EdgeVision

Multi-channel, Quality of Experience monitoring

Installation Guide

M928-9902-107

1 May 2015

grass valley
A BELDEN BRAND

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Warranty Policies

Warranty information is available in the Support section of the Grass Valley Web site (www.grassvalley.com).

Title	EdgeVision Installation Guide
Part Number	M928-9902-107
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Safety Compliance

This equipment complies with the requirements of the following standards for safety of information technology equipment:

- CSA C22.2 No. 60950-1, 2007, 2nd Edition
- UL 60950-1, 2007, 2nd Edition
- EN 60950-1, 2nd Edition, (2006/95/EC—Low Voltage Directive)
- Safety for Information Technology Equipment

WARNING: An appropriately listed/certified mains supply power cord must be used for the connection of the equipment to the mains voltage at either 120V~ or 240V~.

CAUTION:

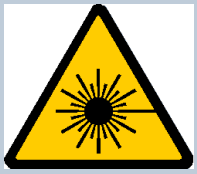
- **This equipment is meant to be installed in a restricted access location.**
- **These servicing instructions are for use by qualified service personnel only.**

  To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel. Disconnect both power supply units before servicing. Servicing should be done in a static-free environment.

CAUTION: Battery handling

There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please see "Disposal and Recycling Information", on page 123.

CAUTION: This equipment incorporates modules containing Class 1 lasers



These modules are certified by the manufacturer to comply with:

- EN 60950-1:2006+A11
- EN 60825-1:2007
- EN 60825-2:2004+A1

Electromagnetic Compatibility

See also

For more information, see "Supplier's Declaration of Conformity" on page 125.

This equipment has been tested for verification of compliance with U.S. Code of Federal Regulations (CFR): FCC Title 47, Part 15, Subpart B requirements for class A digital devices, Unintentional Radiators.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/CE:

Directive 2004/108/EC	**Electromagnetic Compatibility**
EN 5502: 2006/A2:2010	Conducted emissions, Class A
EN 55022: 2006/A2:2010	Radiated emissions, Class A
EN 61000-3-2:2006 A1|A2:2010	Harmonic current emission limits
EN 61000-3-3: 2008	Voltage fluctuation and flicker limitations
EN 61000-4-2: 2009	Electrostatic discharge immunity
EN 61000-4-3: 2006/A2:2010	Radiated electromagnetic field immunity—RF
EN 61000-4-4: 2004/A1:2010	EFT immunity
EN 61000-4-5: 2006	Surge immunity
EN 61000-4-6:2009	Conducted immunity
EN 61000-4-8: 2010	Power frequency magnetic field immunity
EN 61000-4-11: 2004	Voltage dips, short-interrupt and voltage variation immunity
ENV50204: 1995	Radiated EMF immunity—RF 900MHz pulsed

toc

Table of Contents

1 About the EdgeVision System

This chapter presents an overview of the EdgeVision package and provides a list of technical specifications about the device.

Summary

About the Installation Process

EdgeVision Installation Workflow

1.	Unpack the EdgeVision device and install it into a rack (see page 7).
2.	Connect the EdgeVision device to the input feeds and the network or the PC that you will use to configure it (see "Connecting Cables to the Device", on page 7).
3.	Update the EdgeVision software, if required (see page 34).
4.	Unblock all required ports on your client PC (see page 11).
5.	Launch EdgeVision Admin (see page 12).
6.	Define your network parameters (see page 24).
7.	View status and configure options (see page 30.
8.	Using the EdgeVision Configurator, configure how feeds connect to the inputs and define the Streaming parameters (including to which interface (MGMT or DATA) the streams are to be sent). You can also select which alarms to use to monitor the feed and what triggers them. See: • "Configuring your EdgeVision Device" on page 11 • "Configuring Feeds and Alarms" on page 39
9.	Access *EdgeVision Player* to monitor up to four feeds from the EdgeVision device (see the *EdgeVision User Guide*).

About the EdgeVision Device

The EdgeVision is an HD/SD Set-Top Box signal streaming encoder and probe which provides monitoring of high-definition and standard-definition video, multi-channel audio and associated signals at the output of set-top boxes. The device performs quality monitoring on a wide range of video, audio and ancillary signal parameters and supports multiple formats including component analog video, composite video, and stereo analog audio. The HD/SD STB Signal Probe can also be used for audio/video content verification.

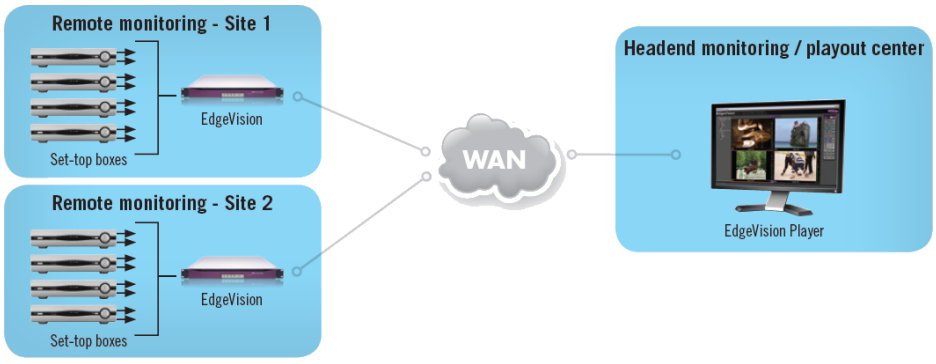
The STB Signal Probe monitors the quality of the STB output signal, generates alarms when various parameter thresholds are reached, transmits high quality MPEG-4 video and audio streams for remote monitoring over IP networks. The video and audio streams generated by the STB Signal Probe can be monitored in *EdgeVision Player* application iControl, Kaleido IP Multiviewers or on generic software players and decoders. The HD/SD STB Signal Probe also provides an infrared interface for control of individual set-top boxes.

The EdgeVision device is available in *single*, *dual*, and *quad* input format. Each model can include an HD/SDI output connector.

Going Beyond the Streaming Device

A streaming device allows you to access a TV feed via an Internet connection. Using software and a virtual remote control, you can view the video stream on a computer and control any connected devices.

But while a streaming device can redirect a single input to a single computer, the EdgeVision package allows you to view up to four feeds simultaneously. You can also switch to a single feed displayed in *EdgeVision Player* or as full-screen.



EdgeVision allows you to encode streams for up to four set-top boxes and redirect them to several computers (or third-party devices). EdgeVision can also generate multicast Transport streams, eliminating the limit to the number of devices that can receives streams.

The EdgeVision device accepts the following input types:

- **Video**: HDMI 1.1, Component, Composite
- **Audio**: Stereo Analog, S/PDIF, HDMI 1.1

EdgeVision offers richly featured, Quality of Experience (QoE) monitoring across an entire network for satellite/cable/IPTV operators and broadcasters, using high performance

video/audio streaming and extensive signal probing. By remotely monitoring signals received at set-top boxes, it allows operators to accurately see and hear the quality of signals received in viewers' homes. EdgeVision can provide both low-quality and high quality audio/video streams, with fully selectable resolution and bitrates.

This allows remote monitoring of signals over a LAN or WAN, without a negative impact on network capacity. EdgeVision can operate as a standalone monitoring system, using *EdgeVision Player* multi-viewer, or it can operate as a high performance set-top box probe with the iControl and Kaleido-IP monitoring systems.

About the EdgeVision Documentation

Included in your EdgeVision package are the following documents that will help you install, use, and master the EdgeVision technology:

- **EdgeVision Release Notes**: provides a list of known limitations with the current release of the EdgeVision system.
- **EdgeVision Quick Start Guide**: provides basic instructions on how to install and configure the EdgeVision device so that you can view the feeds in *EdgeVision Player*.
- **EdgeVision Installation Guide** (this document): explains how to install and configure your EdgeVision package.
- **EdgeVision User Guide**: explains the EdgeVision software in depth, including how to assign feeds, read the alarms, and manage the feed displays.

We have made every effort to ensure that the documentation is accurate, but if you find any information to be lacking or inaccurate, please contact us at `support@grassvalley.com`.

EdgeVision Technical Specifications

The EdgeVision device is a one RU-high standalone device that you can mount in a 19-inch rack (for up to two channel inputs). Although the illustration features the four-input version, there is a two-input and single-input version as well. These devices include:

Table 1-1: Available EdgeVision devices

Order Code	Device Type
EDGEVISION-1	Edge Signal Monitoring Device—single input
EDGEVISION-1-SDI	Edge Signal Monitoring Device—single input with SDI output
EDGEVISION-2	Edge Signal Monitoring Device—dual input
EDGEVISION-2-SDI	Edge Signal Monitoring Device—dual input with SDI output
EDGEVISION-4	Edge Signal Monitoring Device—quad input
EDGEVISION-4-SDI	Edge Signal Monitoring Device—quad input with SDI output

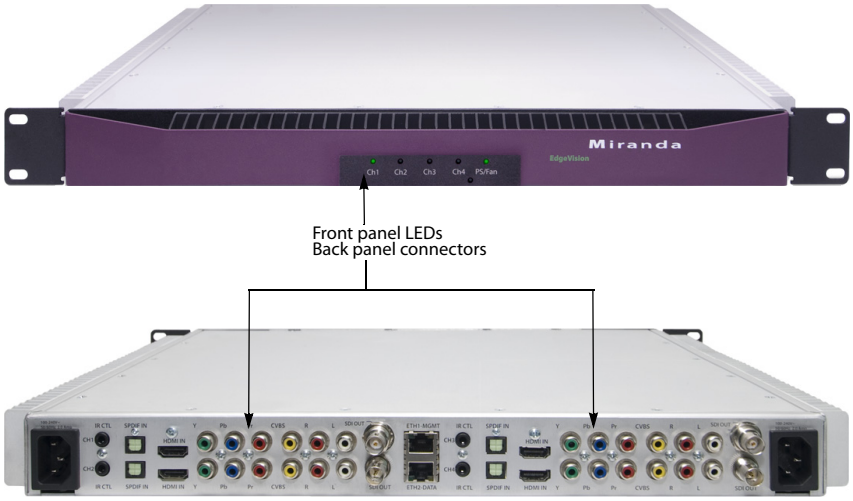


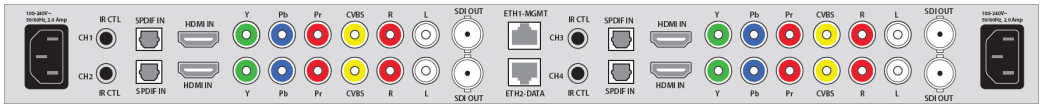
Table 1-2: EdgeVision technical specifications

Item	Description
Rating	2 × 100-240Vac, 2.0-1.0A, 50/60Hz
Class of equipment	Class 1 (earthed)
Weight	Approx. 3.75kg
Battery	(Replaceable type) Silver-Oxide SR44 approved type coin cell
Protective earthing	Provided by the power supply cord earthing conductor to the appliance inlet of the power supplies
Frame dimensions	• Height: 1 RU (rack unit: 4.445 cm (1.75 in) • Width: 45.08 cm (17.75 in) • Depth: 33.02 cm (13 in) • Rack mountable in EIA 48.26 cm (19 in) racks
Power supply	• The device has a single PSU installed, although a second redundant PSU is available as an option. • Independent AC outlet • No power switch • Input voltage range: 90-264VAC, 47-63Hz
Ambient temperature	0-40 °C (32-104 °F)
Power	Maximum total power of the device should not exceed 50W @ 12V.
Cooling system	Two internal fans
Compliance	Meets Telcordia-NEBS network equipment bonding structure, CE, FCC, and CSA compliance
Ethernet	Dual Gigabit ethernet ports: compliant with IEEE 802.3.
Infrared connections	Four infrared connectors control external STB. Both infrared and electrical 0.13 in (3.5 mm) supported

Table 1-2: EdgeVision technical specifications (*Continued*)

Item	Description
SDI Output	**SD-SDI** • Signal: 4:2:2 259M-C (270 Mbps), SMPTE 272M-1994 • Formats: 525 and 625 • Cable Length: 225 m (Belden 8281) • Return Loss: > 15 dB up to 270 MHz • Jitter: < 0.2 UI
	HD-SDI • Signal: 4:2:2 SMPTE 292M-C (1,5 Gbps) • FORMATS: 480i, 576i, 720p, 1080i (all 50 and 59.94). • Cable length: 100 m (325') (Belden 1694) • Return Loss: > 15 dB up to 1.5 GHz • Jitter: < 0.2 UI

Input/Output Connectors



Input Connectors

Table 1-3: Input features and connectors

Input	Features	Connectors
HDMI	• Signal : Single Head Digital Visual Interface V1.1 • Format: (50 and 60 Hz) 480i, 576i, 720p, 1080i, 1080p • Connector: HDMI 1.1	HDMI-IN Connectors: • Width: 0.54 in (13.9 mm) • Height: 0.17 in (4.45 mm)
Analog Component	• Format: (50 and 60 Hz) 480i, 576i, 720p, 1080i, 1080p • Cable length: 3 meters • Connectors: RCA	RCA Connectors: • Pb: Blue • Pr: Red • Y: Green
Analog Composite	• Signal: NTSC SMPTE 170M, PAL, PAL-M, SECAM • Cable length: 3 meters • Connector: RCA	RCA Connectors: CVBS: Yellow
Digital Audio	• AC-3 Dolby digital audio (optional) • 48kHz	S/PDIF-IN Connector

Table 1-3: Input features and connectors (*Continued*)

Input	Features	Connectors
Analog Stereo Audio	• Signal: Stereo • Level: 1.0 Vp-p • 48kHz	RCA Connector: • RCA Right: Red • RCA Left: White
Ethernet	Gigabit Ethernet	• RJ-45 • ETH1-MGMT • ETH2-DATA

Outputs Connectors

Table 1-4: Output features and connectors

Output	Features	Connectors
SD-SDI	• Signal: 4:2:2 259M-C (270 Mbps), SMPTE 272M-1994 • Formats: 525 and 625	BNC (75 ohms)
HD-SDI	• Signal: 4:2:2 SMPTE 292M-C (1,5 Gbps) • FORMATS: 480i, 576i, 720p, 1080i (all 50 and 59.94).	BNC (75 ohms)
Infrared	• Optical mode • Electrical mode	0.13 in (3.5 mm) phono jack socket

2 Unpacking and Installing the Device

This chapter explains how to unpack your EdgeVision package and to connect the cables.

IMPORTANT:	**Installation For Restricted-Access Location Only** To be installed in the field by trained personnel according to the instructions and warnings in the installation manual provided with the equipment.

Summary

Unpacking your EdgeVision Box

Make sure the following items have been shipped with your EdgeVision. If any of these are missing, contact your distributor or Grass Valley (see "Contact Us", on page 127).

- EdgeVision device
- Printed User Documentation (Quick Start Guide)
- Audio/Video connector cables
- Ground lug
- AC Power cord(s)
- Infrared cables
- Four rubber pads (when used as a table-top device)
- AC secure wire clips

Rack-Mount Installation

The EdgeVision may be installed in a standard 19-inch rack, using the proper screws and washers (not included). The EdgeVision may also be used as a table-top device and four rubber pads are provided for that purpose.

The EdgeVision frame is 1 RU high. Input and output connectors are mounted on a connector panel on the rear of the frame. The redundant power supply is factory-installed (optional).

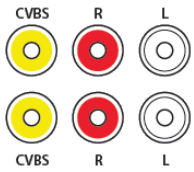
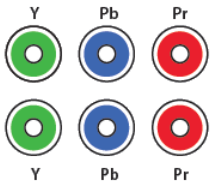
Connecting Cables to the Device

The following cables can be attached to the EdgeVision device.

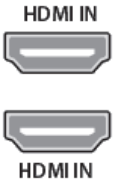
IMPORTANT: Installation and Maintenance Regarding Power Cables

- The socket outlets to which the power supplies are connected must be readily accessible.
- The unit's power supply cords (2) must be disconnected before servicing and are used as main disconnect devices.

Connector cables and plugs

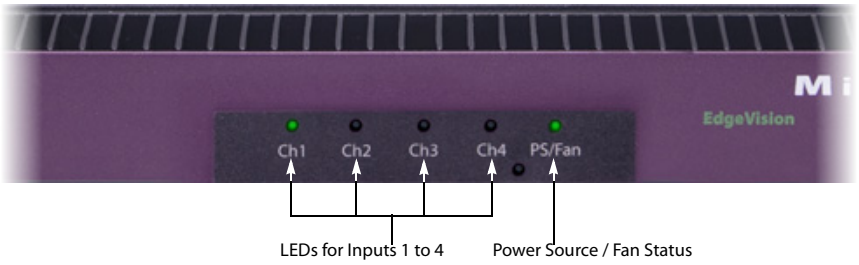
Cable	Connector Type	Input Plug	Standard/Optional
	Three-prong C-13 power cord		Standard
	CVBS cable Right/Left audio cables		Standard (3m)
	RCA		Standard (2m)
	Infrared		Standard (2m including the adhesive adaptor)
	RJ-45		Not supplied

Connector cables and plugs (*Continued*)

Cable	Connector Type	Input Plug	Standard/Optional
	SDI Connector		Not supplied
	HDMI		Optional (2m)
	S/PDIF		Optional (3m)

Device Startup Sequence and LED Legend

Once you install the EdgeVision device and connect the input and output cables, you are ready to connect the power cord(s) and start the device's startup sequence. This sequence can take several minutes, during which the features of the device are activated and come online. The LEDs on the front of the device indicate when the device is ready for operation.



LED status legend

Power Supply (PS)/Fan	Input 1	Input 2	Input 3	Input 4
Startup sequence in progress				
Green: PS/Fan funtional[1]	**Unlit**: uninitialized			
Red: Fan failed				

LED status legend (*Continued*)

Power Supply (PS)/Fan	Input 1	Input 2	Input 3	Input 4
Startup sequence complete				
Green: PS/Fan funtional	**Green**: good signal			
Flash Red: Fan failed	**Red**: signal failed			
Flash Red: one PS failed/missing[2]				
Flash Red: Temperature is too high				
Flash Red: Any combination of missing PS, Fan failed, or Temperature is too high				
Flash Green: Live update in progress				

1. If you have two power supplies, as long as one is still functional, the PS/Fan LED will be Green.
2. If you only have one PS in the device, this LED will continue to flash until you disable it in the EdgeVision Configurator.

3 Configuring your EdgeVision Device

This chapter explains how to configure the EdgeVision device. You can configure how it appears on the network, how the Inputs receive the channel feeds, and how the alarms can be triggered to accurately monitor the feeds.

Summary

Key Concepts

Ports to Keep Open on the Client PC

There are several ports on your client PC you will have to keep open depending on the client-side application you are using as well as the nature of that application's TCP/IP needs at any given time (for example, the type of media being streamed). It is unlikely you will want to disable your firewall and unblock all ports for obvious security reasons. The following table, therefore, lists the ports you should keep open, the applications that use them and specific activities:

Table 3-1: Ports to keep unblocked

Protocol	Port	Activity
TCP	7000	EdgeVision upgrade application
TCP+UDP	4160, 8000-8010	*EdgeVision Player*, *EdgeVision Configurator*
(HTTP) TCP	80, 8080	*EdgeVision Admin*
(SSH) TCP	22	EdgeVisionupgrade application, Remote access
(RTSP) TCP	554	Used by *EdgeVision Player* (or third-party streaming player) to establish RTSP session[1]
TCP	5432	*EdgeVision Configurator*
(RMID) TCP+UDP	1098-1099	Communication between *EdgeVision Player*, *EdgeVision Configurator*, and EdgeVision unit
(RMI) TCP	32768-65535	Communication between *EdgeVision Player*, *EdgeVision Configurator*, and EdgeVision unit
(NTP) UDP	123	To sync with NTP server[2]
(RTP) UDP	[user-configurable]	To send unicast/multicast streams from the EdgeVision unit to client applications[1]

Table 3-1: Ports to keep unblocked (*Continued*)

Protocol	Port	Activity
(RMI) TCP	1024-5000	Communication between the EdgeVision unit and clients[3]
(RMI) TCP	49152-65535	Communication between the EdgeVision unit and clients[4]

1. **[OPTIONAL]** You either open port TCP/554 to use RTSP or you can instead configure your EdgeVision unit to send unicast/multicast stream(s) to specific destination IP addresses and UDP ports (see "Configuring Input-Level Feed Settings", on page 74).
2. **[OPTIONAL]** This is only necessary when configuring an EdgeVision unit to synchronize time with a remote NTP server.
3. This range is valid when your client is running Windows XP Professional.
4. This range is valid when your client is running Windows 7.

Detailed Directions

Launching EdgeVision Admin

EdgeVision Admin is a Web page that connects directly to your EdgeVision device. Not only does it display its current operational status, but it also allows you to configure its network and device properties. These device properties also appear in *EdgeVision Player* and *EdgeVision Configurator*.

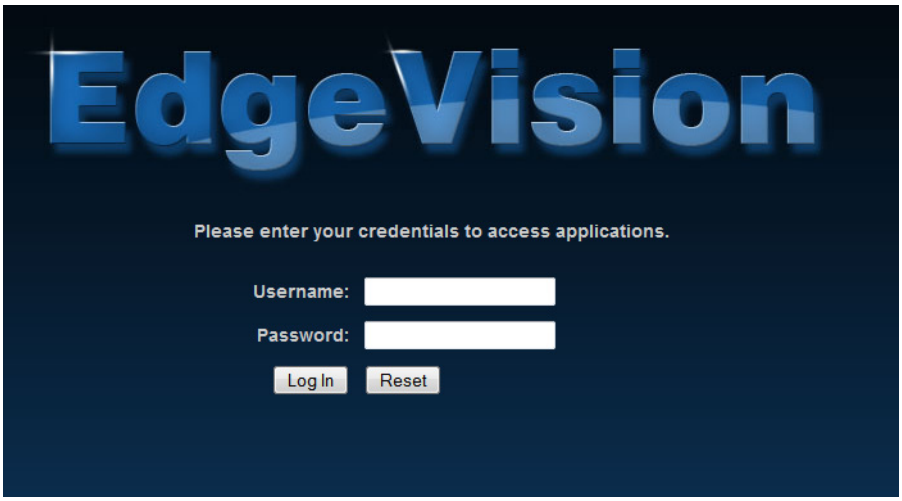
REQUIREMENT

Before beginning this procedure, make sure you have unblocked all required ports on your client PC (see page 11).

To launch EdgeVision Admin

1. Launch the EdgeVision page in a Web browser (using the device's Management IP address).

   SYSTEM RESPONSE: If the *Access Control* feature of your EdgeVision device is enabled, you will be prompted for a valid user name and password. If this is the case, type your user name and password, and then click **Log In**.



SYSTEM RESPONSE: The EdgeVision home page appears.

2. Click **EdgeVision Admin** to launch *EdgeVision Admin*.

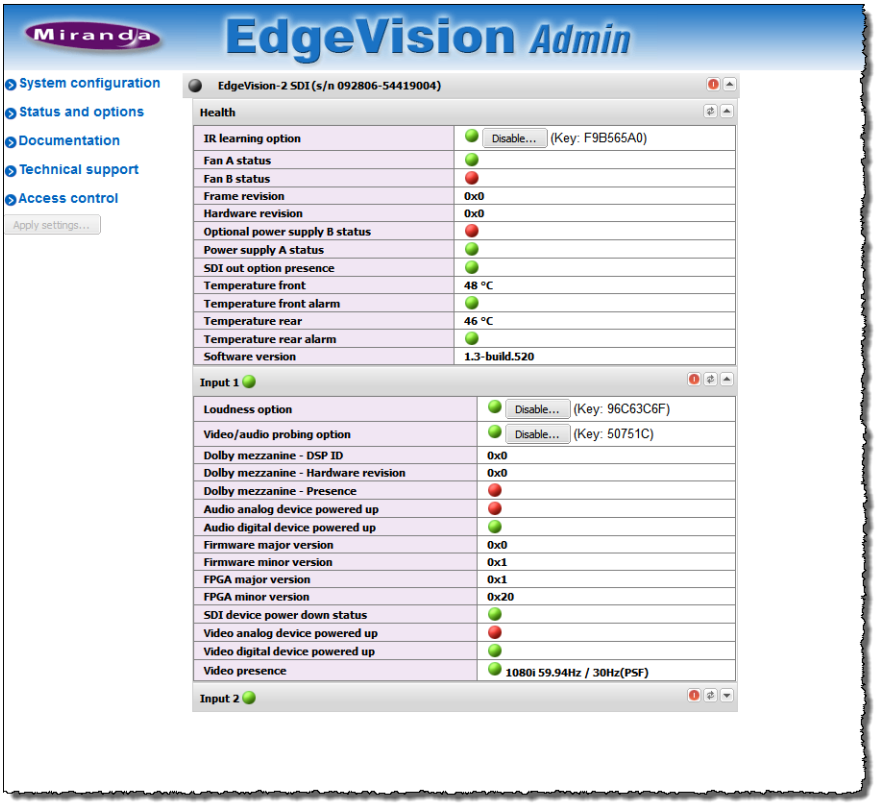


Table 3-2: LED Status Legend

LED color	Definition
Green	The feature is currently active and is operational.
Yellow	The feature is currently active, but has low importance errors.
Red	The feature is currently active but is in error.
Gray	The feature is currently offline.
Black	Alarm exists, but has been disabled at the source. Some devices have the ability to deactivate certain alarms on the hardware itself, resulting in these alarms appearing black.

Configuring EdgeVision Access Control

The following are some procedures relevant to configuring *Access Control* for your EdgeVision device.

- "Enabling Access Control on an EdgeVision Device" on page 15
- "Disabling Access Control on an EdgeVision Device" on page 18
- "Creating a User Profile" on page 20
- "Deleting a User Profile" on page 21

- "Changing a User's Password" on page 22

> **Note:** If Access Control is enabled on your EdgeVision device, users attempting to open EdgeVision Configurator will be asked to log on with login credentials.

Enabling Access Control on an EdgeVision Device

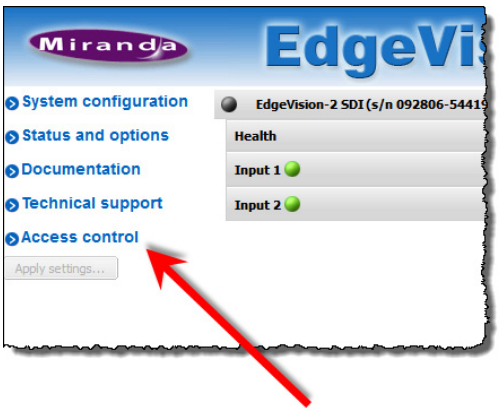
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have a client PC connected to the same network as your EdgeVision device.
- You have unblocked all required ports on your client PC (see page 11).
- The Access Control feature of your EdgeVision device is currently **disabled** (see page 18).
- You have opened *EdgeVision Admin* in a browser on your client PC (see "Launching EdgeVision Admin", on page 12).

To enable Access Control on an EdgeVision device

1. On the *EdgeVision Admin* Web page, click **Access control**.

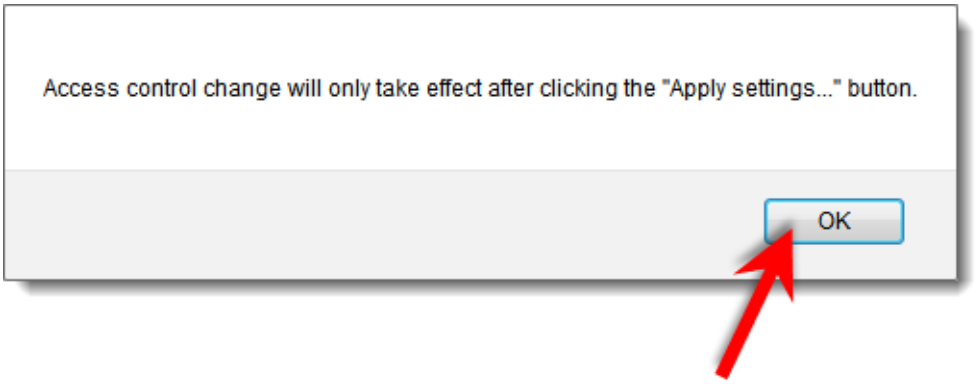


SYSTEM RESPONSE: The *EdgeVision Admin: Access Control* page appears.

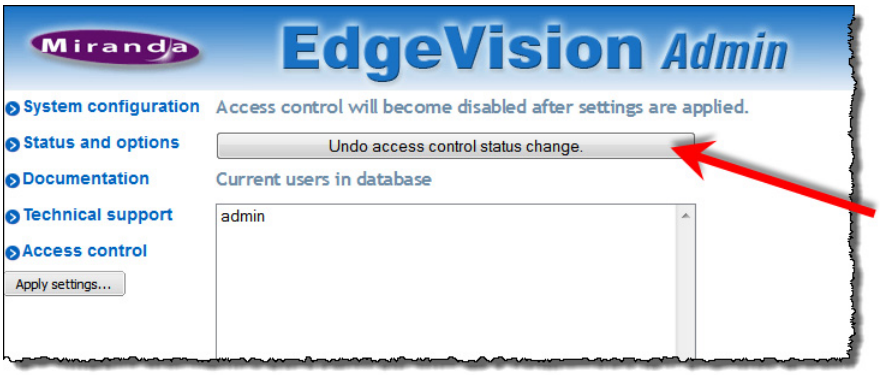
2. Click **Enable access control**.

SYSTEM RESPONSE: A message appears stating you must click **Apply settings** for changes to take effect.

3. Click **OK** in the message window.



4. If you would like to safely abort this procedure, you may now click **Undo access control status change**.



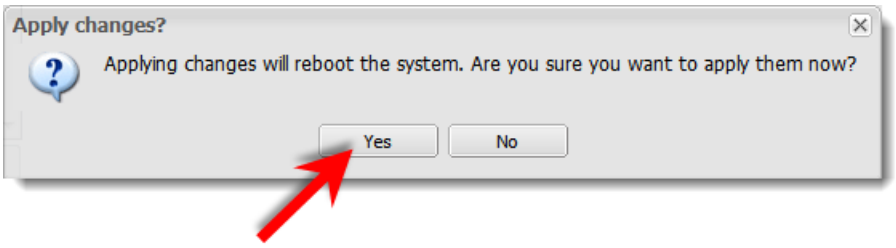
IMPORTANT: If you abort the procedure, here, stop now

If you do choose to abort this procedure, now, then do not perform any more steps in this procedure.

5. On the *EdgeVision Admin: Access Control* page, click **Apply settings**.

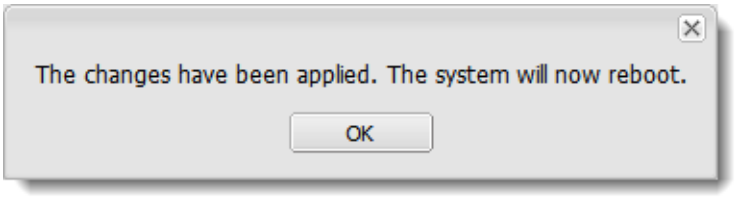
SYSTEM RESPONSE: A confirmation message appears, clarifying that a system reboot is necessary after applying settings.

6. Click **Yes**.



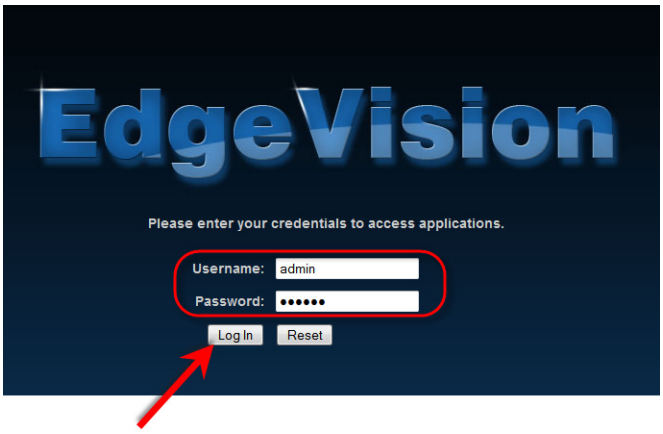
SYSTEM RESPONSE: A confirmation message appears indicating the system is rebooting.

7. Click **OK**.



8. Wait until the system has rebooted.
9. Launch the EdgeVision home page in your browser.

   SYSTEM RESPONSE: Your EdgeVision device's Login page appears.
10. Log in using the default *Administrative* profile and clicking **Log In**, as follows:
    - **Username**: admin
    - **Password**: pw1234



SYSTEM RESPONSE: The EdgeVision home page appears.

SYSTEM RESPONSE: This EdgeVision device now has Access Control enabled.

