

# BRIDGE NDI 3G

## Conversion Gateway Appliance



# Installation and Operation Guide

Version 1.0  
Published October 24, 2021



# Notices

---

## Trademarks

---

AJA® and Because it matters.® are registered trademarks of AJA Video Systems, Inc. for use with most AJA products. AJA™ is a trademark of AJA Video Systems, Inc. for use with recorder, router, software and camera products. Because it matters.™ is a trademark of AJA Video Systems, Inc. for use with camera products.

Corvid Ultra®, Io®, Ki Pro®, KONA®, KUMO®, ROI® and T-Tap® are registered trademarks of AJA Video Systems, Inc.

AJA Control Room™, KiStor™, Science of the Beautiful™, TruScale™, V2Analog™ and V2Digital™ are trademarks of AJA Video Systems, Inc.

All other trademarks are the property of their respective owners.

## Copyright

---

Copyright © 2021 AJA Video Systems, Inc. All rights reserved. All information in this manual is subject to change without notice. No part of the document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying or recording, without the express written permission of AJA Video Systems, Inc.

## Contacting AJA Support

---

When calling for support, have all information at hand prior to calling. To contact AJA for sales or support, use any of the following methods:

Telephone	+1.530.271.3190
FAX	+1.530.271.3140
Web	<a href="https://www.aja.com">https://www.aja.com</a>
Support Email	<a href="mailto:support@aja.com">support@aja.com</a>
Sales Email	<a href="mailto:sales@aja.com">sales@aja.com</a>

# Contents

---

Notices . . . . .	2
Trademarks . . . . .	2
Copyright . . . . .	2
Contacting AJA Support . . . . .	2
Chapter 1 – Using this Manual . . . . .	6
Welcome . . . . .	6
Guidance on Where to Start Depending on Role . . . . .	6
How Chapters are Organized . . . . .	6
Chapter 2 – Introduction to BRIDGE NDI 3G . . . . .	7
Overview . . . . .	7
Maximum Performance . . . . .	7
Common Use Cases . . . . .	7
AV . . . . .	7
Broadcast . . . . .	7
Corporate . . . . .	8
Production . . . . .	8
Post . . . . .	8
Operational Flexibility . . . . .	8
Encode All SDI Inputs to NDI . . . . .	8
Decode All NDI Inputs to SDI . . . . .	8
Encode/Decode Combination . . . . .	8
System Overview . . . . .	8
BRIDGE NDI 3G at a Glance . . . . .	8
Chapter 3 – Getting Started . . . . .	11
Starting the System . . . . .	11
Accessing the BRIDGE NDI 3G Interface Locally . . . . .	11
Accessing the BRIDGE NDI 3G Interface Remotely . . . . .	11
Local Kiosk Interface vs. Remote Browser Interface . . . . .	12
Splash Screen . . . . .	13
Conserving System Resources Following Configuration . . . . .	13
Chapter 4 – Interface, Nomenclature, Key Concepts . . . . .	14
BRIDGE NDI 3G Interface . . . . .	14
Screens and Status . . . . .	14
Canvas . . . . .	16
Engines and Banks . . . . .	16
Control Bar . . . . .	17
Video Tiles vs. SDI and NDI Video I/O . . . . .	18
Chapter 5 – Using Bridge NDI 3G . . . . .	19
Get Up and Running with BRIDGE NDI 3G . . . . .	19
How This Chapter is Organized . . . . .	19
NDI Network . . . . .	19
Connect NDI Network to Rear Ethernet Media Port . . . . .	19
Determining Encoding vs. Decoding . . . . .	20
SDI to NDI Encoding . . . . .	21
Connect SDI Sources to Rear BNC Ports . . . . .	21
SDI to NDI Encoding for HD Channels . . . . .	22
SDI to NDI Encoding for 4K/UltraHD Groups . . . . .	23
SDI to NDI Encoding for Video + Key Groups . . . . .	25
NDI to SDI Decoding . . . . .	26
NDI to SDI Decoding for HD Channels . . . . .	28
Configuring Banks for HD, V+K, 4K . . . . .	29
Simultaneous Encoding and Decoding Between SDI and NDI . . . . .	30
Plan in Advance for SDI Cabling . . . . .	30
Example of Simultaneous Encoding and Decoding . . . . .	31

Leverage the Presets Tab . . . . .	31
Control Bar . . . . .	32
Control Bar Quick Overview . . . . .	32
Control Bar – Monitoring Tab . . . . .	32
Control Bar – Video Setup Tab . . . . .	37
Control Bar – Audio Setup Tab . . . . .	40
Control Bar – Presets Tab . . . . .	40
Control Bar – Cabling Tab . . . . .	41
Menu Screens . . . . .	42
I/O Screen . . . . .	42
Source/Destination Screen . . . . .	43
Status Screen . . . . .	47
System Settings Screen . . . . .	48
User Management Screen . . . . .	49
Individual Channel/Group Screens . . . . .	50
Individual Channel/Group Screen Decoding NDI to SDI . . . . .	50
Minimizing Resources As Needed . . . . .	50
Individual Channel/Group Screen Encoding SDI to NDI . . . . .	53
Minimizing Resources As Needed . . . . .	53
<b>Chapter 6 – Interoperability . . . . .</b>	<b>56</b>
NDI Sources Compatible with BRIDGE NDI 3G . . . . .	56
NDI . . . . .	56
Live Stream Software (OBS, vMix, Wirecast) . . . . .	56
NLE Software (Adobe, Final Cut Pro, Avid) . . . . .	57
Cameras . . . . .	58
iPhone . . . . .	59
Single Channel SDI to NDI Converters . . . . .	59
Presentation Software (ProPresenter, Resolume Arena, VLC) . . . . .	59
NDI Receivers Compatible with BRIDGE NDI 3G . . . . .	60
Single-View Monitor Applications . . . . .	60
KILOVIEW – MultiView . . . . .	60
Live Stream Software (OBS, Wirecast, vMix) . . . . .	61
Single Channel NDI-SDI Converters . . . . .	62
<b>Chapter 7 – System Setup and Configuration . . . . .</b>	<b>63</b>
Quick Start Guide Login Credentials . . . . .	63
What’s In the Box . . . . .	63
Shipping Box Contents . . . . .	63
Installation Overview . . . . .	64
Rack Mounting/Environment . . . . .	64
Rack Mounting the Chassis . . . . .	64
Cabling . . . . .	64
Network Requirements . . . . .	66
Media vs Control . . . . .	66
How to Connect to Internet . . . . .	66
Wireless Workflows . . . . .	66
Unicast Supported . . . . .	66
Boot Up . . . . .	66
Accept EULA . . . . .	66
Login . . . . .	66
Accessing BRIDGE NDI 3G Interface . . . . .	67
Accessing the BRIDGE NDI 3G Interface Remotely . . . . .	67
Setup Testing . . . . .	68
Setting Up Your System . . . . .	68
System Settings Screen . . . . .	69
Review . . . . .	72
<b>Chapter 8 – Administrative Tasks . . . . .</b>	<b>73</b>
Changing the Password . . . . .	73
Changing the System Name . . . . .	73
To Change the System Name . . . . .	73

Performing a Factory Reset . . . . .	74
Results of a Factory Reset. . . . .	74
To Perform a Factory Reset. . . . .	74
System Administration . . . . .	74
System Settings . . . . .	74
Updating Software/Firmware. . . . .	76
Download the Latest BRIDGE NDI 3G Update . . . . .	76
Unpack BRIDGE NDI 3G Update. . . . .	76
Updating BRIDGE NDI 3G from a Remote System . . . . .	76
Updating BRIDGE NDI 3G Locally from a USB Connected Storage Device . . . . .	77
Network Settings . . . . .	77
Best Practice . . . . .	77
<b>Chapter 9 – Using REST API. . . . .</b>	<b>78</b>
<b>Chapter 10 – Troubleshooting . . . . .</b>	<b>79</b>
Using Refresh Application . . . . .	79
Refresh App . . . . .	79
Refresh Browser. . . . .	79
Generating Support Logs and Providing to AJA Technical Support. . . . .	79
To Generate a Support Log File . . . . .	79
Checking Network Connectivity . . . . .	80
Safe Boot. . . . .	80
To get into Safe Boot Mode . . . . .	80
Factory Reset . . . . .	80
Performing a Factory Reset . . . . .	81
Contacting Support . . . . .	81
<b>Appendix A – Specifications . . . . .</b>	<b>82</b>
BRIDGE NDI 3G Tech Specs . . . . .	82
<b>Appendix B – Safety and Compliance . . . . .</b>	<b>86</b>
<b>Warranty and Liability Information . . . . .</b>	<b>95</b>
Limited Warranty on Hardware. . . . .	95
Limitation of Liability . . . . .	95
Governing Law and Language; Your Rights . . . . .	95
<b>Index. . . . .</b>	<b>97</b>

# Chapter 1 – Using this Manual

---

## Welcome

---

This manual is designed to enable the quickest path to productivity with BRIDGE NDI 3G. An outline is presented below.

## Guidance on Where to Start Depending on Role

---

If the system has already been set up by an administrator, then we advise beginning at "[Chapter 2 Introduction to BRIDGE NDI 3G](#)" or "[Chapter 3 Getting Started](#)" and reading through "[Chapter 5 Using Bridge NDI 3G](#)".

If you are setting up the system for the first time, begin at "[Chapter 7 System Setup and Configuration](#)".

For additional administrative functionality, see "[Chapter 8 Administrative Tasks](#)". "[Chapter 6 Interoperability](#)", "[Chapter 9 Using REST API](#)", and "[Chapter 10 Troubleshooting](#)" are intended only for experienced System Administrators.

## How Chapters are Organized

---

["Chapter 1 Using this Manual"](#): Guidance on where to start depending on role and requirements.

["Chapter 2 Introduction to BRIDGE NDI 3G"](#): Provides a general overview of the product and its capabilities.

["Chapter 3 Getting Started"](#): Explains how to access the system via browser or locally.

["Chapter 4 Interface, Nomenclature, Key Concepts"](#): Covers key terms and concepts along with an overview of the Interface and core functions.

["Chapter 5 Using Bridge NDI 3G"](#): Guidance on getting up and running. Includes essential network topics, encoding, decoding, simultaneous encoding/decoding, and details about using the Interface.

["Chapter 6 Interoperability"](#): Summarizes software and hardware from third parties that is compatible with BRIDGE NDI 3G.

["Chapter 7 System Setup and Configuration"](#): Walks through all the steps required for setting up and configuring the system for the first time.

["Chapter 8 Administrative Tasks"](#): Covers key tasks that administrators will need to be familiar with.

["Chapter 9 Using REST API"](#): Shows you how to access REST API resources for BRIDGE NDI 3G.

["Chapter 10 Troubleshooting"](#): Goes over essential troubleshooting tools and resources.

# Chapter 2 – Introduction to BRIDGE NDI 3G

---

## Overview

---

BRIDGE NDI 3G is a 1RU gateway offering high density conversion to and from 3G-SDI to NDI and NDI to 3G-SDI for both HD and 4K/UltraHD. Designed to drop into any existing NDI or SDI workflow as a plug and play appliance, BRIDGE NDI 3G is easy to deploy and administer.

BRIDGE NDI 3G can support workflows across:

- 16 channels of HD
- 4 channels of 4K/UltraHD
- 8 V+K channel pairs
- combinations of the above

## Maximum Performance

---

BRIDGE NDI 3G supports maximum performance up to 16 channels of HD p60 or 4 channels of 4K p60. Network conditions, video processing load and other parameters may reduce channel count and/or supportable rates in some situations.

## Common Use Cases

---

AJA BRIDGE NDI 3G provides efficient, high-density integration of 3G-SDI and NDI ecosystems.

BRIDGE NDI 3G makes it easy to connect between NDI environments and SDI environments.

In some instances BRIDGE NDI 3G may be used to connect NDI production islands to facility SDI routers (for example, a podcast room within a larger broadcast facility). In other situations BRIDGE NDI 3G may provide a predominantly NDI facility with its edge interconnect for SDI feeds in and/or out.

Alternatively, AJA BRIDGE NDI 3G can be used in conjunction with AJA Bridge Live to enable moving content over private lines or the public Internet.

## AV

---

- eSports
- Conference Video
- Display walls (events, buildings)

## Broadcast

---

- Production Control Rooms
- In-studio
- Temporary Production/Post expansions (rapid deployment of extra capability with little outlay or complexity)

## Corporate

---

- MS Teams
- Video Communications

## Production

---

- On-set monitoring distribution

## Post

---

- Share SDI channels between numerous NDI enabled NLEs
- Cost effective video monitoring

# Operational Flexibility

---

BRIDGE NDI 3G's video channels can be used to:

1. Encode all SDI Inputs to NDI
2. Decode all NDI Inputs to SDI
3. Encode/Decode a combination of SDI and NDI.

## Encode All SDI Inputs to NDI

---

In All Encode mode, all channels of SDI (16x channels of HD or 4x channels of 4K/UltraHD or 8x channels of HD V+K) are encoding from 3G-SDI to NDI.

## Decode All NDI Inputs to SDI

---

In All Decode mode, all channels of NDI (16x channels of HD or 4x channels of 4K/UltraHD or 8x channels of HD V+K) are decoding from NDI to 3G-SDI.

## Encode/Decode Combination

---

In Encode/Decode Combination mode, 8x channels of HD or 2x channels of 4K/UltraHD or 4x channels of HD V+K are encoding from SDI to NDI, while 8x channels of HD or 2x channels of 4K/UltraHD or 4x channels of HD V+K are decoding from NDI to SDI.

# System Overview

---

## BRIDGE NDI 3G at a Glance

---

BRIDGE NDI 3G is designed to be easy to use immediately. Upon power-up, the unit automatically launches the BRIDGE NDI 3G application.

Generally, the process of getting started includes the following steps:

- Install device in rack or other suitable location
- Connect power cord(s)
- Boot up device
- Connect cables for inputs, outputs and network connectivity
- Configure network settings

- Select banks
- Choose conversion directions (SDI to NDI, NDI to SDI)
- Configure video and audio monitoring

These steps are covered in detail in "[Chapter 7 System Setup and Configuration](#)" on [page 63](#).

## Software Features

---

- 16 channels of HD or 4 channels of 4K/UltraHD in a single 1RU form factor with redundant power supply
- Channels can be grouped for either 4-Channel 4K/UltraHD Groups, or 2-Channel Video and Key Groups
- SDI video I/O supports 10-bit, 4:2:2, YCbCr
- NDI video Input supports 8-bit, 4:2:2, UYVY and 8-bit, 4:2:2, UYVA
- NDI video Output supports 8-bit, 4:2:2, UYVY and 8-bit, 4:2:2, UYVA, plus P216, 4:2:2, 16-bit
- Easy to set up, intuitive interface
- Use via local kiosk interface or remotely via web browser interface

## Hardware features

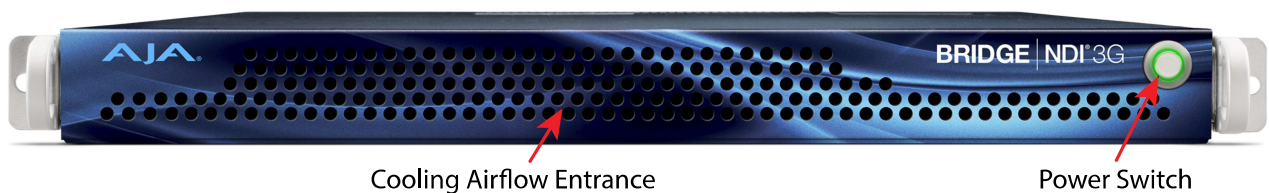
---

- 1RU height rack mountable chassis
- Hot swappable redundant power supplies
- One VGA monitor port
- Two USB 3.0 (blue) connectors
- Two USB 2.0 (black) connectors
- Two Network Interface Cards
- Three year warranty

## Chassis Front

---

*Figure 1. BRIDGE NDI 3G Chassis Front View*



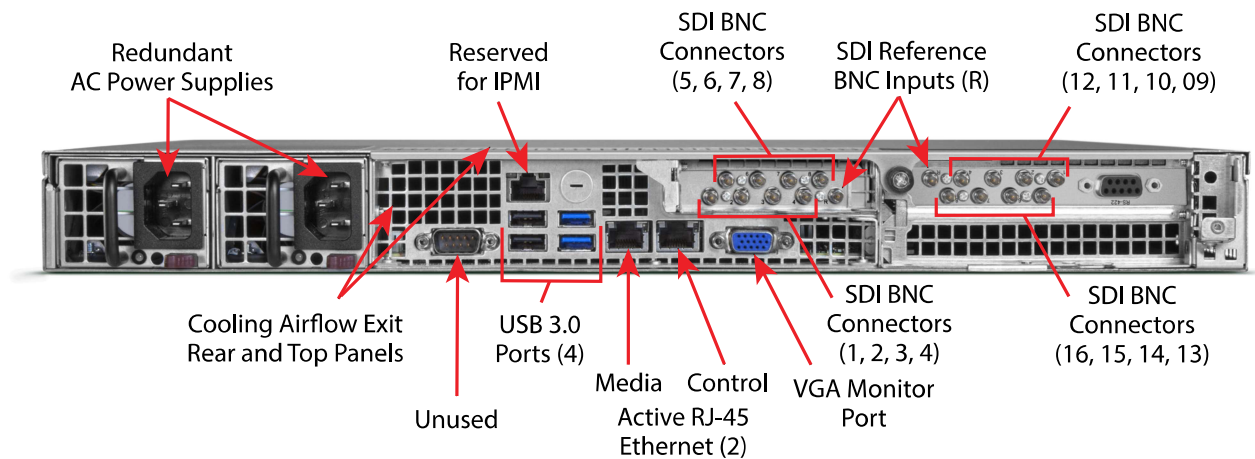
### Chassis Power Button

---

The main power switch is used to apply or remove power from the power supply to the system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug all system power cords before servicing.

## Chassis Rear

Figure 2. BRIDGE NDI 3G Chassis Rear View



### Rear Panel Power Supply LEDs

On the rear of each power supply module, an LED indicates its status as follows.

- Solid Green: When illuminated, indicates that the power supply is on.
- Solid Amber: When illuminated, indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.
- Blinking Amber: When blinking, this system power supply temperature has reached 63°C. The system will automatically power-down when the power supply temperature reaches 70°C and restarts when the power supply temperature goes below 60°C.

# Chapter 3 – Getting Started

---

*NOTE: If you are setting up BRIDGE NDI 3G for the first time, please first refer to "Chapter 7 System Setup and Configuration" on page 63, then return to this Getting Started chapter.*

## Starting the System

---

### Accessing the BRIDGE NDI 3G Interface Locally

---

#### To Access the Unit Locally via the Kiosk Interface

---

1. Connect a monitor to the VGA monitor port on the rear panel.
2. Connect the unit to a keyboard and mouse using the USB 3.0 ports on the rear panel.
3. Turn on power for the monitor.
4. Press the power switch on the front panel. Once the monitor and the BRIDGE NDI 3G unit are powered on, the unit will boot up and display an initial splash screen. The message "Press Space Bar to enter BRIDGE | NDI interface" displays.

*Figure 3. BRIDGE NDI 3G Power Switch*



5. Press the space bar on the keyboard. A sign-in window displays, prompting you to enter a username and password.
6. See the Quick Start Guide that shipped with your unit for the exact login credentials. If you are unable to locate the Quick Start Guide, contact AJA Technical Support with the unit's serial number (see sticker on rear panel, to the left of the 4 USB ports).

After logging in, the BRIDGE NDI 3G interface displays. From here, you can perform all operations locally using this configuration.

### Accessing the BRIDGE NDI 3G Interface Remotely

---

This section shows you how you can initially access the BRIDGE NDI 3G interface remotely, before you know its IP address, through simple network discovery from your remote system.

By default, the BRIDGE NDI 3G unit is shipped with DHCP enabled. DHCP is also enabled following a factory reset.

## To Access the Unit Remotely

---

### For Windows

---

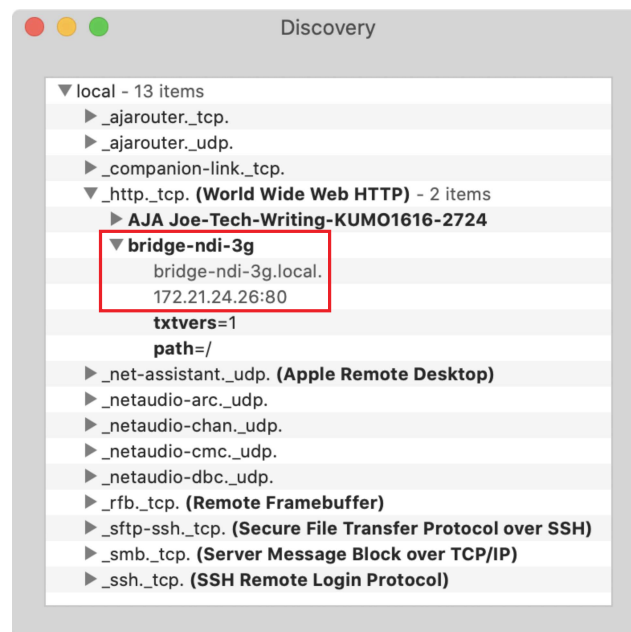
1. Open Windows Explorer.
2. Navigate to Network.
3. Click Network to enumerate network devices.
4. Search for either "BRIDGE" or the device's Serial Number (see sticker on rear panel, to the left of the 4 USB ports).
5. Double-click on the intended device. Your remote system web browser will launch and display the web GUI for the device.

### For macOS

---

1. Download and install an MDNS browser, such as Discovery, from which you can browse local Bonjour services to discover network devices on a Mac host.
2. Use this method to identify the BRIDGE NDI 3G's IP address. In the example shown below in [Figure 4](#), the IP address is 172.21.24.26.
3. Enter the IP address into a browser.

*Figure 4. Example of using Discovery to find the IP address*



## Local Kiosk Interface vs. Remote Browser Interface

---

The BRIDGE NDI 3G interface is the same whether accessed locally via the Kiosk interface or remotely via a Web Browser on a separate host system, with the following exceptions:

- The local Kiosk interface is dedicated to BRIDGE NDI 3G and is not designed to serve as a web browser.
- The local Kiosk interface lacks the "generate" button that the remote interface has that is used for creating and saving the BRIDGE NDI 3G Support Log.
- Using the system locally with the Kiosk Interface (via customer supplied VGA Monitor with USB Keyboard and Mouse) together with the supplied USB sound card, means that it's possible to confidence-monitor both audio and video without any additional tools. Via the remote Web Browser Interface,

confidence-monitoring picture is possible via the I/O screen, but for audio monitoring a separate utility such as NewTek NDI Studio Monitor should be used.

## Splash Screen

After login, the BRIDGE NDI 3G will display the following splash screen:

Figure 5. Initial View of BRIDGE NDI 3G Remote Interface after Login



## Conserving System Resources Following Configuration

After configuring BRIDGE NDI 3G to perform desired functions, best practice is to return the system to displaying the Splash Screen in order to conserve system resources.

### Locally

Press ALT + F4 to logout and return the system to the Splash Screen.

### Remotely

Close the browser tab or browser window to conserve system resources.

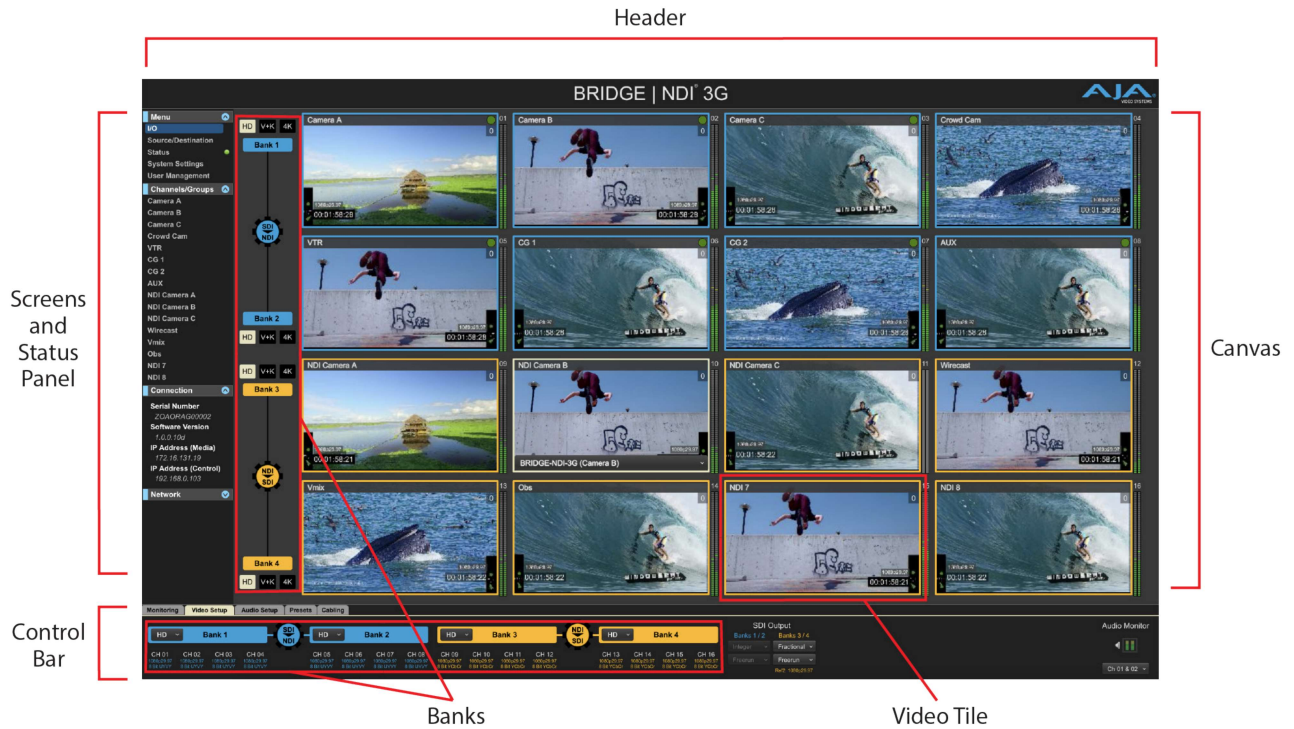
# Chapter 4 – Interface, Nomenclature, Key Concepts

This chapter introduces you to the primary BRIDGE NDI 3G Interface concepts, tools, and functions. More in depth, detailed information is available in ["Chapter 5 Using Bridge NDI 3G" on page 19.](#)

The BRIDGE NDI 3G interface is the same whether accessed via browser on a remote system, or locally through a monitor connected to the unit's VGA port (Kiosk Interface).

## BRIDGE NDI 3G Interface

Figure 6. BRIDGE NDI 3G General Interface Diagram



### Screens and Status

Below is a closer look at the left menu panel.

