Initial Network Settings

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

This step requires that the user configure the initial network settings for the BAP as outlined in the chapter “Initial Connection”.

Figure 6  BAP System Work-flow
An overview of accessing the BAP in DashBoard is provided in the chapter “Using DashBoard”. For information on the tabs, menus, and parameters available in Dashboard, refer to “DashBoard Interface Overview”.

Connect to an NTP Server
Once the user can successfully access the BAP in DashBoard, the next step is to establish a connection to an NTP Server. The BAP requires an accurate time reference, in order to ensure correct watermarking and crediting. Refer to “Specifying the Video Format”.

Configure the SDI Outputs
The next step is to configure each SDI output independently. The following steps are required for each SDI output:
1. Map the audio channels from the SDI inputs to channels in the SDI outputs. Refer to “Channel Mapping”.
2. Map the SDI output paths. Refer to “Mapping the Output Paths to an SDI Output”.
3. Configure the Real-Time Loudness Leveling settings. Refer to “Real-Time Loudness Leveling”.
4. Map the Channels to a Watermark Engine. Refer to “Watermark Encoders Setup”.
5. Configure the Dolby® Encoder Channels. Refer to “Configuring the Dolby Encoders”.
Hardware Overview

This chapter presents information on the BAP hardware.

Front Panel Overview

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

![Figure 7 BAP — Front Panel (Door Removed)](image)

1. **POWER Button**
   This is the main power button for the BAP.

Rear Panel Overview

This section provides an overview of the connections and cabling designations for the BAP rear panel.

![Figure 8 BAP — Rear Panel](image)

1. **VGA Port**
   Use this port to connect a monitor if you do not have access to a network with DHCP for the initial Ethernet setup, or if you have a need to reset your BAP static IP address outside of DashBoard. If the VGA Port on the front panel is also connected to a monitor, this connection supersedes it.

2. **Gb1 Ethernet Port**
   This standard 10/100/1000 Base-TX RJ45 connector is used to connect the BAP to your facility network. This connector is required to bridge the external Ethernet network to the local communication bus for monitoring and controlling the BAP using DashBoard. This port is also used for software upgrades.

3. **Gb2 Ethernet Port**
   This port is not implemented.

4. **USB Port(s)**
   Use each port to connect a keyboard and mouse if you have a need to reset your BAP static IP address outside of DashBoard.
5. **REF IN BNC**
   This BNC provides an analog reference input connection.

6. **SDI OUT BNCs**
   There are two SDI OUT BNCs (OUT 1, OUT 2).

7. **SDI IN BNCs**
   There are two SDI IN BNCs (IN 1, IN 2).

8,9 **Power Supplies**
   The BAP comes standard with two power supplies.
Physical Installation

This chapter provides additional information for installing the BAP.

Installing the BAP in a Rack Frame

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

Connecting to a Network

The BAP is connected to your network via the Gb1 port on the rear panel. The Gb1 port enables the BAP to interface with other devices in your facility (such as an NTP server), and the computer running the DashBoard client.

* The Gb2, NET1, and NET2 ports are not implemented at this time.

Before You Begin

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 BAP.

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

**For More Information on...**

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

Connecting to your Facility Network

* You will need to ensure that the BAP is on the same network as your DashBoard client computer.

**To connect the BAP to your facility network**

1. Connect one end of a standard RJ45 cable to the Gb1 port on the BAP rear panel.
2. Connect the other end of the same RJ45 cable to your Local Area Network (LAN).
Connecting the Power Supplies

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

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

The power supply plugs into the right-hand section of the BAP rear panel. The universal power supply supports all worldwide AC power voltages, and no power adjustments are required.

**To connect the BAP to the power supplies**

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

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

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

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

Connecting a Reference Source to the BAP

The BAP rear panel also includes a REF IN HD-BNC that can connect to a blackburst reference source.

To connect a reference source to the BAP

1. Connect one end of a cable to the REF IN HD-BNC on the BAP rear panel.
2. Connect the other end of the same cable to the applicable output port on the external reference source device.

Video Signal Cabling

The BAP provides connections for two SDI inputs and two SDI outputs.

SDI Inputs

Connect your input video signals to the SDI IN HD-BNCs on the rear panel as required. (Figure 9)

SDI Outputs

Connect your destination devices to the SDI OUT HD-BNCs on the rear panel as required. (Figure 10)
Figure 10  BAP Cabling — SDI Outputs
Initial Connection

The BAP is configured and operated via its interfaces in DashBoard. Once the BAP is physically installed and connected to your facility network, you must manually add the BAP to the Tree View in DashBoard.

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

Physical Connections to the BAP

Before configuring the initial network settings of the BAP, you must:

• physically connect the BAP to your network. Refer to “Connecting to a Network”.
• power on the BAP. Refer to “Connecting the Power Supplies”.

Manually Adding the BAP to the DashBoard Tree View

The Tree View lists all DashBoard Connect devices that the DashBoard client can communicate with. The BAP does not automatically display the DashBoard Tree View. You must manually add it to the Tree View.

To manually add the BAP to the Tree View in DashBoard

1. Ensure that you are running DashBoard software version 9.0 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.
3. From the main toolbar in DashBoard, select File > New > TCP/IP DashBoard Connect or openGear Device.
   
   The New TCP openGear Frame Connection dialog opens.

4. In the IP Address field, enter the default IP Address of 192.168.0.100.
5. Click Detect Frame Information.

   * If you wish to assign a unique name for the BAP, enter it in the Display Name field.

6. Click Finish to close the dialog.

   The BAP node displays in the DashBoard Tree View.

7. Proceed to the section “Accessing the BAP Interfaces in DashBoard”.
Using DashBoard

This chapter provides instructions for launching DashBoard, and accessing the BAP interfaces in DashBoard.

Overview

The BAP interfaces are accessed by expanding the main BAP node in the Tree View and selecting a series of sub-nodes. (Figure 11)

The BAP nodes are organized in a logical order for ease of configuration:

- The SDI IO node provides global settings for configuring the SDI input and outputs on the BAP.
- Sub-node labels display with the nomenclature of SDI # where # represents the SDI signal.
- The SDI-specific Channel Mapper node enables you to map each input audio channel to an audio channel in one of the four output paths.
- Subsequent sub-nodes display with the nomenclature of Path x where x represents the output path for that SDI signal (there are four per SDI), and y <interface name> represents a setup step. Expand these sub-nodes to access the Dolby encoding and Nielsen Watermarking configuration options. In Figure 11, the user expanded the SDI 1 Output Path 1 node to access the Dolby RTLL, Nielsen Watermarker, and Dolby Digital (DD) DDP Encoder sub-nodes.