Disabling Access Control on an EdgeVision Device

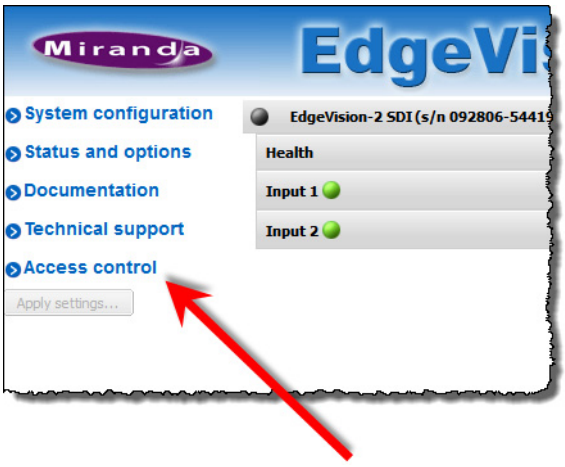
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have a client PC connected to the same network as your EdgeVision device.
- You have unblocked all required ports on your client PC (see page 11).
- The Access Control feature of your EdgeVision device is currently **enabled** (see page 15).
- You have opened *EdgeVision Admin* in a browser on your client PC (see "Launching EdgeVision Admin", on page 12).

To disable Access Control on an EdgeVision device

1. On the *EdgeVision Admin* Web page, click **Access control**.

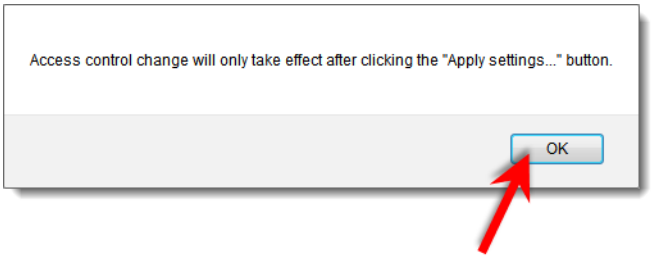


SYSTEM RESPONSE: The *EdgeVision Admin: Access Control* page appears.

2. Click **Disable access control**.

SYSTEM RESPONSE: A message appears stating you must click **Apply settings** for changes to take effect.

3. Click **OK** in the message window.



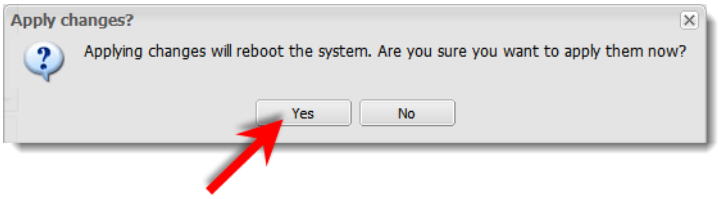
4. If you would like to safely abort this procedure, you may now click **Undo access control status change**.

IMPORTANT:	**If you abort the procedure, here, stop now** If you do choose to abort this procedure, now, then do not perform any more steps in this procedure.

5. On the *EdgeVision Admin: Access Control* page, click **Apply settings**.

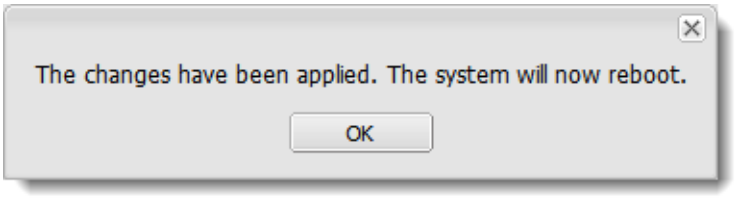
SYSTEM RESPONSE: A confirmation message appears, clarifying that a system reboot is necessary after applying settings.

6. Click **Yes**.



SYSTEM RESPONSE: A confirmation message appears indicating the system is rebooting.

7. Click **OK**.



8. Wait until the system has rebooted.
9. Launch the EdgeVision home page in your browser.

   SYSTEM RESPONSE: Your EdgeVision device's home page appears (i.e. and **not** the Login page).

Creating a User Profile

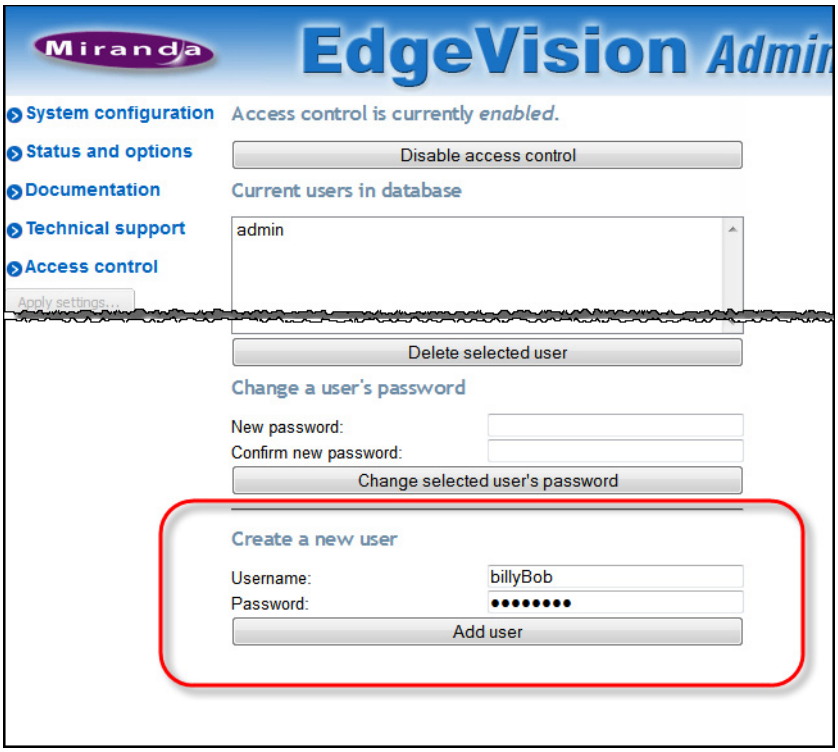
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

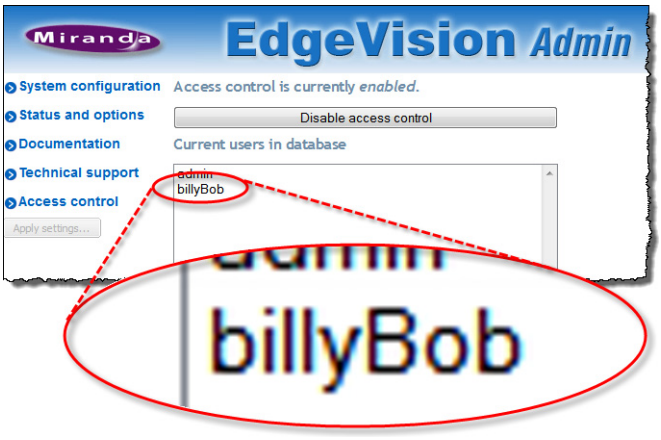
- You have a client PC connected to the same network as your EdgeVision device.
- You have unblocked all required ports on your client PC (see page 11).
- The Access Control feature of your EdgeVision device is currently **enabled** (see page 15).
- You have opened *EdgeVision Admin* in a browser on your client PC (see page 12).

To create a user profile in EdgeVision

1. On the *EdgeVision Admin* Web page, click **Access control**.
2. On the *EdgeVision Admin: Access control* page, in the **Create a new user** area, type the desired user name and password for your new user profile.
3. Click **Add user**.



SYSTEM RESPONSE: The new user profile appears in the list of **Current users in database**.



Deleting a User Profile

REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have a client PC connected to the same network as your EdgeVision device.

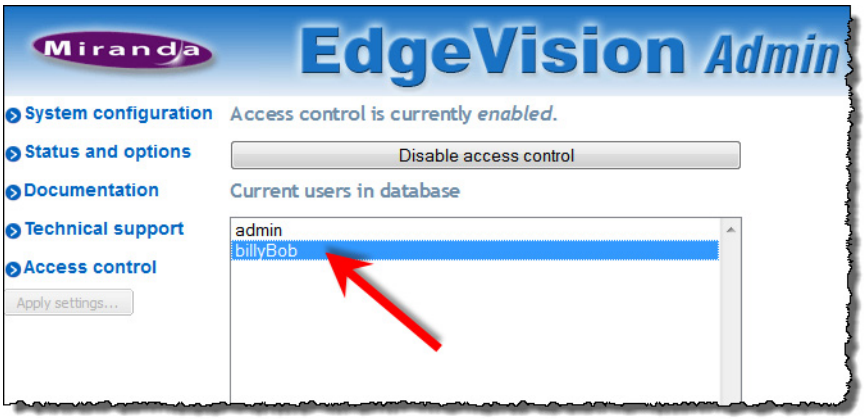
REQUIREMENTS (*Continued*)

Make sure you meet the following conditions before beginning this procedure:

- You have unblocked all required ports on your client PC (see page 11).
- The Access Control feature of your EdgeVision device is currently **enabled** (see page 15).
- You have opened *EdgeVision Admin* in a browser on your client PC (see page 12).

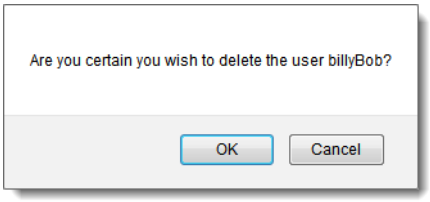
To delete a user profile

1. On the *EdgeVision Admin* Web page, click **Access control**.
2. On the *EdgeVision Admin: Access Control* page, in the **Current users in database** area, select the user profile you would like to delete from the list.



3. Click **Delete selected user**.

   SYSTEM RESPONSE: A confirmation message appears.



4. Click **OK**.

   SYSTEM RESPONSE: The name of the user profile you deleted disappears from the **Current users in database** list.

Changing a User's Password

REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have a client PC connected to the same network as your EdgeVision device.

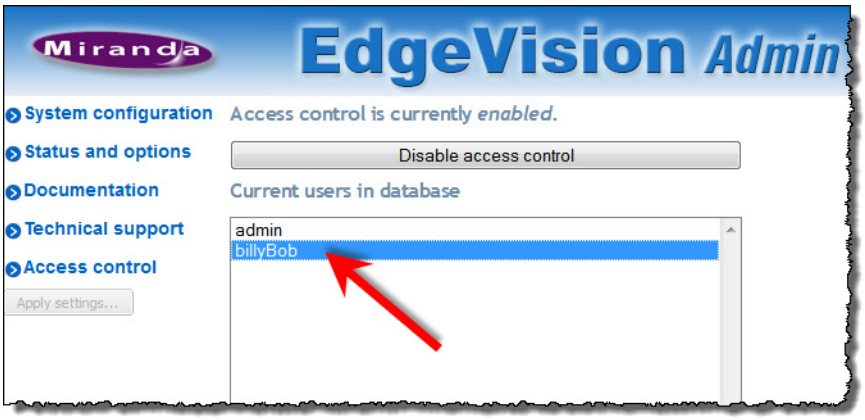
REQUIREMENTS (*Continued*)

Make sure you meet the following conditions before beginning this procedure:

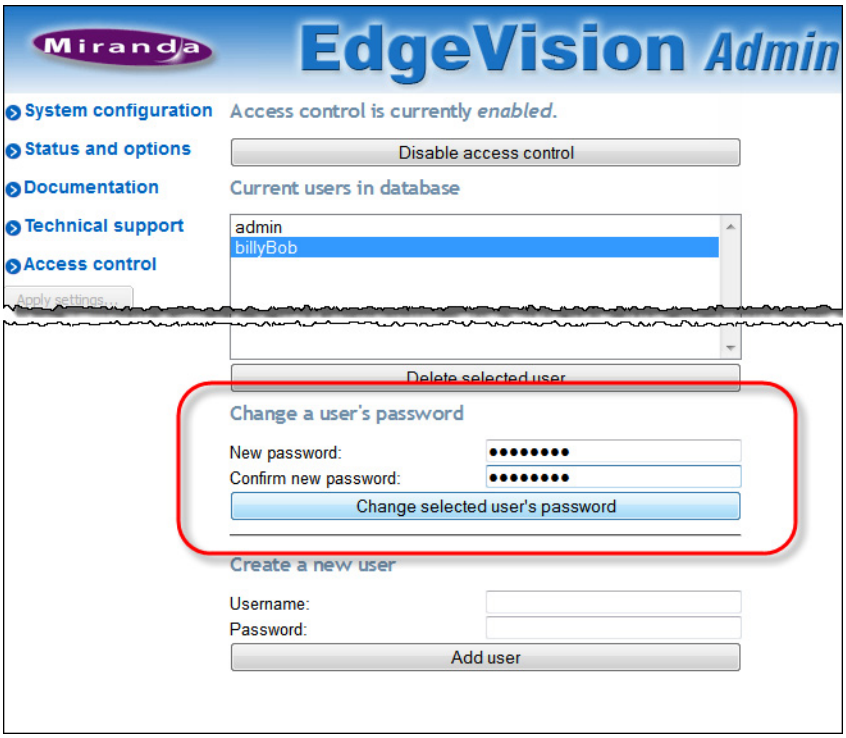
- You have unblocked all required ports on your client PC (see page 11).
- The Access Control feature of your EdgeVision device is currently **enabled** (see page 15).
- You have opened *EdgeVision Admin* in a browser on your client PC (see page 12).

To change a user profile password

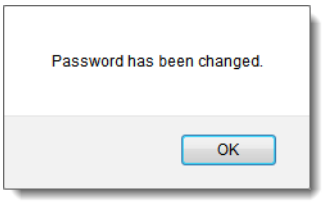
1. On the *EdgeVision Admin* Web page, click **Access control**.
2. In the **Current users in database** list, select the user profile whose password you would like to change.



3. In the **Change a user's password** area, type a new password in both fields, and then click **Change selected user's password**.



SYSTEM RESPONSE: A confirmation message appears, indicating the password for this user has been changed.



4. Click **OK**.

Defining Network Parameters

If network parameters are not yet defined on your EdgeVision device, you must define them before you can launch *EdgeVision Configurator* or *EdgeVision Player*. You can accomplish this using the *System configuration* page of *EdgeVision Admin*. Required network parameters include the device's system name, IP address, and the current date and time.

IMPORTANT:

- To be able to configure network parameters for your device, you must connect to the device using the **Management port** IP address. You will not be able to launch *EdgeVision Admin* using the **Data port** IP address.
- If you enable DHCP on your EdgeVision device, the EdgeVision will attempt to renew the lease on the assigned IP address roughly half-way through the lease period (determined by the DHCP server). Normally, this occurs transparently with no discernible effect on the EdgeVision device.

  If, however, the EdgeVision device **fails** to renew the lease on the DHCP-assigned IP address for whatever reason, the DHCP server will eventually assign a new and different IP address to your EdgeVision. In this case, the EdgeVision device will restart and you will not be able to reach the EdgeVision Web page, *EdgeVision Configurator*, nor *EdgeVision Player* using the former IP address.

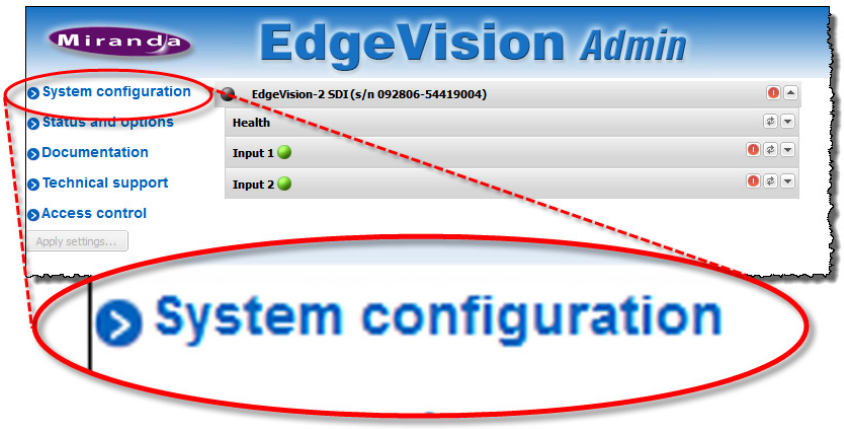
  If a connectivity issue occurs and DHCP is enabled, this may be the cause. Grass Valley recommends performing the procedure "Retrieving the DHCP-Assigned IP Address of an EdgeVision Device" on page 29 to verify that you are using the correct IP address.

REQUIREMENT

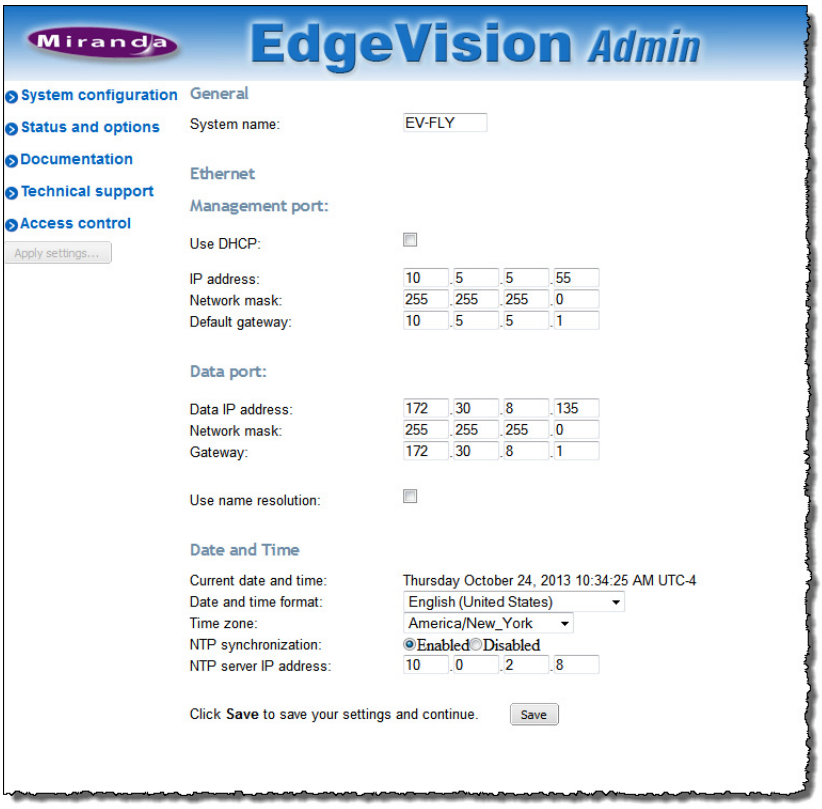
Before beginning this procedure, make sure you have opened *EdgeVision Admin* (see "Launching EdgeVision Admin", on page 12).

To define system parameters

1. In *EdgeVision Admin*, click **System configuration**.



SYSTEM RESPONSE: The *EdgeVision Admin: System configuration* page appears.



2. In the **System name** field, type the name of the device as it will appear on the network, *EdgeVision Configurator*, and *EdgeVision Player*.

Notes

- If you intend to enable DHCP, make sure the system name you choose for each EdgeVision is unique among all EdgeVision devices. Later, you may need to identify your EdgeVision with its system name (see "Retrieving the DHCP-Assigned IP Address of an EdgeVision Device", on page 29).
- For a system name, you can use up to eight ASCII characters (no brackets, spaces, or tildes allowed).

3. Configure the Ethernet parameters in the **Ethernet** section as follows:

IMPORTANT: Only enable DHCP if your device is connected to a DHCP server

If you intend to enable DHCP for your **Management** port, make sure the EdgeVision device is connected to a DHCP server before you click **Apply settings**. If the EdgeVision device is not connected to a DHCP server, your EdgeVision will revert to the manually-assigned network settings.

Table 3-3: Ethernet parameters

Parameter	Definition
--- Management port parameters (general)[1] ---	
IP address	The management IP address allows the EdgeVision system to communicate with *EdgeVision Configurator* and *EdgeVision Player*, as well as being the address to forward audio/video streams generated by EdgeVision. The device remote control, configuration, and alarm collection features also use this address. **Default value**: `192.168.3.31`
Network mask	• Specify the range of IP addresses that reside on the current management IP address. **Default value**: `255.255.255.0`
Default gateway	• Specify the IP address to use when a device from outside your network attempt to connect to the EdgeVision system via the management IP address. **Default value**: `192.168.3.1`
Use DHCP[2]	When this is selected, the IP parameters—**IP address**, **Network mask** and **Default gateway**—remain available but are used as fallback settings in case DHCP fails.
--- Management port parameters visible only when DHCP enabled ---	
Lookup IP address	• Specify the IP address of an external host with a lookup service (e.g. an Application Server), so that the IP address assigned to the EdgeVision through DHCP can be retrieved. This is a mandatory parameter. You will not be able to apply network settings with DHCP enabled if a lookup IP address is not indicated.
IP address	The management IP address allows the EdgeVision system to communicate with *EdgeVision Configurator* and *EdgeVision Player*, as well as being the address to forward audio/video streams generated by EdgeVision. The device remote control, configuration, and alarm collection features also use this address.
Network mask	• Specify the range of IP addresses that reside on the current management IP address.
Default gateway	• Specify the IP address to use when a device from outside your network attempt to connect to the EdgeVision system via the management IP address.
--- Data port parameters ---	
Data IP address	• Type the IP address for the port that will stream the data to the Data Ethernet port. The data port connects the EdgeVision device to the IP network to transport IP video/MPEG data, but you can also configure it to forward of the audio/video streams generated by EdgeVision. **Default value**: `192.168.2.32`
Network mask	• Specify the range of IP addresses that reside on the current Data IP address. **Default value**: `255.255.255.0`
Gateway	• Specify the IP address to use when a device from outside your network attempt to connect to the EdgeVision system via the data IP address. **Default value**: `192.168.2.6`

Table 3-3: Ethernet parameters (*Continued*)

Parameter	Definition
Use name resolution	• Select the **Use name resolution** checkbox if you want to launch *EdgeVision Player* using the DATA Ethernet port.

1. If DHCP is **enabled**, these parameters are used only in the case of DHCP failure.
2. Dynamic Host Configuration Protocol (IETF, RFC2131)

4. Configure the synchronization parameters in the **Date and Time** section as follows:

Table 3-4: Synchronization (Date and Time) parameters

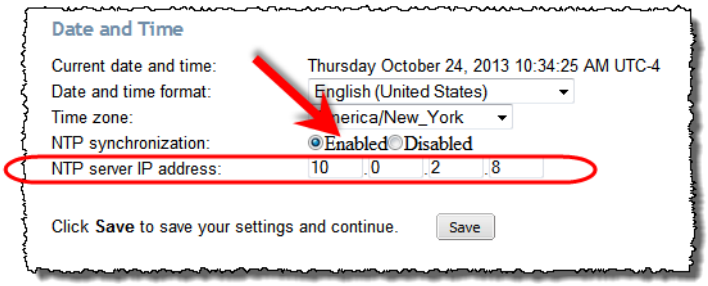
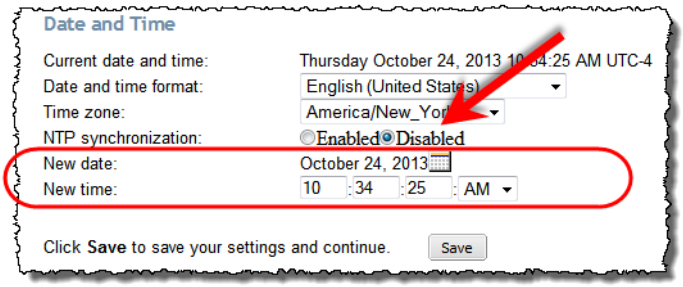
Parameter	Definition
Date and time format	• Select the format in which EdgeVision displays the date and time.
Time zone	• Select the time zone where the EdgeVision device resides. The time zone determines how the time is calculated.
NTP synchronization	The Network Time Protocol (NTP) is a protocol to synchronize the device clock over the data network. • If you ***enable*** this feature, the clock time is synchronized with the NTP server. Enter the IP address in the **NTP server IP address** field.  • If you ***disable*** this feature, you must set the time manually in the **New Date** and **New Time** fields. 
--- If NTP synchronization is enabled ---	
NTP server IP address	• Enter the IP address for the NTP server that synchronizes the clock on this device. This field only appears if you enable the **NTP synchronization** feature.

Table 3-4: Synchronization (Date and Time) parameters (*Continued*)

Parameter	Definition
--- If NTP synchronization is disabled ---	
New date	• Enter the current date for the device. This field only appears if you disable the **NTP synchronization** feature.
New time	• Enter the current time for the device. This field only appears if you disable the **NTP synchronization** feature.

5. Click **Save** when done.
6. If you are ready to activate these changes on the device, click **Apply settings**.

   SYSTEM RESPONSE: The device reboots itself and uses the settings you have just saved.

> **Note:** If you apply the changes and reboot the device, you may need to change the URL for the *EdgeVision Admin* site to the new frame IP address. You should also relaunch the *EdgeVision Configurator* and *EdgeVision Player* applications.

Retrieving the DHCP-Assigned IP Address of an EdgeVision Device

If DHCP is enabled on your EdgeVision device and the device is connected to a DHCP server, then your EdgeVision will be assigned an IP address. Perform this procedure to retrieve the DHCP-assigned IP address of your EdgeVision device.

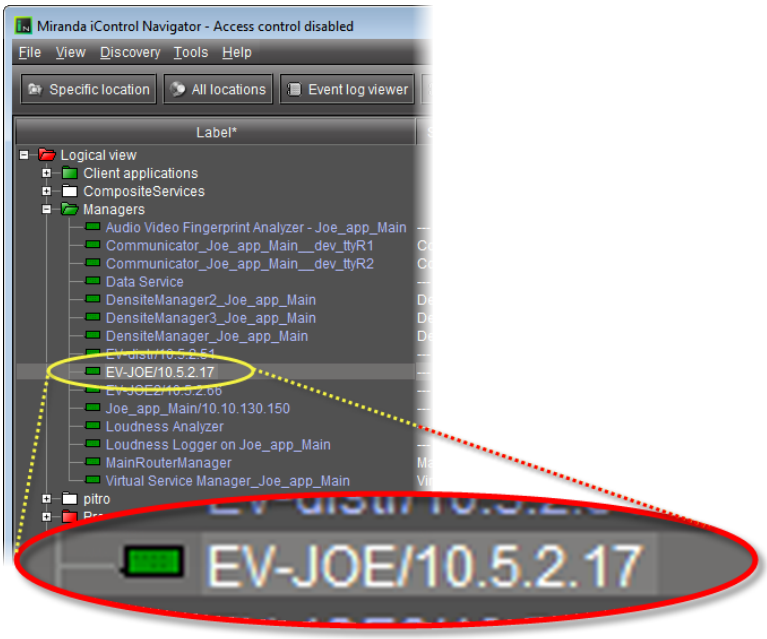
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have successfully enabled DHCP on your EdgeVision device and taken note of the unique **System name** from the *EdgeVision Admin: System configuration* page.
- You have opened iControl Navigator from the Application Server whose IP address you entered into the *EdgeVision Admin: System configuration* page as the **Lookup IP address** when defining your EdgeVision's network settings (see the "Starting iC Navigator" section in the "Common Tasks" chapter of the *iControl User Guide*.

To retrieve the DHCP-assigned IP address of your EdgeVision device

- In iControl Navigator, in the **Managers** folder (iControl Navigator's **Logical View**), find the GSM corresponding to the EdgeVision whose IP address you are retrieving. This is identifiable with the EdgeVision device's unique *system name* as a prefix.



In the case of the EdgeVision device highlighted, above, the system name was configured in the *EdgeVision Admin: System configuration* page to be `EV-JOE`. The IP address following this name is the DHCP-assigned IP address of this EdgeVision device.

You may now open the Web page for your EdgeVision device using this IP address.

Viewing the Status and Configuring the Options

You can also use the *EdgeVision Admin* page to view the current status of the Inputs on the current device, as well as configure the options on the Inputs.

To view the status of the Inputs

1. Using the device's IP address, access the EdgeVision page in a Web browser.

   SYSTEM RESPONSE: The EdgeVision home page appears.

2. Click **EdgeVision Admin**.

   SYSTEM RESPONSE: The *EdgeVision Admin* page appears and displays the **Status and options** panels.

Figure 3-1 Status and options panels with drop-down panels circled in red

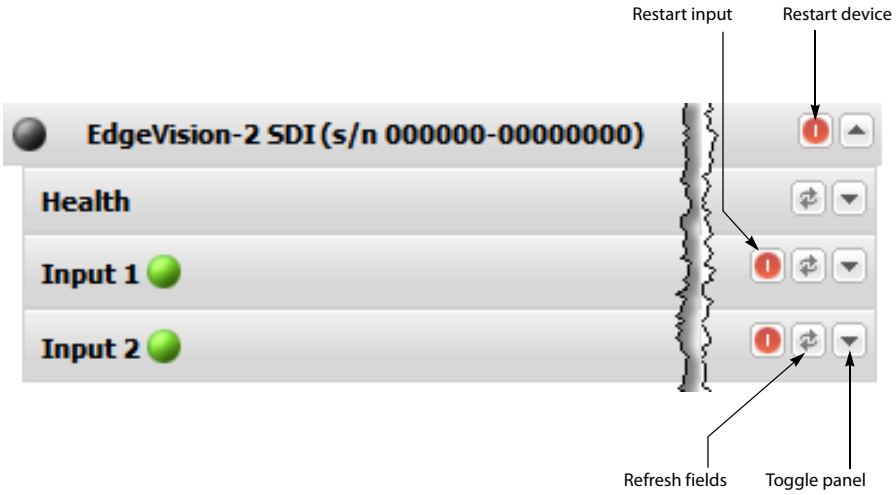


Figure 3-2 Detail of drop-down panels on Status and options page

> **Note:** If you clicked another link and do not see the above panels, you can click the **Status and options** link to display them.

3. Click the **Status and options** link.

   SYSTEM RESPONSE: A set of drop-down panels appears for the device and the Inputs that reside in it. You can hide or display these panels using the Toggle button. These panels include:

Table 3-5: Status and Options Panels

Panel	Definition
Device	Displays the type of device that is currently active at the IP address, followed by its serial number. The device types include the following: • EdgeVision-1/EdgeVision-2/EdgeVision-4 • EdgeVision-1 SDI/EdgeVision-2 SDI/EdgeVision-4 SDI You can reboot the device by clicking the Reset EdgeVision button.

Table 3-5: Status and Options Panels (*Continued*)

Panel	Definition
Health	Displays the chassis and device-level status and data. This panel appears when you open the **Device** panel.
Input #	Displays status and data about the Inputs currently in the device. There is one of these panels for each Input in the device. This panel appears when you open the **Device** panel.

4. You can view the system status by clicking the Toggle button to open the **Health** panel. The following system status fields appears:

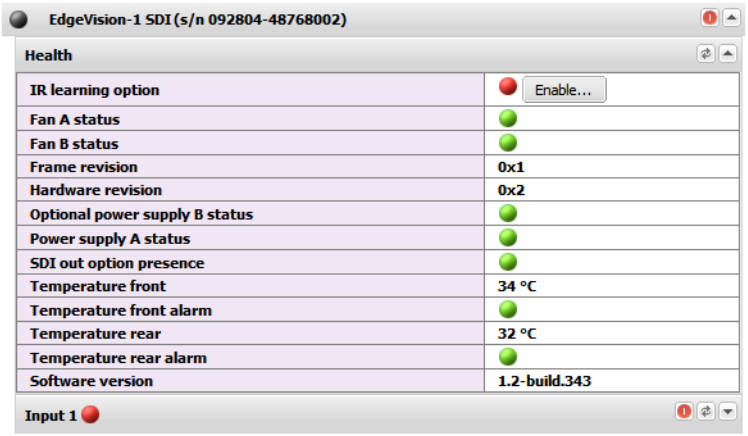


Table 3-6: Health status fields

Status field	Definition
IR learning option	Option management: Infrared learning
Fan A/B status	Displays the current operational status of the cooling fans inside the EdgeVision device.
Frame revision	Displays the version number of the chassis that contains the hardware for the EdgeVision device.
Hardware revision	Displays the revision number for the hardware in the EdgeVision device.
Optional power supply B status	Displays the current operational status of the secondary (B) power supply.
Power supply A/B status	Displays the current operational status of the primary (A) power supply.
SDI out option presence	Indicates if the SDI out option is present on the EdgeVision device.
Temperature front/rear	Displays the current temperature in the front of the device (where the LEDs reside) and in the rear of the device (where the connectors are located).
Temperature front alarm/rear alarm	Indicates if the current temperature in the front or rear of the device has exceeded optimal limits.
Software version	Displays the current build version of *EdgeVision Configurator* and *EdgeVision Player* on this device.

5. To enable a device-level option, click **Enable** next to the desired option and enter the option key provided by Grass Valley Technologies Partnership.