Figure 7. The Left Menu Panel



The left menu panel contains the following screens and status indicators:

## System Menu Screens

---

### I/O

The I/O Screen displays previews of up to 16 channels of video along with two channels of corresponding audio levels for each source and/or destination. From this screen, you can easily see the direction and groupings of conversions underway between SDI and NDI.

### Source/Destination

Use the Source/Destination Screen to see what is on your network and what is actively mapped to/from SDI Channels and/or Groups. You can also see what NDI sources are available on your NDI network.

## Status

---

The Status Screen shows you indicators of key aspects of the system's health and network activity. This includes application and system CPU usage and temperature.

## System Settings

---

The System Settings Screen displays system details such as system name, serial number, system time, system date, system up-time, video engine firmware versions, network settings, and other system details and resources.

## User Management

---

Here you can change the Administration Login password.

## Individual Channel/Group Screens

---

Access deeper controls for individual channels or groups.

## Connection

---

This panel displays the unit's serial number, software version, and IP addresses for the Media and Control Ethernet ports. This information is contained elsewhere in the BRIDGE NDI 3G interface, with this subset of details gathered here for at-a-glance reference.

## Network (AJA Devices)

---

This panel displays any detected AJA devices that are on the same network as BRIDGE NDI 3G.

## Canvas

---

The Canvas, the area to the right of the Screens and Status panel, will display the currently selected System Screen or Individual Channel/Group.

In the above example, the Canvas is showing the I/O Screen, so the space is being used for viewing and working with Video Tiles and Banks.

## Video Tiles

---

Each Video Tile on the Canvas displays the activity for one video Channel or Group. All Video Tiles are shown on the I/O Screen Canvas, offering an easy method for monitoring all of the video channel activity that is flowing through BRIDGE NDI 3G.

## Audio Metering

---

Each Video Tile shows two channels of Audio Metering along its right side. This can be toggled on and off at the far right of the Control Bar, under Audio Monitor, by clicking on the dual channel Audio Meter.

## Engines and Banks

---

Engines control whether BRIDGE NDI 3G is converting SDI to NDI, or NDI to SDI, whereas Banks control the configuration of the Inputs or Outputs (Channels or Groups).

## Engines

---

BRIDGE NDI 3G has two Video Engines (A and B).

Each Video Engine is comprised of eight 3G-SDI channels with corresponding BNC connections on the rear of the device, plus a reference connector.

Each Video Engine is comprised of two Banks. Each Bank controls four 3G-SDI channels which can be grouped to enable 4K/UltraHD or dual Video plus Key I/O.

Banks 1 and 2 reside on Video Engine A.

Banks 3 and 4 reside on Video Engine B.

## Banks

---

- Bank 1 consists of Channels 1, 2, 3, 4.
- Bank 2 consists of Channels 5, 6, 7, 8.
- Bank 3 consists of Channels 9, 10, 11, 12.
- Bank 4 consists of Channels 13, 14, 15, 16.

Banks are the channels or groups that are being converted, and they are the focal point of confidence monitoring via the BRIDGE NDI 3G interface – being represented through the Video Tiles.

Each Bank has four 3G-SDI channels with corresponding BNC connections on the rear of the device.

## Grouping Channels within a Bank

---

Each Bank can be independently configured for one of the following:

- Four separate HD Inputs or Outputs
- Two Video and Key Inputs or Output pairs
- One 4K/UltraHD Input or Output

*NOTE: Banks cannot be "broken apart," nor can Groups span multiple Banks.*

## Engines and Banks Summary

---

If both Engines are set to convert in the same direction (SDI to NDI, or NDI to SDI), then all four Banks will be available for a total of up to 16x individual HD channels, 4x 4K/UltraHD Groups, or 8x V+K Groups, or some combination thereof.

If one Engine is set to convert SDI to NDI, and the other Engine is set to convert NDI to SDI, then there will be two Banks available in each direction, for a total of up to 8x individual HD channels In and Out, 2x 4K/UltraHD Groups In and Out, or 4x V+K Groups In and Out, or some combination thereof.

## Control Bar

---

The Control Bar provides tabs for easy access to the most frequently used video and audio controls and settings. These tabs are always visible, so you consistently have access to all of this functionality regardless of which Menu Screen you have selected.

The Control Bar is located along the lower area of the BRIDGE NDI 3G interface. It is split into five tabs: Monitoring, Video Setup, Audio Setup, Presets, and Cabling.

## Video Tiles vs. SDI and NDI Video I/O

---

The SDI and NDI outputs carry the full frame rate of the video signal.

The Kiosk view (monitor connected directly to BRIDGE NDI 3G device through its monitor rear connector) and the Web Browser view are intended for confidence monitoring and, depending on the video processing load on BRIDGE NDI 3G, may reflect somewhat less than the full frame rate of the signals.

BRIDGE NDI 3G prioritizes system resources for SDI/NDI Video I/O over the confidence monitoring presented on the Canvas.

# Chapter 5 – Using Bridge NDI 3G

---

## Get Up and Running with BRIDGE NDI 3G

---

BRIDGE NDI 3G is designed to be intuitive to configure so that you can get the system operating quickly according to your use case requirements.

It is recommended that you plan your use case in advance. If you will be inputting SDI and outputting NDI exclusively, then all 16 SDI connectors will be dedicated to upstream SDI sources.

If you will be inputting NDI and outputting SDI exclusively, then all 16 SDI connectors will be dedicated to downstream SDI destinations.

If supporting a dynamic environment where you need the capability to convert in both directions at any given time, then it is recommended that you set the system up with one engine dedicated to 8 upstream SDI sources, and the other engine dedicated to 8 downstream SDI destinations.

When cabling, remember that Banks cannot be split, and Groups cannot span Banks.

In summary, follow this approach:

- Determine Use Case
- Connect Cables According to Use Case
- Configure System to Match Use Case

## How This Chapter is Organized

---

This chapter describes three primary configuration use cases—SDI to NDI encoding, NDI to SDI decoding, and simultaneous encoding and decoding between SDI and NDI.

Following those descriptions, we'll take an in-depth look at the Control Bar and the Menu Screens.

## NDI Network

---

Regardless of your workflow, whether receiving NDI for decode to SDI, or ingesting SDI for encode to NDI, a connection to the NDI network is required.

### Connect NDI Network to Rear Ethernet Media Port

---

Connect your NDI network to the rear Ethernet media port of your BRIDGE NDI 3G device. When looking at the rear of the device, the media Ethernet port is on the left. See "[BRIDGE NDI 3G Chassis Rear View](#)" on page 10 as a reference.

Selecting the NDI source for each SDI output channel on BRIDGE NDI 3G is determined by selecting from a list of detected NDI sources on your NDI network for a specific SDI output channel.

As soon as you have selected active input NDI signals, those sources will be visible on the I/O Screen. See "[Network Requirements](#)" on page 66 in Chapter 7 for more details.

## Determining Encoding vs. Decoding

Figure 8. Showing SDI to NDI Encoding



In the example above, all channels of SDI input are being encoded from SDI to NDI. The Bank buttons are blue, as is the outline of each Video Tile, which is the system color for SDI to NDI encoding (SDI In, NDI Out).

When Bank buttons and the outline of each Video Tiles are colored orange, this is indicating that those channels/groups/banks are set for decoding NDI to SDI (NDI In, SDI Out).

## Changing Between SDI to NDI Encoding and NDI to SDI Decoding

To change between SDI to NDI Encoding and NDI to SDI Decoding, use a single click on the Cog Icon found on the I/O Screen (and on the Control Bar > Video Setup Tab). This will toggle between the two modes, and the color of the Bank Indicators, Video Tile borders, etc., will change accordingly.

Figure 9. SDI to NDI direction

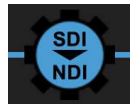


Figure 10. NDI to SDI direction



**NOTE:** When changing an engine between encode and decode, all system channels/groups will re-lock to incoming video and a momentary interruption to video and audio will likely occur.

**NOTE:** Interface highlights or selections are shown in light yellow.

Each channel or group is represented by a Video Tile, showing the video signal for confidence monitoring, along with the name of its source.

# SDI to NDI Encoding

If the system will be devoted to receiving incoming SDI and encoding to NDI for output to the NDI Network, then all SDI connections to BRIDGE NDI 3G will be 3G-SDI sources coming from devices such as Cameras, Routers, Recorders/Players, and NLE/VFX/GFX system playback.

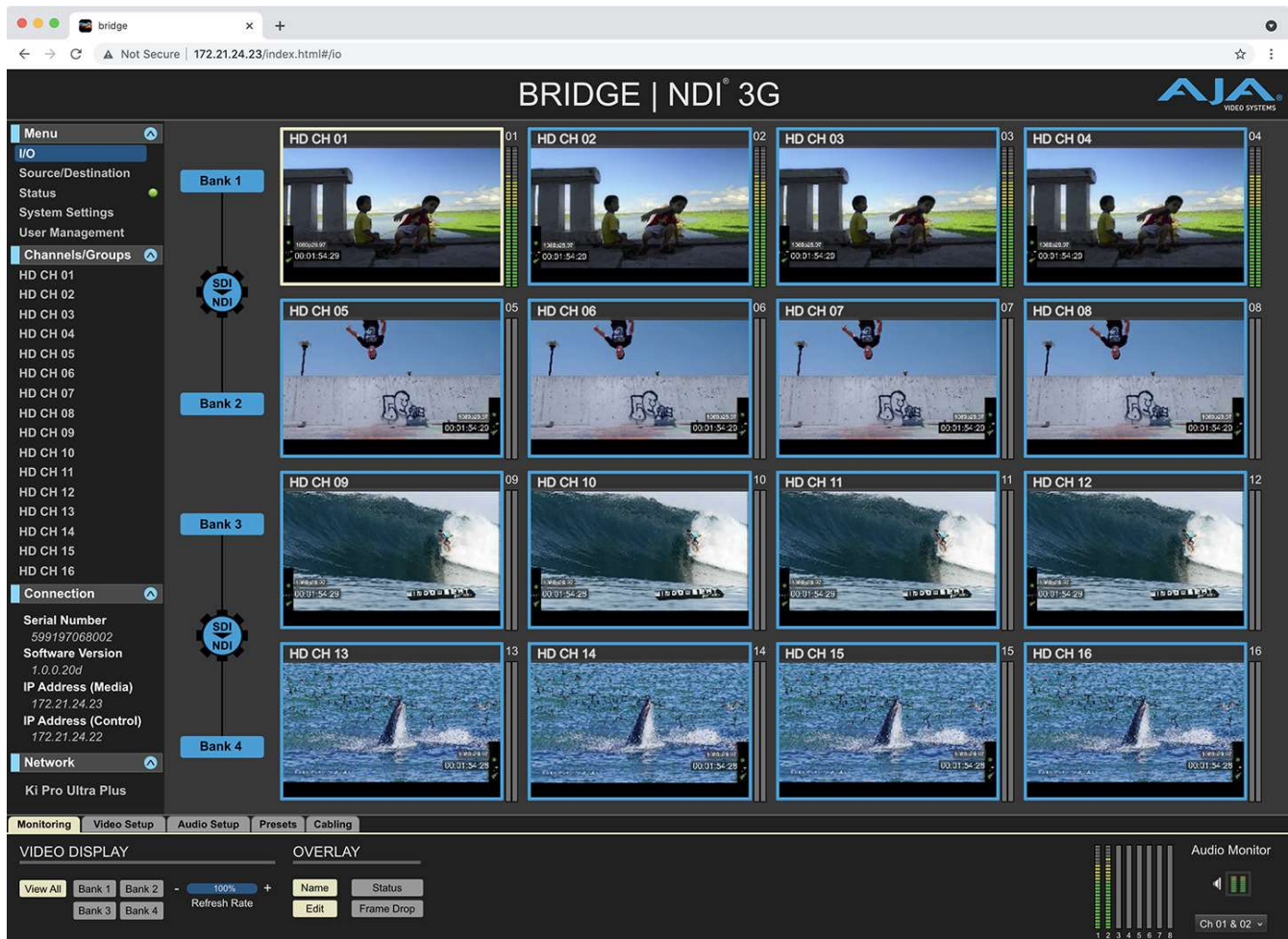
## Connect SDI Sources to Rear BNC Ports

Keeping in mind the layout of the rear BNC connectors as described in "[BRIDGE NDI 3G Chassis Rear View](#)" on page 10, connect your SDI sources to the rear BNC connectors.

Selecting the SDI source for each channel on BRIDGE NDI 3G is determined by the cabling of SDI sources to the BNC connectors on the rear of the BRIDGE NDI 3G device.

As soon as you have connected active input signals, those sources will be visible immediately on the I/O Screen (as long as the Bank buttons are blue, reflecting the SDI to NDI direction).

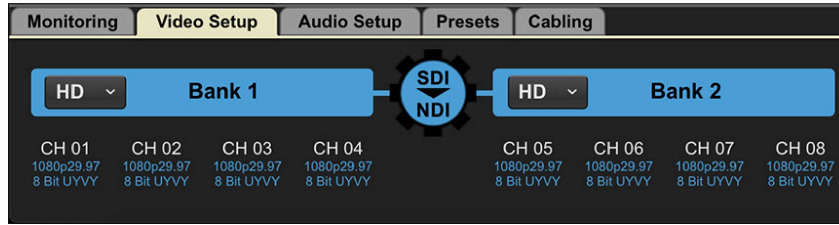
Figure 11. I/O Screen with SDI Sources Displaying



# SDI to NDI Encoding for HD Channels

To configure a Bank for HD, select the Video Setup tab on the Control Bar along the lower area of the interface. The Bank Configuration buttons display.

Figure 12. Selecting the Video Setup Tab

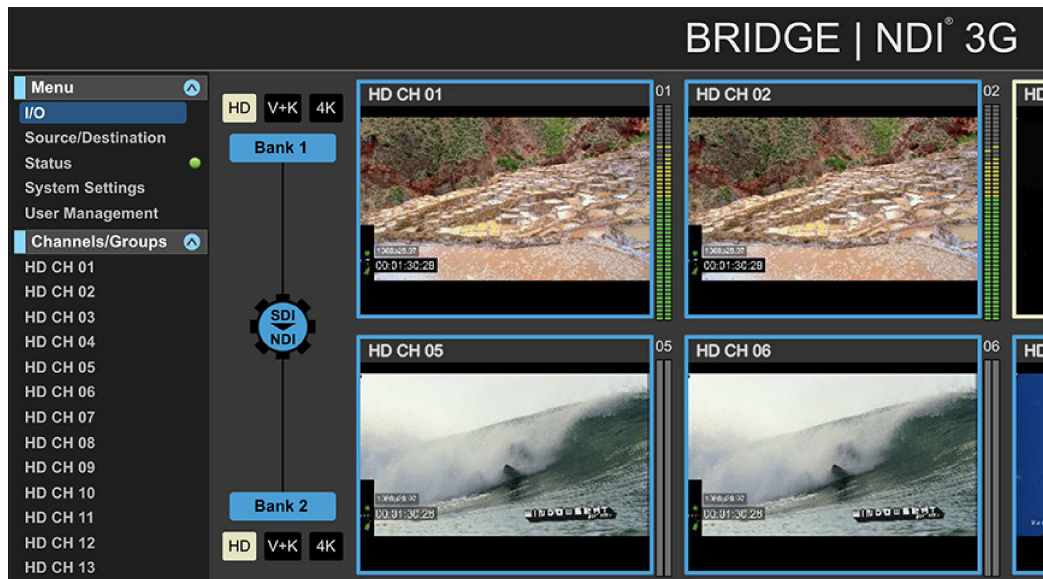


Select HD from the Bank Configuration drop-down menu.

With the Video Setup tab selected, the Bank Configuration buttons also display on the I/O Screen. You can make Bank Configuration selections from either the Video Setup tab in the Control Bar or from the I/O Screen.

If the Video Setup tab is not selected, the Bank Configuration buttons will not display on the I/O Screen.

Figure 13. After the Video Setup Tab is selected, the Bank Configuration buttons become available from both the Video Setup tab as well as the I/O Screen

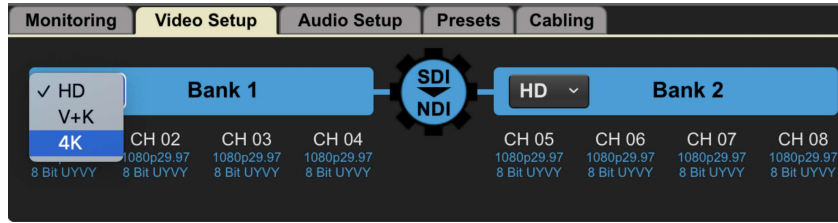


This will allow selection of HD, V+K, or 4K mode. Each Video Tile represents an HD signal from each 3G-SDI connection that is being used to feed or receive the HD signal using that specific Bank.

## SDI to NDI Encoding for 4K/UltraHD Groups

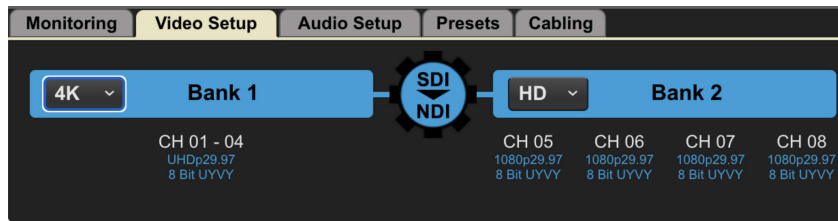
To configure a Bank for 4K/UltraHD, select the Video Setup tab on the Control Bar. The Bank Configuration buttons display.

Figure 14. Selecting 4K from Bank Configuration drop-down menu



With the Video Setup tab selected, select 4K from the Bank Configuration drop-down menu.

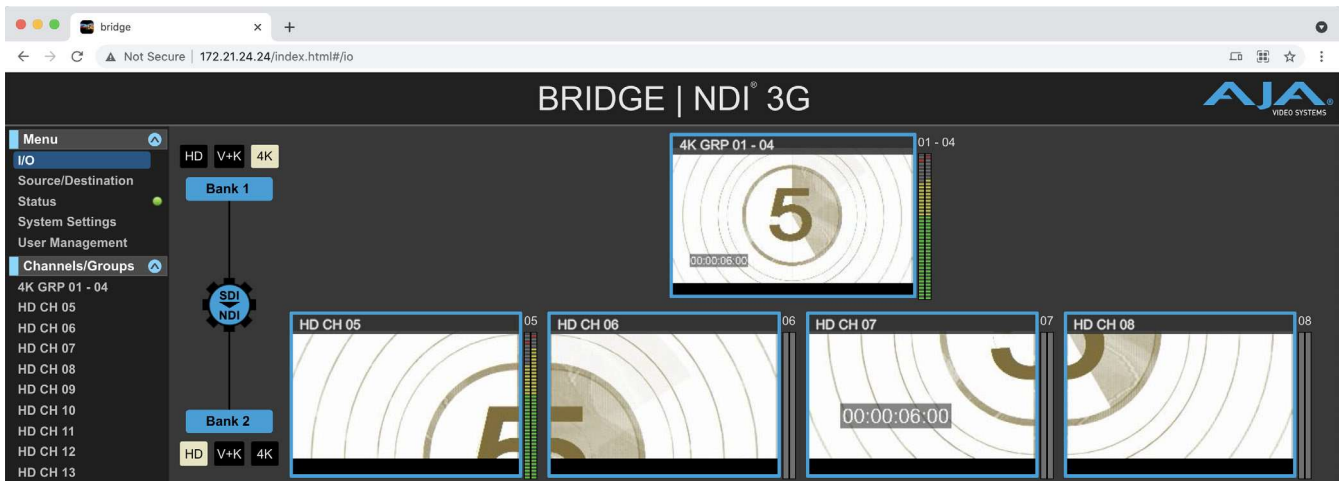
Figure 15. 4K Selected for Bank 1



In this example, Channels 01 through 04 are now grouped together as a 4K/Ultra HD Group.

When viewed from the I/O Screen, this shows as a “collapsed” Video Tile representing the signal across the four 3G-SDI connections that are being used to feed the 4K/UltraHD signal using that specific Bank.

Figure 16. The I/O Screen Showing Bank 1 as a 4K Video Tile



## 2SI LFR and HFR Input

For LFR (Low Frame Rate) 2SI video, BRIDGE NDI 3G uses only the first two connections of the Bank:

- Bank 1 – Ch 1, 2
- Bank 2 – Ch 5, 6
- Bank 3 – Ch 9, 10
- Bank 4 – Ch 13, 14

For HFR (High Frame Rate) 2SI video, BRIDGE NDI 3G uses all 4 SDI connections of the Bank:

- Bank 1 – Ch 1, 2, 3, 4
- Bank 2 – Ch 5, 6, 7, 8
- Bank 3 – Ch 9, 10, 11, 12
- Bank 4 – Ch 13, 14, 15, 16

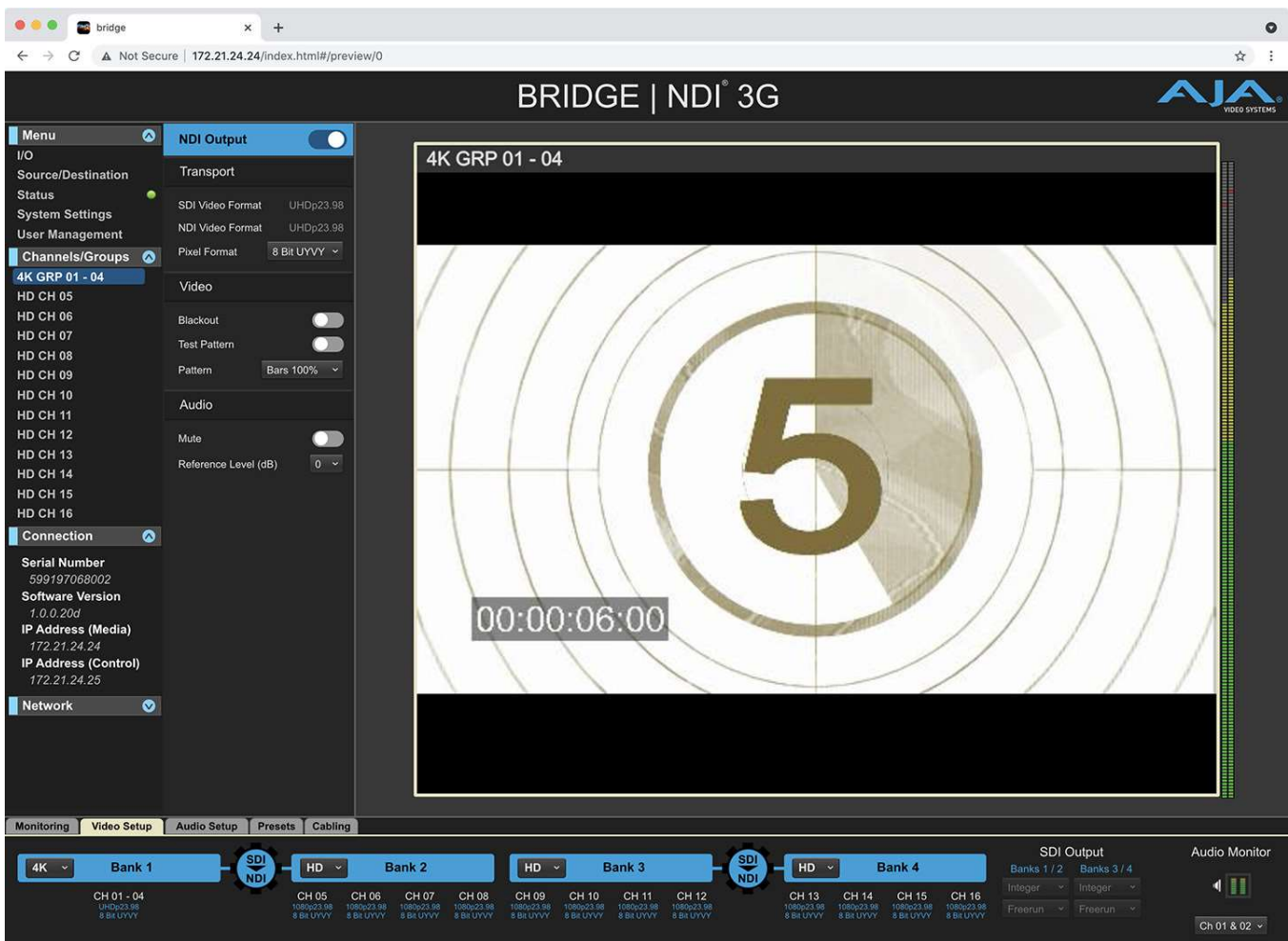
## Square Division Input

For Square Division, BRIDGE NDI 3G uses all 4 SDI connections of the Bank:

- Bank 1 – Ch 1, 2, 3, 4
- Bank 2 – Ch 5, 6, 7, 8
- Bank 3 – Ch 9, 10, 11, 12
- Bank 4 – Ch 13, 14, 15, 16

Double-clicking the Video Tile that represents the 4K/UltraHD Group opens the Individual Channel/Group Screen for that 4K/UltraHD Group, shown in the next figure below.

Figure 17. The Individual Channel Screen for 4K/UltraHD Group 01-04



An alternative method for navigating to the Individual Channel/Group Screen is to select "4K GRP 01 - 04" in the left menu under the Channels/Groups heading.

This is where a deeper set of controls and tools can be found, such as:

- Disabling or enabling NDI Output
- Pixel Format

- Video Blackout
- Test Pattern on/off and Test Pattern selection
- Audio Mute
- Audio Reference Level (dB)

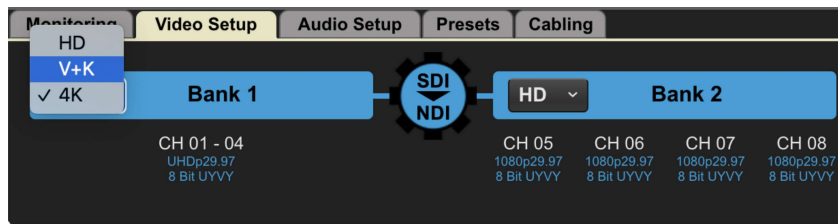
The system will auto-detect Square or 2SI on input. In NDI output channels, you can select which way to output it – Square or 2SI.

## SDI to NDI Encoding for Video + Key Groups

You can use the same Bank Configuration button to break a Group back apart into individual Channels, or change the Group type from 4K/UltraHD to Video + Key.

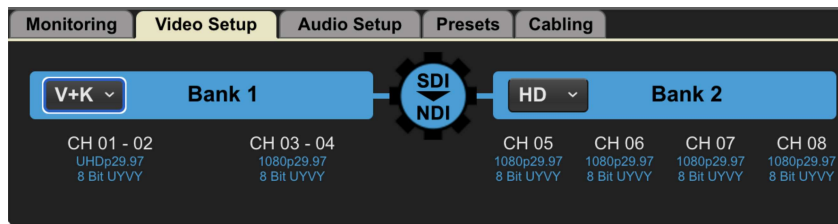
To configure a Bank for Video + Key, select the Video Setup tab on the Control Bar. The Bank Configuration buttons display.