![Figure 11 Example of the BAP Tree View in DashBoard](image-url)
Launching DashBoard

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

To launch DashBoard
1. Ensure that you are running DashBoard software version 9.0 or higher.
2. Launch DashBoard by double-clicking its icon on your computer desktop.

Accessing the BAP Interfaces in DashBoard

Each node represents an interface, or configuration step, for a specified SDI path. Selecting a node displays its tabs in the right-most pane of the DashBoard window.

To display the BAP interfaces in DashBoard
1. In the Basic Tree View of DashBoard, locate the BAP node.
2. Expand the BAP node.
3. Right-click the 1 Global node and select Open.
   The Global interface enables you to define the Ethernet settings and timing requirements.
4. Expand the 1 Global node.
   The BAP sub-node displays.
5. Expand the BAP sub-node.
   The BAP tree view displays with the SDI IO node at the top, and a sub-node for each SDI connection on the BAP.
6. Double-click the SDI IO node.
   The SDI IO interface enables you to configure and/or monitor the global settings for each SDI.
7. Expand an **SDI** node to display the sub-nodes for configuring the specified SDI.

```
  ✓ BAP
    ✓ 1 Global
      ✓ BAP
        ✓ SDI IO
        ✓ SDI 1
          ✓ Channel Mapper
            > ✓ Path 1
            > ✓ Path 2
            > ✓ Path 3
            > ✓ Path 4
            > ✓ SDI 2
```

8. Double-click the **Channel Mapper** sub-node.
   The Channel Mapper interface enables you to assign the input audio channels to the encoded channels of a specific output path.

9. Expand a **Path** sub-node to display the sub-nodes for configuring the specified output path
10. Double-click the **Dolby RTLL** sub-node.
The Dolby RTLL interface enables you to adjust the target loudness settings for the BAP output.

11. Double-click the **Nielsen Watermark** sub-node.
The Nielsen Watermark interface enables you to configure the Watermark Encoder channels.
12. Double-click the **DD DDP Encoder** sub-node.

The DD DDP (Dolby Digital/Dolby Digital Plus) provides options for configuring the Dolby encoder channels for an SDI output.
Updating the Network Settings

Once the BAP is communicating via DashBoard, it is recommended to assign a different static IP address from the factory default values. These default values were used to initially establish a connection point to the BAP, as outlined in your BAP Quick Start Guide. This chapter provides instructions for configuring the RJ45 ports of the BAP for communication with your facility network and streaming devices.

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

Network Connections to the BAP

There is one Ethernet port that must be configured on the BAP: Gb1. This port enables the BAP to interface with other devices in your facility, and the computer running the DashBoard client. After the initial connection is established, DashBoard is used to update the network settings for the BAP as determined by your IT Department and network requirements.

★ The Gb2, NET1, and NET2 ports are not implemented.

Updating the Gb1 Port Settings

Once the BAP 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 BAP).

To update the Gb1 port settings for the BAP
1. Display the Global interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Ethernet tab.
3. Select the Gb1 tab.
4. Click Edit.
   The fields are now editable on the tab.
5. Use the DNS field to specify the IP address of the DNS server that the BAP will communicate with.
6. Use the Method menu to specify Manual.
★ Do not set Method to Unknown. This option is not implemented for the Gb1 port.
7. Use the Address field to specify the new static IP Address for the Gb1 port.
8. Use the Subnet Mask field to specify the subnet mask for the Gb1 port.
9. Use the Gateway field to specify the gateway for communications outside of the local area network (LAN) the BAP will use.
10. Click Apply.
★ The BAP automatically reboots and applies the changes.
Specifying the Video Format

This chapter provides information on the reference formats, and how to specify the video format for your inputs and outputs.

Frame Rate Compatibility

It is important to remember that when using the reference source connected to the rear panel, the BAP input video frame rate must match the reference frame rate. Reference compatibility is shown in Table 1.

<table>
<thead>
<tr>
<th>Reference Input Format</th>
<th>Video (SDI) Input Formats</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTSC 59.94Hz (Black Burst)</td>
<td>GL</td>
</tr>
<tr>
<td>1080i 59.94Hz (Tri-level Sync)</td>
<td>GL</td>
</tr>
<tr>
<td>720p 59.94Hz (Tri-level Sync)</td>
<td>GL(^a)</td>
</tr>
<tr>
<td>PAL 50Hz (Black Burst)</td>
<td></td>
</tr>
<tr>
<td>1080i 50Hz (Tri-level Sync)</td>
<td>GL</td>
</tr>
<tr>
<td>720p 50Hz (Tri-level Sync)</td>
<td>GL(^a)</td>
</tr>
</tbody>
</table>

\(^a\) Genlocked but without Field Lock.

Specifying a Video Format

The BAP has built-in hysteresis to avoid visible artifacts if the input and output timing alignment oscillates around the drop/repeat cross-over point.

To specify a video format for the BAP

1. Display the SDI IO interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the SDI Input tab.
3. Use the Video Format options to specify the video format for the input and output signals.
4. Click Apply to save the new setting.
5. To apply the new setting:
   a. Display the Global interface as outlined in “To display the BAP interfaces in DashBoard”.
   b. Click Reboot, located at the bottom of the Global interface to apply the new setting.
Channel Mapping

The BAP provides a single interface that enables you to map each input audio channel to an audio channel in one of the four output paths. You can choose to apply the default audio channel map or assign the channels as required by your system. Both methods are described in this chapter.

Before You Begin

In DashBoard, the Tree View displays the configuration options as sub-nodes organized under numbered slot nodes (SDI 1, SDI 2). Each SDI includes a Channel Mapper interface that organizes the SDI audio channels into 4 output paths. Figure 12 shows the default channel mapping.

![Figure 12 Example of Channel Mapper Default Settings — SDI 1](image)

Figure 13 shows the SDI 2 Channel Mapper that configures the 16 channels for SDI 2.

![Figure 13 Example of Channel Mapper Default Settings — SDI 2](image)
Using the Default Channel Mapping

Each SDI has four output paths with the following default channel mapping:

- Output path 1 includes channels 1-6
- Output path 2 includes channels 7-8
- Output path 3 includes channels 9-14
- Output path 4 includes channels 15-16

You can choose to use the default channel mapping, or customize the map based on your facility requirements. No further steps are required to use the default channel mapping as described above. You can proceed to “Real-Time Loudness Leveling”.

Customizing the Audio Channel Mapping

This section outlines how to customize the channel mapping for an SDI output path.