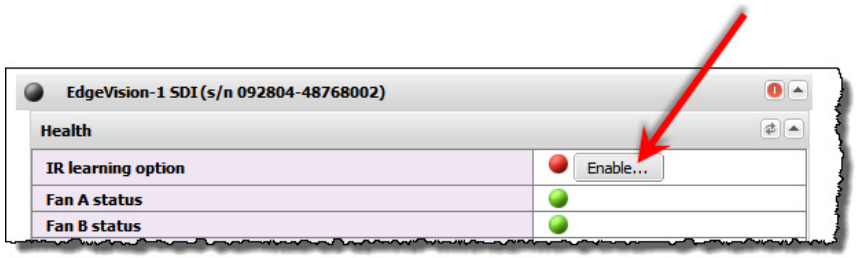


Figure 3-3 Enable button of the IR learning option in the Health area

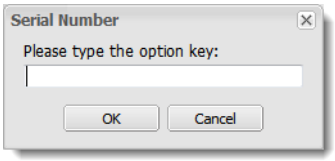


Figure 3-4 Serial Number window

6. You can view the status of an Input by opening the **Input** panel. To refresh the list of status', click **Refresh**. The following input status fields appears:

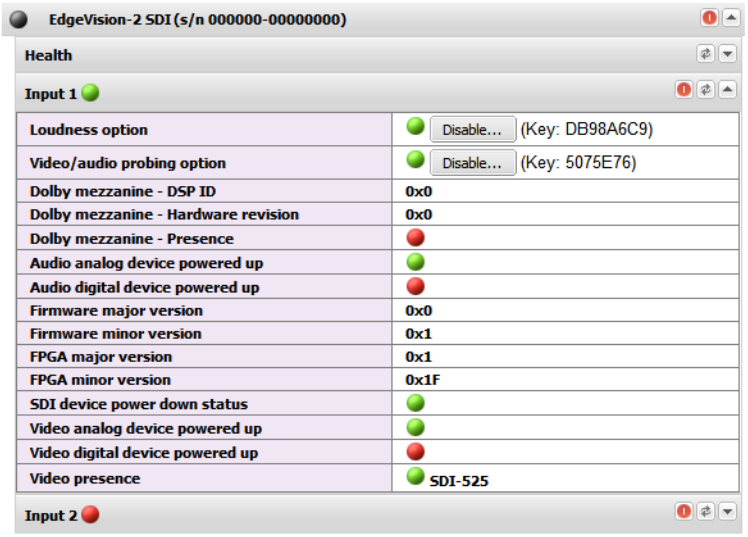


Table 3-7: Input status fields

Input status field	Definition
Loudness option	Option management: Loudness
Video/audio probing option	Option management: Video/audio probing

Table 3-7: Input status fields (*Continued*)

Input status field	Definition
Dolby mezzanine DSP ID	For debug purposes only.
Dolby mezzanine - Hardware revision	
Dolby mezzanine - Presence	
Analog audio device power down status	
Analog video device power down status	
Digital audio device power down status	
Firmware major version	
Firmware minor version	
FPGA major version	
FPGA minor version	
HDMI device power down status	
SDI device power down status	
Video presence	Displays the format detected on the input (ex. SDI-525).

7. To enable an input-level option, click **Enable** next to the desired option and enter the option key provided by Grass Valley Technologies Inc.

Updating the Software

You can update the EdgeVision device's software using the EdgeVision home page. The software updates the device's operating system. The current version of the EdgeVision device appears in Firmware major/minor fields in the *EdgeVision Admin* page (see "Viewing the Status and Configuring the Options", on page 30).

When you update the software, only the software is changed. Any configuration changes you made to the Network parameters using *EdgeVision Admin* are NOT lost when the software is updated. If a software update is interrupted, you should reboot the device and restart the software update.

To ensure that you have the latest software on your device, please contact Grass Valley Technical Support (see "Contact Us", on page 127).

IMPORTANT: Existing stream settings change after upgrading to version 1.41

If you are upgrading to EdgeVision version 1.41 from an earlier version, existing user-configured stream settings (in particular, parameters formerly called **High/Low resolution stream** and **High/Low resolution transport stream bit rate**) will be changed to conform with changes to parameter definitions and their value ranges. Upon upgrade, the immediate changes will be to:

- the changing to default bit-rate values given the resolution setting type (i.e. *High*, *Medium*, or *Low*)
- the redefining of **High resolution** setting types (formerly *High*, *Medium-High*, *Medium*, and *Low*) into *High*, *Medium*, and *Low*.
- the redefining of **Low resolution** setting types (formerly *High*, *Medium*, *Low*, *Very low*) into *High*, *Medium*, and *Low*.

For a detailed matrix on resolution setting and bit-rate changes resulting from an upgrade to EdgeVision version 1.41, see:

- see Table 3-8, on page 35
- see Table 3-9, on page 36

Table 3-8: High resolution stream settings: before and after version 1.41 upgrade[1]

In format	Configured prior to version 1.30			Default conversion through upgrade to v1.41		
	Selection	Resolution	Bit Rate	Selection	Resolution	Bit Rate
1080p, 1080i	High	1920×1080	5 Mbps	High	1920×1080	**1 Mbps**
720p	High	1280×720	3 Mbps	High	1280×720	**1 Mbps**
480i	High	720×480	3 Mbps	High	720×480	**1 Mbps**
576i	High	720×576	3 Mbps	High	720×576	**1 Mbps**
1080p, 1080i	Medium-High	1920×1080	3 Mbps	**High**	1920×1080	**1 Mbps**
720p	Medium-High	1280×720	2 Mbps	**High**	1280×720	**1 Mbps**
480i	Medium-High	720×480	2 Mbps	**High**	720×480	**1 Mbps**
576i	Medium-High	720×576	2 Mbps	**High**	720×576	**1 Mbps**
1080p, 1080i	Medium	1440×800	3 Mbps	Medium	1440×800	**1 Mbps**
720p	Medium	864×720	2 Mbps	Medium	864×720	**1 Mbps**
480i	Medium	544×480	2 Mbps	Medium	544×480	**1 Mbps**
576i	Medium	544×576	2 Mbps	Medium	544×576	**1 Mbps**

Table 3-8: High resolution stream settings: before and after version 1.41 upgrade[1] (*Continued*)

In format	Configured prior to version 1.30			Default conversion through upgrade to v1.41		
	Selection	Resolution	Bit Rate	Selection	Resolution	Bit Rate
1080p, 1080i	Low	960×540	1 Mbps	Low	960×540	1 Mbps
720p	Low	960×540	1 Mbps	Low	960×540	1 Mbps
480i	Low	352×480	1 Mbps	Low	352×480	1 Mbps
576i	Low	352×576	1 Mbps	Low	352×576	1 Mbps

1. Bolded values represent setting changes after upgrading to version 1.41.

Table 3-9: Low resolution stream settings: before and after version 1.41 upgrade[1]

In format	Configured prior to version 1.30			Converted through upgrade to v1.41		
	Selection	Resolution	Bit Rate	Selection	Resolution	Bit Rate
1080p, 1080i, 720p	High	480×272	1000 kbps	High	480×272	**250 kbps**
480i	High	352×240	750 kbps	High	352×240	**250 kbps**
576i	High	352×288	750 kbps	High	352×288	**250 kbps**
1080p, 1080i, 720p	Medium	480×272	750 kbps	**High**	480×272	**250 kbps**
480i	Medium	352×240	500 kbps	**High**	352×240	**250 kbps**
576i	Medium	352×288	500 kbps	**High**	352×288	**250 kbps**
1080p, 1080i, 720p	Low	256×144	500 kbps	**Medium**	256×144	**250 kbps**
480i	Low	176×120	256 kbps	**Medium**	176×120	**250 kbps**
576i	Low	176×144	256 kbps	**Medium**	176×144	**250 kbps**
1080p, 1080i, 720p	Very low	256×144	250 kbps	**Low**	256×144	250 kbps
480i	Very low	128×96	128 kbps	**Low**	128×96	**250 kbps**
576i	Very low	128×96	128 kbps	**Low**	128×96	**250 kbps**

1. Bolded values represent setting changes after upgrading to version 1.41.

Note: To perform the update, you must use the IP address for the Management port only. If you connect to the device using the IP address for the Data port, the update will be halted and the following error message will appear:

```
ERROR: Must use Management IP address to do upgrade
```

REQUIREMENT

Before beginning this procedure, make sure you have unblocked all required ports on your client PC (see page 11).

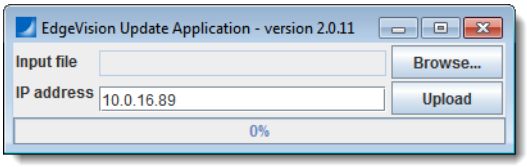
To upgrade the software on the device

1. Launch the EdgeVision page in a Web browser (using the IP address for the Management port).

   SYSTEM RESPONSE: The EdgeVision home page appears.

2. Click the **EdgeVision link** at the bottom of the page. Accept to open the `.jnlp` file.

   SYSTEM RESPONSE: The **EdgeVision Update Application** appears.



> **Note:** Before the file is uploaded to the device, the updater verifies that the file is in the correct format. If the file is valid, the upload process begins. If the file is not valid, the upload is halted and the following message appears at the bottom of the dialog box:
>
> `ERROR: Input file has incorrect format`

3. Using the **Browse** button, select the file that contains the updated software (all EdgeVision software files use a `.OS` extension).

   SYSTEM RESPONSE: The selected file appears in the **Source OS file** field.

4. Type the IP address for the device that you wish to update in the **IP address** field.

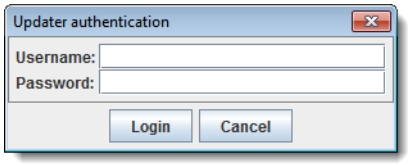
   SYSTEM RESPONSE: The IP address for the current device appears in this field by default.

5. Click **Upload** when done.

   SYSTEM RESPONSE: If the *Access Control* feature on your EdgeVision device is ***disabled***, then at this point the file is uploaded and the device reboots itself automatically, installing the software that you have selected.

   If, however, the *Access Control* feature is ***enabled*** (see "Enabling Access Control on an EdgeVision Device", on page 15), then at this point you will see the **Updater authentication** window. If this is the case, perform the following sub-steps:

   a) In the **Updater authentication** window, type your user name and password.



b) Click **Login**.

SYSTEM RESPONSE: The file is uploaded and the device reboots itself automatically, installing the software that you have selected.

6. When you are ready to continue, click **Yes**.

SYSTEM RESPONSE: Once the device reboots and the software has been updated, the EdgeVision Webpage reloads. If any sessions of *EdgeVision Configurator* or *EdgeVision Player* are running, you should shut them down and restart them.

Note: While the upgrade is in progress, the EdgeVision device will stop its normal operations and reboot in *upgrade* mode, which means that it will stop doing its normal operations (e.g. no streaming, no IR control, etc.) until the upgrade is completed. When the upgrade is complete, the device reboots again in *normal* mode.

---

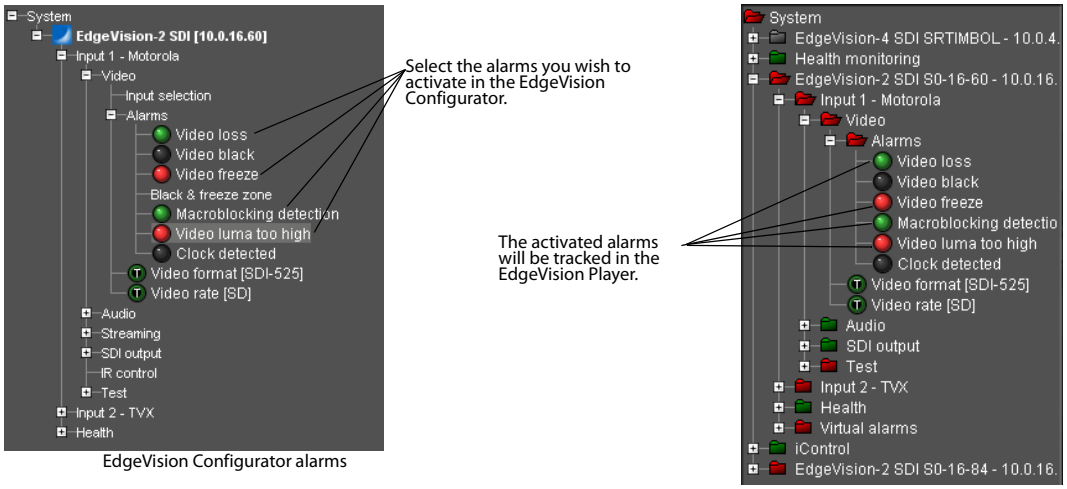
4 Configuring Feeds and Alarms

Summary

Key Concepts

Feeds and Alarms

The *EdgeVision Configurator* application is a powerful monitoring tool that allows you to configure, test, and validate the video and audio feeds in your broadcast network, as well as configure the streaming encoder parameters. *EdgeVision Configurator* allows you to assign the feeds sourced to the Inputs in your EdgeVision device, as well as configure the various alarms that appear in the Alarms browser in your *EdgeVision Player*.



EdgeVision Configurator alarms

EdgeVision Player alarms

You can use *EdgeVision Configurator* to:

- Configure the device
- Select the video and audio inputs that shall be streamed and sent to the SDI-output
- Test and validate the video and audio protocols per Input
- Configure alarms used by *EdgeVision Player* to monitor the quality of the video/audio feed
- Configure the IR control

- Configure the streaming options
- Create a new remote control for a set-top box (STB), or else edit an existing remote control by switching EdgeVision to an *IR learning mode*

When used in conjunction with *EdgeVision Player*, you can accurately access the current operational state of each media input in the EdgeVision device.

EdgeVision Configurator is so versatile that you can test, configure, and preview the inputs separately from the outputs. For example, on a single device, you can preview the video from one source, but listen to the audio from a completely different source.

Streaming in EdgeVision

Part of EdgeVision's monitoring strength lies in its ability to stream video and audio to remote monitoring locations over a LAN or WAN. EdgeVision's streaming capabilities allow operators, effectively, to see and hear the signals received in viewers' homes.

EdgeVision allows users to configure streams to be high resolution or low resolution, depending on their needs and resource capabilities. Additionally, users can configure bit rates independent of resolution, as required.

Consult the following sub-sections, as required:

- "Mini-Glossary for Streaming Media" on page 41
- "Streaming Modes and Streaming Protocols" on page 42

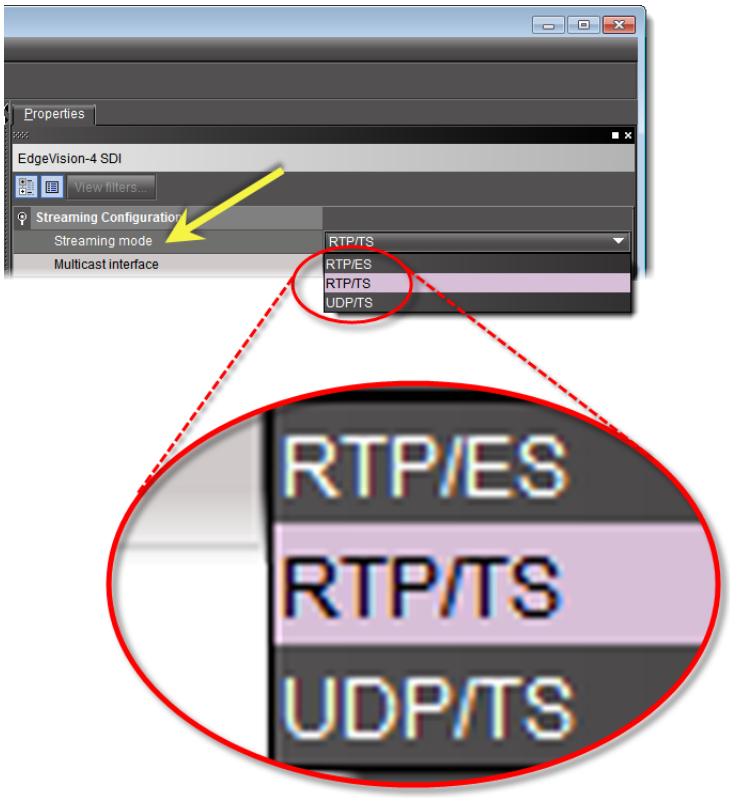


Figure 4-1: Selection of streaming mode in EdgeVision Configurator

See also

For more information about the following, see page 53.

- configuring feed inputs for streaming
- graphical representation of EdgeVision's decision points in determining which default streaming protocol to use

Mini-Glossary for Streaming Media

There are many concepts and protocols and called upon in the process of streaming media. Typically, they go by names that are easier to communicate through their acronyms for the sake of brevity. The following comprise a subset of relevant concepts and protocols with expanded names:

Note: The majority of the descriptions found below were taken from public-domain sources such as Wikipedia.

- **Unicast**: The concept of sending data from ***one*** sender to ***one*** receiver.
- **Multicast**: The concept of sending data from ***one*** sender to ***several*** receivers.
- **UDP** (*user datagram protocol*): A Transport-layer, connectionless protocol (part of the IP suite) characterized by independent though unreliable datagram delivery, being relatively fast (in comparison with TCP), and used typically for time- and packet-sequence-sensitive applications like multicasting and broadcasting.
- **TCP** (*transmission control protocol*): A Transport-layer, connection-oriented protocol (part of the IP suite), characterized by being reliable, ordered, and with error-checking.
- **RTP** (*real-time transport protocol*): A standardized packet protocol for delivering audio and video over IP networks. RTP packets are normally sent over UDP and enhances the control and synchronization of real-time services (though does not ensure it).
- **RTSP** (*real-time streaming protocol*): A network control protocol linked to RTP that controls streaming media sessions between end points.
- **ES** (*elementary stream*): MPEG elementary stream is the output of an audio or video encoder, containing only one kind of data (e.g. ***only*** audio or ***only*** video or ***only*** closed caption).
- **TS** (*transport stream*): MPEG transport stream is a standard format for encapsulating packetized elementary streams with error correction and stream synchronization. TS is used for the transmission and storage of audio, video, and PSIPS data.
- **MPEG-2** (*motion picture experts group-2*): Also known as ***H.222/H.262***. A standard for the generic coding of moving pictures and associated audio information, characterized as a combination of lossy video compression and lossy audio data compression methods which permit storage and transmission of movies using currently available storage media and transmission methods.
- **MPEG-4** (*motion picture experts group-4*): A method of defining compression of audio and visual digital data as defined in MPEG-1 and MPEG-2, and extending support for

3D rendering, object-oriented composite files, support for externally specified digital rights management, and various types of interactivity.

Streaming Modes and Streaming Protocols

The streaming modes supported in EdgeVision each allow different types of streaming protocols, if selected by the user. The supported streaming modes are as follows:

- "RTP/ES Streaming Mode" on page 42
- "RTP/TS Streaming Mode" on page 42
- "UDP/TS Streaming Mode" on page 42

RTP/ES Streaming Mode

RTP/ES streaming mode (or RTP packetization of ES) is one option configurable in *EdgeVision Configurator*. Choosing this option enables EdgeVision to stream ***RTSP/ES-over-UDP/RTP*** (or RTSP's packetization of ES, synchronized by RTP and carried over UDP). This is the only Elementary Stream streaming mode available at the present time on EdgeVision.

RTP/TS Streaming Mode

RTP/TS streaming mode (or RTP packetization of TS) is one option configurable in *EdgeVision Configurator*. Choosing this option enables EdgeVision to stream any of four possible streaming protocols, as follows:

- ***RTSP/TS-over-UDP/RTP*** (RTSP's packetization of TS and carried over UDP)
- ***Unicast TS-over-UDP/RTP*** (raw TS carried over UDP from a single source to a single destination)
- ***Multicast TS-over-UDP/RTP*** (raw TS carried over UDP from a single source to multiple destinations)
- ***RTSP/TS-over-TCP*** (RTSP's packetization of TS and encapsulated into an RTP-TCP connection)

UDP/TS Streaming Mode

UDP/TS streaming mode is one option configurable in *EdgeVision Configurator*. Choosing this streaming mode enables EdgeVision to stream raw TS over UDP

Viewing Event Logs

To track the events being generated by the feed alarms, you must enable the **Logging** and the **Logging Enabled** features for each alarm type. To view the list of alarms that have been logged, you must connect to the iControl application server using the IP address, launch the iControl Navigator, and click the Event log viewer for the device.

See also

For more information, see the "Event and Incident Logs" chapter in the *iControl User Guide*.

Remote Control IR Mapping

In situations where you need an STB to recognize and properly read a new IR remote control, you can accomplish this by switching EdgeVision into *IR learning mode*. Using *EdgeVision*

Configurator's new **IR learning** tab, in addition to IR learner hardware (available as an option: *EDGEVISION-OPT-IR-LEARNING Optional infrared remote control learning kit*), EdgeVision can capture IR codes from your remote. You can then assign an action to each learned code.

See also

For more information, see "Configuring a Remote Control for an STB" on page 60.

Audio

Loudness Measurement

When monitoring program audio levels, the indicator designating the level at the peak of an audio waveform (Peak Program Meter, or PPM) does not satisfactorily quantify the subjective notion of *loudness*. Even sub-categories of PPM – *True PPM*, *Quasi-PPM*, *Sample PPM*, and *Over-sampling PPM* – have their respective uses but are based on metrics from a single sampling moment and not an entire segment. This is the reasoning behind a recent shift in thinking in the broadcast industry, from the approach of *peak normalization* to one of *loudness normalization*.

In recent years, the audio industry has converged upon a single algorithm – ITU-R BS-1770 – for normalizing and quantifying loudness consistently and reliably for multi-channel audio signals. What is missing, however, is a universally adopted approach toward metering and presenting the loudness measurement. There are competing proposals from different standards bodies meant to address this need. Notable among these are:

- EBU Technical Recommendation R128 (see "EBU R128", on page 43), based in Europe
- ATSC Recommended Practice A/85 (see "ATSC A/85", on page 44), based in the U.S.A.

Grass Valley's approach to these evolving developments is to provide you, the EdgeVision client, with not only the choice between these two proposed loudness modes but the freedom to customize further, if desired, the loudness mode settings using one of EBU R128 or ATSC A/85 as a beginning template.

See also

For more information, see "Configuring Audio Settings" on page 81.

EBU R128

The European Broadcasting Union (EBU) proposes, in Recommendation 128, the following:

Three Time Scales

There are three time scales, including a *Momentary* (400ms), *Short term* (3s), and *Integrated* (from start to stop) meter.

- **Momentary loudness**: This meter has a moving window of fixed length 0.4 seconds from which it calculates an average loudness. This measurement is not gated.
- **Short-term loudness**: This meter has a moving window of fixed length 3 seconds from which it calculates an average loudness. The measurement is not gated and the update rate for live meters is at least 10Hz.

- **Integrated loudness**: This meter uses *gating* as described in EBU TECH 3341. The update rate for live meters is at least 1Hz.

The Measurement Gate

The gating function used in the *Integrated loudness* meter is characterized by the following qualities:

- The gating function uses an **absolute** (*silence*) gating threshold of 70LUFS for the computation of the absolute-gated loudness level.
- The gating function uses a **relative** gating threshold 10LU below the absolute-gated loudness level.
- The measurement input to which the gating threshold is applied is the loudness of the 400ms gating blocks measured using the ITU-R BS.1770 method without gating (that is, summed across channels).

Loudness Range

The *Loudness Range* descriptor (abbreviated to **LRA**) quantifies the variation in loudness from the segment (as described in EBU TECH 3342). This quantity is a function of the *Loudness Level* (as specified in ITU-R BS.1770). LRA is measured in LU, which is equivalent to dB.

Units of Measurement

EBU R128 recommends a relative measurement (as a function of a reference level or a range) of loudness defined as:

L_K = n LU

Additionally, the recommendation specifies an absolute measurement of loudness, defined as:

L_K = n LUFS

dfs$_f$ad

> **Note:** The L in L_K indicates loudness level. The K indicates the frequency weighting used.

Scales and Ranges

In *EBU Mode*, EdgeVision assigns the value of -23LUFS to the *Target*, with a maximum upper and lower deviation of 1LU (1dB).[1]

ATSC A/85

The Advanced Television Systems Committee (ATSC), responding to demand in the television broadcast industry for more dynamic and dextrous control of loudness measurement, metadata usage and contemporary dynamic range practices, proposes A/85. This recommendation relies upon the AC-3 multi-channel audio system (defined in *ATSC A/52*) to encode metadata along with audio content, including a normalization parameter (`dialnorm`) whose purpose is to maintain a uniform loudness for differing content.

Several important qualities of A/85 are as follows:

1. From *EBU R128: Loudness normalisation and permitted maximum level of audio signals* (August, 2011).

- The `target loudness` metadata parameter defines a value for a perceptual loudness reference point (*Anchor Element*), which is typically dialogue, around which other elements are balanced in producing the final mix of the content. This is established to facilitate content exchange from a supplier to an operator.
- The `dialnorm` metadata parameter defines the absolute value of the loudness (in LKFS units) of the Anchor Element carried in the AC-3 bit stream. This unsigned 5-bit code indicates how far the average dialogue level is below 0 dBFS. Valid values are 1 through 31. The value of the dialnorm parameter indicates the loudness of the Anchor Element of the content.[1]
- For delivery or exchange of content without metadata (and where there is no prior arrangement by the parties regarding loudness), the Target Loudness absolute value is -24LKFS with +/-2dB to mitigate for measurement uncertainty.

End-of-Segment Detection

When using the Integrated time scale for loudness measurement, you can configure one or more triggers that would indicate when a segment ends and the next begins.

Note: You can also reset a segment manually.

EdgeVision can be set to end a segment using the following three triggers:

- EdgeVision detects a change in the dialnorm metadata of the AC3 input.
- EdgeVision detects a change in the channel mode (e.g. if the audio input switched from AC3 to PCM).
- The configured time on the **Reset period** clock has run out.

Additionally, it is possible to configure EdgeVision to use more than one of these triggers at a time. You may, for example, wish to configure a dialnorm change trigger as well as a channel mode change trigger, in which case whichever of these two occurs first will cause EdgeVision to reset the segment.

See also

For more information about how to configure triggers for the end-of-segment, see "Loudness Measurement Configuration Window", on page 83.

EdgeVision's Preset Loudness Modes

Along with the ability to customize the loudness norm mode of EdgeVision to whatever setting is desired, you can also choose from among five preset loudness modes. The preset loudness modes are as follows:

1. From *ATSC Recommended Practice: Techniques for Establishing and Maintaining Audio Loudness for Digital Television* (Document A/85:2011, 25 July 2011).

Table 4-1: Preset Loudness Norm Modes in EdgeVision

Loudness mode name	Description
EBU R128-2010	Based on EBU R128 (see page 43) with **gating set to -8**
EBU R128-2011	Based on EBU R128 (see page 43) with **gating set to -10**
ATSC A/85 (ITU-1770-1)	Based on ATSC A/85 (see page 44) with **gating disabled**
ATSC A/85 (ITU-1770-2) — **default**	Based on ATSC A/85 (see page 44) with **gating set to -10**
ARIB TR-B32	Based on EBU R128 (see page 43) with **gating set to -10, target set to -24**

Note: If you select the *Custom* loudness mode, all parameters are available and gating can be disabled.

Dolby AC3

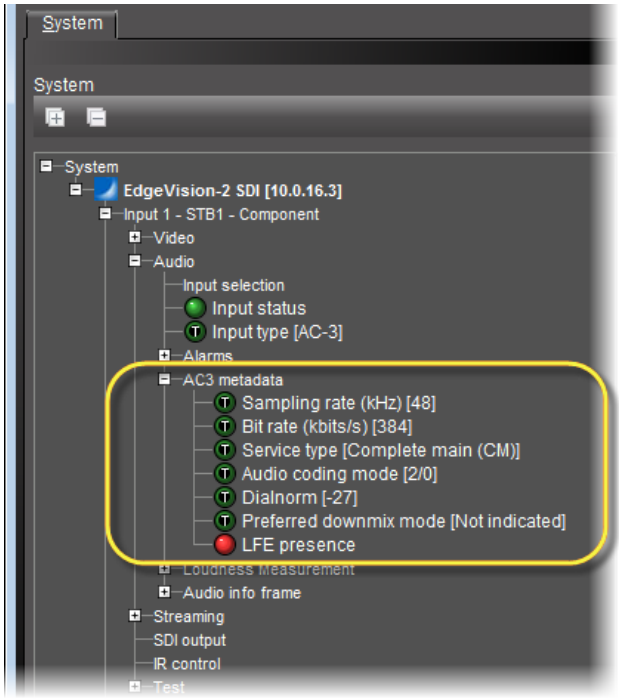
Dolby AC3, also known as *Dolby Digital*, is a compressed six-channel digital stream encapsulated in a single bit stream. The channels are designated as *Left*, *Right*, *Center*, *Left Surround*, and *Right Surround*. The sixth channel is a low frequency effects (*LFE*) channel using one tenth the bandwidth of each of the other channels, and optionally included to provide sound for deep, low-pitched sounds ranging from 3-120Hz. EdgeVision supports the Dolby AC3 sound format including AC3 metadata, decoding, and monitoring.

When EdgeVision decodes an AC3 bit stream, these six channels, along with the downmix stereo audio pair, are sent to the HD-SDI output of the EdgeVision device.

Note: You can select the downmix audio pair to be sent to the Streaming encoder.

AC3 Metadata

The AC3 format includes metadata with its audio content. EdgeVision allows you to read this metadata in the form of text alarms in both *EdgeVision Configurator* and *EdgeVision Player*.



The metadata are as follows:

- **Sampling rate**: the number of samples per unit of time taken from a continuous signal to make a discrete signal.
- **Bit rate**: the number of bits that are conveyed or processed per unit of time.
- **Service type**: the genre of audio service characterizing the audio content. This information could be useful, for example, in determining how much headroom is required above the average dialogue or dialnorm level.
- **Audio coding mode**: indicates the ratio of front to rear speakers in a given audio stream.
- **Dialnorm**: the degree of playback gain representing the range of -1dB to -31dB. A downstream AC3 decoder level-shifts the volume by reducing the audio by the difference between this dialnorm value and -31dBFS, thus achieving dialogue normalization.
- **Preferred downmix mode**: the method used to take several discrete audio channels and mix them to produce two channels (stereo).

Notes

- The *Left total / Right total* (**L_T/R_T**) downmix mode preserves the integrity of the original six channels. Using a Dolby Pro Logic upmixer, you can take L_T/R_T downmixed audio and re-upmix it into six discrete channels again.
- The *Left only / Right only* (**L_O/R_O**) downmix mode **CANNOT** be re-upmixed into six discrete channels. This mode is suitable when mono compatibility is required.

- **LFE presence**: indicator (YES if present, NO if absent), of the presence within the audio content of the low-frequency effects audio track.

The metadata parameters are as follows:

Table 4-2: AC3 metadata values

Metadata	Data type	Unit	Parameter values/range
Sampling rate	Real	kHz	48, 44.1, 32
Bit rate	Integer	kbps	32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640
Service type	String		• Main audio service: complete main (CM) • Main audio service: music and effects (ME) • Associated service: visually impaired (VI) • Associated service: hearing impaired (HI) • Associated service: dialogue (D) • Associated service: commentary (C) • Associated service: emergency (E) • Associated service: voice over (VO) • Main audio service: karaoke
Audio coding mode	String		• 1+1: Ch1, Ch2 (dual mono) • 1/0: Center • 2/0: Left - Right • 3/0: Left - Center - Right • 2/1: Left - Right - Subwoofer • 3/1: Left - Center - Right - Subwoofer • 2/2: Left - Right - SurroundLeft - SurroundRight • 3/2: Left - Center - Right - SurroundLeft - SurroundRight
Dialnorm	Integer	dB	-1 to -31
Preferred downmix mode	String		• Left total / Right total (L_T/R_T) • Left only / Right only (L_O/R_O) • Not indicated
LFE presence	Boolean		• Yes • No

AC3 Forwarding

EdgeVision allows you to take an AC3 audio stream from either an HDMI or SPDIF source and forward it to either an SDI or a streaming output. This is an effective pass-through mechanism with no alteration of the AC3 signal.

See also

For more information, see "Forwarding AC3 Audio" on page 95.

AC3 Decoding

If you need to decode an AC3 audio signal, you will need the Dolby mezzanine card. Additionally, you must configure your audio in EdgeVision appropriately.

See also

For more information, see "Decoding AC3 Audio" on page 98.

Configuration Considerations when Streaming Video

EdgeVision supports encoding a stream within a Transport Stream (TS) *container*. This is often desirable because the TS format is highly compatible with decoders.

You may find, however, that you have a hardware decoder that is not compatible with certain TS streams because the multiplexed payload is encoded in a *variable bit rate* (VBR) format. Normally, VBR encoding is preferable to constant bit rate (CBR) because VBR streams generally require less bandwidth when averaged out over time. Hardware decoders that are incompatible with VBR streams may not be equipped with a large enough input buffer to handle the peak bit rates of VBR. If this is the case with your decoder, your decoded stream may stop and start intermittently.

If — downstream of your EdgeVision device — you discover that your decoder outputs a signal with these characteristics, you may find that configuring EdgeVision to multiplex using a *CBR* payload will rectify the problem.