Figure 18. Selecting V+K from Bank Configuration drop-down menu



With the Video Setup tab selected, select V+K from the Bank Configuration drop-down menu.

Figure 19. V+K Selected for Bank 1



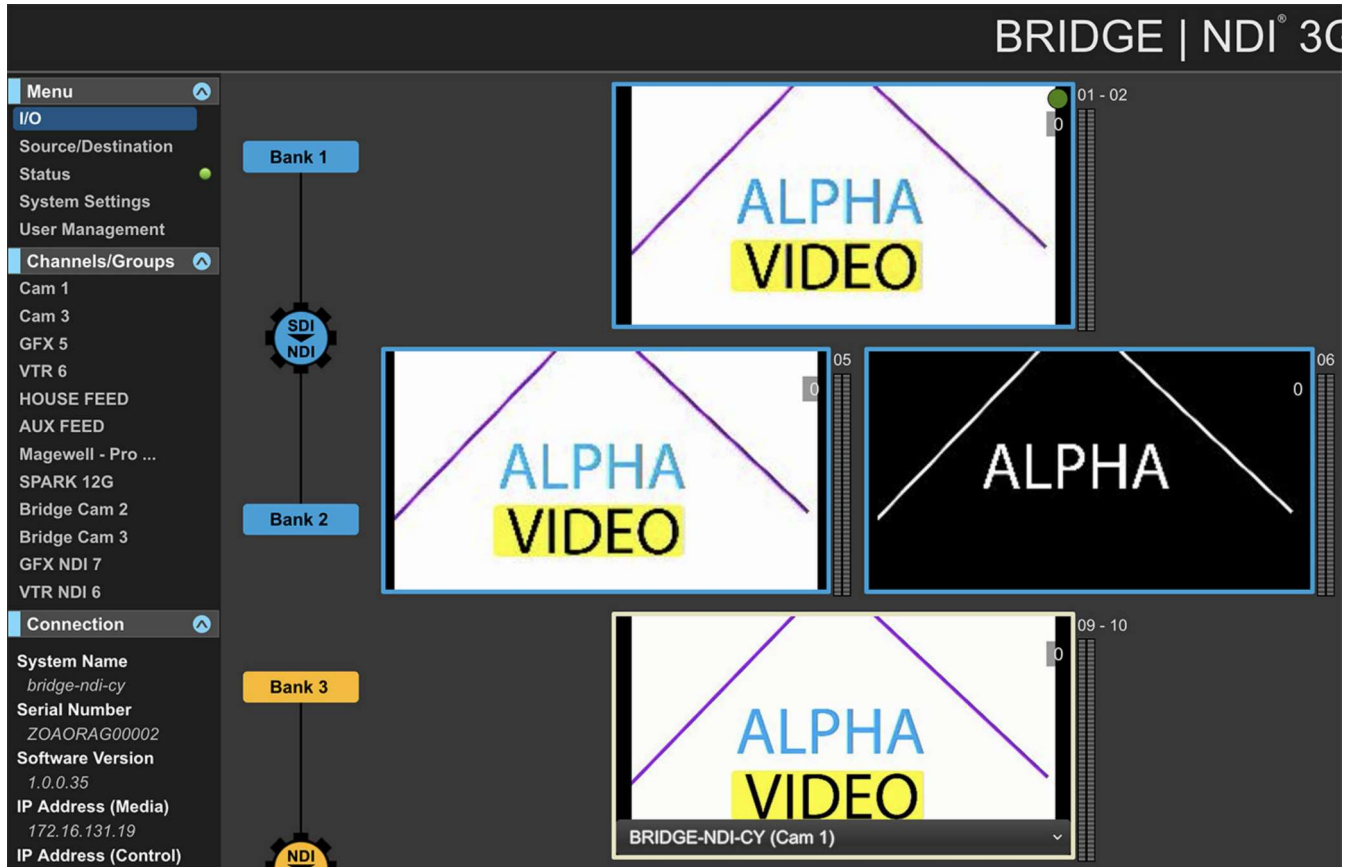
In this example, Channels 01 through 04 are now grouped together as two separate V+K Groups.

When viewed from the I/O Screen, since each Bank has four connectors available, BRIDGE NDI 3G will automatically create a pair of Dual-Channel Video + Key Groups that will show as two “collapsed” Video Tiles, each representing the signal across two of the four 3G-SDI connections that are being used to receive the dual Video + Key (HD) signals via SDI, using that specific Bank.

When two separate SDI feeds for Video and Key are encoded to NDI, the resultant NDI is a single stream comprised of Video and Alpha Channel (UYVA).

**NOTE:** When a Bank is set up for Video and Key, each SDI video pair should be connected with the first connector being Video Channel 1, the second connector being Key Channel 1, the third connector being Video Channel 2, and the fourth connector being Key Channel 2.

Figure 20. The I/O Screen Showing part of Bank 1 (Channels 01 and 02) and part of Bank 3 (Channels 09 and 10) as a Video + Key Configuration



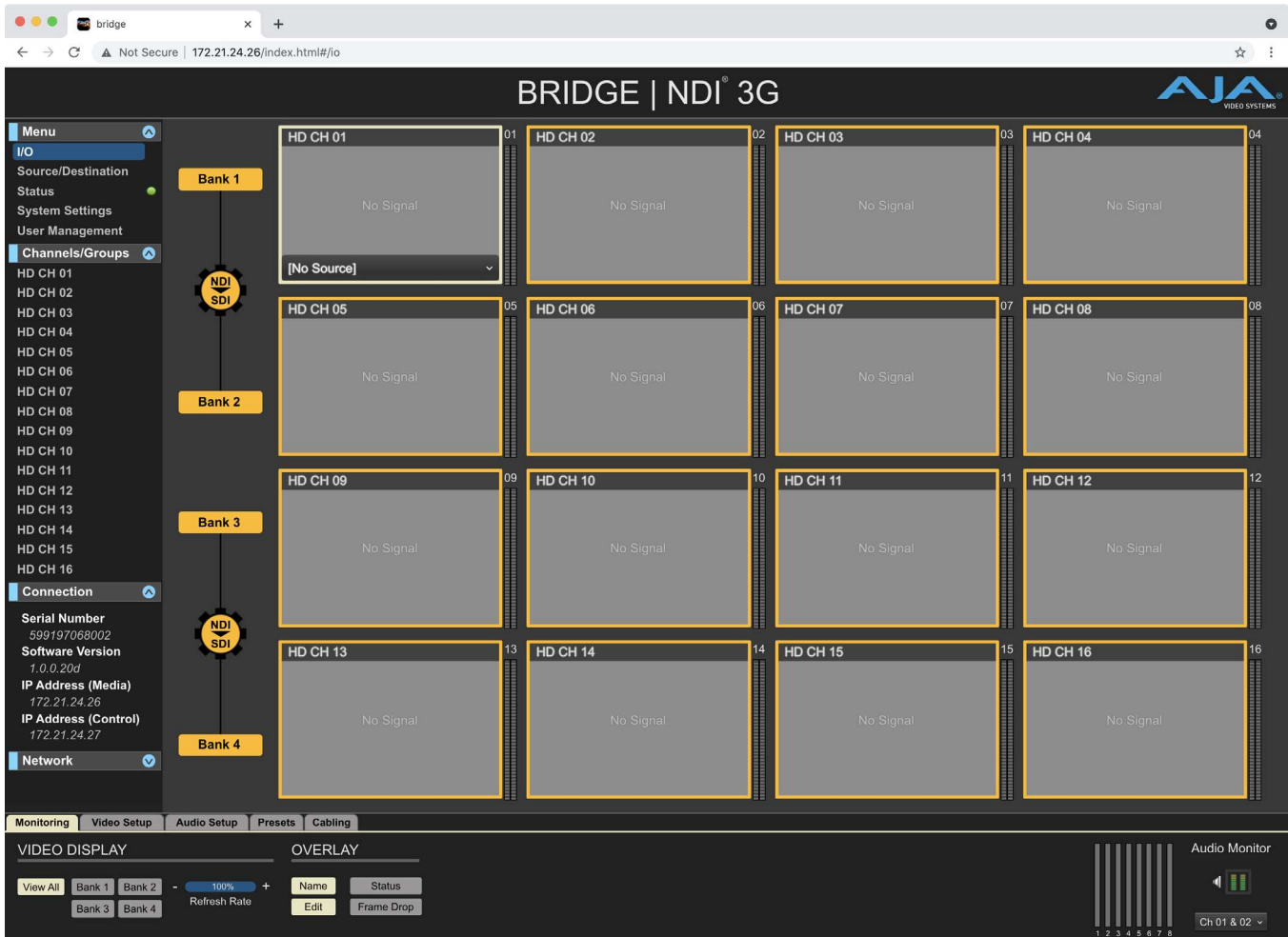
## NDI to SDI Decoding

If the system will be devoted to receiving incoming NDI from the NDI Network and decoding to SDI for output from the rear of Bridge NDI, then all SDI connections to BRIDGE NDI 3G will be 3G-SDI Destinations such as switchers, routers, ingest servers, and edit bays.

Consider how each Bank will be used, i.e., as individual HD Channels, 4K/UltraHD Groups, Video + Key Groups, or some combination thereof.

Most of the controls described above for SDI to NDI encoding are essentially the same when using them for NDI to SDI decoding.

Figure 21. The first time the system is set up for all NDI to SDI, the Video Tiles won't show any video



## About NDI Sources

BRIDGE NDI 3G is able to receive NDI sources that are HD, 4K or HD Video plus Alpha (V+K). Note, though, that to get the correct result, the Bank(s) will need to be configured correctly by the operator of BRIDGE NDI 3G. Banks do not reconfigure between HD, 4K and Video plus Key automatically based on NDI Source changes.

BRIDGE NDI 3G is compatible for NDI input (receive) and output (transmit) with both NDI 4.x and NDI 5.x software/hardware. For NDI input, NDI HX is also supported.

BRIDGE NDI 3G will auto-discover NDI Sources from your network. You can then subscribe to them if you want to convert that NDI Source into SDI.

NDI Source names are non-editable, but Operators can enter descriptive labels for them. There are no default custom names for NDI Sources; the field is blank by default. Custom names have a 45-character limit.

# NDI to SDI Decoding for HD Channels

In this example, we are using Bank 3 and Bank 4 to decode NDI to SDI.

## Selecting an NDI Source from the NDI Network

Unlike the SDI channels in which the signal source is determined by cabling, NDI sources need to be selected from a drop-down menu for each Video Tile. Until that is done, these channels/groups will display "No Signal."

To Select an NDI Source

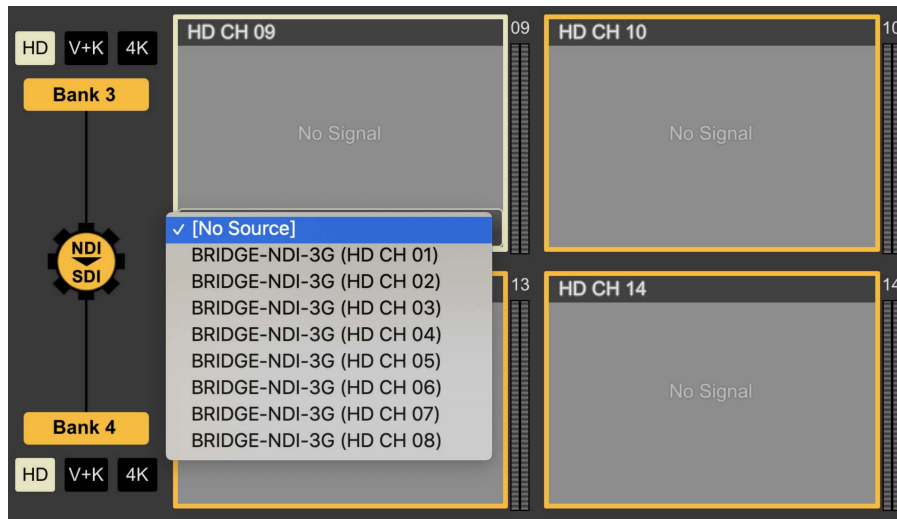
1. From the I/O Screen, select the Video Tile you want to use for NDI to SDI. Its frame is outlined in yellow, and "No Source" displays along the lower area.

Figure 22. Selecting NDI to SDI Video Tile for HD CH 09



2. Select the drop-down menu. A list of detected NDI sources displays. In this example, eight NDI sources have been detected.

Figure 23. Drop-down menu displaying detected NDI sources



3. Select one of the NDI sources. Its video signal displays in the Video Tile for HD CH 09.

Figure 24. Selected NDI source displaying in Video Tile



4. Repeat this process for each channel that you want to use to decode NDI to SDI.

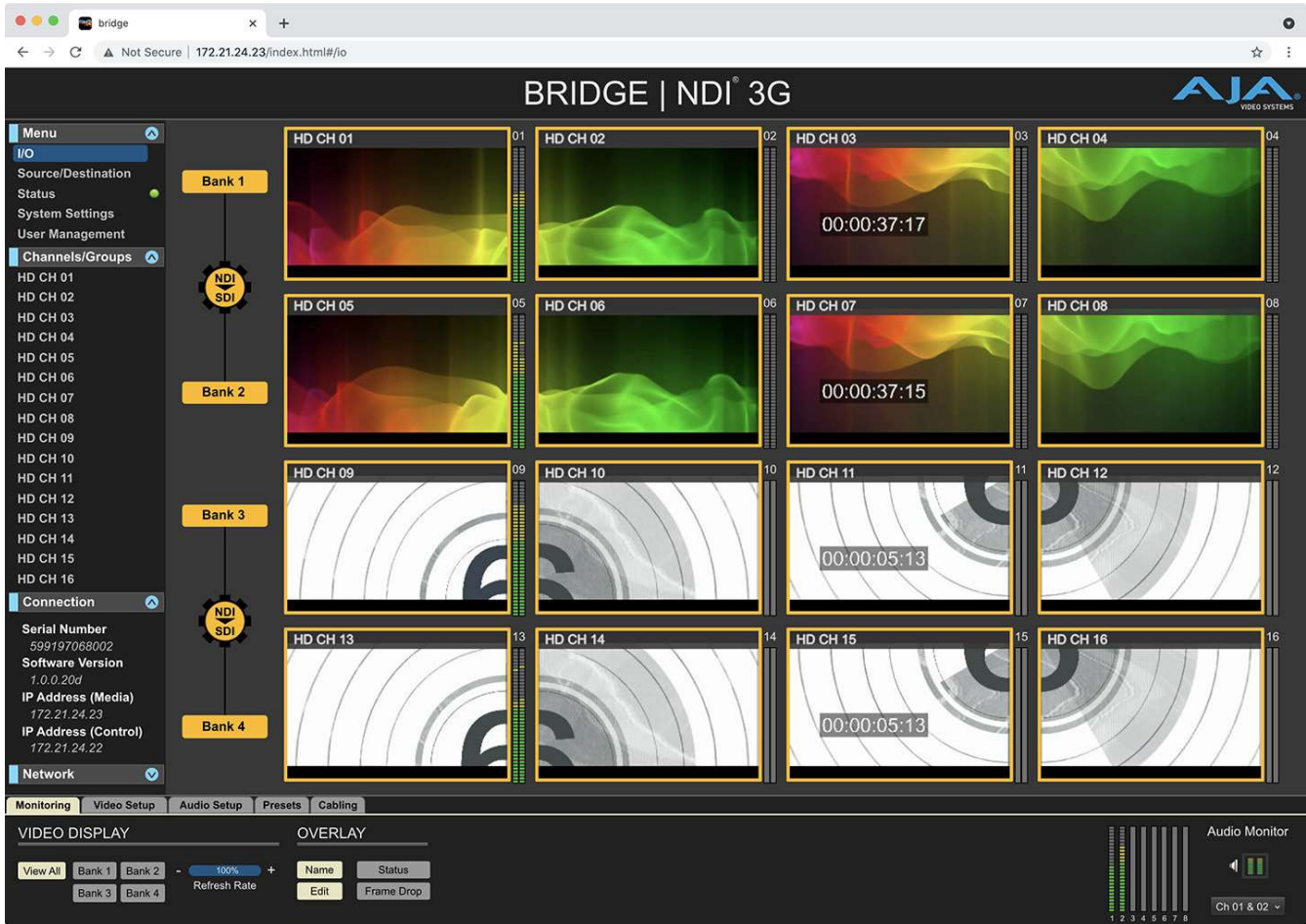
In the above example, since HD CH 09 was selected, the decoded NDI to SDI video signal will be sent out through the rear BNC connector for Channel 9.

## Configuring Banks for HD, V+K, 4K

For NDI to SDI, the steps for configuring Banks for selecting HD, V+K or 4K/Ultra HD are the same as described earlier for the SDI to NDI process. See the steps described in the following sections:

- ["SDI to NDI Encoding for HD Channels" on page 22](#)
- ["SDI to NDI Encoding for 4K/UltraHD Groups" on page 23](#)
- ["SDI to NDI Encoding for Video + Key Groups" on page 25](#)

Figure 25. I/O Screen with all channels decoding NDI to SDI



Note that the Bank buttons and the outline of each Video Tiles are colored orange, indicating that those channels/groups/banks are set for decoding NDI to SDI (NDI In, SDI Out).

## Simultaneous Encoding and Decoding Between SDI and NDI

Setting up the system for simultaneous encoding and decoding is straightforward, but it is recommended that you think through your cabling needs ahead of time for the smoothest configuration process.

### Plan in Advance for SDI Cabling

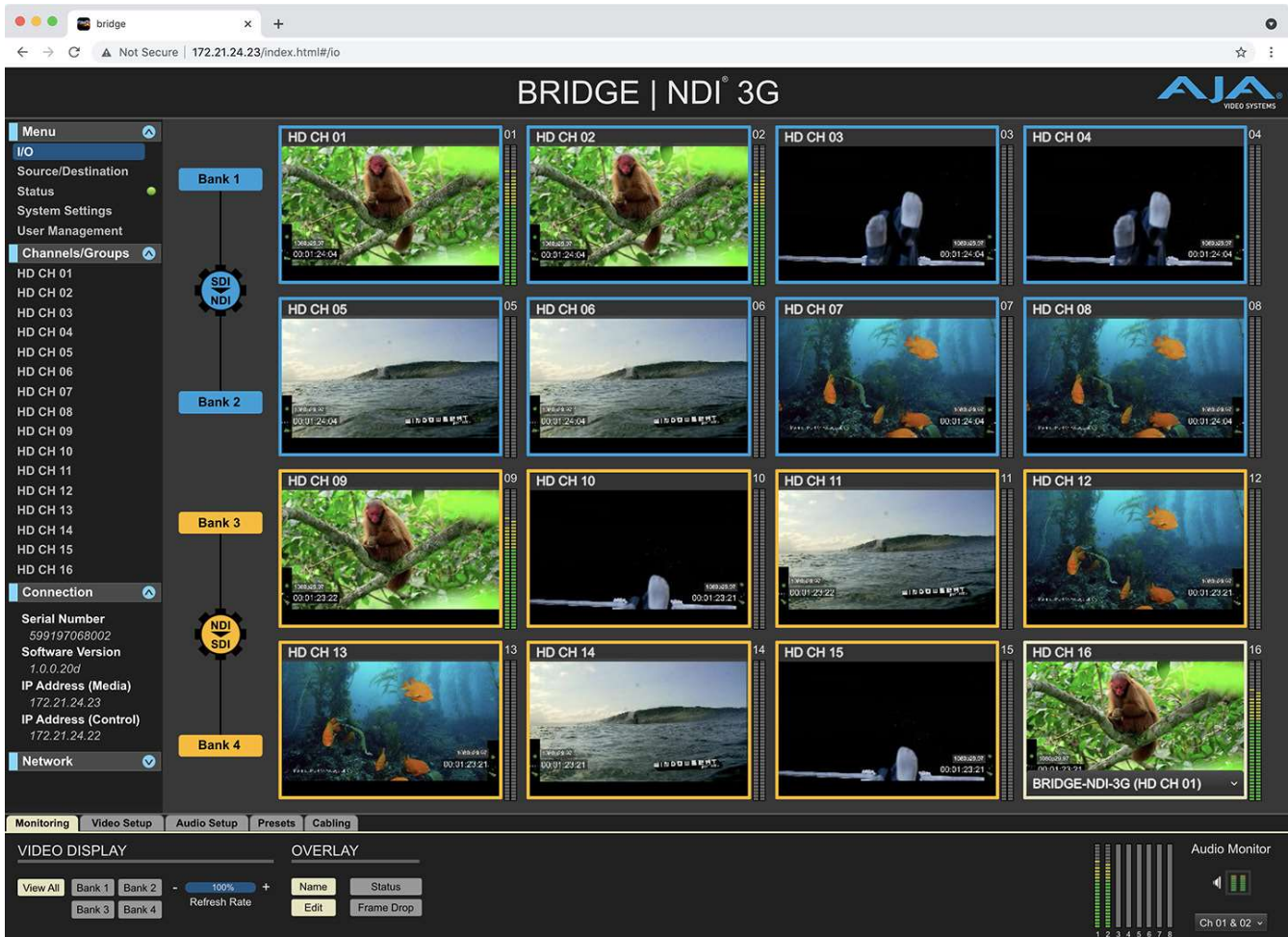
If you will be using your BRIDGE NDI 3G system for simultaneously receiving incoming SDI and Encoding to NDI and receiving incoming NDI from the NDI Network and Decoding to SDI, then it is recommended that you decide in advance which connectors will be SDI Inputs, and which connectors will be SDI Outputs.

## Example of Simultaneous Encoding and Decoding

For example, if Engine A (Banks 1 and 2) will be used for Receiving incoming SDI and Encoding to NDI for Output to the NDI Network, then SDI connections 1-8 on BRIDGE NDI 3G will be taking in 3G-SDI Sources.

If Engine B (Banks 3 and 4) will be used for Decoding NDI from the NDI Network and outputting SDI, then SDI connections 9-16 will be outputting 3G-SDI for 3G-SDI Destinations.

Figure 26. I/O Screen with SDI and NDI Sources Displaying



## Leverage the Presets Tab

Based on the above planning, the information is now available to correctly cable BRIDGE NDI 3G Video I/O. You can use the Presets Tab from the Control Bar to experiment with different configurations.

*NOTE: For more on BRIDGE NDI 3G Video I/O cabling, see "System Setup and Configuration" on page 63.*

For simplicity, the remainder of this chapter will use BRIDGE NDI 3G for Simultaneous NDI to SDI Encoding and Decoding, with Banks 1 and 2 (Engine A) set for SDI to NDI encoding, and Banks 3 and 4 (Engine B) set for NDI to SDI decoding. For the purposes of brevity, we'll refer to this as a "Bi-Directional Setup".

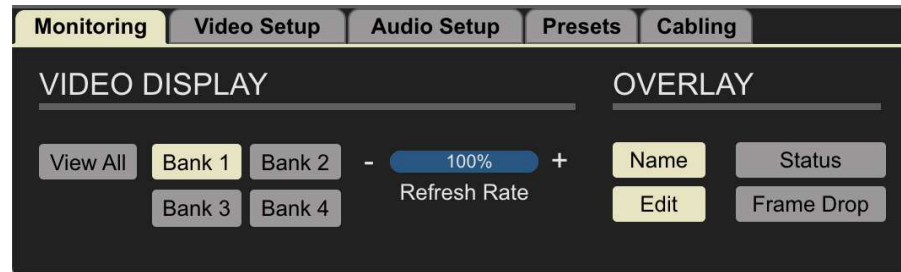
# Control Bar

The Control Bar provides easy access to the most frequently used video and audio controls and settings.

The Control Bar is located along the lower area of the BRIDGE NDI 3G interface. It is split into five tabs: Monitoring, Video Setup, Audio Setup, Presets, and Cabling.

The Control Bar tabs are always visible, so you always have access to all of this functionality regardless of which Menu Screen you have selected.

Figure 27. The Control Bar



## Control Bar Quick Overview

Tab Name	Function
Monitoring Tab	Selects which Banks of video channels you want to display in the Canvas and Overlay features
Video Setup Tab	Selects video grouping of channels (HD, V+K, 4K). Selects the direction of conversion (SDI to NDI, NDI to SDI) for each Engine (Two Banks)
Audio Setup Tab	Manages all aspects of your Audio Monitoring for each channel in terms of channel selection, enabling or disabling audio, and setting audio reference levels
Presets Tab	Accesses system preset configurations for quick setup for common use cases
Cabling Tab	Highlights the BNC connector(s) in the Rear View Connections diagram with the corresponding selected Video Tiles

Next, we will take a more detailed look at the tasks you can perform with each set of controls accessed through the tabs of the Control Bar.

## Control Bar – Monitoring Tab

Use the Monitoring Tab to select which video channels you want to display in the Canvas:

From the Monitoring Tab, you can also modify the elements that are overlaid on the Video Tiles, such as Channel Name, Status, and Frame Drop.

### Video Display

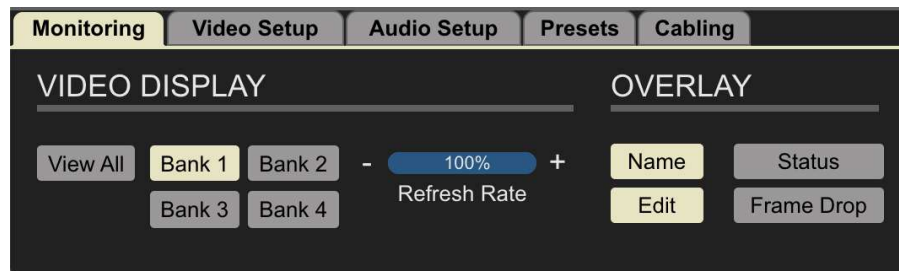
- Video Monitoring Controls
  - View All
  - Bank 1
  - Bank 2
  - Bank 3
  - Bank 4

- Name toggle on/off
- Set refresh frame rates. If using the local Kiosk Interface, this will affect the behavior of that interface for all users. If using the remote Web Browser Interface, this setting will be local to that specific remote Web Browser Interface. With the Refresh Rate Button, you can dial back the refresh rate on your local machine to get fewer frames but smoother playback. This affects the GUI only, not the rate at which material is being sent out over SDI/NDI.

#### Variety of Bank Views Available

The Canvas can display a more focused view of specific Banks rather than all 16 video channels. Choose which Bank you want to show on the Canvas by selecting one of the Bank buttons on the Monitoring Tab located on the Control Bar along the lower area of the BRIDGE NDI 3G interface.