To customize the channel mapping for an output path

1. Display the Channel Mapping interface for an SDI as outlined in “To display the BAP interfaces in DashBoard”.
2. Locate the row for the Output Path you want to customize the channel map for.
3. Use the Source Channel menu to assign an audio channel to a specified channel in an Output Path.

In the example below, the user assigns SDI IN 1 > Channel 3 to SDI Output Path 1 > Channel 1.

4. Repeat step 2 and 3 for each output path you wish to customize.

** The new settings are applied automatically.
5. Repeat the procedure for the other SDI if required.

Mapping the Output Paths to an SDI Output

** If you have bypassed the encoder channel for an output path, the default channel mapping for that path is automatically reset to the default values.

To map an output path to an SDI Output

1. Display the SDI IO interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the SDI Output tab.
3. Select the sub-tab for the physical SDI output you want to map.
4. Locate the row for the Output Channel you want to customize.

** Mapping PCM channels will map 1 to 1, but the Dolby output will always be matched to an audio pair (2 channels).
5. Use the Channel Source menu to assign an output path to a specified channel of the selected SDI output.

In the example below, the user assigns Output Path 4 of SDI IN 1 to Channel 9 of SDI Output 1.
6. Repeat step 3 to 5 for each output path and channel you wish to customize.
Real-Time Loudness Leveling

This chapter summarizes the steps to configure the Dolby® Real-Time Loudness Leveling (RTLL) feature.

Configuring the RTLL Settings for an SDI Output

The RTLL interface offers parametric controls for loudness leveling. Basic setup is setting RTLL to Enabled, and choosing a Manual IRL level (typically same as the desired loudness level). Other settings can typically be left at the default settings provided. Default settings are recommended and conform to ATSC A/85.

To enable the RTLL for an SDI output
1. Display the RTLL interface for an SDI Output as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the RTLL Config tab.
3. Verify that the Bypass box is not selected.
4. Repeat steps 1 to 3 for the second SDI output.

To configure the RTLL settings for an SDI output
1. Select the Dialog Intelligence box to allow loudness processing speech-gating that measures and adjusts loudness only during segments that contain dialog.
2. Use the Target Loudness slider to specify the Loudness K-weighted relative to Full-Scale (LKFS) value for the audio output.
3. Use the Peak Limit slider to apply a peak compressor/limiter if the selected target loudness is exceeded.
4. Repeat steps 1 to 3 for the other paths in the first SDI output, and for all paths in the second SDI output.

Bypassing the RTLL

It is recommended to configure the BAP to bypass the RTLL when the incoming audio loudness level is already set and should not be further adjusted.

If the RTLL is bypassed on the BAP, the user must select the correct Fallback dialnorm value in the DD DDP Encoder. This value should match the level of the incoming audio loudness (e.g., if the audio was leveled to -20dB, the user should bypass RTLL, and set the Fallback dialnorm value to -20dB on the BAP).

You can still adjust the loudness level of the signal using the options in the Dolby Encoder > Loudness tab.

To bypass the RTLL for an SDI output
1. Display the RTLL interface for an SDI Output as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the RTLL Config tab.
3. Select the Bypass box.
   The loudness settings from the source are ignored.
To set the Fallback dialnorm value on the BAP

1. Display the DD DDP Encoder interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Loudness sub-tab located in the far-right pane of the DashBoard window.
3. Use the Fallback Dialnorm slider to specify the dialog level of the bitstream program at the decoder output

Monitoring the Audio Levels

The right-side pane of the RTLL Config tab displays a set of audio meters. Measurement units are in dBFS (decibel full scale) where 0dBFS is the maximum digital value. Each audio meter displays audio level information for a channel as illustrated in Figure 14.
Watermark Encoders Setup

This chapter outlines the steps required to configure and enable the Watermark Encoder channels for the BAP.

Overview

A Watermark Encoder provides transport stream processing to add Nielsen Watermarking to AES67 audio streams. DashBoard provides options for specifying the watermarking parameters, including the Source Identification (SID) obtained from Nielsen Encoder Support.

By default, there are up to four Watermark Encoder channels that can be configured. Each channel is configured and enabled independently.

Before proceeding, ensure that you have the following information from the Nielsen Encoder Support:

• NAES SID
• NAES Check Code
• CBET CSID
• CBET Check Code

Changing the Watermark Encoder Channel Names

It is highly recommended to re-name each Watermark Encoder channel from the default values. This will help to identify the channels in the other BAP tabs and interfaces.

**To change the name for a watermark encoder channel**

1. Display the Nielsen Watermarker interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Watermark Table tab.
3. Locate the cell in the Name column of the tab for the first Watermark Encoder channel you want to re-name.
4. Type a new name for the Watermark Encoder channel.
5. Press Enter.
6. Repeat steps 3 to 5 for each channel.
7. Click Apply to save your changes.

* Changing the Watermark Encoder Channel name will create a video and audio glitch.

Configuring the Global Encoder Settings

There are two settings that impact all Watermark Encoder channels on the BAP: Code Type and Time Zone. These settings are located on the Device Setup tab in the Nielsen Watermark Encoder interface.

**To configure the global settings for all watermark encoders**

1. Display the Nielsen Watermarker interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Device Setup tab.
It is recommended to leave the **Watermark Type** set to the default value.

3. Set the audio code scheme for your BAP by selecting an option in the **Code Type** area. This affects NAES 2 code production only. Choose from the following:
   - **Final Distributor** — Select this option if the BAP is installed in the station or cable network slot of the program-distribution chain.
   - **Program Content** — Select this option if the BAP is installed in the broadcast network or syndicate slot of the program-distribution chain.

4. Use the **Time Zone** menu to specify the time zone that your facility is located in.

### Configuring a Watermark Encoder Channel

Each row in the Watermark Table tab represents an encoder channel. You can enable up to four encoder channels.