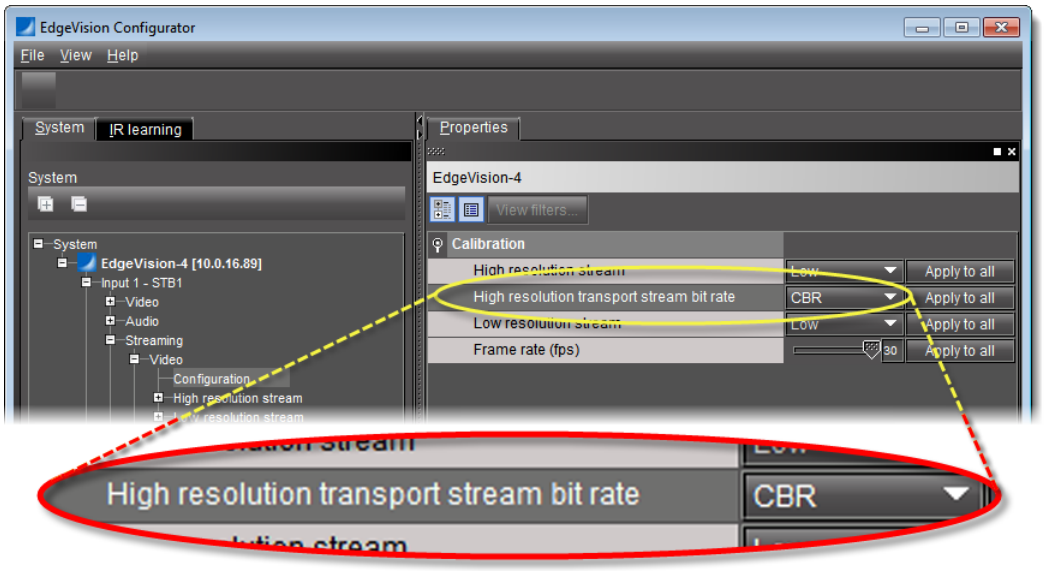


Figure 4-2 High resolution TS bit rate in EdgeVision Configurator

See also

For more information about configuring a streaming video output on an EdgeVision device, see "Configuring Streaming Video Settings", on page 88.

EdgeVision-Generated Fingerprints

If desired, you may choose to have EdgeVision generate fingerprint data accompanying video and audio feeds suitable for analysis downstream by a fingerprint analyzer such as iControl's *Audio Video Fingerprint Analyzer*. Each input into EdgeVision corresponds to one fingerprint

data source for the downstream analyzer. You can enable and disable the functionality in *EdgeVision Configurator* on a per-input basis.

> **Note:** The version of iControl you use to analyze fingerprint data must be 4.44 or later if the video source is 1080p.

See also

For more information about:

- Enabling or disabling EdgeVision fingerprinting, see page 106.
- Release-specific notes or issues relevant to this feature, see the "Known Issues and Limitations" section of the *EdgeVision Version 1.41 Release Notes*.

Fingerprint channel ordering in EdgeVision

EdgeVision can generate fingerprinting for AC3 and PCM audio formats. AC3 as an audio format can be sourced from SPDIF and HDMI inputs. PCM can be sourced from analog, SPDIF, and HDMI (though in the case of analog, the input signal is converted to PCM by the EdgeVision device).

In either audio format (PCM or AC3), when the fingerprinting feature is enabled, audio fingerprints are generated according to the following channel order:

> **Note:** Exclusively in the case where the audio format is AC3, the downmix channels, additionally, have fingerprints generated.

Table 4-3:

Fingerprint channel	Audio channel
--- Both PCM and AC3 audio formats ---	
1	Left
2	Right
3	LFE
4	Center
5	Left surround
6	Right surround
--- AC3 audio format only ---	
7	Left Downmix
8	Right Downmix

It is important to take note of the ordering of fingerprint channels from streams leaving the EdgeVision device so that you may later create audio signature comparison groups properly in iControl.

Sample Workflows

The following is a list of supported workflows relevant to the overall topics of feed configuration and alarm configuration:

[Workflow] Creating a New Remote Control

Use this workflow if either of the following conditions are met:

- You would like to use a remote control to operate an STB it was not originally paired with.
- You would like to use an STB model that is not in your EdgeVision device's list of known STBs.

Table 4-4: Creating a new remote control

1.	Make sure the set-top box — for which you would like to associate a new remote control — is connected to one of your EdgeVision device's inputs (see "Connecting Cables to the Device", on page 7).
2.	Enable the *IR learning* option (see "Viewing the Status and Configuring the Options", on page 30).
3.	Connect your IR learner device to the network (see your device's installation and cabling instructions).
4.	In *EdgeVision Configurator* navigate to the **IR learning** tab (see page 60).
5.	If desired, configure *EdgeVision Configurator* to: • Automatically transmit captured IR codes to the EdgeVision device immediately following capture **AND/OR**, • Automatically assign the IR code of the last capture to the virtual remote control (Please see "Setting Configurator to Auto-Transmit or Auto-Assign", on page 60).
6.	Configure *EdgeVision Configurator* to see and recognize your IR learner device (see page 63).
7.	Capture your remote control's IR codes (see page 64).
8.	If *EdgeVision Configurator* is **NOT** configured to transmit captured codes automatically and you would like to test the captured code on the STB, transmit the code now (see "Manually Transmitting a Captured IR Code to an EdgeVision and STB", on page 70).
9.	If *EdgeVision Configurator* is **NOT** configured to assign captured codes automatically and you are ready to assign a captured code to the virtual remote control, assign the code now (see "Manually Assigning a Captured IR Code to a Virtual Remote Control", on page 69).

[Workflow] Configuring Audio Output Settings

The following flowchart represents the workflow of user tasks required to successfully configure EdgeVision's audio processing. The boxes representing user tasks are color-coded pink and are hotspots that link to a procedure. If you are reading a printout of this manual, you can navigate to the appropriate procedures by consulting Table 4-5.

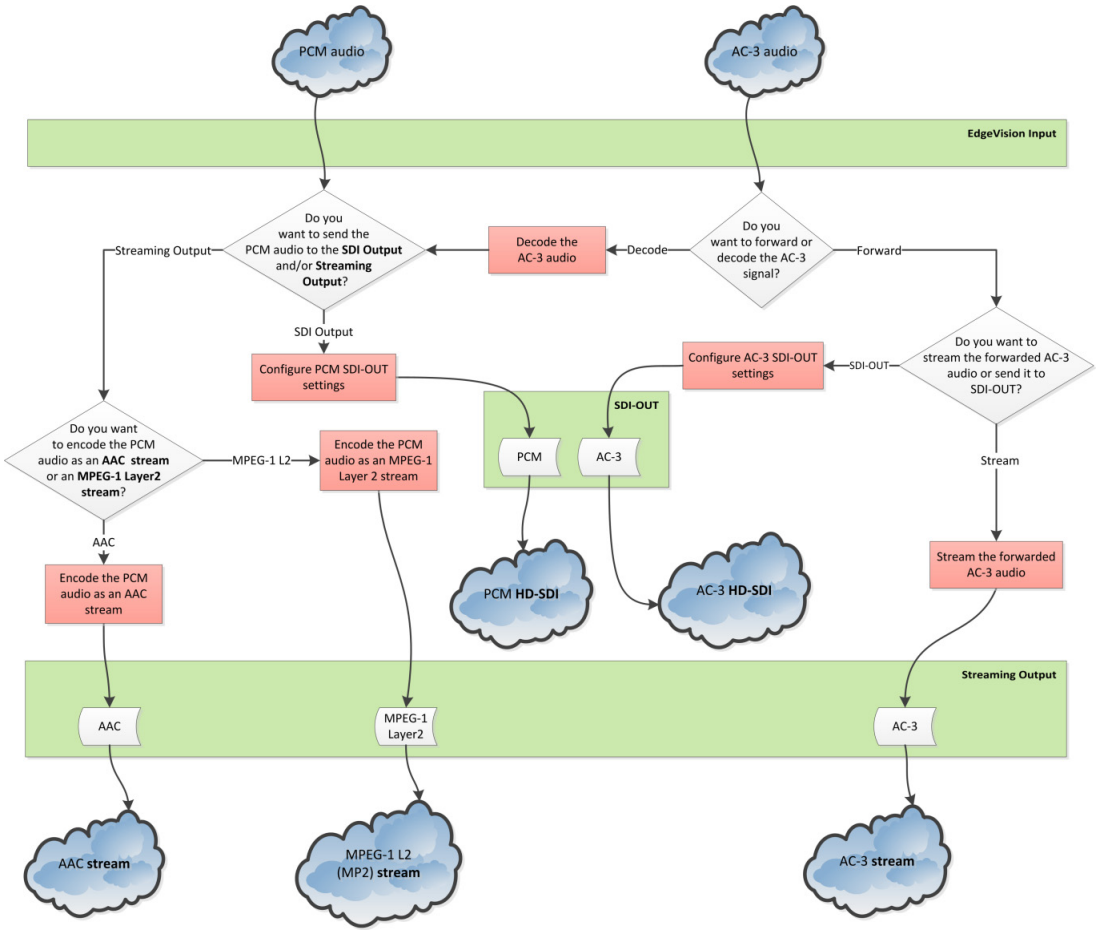


Figure 4-3 EdgeVision audio processing workflow and signalflow (see Table 4-5)

The following table is a list (**NOT** in any sequential order) of the user tasks referenced in the workflow/signalflow of the above figure.

Table 4-5: EdgeVision audio processing user tasks (see see Figure 4-3)

Task[1]	Procedure	Additional instructions for the procedure
Decode the AC-3 audio	"Decoding AC3 Audio" on page 98	
Configure PCM SDI-OUT settings	"Configuring the SDI Output" on page 101	
Encode the PCM audio as an MPEG-1 Layer 2 stream	"Configuring Encoding Settings for PCM Audio" on page 93	Encoding format: **MPEG-1 L-2**

Table 4-5: EdgeVision audio processing user tasks (see see Figure 4-3) (*Continued*)

Task[1]	Procedure	Additional instructions for the procedure
Encode the PCM audio as an AAC stream	"Configuring Encoding Settings for PCM Audio" on page 93	Encoding format: **AAC-LC**
Configure AC-3 SDI-OUT settings	"Forwarding AC3 Audio" on page 95	• Perform the sub-steps of step 3. • **DO NOT** perform the sub-steps of step 4.
Stream the forwarded AC-3 audio	"Forwarding AC3 Audio" on page 95	• **DO NOT** perform the sub-steps of step 3. • Perform the sub-steps of step 4.

1. This list of tasks is not necessarily sequentially ordered. Consult see Figure 4-3 for the supported context.

[Workflow] Configuring Feed Inputs

Within the EdgeVision device, you may have up to four inputs to direct up to four separate feeds. Using *EdgeVision Configurator*, you can assign feeds to these cards as well as labelling the inputs themselves with descriptive names.

The EdgeVision device can have up to four sets of connectors, one for each input feed.

Determination of the correct streaming protocol for a given feed is a matter of EdgeVision processing user-configured settings as well as context data surrounding the stream request. The first distinction is whether the *Streaming mode* parameter is configured as `Elementary stream` (ES) or `Transport stream` (TS).

An ES feed is one with a single kind of data – usually either video or audio – rather than several multiplexed together as a single file. By contrast, a TS feed is a container format meant to encapsulate audio, video, and data packetized ES feeds as a single, multiplexed stream. A TS feed is specified in MPEG-2 Part 1 and employs error correction and stream synchronization features.

In *EdgeVision Configurator*, a stream configured as *Elementary stream* is automatically *Unicast* using the real-time streaming protocol (RTSP) as a control protocol to manage an RTP/UDP stream. Moreover, if any Transport stream destinations are configured, they are ignored. The destination of a stream configured as ES is the *EdgeVision Player* (or any third party client application that supports RTSP) directly connected to the EdgeVision unit.

For streams configured as *Transport stream*, once you select a stream to play in *EdgeVision Player*, EdgeVision determines the appropriate streaming protocol to use based on parameters you have configured and context data related to the stream request. The algorithm's decision flowchart is as follows:

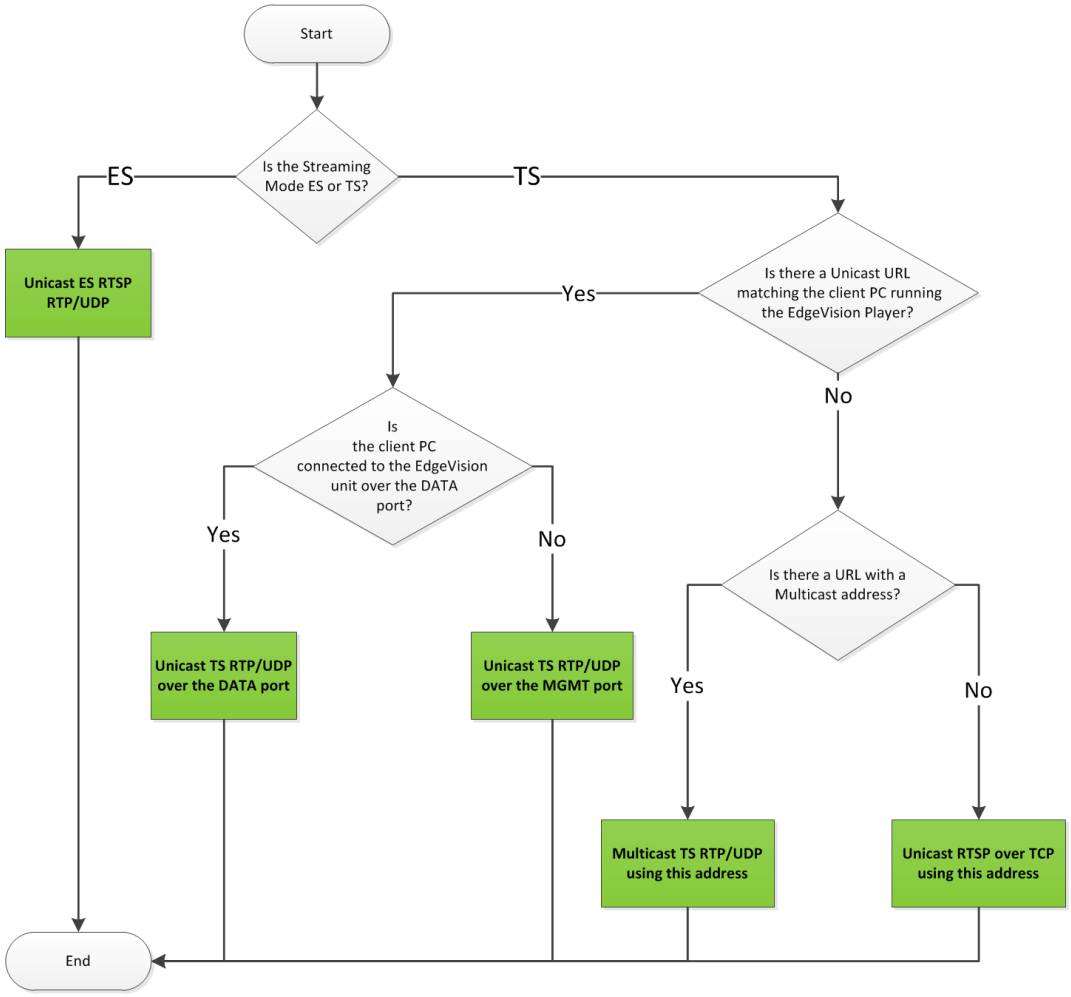


Figure 4-4 Algorithm flowchart showing how EdgeVision determines a default streaming protocol for a stream

IMPORTANT: You can enable/disable RTSP streams on ETH-DATA, ETH-MGMT

EdgeVision Configurator allows you to either enable or disable RTSP streaming over ETH-DATA and ETH-MGMT ports. If RTSP is disabled on the port your *EdgeVision Player* is connected to, and no specific Transport Stream (TS) URLs are configured in *EdgeVision Configurator*, then EdgeVision will not generate streams over this port. In such a scenario, even if selected in *EdgeVision Player*, you will not see a stream over this port.

Configuring a stream as *Transport stream* allows you to:

- identify a destination by IP address *and* port number. With user-determined ports, you could, for example, configure several EdgeVision units to stream to the same player (using different port numbers).[1]

1. In releases of EdgeVision — prior to version 1.05 — only the IP addresses of destinations were configurable, with port allocation remaining hard-coded and identical from one EdgeVision unit to the next. Consequently, configurations, in which multiple streaming EdgeVision units feed into a single player, were not supported.

- configure multiple destinations for a single stream. This allows you to send multiple Unicast streams from a single EdgeVision to targeted destinations as an alternative to simply multicasting.
- specify either a high or low resolution stream
- specify whether you would like the stream to be compatible with (decodable by) hardware decoders like the Densité IRD-3802 card

> **See also**
>
> For more information about configuring a TS stream to be compatible with downstream hardware decoders, see "Configuration Considerations when Streaming Video", on page 49.

Configuring feed-inputs is a task requiring you to configure parameters at both the device level (for which settings apply to all inputs on that EdgeVision device), and at the individual input level.

Table 4-6: Feed-input configuration

1.	Configure device-level settings (see page 72).
2.	Configure input-level settings (see page 74).

Detailed Directions

Opening EdgeVision Configurator

To be able to configure alarms on your device, you must connect to the device using the ETH-MGMT port IP address. You will not be able to open *EdgeVision Configurator* using the ETH-DATA port IP address.

> **See also**
>
> For more information about the IP address of the ETH-MGMT port, see "Defining Network Parameters", on page 24.

> **REQUIREMENT**
>
> Before beginning this procedure, make sure you have unblocked all required ports on your client PC (see page 11).

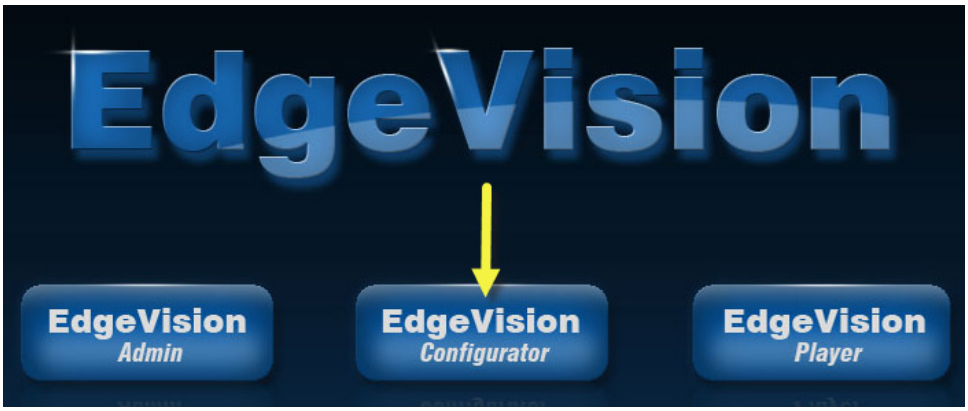
To open EdgeVision Configurator

1. Open the EdgeVision page in a Web browser (using the device's Management IP address).

   SYSTEM RESPONSE: The EdgeVision home page appears.

> **Note:** If you have *Access Control* enabled on your EdgeVision device, you will see a Login page before reaching the EdgeVision home page. For more information about EdgeVision Access Control, see "Configuring EdgeVision Access Control", on page 14.

2. Click **EdgeVision Configurator**.



SYSTEM RESPONSE: The browser prompts you to save an executable file to your hard drive. This file is an online installer, which will download EdgeVision Configurator—and other companion elements—from your EdgeVision device, and install them. Some browsers may allow you to run the file directly. Depending on your browser's security features, warnings may appear, which you may safely dismiss.

3. Unless your browser lets you run the file (and you choose to do so), navigate to the location where you saved the installer file and open it.

SYSTEM RESPONSE: Once EdgeVision Configurator is downloaded, a progress page appears followed by a splash page.

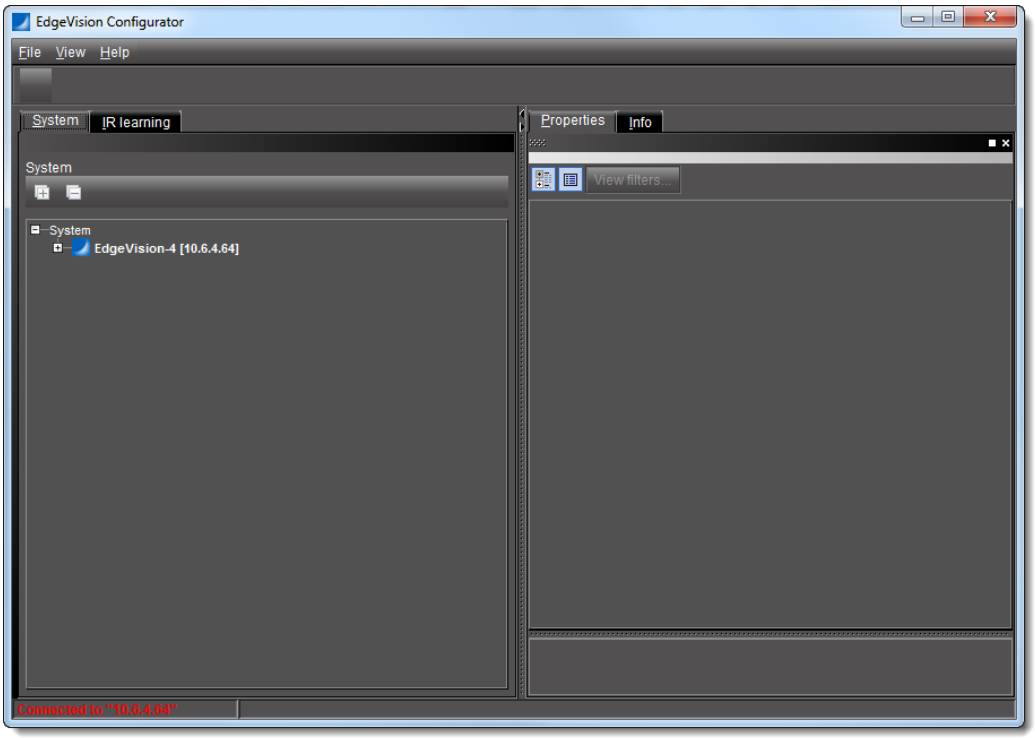
Figure 4-5: Installation progress page

Figure 4-6: EdgeVision Configurator splash page

SYSTEM RESPONSE: At the end of the installation process:

- If you have Windows 7, shortcuts are added to your desktop and to the **Start** menu (under **All Programs**).
- If you have Windows 8.1 or Windows 8, EdgeVision Configurator will appear on your desktop, in the **Apps** view with all the other applications on your PC (Windows 8.1), or in your **Start** screen (Windows 8).

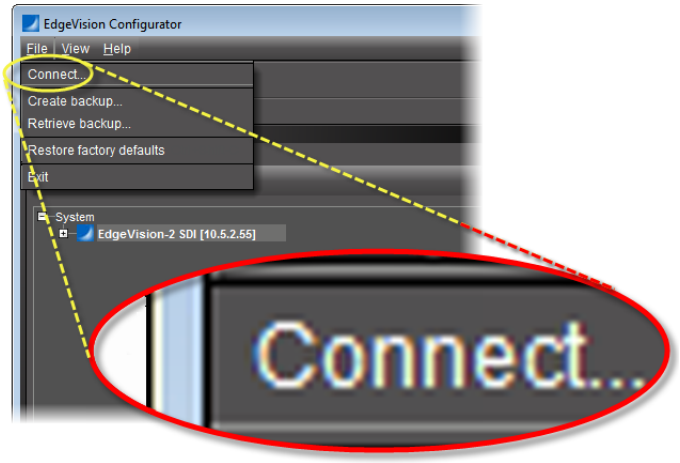
SYSTEM RESPONSE: EdgeVision Configurator appears, displaying the devices located at the selected IP address along with the feeds being monitored.



Connecting to a Remote EdgeVision from Configurator

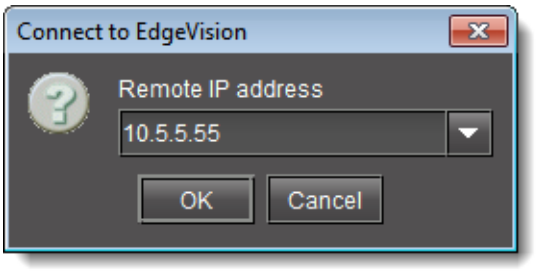
To connect to a remote EdgeVision from Configurator

1. In the *EdgeVision Configurator* hosted on the local EdgeVision device, on the **File** menu, click **Connect**.

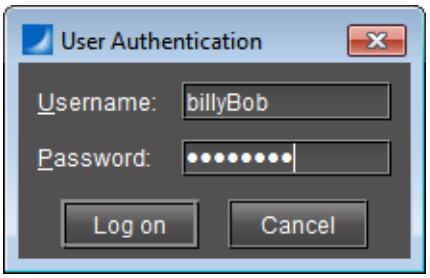


SYSTEM RESPONSE: The **Connect to EdgeVision** window appears.

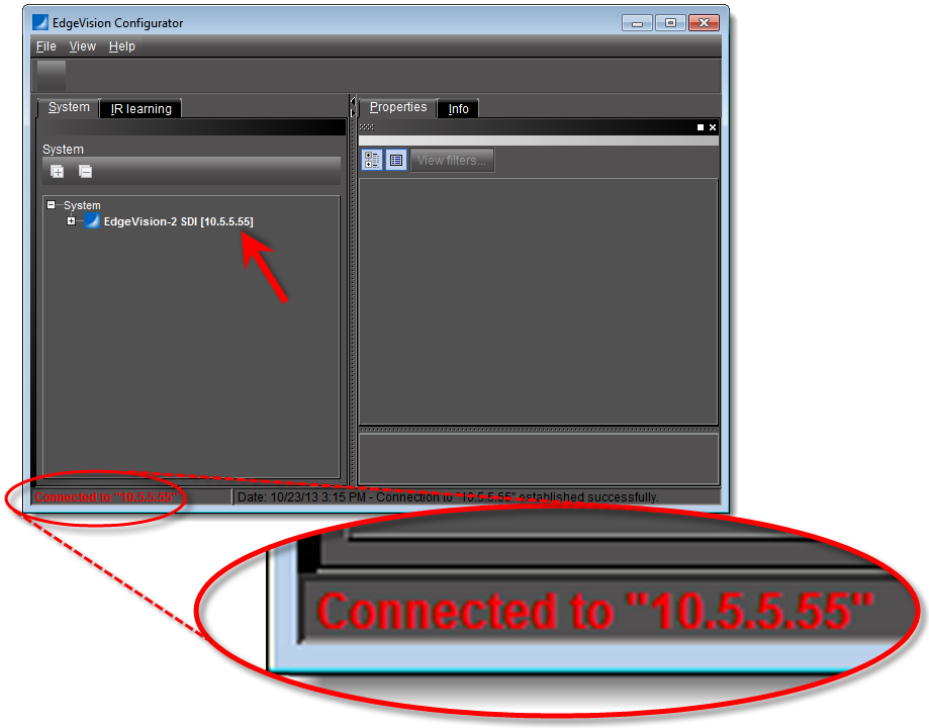
2. Type the IP address of the remote EdgeVision device to which you would like to connect, and then click **OK**.



3. If the *Access Control* feature of the remote EdgeVision device is currently ***enabled***, a **User Authentication** window appears prompting you to log on with a valid and authorized user profile. If this is the case, type the required user name and password and then click **Log on**.



SYSTEM RESPONSE: In the **System** (tree) view of *EdgeVision Configurator*, the local EdgeVision device is replaced with the remote EdgeVision device, and the new connection status appears at the bottom of the window.



See also

For more information about the Access Control feature of EdgeVision, see "Configuring EdgeVision Access Control", on page 14.

Configuring a Remote Control for an STB

Navigating to the IR learning Tab

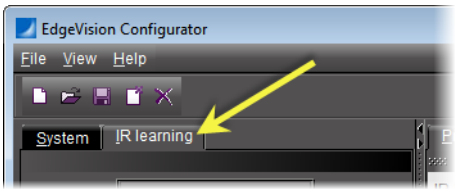
To navigate to the IR learning tab

REQUIREMENTS

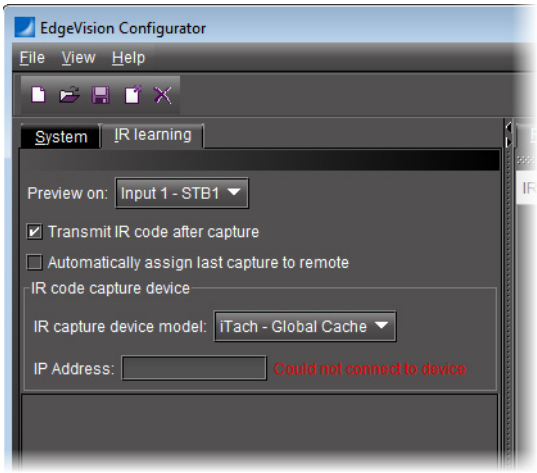
Make sure you meet the following conditions before beginning this procedure:

- You have opened *EdgeVision Configurator* (see page 55).
- You have enabled the IR learning option in *EdgeVision Admin* (see "Viewing the Status and Configuring the Options", on page 30).

- In *EdgeVision Configurator*, on the left pane, click the **IR learning** tab.



SYSTEM RESPONSE: The left pane is populated with controls for the IR learning tool.



Setting Configurator to Auto-Transmit or Auto-Assign

EdgeVision allows you to shorten your workflow by providing the following options:

- transmitting an IR code automatically — immediately after capture — to the EdgeVision unit

> **Note:** You may want to auto-transmit because you have *EdgeVision Player* open as well, and would like to verify in real-time that a captured IR code functions as it should.

- assigning an IR code automatically — immediately after capture — to a pre-selected button on the virtual remote control

EdgeVision allows you to select either one of these two options, both of them, or none of them.

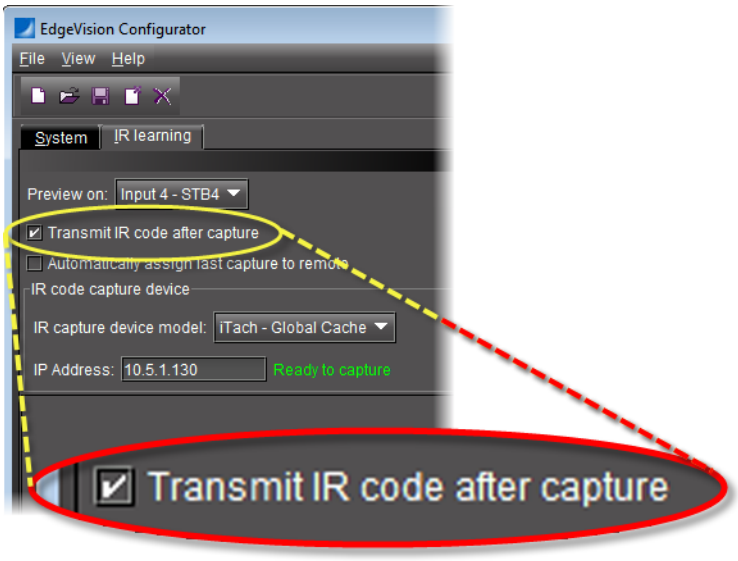
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

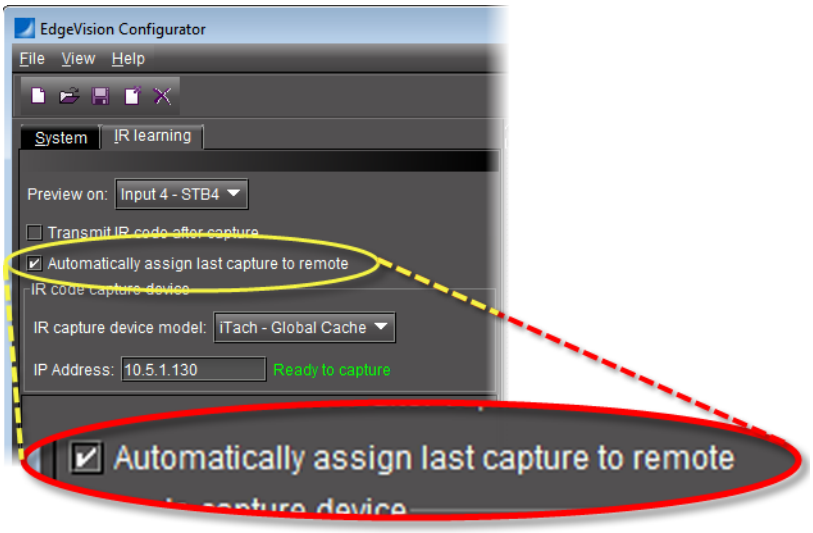
- You have navigated to the IR learning tab in *EdgeVision Configurator* (see page 60).
- You are performing this procedure in the context of the supported workflow (see "Creating a new remote control", on page 51).

To set EdgeVision Configurator to automatically transmit and/or assign IR codes

1. If you would like *EdgeVision Configurator* to automatically transmit an IR code immediately following capture, on the **IR learning** tab, select **Transmit IR code after capture**.



2. If you would like *EdgeVision Configurator* to automatically assign a captured IR code to the selected button of the virtual remote control, select **Automatically assign last capture to remote**.



Note: You may select both these options, just one of these options, or neither of these options.

The following table describes system behavior given each selection combination:

Table 4-7: System behaviors after capture when auto-transmit or auto-assign options selected

Checkbox for *Transmit IR code after capture*	**Checkbox for *Automatically assign last capture to remote***	**System behavior**
CLEARED	**CLEARED**	*EdgeVision Configurator* retains the captured IR code in memory but neither assigns the code to the remote nor transmits it to the EdgeVision device.
SELECTED	**CLEARED**	*EdgeVision Configurator* does not assign the IR code to the remote but transmits it to the EdgeVision device (and on to the STB). This may be desirable if you would like to test an IR code immediately after capture (by viewing the result in *EdgeVision Player*) before assigning it to the virtual remote.
CLEARED	**SELECTED**	*EdgeVision Configurator* automatically assigns the IR code immediately after capture but does not transmit the code to the EdgeVision device. This reduces the number of manual steps required to assign a captured code. This may be desirable if you are confident that captured code functions properly on the STB without having to test it.