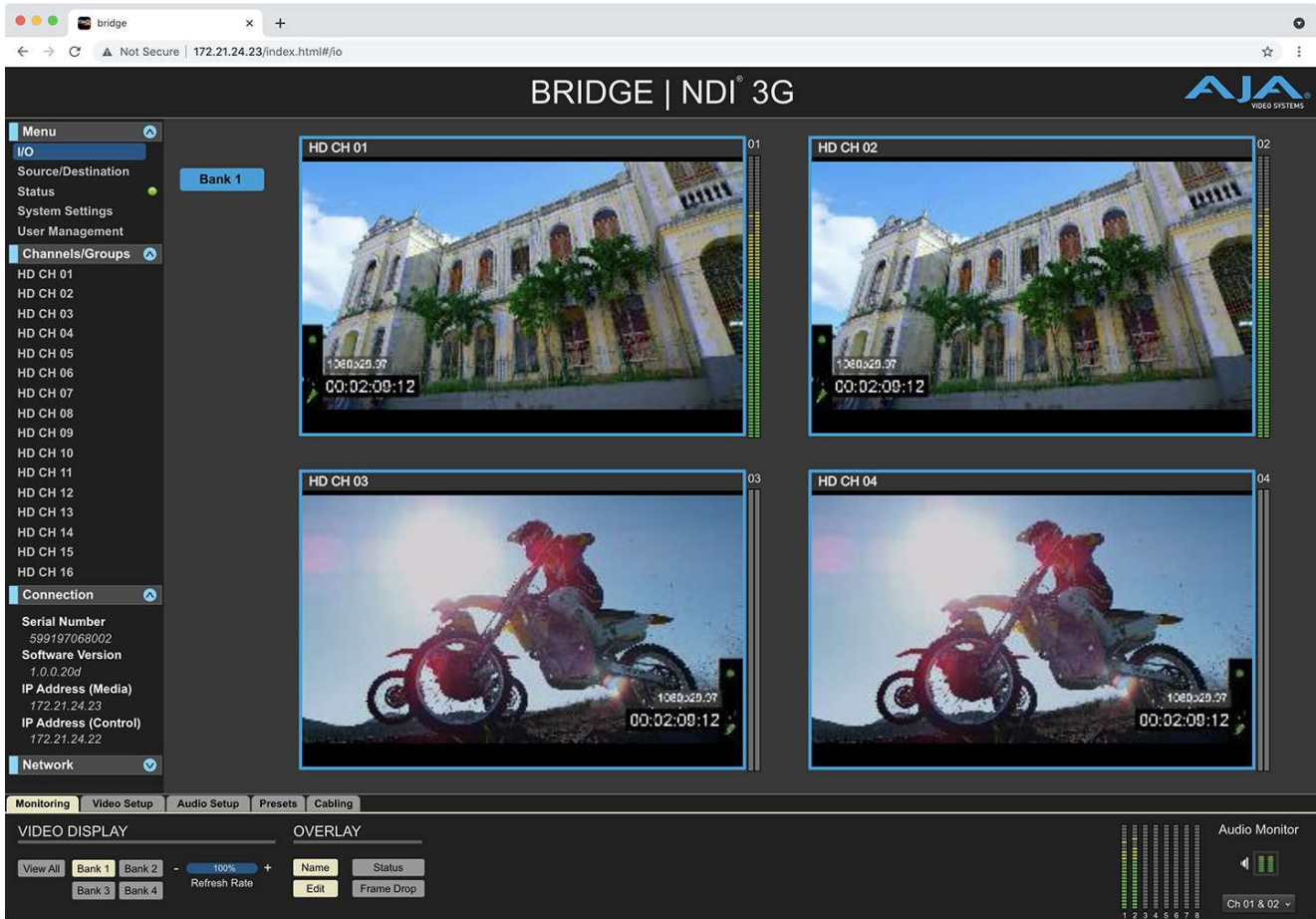
*Figure 28. Selecting Bank 1 View*



Viewing only one Bank offers you a different view if you need to focus only on the Video Tiles for one Bank.

*NOTE: This view will change depending on how you have grouped the Bank (HD Channels, 4K/UltraHD or Video + Key).*

Figure 29. Viewing only Bank 1, 4 HD Channels



## Refresh Rate

Video Tiles by default show full frame rate in the GUI. If system performance is being impacted by badly behaved devices or networks, one option to reduce system load can be to adjust the refresh rate downwards. For example if the source material is 60p, then at 50% this control would mean 30p is being sent to the GUI.

## Overlays

Overlays on the Video Tiles provide extra information for you about what's going on with each channel or group. Some overlays can be edited and customized.

### Name

Toggle on or off. It will default to showing the Channel/Group name, unless the Custom Name has been populated on the Source/Destination Screen, in which case the Custom Name will be displayed instead.

### Edit

When clicked, can edit the channel/group names from this screen.

### Status

When Status is selected, it will overlay a status symbol (small circle in upper right corner of the video tile). The status symbol will display in one of four ways.

**Blackout** - The blackout icon warns you if Video Blackout (Mute) is active (vs there simply being a black source image). The blackout icon is a green circle with a black "X" through it.

**Test Pattern** - The test pattern icon warns you if the Video Test Pattern is active. It appears as a green circle with a large black "T" through it.

**Tally** - The tally icon is a function of NDI that shows whether the source is being subscribed to (preview) or whether the source is being taken live (program).

- The preview tally icon is a green circle.
- The live (program) icon is a red circle.

## Frame Drop

---

A counter when you are dropping frames. A number shows up on preview video tiles counting how many frames are being dropped from the session. This may be an indication that it's time to Refresh the application from the System Settings Screen.

## Audio Monitoring

---

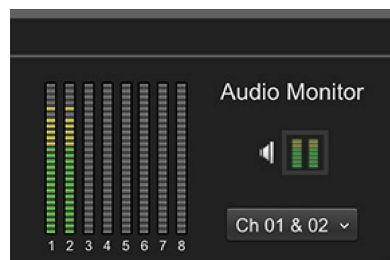
For Audio Monitoring, select the Video Tile for the channel/group you want to monitor.

Audio Monitoring Controls pertain to:

- the dual-channel visual audio meters that can be enabled adjacent to each Video Tile on the I/O Screen > Canvas and the Individual Channel/Group Screens.
- the audible analog audio out by the dual channel USB sound card (supplied with the system) for audio monitoring when using the system via the local Kiosk interface.

The Control Bar > Monitoring Tab > Audio Monitor controls persist across all Control Bar Tabs. This is to ensure that the audio controls are within easy reach whatever you may be working on. As such most of the aspects covered here apply across all Control Bar Tabs.

*Figure 30. Audio Monitor (lower right corner) indicating that audio channels 1 and 2 are being monitored.*



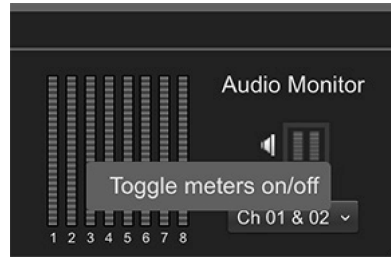
**IMPORTANT:** Audio Monitoring controls only affect visual and audible audio monitoring. Changes to the Audio Monitoring Controls will never affect the SDI or NDI Audio I/O.

## MultiChannel Audio Meter

---

On the Monitoring Tab only, immediately to the left of the Audio Monitor controls is a MultiChannel Audio Meter. This display is not affected by Audio Monitoring controls, as it is showing the actual NDI/SDI audio I/O on the system, which is never affected by the Audio Monitoring Controls.

Figure 31. Audio Monitor toggled off



## Audio Monitor

---

There are 3 distinct controls provided in the Audio Monitor section of the Control Bar:

**Metering Toggle** - Toggles between **display** or **hide** for the Video Tile Meters on the I/O Screen.

The dual channel Audio Meters on the Canvas can be toggled on or off. Turn off the dual channel Audio Meters is useful for minimizing activity in the interface, as well as reducing the load on system resources.

These dual channel meters reflect the two channels being monitored. For all video channels/groups this will by default be audio channels 1 and 2.

**Speaker Toggle** - Toggles between **muted** or **audible** for Audible Audio Monitoring.

This setting impacts Kiosk users since the Kiosk system has the Dual-Channel USB Sound card.

For remote users through a web browser, this setting has no impact. It is not applicable.

The Speaker Toggle (Mute Audio Monitoring) button in the Control Bar is a monitoring control toggle only and has no effect on the SDI or NDI audio I/O. This function is provided so that an operator could quickly stop audio being monitored via the analog Audio Output from the supplied USB sound Card (Kiosk interface only).

When audio meters are on, audio meters display next to each video tile.

When audio meters are off, no audio meters will be displayed next to each video tile.

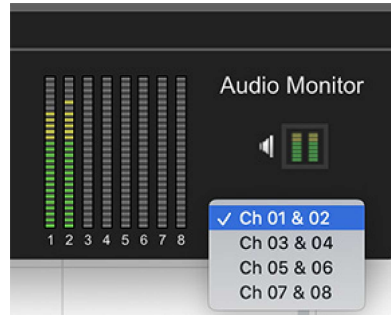
## Channel Pair Selector

---

For the video channel/group that is currently selected, you can use this selection to monitor the audio levels on channels other than 1 and 2 with the "Select" drop-down control.

This will affect both the visual audio metering on the Canvas, as well as the audible analog Audio Output from the supplied USB sound Card (Kiosk interface only).

Figure 32. Selecting Pair of Audio Channels for Monitoring



## Audio Monitoring Continuity

Continuity of Audio Monitoring is preserved when moving between Menu Screens. For example, if you are monitoring HD Ch 2 on the I/O Screen, and then you select the SRC/Dest screen or System Settings, the audio monitoring for HD Ch 2 would not be interrupted. Even though the Video Tile for HD Ch 2 would no longer be displaying, the audio would continue until it is either muted or until a new video tile, channel, or group is selected.

Clicking on an individual Channel/Group Screen will also change the Channel/Group being monitored (if it differs from the current selection).

## Audio Monitoring vs. Audio I/O

The Metering Toggle and the Speaker Toggle buttons only impact monitoring on the I/O Screen > Canvas.

It will have no affect on the Audio metering which takes place on the Control Bar, since meters on the Control Bar are showing actual Audio I/O - which is never affected by monitoring controls.

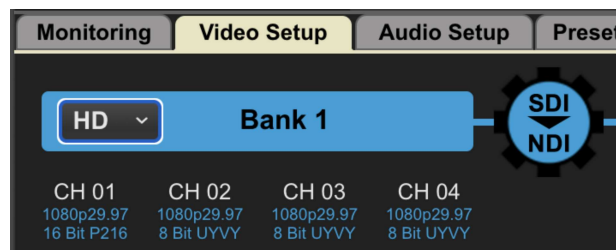
This is true for both of the following:

- Control bar > Monitoring Tab > MultiChannel Audio metering
- Control bar > Audio Setup Tab > Channel/Group metering

## Control Bar – Video Setup Tab

Video Setup: NDI>SDI toggle to switch direction (cabling changes may be required).

Figure 33. Video Setup Tab

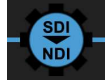


## Engine Controls

Use the Encode/Decode Cog buttons to change the direction of an Engine.

When an Engine is encoding from SDI to NDI, it is blue and indicates the SDI to NDI direction, as shown here in [Figure 34](#).

Figure 34. SDI to NDI direction



When an Engine is decoding from NDI to SDI, it is orange and indicates the NDI to SDI direction, as shown here in [Figure 35](#).

Figure 35. NDI to SDI direction



Clicking on the Cog button causes the Engine to switch directions.

## Bank Controls

---

Bank 1 and Bank 2 are supported by Engine A.

Changing the Encode/Decode direction for Engine A will affect both Banks 1 and 2.

Bank 3 and Bank 4 are supported by Engine B.

Changing the Encode/Decode direction for Engine B will affect both Banks 3 and 4.

*IMPORTANT: Control Bar > Video Setup Tab must be selected in order to be able to change encode/decode direction above on the I/O Screen. When Viewing the I/O Screen, if the Control Bar > Video Setup Tab is NOT selected, the Encode/Decode Cog is disabled.*

Each Bank can be independently configured from the other Banks in one of three ways:

### 4 x HD Channels

---

- 4 x 3G-SDI used to support 4 separate sources/destinations

### 1x 4K Group

---

- 4x 3G-SDI used to support a single 4K/UltraHD source/destination
- For 2SI LFR, the first two channels of the bank can be used
- For 2SI HFR or Square division all four channels of the bank must be used.

### 2x HD Video plus Key Group

---

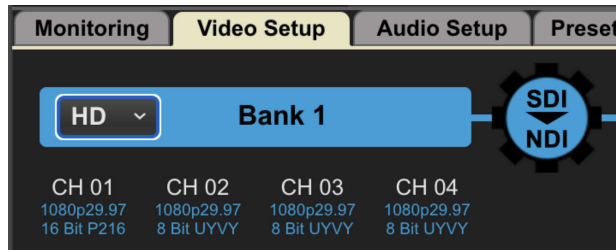
- 2x dual 3G-SDI used to support two separate pairs of Video and Key sources/destinations
- Video and Key pair one uses the first two channels of the bank
- Video and Key pair two uses the second two channels of the bank
- SDI Video and Key input is through two separate 3G-SDI connections
- NDI Video and Key is through a single NDI stream with Alpha Channel

Beneath each Bank under Control Bar > Video Setup tab, each channel/group has video format information shown beneath (output video format).

## Channel/Group Information

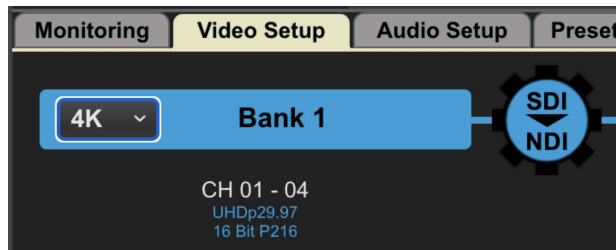
Beneath each Bank, information about the channels or groups is displayed. For example, when Bank 1 is configured for HD, each of the four channels is indicated with signal information shown as well.

Figure 36. Video Setup Tab showing Bank 1 as HD



When Bank 1 is configured for 4K, the four channels of Bank 1 are combined into an UltraHD group, with signal information shown as well.

Figure 37. Video Setup Tab showing Bank 1 as 4K



## SDI Output Controls

Banks 1/2, if NDI source of 30p from a computer or a phone, and professional source of 29.97, in order to not create any glitches, you need to decide which output you want to use — fractional or integer.

### Integer vs. Fractional

With this control, you can select integer or fractional. This is relevant when you have mixed types of inputs, such as 23.98, 29.97, 30, etc.

If there is a mismatch, such as having a frame rate of 25 but the SDI Output control is set to Fractional, the Status overlay will show a warning and the channel will stop. Once the mismatch is fixed by aligning the setting and the signal type to match, you may need to resubscribe to the channel, restart the channel or re-enable the channel.

- Fractional frame rates are 23.98, 29.97, 59.94
- Integer frame rates are 24, 25, 30, 50, 60

### Free Run vs. Ref In

Each of the cards have a reference. Can choose Free run or Ref 1. Relevant for SDI Output. Not relevant to NDI Output.

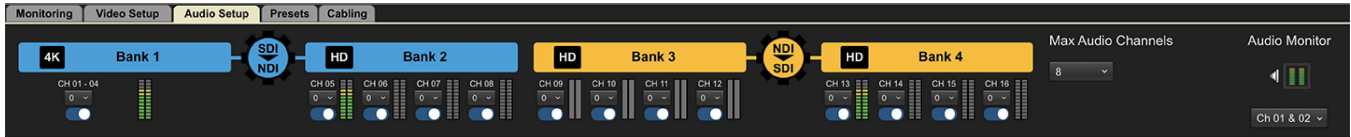
Bank 1 and Bank 2 share a Ref In.

Bank 3 and Bank 4 share a second Ref In. Diagram of connectors is shown in the Cabling Tab.

## Control Bar – Audio Setup Tab

The Audio Setup Tab contains controls for Mute, Reference Level, and Audio Levels for each channel. This topic was addressed in detail earlier. Please see ["Audio Monitoring" on page 35](#) for more information.

Figure 38. Audio Setup Tab



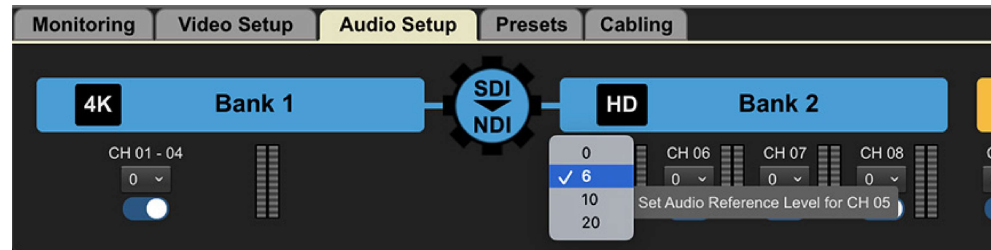
## Reference Levels

NDI Sources can sometimes be too loud for an SDI environment. As such, Reference level can be used to attenuate (reduce) the audio level for a particular Channel/Group. For example, choosing the value "20" will attenuate the audio for that channel/group by 20dBu.

### Setting Reference Levels

To set the reference level, click the Audio Reference Level drop-down control and select 0, 6, 10 or 20.

Figure 39. Selecting an audio reference level



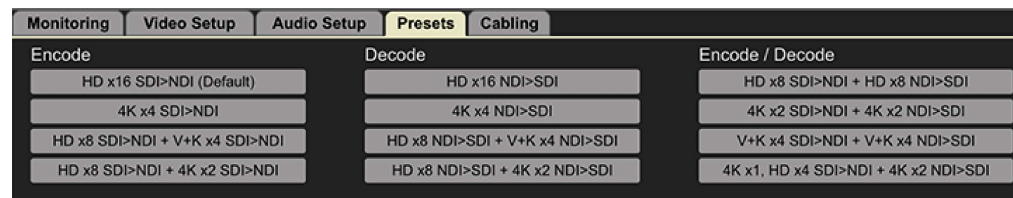
## Audio Channel Number Default

8 audio channels is the BRIDGE NDI 3G system default. This can be changed to either 16 channels or two channels depending on your workflow.

*NOTE: Some NDI receivers (hardware or software) have problems when receiving 16 audio channels. To avoid this, use 8 channels or 2 channels as your system preset.*

## Control Bar – Presets Tab

Figure 40. Presets Tab

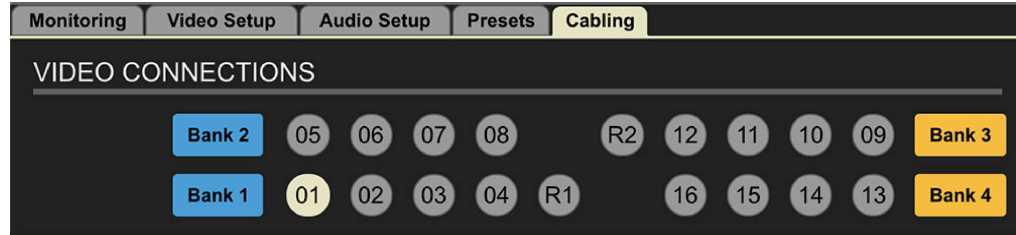


As you configure your BRIDGE NDI 3G device, consider how each Bank will be used, i.e., as individual HD Channels, 4K/UltraHD Groups, Video + Key Groups, or some combination thereof.

If BRIDGE NDI 3G is already up and running and you are ready to re-cable as necessary, then the Presets Tab is a fast way to choose between numerous system-wide configurations. Used in conjunction with the Cabling Tab, this can make for an efficient method to rapidly re-setup a system for a new task.

## Control Bar – Cabling Tab

Figure 41. Cabling Tab



Within the Cabling Tab Screen, the BNC connector for the currently selected Video Tile will be highlighted. This is for ease of cabling setup, troubleshooting, reconfiguring, and to make it easy to know which cabling connection is relevant to your currently selected Video Tile. This is especially helpful when you need to make directional changes that may impact your cabling.

Particularly when making directional changes (SDI to NDI or NDI to SDI), you will need to take the cabling into account to keep everything working smoothly.

## Cabling Considerations and Changing Directions

Because BRIDGE NDI 3G is a gateway device, it is not expected that you will need to change your cabling connections very frequently. However, when cabling changes are required the diagram in the Cabling Tab will help you quickly identify

*NOTE: While it is really easy to change directions (NDI to SDI or SDI to NDI) on the interface, please keep in mind that it may impact cabling connections and other configurations.*

Cabling: shows a map that corresponds to how the connectors are arranged on the back of the box. Very helpful visual reference guide. Any channels that are currently selected are indicated by dark blue, making it clear which connectors correspond to actions you are taking at the time.

If you have grouped channels into a 4K group, and you select that 4K group on the I/O Screen, it will light up that whole bank on the Cabling Tab.

For example, if you select V+K pair (using Ch 1 and Ch 2), connectors 01 and 02 are highlighted in Cabling Tab.

If you select a 4K Group in Bank 2, the Cabling Tab shows that Ch 05, 06, 07, 08 are highlighted.

Audio monitoring controls are reflected here also.

# Menu Screens

---

The menu system along the left side provides access to all the main system screens and channels.

- I/O Screen
- Source/Destination Screen
- System Status Screen
- System Settings Screen
- User Management Screen

## I/O Screen

---

The I/O Screen displays previews of up to 16 channels of video along with two channels of corresponding audio levels for each source and/or destination.

### Video Tiles

---

Each Video Tile shows the video signal it is processing for confidence monitoring, making it very simple to see exactly what video signals you are working with across all channels or groups.

From this screen, you can also easily see:

- the encoding (blue) or decoding (orange) directions at the Engine level
- the channel/group arrangements for the 3G-SDI I/O, at the Bank level

For everyday operations, you may be able to get most your work done from the I/O Screen.

For example, for channels you are using to decode NDI to SDI, you can select your NDI sources directly from the I/O Screen Video Tiles and they will be displayed and they will be output. For channels you are using to encode SDI to NDI, any connected SDI sources will show up immediately in the Video Tiles.

### Variety of Bank Views Available

---

The I/O Screen by default shows all Banks. A modified view of the I/O Screen can be presented by using the Bank View buttons which restricts the confidence monitor to one Bank, which may therefore show 4x channels, 1x 4K Group or 2x Video Plus Key Groups.

### Changing Direction of Encoding/Decoding

---

When viewing the I/O screen, there are also controls presented on the left side of the canvas. Using the Encode/Decode Cog, you can change the direction of the conversion for an entire Engine; i.e., encoding SDI to NDI (blue), or else decoding NDI to SDI (orange).

There are also controls for configuring a bank for use as 4x HD channels, 1x 4K/ UltraHD group or 2x V+K groups.

These same controls are mirrored in the Video Setup tab within the Control Bar.

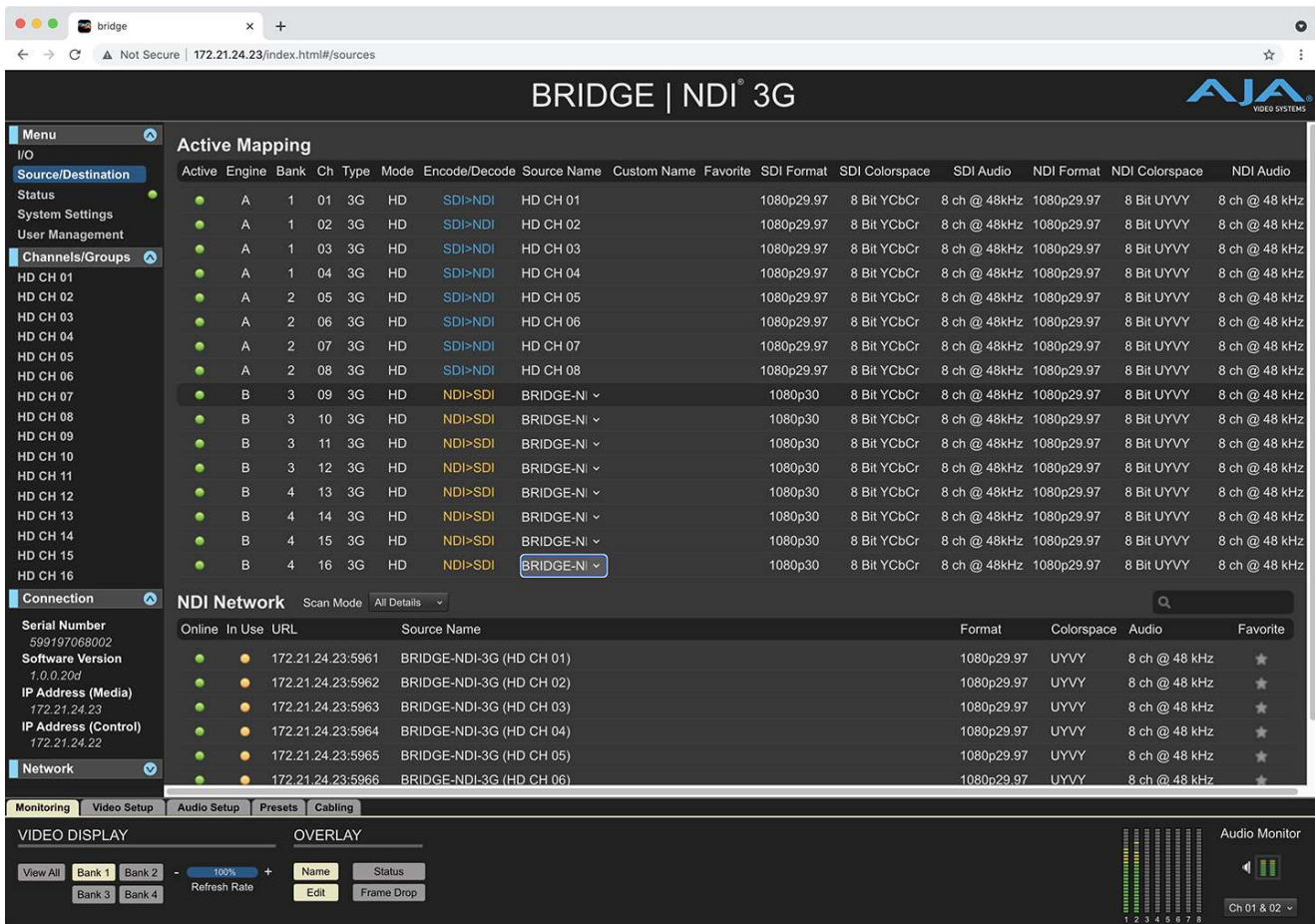
### Individual Channel or Group Screen

---

For more intricate tasks, such as choosing 2SI or Square, or muting video but leaving audio live, you can do that from the individual channel or group screen. Double clicking on a Video Tile will take you to that specific individual Channel or Group Screen.