**To configure a watermark encoder channel**

1. Display the **Nielsen Watermarker** interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the **Watermark Table** tab.
3. Locate the row for the Watermark Encoder channel you wish to configure.
4. Type your NAES SID value into the **NAES SID** cell.
5. In the **NAES Check Code** cell, enter.
6. Type your CBET CSID value into the **CBET CSID** cell. Leave this field blank if you have not been assigned a CSID by Nielsen.
7. In the **CBET Check Code** cell, enter the Critical Band Encoding Technology (CBET) Source Identification code you obtained from Nielsen Encoder Support. The CSID is supplied with check characters (different from the SID code) to ensure that it is entered correctly into the BAP. Note that this field:
   - is case sensitive and the check characters must be entered in upper case with no spaces between the CSID and check code.
   - can be left blank if no CBET encoding is performed for the encoder channel.
8. Specify how to resolve conflicts between data already present in the incoming signal, and data to be added by the BAP by selecting an option in the **CBET Level Overflow** and **NAES Level Overflow** areas. This affects NAES 2 code production only. The NAES SID and CBET CSID can be configured independently. For each data type, choose from the following overflow methods:
   - **Refrain** — Select this option to not encode the BAP data and only transmit the incoming data.
   - **Overwrite** — Select this option to encode the BAP data regardless of the presence of incoming data.
9. Select the **Enable** box for the Watermark Output channel.
   - The **Apply** button is now selectable.
10. Click **Apply** to save your changes.

* Applying changes will create a video and audio glitch.
Configuring the Dolby Encoders

This chapter outlines the steps required to configure the Dolby® encoder channel for an SDI output.

Enabling a Dolby Encoder Channel for an SDI Output

The first step in setting up an encoder is selecting the Encoder Format.

To enable an encoder channel for an SDI Output

1. Display the DD DDP Encoder interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Config tab.
3. Verify that the Bypass box is cleared (unselected).
   - If the Bypass box is selected, the Dolby encoder is bypassed and the output is PCM data.
   - Changing the Bypass box state will create a video and audio glitch.
4. Use the Encoder Mode menu to specify the type of Dolby encoding for the output audio channel.
   - Changing the Encoder Mode will create a video and audio glitch.
   - The Audio Coding Mode read-only field reports the active channels within the encoded bitstream. Paths 1 and 3 are fixed to 3/2 (L R C LFE Ls Rs). Paths 2 and 4 are fixed to 2/0 (L R).
5. Use the Data Rate menu to specify the maximum data rate allowed for the output audio channel.
   - A Data Rate of 192kbps is recommended for watermark encoding.
6. Select the LFE box if a Low-Frequency Effects (LFE) channel is present in the encoder data or if the Audio Coding Mode is set to 3/2.
   - Clear the LFE box if an LFE channel is not present in the encoder data or if the Audio Coding Mode is set to 2/0.

Specifying the Bitstream

The section outlines how to enable the BAP to indicate the bitstream properties of the audio. This information is used by downstream Dolby® devices to decode the data.

To configure the bitstream properties of the encoder channel

1. Select the Bitstream Info tab.
2. Use the Dolby Surround Mode menu to indicate whether the 2-channel bitstream includes Dolby Surround (Lt/Rt) data.
3. Use the Dolby Digital Surround EX Mode menu to specify whether the audio data is encoded using Dolby Digital Surround EX.

Preprocessing

This section outlines how to select a standard operational mode for the encoder channel. The operational mode automatically configures the decoder to implement the dialogue normalization, DRC, and downmixing settings.
To configure the preprocessing engine for the Dolby encoder channel

1. Select the **Preprocessing** tab.
2. Use the **Line Mode Profile** menu if your downstream equipment requires a specific type of speaker-level output. This is set to Film Standard by default.
3. Use the **RF Mode Profile** menu if you require a downmixed signal for subsequent channel 3 RF modulation and transmission. This is set to Film Standard by default.
4. Select the **Phase Shift** box to apply a 90° phase shift to the surround channels.
   - Select this box if a surround-compatible downmix is later applied to the decoded audio and you want to avoid the possibility of the input signals in the L and Ls channels canceling each other out.
5. Select the **3dB Sound Attenuation** box to apply a 3dB attenuation to the surround channels.

Specifying the Preferred Stereo Downmix Mode

The BAP enables you to specify the preferred stereo downmix mode when a stereo-compatible Dolby Surround downmix of a multichannel source program for decoding. This feature allows the user to specify how the program should be downmixed by the downstream decoder device. The device then downmixes the tracks to a stereo track as specified by the preferred mode.

**To specify the preferred stereo downmix mode**

1. Select the **Downmixing** tab.
2. Use the **Preferred Stereo Downmix Mode** menu to choose one of the following:
   - **Lt/Rt** — sums the Surround channels and adds them, in-phase to the Left channel and out-of-phase to the Right channel. This allows a Dolby Surround Pro Logic decoder to reconstruct the Lt/Rt (Left total/Right total) channels for a Pro Logic setup.
   - **Lo/Ro** — adds the Left and Right Surround channels discretely to the Left and Right speaker channels, respectively. This preserves the stereo separation for stereo-only monitoring and produces a mono-compatible signal (Left only/Right only).
   - **Pro Logic II Downmix** — processes the stereo source into 5 channels (Right Front, Center, Left Front, Right Back, and Left Back). Also enables the processing of 5-channels from a 4-channel Dolby Stereo source.
3. Use the provided **Mix Level** fields to apply a level shift value to the specified channel when downmixing.

Loudness

If you choose to disable the Dolby RTLL for an output path, you have the option in the encoder interface to adjust the loudness level as required.

**To configure the loudness level**

1. Select the **Loudness** tab.
2. Use the **Fallback Dialnorm** slider to report the output loudness level to the downstream decoder.
Outputting PCM Data

This chapter outlines the steps to configure the BAP to embed PCM data for an output path. When outputting PCM data for an audio channel, you will need to:

1. Bypass the Dolby encoder for the required output path.
2. Re-map the channels for the output path as outlined in “Mapping the Output Paths to an SDI Output”.

Bypassing a Dolby Encoder Channel for an Output Path

By default, the encoder is enabled for each SDI. To embed PCM data, you must first bypass the encoder for the path.

Changing the Bypass state will create a video and audio glitch.

To bypass an encoder channel for an output path

1. Display the DD DDP Encoder interface as outlined in “To display the BAP interfaces in DashBoard”.
2. Select the Config tab.
3. Select the Bypass box.
4. Click Apply.

Re-map the Output Path Channels

When the Bypass box is selected in the Dolby Encoder > Config tab, the output path channels are automatically reset to the default mapping values. If your requirements differ from the default mapping, you must re-map the channels. Refer to “Mapping the Output Paths to an SDI Output”.
Upgrading the Software

The BAP can be upgraded in the field via DashBoard.