Table 4-7: System behaviors after capture when auto-transmit or auto-assign options selected (*Continued*)

Checkbox for *Transmit IR code after capture*	**Checkbox for *Automatically assign last capture to remote***	**System behavior**
SELECTED	**SELECTED**	*EdgeVision Configurator* automatically assigns the IR code to the remote immediately following capture and then transmits the code to the EdgeVision device. This both reduces the number of manual steps required to assign a code and allows you to verify in real-time whether a captured code functions properly on the STB. This setting is recommended by Grass Valley in most situations.

Pointing EdgeVision Configurator to your IR Learner

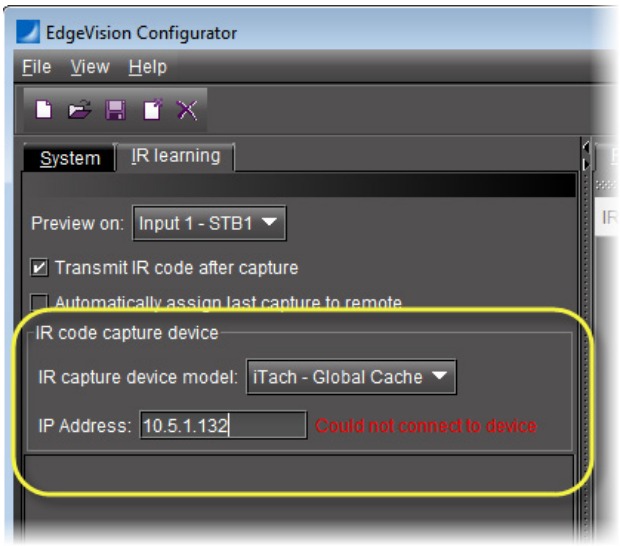
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have navigated to the IR learning tab in *EdgeVision Configurator* (see page 60).
- You know the configured IP address of your IR learner device.
- You are performing this procedure in the context of the supported workflow (see "Creating a new remote control", on page 51).

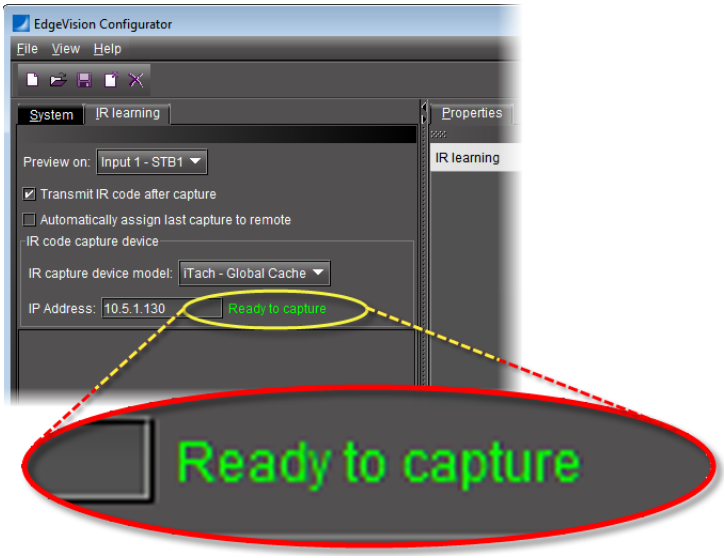
To configure EdgeVision Configurator to see and recognize your IR learner

1. On the **IR learning tab**, in the **Preview on** list, select the input — on EdgeVision — that is connected to the STB you would like to pair with the remote.
2. In the **IR code capture device** area, select the model of your IR learner device.



3. Type the IP address of your IR learner device.

A **Ready to capture** message should appear next to the IP address.



Capturing a Remote Control's IR Codes

IMPORTANT: You cannot edit a factory remote

You may not edit the settings of a factory remote control. However, you may choose the ***Save as*** option in order to create a variant of a factory remote.

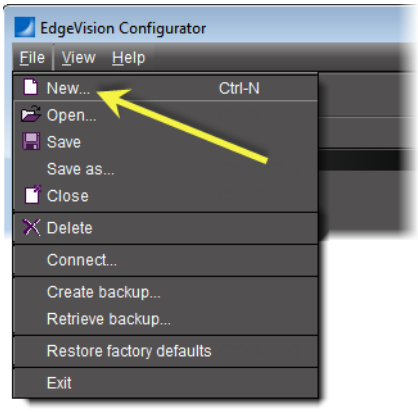
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have navigated to the IR learning tab in *EdgeVision Configurator* (see page 60).
- You are performing this procedure in the context of the supported workflow (see "Creating a new remote control", on page 51).

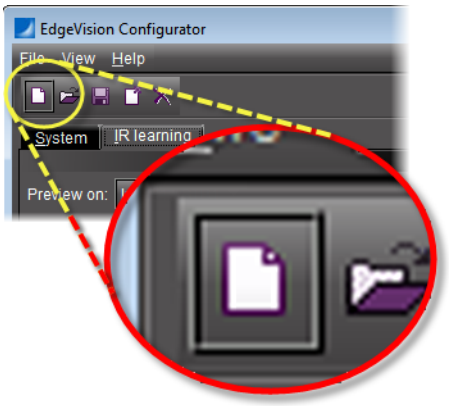
To capture a remote's IR codes

1. If you are learning IR codes from a new remote control, on the **File** menu, click **New**.



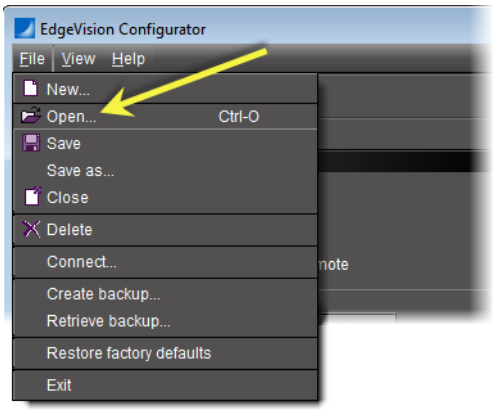
OR,

Click the *New* icon on the toolbar.



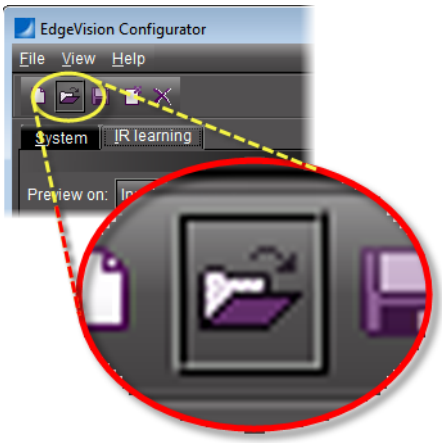
SYSTEM RESPONSE: A graphical representation of the new remote appears.

2. If, for an existing remote control, you are modifying the mapping of buttons to STB actions, on the **File** menu, click **Open**.



OR,

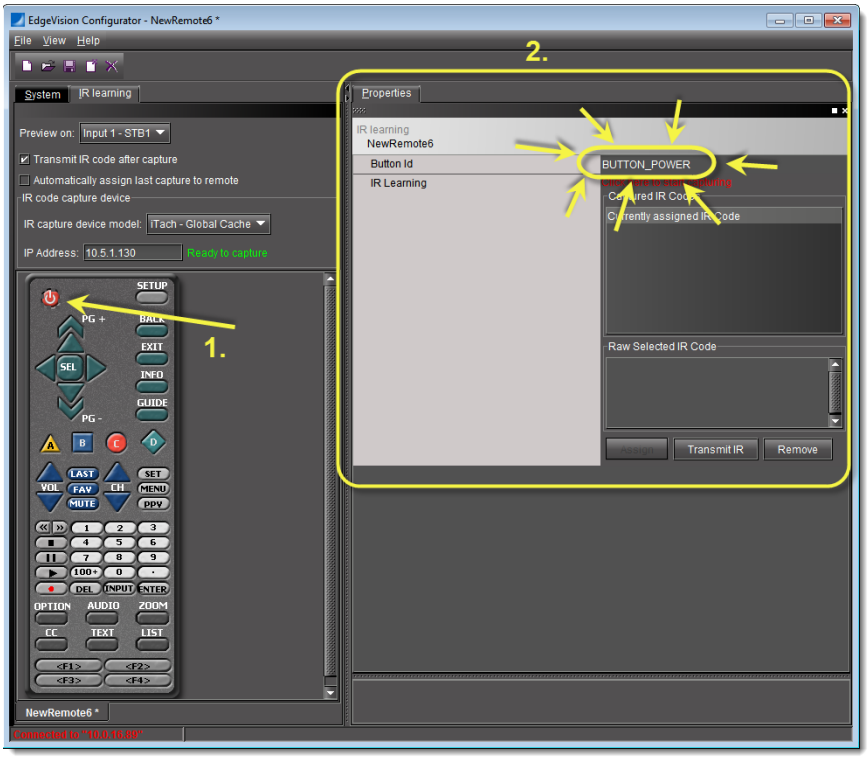
Click the *Open* icon on the toolbar.



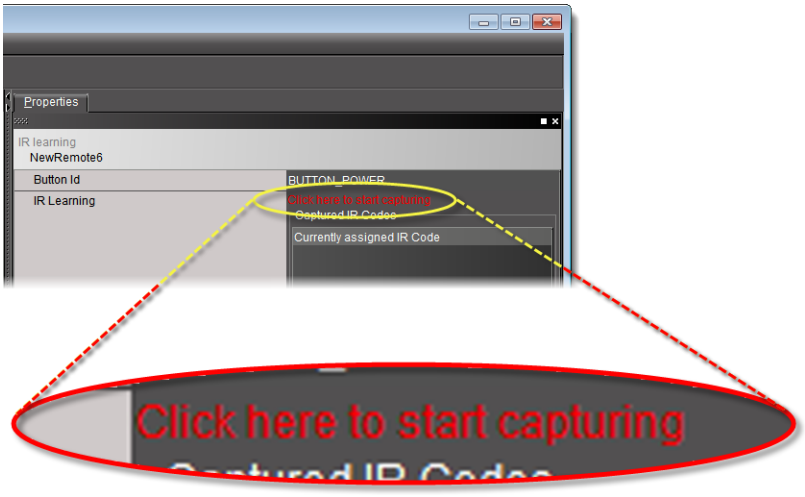
SYSTEM RESPONSE: A graphical representation of the new remote appears.

3. On the graphic of the remote, click the first button for which you would like to assign an IR code from your remote.

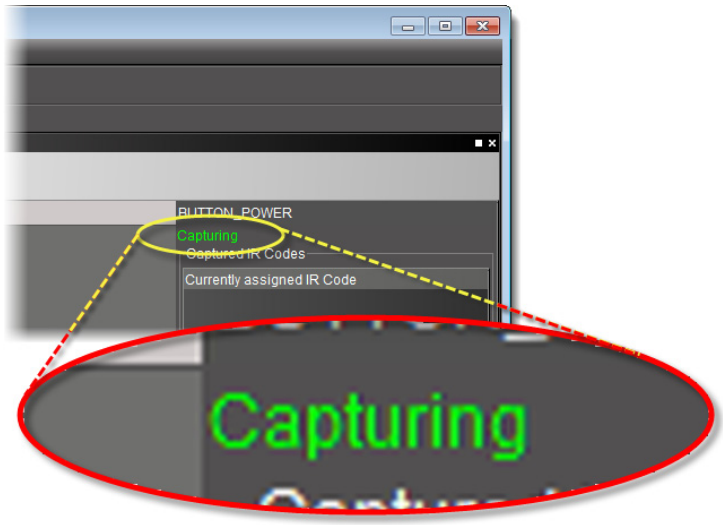
   SYSTEM RESPONSE: The **Properties** tab, on the right pane, is populated with the IR learning status and the name of the selected button appears.



4. Below the name of the button, click the text, **Click here to start capturing**.



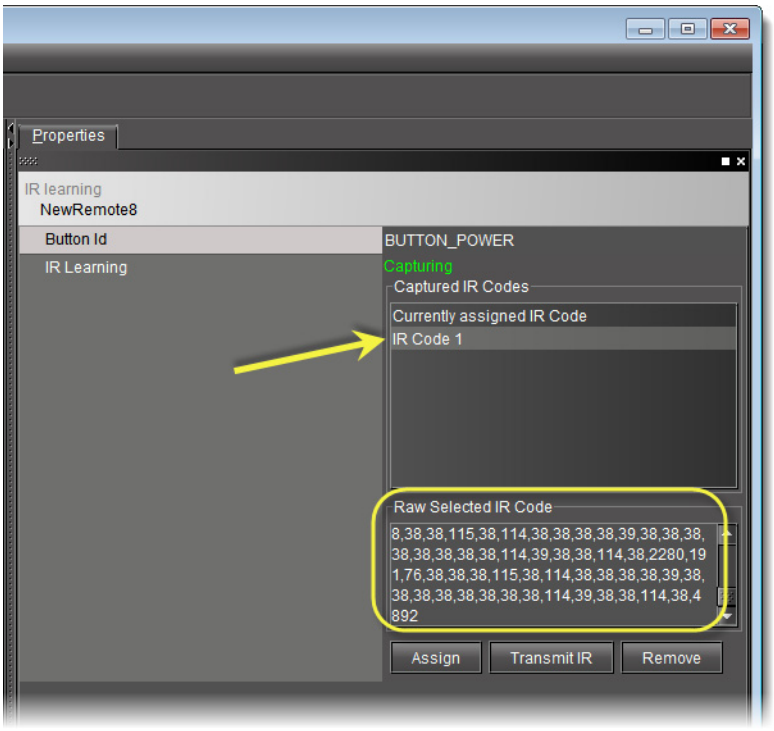
SYSTEM RESPONSE: The **Capturing** message appears.



5. Point the physical remote at the IR learner device's IR sensor, then push the physical remote's button whose IR code you would like to associate with the pre-selected button on the virtual remote.

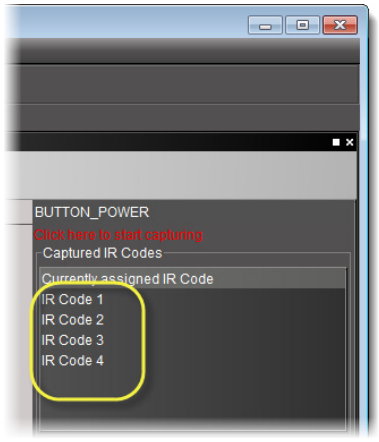
Figure 4-7: IR sensor (red arrow) on Global Caché iTach IP to IR device

SYSTEM RESPONSE: A new code's name appears in the **Captured IR Codes** area and, if the code name is selected, the raw code appears in the **Raw Selected IR Code** area.



6. Click the text, **Capturing**, or click anywhere within the **Properties** tab to end the IR capture session.
7. Repeat step 4 to step 6 for each subsequent capture attempt for this button.

   SYSTEM RESPONSE: After several capture attempts, you should have a list of IR codes in the **Captured IR Codes** area.



Manually Assigning a Captured IR Code to a Virtual Remote Control

REQUIREMENTS

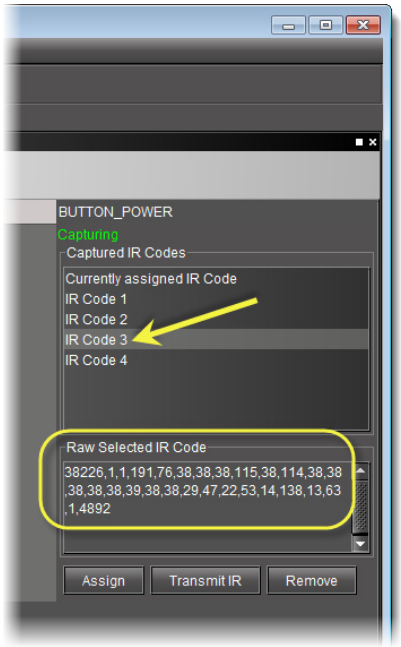
Make sure you meet the following conditions before beginning this procedure:

- You have navigated to the IR learning tab in *EdgeVision Configurator* (see page 60).
- The IR code you would like to assign to a button on the virtual remote control has already been captured and appears in the **Captured IR Codes** area of *EdgeVision Configurator*.
- You are performing this procedure in the context of the supported workflow (see "Creating a new remote control", on page 51).

To manually assign an IR code to a remote

1. On the **Properties** tab (right pane) of *EdgeVision Configurator*, select the name of the captured IR code you would like to assign to the selected button on the virtual remote.

   SYSTEM RESPONSE: The selected capture's raw code appears in the **Raw Selected IR Code** area.



2. **[OPTIONAL]** Make a note of the raw code of the selected capture for verification purposes, later.
3. Click **Assign**.

   SYSTEM RESPONSE: The selected IR code is assigned to the selected button of the virtual remote.
4. **[OPTIONAL]** Verify that the assigned code is correct by selecting **Currently assigned IR Code** in the **Captured IR Codes** area, and then comparing the raw code with the code of which you made note in step 2.

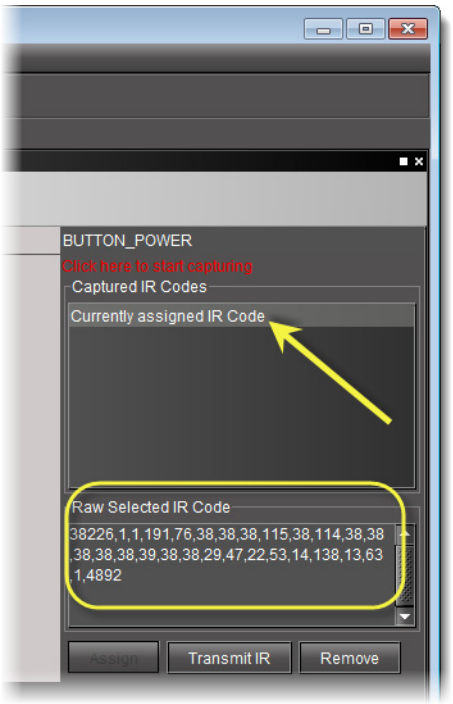


Figure 4-8: Compare the raw code of the assigned IR Code to the code noted in step 2.

Manually Transmitting a Captured IR Code to an EdgeVision and STB

REQUIREMENTS

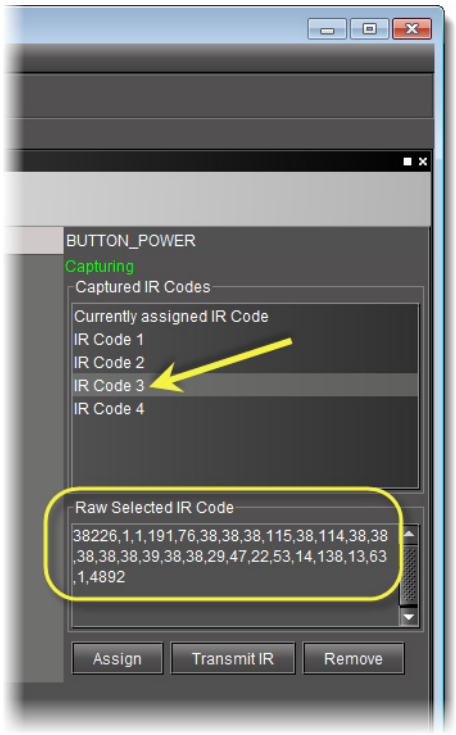
Make sure you meet the following conditions before beginning this procedure:

- You have navigated to the IR learning tab in *EdgeVision Configurator* (see page 60).
- The IR code you would like to transmit to your EdgeVision device (and STB) has already been captured and appears in the **Captured IR Codes** area of *EdgeVision Configurator*.
- You are performing this procedure in the context of the supported workflow (see "Creating a new remote control", on page 51).

To manually transmit an IR code to an EdgeVision and STB

1. On the **Properties** tab (right pane) of *EdgeVision Configurator*, select the name of the captured IR code you would like to transmit to the EdgeVision device.

   SYSTEM RESPONSE: The selected capture's raw code appears in the **Raw Selected IR Code** area.



2. Click **Transmit IR**.

   SYSTEM RESPONSE: The IR code is transmitted to the EdgeVision device.

Configuring Media Protocols

Video and Audio components of the media feed can contain several protocols, allowing the media to be output in a variety of formats. By launching *EdgeVision Configurator* and *EdgeVision Player* simultaneously, you can test and validate the components of the media feed.

For example, if you use *EdgeVision Configurator* to change the Video Input mode to HDMI, *EdgeVision Player* will display the video feed from that Input in the **Preview** panel. If you change the Video Input mode, *EdgeVision Player* will update itself with the new settings. Also, *EdgeVision Configurator* displays the fields for the current Input mode. In the HDMI example, the **Video Format** and **Video Rate** parameters would display the fields for the current HDMI protocol.

In this way, you can validate that the feed components are functional, both by viewing them in *EdgeVision Player* and by the data displayed in *EdgeVision Configurator*.

Once you define where the device is located in your network and how *EdgeVision Player* can access it, you can configure the following aspects of its feed:

- **Video**: defines the type of video input, its format, and the alarms that track the quality of the video feed (see "Selecting a Video Input", on page 80).
- **Audio**: defines the type of audio input and the thresholds for the audio feeds (see "Configuring Audio Settings", on page 81).

- **Streaming**: defines the video and audio feed settings for the feed that is streamed over the Internet. You can also configure which interface will send the streaming data (DATA or MGMT) (see "Configuring Streaming Video Settings", on page 88 and "Configuring Audio Output Settings" on page 93).
- **SDI Output**: allows you to define the output format and log the alarm activity on the SDI video and audio outputs (see "Configuring the SDI Output", on page 101).
- **Infrared Control**: allows you to define how the infrared control interacts with the device (see "Configuring the Infrared Control", on page 103).
- **Test**: allows you to generate a video and audio test pattern on the Input (see "Configuring the Test Mode", on page 104).

Before you configure the Inputs on the device, you need to define the feed sources for each Input (see "Configuring Feed Inputs", on page 72).

Configuring Feed Inputs

IMPORTANT: Danger of overloading stream encoding

There are limitations to streaming related to combining certain resolutions that may lead to an overload. An overload may, in turn, lead to a loss of the streams and an unresponsiveness in communication to the EdgeVision unit. More specifically, an overload will occur if the aggregate of the streams being encoded by EdgeVision at any given time exceeds processing capacity.

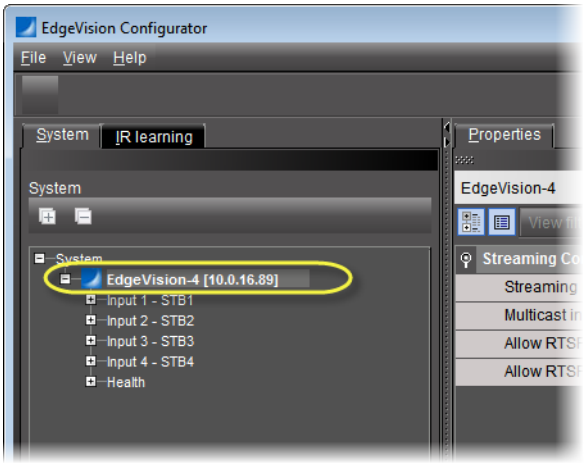
Configuring Device-Level Feed Settings

REQUIREMENT

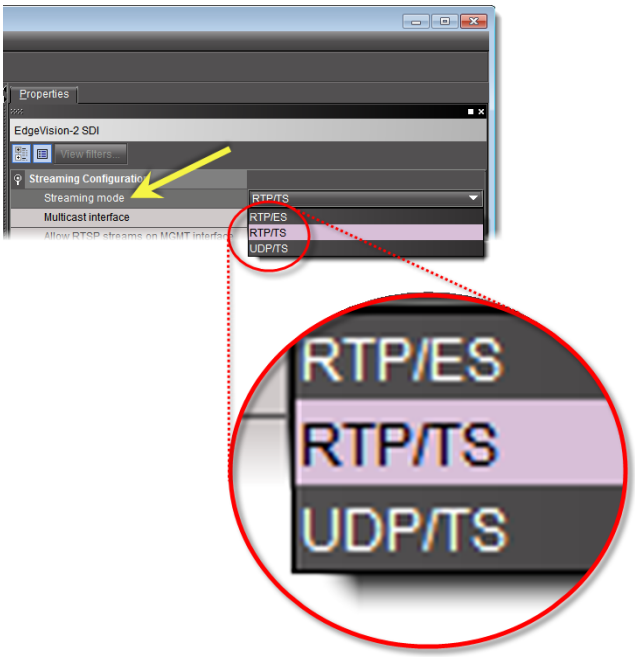
Before beginning this procedure, make sure you have opened *EdgeVision Configurator* (see page 55).

To configure device-level feed settings

1. In *EdgeVision Configurator*, select the device from the **System** list.

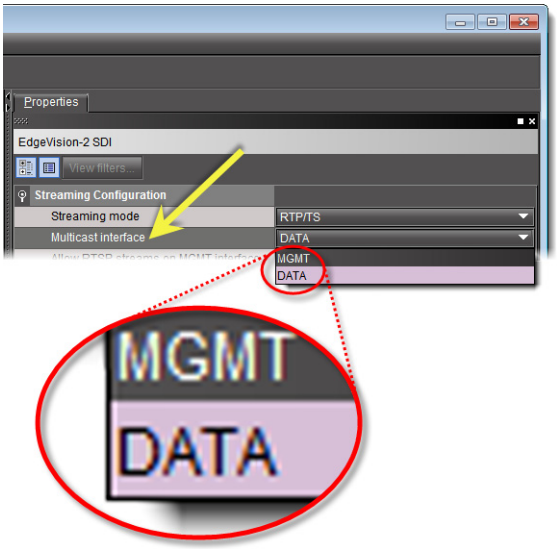


2. In the right pane, on the **Properties** tab, configure the streaming mode.



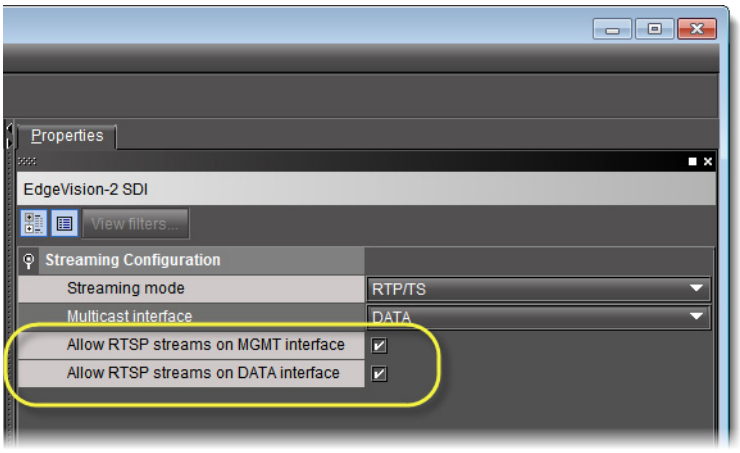
The *Streaming mode* parameter allows you to specify if the feed is an *Elementary stream* (ES) or *Transport stream* (TS), as defined by the MPEG communication protocol.

3. Specify a multicast interface.



The *Multicast interface* parameter allows you to select between the ETH-DATA and ETH-MGMT Ethernet ports when assigning a port for multicast streaming.

4. Specify on which of the ETH-MGMT and ETH-DATA ports you would like to allow streaming through RTSP sessions.



Note: You may select one, both, or neither of these ports, as desired.

Configuring Input-Level Feed Settings

Input-level configuration generally involves specifying the selected input STB's name and model. However, depending on how you configured the *Streaming mode* parameter in "Configuring Device-Level Feed Settings" on page 72, input-level configuration may additionally involve inputting Transport stream destinations.

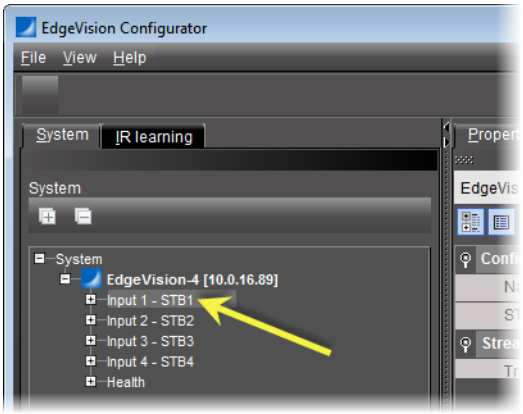
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

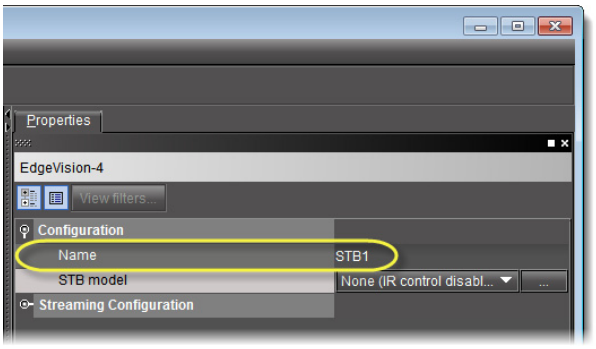
- You have opened *EdgeVision Configurator* (see page 55).
- Your device-level settings are configured (see page 72).

To configure input-level feed settings

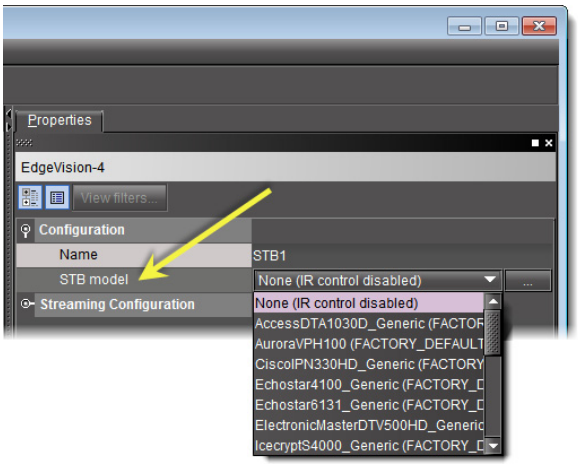
1. In *EdgeVision Configurator*, select the desired feed input in the **System** list.



2. Type a name for the input.



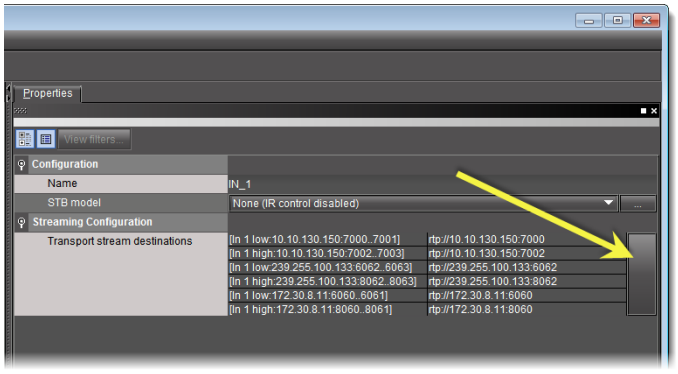
3. Select this input's STB model.



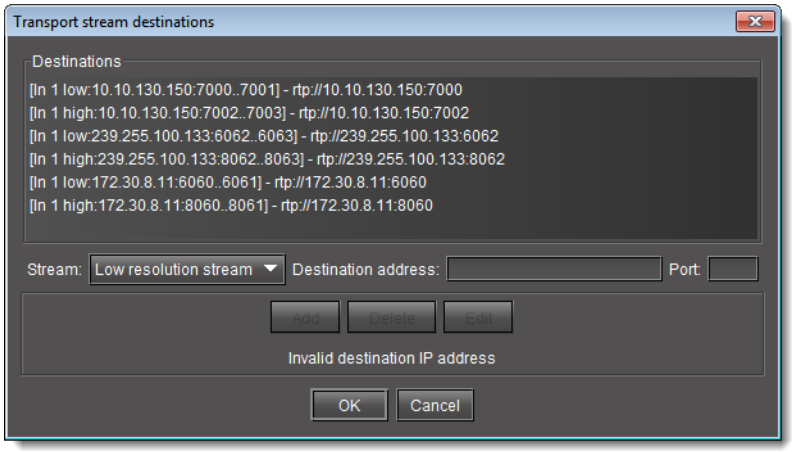
> **Note:** If your STB is not among the listed STB models, you may add a new STB (see "Configuring a Remote Control for an STB", on page 60).

4. If the *Streaming mode* parameter for this device is set to one of the Transport Stream options, perform the following sub-steps for each Transport stream destination you would like to configure:

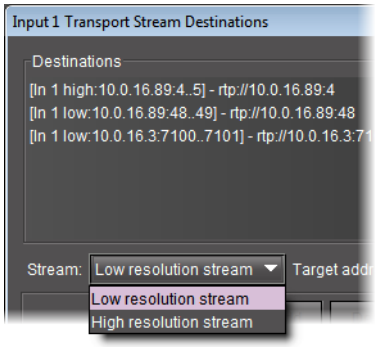
   a) Click the **Transport stream destinations** button.