# Source/Destination Screen

Figure 42. Viewing the Source/Destination Screen



Use the Source/Destination screen to get organized, to look at what is on your network and to see what is actively mapped from/to SDI Channels and/or Groups. This can be a useful place to determine which NDI sources you want to subscribe to, and it provides intuitive channel configuration.

The Source/Destination Screen is split into two different sections. The upper section, "Active Mapping," and the lower section, "NDI Network."

## Active Mapping

The Active Mapping section of the Source/Destination Screen provides a mapping of the signals that are coming in and going out of BRIDGE NDI 3G. It indicates the direction and signal type for each of the 16 channels.

The attributes for sources/destinations are shown across the following columns:

Column Name	Definition
Active	Indicates whether the channel/group has an active signal or not
Engine	Indicates Engine (A or B)
Bank	Indicates Bank number
Ch	Displays the physical channel number for the SDI connectors
Type	Shows the SDI Channel type

Column Name	Definition
Mode	Shows whether the SDI Channel is being used as an HD Channel, or in a 4K Group, or for a V+K Group
Encode/Decode	Encoding SDI to NDI (Blue) Decoding NDI to SDI (Orange)
Source Name	For SDI this would be, for example, HD Channel 01 For NDI, this might be a string of numbers and/or letters <i>NOTE: When a Bank is grouped, then its constituent channels lose their source names HD Channel 01, 02, 03, 04 and instead the entire group is now entitled 4K Group 01. This will be shown on the Video Tile, unless a Custom Name has been entered/applied.</i>
Custom Name	Instead of relying on the Source name, the Custom name can be used to help operational efficiency. Under the Custom Name column, you can edit channel names to match your naming conventions or to best support your unique installation. Will be displayed instead of the Source Name when "Labels" are activated using the Control Bar Monitor Tab. If populated, then this is the name shown in the Video Tile.
Favorite	For NDI Sources only. In the NDI Network section, selecting a Favorite star for a specific NDI Source causes a star to populate the corresponding Favorite column in the Active Mapping section.
SDI Format	For SDI inputs, BRIDGE NDI 3G will always output NDI with the same video format.
SDI ColorSpace	For SDI inputs, BRIDGE NDI 3G supports YCbCr, 4:2:2, 10-bit uncompressed video.
SDI Audio	PCM
NDI Format	For NDI inputs that are non standard rasters or rates as compared with SDI, BRIDGE NDI 3G provides the choice of preserving smaller rasters within a black frame or else scaling them thus leaving black only at the top and bottom (letterbox) or side to side (pillarbox). The Scale Control is found on the Individual Channel/Group Screen.
NDI ColorSpace	BRIDGE NDI 3G supports UYVY, 8-bit for standard video, UYVA, 8-bit for video plus alpha channel. NDI Hx is supported for input and P216, 16-bit for output.
NDI Audio	NDI uncompressed (float)

## Subscribe to NDI Sources for Specific Channels

Where an Engine is set to decode NDI to SDI, it is possible to select the NDI source directly from the Source/Destination Screen.

For NDI sources, under the Source Name column, you can select from the drop-down selection of available NDI sources to subscribe to for that particular channel. The drop-down list will show all detected sources available on your network. Further down the page, you can see everything that is on your NDI Network.

### Selecting NDI Source from Source/Destination Screen

With the NDI sources shown, you can select them, give them custom names (45-character limit), and tag them as favorites for easy reference.

Figure 43. Selecting an NDI Source from the Source/Destination Screen

●	A	2	07	3G	HD	SDI>NDI	HD CH 07
●	A	2	08	3G	HD	SDI>NDI	HD CH 08
●	B	3	09	3G	HD	NDI>SDI	▼ [No Source]
●	B	3	10	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 01)
●	B	3	11	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 02)
●	B	3	12	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 03)
●	B	3	12	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 04)
●	B	4	13	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 05)
●	B	4	14	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 06)
●	B	4	15	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 07)
●	B	4	16	3G	HD	NDI>SDI	BRIDGE-NDI-3G (HD CH 08)
●	B	4	16	3G	HD	NDI>SDI	BRIDGE-NI ▼

## Encode/Decode Indicated by Blue/Orange

The color blue indicates that the signal is entering BRIDGE NDI 3G through a cable (SDI). The color orange indicates that the signal is coming from the network (NDI).

The SDI Source is determined by what signal is cabled to the BNC connector for each channel.

Figure 44. Source/Destination Screen Encode/Decode Color Indicators

The screenshot shows the BRIDGE | NDI 3G web interface. The main content area is titled "Active Mapping" and displays a table of channel configurations. The "Encode/Decode" column uses color coding: blue for SDI and orange for NDI. A dropdown menu is open for the "BRIDGE-NI" source, showing a list of NDI sources including "BRIDGE-NDI-3G (HD CH 01)" through "BRIDGE-NDI-3G (HD CH 08)".

Active	Engine	Bank	Ch	Type	Mode	Encode/Decode	Source Name	Custom Name	Favorite	SDI Format
●	A	1	01	3G	HD	SDI>NDI	HD CH 01			1080p29.97
●	A	1	02	3G	HD	SDI>NDI	HD CH 02			1080p29.97
●	A	1	03	3G	HD	SDI>NDI	HD CH 03			1080p29.97
●	A	1	04	3G	HD	SDI>NDI	HD CH 04			1080p29.97
●	A	2	05	3G	HD	SDI>NDI	HD CH 05			1080p29.97
●	A	2	06	3G	HD	SDI>NDI	HD CH 06			1080p29.97
●	A	2	07	3G	HD	SDI>NDI	HD CH 07			1080p29.97
●	A	2	08	3G	HD	SDI>NDI	HD CH 08			1080p29.97
●	B	3	09	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	3	10	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	3	11	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	3	12	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	4	13	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	4	14	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	4	15	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30
●	B	4	16	3G	HD	NDI>SDI	BRIDGE-NI ▼			1080p30

The "NDI Network" section below shows a table with columns for "Online", "In Use", "URL", and "Source Name".

Online	In Use	URL	Source Name
●	●	172.21.24.23:5961	BRIDGE-NDI-3G (HD CH 01)
●	●	172.21.24.23:5962	BRIDGE-NDI-3G (HD CH 02)

## NDI Network

Each NDI Source can have multiple signals to choose from, depending on the NDI sources that are available on your network. This can be because the NDI source device is multi-channel, or it may be that the device is a camera producing more than stream quality.

## Working with NDI Sources

BRIDGE NDI 3G provides discovery and enumeration of NDI Sources. Each discovered source is profiled and its attributes displayed across the following columns.

Column Name	Definition
Online	Shows whether the NDI source is currently online. A previously discovered NDI source, that is not online, will show amber instead of green.
In Use	Indicates whether this particular NDI source is being used by BRIDGE NDI 3G
URL	The specific address for the NDI source stream
Source Name	The default name generated by the transmitting NDI software or device
Custom Name	A meaningful name that can be manually entered
Format	NDI Video raster and rate
Colorspace	NDI Colorspace
Audio	NDI Audio
Favorite	Active or not

## Discover NDI Sources

NDI Sources on the network are discovered automatically by BRIDGE NDI 3G. Make selections from the Scan Mode drop-down control to modify how discovery behaves.

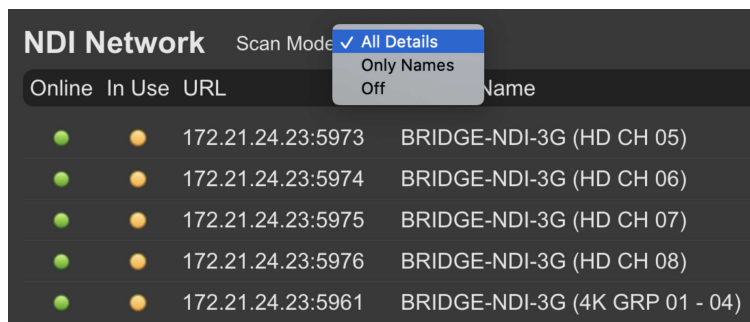
### Scan Modes

**All Details** - Provides you the NDI format and online information. This setting can cause more network traffic, which may impact the performance of other applications.

**Only Names** - Provides you with the names of NDI sources only, and will reduce any impact on network disruptions.

**Off** - Stops discovery of new sources, and will not create any additional network traffic.

Figure 45. Scan Mode drop-down control



## Search for NDI Sources

---

If there are numerous sources on the network, it may be easier to search for NDI sources using the search box.

## Filter NDI Sources

---

### NDI Source Filter/Search Controls

---

NDI Source filtering can be done using information from across any of the columns described above.

**Activity Indicator** - Shows whether the NDI video is stale/gone.

**In Use Indicator** - Shows whether the NDI source is currently being Decoded by BRIDGE NDI 3G.

**NDI Source** - Non-editable field. This is determined by the device or software that is transmitting the NDI. However, you can describe via a custom name instead. This does not affect the original source name; instead, it just shows the custom name in the interface for ease of use.

**NDI Favorite** - Toggle on/off. When selected as a favorite, the NDI Source will display.

**NDI Source Label** - Edit this field to reflect how you want the NDI Source name to appear.

You can change "NDI Label" and "SDI Label," favorite/unfavorite, choose NDI source, search and filter NDI source list found via scanning network.

You cannot change encode/decode, or group/ungroup, however.

## Make an NDI Source a Favorite

---

Under the NDI Network section, click the favorite icon next to the NDI source in the far right column.

## Label an NDI Source

---

Under the Active Mapping section, enter a new name in the custom name field.

## Status Screen

---

The System Status Screen shows you current status and recent history of key aspects of the system's health and network activity. It provides "at-a-glance" system performance and health together with a readout of maximum values, minimum values and average.

## Showing System Health and Network Activity

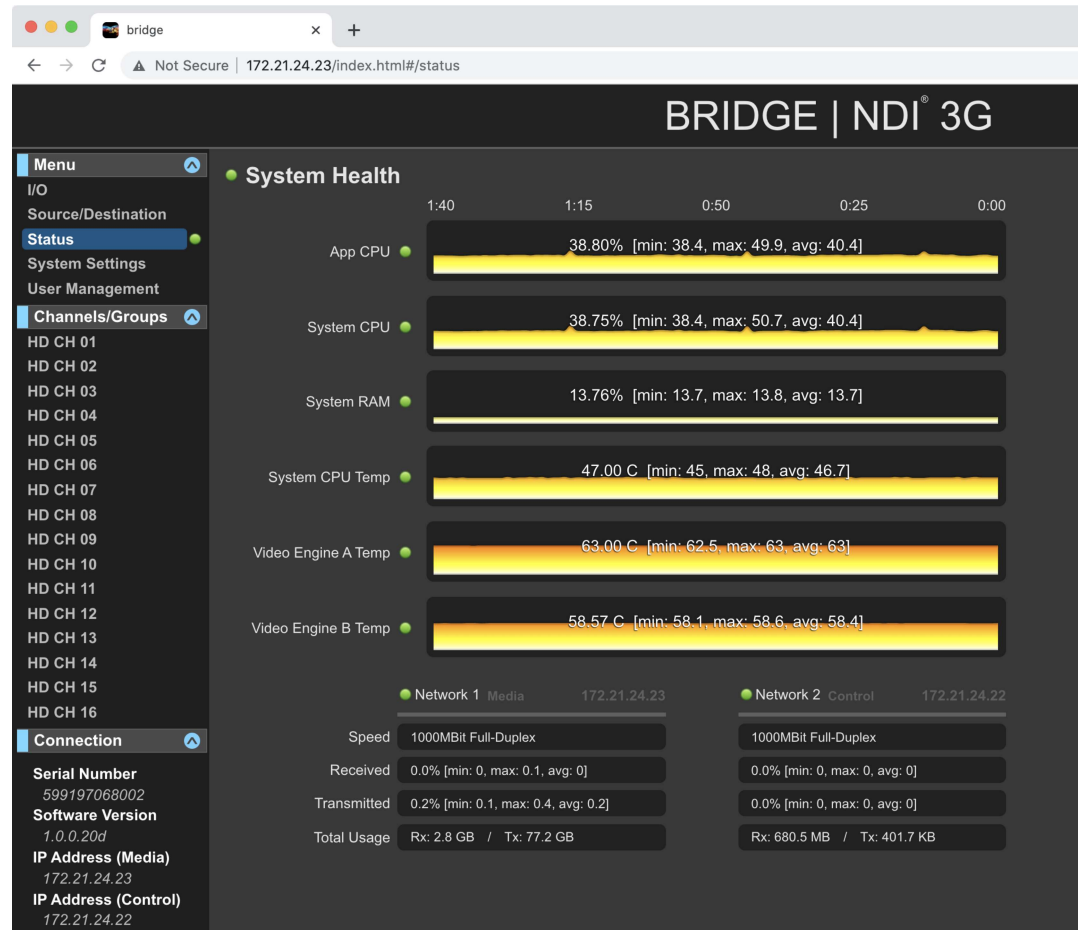
---

Column Name	Definition
App CPU	How much of the CPU is being consumed by Bridge NDI software tasks
System CPU	How much of the CPU is being consumed overall
System RAM	How much of the RAM is being consumed overall
System CPU Temp	Temperature of the system CPU

Column Name	Definition
Video Engine A Temp	Temperature of Video Engine A
Video Engine B Temp	Temperature of Video Engine B
Network 1	Shows statistics for Network Port 1 (Media)
Network 2	Shows statistics for Network Port 2 (Control)

If all of the status lights for the above system attributes are green, then the overall status light shown in the Menu Screen Column will also be green. If any of these status lights for the above system attributes are amber or red, then that is the status color shown in the Menu Screen Column.

Figure 46. Viewing the Status Screen



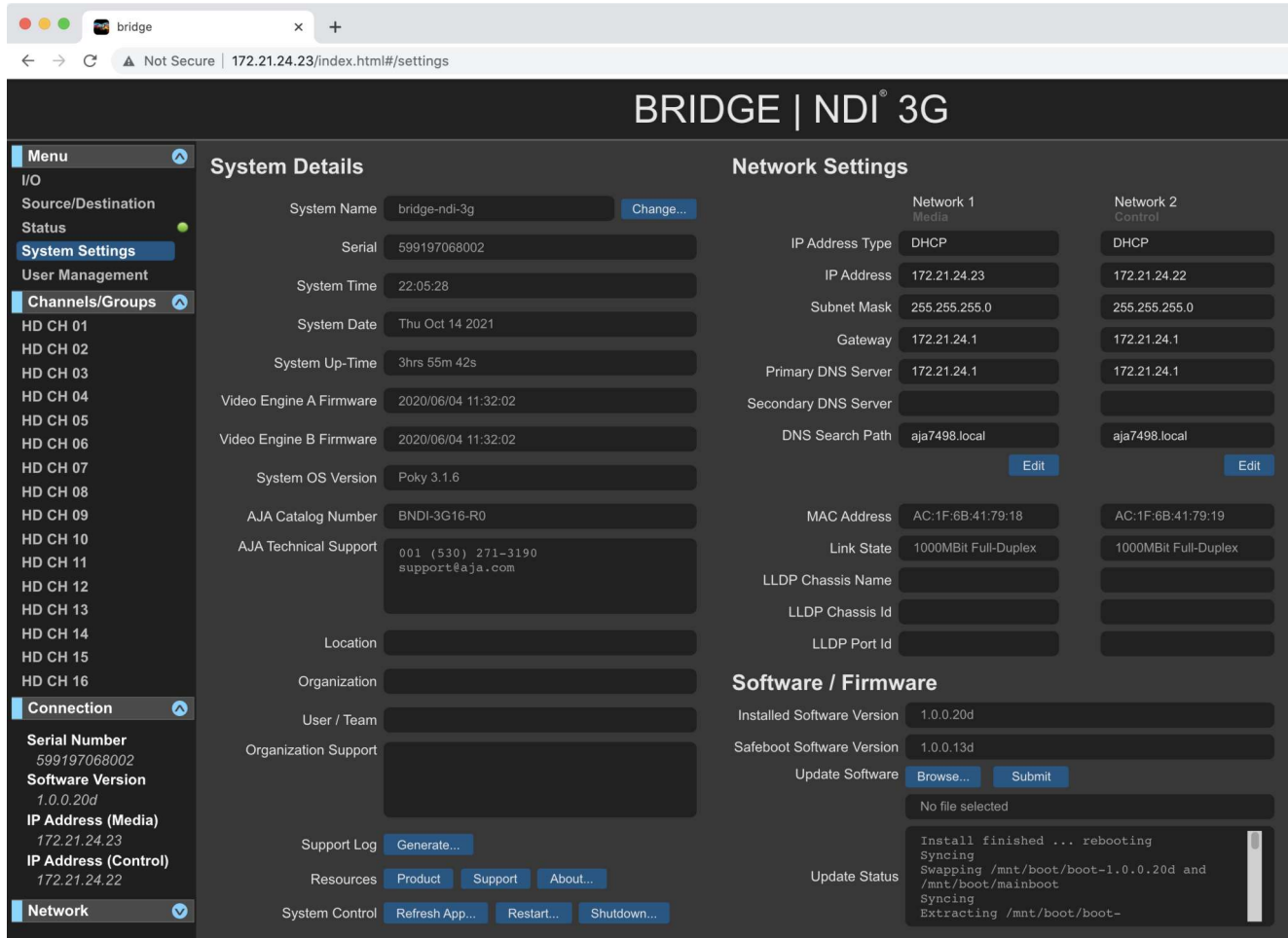
## System Settings Screen

The System Settings Screen displays system details such as System Name, Serial Number, System Time, Date and Up Time. It includes a button for generating a Support Log (web browser view only). It also shows you Video Engine Firmware versions.

The Network Settings section displays system IP addresses being used for Media and Control.

The Software/Firmware versions of the BRIDGE NDI 3G application are also shown here. From here you can perform a software version upgrade.

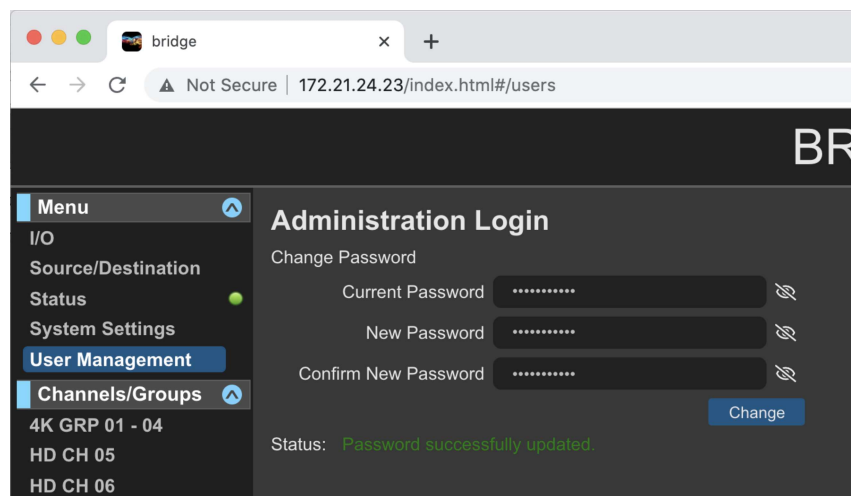
Figure 47. Viewing the System Settings Screen



## User Management Screen

From the User Management/Administration Login Screen, you can change the admin password.

Figure 48. User Management Screen, Changing Admin Password



## To Change the Admin Password

---

1. Enter the current password in the Current Password field.
2. Enter your desired new password (up to a maximum of 22 characters) in the New Password field.
3. Enter your desired new password again in the Confirm New Password field.
4. Select Change. A Sign in prompt displays.
5. Enter your current user name and the new password that you just created.
6. Select Sign In. The User Management screen refreshes with the Status "Password successfully updated."

## Individual Channel/Group Screens

---

There is another set of menu Screens which correlate with the current setup of Channels/Groups.

Individual Channel/Group Screens can be reached by either double-clicking on a Video Tile when on the I/O Screen, or navigating using the Screen Menu on the interface left side. On these Screens, the Video is displayed across the entire Canvas and there are extra video and audio controls.

These Screens will dynamically update based on grouping or ungrouping.

For example, if Channels 01 through 04 are grouped, there will no longer be 4 individual Screens in the left menu bar (HD Channel 01, 02, 03, 04); instead, there will be a single Screen entitled "4K GRP 01 - 04".

To the left of the Canvas is an Individual Channel/Group Column containing the controls pertinent to that specific Encode/Decode.

## Individual Channel/Group Screen Decoding NDI to SDI

---

At the very top of the Individual Channel/Group Column is an orange-colored strip (indicating a Decode from NDI to SDI). Embedded within this strip is a Channel/Group Enable/Disable toggle.

Disabling the Channel or Group using the button means that no video is being sent out of the SDI connectors associated with that Channel or Group.

## Minimizing Resources As Needed

---

If you want to minimize resources, you can disable or mute specific channels that you don't need for any given configuration.

### Disabling SDI Output (NDI to SDI)

---

From the left menu, select the specific channel you want to turn off; for example, HD CH 09. The Canvas displays only HD CH 09 along with a control panel for the selected channel.

Figure 49. Canvas Displaying One Selected Channel

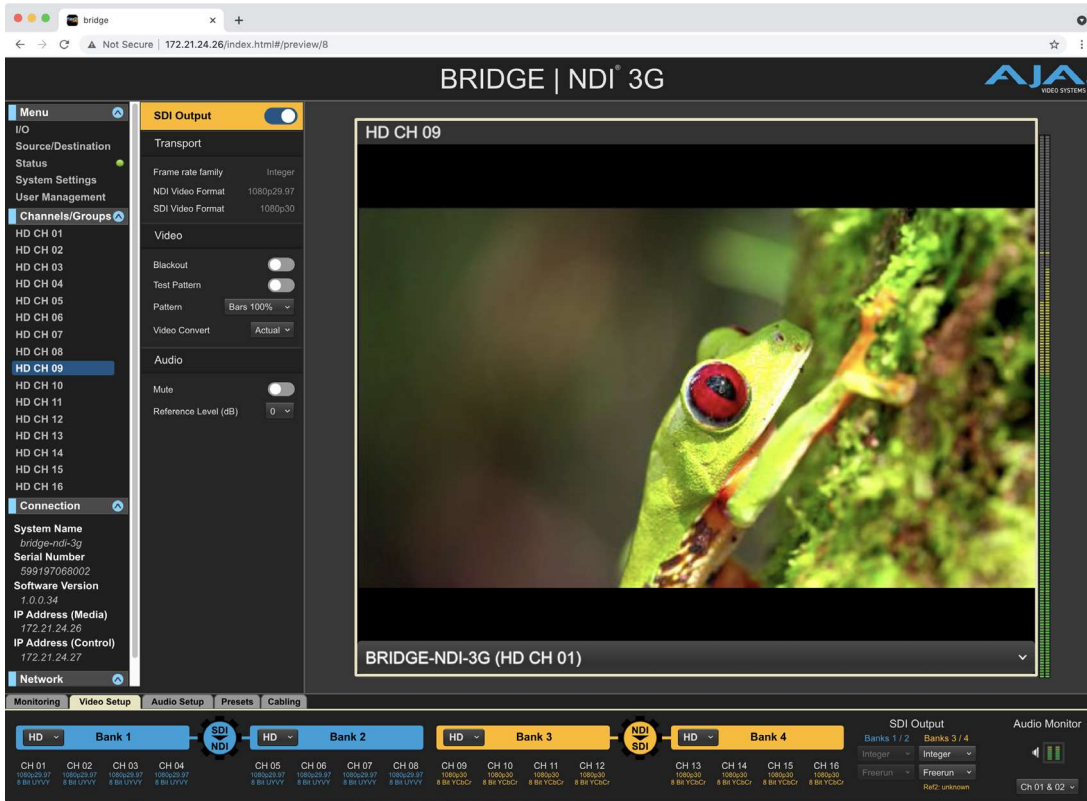
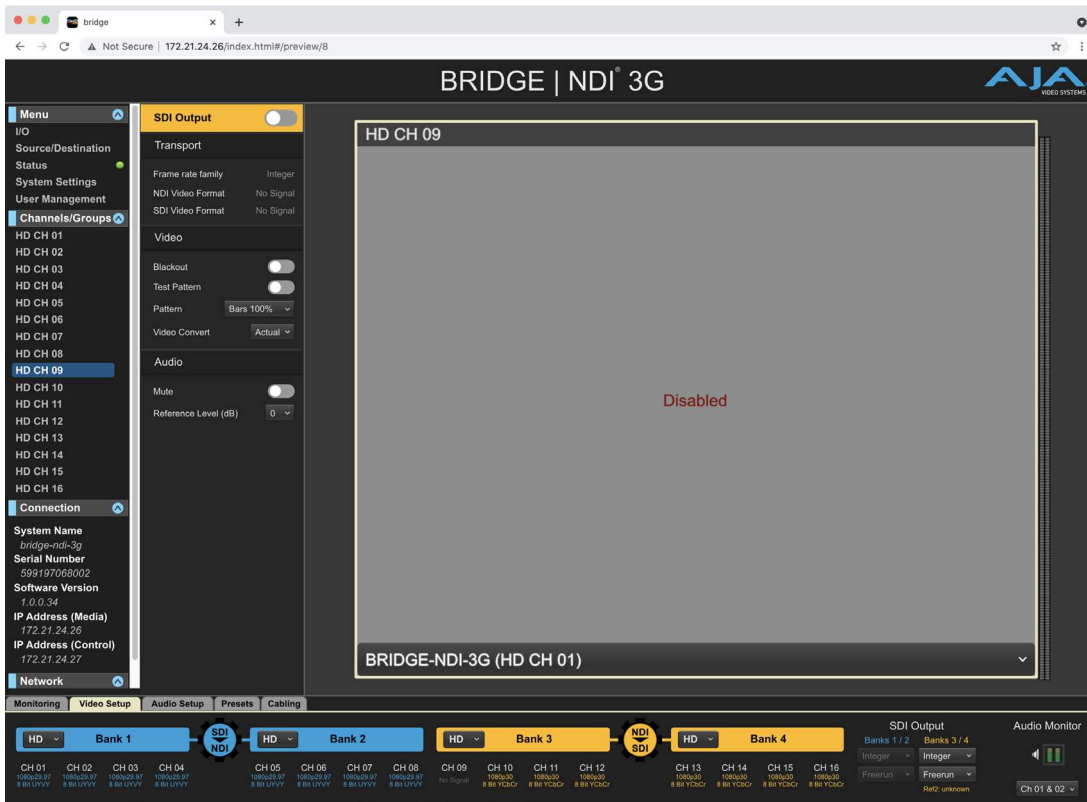


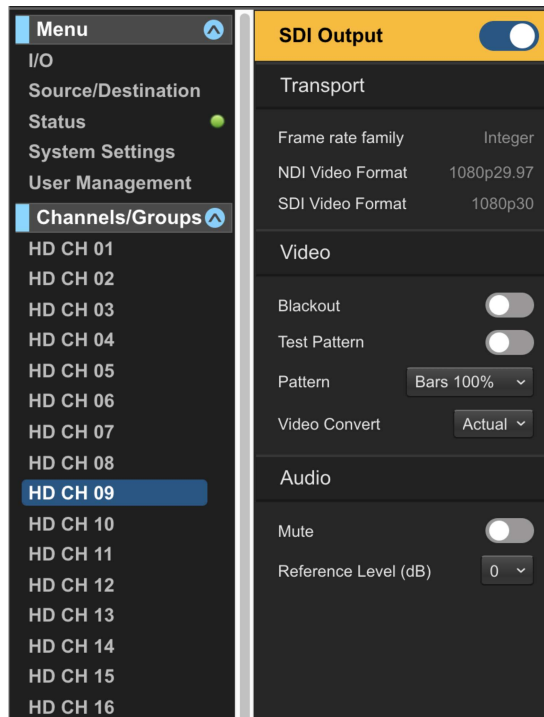
Figure 50. Canvas Displaying One Selected Channel with SDI Output Disabled



## Individual Video Tile Control Panel (NDI to SDI)

The individual video tile control panel offers detailed controls that impact only the currently selected channel.