**To upgrade the software on the BAP**

2. Ensure the Ethernet cable is connected to the **Gb1** port on the BAP.
3. From the **Tree View** in DashBoard, expand the node for the BAP you want to access.
4. Right-click the **Global** sub-node.
5. Click **Open**.
6. Select **Upload**, located near the bottom of the interface, to display the **Select file Upload** dialog.
7. Navigate to the ***.bin** file you want to upload.
8. Click **Open**.
9. Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible units.
10. Select the check box for the BAP you want to upload the file to.
11. Verify the BAP you want to upload the file to.
    - The **Error/Warning** fields indicate any errors, such as incompatible software or product type mismatch.
12. Click **Finish**.
13. Monitor the upgrade.
    - An **Upload Status** dialog enables you to monitor the upgrade process.
    - The BAP is temporarily taken off-line during the upgrade process.
    - The process is complete once the status indicators for the **Card State** and **Connection** return to their previous status.
14. Once upgrade is complete and the **Upload Status** dialog closes, you must manually reboot the BAP.
    a. From the **Tree View** in DashBoard, expand the node for the BAP you upgraded.
    b. Right-click the **Global** sub-node.
    c. Click **Open**.
    d. Click **Reboot**. This button is located at the bottom of the Global tab.
DashBoard Interface Overview

This chapter summarizes the interfaces, tabs, and menus available from DashBoard for the BAP.

Global Interface

The Global interface displays three tabs: Ethernet, Timing, and About.

![Example of the Global Interface](image)

**Ethernet Tab**

*Table 2* summarizes the read-only information displayed in the *Ethernet &gt; Gb1* tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gb1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAC Address</td>
<td>#</td>
<td>Specifies the unique Media Access Control (MAC) Address assigned to the BAP</td>
</tr>
<tr>
<td>IPv4 Address</td>
<td>#</td>
<td>Specifies the static IP Address that is currently assigned to the Gb1 port. The default is 192.168.0.100.</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>The specified port is not configured</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>#</td>
<td>Specifies the subnet mask value for the specified port on the BAP. The default is 255.255.255.0.</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>The specified port is not configured</td>
</tr>
<tr>
<td>Gateway</td>
<td>#</td>
<td>Specifies the gateway for communications outside of the local area network (LAN) the specified port on the BAP will use. The default is 192.168.0.1.</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>The specified port is not configured</td>
</tr>
</tbody>
</table>
Timing Tab

Table 3 summarizes the read-only information displayed in the Timing tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNS</td>
<td>#</td>
<td>Specifies the IP address of the DNS server that the BAP will communicate with. The default is 192.168.0.1.</td>
</tr>
<tr>
<td>Method</td>
<td>Auto</td>
<td>The settings will be assigned by a DHCP server in your facility</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>The user manually supplies the Ethernet settings</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>The specified port is not used. This option is not implemented for the Gb1 port.</td>
</tr>
<tr>
<td></td>
<td>DHCP</td>
<td>Automates the assignment of the Ethernet settings</td>
</tr>
<tr>
<td>State (read-only)</td>
<td>Activated</td>
<td>The specified port is active and is communicating with valid settings</td>
</tr>
<tr>
<td></td>
<td>Disconnected</td>
<td>Communication to the specified port is interrupted. Verify that the settings are correct and the port is physically cabled correctly.</td>
</tr>
<tr>
<td></td>
<td>Unavailable</td>
<td>The specified port is not active and is not configured for use.</td>
</tr>
<tr>
<td>Edit</td>
<td></td>
<td>Click this button to edit the Address, Subnet Mask, gateway, and Method fields for the Gb1 port</td>
</tr>
<tr>
<td>Apply</td>
<td></td>
<td>Click this button to apply the new settings to the Gb1 port</td>
</tr>
<tr>
<td>Result (read-only)</td>
<td>Success</td>
<td>The settings are valid and applied. The specified port is now active.</td>
</tr>
<tr>
<td></td>
<td>Problem: ( x, y )</td>
<td>Indicates that the specified port is experiencing an error where: ( x ) states the type of problem and ( y ) indicates the possible cause</td>
</tr>
</tbody>
</table>

Table 2 Ethernet — Gb1 Tab

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNS</td>
<td>#</td>
<td>Specifies the IP address of the DNS server that the BAP will communicate with. The default is 192.168.0.1.</td>
</tr>
<tr>
<td>Method</td>
<td>Auto</td>
<td>The settings will be assigned by a DHCP server in your facility</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>The user manually supplies the Ethernet settings</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>The specified port is not used. This option is not implemented for the Gb1 port.</td>
</tr>
<tr>
<td></td>
<td>DHCP</td>
<td>Automates the assignment of the Ethernet settings</td>
</tr>
<tr>
<td>State (read-only)</td>
<td>Activated</td>
<td>The specified port is active and is communicating with valid settings</td>
</tr>
<tr>
<td></td>
<td>Disconnected</td>
<td>Communication to the specified port is interrupted. Verify that the settings are correct and the port is physically cabled correctly.</td>
</tr>
<tr>
<td></td>
<td>Unavailable</td>
<td>The specified port is not active and is not configured for use.</td>
</tr>
<tr>
<td>Edit</td>
<td></td>
<td>Click this button to edit the Address, Subnet Mask, gateway, and Method fields for the Gb1 port</td>
</tr>
<tr>
<td>Apply</td>
<td></td>
<td>Click this button to apply the new settings to the Gb1 port</td>
</tr>
<tr>
<td>Result (read-only)</td>
<td>Success</td>
<td>The settings are valid and applied. The specified port is now active.</td>
</tr>
<tr>
<td></td>
<td>Problem: ( x, y )</td>
<td>Indicates that the specified port is experiencing an error where: ( x ) states the type of problem and ( y ) indicates the possible cause</td>
</tr>
</tbody>
</table>
About Tab

Table 4 summarizes the read-only information displayed in the About tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial Number</td>
<td>#</td>
<td>The serial number assigned to this BAP</td>
</tr>
<tr>
<td>Assembly Revision</td>
<td>#</td>
<td>The version of the BAP hardware</td>
</tr>
<tr>
<td>Software Version</td>
<td>#</td>
<td>The software build the BAP is currently running</td>
</tr>
<tr>
<td>Frame Name</td>
<td>&lt;text&gt;</td>
<td>Assigns a unique identifier to the BAP. This name also displays in the node for the BAP in the Tree View of DashBoard.</td>
</tr>
<tr>
<td>Factory Default</td>
<td>Click this button to reset all BAP editable fields to the factory default values. This impacts all tabs except the Ethernet, Timing, and About tabs.</td>
<td></td>
</tr>
</tbody>
</table>

SDI IO Interface

The SDI IO interface displays three tabs: SDI Input, SDI Output, and Device Info.
Figure 16  Example of the SDI IO Interface in DashBoard

SDI Input Tab

Table 5 outlines the options and read-only fields displayed in the SDI Input tab.