SYSTEM RESPONSE: The **Input N Transport Stream Destinations** window appears.

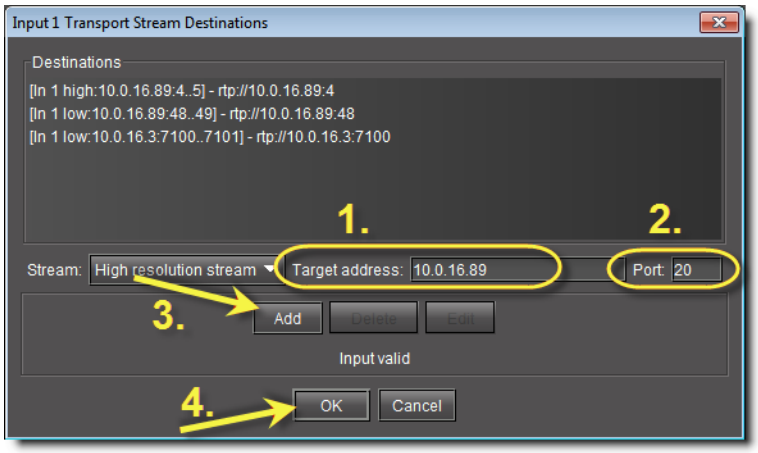


b) Specify the resolution of the feed you would like to stream to this destination.



c) Type an IP address and port number for the destination.

d) Click **Add** and then click **OK**.



Uploading a new Remote Configuration File

When you select a feed in *EdgeVision Player*, an interactive, graphic representation of the remote control can appear and allow you to change the channel, adjust the volume, etc. The EdgeVision device has a default collection of these configuration files, but you can also upload your own configuration files (in STB format) and associate them with an Input on the device.

> **Note:** If you wish to upload your own remote graphic to the device, you should contact Grass Valley Technologies Inc. to get a custom-made, fully-functional STB file that you can upload to the device and activate it through *EdgeVision Configurator*.

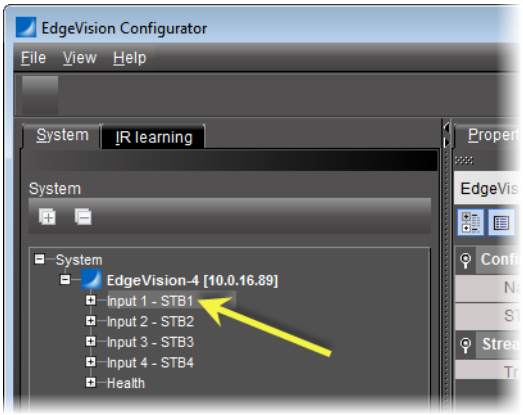
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

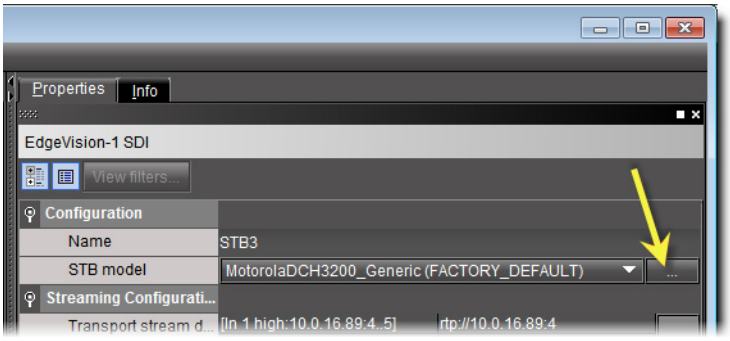
- *EdgeVision Configurator* is open (see page 55).
- You have a valid STB file available in your local file system.

To upload a remote configuration protocol

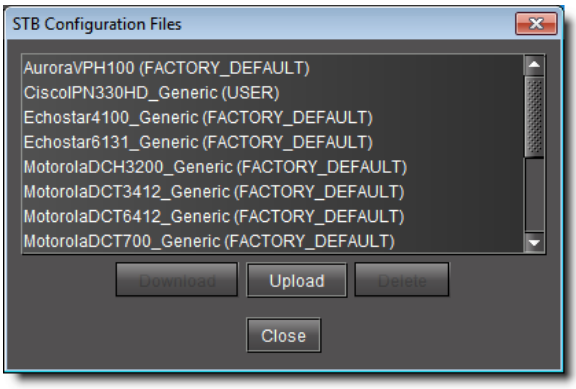
1. In *EdgeVision Configurator*, in the **System** list, select the input you wish to modify under the appropriate EdgeVision device.



2. Next to the **STB Model** field, click the **Upload** button [...].

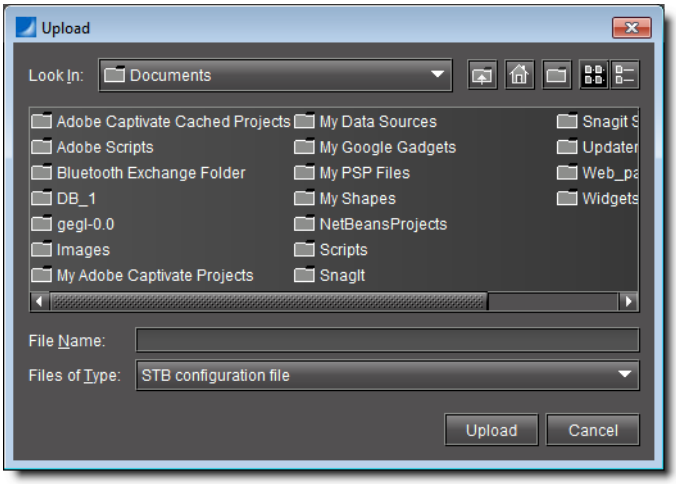


SYSTEM RESPONSE: The **STB Configuration Files** window appears.



3. Click **Upload**.

   SYSTEM RESPONSE: The **Upload** window appears.



4. Browse to the appropriate STB file, select it, and then click **Upload**.
5. In the **STB Configuration Files** window, scroll through the list to confirm the file was successfully uploaded.

   SYSTEM RESPONSE: The STB file is uploaded to the device and marked as `USER`, as opposed to the STB files that are preloaded onto the device and marked as `FACTORY_DEFAULT`

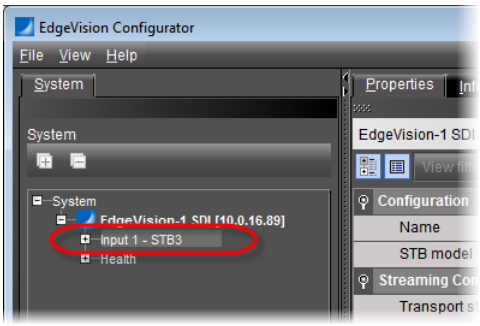
Downloading a Remote Configuration File from an EdgeVision Device

REQUIREMENT

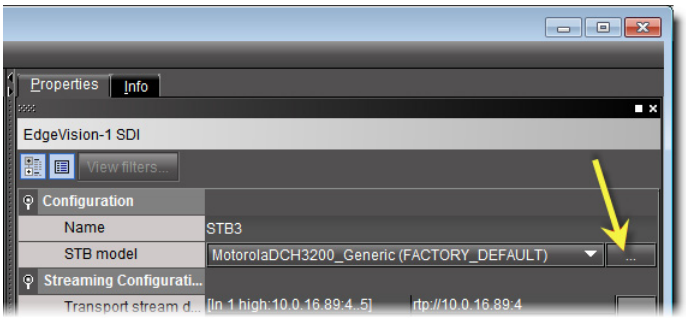
Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

To download a configuration file from an EdgeVision device

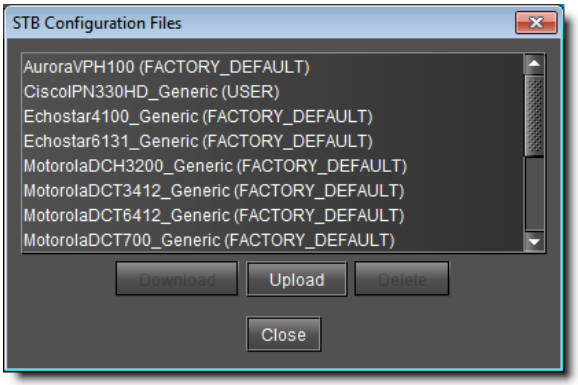
1. In *EdgeVision Configurator*, in the **System** list, select the input you wish to modify under the appropriate EdgeVision device.



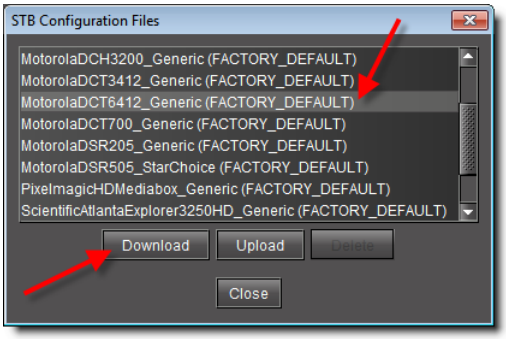
2. Next to the **STB Model** field, click the **STB Config File** button ....



SYSTEM RESPONSE: The **STB Configuration Files** window appears.

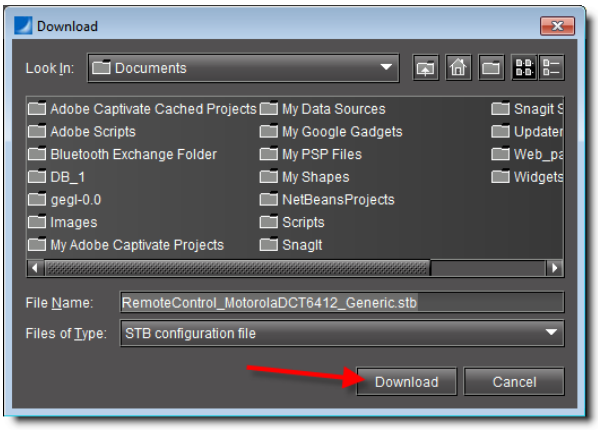


3. Select the STB file you would like to download, and then click **Download**.



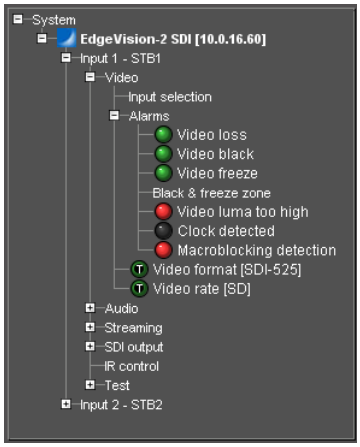
SYSTEM RESPONSE: The **Download** window appears.

4. Navigate to the desired location in your file system, and then click **Download**.



Selecting a Video Input

The Video Encoder settings allow you to define the type of video signal that passes through this Input as well as ensure that the video feed is valid and operational. These settings are used by the Video alarms to monitor the quality of the video signal (see "Configuring a Video Probe", on page 108).



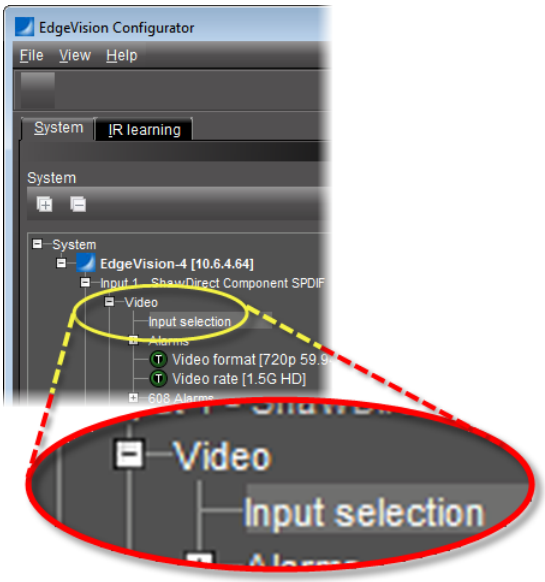
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

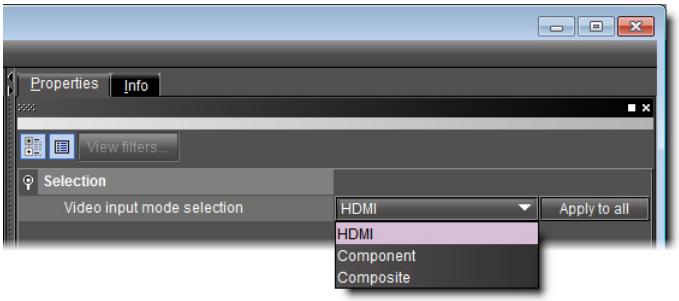
To select the video input

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | Video | Input selection`



2. In the right pane, on the **Properties** tab, select a video input mode.



Choose from among **HDMI**, **Component**, and **Composite**.

SYSTEM RESPONSE: The parameters for that protocol will appear in the **Video format** and the **Video rate** fields in both *EdgeVision Configurator* and *EdgeVision Player*.

Configuring Audio Settings

The Audio Encoder settings allow you to define the type of audio signal that passes through this Input, as well as ensure that the audio feed is valid. These settings are used by the Audio alarms to monitor the quality of the audio signal (see "Configuring Audio Probe Alarms", on page 117).

There are four audio inputs per Input and each set of alarms must be configured separately.

Selecting the Audio Input

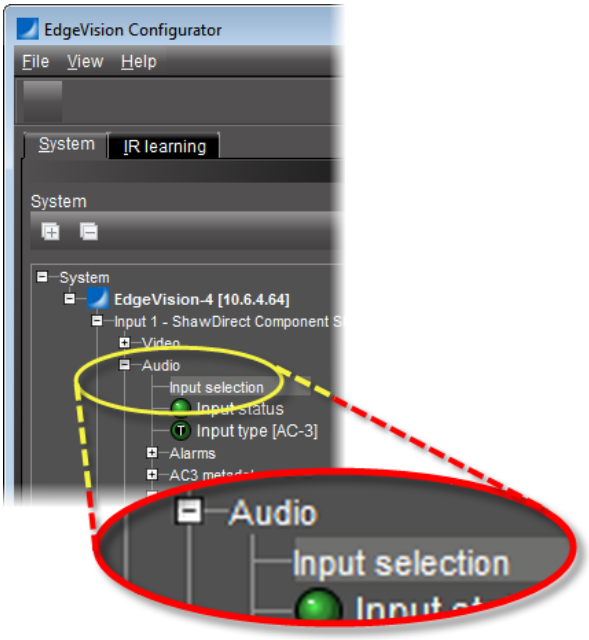
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

To select the audio input

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | Audio | Input selection`



2. In the right pane, on the **Properties** tab, select an audio input mode. Your choices are:
   - **HDMI (AC3/PCM)**: a High-Definition Multimedia Interface is a compact audio/video interface for transmitting uncompressed digital data.
   - **S/PDIF (AC3/PCM)**: the Sony/Philips Digital Interconnect Format is a layer protocol that carries digital audio signals
   - **Analog**: the audio is split into the two main channels of left and right

Viewing Loudness Monitoring Parameters

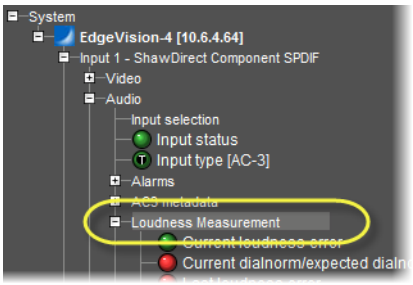
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

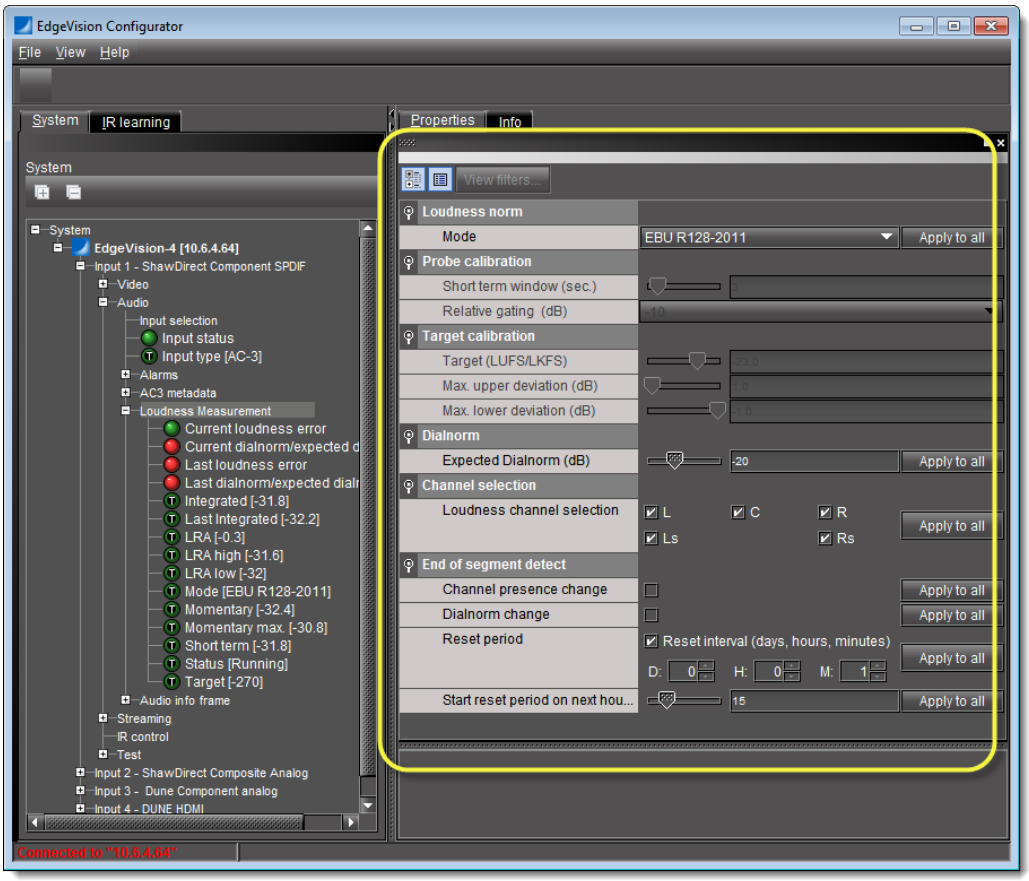
To view current loudness monitoring parameters

- In *EdgeVision Configurator*, on the left pane, select **Loudness Measurement** at the following location:

  `System | <desired EdgeVision device> | <desired input port> | Audio | Loudness Measurement`



SYSTEM RESPONSE: The right pane is populated with the current loudness measurement settings.



Loudness Measurement Configuration Window

EdgeVision Configurator allows you to configure loudness measurement settings in the **Loudness Measurement** window.

> **Note:** As described in the procedure "Viewing Loudness Monitoring Parameters" on page 82, you must make sure you select **Loudness Measurement** (and not the alarms or statuses within it) in order to see currently configured loudness measurement settings.

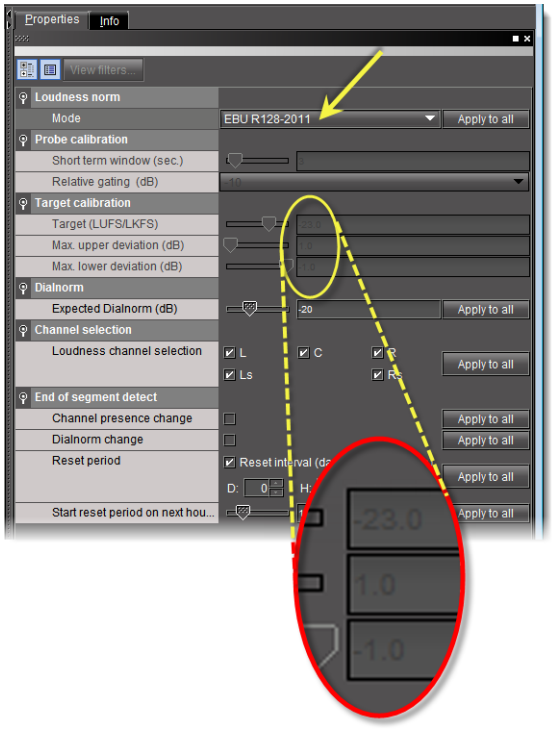


*Figure 4-9: Loudness Measurement parameters — **EBU R120-2011** mode chosen to measure loudness*

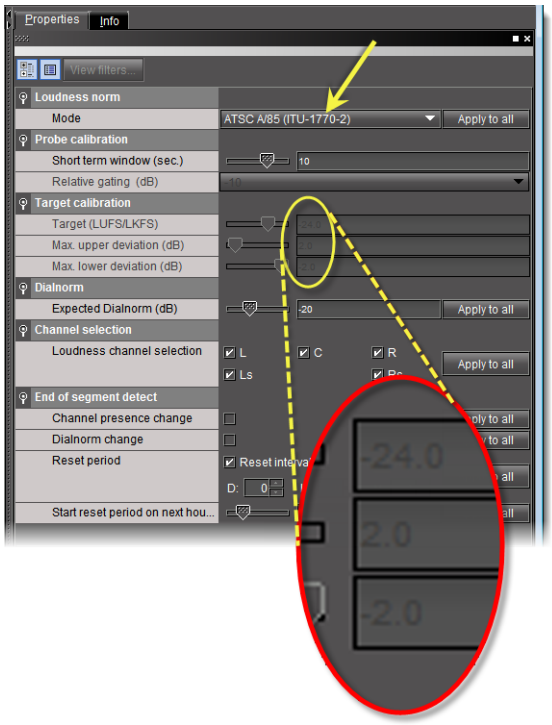


*Figure 4-10: Loudness Measurement parameters — **ATSC A/85 (ITU-1770-2)** mode chosen to measure loudness*

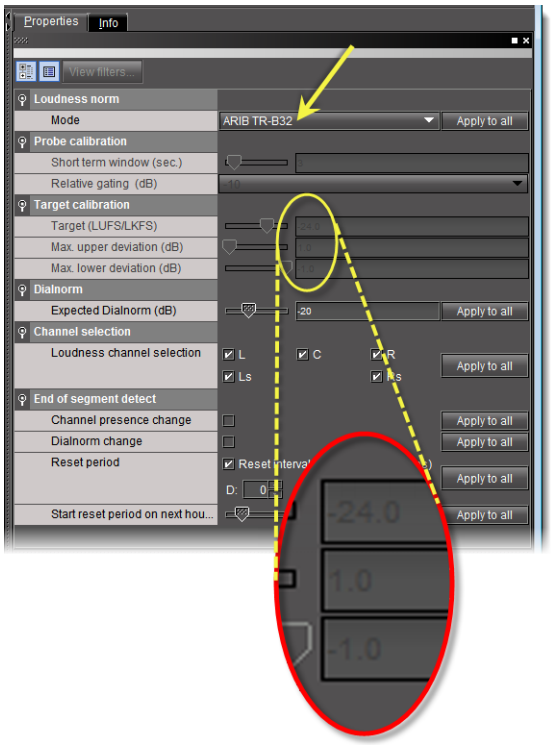


*Figure 4-11: Loudness Measurement parameters — **ARIB TR-B32** mode chosen to measure loudness*

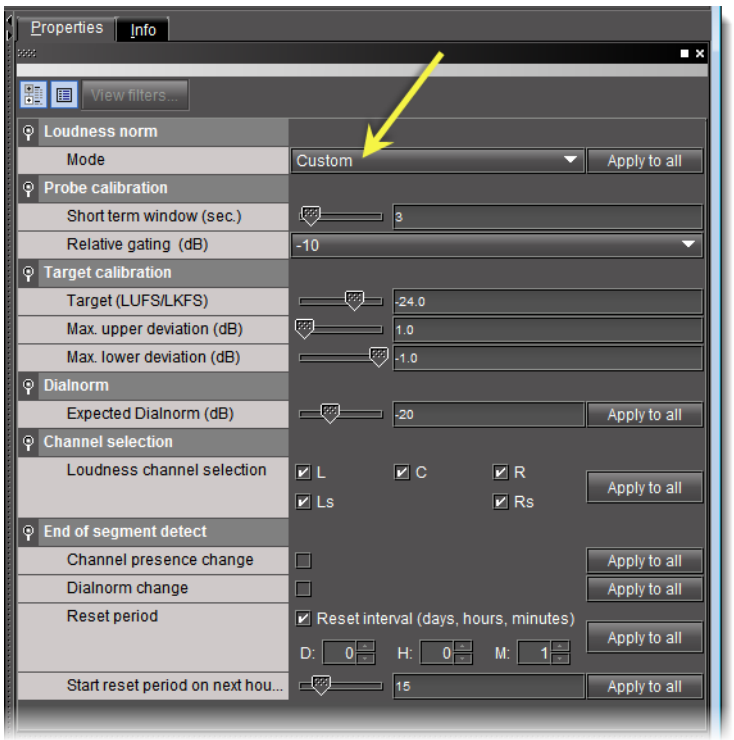


*Figure 4-12: Loudness Measurement parameters — **Custom** mode chosen to measure loudness*

Table 4-8:

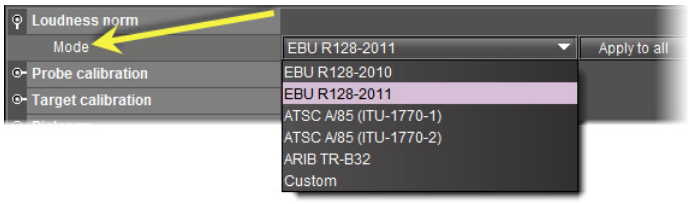
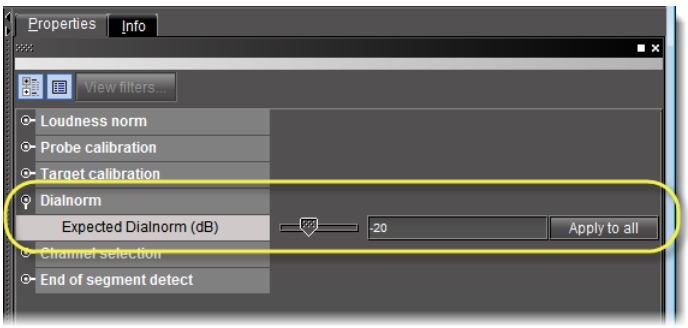
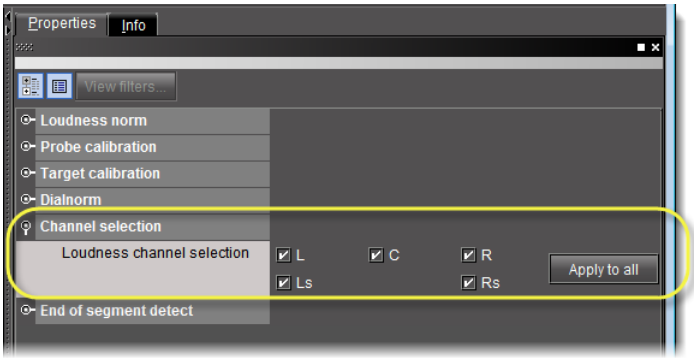
To do this...	...do this...
*--- Tasks relevant to **ALL** loudness modes ---*	
Set the loudness mode.	In the **Loudness norm > Mode** area, select one of the following options: • **EBU R128-2010** • **EBU R128-2011** • **ATSC A/85 (ITU-1770-1)** • **ATSC A/85 (ITU-1770-2)** • **ARIB TR-B32** • **Custom**  Please see page 43 for more information about loudness mode and see page 45 for information about EdgeVision's preset loudness modes.
Set the expected dialog normalization level (*dialnorm*), given the chosen loudness mode.	In the **Dialnorm** area, use the slider to set the expected dialnorm value for the Integrated (segment-length) time scale. 
Set the EBU channel number and selection.	In the **Channel selection** area, select and clear, as required, the channels you would like to include in the loudness measurement. 

Table 4-8: (*Continued*)

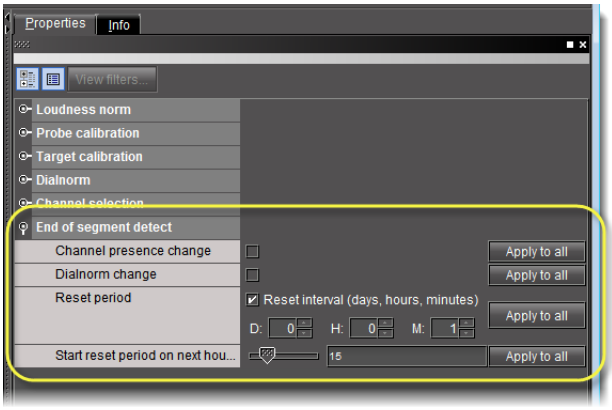
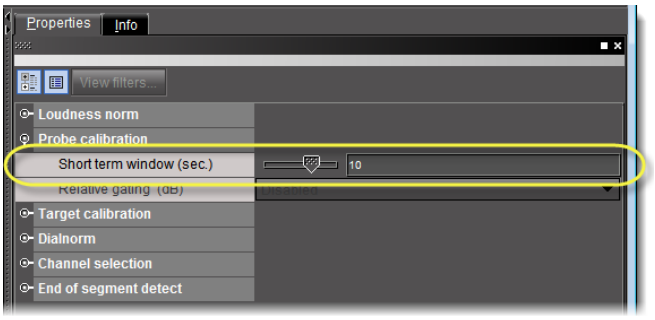
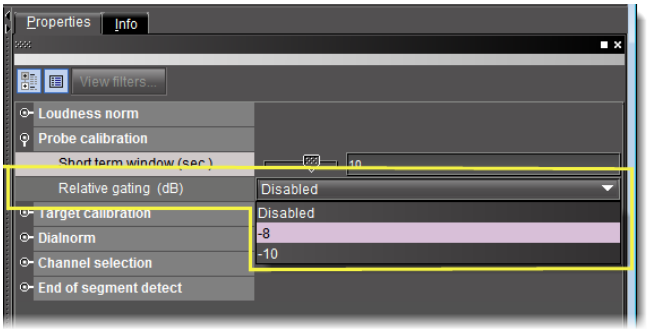
To do this...	...do this...
Set the end-of-segment detection parameters.	In the **End of segment detect** area, select or clear, as required, the checkboxes indicating: • the triggers for resetting the automatic integrated loudness measurment • the reset time period ending the segment detection activity • the start reset period countdown timer 
*--- Loudness mode set to, **ATSC A/85 (ITU-1770-1)** or **ATSC A/85 (ITU-1770-2)** or **Custom** ---*	
Set the short-term window parameter for the probe	In the **Probe calibration** area, use the slider to set the short-term window. 
*--- Loudness mode set to **Custom** ---*	
Set the probe's relative gating level.	In the **Probe calibration** area, select the relative gating level. 

Table 4-8: (*Continued*)

To do this...	...do this...
Calibrate the target.	1. In the **Target calibration** area, use the slider to set the absolute target level (LUFS/LKFS). 2. Use the slider to set the upper deviation threshold for loudness (dB). 3. Use the slider to set the lower deviation threshold for loudness (dB). 

See also

For more information about:

- loudness measurement, see page 43.
- AC3 (Dolby Digital) audio format, see "Dolby AC3", on page 46.

Configuring Streaming Video Settings

EdgeVision provides video encoding and streaming of selected Inputs and uses H.264 for video compression. Two independent video encoders are available for each EdgeVision input, one generating a lower resolution bit rate and a second generating a higher resolution and bit rate stream.

Streaming video contains a sequence of images that are compressed, sent over an IP network and displayed in a player. *EdgeVision Player* decompresses the images and plays the video.

The streaming video encoder settings allow you to define the resolution, bitrate, encoding (multiplexing) method (VBR or CBR), and stream quality for the streaming video feed.

See also

For more information about video streaming considerations, see "Configuration Considerations when Streaming Video", on page 49.