Figure 51. Control Panel for Individual Video Channel/Group



### Transport

Transport Reporting fields – frame rate family, Integer or Fractional.

Video Format – reports the format of the video signal (for example, 1080p30).

When working with 4K signals, can select 2SI or squares.

4K Transport – Squares or 2SI.

### Video

Blackout – toggles on and off to mute the video signal. Can mute the video and cue it.

Test Pattern – toggles on and off. Can send out test pattern. Can select a test pattern from list.

Pattern – select from a list of patterns.

Bars 100%	Multi Pattern
Bars 75%	Black
Ramp	White
Multi Burst	Border
Line Sweep	Linear Ramp
Check Field	Slant Ramp
Flat Field	Zone Plate

Video Convert – Center, Full, Scale. When the video signal is a small raster size, you can click Scale to fill the full frame.

## Audio

Mute – toggles on and off.

Reference Level (dB) 0, 6, 10, 20. You can raise or lower the reference level. For example, "20" means a 20 dB attenuation.

These controls are also available in the Audio Setup tab from the lower Control Bar.

# Individual Channel/Group Screen Encoding SDI to NDI

At the very top of the Individual Channel/Group Column is a blue strip (indicating Encode from SDI to NDI). Embedded within this strip is a Channel/Group Enable/Disable toggle.

Disabling the Channel or Group using the button means that no video is being sent out to the NDI Network associated with that Channel or Group.

## Minimizing Resources As Needed

If you want to minimize resources, you can disable or mute specific channels that you don't need for any given configuration.

## Disabling NDI Output (SDI to NDI)

From the left menu, select the specific channel you want to turn off; for example, HD CH 01. The Canvas displays only HD CH 01 along with a control panel for the selected channel.

Figure 52. Canvas Displaying One Selected Channel –SDI to NDI

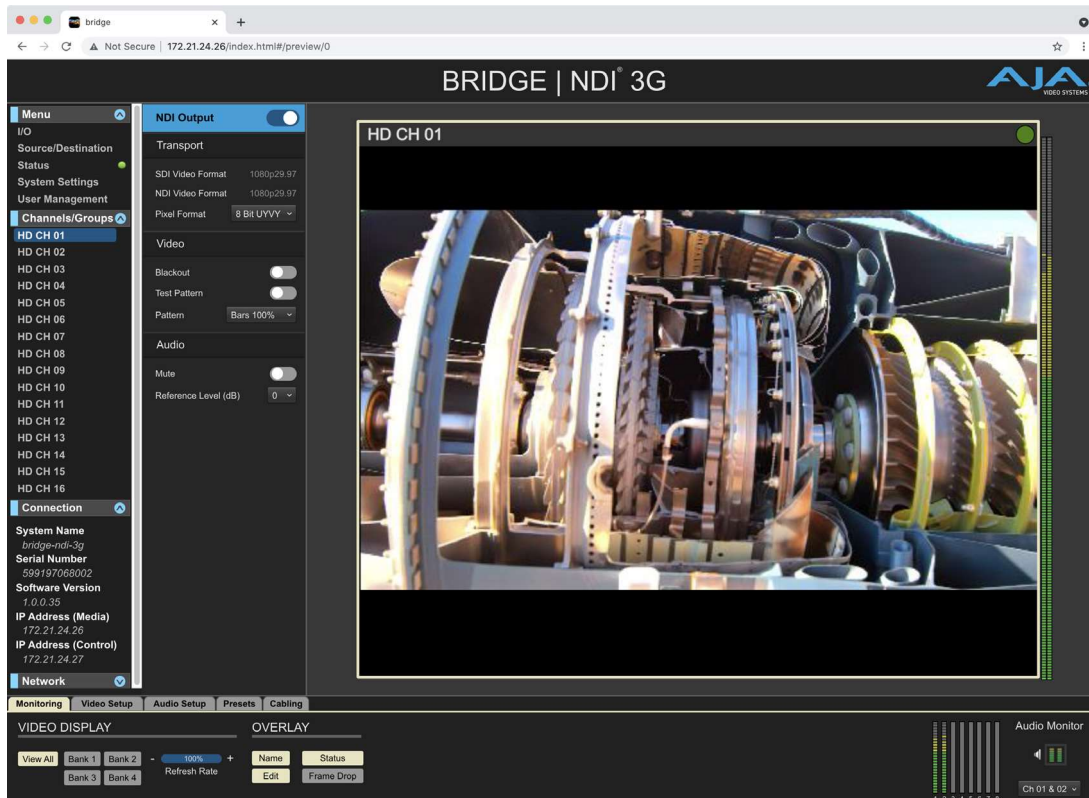
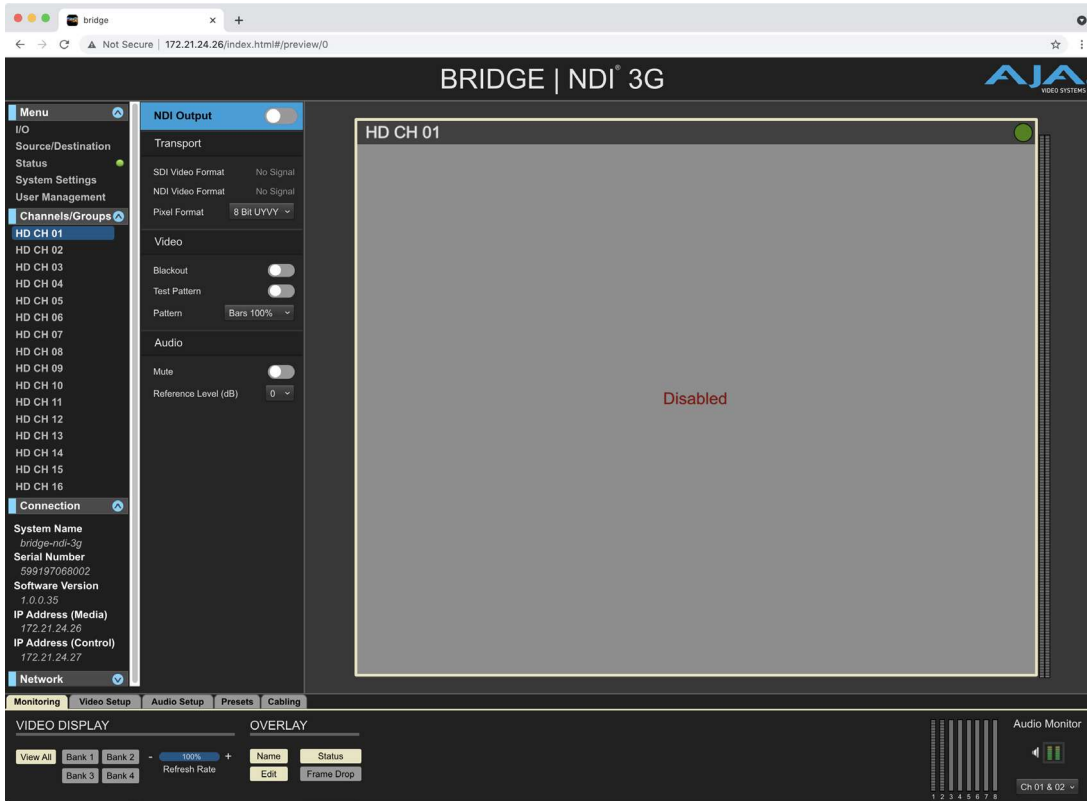


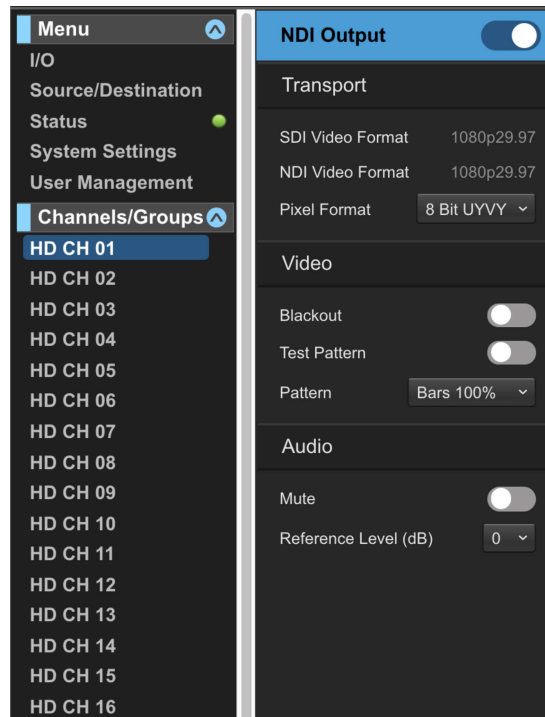
Figure 53. Canvas Displaying One Selected Channel with NDI Output Disabled



## Individual Video Tile Control Panel (SDI to NDI)

The individual video tile control panel offers detailed controls that impact only the currently selected channel.

Figure 54. Control Panel for Individual Video Channel/Group – NDI Output



## Transport

---

Transport section — Shows SDI Video Format (input) and NDI Video Format (output).

Pixel Format: For NDI Output, BRIDGE NDI 3G supports both 8-bit UYVY or 16-bit P216.

## Video

---

Blackout – toggles on and off to mute the video signal. Can mute the video and cue it.

Test Pattern – toggles on and off. Can send out test pattern. Can select a test pattern from list.

Pattern – select from a list of patterns.

Bars 100%	Multi Pattern
Bars 75%	Black
Ramp	White
Multi Burst	Border
Line Sweep	Linear Ramp
Check Field	Slant Ramp
Flat Field	Zone Plate

## Audio

---

Mute – toggles on and off.

Reference Level (dB) 0, 6, 10, 20. You can raise or lower the reference level. For example, "20" means a 20 dB attenuation.

These controls are also available in the Audio Setup tab from the lower Control Bar.

# Chapter 6 – Interoperability

---

This chapter presents a summary of software and hardware tested with BRIDGE NDI 3G.

## NDI Sources Compatible with BRIDGE NDI 3G

---

### NDI

---

Newtek's NDI Tools can be downloaded for Windows or macOS at [NDI.tv/tools/](http://NDI.tv/tools/). This will provide you with many useful apps as well as the plug-ins that will be required for use with Adobe After Effects, Premiere, Apple Final Cut Pro, and VLC.

For macOS users only, similar tools can be downloaded from [www.sienna-tv.com/ndi](http://www.sienna-tv.com/ndi).

### NDI – Test Patterns

---

Allow you to output a standard reference or custom image with tone as NDI. You can send a reference signal to other NDI devices on your network to confirm connectivity and enable audio and video calibration.

STEPS:

1. Download and install the NDI Tools software package.
2. Open the NDI Test Patterns Application.
3. Select any of the available test patterns.
4. If desired, select the Audio Tone Level from the drop-down options at the bottom of the screen.
5. Select the "+" icon if you wish to upload and use a custom image. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page. It can now be selected on the I/O page as an NDI-to-SDI source.)

### NDI – Screen Capture

---

Allows the user to present a computer display, webcam, or region of interest as NDI output with audio.

STEPS:

1. Download and install the NDI Tools software package.
2. Open the NDI Screen Capture Application.
3. Your Desktop will now be mirrored as an NDI source
4. Right-clicking on the Icon in the desktop tray or dock will open a menu that will allow you to change the capture settings. \*(Once opened, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page. It can now be selected on the I/O page as an NDI-to-SDI source.)

### Live Stream Software (OBS, vMix, Wirecast)

---

Live stream software applications are capable of outputting an NDI signal as well as receiving them.

Here are the steps to output NDI from the following applications:

## OBS

---

You will first need to download the OBS Studio NDI Plugin by Palakis on GitHub (<https://github.com/Palakis/obs-ndi/releases>)

STEPS:

1. Open OBS and select Tools in the header
2. From the drop-down menu, select NDIPlugin.Menu. OutputSettings.
3. Here you have the option to select the program and or preview content as individual NDI outputs.
4. After making your selection hit OK. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## vMix

---

No extra downloads are required to use NDI with vMix.

STEPS:

1. Open vMix and select the Gear Icon next to the "External" Tab at the bottom of the window.
2. From the drop-down menu, select "Output/NDI/SRT Settings"
3. You can customize up to four separate NDI outputs to display the Output, Preview, MultiView, Replay, or individual Inputs, by selecting the "NDI ON" buttons next to the Output selection options.
4. You can also activate the "Cameras/Calls/ Audio Inputs" and /or "Audio Outputs as separate NDI Outputs.
5. Select OK.
6. Select the "External" Tab to activate your NDI Output selections. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## Wirecast

---

No extra downloads are required to use NDI with Wirecast.

STEPS:

1. Open Wirecast and select Output from the header.
2. From the drop-down menu, select NDI Output and then Start.
3. The default will be set to Match Canvas or you can customize the NDI output from the raster and frame rates that are listed. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## NLE Software (Adobe, Final Cut Pro, Avid)

---

*NOTE: A/V Sync may be off when using Non-linear editors such as Premiere. This is a known issue.*

The project preview monitors can be sent out as an NDI outputs once the NDI Tools Plugin has been downloaded and installed from NDI.tv/tools from the following NLE Applications:

## Adobe After Effects

---

STEPS:

1. Open After Effects and select Edit and then Preferences from the drop-down menu.
2. Select Video Preview...
3. Select NDI Output from the Video Device options and hit OK. (Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## Adobe Premiere

---

STEPS:

1. Open Premiere Pro and select Edit and then Preferences from the drop-down menu.
2. Select Playback...
3. Select NDI Output from the Video Device options and hit OK.

## Apple Final Cut Pro

---

STEPS:

1. Open Final Cut Pro and select Final Cut Pro and then Preferences from the drop down menu.
2. Select Playback..
3. Select NDI 1280 x 720 @60 from the A/V Output options and close. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## Avid Media Composer

---

STEPS:

1. Open a new project.
2. Right-click on the "Toggle Hardware Button.
3. Select "OpenIO\_NDI" .\*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## Cameras

---

NDI PTZ camera connectivity may differ based on brand and model. Individual user manuals should be consulted when connecting to the Bridge via your NDI network.

If your Media network switch is set to DHCP, then you should see the camera's system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.

If your Media switch is set to Static, you may need to connect the camera to your Control Network first in order to change the camera's default IP address to a new one that is compatible with your Media network.

## iPhone

---

The iPhone camera can be connected to the Bridge NDI via a Lightning-to-RJ45 adapter or over WiFi. You will first need to download some type of NDI camera app from the App store. For example, NDI or NDI HX apps will work. The NDI HX app will require less bandwidth but may not have as good a picture as the standard NDI app.

If using WiFi or LAN, the iPhone will send NDI simply by using the NDI app on the phone. Bridge can then subscribe to it provided that your media network is on the same network.

If using a static IP configuration, you will need to set up the static network in the iPhone settings after the LAN connection to lightning cable is connected.

## Wi-Fi

---

STEPS:

1. Configure a wireless router to have a Static IP address that is in the parameters of the IP Domain being used by your Media switch.
2. Open Settings on the iPhone and select this Wi-Fi.
3. Open the NDI camera app on the phone. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.).

## Single Channel SDI to NDI Converters

---

Single SDI-NDI Converters connections may differ based on the brand and model. Individual user manuals should be consulted when connecting to the Bridge via your NDI network.

Examples include Magewell Pro Convert, BirdDog, NDI Spark 12G.

If your Media network switch is set to DHCP, then you should see the converters system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.

If your Media switch is set to Static, you may need to connect the converter to your Control Network first in order to change the converter's default IP address to a new one that is compatible with your Media network.

## Presentation Software (ProPresenter, Resolume Arena, VLC)

---

### ProPresenter

---

STEPS:

1. Select Screens in the Header and then select "Configure Screens..." from the drop-down menu.
2. Enable the Audience and/or Stage toggle and select the "+" icon to add a screen.
3. Select the Hardware Tab and from the Output drop-down window select "New NDI"

4. Select the desired raster and frame rate. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## Arena

---

### STEPS:

1. Open Arena and select Output from the Header.
2. Select Network streaming (NDI) from the drop-down menu. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

## VLC

---

### STEPS:

1. Open VLC and select Tools from the Header.
2. Select Preferences from the drop-down menu
3. Select the Video Icon and then select "NDI video output" from the Output drop-down menu. \*(Once selected, you will see the system/source information become available for subscription on the Bridge NDI Source/Destination page and now can be selected on the I/O page as an NDI-to-SDI source.)

# NDI Receivers Compatible with BRIDGE NDI 3G

---

## Single-View Monitor Applications

---

### Newtek NDI Monitor

---

#### STEPS:

1. Open NDI Studio Monitor.
2. Select the settings icon in the top left header.
3. From the drop-down menu, select the BRIDGE NDI 3G, and then select the HD Channel of your choice.
4. The NDI video and audio will now be active in the monitor.

### Sienna NDI Monitor

---

#### STEPS:

1. Open NDI Monitor.
2. From the drop-down menu below the monitor window, select the BRIDGE NDI 3G HD Channel of your choice.
3. The NDI video and audio will now be active in the monitor.

## KILOVIEW – MultiView

---

This multi-view application can be downloaded from [Kiloview.com](http://Kiloview.com).

*NOTE: A 1Gb network will only be able to support 8 channels of HD NDI Video before seeing poor performance. This will also be subject to the capabilities of the host system. A 10Gb network will be able to support a much higher channel count for viewing.*

STEPS:

1. Open the app and select the settings icon in the top right of the header.
2. In the toolbar, select the desired screen number and configuration options
3. Click the Discovery button to populate the list of all the available NDI sources on the network.
4. Any available Bridge NDI outputs will be identified by device name/channel and IP address/channel.
5. These now can be dragged and dropped into the screen of your choice  
\*(Selecting the NDI Output Toggle will then send back the Multi-view video as a unique NDI source that can be subscribed to.

## Live Stream Software (OBS, Wirecast, vMix)

---

Live stream software applications are capable of capturing an NDI signal as well as outputting them.

Here are the steps to capture a NDI signal from the following applications:

### OBS

---

STEPS:

1. Open OBS and select the "+" Icon in the Source window.
2. Select "NDIPlugin.NDISourceName" from the drop-down menu.
3. Select "Create new" or "Add Existing" and hit OK.
4. Select the BRIDGE NDI 3G (HD CH) of your choice and hit OK. The SDI-NDI video from the Bridge will now be visible in the viewer screen.

### Wirecast

---

STEPS:

1. Open Wirecast and select the "+" Icon in the Layer Bar.
2. Select the Network Tab.
3. Select the BRIDGE NDI 3G (HD CH) of your choice and hit Add. The SDI-NDI video from the Bridge will now be visible in the Preview Window.

### vMix

---

STEPS:

1. Open vMix and select the Add Input Tab.
2. Select "NDI/Desktop Capture" and you will see thumbnails of the NDI sources available on your Media network.
3. Select the BRIDGE NDI 3G (HD CH) of your choice and hit OK. The SDI-NDI video from the Bridge will now be visible in the Input Preview Window.

## Single Channel NDI-SDI Converters

---

Single NDI-SDI Converter connections may differ based on the brand and model. Individual user manuals should be consulted when connecting to the Bridge via your NDI network.

If your Media network switch is set to DHCP, then you should see the Bridge system/source information become available for subscription on the Source List page and now can be selected as an NDI-to-SDI source.

If your Media switch is set to Static, you may need to connect the converter to your Control Network first in order to change the converter's default IP address to a new one that is compatible with your Media network.

## NewTek Connect Spark Plus I/O

---

### STEPS:

1. Input IP address for converter and login to device.
2. Select the Decoder Tab.
3. Select the BRIDGE NDI 3G from the Source List under the Device Name options.
4. Select the desired Channel from the Channel Name list.
5. Connect the SDI output of the converter to an SDI monitor or capture device.
6. Observe Bridge NDI Ch is now active on SDI monitor or capture device.

# Chapter 7 – System Setup and Configuration

---

This chapter is designed for the System Integrator, Facility Engineer or Remote Technician who is responsible for setting up the BRIDGE NDI 3G system including:

- Unpacking
- Mounting
- SDI cabling to sources and destinations
- Joining the system to the appropriate Network for receiving and sending NDI
- Supplying Power
- Booting Up
- Logging In
- Network Configuration
- Setting System Host Name
- Assigning Non-Factory Password

The setup tasks are the same whether BRIDGE NDI 3G is coming from the AJA factory, being supplied by a rental company, arriving at a remote location, or following a Factory Reset.

For initial setup or following factory reset, use the Quick Start Guide that contains the unique factory login credentials for your specific system. The Quick Start Guide is a physical document supplied in the BRIDGE NDI 3G product box.

## Quick Start Guide Login Credentials

---

BRIDGE NDI 3G ships with a Quick Start Guide when it comes from the factory. This physical document contains the login information for accessing BRIDGE NDI 3G for the first time. Do not discard the unique Quick Start Guide, as these credentials will be required following any future Factory Reset. If you are missing the Quick Start Guide, you will have to contact AJA tech support.

If you are receiving a system that has been used elsewhere and you do not have the password that may have been applied, then you can perform a Factory Reset and then use the factory supplied password from the Quick Start Guide to regain access to the system for set up.

See "[Performing a Factory Reset](#)" on page 74 for more information.

## What's In the Box

---

### Shipping Box Contents

---

A BRIDGE NDI 3G is shipped with a Quick Start Guide, two (2) AC power cords, rackmount brackets provided as part of the chassis, eighteen (18) BNC adapter cables, and a USB sound card, provided so that audio can be monitored directly on the system.

As you unpack the shipping box, carefully examine the contents. Ensure you received everything and that nothing was damaged during shipment. If you find any damage, immediately notify the shipping service and supply them with a description of the damage. AJA will repair or replace damaged items.

If you find shipping damage, contact your AJA dealer or distributor for details on how to have your BRIDGE NDI 3G repaired or replaced.

*NOTE: Save packing materials and the shipping box. If your BRIDGE NDI 3G ever requires service or you move your system, use the packaging materials and box for safe shipment.*

## Installation Overview

---

1. Unpack the shipping box.
2. Mount the physical chassis as desired, using the provided sliding rails. Cooling airflow enters the chassis from the front, and exits from the rear and top panels. Do not obstruct these air vents.
3. Connect the two BRIDGE NDI 3G power cords to mains AC. For redundancy, use both power supplies and connect them to separate branch circuits so that the BRIDGE NDI 3G will continue to operate even if a circuit breaker opens on one branch.
4. Connect a computer monitor (user supplied) to the rear VGA port.
5. Connect a keyboard and mouse (user supplied) to available rear USB 3.0 connectors.
6. Connect the 1.0/2.3 DIN to full-size BNC adapter cables to the BRIDGE NDI 3G input/output connectors.
7. Connect the BRIDGE NDI 3G inputs/outputs to your video sources and destinations as required.
8. Power up the chassis. The system will boot up to the BRIDGE NDI 3G application.

## Rack Mounting/Environment

---

### Rack Mounting the Chassis

---

Install the BRIDGE NDI 3G chassis into a standard 19-inch wide equipment rack, allowing space for cooling airflow. The chassis occupies only one vertical rack unit.

Two rack rail assemblies are included in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

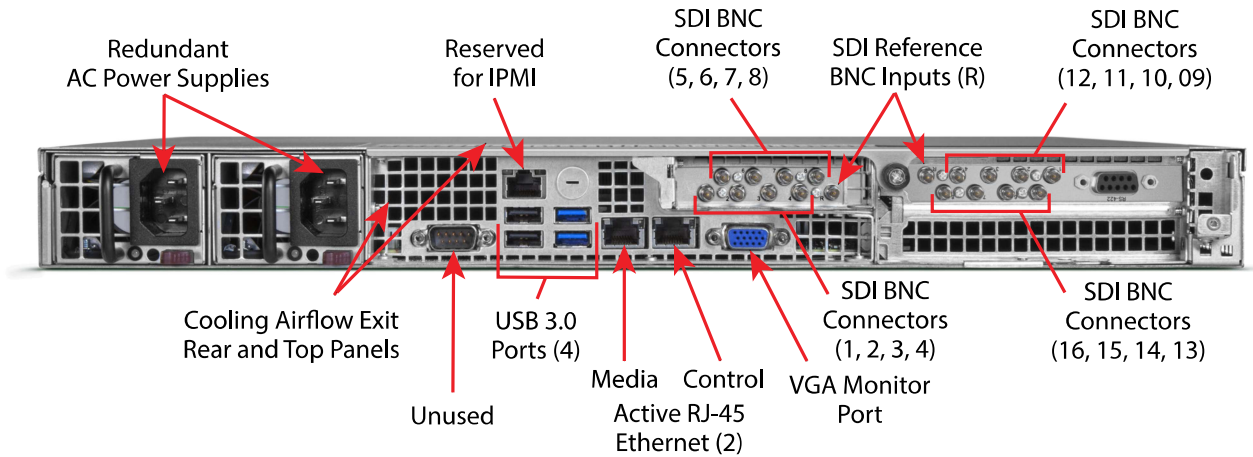
The rail assemblies are shipped with rack adapters installed for use with IT (square hole) style rack frames. For IT racks, simply slide the unit into place, as the rails will lock automatically. For use with a standard round hole rack frame, you will need to remove the adapters using a small Phillips head screwdriver.

## Cabling

---

Viewed from the rear, 10GigE Port 01 is on the left, and 10GigE Port 02 is on the right. All sixteen 3G-SDI spigots can be used for HD or 4K Input or Output.

Figure 55. BRIDGE NDI 3G Chassis Rear View



10GigE Port 01 is used for NDI I/O.

10GigE Port 02 can be used for control.