### Table 5  SDI IO — SDI Input

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Format and Reference</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Format</td>
<td>#</td>
<td>Specifies the input and output video format</td>
</tr>
<tr>
<td>Reference Frame Rate (read-only)</td>
<td>#</td>
<td>Reports the video frame rate detected on the SDI Input signal</td>
</tr>
<tr>
<td>Status (read-only)</td>
<td>OK (Green)</td>
<td>A valid reference source is detected in a video format that is supported</td>
</tr>
<tr>
<td></td>
<td>Press Apply to take effect (Yellow)</td>
<td>There are unsaved changes made in the SDI Input Config menus</td>
</tr>
<tr>
<td>Reference Mismatch (Yellow)</td>
<td></td>
<td>The frame rate from the Reference does not match the frame rate for the SDI input</td>
</tr>
<tr>
<td>Reboot to take effect (Red)</td>
<td></td>
<td>The change(s) made to the SDI Input Config menu(s) require a reboot of the BAP</td>
</tr>
</tbody>
</table>

**SDI Input Status (Read-only)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDI Input Number</td>
<td>SDI #</td>
<td>Indicates the specific SDI input signal</td>
</tr>
<tr>
<td>Input Format</td>
<td>#</td>
<td>Indicates the detected input format</td>
</tr>
<tr>
<td>Frames Received</td>
<td>#</td>
<td>Reports the number of bytes received in the last field</td>
</tr>
<tr>
<td>Input Status</td>
<td>OK (Green)</td>
<td>Indicates a valid SDI input signal is detected and no errors are currently detected</td>
</tr>
<tr>
<td></td>
<td>No Input (Green)</td>
<td>Indicates that the specified SDI input is not in use</td>
</tr>
</tbody>
</table>
Table 6 outlines the fields displayed in the SDI Output tab starting from the left-most area of the tab.

Table 6 SDI IO — SDI Output

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDI Output # (Read-only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frames Transmitted(^a)</td>
<td>#</td>
<td>Reports the number of valid SDI frames transmitted when the audio, video, and ANC data are in sync on the specified SDI output</td>
</tr>
<tr>
<td>Audio Sync Drop</td>
<td>#</td>
<td>Reports the number of instances that audio data was dropped to align all of the audio from all of the paths (on the specified SDI output)</td>
</tr>
<tr>
<td>Underrun Count</td>
<td>#</td>
<td>Indicates the number of frames that were not included on the specified SDI output</td>
</tr>
<tr>
<td>Video Alignment Drop Count</td>
<td>#</td>
<td>Indicates the number of frames that were dropped in order to align an SDI frame at a timestamp</td>
</tr>
<tr>
<td>Audio Alignment Drop Count</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>ANC Alignment Drop Count</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Clear Counters</td>
<td></td>
<td>Resets the values to zero (0) of the Count read-only fields</td>
</tr>
</tbody>
</table>

Figure 17 Example of SDI Output Tab
Device Info Tab

**Table 7** outlines the read-only fields displayed in the Device Info tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>#</td>
<td>Reports information on the SDI IO service running on the BAP</td>
</tr>
<tr>
<td>Hardware Model</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Matrox SDK Version</td>
<td>#</td>
<td></td>
</tr>
</tbody>
</table>

Channel Mapper Interface

The Channel Mapper interface displays two tabs: Channel Mapper and Device Info.

**Table 8** summarizes the options displayed in the **Channel Mapper** tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Path</td>
<td>&lt;text&gt;</td>
<td>Specifies the output path to configure</td>
</tr>
</tbody>
</table>

Figure 18  Example of the Channel Mapper Interface in DashBoard
Device Info Tab

**Table 9** summarizes the read-only information displayed in the **Device Info** tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>#</td>
<td>Indicates the current version of the Channel Mapper settings</td>
</tr>
<tr>
<td>Path #</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Packets Processed</td>
<td>#</td>
<td>Indicates the total number of data packets the SDI path has processed since the last reboot of the unit</td>
</tr>
</tbody>
</table>

Dolby RTLL Interface

The Dolby RTLL interface displays two tabs: Config, and Device Info.

**Figure 19  Example of the Dolby RTLL Interface in DashBoard**

Config Tab

**Table 10** summarizes the options available in the Config tab.
Table 10 Dolby RTLL — Config

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bypass</td>
<td>Selected</td>
<td>Ignores the Real-Time Loudness Leveling settings</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Applies the Real-Time Loudness Leveling settings</td>
</tr>
<tr>
<td>Dialog Intelligence</td>
<td>Selected</td>
<td>Select this box when using ATSC A/85</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Clear this box when using EBU R128</td>
</tr>
<tr>
<td>Target Loudness (LKFS)</td>
<td>#</td>
<td>Adjusts the Loudness K-weighted Relative to Full Scale (LKFS) value for the output signals</td>
</tr>
<tr>
<td>Peak Limit (dBTP)</td>
<td>#</td>
<td>Adjusts the audio loudness level based on the highest signal level present in the audio signal</td>
</tr>
</tbody>
</table>

Audio Meters

| L                     | An audio meter reports a measured unit in dBFS (decibel full scale) where 0dBFS is the maximum digital value. |
| R                     | • L represents the left channel                                            |
| C                     | • R represents the right channel                                           |
| LFE                   | • C represents the center channel                                          |
| Ls                    | • LFE represents the low frequency effects channel                         |
| Rs                    | • Ls represents the left surround channel                                   |
|                       | • Rs represents the right surround channel                                 |

Device Info Tab

Table 11 summarizes the read-only information displayed in the Device Info tab.

Table 11 Dolby RTLL — Device Info

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>#</td>
<td>Reports the software version of the RTLL processor service</td>
</tr>
<tr>
<td>Dolby Library Version</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td># Input Buffer Channels</td>
<td>#</td>
<td>Specifies the number of input channels available to the RTLL processor</td>
</tr>
<tr>
<td>Packets Processed</td>
<td>#</td>
<td>Displays a running count of how many audio frames have been processed by the RTLL processor</td>
</tr>
</tbody>
</table>

Nielsen Watermarker Encoder Interface

The Nielsen Watermarker Encoder interface enables you to configure each available watermark engine.
Figure 20  Example of the Nielsen Watermarker Encoder Interface in DashBoard