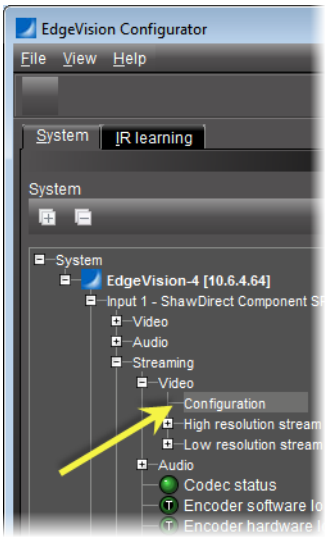
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

To define an Input's streaming video encoder settings

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

`System | <EdgeVision device> | <desired input> | Streaming | Video | Configuration`



2. In the right pane, select the resolution level for a high resolution stream.

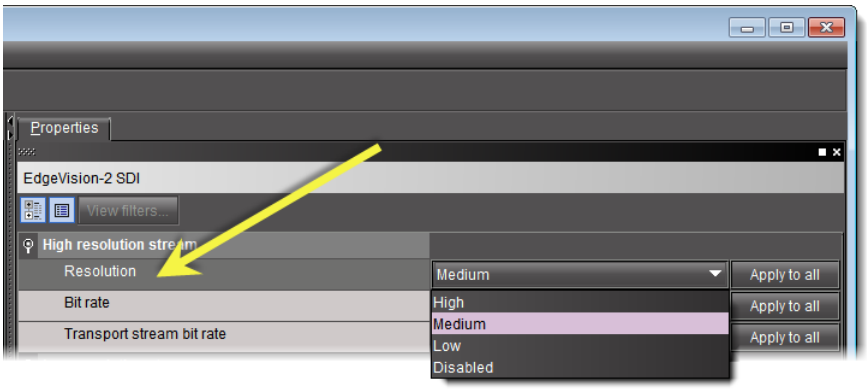


Table 4-9: High resolution stream options

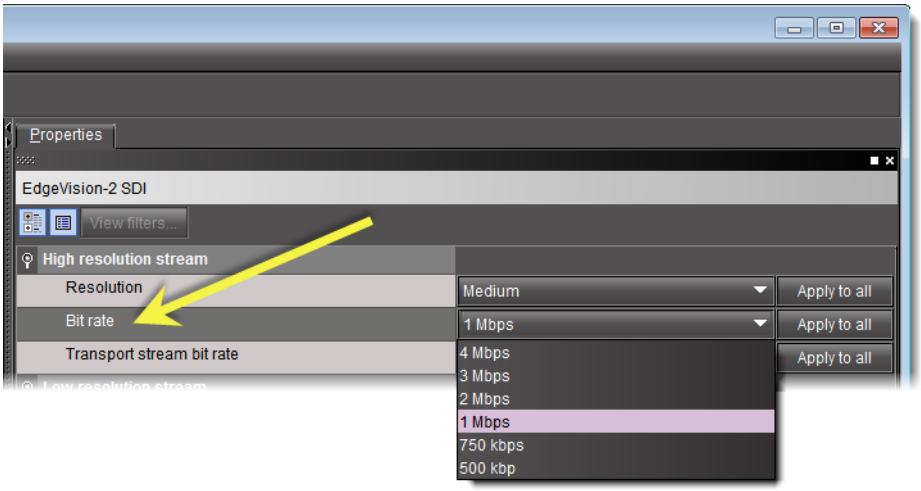
Input Format	Resolution
1080p	**High**: 1920 × 1080 **Medium**: 1440 × 800 **Low**: 960 × 540
1080i	**High**: 1920 × 1080 **Medium**: 1440 × 800 **Low**: 960 × 540
720p	**High**: 1280 × 720 **Medium**: 960 × 720 **Low**: 960 × 540

Table 4-9: High resolution stream options (*Continued*)

Input Format	Resolution
480i	**High**: 720 × 480 **Medium**: 544 × 480 **Low**: 352 × 480
576i	**High**: 720 × 576 **Medium**: 544 × 576 **Low**: 352 × 576

The high resolution stream setting performs advanced monitoring of the quality of the video signal.

3. Select the targeted bit rate for the high resolution stream.



IMPORTANT: Some targeted bit rates may not be achievable

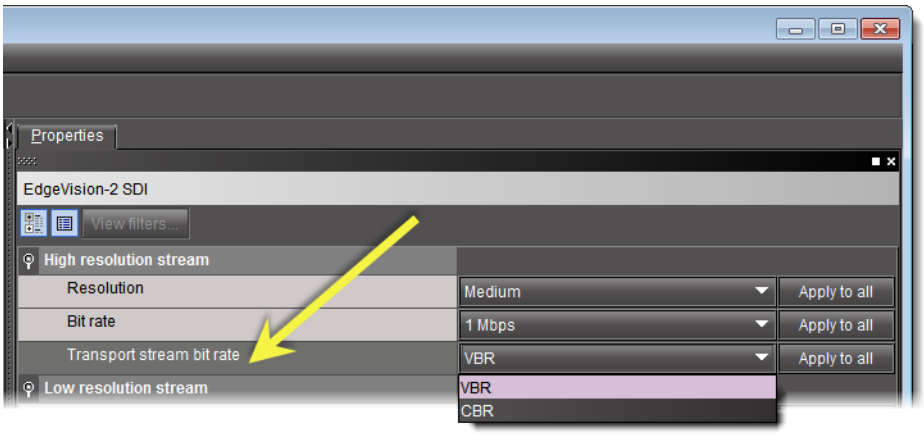
In most cases, the configured bit rate will be respected. However, there are some extreme cases where it is impossible to achieve the target.

For example, you may have a high resolution 1080p stream at 1920×1080 with a configured bit rate of 500kbps. In this case, the encoder may not be able to compress the stream to fit so low a bit rate. The bit rate is a target, not an absolute.

4. Select the high resolution stream multiplexing mode.

IMPORTANT: 720p VBR streaming incompatible with downstream IRD

If your EdgeVision is outputting a 720p stream in *VBR* mode, a downstream IRD will be unable to decode the stream properly. It is possible, however, to issue a 720p stream in *CBR* mode from an EdgeVision provided you configure the output of a downstream IRD to **SD** (and *NOT* **As input** or **720p**).



High resolution TS streaming mode

Streaming mode	Description
VBR (default)	**variable bit rate:** The TS output stream's bit rate varies to the degree that it varies in the Elementary stream (ES) input. VBR streams can be bursty and may overflow the input buffer of certain hardware decoders.
CBR	**constant bit rate:** In EdgeVision's conversion from VBR to CBR, the resulting CBR stream spreads out payload packets, separating them with null (*filler*) packets. The addition of null packets increases the overall required bandwidth but eliminates the peak data bursts sometimes seen in VBR streams.[1]

1. Grass Valley recommends selecting the **VBR** default unless and until you observe aberrant behavior in the output stream of a hardware decoder downstream of your EdgeVision device (described in "Configuration Considerations when Streaming Video" on page 49).

IMPORTANT: Danger of overloading stream encoding

There are limitations to streaming related to combining certain resolutions that may lead to an overload. This, in turn, may lead to a loss of the streams and an unresponsiveness in communication to the EdgeVision unit. More specifically, an overload will occur if the aggregate of the streams being encoded by EdgeVision at any given time exceeds a maximum level of _____.

5. Select the encoder level for a low resolution stream.

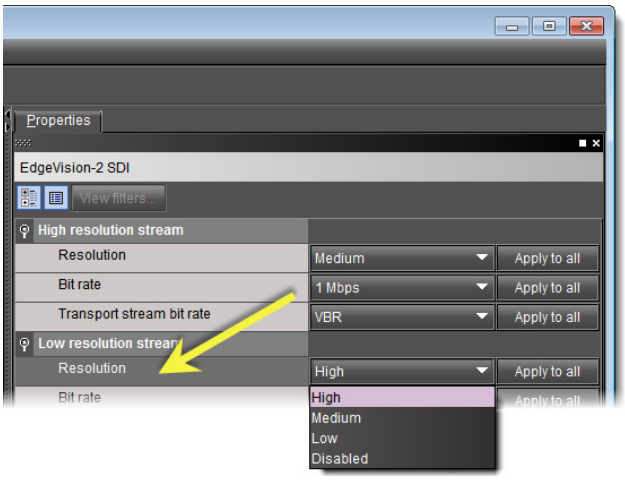
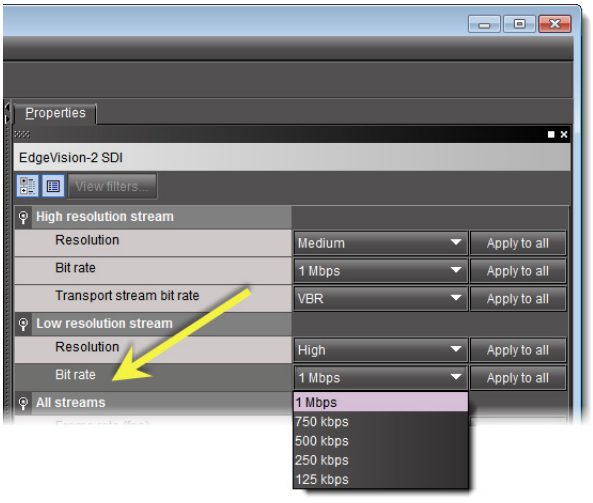


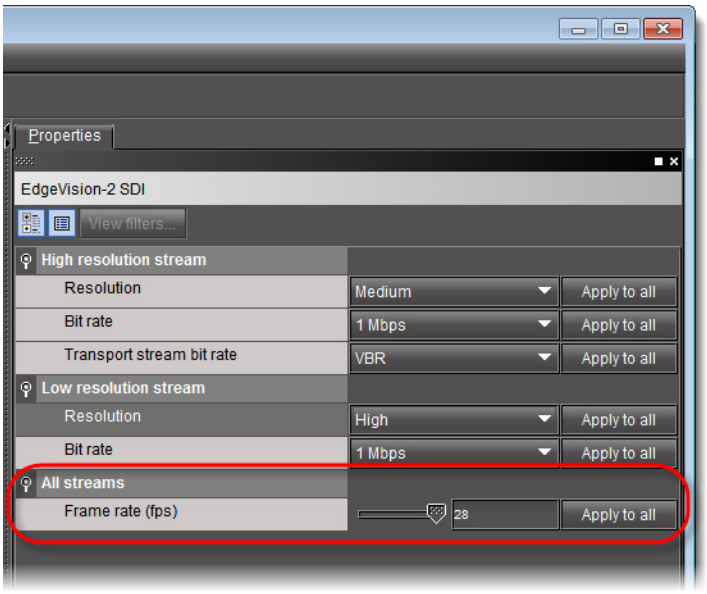
Table 4-10: Low resolution stream options

Interlace Level	Resolution
1080p, 1080i, 720p	**High**: 480 × 272 **Medium**: 480 × 272 **Low**: 256 × 144
480i	**High**: 352 × 240 **Medium**: 352 × 240 **Low**: 176 × 120 @ 25
576i	**High**: 352 × 288 **Medium**: 352 × 288 **Low**: 176 × 144

6. Select the targeted bit rate for the low resolution stream.



7. Use the **Frame rate** slider to set the frame rate for the video feed.



Configuring Audio Output Settings

Configuring Encoding Settings for PCM Audio

REQUIREMENTS

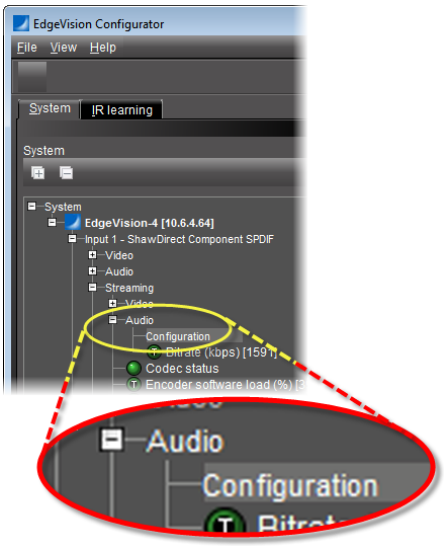
Make sure you meet the following conditions before beginning this procedure:

- *EdgeVision Configurator* is open (see page 55).
- **[RECOMMENDED]** You are performing this procedure within the context of an approved workflow (see page 52)

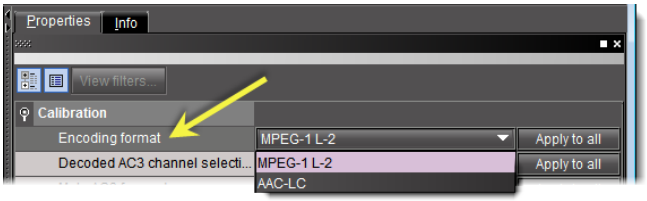
To configure encoding settings for PCM audio

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | Streaming | Audio | Configuration`



2. In the right pane, on the **Properties** tab, select an encoding format.

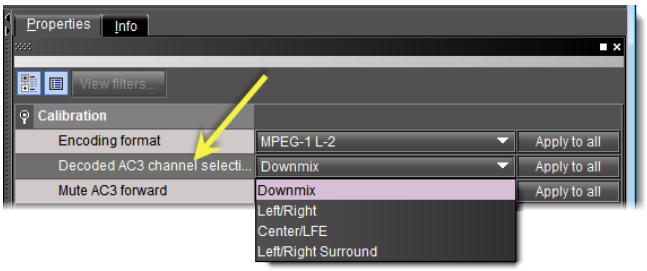


> **Note:** The *Encoding format* parameter is only applicable if you are **NOT** forwarding AC3 audio.

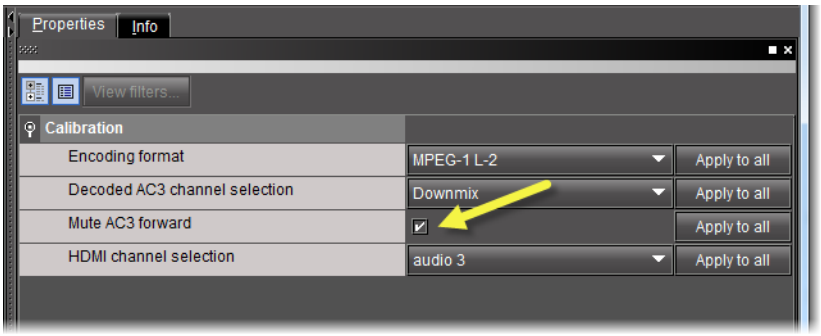
Table 4-11: Encoding format options

Encoding format	Description
MPEG-1 L-2 (aka MP2)	A lossy audio compression format which is the standard format for audio broadcasting.
AAC-LC	The standardized, lossy compression and encoding scheme for digital audio. AAC ensures a higher quality sound than MP3 with similar bit rates.

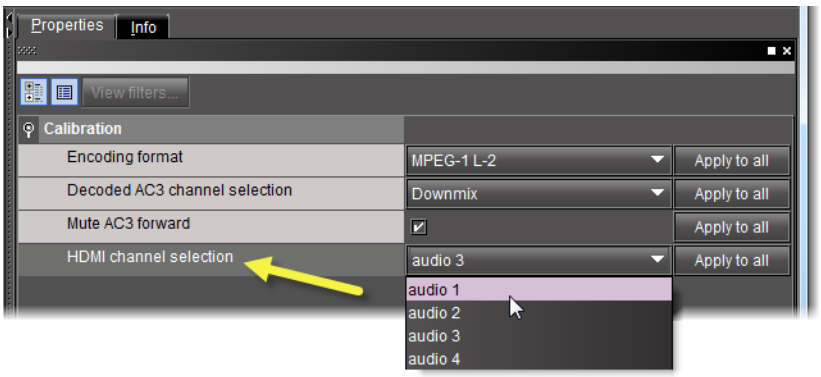
3. Select either the downmix output or an AC3 channel pairing to stream.



4. Select or clear, according to your needs, the **Mute AC3 forward** checkbox.



5. Select an audio pair to stream.



See also

For more information about:

- the AC3 (also known as Dolby Digital) audio format and how EdgeVision supports it, see "Dolby AC3", on page 46
- EdgeVision's AC3 downmix process, see:
  - "AC3 Metadata" on page 46.
  - "Configuring Audio Output Settings" on page 93.

Processing AC-3 Audio

EdgeVision can take an AC-3 audio input and output either a forwarded (undecoded) AC-3 or else output a decoded AC-3 audio. Other output options include outputting a forwarded AC-3 stream or a forwarded AC-3 over HD-SDI output. Additionally, you may choose the outputted encoding format (for decoded audio) as well as being able to map the outputted channel lineup (please see the graphical representation of the audio processing options in see Figure 4-3, on page 52).

Forwarding AC3 Audio

You can forward AC3 audio to an SDI-OUT port or to a streaming output with no decoding of the AC3 audio by performing the following procedure.

Note: If you are in *AC3 forward* mode, the decoded AC3 channel line-up settings for the SDI-OUT are ignored.

REQUIREMENTS

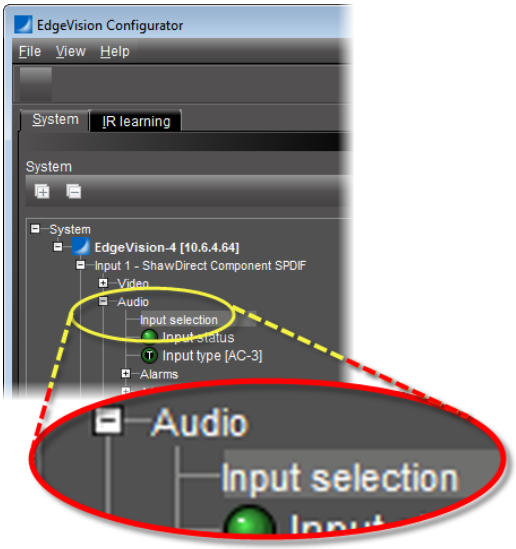
Make sure you meet the following conditions before beginning this procedure:

- *EdgeVision Configurator* is open (see page 55).
- **[RECOMMENDED]** You are performing this procedure within the context of an approved workflow (see page 52)

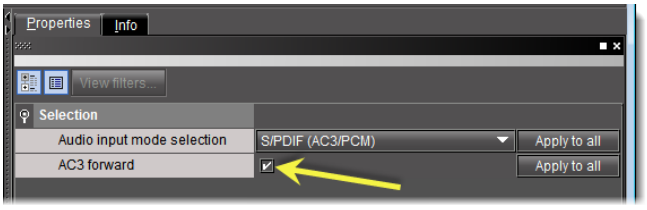
To forward AC3 audio

1. In *EdgeVision Configurator*, in the **System** list, navigate to and select:

   `System | <EdgeVision device> | <desired input> | Audio | Input selection`



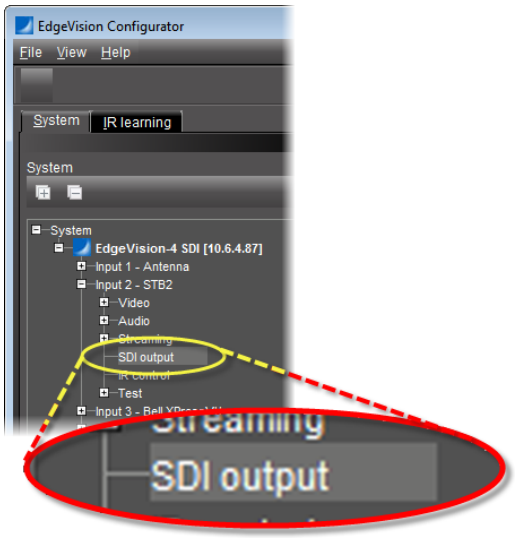
2. On the right pane, on the **Properties** tab, select **AC3 forward**.



3. If you would like to forward the AC-3 to an SDI output, perform the following sub-steps:

   a) On the left pane, navigate to and select:

   `System | <EdgeVision device> | <desired input> | SDI output`

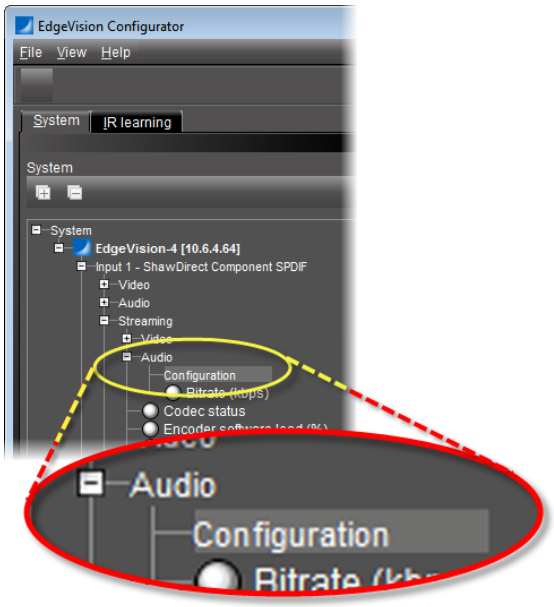


b) On the right pane, on the **Properties** tab, select the **Enable SDI out** checkbox.

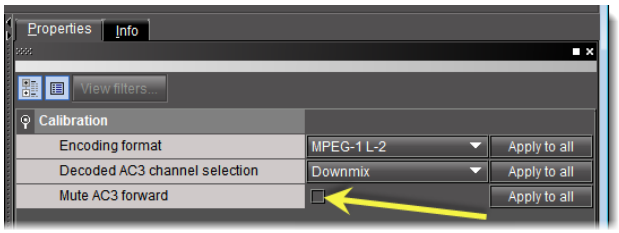
4. If you would like to forward the AC-3 to a streaming output, perform the following sub-steps:

   a) On the left pane, navigate to and select:

   `System | <EdgeVision device> | <desired input> | Streaming | Audio | Configuration`



b) On the right pane, on the **Properties** tab, clear the **Mute AC3 forward** checkbox.



Decoding AC3 Audio

Part of configuring your AC-3 decoding settings involves configuring how EdgeVision re-encodes AC-3 audio before output. Currently, only two channels can be streamed from an AC3 bit stream. You can choose from among three preset selections, one of the preset groupings of two of the AC3 channels, or you can choose to stream the downmix output. The list of available preset channel pairings for streaming are as follows:

- Downmix (could be **L_T/R_T** or **L_O/R_O**, depending on how you configured your downmix)
- Left / Right
- Center / LFE
- Left Surround / Right Surround

EdgeVision supports both MPEG-1 Layer 2 (also known as MP2) and AAC-LC audio compression.

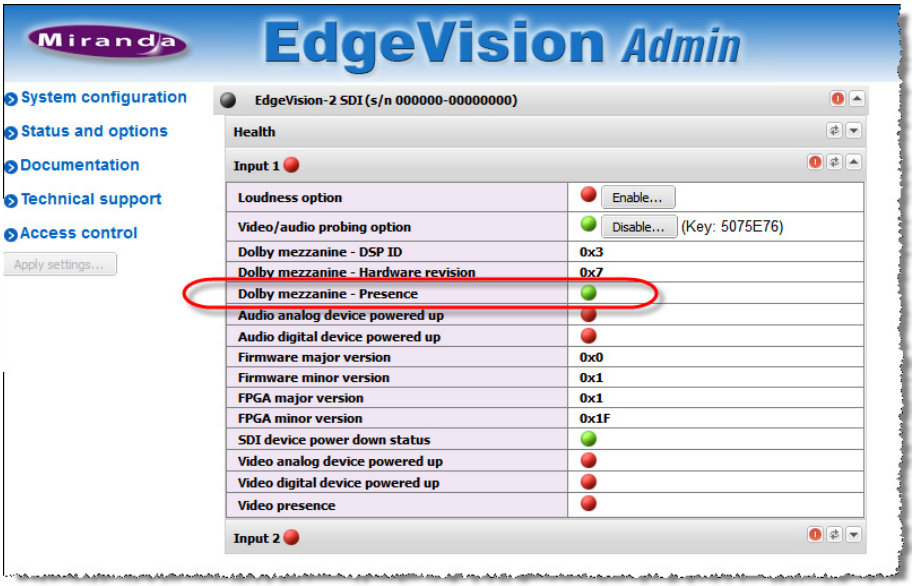
REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- You have purchased and enabled the *Video/audio probing* option. Contact Grass Valley Technical Support for more information (see "Contact Us", on page 127).
- The media player is feeding an AC3 signal to your EdgeVision (see the operating instructions for your media player).
- You have opened *EdgeVision Configurator* (see page 55).
- In a Web browser, you have opened the EdgeVision Admin page (see page 12).
- **[RECOMMENDED]** You are performing this procedure within the context of an approved workflow (see page 52)

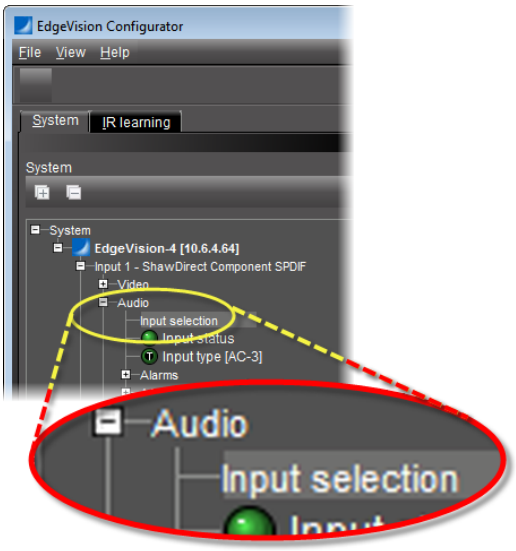
To decode AC3 audio

1. In your Web browser, on the EdgeVision Admin page, verify the Dolby mezzanine card is present in your EdgeVision device under the appropriate input.



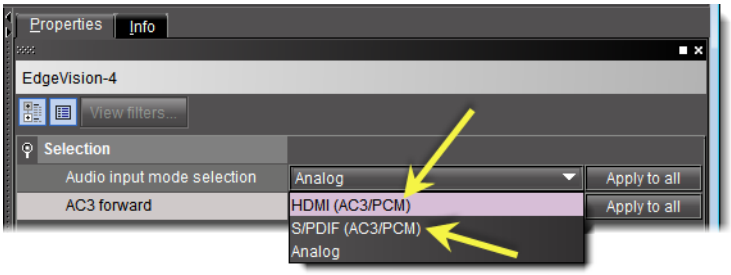
2. In *EdgeVision Configurator*, in the **System list**, navigate to:

   `System | <EdgeVision device> | <desired input> | Audio | Input selection`

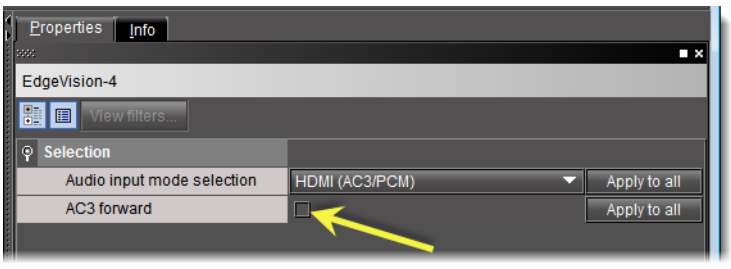


3. On the right pane, in the **Audio input mode selection** list, select one of the following two options, as required:
   - **HDMI (AC3/PCM)**

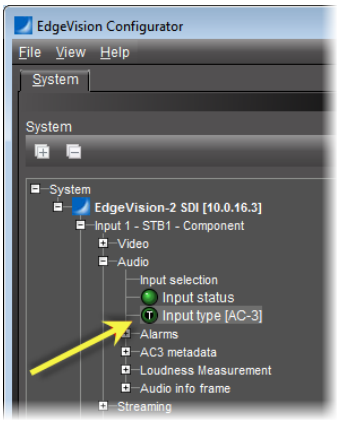
     OR,
   - **S/PDIF (AC3/PCM)**



4. Clear the **AC3 forward** checkbox.



5. Verify the input type indicates **AC3**.



IMPORTANT: In order to output the decoded AC-3 audio from the EdgeVision unit, you must also configure audio encoding. Make sure you consult see Figure 4-3, on page 52 to situate the procedure you have just completed within the larger supported workflow.

Configuring the SDI Output

SDI (Serial Digital Interface) is the primary digital format connection standard in the professional broadcast industry for high-quality equipment. It carries everything (video, audio, and time code) over one cable with a bandwidth of nearly 1.5 gigabits per second, allowing for raw HD output in real time without compression. SDI is ideal for live feed productions and editing.

The SDI Output settings allow you to define the type of audio signal that is output for this Input feed, as well as ensure that the SDI output audio feed is valid. These settings are used by the SDI output alarms to monitor the quality of the SDI output (see "Configuring SDI Output Probe Alarms", on page 119).

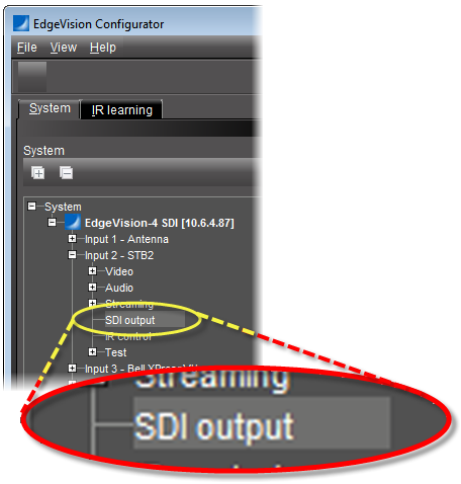
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

To configure the SDI Output settings

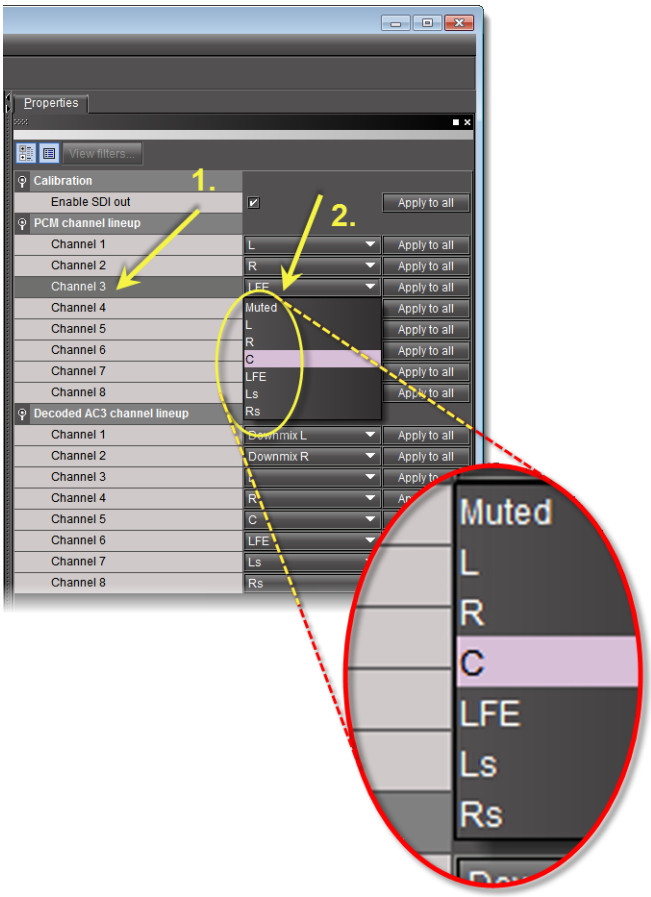
1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | SDI output`



2. In the right pane, on the **Properties** tab, select **Enable SDI out** to allow the feed to be output via the SDI output connector. Clear this box to prevent the feed from outputting via SDI.

3. Examine the channel lineup.
4. If you would like to change the channel lineup, select the desired channel assignment from the list on the first channel whose assignment you would like to change.



5. Repeat step 4 for each channel requiring an assignment change.

IMPORTANT: System behavior

- If your system is generating an audio test tone, the decoded channel line-up settings for the SDI-OUT are ignored.
- If you are in *AC3 forward* mode, the AC3 channel line-up settings for the SDI-OUT are ignored.

Configuring the Infrared Control

The IR Control field allows you to specify if the Infrared controller uses an electrical connection or an optical connection to transmit the remote control commands.

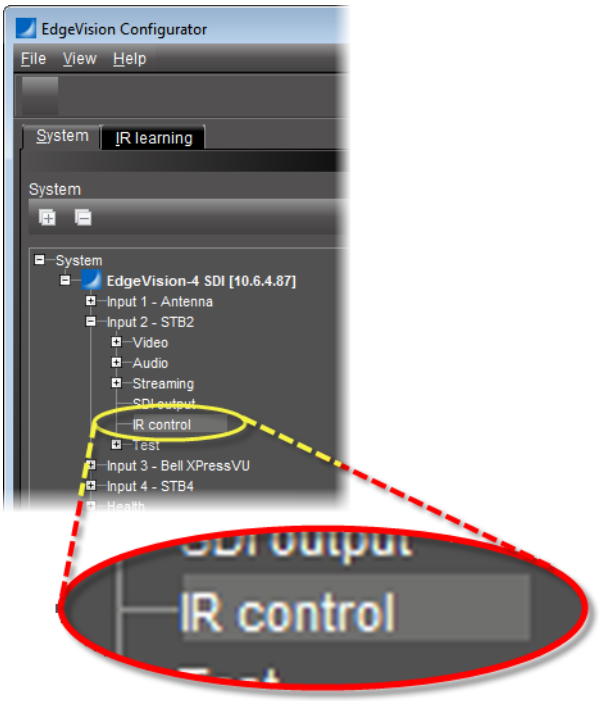
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

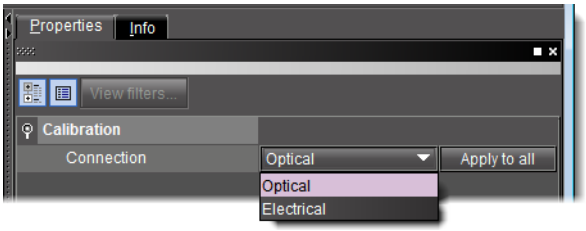
To configure the IR (infrared) Control

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | IR control`



2. In the right pane, on the **Properties** tab, select the IR connection type.



Configuring the Test Mode

The Test mode allows you to generate a video test image and audio tone to test the quality of the video/audio signal. The Video Pattern Generator displays the standard color bar image, while the Audio Tone Generator plays a single tone.

When you enable the Video Pattern Generator, the video feed for this preview screen is replaced by a Video Test Pattern.

If you disable it, the video feed assigned to this Input will display again.

Notes

- If no input signals are present, the video Test pattern appears automatically.
- If your system is generating an audio test tone, the PCM channel line-up settings for the SDI-OUT are ignored.