Sixteen Bi-Directional 3G-SDI spigots are arranged into 4 Banks:

Bank 1: Channels 1-4

Bank 2: Channels 5-8

Bank 3: Channels 9-12

Bank 4: Channels 13-16

Each Bank can be configured for:

4x HD

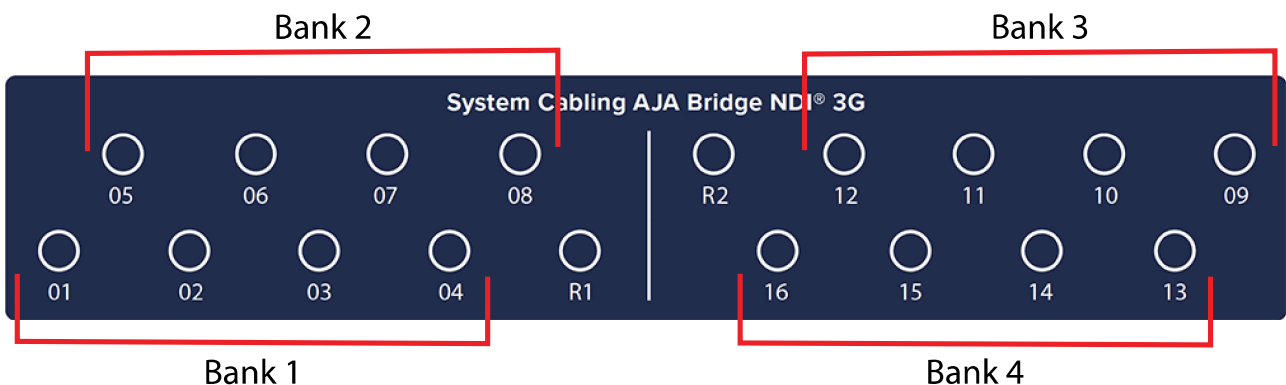
1x 4K

2x HD Video + Key

Banks 1 and 2 can be set to encode or decode, independently of whether Banks 3 and 4 are set to encode or decode.

This means that all sixteen Channels can be set for SDI Input or SDI Output. Alternatively Ch1-Ch8 could be set to for SDI Input, with Ch9-Ch16 set to SDI output, or vice versa.

Figure 56. BRIDGE NDI 3G SDI Cabling Label for Rear of Device



# Network Requirements

---

The BRIDGE NDI 3G ships configured for DHCP operation. If your facility uses DHCP, simply connect one of the active Ethernet RJ-45 connectors to your network.

To manually configure your BRIDGE NDI 3G's IP addresses, on the BRIDGE NDI 3G application, press the Tab key on the keyboard when no drop-down menu is visible to open the Settings screen, and select NETWORK.

## Media vs Control

---

Media Network is your dedicated NDI network that can have all the NDI traffic on it. You can also use it to control the device.

Control Network is a good way to have the interface connected to your general Internet network through the facility without any concern of NDI signals being sent on it. That way you can access BRIDGE NDI 3G anywhere in your facility or VPN without also carrying any NDI traffic on it.

If you have one network in total, you will just use the Media Network.

## How to Connect to Internet

---

Set-up one switch to the Control port in order to connect to the Internet and to be able to access BRIDGE NDI 3G via a web browser. A second switch with a separate IP address will be needed to connect your NDI sources and destinations.

## Wireless Workflows

---

You can set up a wireless router to your media network in order to use an iPhone NDI camera app wirelessly. You can also wire a control switch to a wireless router so you can monitor the BRIDGE NDI 3G from a wireless laptop.

## Unicast Supported

---

BRIDGE NDI 3G supports Unicast. Multicast is not supported.

# Boot Up

---

On initial system startup, you will need to accept the AJA EULA (End User License Agreement).

## Accept EULA

---

The EULA is presented only on the first time booting up the system following delivery, or following a factory reset. Once accepted, the EULA will no longer be presented upon boot up.

# Login

---

Following boot up, the BRIDGE NDI 3G system will present a login screen. Enter the username and password.

If setting up BRIDGE NDI 3G for the first time, reference the Quick Start Guide that was supplied with the system. This document contains the factory username and password. These are also the credentials to use following a Factory Reset.

If the unique Quick Start Guide for a specific BRIDGE NDI 3G unit is no longer available, contact AJA Technical Support.

## Accessing BRIDGE NDI 3G Interface

---

Following local login, BRIDGE NDI 3G will present the Splash Screen. To proceed past the Splash Screen to the system interface, press the Space Bar.

Once BRIDGE NDI 3G has been accessed and set up locally, the keyboard command ALT+F4 will log you out and return the system to displaying the Splash Screen, meaning that it will be able to devote all of its resources to Video I/O.

It is recommended to leave the system displaying the Splash Screen when not actively accessing the interface locally.

Alternatively, at this point in the installation process, BRIDGE NDI 3G can instead be accessed using a different host system on the same network.

BRIDGE NDI 3G ships from the factory with DHCP enabled, and this is also the default setting following a Factory Reset.

## Accessing the BRIDGE NDI 3G Interface Remotely

---

This section shows you how you can initially access the BRIDGE NDI 3G interface remotely, before you know its IP address, through simple network discovery from your remote system.

By default, the BRIDGE NDI 3G unit is shipped with DHCP enabled. DHCP is also enabled following a factory reset.

### To Access the Unit Remotely

---

#### For Windows

---

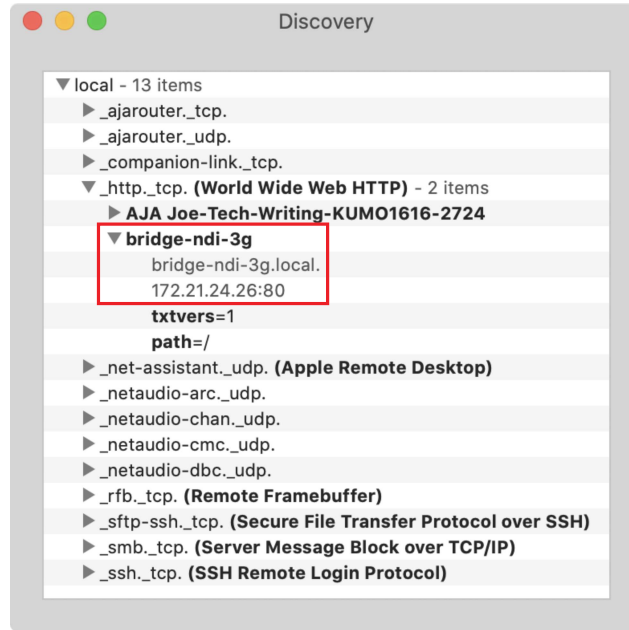
1. Open Windows Explorer.
2. Navigate to Network.
3. Click Network to enumerate network devices.
4. Search for either "BRIDGE" or the device's Serial Number (see sticker on rear panel, to the left of the 4 USB ports).
5. Double-click on the intended device. Your remote system web browser will launch and display the web GUI for the device.

#### For macOS

---

1. Download and install an MDNS browser, such as Discovery, from which you can browse local Bonjour services to discover network devices on a Mac host.
2. Use this method to identify the BRIDGE NDI 3G's IP address. In the example shown below, the IP address is 172.21.24.26.
3. Enter the IP address into a browser.

Figure 57. Example of using Discovery to find the IP address



## Setup Testing

To monitor NDI outputs from BRIDGE NDI 3G, use an NDI MultiViewer or other similar application on a separate host system on the same network.

To monitor SDI outputs from BRIDGE NDI 3G, connect the rear BNC connectors to an SDI Monitor or MultiViewer or Router.

To monitor Audio directly from BRIDGE NDI 3G locally, connect the USB sound card (supplied).

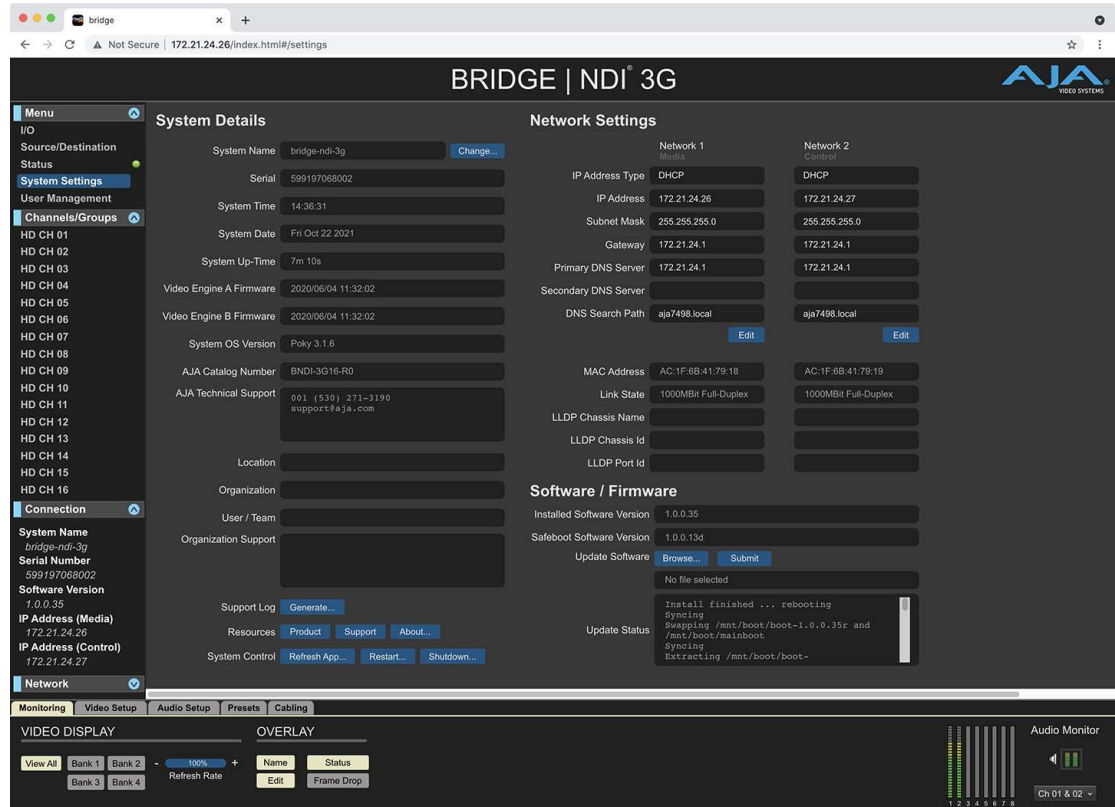
Unlike the SDI and NDI I/O, the included USB sound card supports only stereo/two-channel audio monitoring. Using the Control Bar – Monitor Tab, any channel pair can be monitored interdependently.

See "[Audio Monitoring](#)" on page 35 for more information.

## Setting Up Your System

Navigate to the System Settings Screen by selecting System Settings in the left navigation menu. From the System Settings Screen, you can access system details and controls, network settings, and software/firmware controls.

Figure 58. System Settings Screen



## System Settings Screen

### System Details

Some fields will be pre-populated, such as Serial Number, System Time, System Date, System Up-Time, Video Engine A Firmware, Video Engine B Firmware, System OS Version, and AJA Technical Support.

**System Name** - You can edit the System Name to reflect how you prefer to reference the name of your BRIDGE NDI 3G system. A reboot will be required in order for this to take effect.

**Organization Support** - Enter your organization's support contact information in order to facilitate support internally.

### Network Settings

If you are using DHCP (default) to assign your IP addresses, you can be up and running quickly. If you are using Static IP addresses, you will need to manually enter IP addresses and Subnet Masks for your network settings.

*NOTE: If you are unsure of the correct IP Address settings, consult with your network administrator.*

To manually modify Network 1 or Network 2 settings, click the **Edit** button located under the column you want to configure. The corresponding Network Settings pop-up window displays.

Figure 59. Network Settings

The screenshot shows a 'Network Settings' interface with two columns: 'Network 1 Media' and 'Network 2 Control'. Each column has a list of settings with corresponding input fields. Below the Network 1 settings is an 'Edit' button. Below the Network 2 settings is another 'Edit' button.

	Network 1 Media	Network 2 Control
IP Address Type	DHCP	DHCP
IP Address	172.21.24.26	172.21.24.27
Subnet Mask	255.255.255.0	255.255.255.0
Gateway	172.21.24.1	172.21.24.1
Primary DNS Server	172.21.24.1	172.21.24.1
Secondary DNS Server		
DNS Search Path	aja7498.local	aja7498.local
	<a href="#">Edit</a>	<a href="#">Edit</a>
MAC Address	AC:1F:6B:41:79:18	AC:1F:6B:41:79:19
Link State	1000MBit Full-Duplex	1000MBit Full-Duplex
LLDP Chassis Name		
LLDP Chassis Id		
LLDP Port Id		

Select DHCP or Static for IP Address Type.

When using DHCP, the Network Settings fields are automatically dynamically populated, and will display "TBD."

When using Static settings, enter values for the following Network Settings:

- IP Address
- Subnet Mask
- Gateway
- Primary DNS Server
- Secondary DNS Server
- DNS Search Path

When finished, click **Apply**.

**Network 1** - For incoming and outgoing media (NDI) signal traffic. Network 1 is capable of a 10 Gig connection. You can also use the Network 1 Ethernet port for network control of the BRIDGE NDI 3G device, such as accessing the device from a remote web browser. Except for physically changing cabling connections, virtually all control of the device can be done from a remote computer with a web browser.

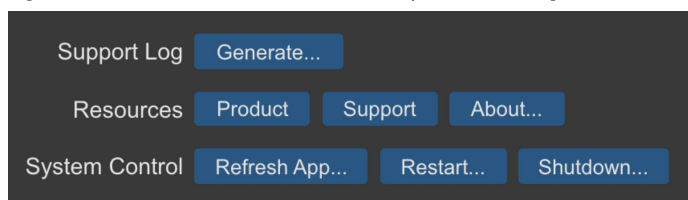
**Network 2** - For network control of the BRIDGE NDI 3G device. Network 2 is capable of a 10 Gig connection. If you prefer to separate media traffic from network control of the BRIDGE NDI 3G device, use the Network 2 Ethernet port for network control only, and use the Network 1 Ethernet port for media traffic.

*NOTE: Network 2 cannot be used for media traffic.*

## Resource Buttons

---

Figure 60. The Resource Buttons on System Settings Screen



### Support Log

---

**Generate** - This button generates a support log file for sending to AJA Customer Support for trouble-shooting. Please see ["Generating Support Logs and Providing to AJA Technical Support"](#) on page 79 for more details about this process.

*NOTE: Generating a support log file can be done only from the remote web browser location. This function is not available from the Kiosk view.*

### Resources

---

**Product** - Navigates to the product support page at AJA.com where you can access support documents and this product manual.

**Support** - Navigates to the AJA Contact Support page at AJA.com. This web page provides guidance for contacting customer support and accessing relevant Downloads.

**About** - This opens a local pop-up window containing "About" information for BRIDGE NDI 3G. In the Kiosk view only, there are also a few useful keyboard shortcuts described for accessing Factory Reset and Safe boot options. Additionally, from the Kiosk view only, the following keyboard shortcuts are described:

- CTRL+R: refresh screen
- ALT+F4: logout and return to the splash screen (saves system resources)
- ALT+Left: Go back to previous page (useful after selecting Product and Support buttons)

### System Control

---

**Refresh App** - Use the Refresh App button to refresh the application.

**Restart** - Use the Restart button to restart BRIDGE NDI 3G.

**Shutdown** - Use the Shutdown button to shutdown BRIDGE NDI 3G.

At this point, BRIDGE NDI 3G is set up and configured.

# Review

---

To review and summarize, these are the key steps for setting up your system:

- Unpack BRIDGE NDI 3G
- Locate Quick Start Guide
- Install BRIDGE NDI 3G in operating environment
- Access system either locally via Kiosk interface, or remotely via web browser
- Set new system name
- Configure network settings
- Set new system password
- Determine workflow
- Connect cables
- Make selections of conversion directions
- Determine any Bank groupings
- Choose any NDI sources
- Edit labels as appropriate
- Configure monitoring selections
- Logout, Set and Forget

# Chapter 8 – Administrative Tasks

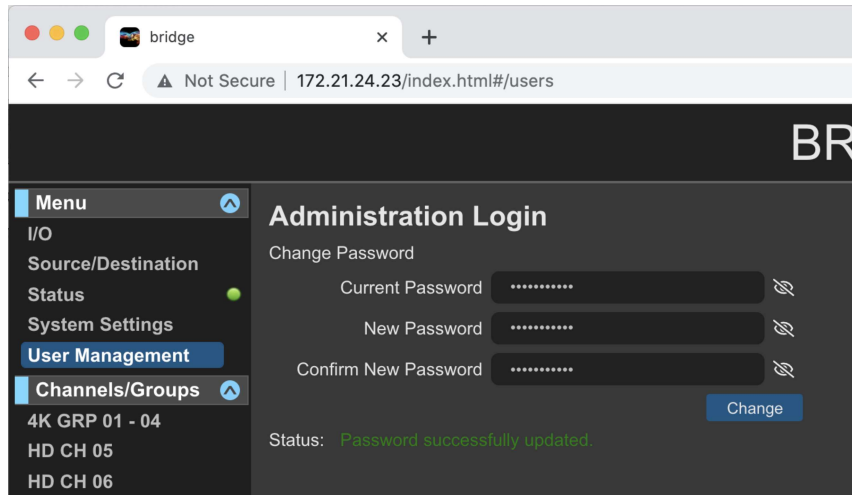
---

## Changing the Password

---

From the User Management/Administration Login Screen, you can change the admin password.

Figure 61. User Management Screen, Changing Admin Password



### To Change the Admin Password

---

1. Enter the current password in the Current Password field.
2. Enter your desired new password (up to a maximum of 22 characters) in the New Password field.
3. Enter your desired new password again in the Confirm New Password field.
4. Select Change. A Sign in prompt displays.
5. Enter your current user name and the new password that you just created.
6. Select Sign In. The User Management screen refreshes with the Status "Password successfully updated."

## Changing the System Name

---

The System Name can be changed from the System Settings Screen. Your BRIDGE NDI 3G will come from the factory with a unique System Name, but your organization may wish to assign it another name according to your internal naming schema.

### To Change the System Name

---

1. Navigate to the System Settings Screen by clicking System Settings in the left navigation menu. The System Settings Screen displays.
2. Next to the System Name field, click Change. The Set System Name pop-up window displays.

3. Enter the name you want to use for your system. You must use at least one character (a-z, 0-9, dashes accepted but no spaces). The System Name must be limited to 22 characters total.

After changing the System Name, the unit will disconnect and may be unresponsive for a few moments. It is recommended to reboot after changing the System Name.

## Performing a Factory Reset

---

### Results of a Factory Reset

---

All Users are logged out (except admin).

Admin Login and Password is reset (to details on physical Quick Start Guide that shipped in the box with your BRIDGE NDI 3G system).

System Name is reset.

EULA/Licenses must be re-agreed to upon reboot.

Network settings are purged and reset to default (i.e. DHCP).

Admin Video Quality Reset.

Operator Video Refresh Rate Reset.

Custom SDI Ch/Grp Labels Reset.

NDI Favorites Erased.

Audio Channel I/O Default is 8 Ch.

Channels/Groups revert to HD.

Channels revert to encode (SDI->NDI).

### To Perform a Factory Reset

---

*NOTE: A factory reset can be performed only from the Kiosk system, not from a remote browser system.*

1. Shut down your BRIDGE NDI 3G unit.
2. Start up your unit again.
3. Immediately start tapping the space bar (once or twice per second) until you see the boot selection screen that has "Release," "Safe boot" and "Factory Reset."
4. Select "Factory Reset" and hit Return.
5. Enter "Yes" and Return when prompted.

## System Administration

---

### System Settings

---

#### System Details

---

Some fields will be pre-populated, such as Serial Number, System Time, System Date, System Up-Time, Video Engine A Firmware, Video Engine B Firmware, System OS Version, and AJA Technical Support.

**System Name** - You can edit the information in this field to reflect how you prefer to reference the name of your BRIDGE NDI 3G system.

**Organization Support** - Enter your organization's contact information in order to facilitate support from AJA.

## Network Settings

If you are using DHCP (default) to assign your IP addresses, you can be up and running quickly. If you are using Static IP addresses, you will need to manually enter IP addresses and Subnet Masks for your network settings.

*NOTE: If you are unsure of the correct IP Address settings, consult with your network administrator.*

To manually modify Network 1 or Network 2 settings, click the **Edit** button located under the column you want to configure. The corresponding Network Settings pop-up window displays.

Figure 62. Network Settings

	Network 1 Media	Network 2 Control
IP Address Type	DHCP	DHCP
IP Address	172.21.24.26	172.21.24.27
Subnet Mask	255.255.255.0	255.255.255.0
Gateway	172.21.24.1	172.21.24.1
Primary DNS Server	172.21.24.1	172.21.24.1
Secondary DNS Server		
DNS Search Path	aja7498.local	aja7498.local
	<a href="#">Edit</a>	<a href="#">Edit</a>
MAC Address	AC:1F:6B:41:79:18	AC:1F:6B:41:79:19
Link State	1000MBit Full-Duplex	1000MBit Full-Duplex
LLDP Chassis Name		
LLDP Chassis Id		
LLDP Port Id		

Select DHCP or Static for IP Address Type.

When using DHCP, the Network Settings fields are automatically dynamically populated, and will display "TBD."

When using Static settings, enter values for the following Network Settings:

- IP Address
- Subnet Mask
- Gateway
- Primary DNS Server
- Secondary DNS Server
- DNS Search Path

When finished, click **Apply**.

**Network 1** - For incoming and outgoing media (NDI) signal traffic. Network 1 is capable of a 10 Gig connection. You can also use the Network 1 Ethernet port for network control of the BRIDGE NDI 3G device, such as accessing the device from a remote web browser. Except for physically changing cabling connections, virtually all control of the device can be done from a remote computer with a web browser.

**Network 2** - For network control of the BRIDGE NDI 3G device. Network 2 is capable of a 10 Gig connection. If you prefer to separate media traffic from network control of the BRIDGE NDI 3G device, use the Network 2 Ethernet port for network control only, and use the Network 1 Ethernet port for media traffic.

*NOTE: Network 2 cannot be used for media traffic.*

## Updating Software/Firmware

---

From the Software/Firmware section of the System Settings Screen, you can update your software. There are two methods for updating software/firmware.

- Updating from a Remote System
- Updating Locally from a USB Connected Storage Device

## Download the Latest BRIDGE NDI 3G Update

---

The update can be obtained with a separate Mac, Windows or Linux-based host-system with a network interface and access to the Internet. If you wish to apply the update from the same system you are using to download the update package, it will need to be connected to the same network as BRIDGE NDI 3G.

1. From a web browser, navigate to:  
<https://www.aja.com/products/bridge-ndi-3g#support>
2. Under the Software heading, select the BRIDGE NDI 3G package for download. The current and previous releases of BRIDGE NDI 3G will be available on AJA's website.
3. Download the package you require to the separate host-system, connected to the same network as BRIDGE NDI 3G.

## Unpack BRIDGE NDI 3G Update

---

The update downloaded from AJA.com is a "ZIP" file which can be opened with OS tools or third party applications.

4. Extract/unzip the contents of the ZIP file. This will present a folder containing the BRIDGE NDI 3G Product Manual, Release Notes, and the appropriate Software update package.

## Updating BRIDGE NDI 3G from a Remote System

---

1. From the BRIDGE NDI 3G web browser interface, navigate to the System Settings Screen.
2. Under the Software/Firmware heading, select Browse. A navigation window opens.
3. Navigate to the unzipped Software update (\*.ajas file) and select it.
4. Click Open. The name of the Software update file displays in the field just below the Browse and Submit buttons.

5. Select Submit. The file uploads to BRIDGE NDI 3G, then the system automatically reboots.
6. Following the reboot, if prompted, login to the system. The update has now been applied.

## Updating BRIDGE NDI 3G Locally from a USB Connected Storage Device

---

1. Copy the downloaded and unzipped update file to a USB drive.
2. Plug the USB drive into a BRIDGE NDI 3G USB port.
3. From the BRIDGE NDI 3G Kiosk Interface, go to the System Settings Screen.
4. Under the Software/Firmware heading, select Browse. A navigation window opens.
5. From the left hand OS navigation menu, go to Run > Media > sda1.
6. Navigate to the unzipped Software update (\*.ajas file) and select it.
7. Click Open. The name of the Software update file displays in the field just below the Browse and Submit buttons.
8. Select Submit. The file uploads to BRIDGE NDI 3G, then the system automatically reboots.
9. Following the reboot, login to the system. The update has now been applied.

**WARNING:** *While updating software, do not remove power.*

## Refresh, Restart, Shutdown

---

BRIDGE NDI 3G is an appliance intended to be running continuously. However, if you should experience some sort of non-functional state, the following actions are available:

**Refresh App** - Use the Refresh App button to refresh the application.

**Restart** - Use the Restart button to restart BRIDGE NDI 3G.

**Shutdown** - Use the Shutdown button to shutdown BRIDGE NDI 3G.

## Network Settings

---

Please see the following sections regarding Network Settings:

- ["Network Requirements" on page 66](#)
- ["Network Settings" on page 69](#)

## Best Practice

---

Best practice is to use separate networks, with Media being dedicated to NDI traffic.

Set-up one switch to the Control port in order to connect to the Internet and be able to access the Bridge via a web browser. A second switch with a separate IP address will be needed to connect your NDI sources and destinations with the Media port.