Watermarker Table Tab

Table 12 summarizes the information displayed in the Watermarker Table tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>&lt;text&gt;</td>
<td>Specifies a unique name for the watermark output stream</td>
</tr>
<tr>
<td>Enable</td>
<td>Selected</td>
<td>Enables the specified watermark encoder output and makes it available on the AES67 Receiver &gt; Connections tab</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables this output</td>
</tr>
<tr>
<td>NAES SID</td>
<td>#</td>
<td>Specifies the Source Identification Number (SID) that is assigned by Nielsen. This field is case sensitive and your must enter the characters in upper case.</td>
</tr>
<tr>
<td>NAES Check Code</td>
<td></td>
<td>Specifies the Check Code for the specific Source Identification Number (SID) that was entered. This field is case sensitive and your must enter the characters in upper case.</td>
</tr>
<tr>
<td>CBET CSID</td>
<td></td>
<td>Specifies the Critical Band Encoding Technology (CBET) Source Identification Number (SID) that is assigned by Nielsen to this BAP. This field is case sensitive and your must enter the characters in upper case.</td>
</tr>
<tr>
<td>CBET Check Code</td>
<td></td>
<td>Specifies the Check Code for the specific CBET value assigned by Nielsen to this BAP. This field is case sensitive and your must enter the characters in upper case.</td>
</tr>
</tbody>
</table>
Status Tab

Table 13 summarizes the information displayed in the Status tab.

### Table 13 Status Tab

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status (read-only)</td>
<td>OK (Green)</td>
<td>The Check Code is validated for the SID and watermarking is operating correctly</td>
</tr>
</tbody>
</table>
| | Off (Yellow) | One of the following has occurred:  
  • The Watermark output is not enabled  
  • No audio streams are assigned |
| | Orchestrating (Yellow) | The BAP is attempting to watermark the output |
| | Invalid SDI and/or CSID Check Code (Red) | An incorrect Check Code was entered for the specified SID or CSID |
| Watermarker Name | <text> | Indicates the unique identifier for the specific watermark output stream |

Device Setup Tab

Table 14 summarizes the options displayed in the Device Setup tab.
DD DDP Encoder interface

The DD DDP Encoder interface displays two main tabs: Config and Device Info.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watermark Type</td>
<td>NAES/CBET</td>
<td>The BAP uses both NAES and CBET for watermark encoding. This is the default.</td>
</tr>
<tr>
<td></td>
<td>NAES</td>
<td>The BAP applies the NAES values for watermark encoding. Entries made to the CBET fields on the Watermark Table tab will be ignored.</td>
</tr>
<tr>
<td></td>
<td>CBET</td>
<td>The BAP applies the CBET values for watermark encoding. Entries made to the NAES fields on the Watermark Table tab will be ignored.</td>
</tr>
<tr>
<td>Code Type</td>
<td>Final Distributer</td>
<td>Specifies that your facility is the final station or network in the program distribution chain</td>
</tr>
<tr>
<td></td>
<td>Program Content</td>
<td>Specifies that your facility is the broadcast network or syndicate in the program distribution chain</td>
</tr>
<tr>
<td>Time Zone #</td>
<td>#</td>
<td>Specifies the time zone your facility is located in</td>
</tr>
<tr>
<td>Version #</td>
<td>#</td>
<td>The software build the watermark encoder of the BAP is currently running</td>
</tr>
</tbody>
</table>
Config Tab

Table 15 summarizes the options displayed in the Config tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bypass(^{a})</td>
<td>Selected</td>
<td>Does not apply the Dolby® encoding and instead outputs the PCM data</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Applies the Dolby Encoder &gt; Config settings</td>
</tr>
<tr>
<td>Encoder Mode(^{b})</td>
<td>Dolby Digital</td>
<td>The audio data is encoded using the Dolby® Digital® protocol</td>
</tr>
<tr>
<td></td>
<td>Dolby Digital Plus</td>
<td>The audio data is encoded using the Dolby® Digital® Plus protocol</td>
</tr>
<tr>
<td>Audio Coding Mode</td>
<td>2/0 (L R)</td>
<td>Sets the audio output channel configuration to two channels (Left and Right). Path 2 and 4 are fixed to this mode.</td>
</tr>
<tr>
<td>(read-only)</td>
<td>3/2 (L R C LFE Ls Rs)</td>
<td>Sets the audio output channel configuration to multichannel (Left, Right, Center, Low-Frequency Effects, Left Surround, and Right Surround). Path 1 and 3 are fixed to this mode.</td>
</tr>
<tr>
<td>Data Rate</td>
<td>#</td>
<td>Specifies the encoder data rate in kilobits per second (kbps).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The default data rate changes based on the number of channels:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For 2/0 mode, the data rate should be 192kbps or higher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For 3/2 mode, the data rate should be 384kbps or higher.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is recommended to set the data rate to 192kbps for watermark encoding.</td>
</tr>
<tr>
<td>LFE</td>
<td>Selected</td>
<td>A Low-Frequency Effects (LFE) channel is present in the encoder data. Select this box if the Audio Coding Mode is set to 3/2.</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>A Low-Frequency Effects (LFE) channel is not present in the encoder data. Select this box if the Audio Coding Mode is set to 2/0.</td>
</tr>
</tbody>
</table>

Bitstream Info

<table>
<thead>
<tr>
<th>Surround Mode(^{c})</th>
<th>#</th>
<th>Specifies the bitstream that includes the Dolby® Surround data (Lt/Rt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surround EX Mode(^{d})</td>
<td>Enabled</td>
<td>The audio data will be encoded using Dolby Digital Sound EX™</td>
</tr>
<tr>
<td></td>
<td>Disabled</td>
<td>Disables this feature</td>
</tr>
</tbody>
</table>

\(^{a}\) Indicates settings that bypass Dolby encoding.

\(^{b}\) Indicates settings that apply to Dolby Digital and Dolby Digital Plus.

\(^{c}\) Indicates settings that apply to Dolby Surround data.

\(^{d}\) Indicates settings that apply to Dolby Digital Sound EX™.
### Table 15  DD DDP Encoder — Config

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Mode Profile</td>
<td>None</td>
<td>The audio data will not be encoded for use by line mode downstream equipment</td>
</tr>
<tr>
<td></td>
<td>Film Standard</td>
<td>This is the default.</td>
</tr>
<tr>
<td></td>
<td>Film Light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Music Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Music Light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speech</td>
<td></td>
</tr>
<tr>
<td>RF Mode Profile</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Film Standard</td>
<td>This is the default.</td>
</tr>
<tr>
<td></td>
<td>Film Light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Music Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Music Light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speech</td>
<td></td>
</tr>
<tr>
<td>Phase Shift 90(^\circ)</td>
<td>Selected</td>
<td>De-correlates the front and back channels when a surround-compatible downmix is later applied to the decoded data</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables this feature</td>
</tr>
<tr>
<td>Surround Attenuation(^f)</td>
<td>Selected</td>
<td>Applies a 3dB attenuation to the surround channels</td>
</tr>
<tr>
<td></td>
<td>Cleared</td>
<td>Disables this feature</td>
</tr>
</tbody>
</table>

**Downmixing\(^g\)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lt/Rt Center Mix Level</td>
<td>#dB</td>
<td>Applies the specified level shift value to the Center channel when downmixing to an Lt/Rt output</td>
</tr>
<tr>
<td>Lt/Rt Surround Mix Level</td>
<td>#dB</td>
<td>Applies the specified level shift value to the surround channels when downmixing to an Lt/Rt output</td>
</tr>
<tr>
<td>Lo/Ro Center Mix Level</td>
<td>#dB</td>
<td>Applies the specified level shift value to the Center channel when downmixing to an Lo/Ro output</td>
</tr>
<tr>
<td>Lo/Ro Surround Mix Level</td>
<td>#dB</td>
<td>Applies the specified level shift value to the surround channels when downmixing to an Lo/Ro output</td>
</tr>
<tr>
<td>Preferred Stereo Downmix Mode(^h)</td>
<td>Not Indicated</td>
<td>The BAP does not specify a downmix mode to downstream devices</td>
</tr>
<tr>
<td>Lt/Rt</td>
<td></td>
<td>Sums the Surround channels and adds them, in-phase to the Left channel and out-of-phase to the Right channel. This allows a Dolby Surround Pro Logic decoder to reconstruct the Lt/Rt channels.</td>
</tr>
</tbody>
</table>
**Table 16 DD DDP Encoder — Device Info**

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>#</td>
<td>Reports the software version of the Dolby Digital DDP Encoder service</td>
</tr>
<tr>
<td>Dolby Library Version</td>
<td>#</td>
<td>Reports the version of the Dolby encoder library</td>
</tr>
<tr>
<td># Input Buffer Channels</td>
<td>#</td>
<td>Specifies the number of detected input channels available to the Dolby Encoder</td>
</tr>
<tr>
<td>Packets Processed</td>
<td>#</td>
<td>Displays a running count of how many audio frames have been processed by the Dolby Encoder</td>
</tr>
</tbody>
</table>

Device Info Tab

**Table 16** summarizes the read-only information displayed in the Device Info tab.

**Preferred Stereo Downmix Mode**
- Lo/Ro

  Adds the Left and Right Surround channels discretely to the Left and Right speaker channels, respectively. This preserves the stereo separation for stereo-only monitoring and produces a mono-compatible signal.

**Dolby Pro Logic II**

  Processes the stereo source into 5 channels (Right Front, Center, Left Front, Right Back, and Left Back). Also enables the processing of 5-channels from a 4-channel Dolby Stereo source.

**Loudness**

  Fallback Dialnorm
  - #

  This field updates automatically to the target loudness value of the RTTL if it is enabled.

  If the RTLL is disabled, then the user should set this field value to the loudness of the program.

  a. Changing this setting can cause audio glitches.
  b. Changing this setting can cause audio glitches.
  c. This field is read-only when the Audio Coding Mode is set to 3/2.
  d. This menu is read-only when the Audio Coding Mode is set to 2/0.
  e. This menu is read-only when the Audio Coding Mode is set to 2/0.
  f. This menu is read-only when the Audio Coding Mode is set to 2/0.
  g. These menus are read-only when the Audio Coding Mode is set to 2/0.
  h. The LFE channel is not included in all downmix modes.
Technical Specifications

This chapter provides technical information for the BAP.

Specifications are subject to change without notice.

Reference Input Specifications

Table 17  Technical Specifications — Reference Input

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector Type</td>
<td>HD-BNC</td>
</tr>
</tbody>
</table>

SDI Specifications

Table 18  Technical Specifications — SDI

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

Gb1 Specifications

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

Table 19  Technical Specifications — Gb1

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

Table 20 Technical Specifications — USB Port

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

Environment

Table 21 Technical Specifications — Environment

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum ambient temperature</td>
<td>40°C (104°F)</td>
</tr>
</tbody>
</table>

Power

Table 22 Technical Specifications — Power

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

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

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

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

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

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

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

**Warranty and Repair Policy**

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

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

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

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

**In Case of Problems**

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

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your BAP. If required, a temporary replacement BAP will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.
The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.
Glossary

The following terms are used throughout this guide:

5.1 — refers to 5.1 surround sound.

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

CBET — refers to Critical Band Encoding Technology.

Check Code — The check digit is a 2-byte string of upper-case alphabetic characters assigned to a specific Source ID. The application must present the correct check-digit string to the watermark encoder in order to use the SID / CSID as a watermark component.

CSID — CBET Source Identification (CBET Media Code). Nielsen assigns one or more CSIDs (CBET Source Identification) to each content provider or distribution source. Included as a component of each watermark, the CSID uniquely identifies the distribution source.

DashBoard — refers to the DashBoard Control System.

Decoder — An application that decodes an audio stream and reports on Nielsen codes that it finds in the audio stream such as a SID.

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

DHCP — refers to Dynamic Host Configuration Protocol.

DST — refers to Daylight Saving Time.

Final Distributor (FD) Code — FD watermarks are assigned to local broadcast affiliates or to cable network content. Typically, it specifies that your facility is the final station or network in the program distribution chain.

LTC and Timecode — refer to Linear Timecode unless otherwise noted.

NAES — refers to Nielsen Audio Encoding System.

NTP — refers to Network Time Protocol.

Operator and User — refer to the person who uses the BAP.

Overwrite Mode — This mode specifies whether the watermarker overwrites existing audio codes of the same type as the watermark that is currently proposed for insertion.

Program Content (PC) Code — Typically, PC watermarks are assigned to syndication content or to content providers (i.e. broadcast networks, etc.). It specifies that your facility is the broadcast network or syndicate in the program distribution chain.

Refrain Mode — Pre-existing watermarks are left intact; new watermarks are inserted only in portions of the audio stream where there are no pre-existing watermarks.

SID — Source Identification. Nielsen assigns one or more SIDs (Source Identification) to each content provider or distribution source. Included as a component of each watermark, the SID uniquely identifies the distribution source.

Watermark — Also referred to as an audio code, a watermark is a sequence of bits that the Nielsen Watermark software inserts periodically in an audio stream. The components of the watermark (SID, timestamp, and distribution type) uniquely identify the portion of audio from which the watermark is extracted and the distribution source to which the audio content can be credited.

Watermarking Level — Identifies the type of watermark. See Program Content (PC) or Final Distributor (FD).