# Chapter 9 – Using REST API

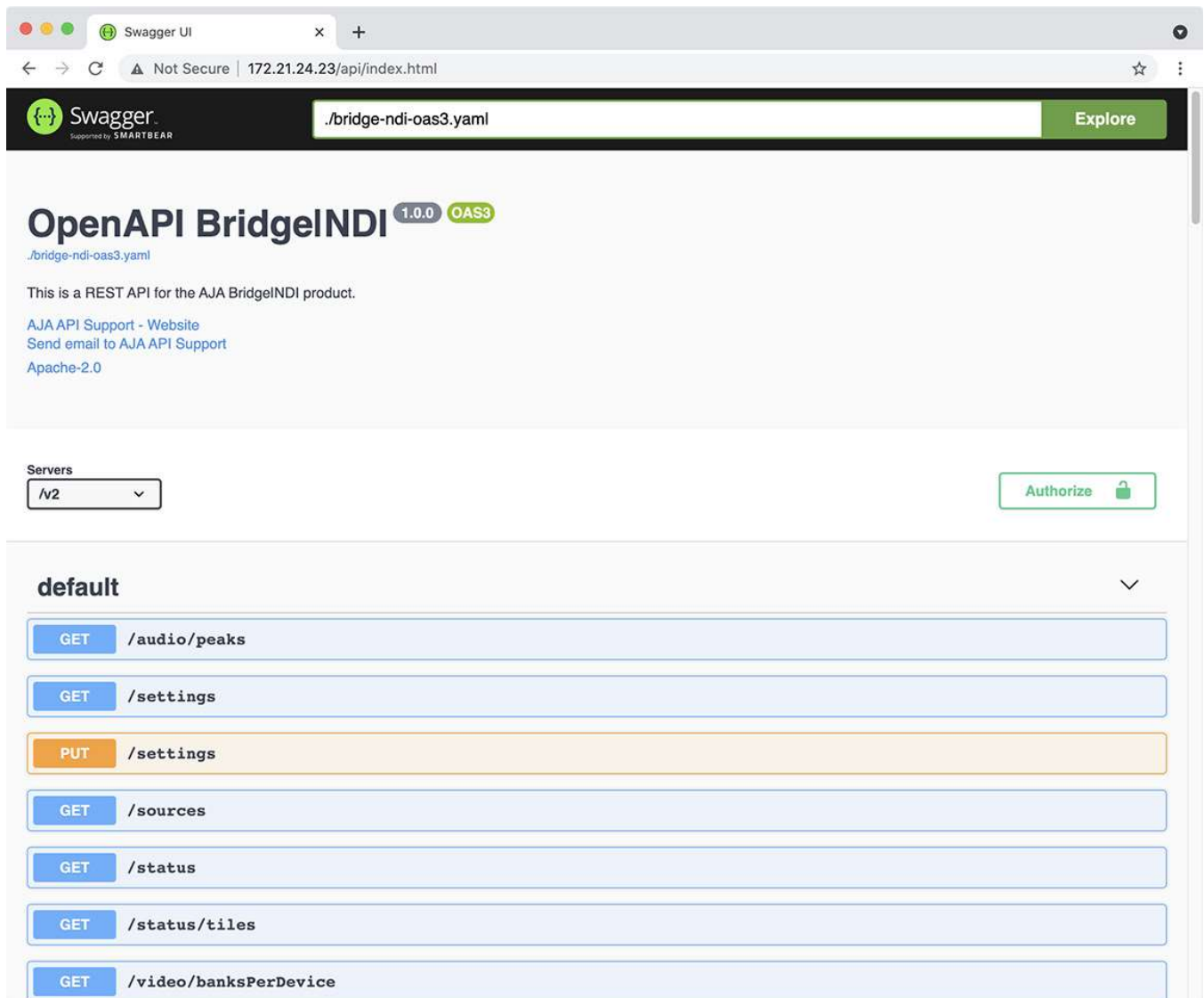
BRIDGE NDI 3G is supported via REST API.

To access the REST API from a remote system, type the IP address of your BRIDGE NDI 3G followed by "/api" into your browser navigation bar:

"<ipaddress>/api"

The swagger UI launches and displays interactive documentation.

Figure 63. REST API Landing Page



# Chapter 10 – Troubleshooting

---

## Using Refresh Application

---

Refresh App is a simple way to clear out any issues and to reset all the channels. It also resets all the frame drop counters and creates a fresh start. Output will be interrupted for a few seconds when performing this operation.

### Refresh App

---

- clears out issues
- resets all the channels
- resets frame drop counters

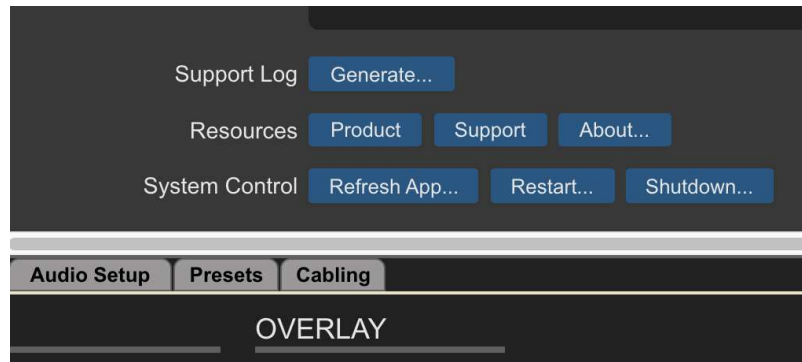
### Refresh Browser

---

- command + R

*NOTE: Command + R refreshes the browser, whereas refresh app resets all the channels.*

*Figure 64. System Settings Screen > System Control Buttons*



## Generating Support Logs and Providing to AJA Technical Support

---

Support logs are a troubleshooting tool that will provide a description of the state of the machine and the last few crash logs to help identify any problems through support. The ability to generate a support log is only available through the browser where you can download the support log file locally and send on to support. It is best to perform this immediately after an issue occurs. It is also useful after a system crash.

*NOTE: Generating a Support Log is only possible via the remote Web Browser Interface from a remote system. It is not possible from the local Kiosk interface.*

### To Generate a Support Log File

---

1. Navigate to System Settings > Support Log > Generate button.

2. Select Generate. BRIDGE NDI 3G generates a support log file. The browser downloads it to your local downloads folder.

An example filename of a support log file is:

```
ndibridge_supportlog_2021-10-20T05-03-23.json
```

3. Send this file to [support@aja.com](mailto:support@aja.com).

## Checking Network Connectivity

From the Status Screen, use the Network 1 and Network 2 fields to check the network connectivity and network link state. Here, you can see when your network is up and connected. You can also monitor network traffic.

Figure 65. Status Screen, Network Connectivity State

	● Network 1 Media 172.21.24.24	● Network 2 Control 172.21.24.25
Speed	1000MBit Full-Duplex	1000MBit Full-Duplex
Received	0.0% [min: 0, max: 0, avg: 0]	0.0% [min: 0, max: 0, avg: 0]
Transmitted	0.2% [min: 0.1, max: 0.2, avg: 0.2]	0.0% [min: 0, max: 0, avg: 0]
Total Usage	Rx: 1.3 GB / Tx: 103.8 GB	Rx: 3.9 GB / Tx: 414.7 KB

## Safe Boot

Using Safe Boot mode provides an environment where it is easier to troubleshoot and detect issues.

### To get into Safe Boot Mode

1. Shutdown BRIDGE NDI 3G.
2. Start it back up while pressing the space bar repeatedly once or twice per second during the startup process, using a keyboard that is connected via USB to the BRIDGE NDI 3G device.
3. When menu options display, choose Safe boot. The system will proceed to boot up in safe mode.

## Factory Reset

Performing a Factory Reset has the following results:

- All Users are logged out (except admin)
- Admin Login and Password is reset (to details on physical Quick Start Guide that shipped in the box with your Bridge NDI system)
- System Name is reset
- EULA/Licenses must be re-agreed to upon reboot
- Network settings are purged and reset to default (i.e. DHCP)
- Admin Video Quality Reset
- Operator Video Refresh Rate Reset
- Custom SDI Ch/Grp Labels Reset

- NDI Favorites Erased
- Audio Channel I/O Default is 8Ch
- Channels/Groups revert to HD
- Channels revert to encode (SDI->NDI)

## Performing a Factory Reset

---

*NOTE: A factory reset can be performed only from the Kiosk system, not from a remote browser system.*

1. Shut down your BRIDGE NDI 3G unit.
2. Start up your unit again.
3. Immediately start tapping the space bar (once or twice per second) until you see the boot selection screen that has "Release," "Safe boot" and "Factory Reset."
4. Select "Factory Reset" and hit Return.
5. Enter "Yes" and Return when prompted.

## Contacting Support

---

If you need support from AJA, please do not hesitate to reach out to us.

<https://www.aja.com/support/contact>

[support@aja.com](mailto:support@aja.com)

Phone: +1-530-271-3190

Fax: +1-530-274-9442

# Appendix A – Specifications

---

## BRIDGE NDI 3G Tech Specs

---

### Video Formats

---

- (4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (UltraHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1080i 50, 59.94, 60
- (HD) 720p 50, 59.94, 60

### Video Codecs

---

- NDI
- NDI HX (input only)

### Audio Streams/Codecs

---

- NDI (uncompressed float)
- SDI (PCM)

### Color Component Sampling, Color Space and Bit-Depth

---

- SDI
  - YCbCr, 4:2:2, 10-bit
- NDI
  - UYVY, 4:2:2, 8-bit
  - UYVA, 4:2:2, 8-bit
  - P216, 4:2:2, 16-bit (output only)

### Video Processing

---

- Scaling
- Letterbox/Pillarbox
- Video/Key Pair (2x SDI to 1x NDI + Alpha, or, 1x NDI + Alpha to 2x SDI)
- Reclocking for integer/fractional rate conversion

### Audio Processing

---

- Audio reference level per video channel / group (up to 16 audio channels)
- Sample Rate conversion

### Performance

---

- Up to 16x HD (NDI/SDI)
- Up to 4x 4K (NDI/SDI)
- Ultimate performance based on concurrent video processing

### NDI Video Input

---

- NDI (approx. 150–250Mbit/s)
- NDI HX (approx. 8-20Mbit/s)

### NDI Video Output

---

- NDI (approx. 150–250Mbit/s)

## SDI Video Input Digital

---

- 3G-SDI, SMPTE-424, 10-bit
- 1.5G-SDI, SMPTE 292M, 10-bit

## SDI Video Output Digital

---

- 3G-SDI, SMPTE-424, 10-bit
- 1.5G-SDI, SMPTE 292M, 10-bit

## NDI Audio Input

---

- Up to 16-channel, uncompressed float, 48 kHz sample rate, per NDI connection

## NDI Audio Output

---

- Up to 16-channel, uncompressed float, 48 kHz sample rate, per NDI connection

## SDI Audio Input Digital

---

- Up to 16-channel, 16 and 24-bit SDI embedded audio, 48 kHz sample rate, synchronous per SDI connection

## SDI Audio Output Digital

---

- Up to 16-channel, 16 and 24-bit SDI embedded audio, 48 kHz sample rate, synchronous per SDI connection

## Reference

---

- Dual Analog Color Black or HD Tri-level sync

## Configuration and Monitoring

---

- Browser via network attached client system
- Local "Kiosk" interface via monitor (VGA), keyboard and mouse (not included)
- Local Dual Channel Audio via USB soundcard (included)
- REST API

## Form Factor

---

- 1RU turnkey system
- 18x BNC (Din 1.0/2.3, 3G/1.5G-SDI compatible)
- 2x 10GigE
- Local interface via VGA and USB
- OS custom image
- Updates via download

## Size (w x d x h)

---

- 17.2" x 16.9" x 1.7" (436.88 x 429.26 x 43.18 mm)

## Weight

---

- 28 lb. (12.7kg) in box
- 18 lb. (8.2kg) server only

## Power

---

- 100-240 VAC 50/60 Hz (Dual, redundant power supplies)
- 190W typical, 245W Maximum

## Environment

---

- Safe Operating Temperature: 5 to 35 C (41 to 95 F)

- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 8-90% noncondensing
- Nonoperating Relative Humidity: 5-95% noncondensing

## BRIDGE NDI 3G Video I/O Formats

### 4K/UltraHD I/O Supported

#### 4x 3Gb SDI:

<i>Format</i>	<i>Frame Rate</i>	<i>Colorspace</i>	<i>Sampling</i>	<i>Bit Depth</i>
• 4096x2160 p	47.95, 48.00, 50, 59.94, 60	YCbCr	4:2:2	10
• 4096x2160 p	23.98, 24, 25, 29.97, 30	YCbCr	4:2:2	10
• 3840x2160 p	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	YCbCr	4:2:2	10

### 2K/HD I/O Supported

#### 1x 3Gb SDI:

<i>Format</i>	<i>Frame Rate</i>	<i>Level A/B</i>	<i>Colorspace</i>	<i>Sampling</i>	<i>Bit Depth</i>
• 1920x1080 p	50, 59.94, 60	A/B-DL*	YCbCr	4:2:2	10
• 1920x1080 p	23.98, 24, 25, 29.97, 30		YCbCr	4:2:2	10
• 1920x1080 i	50, 59.94, 60		YCbCr	4:2:2	10
• 1280x720 p	50, 59.94, 60		YCbCr	4:2:2	10

\*Level A/B-DL SDI Input, Level A SDI Output.

#### 1x 1.5Gb SDI:

<i>Format</i>	<i>Frame Rate</i>	<i>Colorspace</i>	<i>Sampling</i>	<i>Bit Depth</i>
• 1920x1080 p	23.98, 24, 25, 29.97, 30	YCbCr	4:2:2	10
• 1920x1080 i	50, 59.94, 60	YCbCr	4:2:2	8, 10
• 1280x720 p	50, 59.94, 60	YCbCr	4:2:2	8, 10

# Appendix B – Safety and Compliance

---

## Federal Communications Commission (FCC) Compliance Notices

---

### Class A Interference Statement

---

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Caution

---

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Canadian ICES Statement

---

### Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

### Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

## European Union and European Free Trade Association (EFTA) Regulatory Compliance

---

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTENSTEIN, NORWAY, SWITZERLAND

## Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2014/30/EU.



This equipment meets the following conformance standards:

EN 60065: 2014 (T-Mark License),

IEC 60065: 2014 (CB Scheme Report/Certificate),

EN 62368-1: 2014 + A11 (T-Mark License),

IEC 62368-1: 2014 (CB Scheme Certificate)

Additional licenses issued for specific countries available on request.

### Emissions

EN 55032: 2015, CISPR 32: 2015,

EN 61000-3-2: 2014, EN 61000-3-3: 2013

### Immunity

EN 55103-2: 2009, EN 61000-4-2:2009, EN 61000-4-3: 2006 + A1:2008 + A2:2010,

EN 61000-4-4: 2012, EN 61000-4-5: 2014 + A1: 2017, EN 61000-4-6: 2013,

EN 61000-4-11: 2020

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace.



**Warning!** This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

**Achtung!** Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

**Attention!** Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées..

## Recycling Notice



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

## Korea KCC Compliance Statement

### 사용자안내문

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

## Taiwan Compliance Statement

**警告使用者：**  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Japan Compliance Statement

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI 32: 2016). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

## Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.



Warning Symbol



Hazard Symbol



Caution Symbol

## Before Operation Please Read These Instructions



**Warning!** Read and follow all warning notices and instructions marked on the product or included in the documentation.

**Avertissement!** Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

**Warnung!** Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

**¡Advertencia!** Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

**Aviso!** Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

**Avviso!** Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



**Warning!** Do not use this device near water and clean only with a dry cloth.

**Avertissement!** N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec.

**Warnung!** Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

**¡Advertencia!** No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

**Aviso!** Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

**Avviso!** Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.



**Warning!** Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

**Avertissement!** Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

**Warnung!** Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

**¡Advertencia!** No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

**Aviso!** Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

**Avviso!** Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.



**Warning!** Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

**Avertissement!** N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

**Warnung!** Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

**¡Advertencia!** No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

**Aviso!** Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

**Avviso!** Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore



**Warning!** Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

**Avertissement!** La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

**Warnung!** Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

**¡Advertencia!** No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

**Aviso!** Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

**Avviso!** Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.



**Warning!** Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

**Avertissement!** Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

**Warnung!** Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

**¡Advertencia!** Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

**Aviso!** Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

**Avviso!** Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.



**Warning!** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

**Avertissement!** Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

**Warnung!** Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

**¡Advertencia!** Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

**Aviso!** Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

**Avviso!** Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.



**Warning!** Unplug this device during lightning storms or when unused for long periods of time.

**Avertissement!** Débranchez cet appareil pendant les orages avec éclairsou s'il est inutilisé pendant de longues périodes.

**Warnung!** Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

**¡Advertencia!** Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

**Aviso!** Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.



**Warning!** Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Avertissement!** Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

**Warnung!** Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

**¡Advertencia!** Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

**Aviso!** Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

**Avviso!** Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto



**Warning!** Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

**Avertissement!** Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

**Warnung!** Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

**¡Advertencia!** No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

**Advertência!** Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

**Avvertenza!** Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.



**Warning!** Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

**Avertissement!** Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

**Warnung!** Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

**¡Advertencia!** Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

**Advertência!** Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

**Avvertenza!** Scollegare il cavo dell'alimentatore quando si sposta l'unità.



**Warning!** Only use attachments and accessories specified and/or sold by the manufacturer.

**Avertissement!** Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

**Warnung!** Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

**¡Advertencia!** Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

**Aviso!** Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.



**Hazard!** High Voltage. This situation or condition can cause injury due to electric shock.

**Avertissement!** Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

**Warnung!** Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

**¡Advertencia!** Alto voltaje . Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

**Aviso!** Alta Tensão . Esta situação ou condição pode causar danos devido a choques elétricos.

**Avviso!** Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.



**Warning!** Dual Power Cord Notice—please read this. To reduce the risk of electrical shock, disconnect both power cords before servicing equipment.

**Avertissement!** Avis concernant la double alimentation électrique — à lire soigneusement. Pour éviter tout risque d'électrocution, débranchez les deux câbles électriques avant d'intervenir sur l'équipement.

**Achtung!** Hinweis auf Doppel-Netzkabel—bitte lesen. Um das Risiko eines Elektroschocks zu verringern, müssen beide Netzkabel ausgestöpselt werden, bevor die Vorrichtung gewartet wird.

**Avvertenza.** Avviso concernente il cavo di alimentazione doppio – leggere attentamente. Per ridurre il rischio di elettrocuzione, scollegare entrambi i cavi di alimentazione prima di eseguire la manutenzione o riparazioni di questo apparecchio.

**Aviso!** Aviso de Cabo Elétrico Duplo - por favor, leia isto. Para reduzir o risco de choque elétrico, desconecte ambos os cabos elétricos antes de fazer manutenção ao equipamento.

**¡Advertencia!** Aviso del doble cable de alimentación - leer esto por favor. Para reducir el riesgo de descarga eléctrica, desconecte ambos cables de alimentación antes de dar servicio al equipo.



**Caution!** To meet safety regulations for leakage current, connect the dual power supplies to separate branch circuits.

**¡Advertencia!** Para cumplir con las normas de seguridad para la corriente de fuga, conecte las dos fuentes de alimentación para circuitos derivados diferentes.

**Attention!** Pour répondre aux mesures de sécurité concernant le courant de fuite, raccorder les sources d'alimentation doubles à des circuits de dérivation distincts.

**Warnung!** Zur Erfüllung der Sicherheitsbestimmungen bezüglich Reststrom schließen Sie bitte die zwei Netzteile an unterschiedlichen Abzweigungen an.

**Cuidado!** Para atender aos regulamentos de segurança para correntes de fuga, conecte as fontes duplas a circuitos elétricos separados.

**Attenzione!** Per soddisfare le norme di sicurezza sulla corrente di perdita, collegare i doppi alimentatori a circuiti derivati separati.



**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.

**Avertissement :** tensions dangereuses — Pour utiliser ce produit en toute sécurité, il faut un raccordement à la terre. Ce raccordement s'effectue par l'intermédiaire du connecteur de terre dans le cordon d'alimentation de l'équipement. Pour réduire le risque d'électrocution de l'opérateur ou du personnel de maintenance, ce cordon avec conducteur de terre doit être branché sur une prise reliée à la terre.

**Achtung!** Gefährliche Spannungen — Sichere Bedienung dieses Geräts erfordert, dass ein Schutzleiteranschluss vorgesehen wird. Dieser Schutzleiteranschluss wird mittels der Erdungsleitung im Netzkabel der Vorrichtung vorgesehen. Um die Gefahr eines Elektroschocks für Bedien- und Wartungspersonal zu verringern, muss diese Erdungsleitung mit einer geerdeten Masse verbunden werden.

**Avvertenza – Alte tensioni –** Il funzionamento in sicurezza di questo prodotto richiede una presa di terra, che viene fornita dal conduttore di messa a terra presente nel cavo di alimentazione dell'apparecchio. Per ridurre il rischio di elettrocuzione per l'operatore e il personale di manutenzione, tale conduttore deve essere collegato a un punto al potenziale di terra.

**Advertencia de voltajes peligrosos —** El funcionamiento seguro de este producto requiere que se proporcione una conexión terrestre protegida. Esta protección terrestre es proporcionada por el conductor de conexión en la tierra del cable de alimentación del equipo. Para reducir el riesgo de descarga eléctrica al operador y el personal de servicio, este conductor de conexión de la tierra debe ser conectado a la misma tierra.

# Warranty and Liability Information

---

## Limited Warranty on Hardware

---

AJA Video Systems, Inc. (AJA Video) warrants that the hardware product, not including storage modules or software components, will be free from defects in materials and workmanship for a period of three years from the date of purchase. AJA Video warrants that the storage modules provided as part of the hardware product will be free from defects in materials and workmanship for a period of one year from the date of purchase. AJA Video provides a separate software warranty as part of the license agreement applicable to software components.

If the Customer brings a valid claim under this limited warranty for a hardware product or storage module (hereafter, a “product”) during the applicable warranty period, AJA Video will, at its sole option and as the Customer’s sole remedy for breach of the above warranty, provide one of the following remedies:

- Repair or facilitate the repair the product within a reasonable period of time, free of charge for parts and labor.
- Replace the product with a direct replacement or with a product that performs substantially the same function as the original product.
- Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through the channels set forth on the support contacts web page at <https://www.aja.com/support>.

Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair. Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer, but only if to a location within the country in which the AJA Video service center is located. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

## Limitation of Liability

---

Under no circumstances shall AJA video BE LIABLE IN ANY WAY FOR ANY LOST, CORRUPTED OR DESTROYED DATA, FOOTAGE OR WORK, OR FOR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOST PROFITS, OR FOR ANY THIRD PARTY CLAIM, IN CONNECTION WITH THE PRODUCT, WHETHER RESULTING FROM DEFECTS IN THE PRODUCT, SOFTWARE OR HARDWARE FAILURE, OR ANY OTHER CAUSE WHATSOEVER, EVEN IF AJA VIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. AJA VIDEO’S LIABILITY IN CONNECTION WITH THE PRODUCT SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT. The foregoing limitations apply even if any remedy set forth in this LIMITED WARRANTY fails of its essential purpose. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY FOR PERSONAL INJURY, OR OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

## Governing Law and Language; Your Rights

---

This limited warranty is the only warranty provided by AJA Video on the hardware product. It supersedes all prior or contemporaneous understandings regarding such subject matter. No amendment to or modification of this warranty will be binding unless in writing and signed by AJA Video. The laws of the State of California, USA will govern this warranty and any dispute arising from it. Any translation of this Agreement is intended for convenience and to meet local requirements and in the

event of a dispute between the English and any non-English versions, the English version of this warranty will govern. This limited warranty gives you specific legal rights and you may have other rights that vary from jurisdiction to jurisdiction, some of which are noted above.

# Index

## Symbols

- 2SI LFR and HFR Input
  - SDI Connections 23
- 4K 7, 8, 9, 17, 22, 23, 24, 25, 26, 27, 29, 32, 33, 38, 39, 40, 41, 42, 44, 50, 52, 64, 65

## A

- Active Mapping
  - Source/Destination Screen 43
- AJA Support 2
- Audio Channels
  - Selecting Pair for Monitoring 37
- Audio Meter
  - MultiChannel 35
- Audio Monitor 36
  - Channel Pair Selector 36
  - Metering Toggle 36
  - Speaker Toggle 36
- Audio Monitoring 35
- Audio Monitoring vs. Audio I/O 37

## B

- Bank Configuration button 25
- Bank Controls 38
- Banks 9, 16, 17, 19, 20, 21, 22, 23, 25, 26, 28, 30, 31, 32, 33, 38, 39, 40, 41, 42, 44, 65
  - Configuring for HD, V+K, 4K 29

## C

- Cabling Considerations and Changing Directions 41
- Channel/Group Information
  - Video Setup Tab 39
- Chassis Front View 9, 11
- Chassis Rear View 10, 65
- Control Bar 32
  - Audio Setup Tab 40
  - Cabling Tab 41
  - Monitoring Tab 32
  - Presets Tab 40
  - Quick Overview 32
  - Video Setup Tab 37

## D

- Decoding 8, 20, 26, 30, 31, 37, 38, 42, 44, 45, 47, 50
- Discovery
  - NDI Sources 46
- Dual-Channel Video + Key Groups 25

## E

- Encoding 8, 20, 21, 25, 30, 31, 37, 38, 42, 44, 45, 50, 53
  - SDI to NDI for 4K/UltraHD Groups 23

- SDI to NDI for HD Channels 22
- Engine 16, 17, 19, 20, 31, 38, 42, 43, 48, 69, 74
- Engine Controls 37

## F

- Factory Reset 11, 63, 66
- Free Run vs. Ref In
  - SDI Output Controls 39

## I

- Individual Channel/Group Screen
  - Encoding SDI to NDI 53
- Individual Channel/Group Screens 50
- Individual Video Tile
  - Control Panel (NDI to SDI) 52
  - Control Panel (SDI to NDI) 54
- Installation Summary 64
- Integer vs. Fractional
  - SDI Output Controls 39
- I/O Screen 42
  - All Channels Decoding NDI to SDI 30
  - SDI Sources Displaying 21
- IP address 11, 12, 16, 48, 59, 61, 62, 66, 67, 69, 70, 75, 77, 78
  - finding 12, 68

## K

- Kiosk 9, 11, 12, 14, 18, 33, 35, 36, 71, 74, 77, 79, 81

## N

- NDI Network 46
  - Selecting an NDI Source from 28
- NDI Receivers
  - Compatible with BRIDGE NDI 3G 60
- NDI Source
  - Selecting 44
- NDI Sources
  - About 27
  - Compatible with BRIDGE NDI 3G 56
  - Discovery of 46
  - Filtering 47
  - Working with 46
- NDI Sources Discovery
  - Scan Modes 46
- NDI Sources for Specific Channels
  - Subscribing to 44
- NDI to SDI 8, 9, 16, 17, 19, 20, 26, 27, 28, 29, 30, 31, 32, 38, 41, 42, 44, 50, 52
- NDI to SDI Decoding
  - for HD Channels 28

## O

- Overlays
  - Control Bar - Monitoring Tab 34

## P

- Password 11, 16, 66, 72, 74, 80
  - Assigning 63
  - Changing 49, 50, 73
  - Maximum Characters 73
- Presets Tab 31

## R

- Rack Mounting 64
- Rear Panel 10, 11, 12, 67
- Reference Levels
  - Audio Setup Tab 40
- Refresh Application 79
- Refresh Browser 79
- Refresh Rate
  - Control Bar - Monitoring Tab 34
- Remotely 9, 11, 12, 13, 67
- REST API 78

## S

- Safe Boot Mode 80
- SDI Output (NDI to SDI)
  - Disabling 50
- SDI Sources
  - Connecting to Rear BNC Ports 21
- SDI to NDI 7, 8, 9, 16, 17, 19, 20, 21, 23, 26, 29, 31, 32, 37, 41, 42, 44, 53, 54, 59
  - Encoding for Video + Key Groups 25
- Shipping Box Contents 63
- Source/Destination Screen 43
- Sources/Destinations
  - Attributes 43
- Square Division Input
  - SDI Connections 24
- Status Screen 47
- Support
  - Contacting 81
  - Support Logs
    - Generating 79
  - System Settings Screen 48

## T

- Technical Support 2

## U

- Updating Software/Firmware 76
- USB Sound Card
  - Kiosk interface only 36
- User Management Screen 49

## V

- Video Display
- Control Bar 32
- Video Tiles
- I/O Screen 42