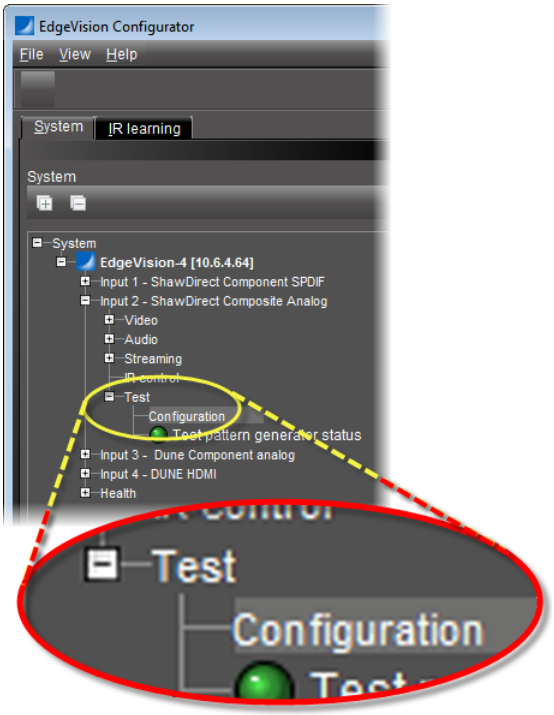
REQUIREMENT

Before beginning this procedure, make sure *EdgeVision Configurator* is open (see page 55).

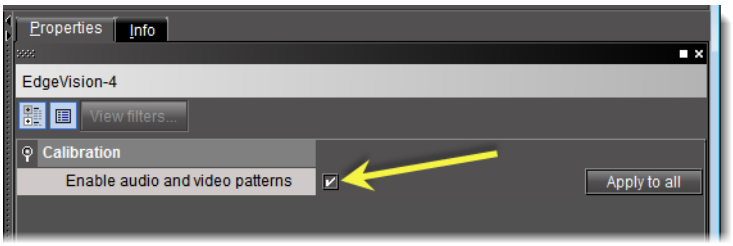
To configure the Test mode

1. In *EdgeVision Configurator*, in the **System** list, navigate to:

   `System | <EdgeVision device> | <desired input> | Test | Configuration`



2. In the right pane, on the **Properties** tab, select **Enable audio and video patterns** to display an image and play a tone, respectively, when the video and audio signals are functioning.

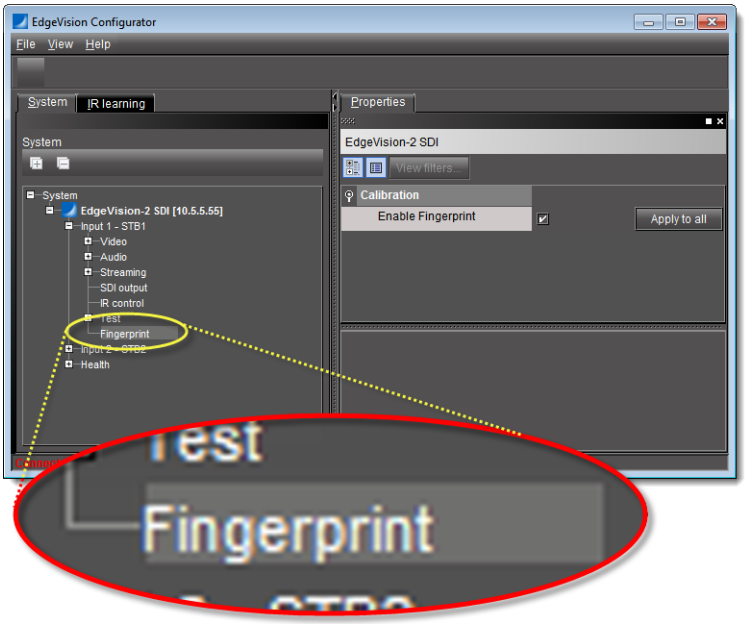


Note: When this box is cleared, no video image is displayed and no audio tone is played.

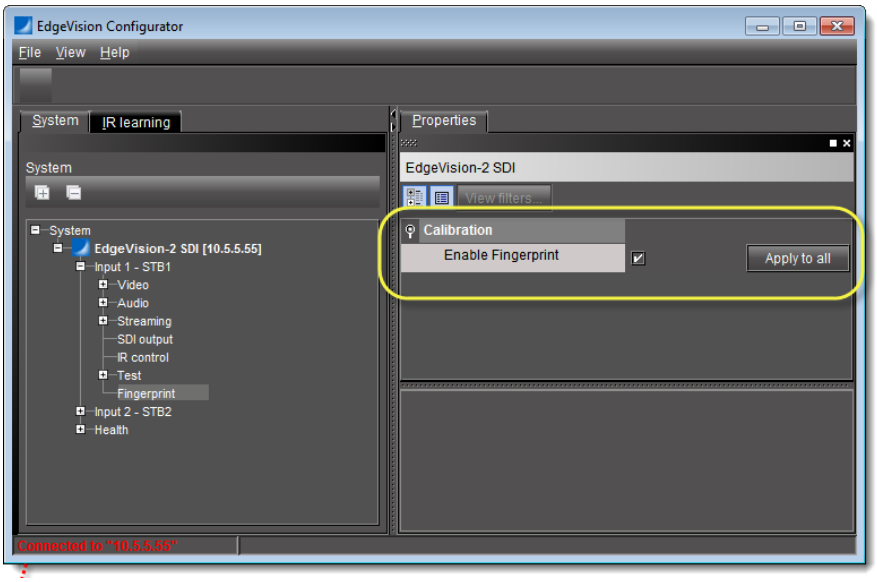
Enabling and Disabling Fingerprinting in EdgeVision

To enable or disable fingerprinting

1. In *EdgeVision Configurator*, on the **System** tab, expand the collapsed logical groupings down to the input level for the input whose fingerprinting you would like to enable or disable.
2. Select **Fingerprint**.



In the **Properties** pane, on the right, you can enable or disable fingerprinting as required.



SYSTEM RESPONSE: In iControl's *Audio Video Fingerprint Analyzer*, fingerprint-generating EdgeVision devices appear as in the following screen captures:

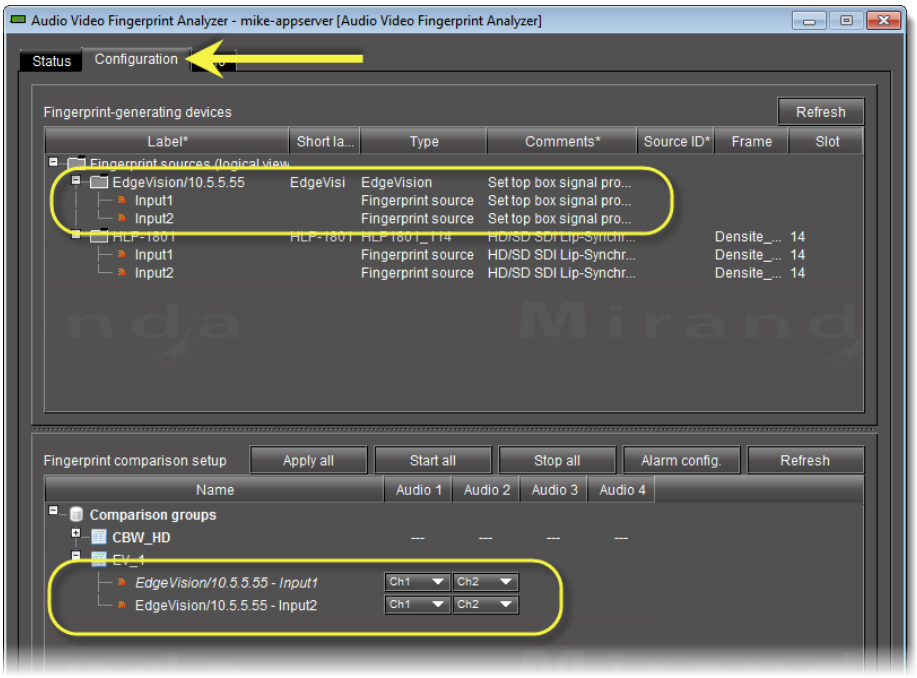


Figure 4-13: EdgeVision-generated Fingerprint sources as seen from Configuration tab of iControl's Audio Video Fingerprint Analyzer

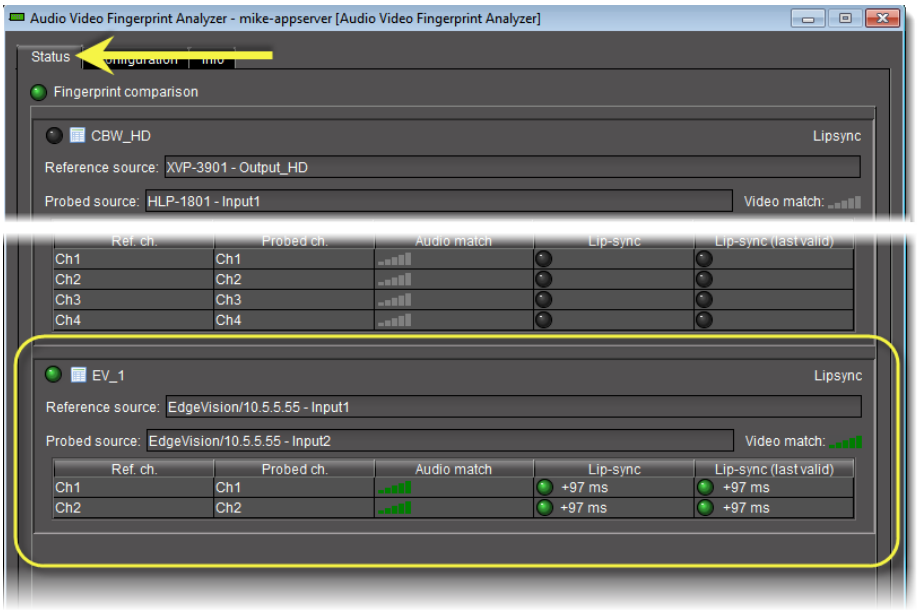


Figure 4-14: EdgeVision-generated Fingerprint analysis as seen from Status tab of iControl's Audio Video Fingerprint Analyzer

See also

For more information, see:

- the "Fingerprint Comparison and Analysis" chapter of the *iControl User Guide*
- "EdgeVision-Generated Fingerprints" on page 49

Configuring Feed Alarms

Note: By default, most alarms are disabled except for the following:

- **Video loss** (found in Input #, Video, Alarms)
- [Audio] **Input status** (found in Input #, Audio)
- **Codec status** (found in Input #, Streaming)
- **Enable SDI out** (found in Input #, SDI output)
- **Fan A/B status** (found in Health)
- **Optional power supply B status** (found in Health)
- **Temperature front** (found in Health)
- **Temperature front status** (found in Health)
- **Temperature rear** (found in Health)
- **Temperature rear status** (found in Health)

Configuring a Video Probe

The Video Encoder settings for an Input allows you to configure the various video-based alarms that monitor the efficiency and validity of the video signal, as well as that it conforms to

the video protocol selected in **Video**, **Input selection** (see "Selecting a Video Input", on page 80).

While you can simply enable some of these alarms, other alarms require further configuration to define thresholds.

To configure video probe alarms

1. Configure the *Video format* alarm.

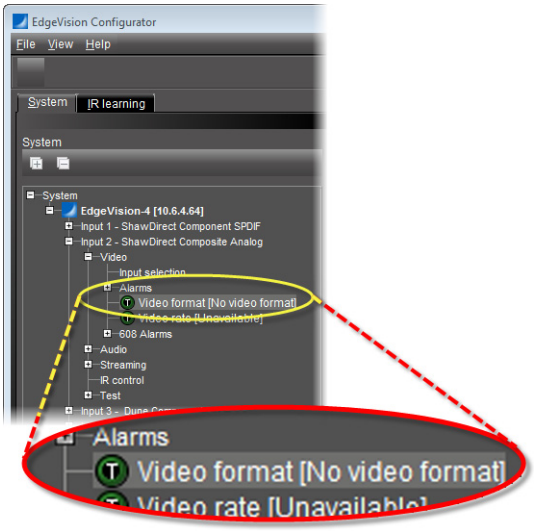


Table 4-12: Video format alarm parameters

Parameter	Description
Enabled	When enabled, this displays the detected format of the selected video input. When disabled, the video format information will not be displayed.
Logging enabled	When enabled, the detected video formats are recorded and available via an iControl alarm log.

2. Configure the *Video Rate* alarm.

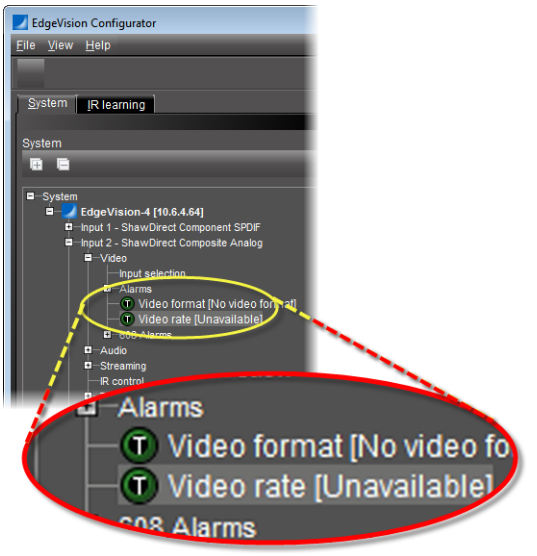


Table 4-13: Video rate alarm parameters

Parameter	Description
Enabled	When enabled, it will indicate the detected rate of the selected video input. When disabled, the video rate information will not be displayed.
Logging enabled	When enabled, the detected video rates are recorded and available via an iControl alarm log.

3. Configure the *Video probe* alarms.

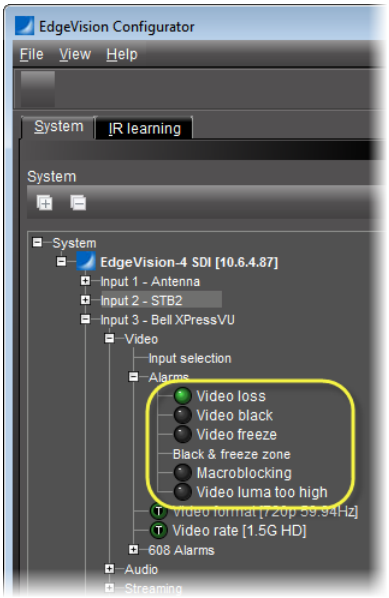


Table 4-14: Video Probe Alarms

Alarm	Description
Video loss	Detects if there is a loss of video signal from the feed. This alarm contains the following fields: • **Enable/Disable**: when enabled, it will indicate if there is a loss of video signal from the device. When disabled, this alarm will be ignored. • **Logging**: when enabled, any instances of Video Loss errors are recorded and available via an iControl alarm log.
Video black	Detects if the video feed appears as a black screen. The level of black is determined by its luminosity level. This alarm contains the following fields: • **Enable/Disable**: when enabled, it will indicate if the video feed displays a black screen. When disabled, this alarm will be ignored. • **Black detection threshold**: Allows you to define when the brightness in an image is so low, it is to be considered as black (in units of mV or IRE[1]). • **Clear duration**: if the Video black no longer exceeds the threshold, this is the time interval to wait before resetting the alarm. • **Set duration**: if the Video black exceeds the threshold, this is the time interval to wait before triggering the alarm. • **Logging**: when enabled, any instances of Video Black errors are recorded and available via an iControl alarm log.
Video freeze	Detects if the video feed is displaying a single frame of video for too long. This alarm contains the following fields[2]: • **Enable/Disable**: when enabled, it will indicate if the video is displaying a single frame of video for too long. When disabled, this alarm will be ignored. • **Freeze sensitivity**: by comparing successive frames, this alarm detects a frozen video image. You can adjust the sensitivity according to the signal being monitored (0 = Noisy signal (max. filter), 16 = Clean signal (no filter).) • **Clear duration**: If the Video freeze no longer exceeds the threshold, this is the time interval to wait before resetting the alarm. • **Set duration**: If the Video freeze exceeds the threshold, this is the time interval to wait before triggering the alarm. • **Logging**: when enabled, any instances of Video Freeze errors are recorded and available via an iControl alarm log.
Black & freeze zone	Defines the area on the screen where the Video Black or Video Freeze probes are allowed to be detected. For example, if the feed displays black bars at the top and bottom of the screen, you do not want the Video Black probe to sample those areas, or the alarm will trigger inaccurately[3]. This alarm contains the following fields: • **SD detection zone**: for a Standard Display (4:3 aspect ratio), this feature allows you to define a specific area of the video display to indicate Video Black or Video Freeze alarms. • **HD detection zone**: for a High Definition Display (16:9 aspect radio), this feature allows you to define a specific area of the video display to indicate Video Black or Video Freeze alarms.

Table 4-14: Video Probe Alarms (*Continued*)

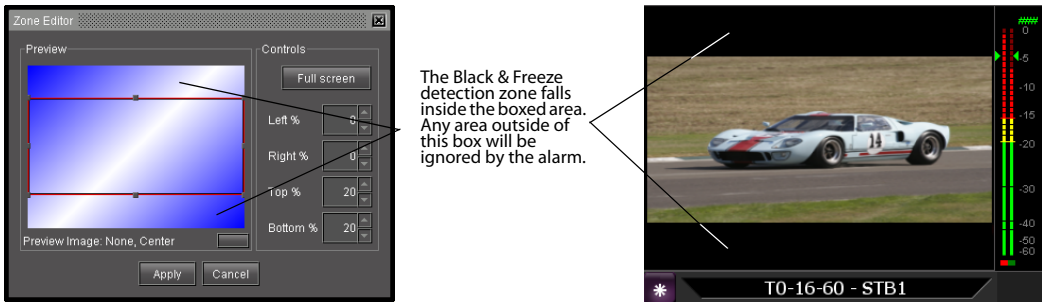
Alarm	Description
Macroblocking detection	Detects if the image compression is appearing as video errors, or when bandwidth is not enough to encode fine detail. This alarm contains the following fields: • **Enable/Disable**: allows you to indicate if the image compression is appearing as video errors, or when bandwidth is not enough to encode fine detail. When disabled, this alarm will be ignored. • **Macroblocking detection**: Select the sensitivity to detect the presence of image compression errors in the video signal (1.0 to 16.0). • **Clear duration**: If the amount of image compression errors no longer exceeds the detection threshold, this is the time interval to wait before resetting the alarm. • **Set duration**: If the amount of image compression errors no longer exceeds the detection threshold, this is the time interval to wait before triggering the alarm. • **Logging**: When enabled, any instances of image compression errors are recorded and available via an iControl alarm log.
Video luma too high	Detects if the luminance of the video feed is too bright. This alarm contains the following fields: • **Enable/Disable**: allows you to indicate if the average luminance of the video is higher than the maximum threshold. When disabled, this alarm will be ignored. • **Luma too high detection threshold**: Allows you to define when the brightness in an image is too high (in units of mV or IRE)[4]. • **Clear duration**: If the Video Luma no longer exceeds the threshold, this is the time interval to wait before resetting the alarm. • **Set duration**: If the Video Luma exceeds the threshold, this is the time interval to wait before triggering the alarm. • **Logging**: When enabled, any instances of Video Luma too High errors are recorded and available via an iControl alarm log.

1. For Video black probing, you should use the IRE calibration for NTSC signals fed to the Composite input. Use mV calibration for all other video inputs and formats.
2. When possible, use an HDMI or Component input to detect Video Freeze accurately.
3. For more information on how to define this detection area, see "Defining Video Black & Video Freeze Alarm Zones", on page 112.
4. For Video luma too high probing, you should use the IRE calibration for NTSC signals fed to the Composite input. Use mV calibration for all other video inputs and formats.

Defining Video Black & Video Freeze Alarm Zones

If you select the **Black & Freeze zone** video alarm, you need to define what part of the video display area should detect any instances of video black or video freeze, and which areas the alarm should ignore.

For example, if you know that a wide-screen video feed will play at a specific time frame, you can define a Black & Freeze zone that ignores the black bars that would appear at the top and bottom of the display screen. This prevents inaccurate alarms from sounding.

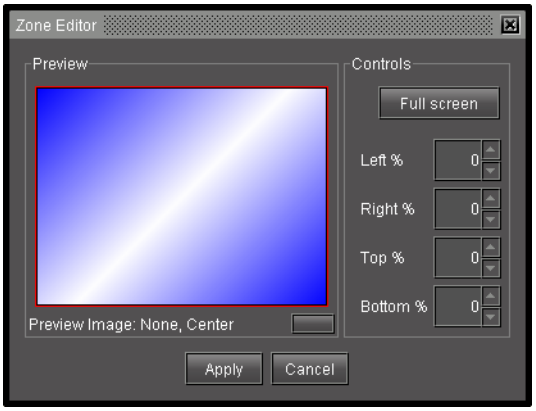


Note: When possible, use an HDMI or Component input to detect *Video Freeze* accurately.

To define the Black & Freeze zone

1. From the **Input #**, open **Video**, **Alarms**, and **Black & Freeze zone**.
2. There are two types of zones you can define, depending the size of the video screen you are using. Click the button next to the type of display you wish to modify:
   - **SD detection zone**: the detection zone designed for a Standard Display (4:3 aspect ratio)
   - **HD detection zone**: the detection zone designed for a High definition Display (16:9 aspect ratio)

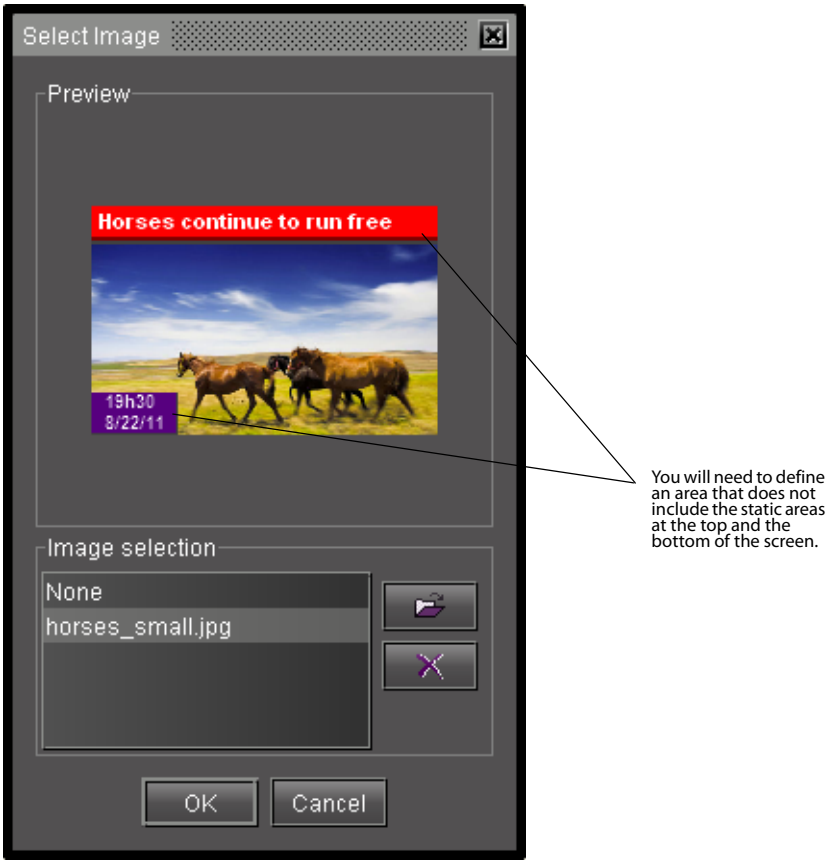
   SYSTEM RESPONSE: The **Zone Editor** dialog box appears.



   SYSTEM RESPONSE: The Black and Freeze zone falls inside the area defined by the red boundary.
3. You can resize the **Black and Freeze** zone in one of the following ways:
   - Using the drag handles in **Preview** panel.
   - Using the **Left/Right/Top/Bottom** fields.

   You can reset the Black & Freeze zone to full screen by clicking the **Full Screen** button.
4. By default, the Preview zone displays a gradient image to represent the screen area, but you can replace it with a graphic by clicking the **Preview Image** button. The **Select Image** dialog box appears.

Note: The graphic you use must be in PNG, JPG, or GIF format and not exceed 100k in size.



5. Select the image to use from the Image selection panel. To add images to the database, click the **Open Image** button and select the image file you wish to use. Click **OK** when done.
6. Once you have defined the Black and Freeze zone, click **Apply**. The **Zone Editor** closes.
   - If the Black and Freeze zone uses the full area of the screen, the SD/HD detection zone field displays across the whole screen area (Full screen).
   - If the Black and Freeze zone uses a small area, the SD/HD detection zone field displays the size in terms of area percentage.

Macroblocking Detection Limitations

There are limitations on EdgeVision's ability to detect the presence of macroblock on signals that have been subjected to horizontal scaling.

Ensure that the video signal is not scaled before you enable the **Macroblock probe** on its feed (see "Configuring a Video Probe", on page 108). If the video signal changes from 8x8 pixels, the Macroblock probe cannot accurately monitor it for macroblocking errors.

Distributed of SD signals to are normally subjected to horizontal resolution scaling upon encoding. An SD signal with an original vertical resolution of 640 pixels will be compressed in MPEG and intermediate resolutions that range from 352/544/528 pixels will be scaled to 704 pixels.

Once decoded by the set-top box, the signal is scaled again to meet the output resolution on the set-top box.

See also

For more information about recommended horizontal resolutions, see the *ANSI/SCTE 43 2005 "Digital Video Systems Characteristics - Standard for Cable Television"*.

Configuring EIA-608 Closed Captioning Alarms

The industry standard for closed captioning in analog NTSC broadcasting is EIA-608, more commonly known as *line 21 captioning*. EdgeVision supports EIA-608 and allows you to configure debouncing, logging, and operational status for several alarms, as follows:

Table 4-15: Closed captioning alarms (EIA-608)

Alarm name	Description
CC1 loss	Loss of data on Caption Channel 1
CC2 loss	Loss of data on Caption Channel 2
CC3 loss	Loss of data on Caption Channel 3
T1 loss	Loss of data on Text Channel 1
T2 loss	Loss of data on Text Channel 2
V-chip loss	Loss of V-chip XDS data
TSID loss	Loss of TSID XDS data
Station ID loss	Loss of Station ID XDS data

These alarms are located at the following path in *EdgeVision Configurator* and *EdgeVision Player*:

`System | <EdgeVision device> | <Input> | Video | 608 Alarms`

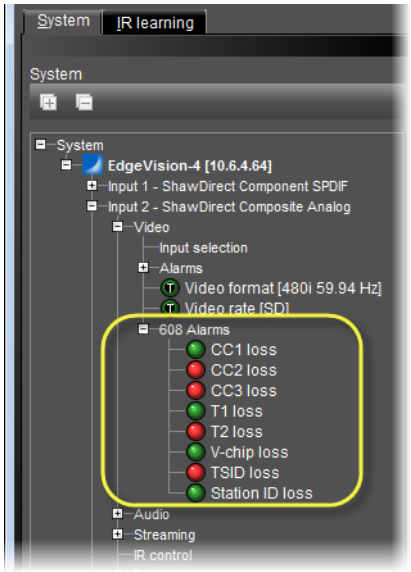


Figure 4-15 Location of EIA-608 Closed Captioning alarms on the System tab

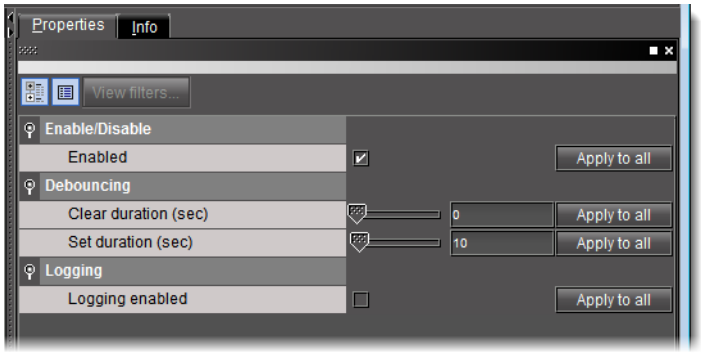


Figure 4-16 Editable properties for all EIA-608 Closed Captioning alarms

REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

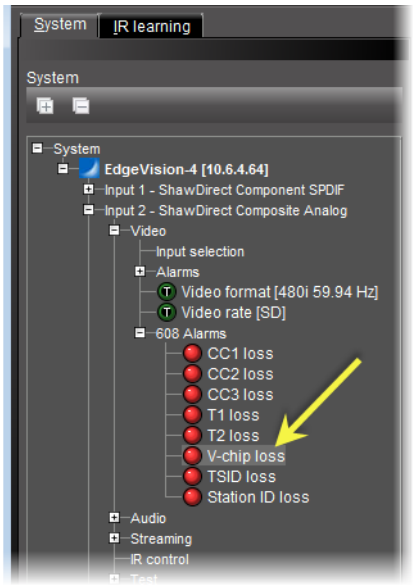
- You have purchased and enabled the *Video/audio probing* option for this EdgeVision device (see "Viewing the Status and Configuring the Options", on page 30).
- You have opened *EdgeVision Configurator* (see page 55).

To configure EIA-608 Closed Captioning alarm parameters

1. In *EdgeVision Configurator*, on the **System** tab, navigate to:

   `System | <EdgeVision device> | <Input> | Video | 608 Alarms`

2. Select the alarm whose parameters you would like to configure.



3. Configure the alarm parameters as desired.

See also

For more information about alarms, statuses, and their meanings, see the "About Reading Alarms "section of the "Device, Feed, and Stream Alarms" chapter of the *EdgeVision User Guide*.

Configuring Audio Probe Alarms

The Audio setting for an Input allows you to configure the various audio-based alarms that can indicate the efficiency and validity of the audio signal, as well as that it conforms to the audio protocol selected in **Audio**, **Input selection** (see "Configuring Audio Settings", on page 81).

While you can simply enable some of these alarms, other alarms require further configuration to define thresholds.

To configure audio probe settings

1. Select the device from the Host list and open the **Input #** and **Audio**.
2. Configure the **Input Status** alarm to detect if the audio signal is still valid:
   - **Enable/Disable**: When enabled, the Input Status alarm will indicate if the audio signal has been interrupted or is invalid. If disabled, this event will be ignored.
   - **Logging**: When enabled, any instances of interrupted audio are recorded and available via an iControl alarm log.
3. Configure the **Input type** alarm to detect if the format of the audio feed is valid:

- **Enable/Disable**: When enabled, the Input Type alarm will indicate if the Input Type is different from what is selected in the Audio **Input selection** field. If disabled, this event will be ignored.
- **Logging**: When enabled, any instances of Input Type errors are recorded and available via an iControl alarm log.

4. From the **Input #**, open **Audio**, enable or disable the following types of audio alarms:

Table 4-16: Audio Probe Alarms

Audio Alarm	Description and Configuration
Silence left/right	Indicates if the stereo audio feed has been interrupted on the left/right channel. • **Enable/Disable**: when enabled, the Silence Left/Right alarm will indicate if there is a loss of audio signal from the left/right channel. If disabled, this event will be ignored. • **Silence Left/Right**: select the level (in dBFS, dB, or dBu) at which the audio signal on the left/right channel will be considered silent • **Clear duration**: If an audio signal returns in the left/right channel, this is the time interval to wait before triggering the alarm. • **Set duration**: If there is a loss of audio signal in the left/right channel, this is the time interval to wait before resetting the alarm. • **Logging**: all audio alarm instances are recorded and available via an iControl alarm log records
Overload left/right	Indicates if there is an excess of audio signal on the left/right channel. • **Enable/Disable**: when enabled, the Overload Left/Right alarm will indicate if there is an excess of audio signal from the left/right channel. If disabled, this event will be ignored. • **Overload left/right**: Select the level (in dBFS, dB, or dBu) above which the audio signal on the left/right channel will be considered overloaded. • **Clear duration**: If the level of audio in the left channel drops to normal, this is the time interval to wait before resetting the alarm. • **Set duration**: If there is an excess of audio signal in the left channel, this is the time interval to wait before triggering the alarm. • **Logging**: all audio alarm instances are recorded and available via an iControl alarm log records
Out of phase	Indicates if the left and right channels are no longer aligned (resulting in phase cancellation • **Enable/Disable**: when enabled, the Out of Phase alarm will indicate if the audio signal frequency is no longer aligned. If disabled, this event will be ignored. • **Out of phase**: Select the sensitivity level below which the audio signal will be considered out of phase. The sensitivity is a value between -1 (completely out of phase)and +1 (perfectly in phase). • **Clear duration**: If the audio is no longer out of phase, this is the time interval to wait before resetting the alarm. • **Set duration**: If the audio is out of phase, this is the time interval to wait before triggering the alarm. • **Logging**: all audio alarm instances are recorded and available via an iControl alarm log records

Table 4-16: Audio Probe Alarms (*Continued*)

Audio Alarm	Description and Configuration
Mono Error	Indicates if the audio signal is in Mono mode. • **Enable/Disable**: when enabled, the Mono alarm will indicate if the audio signal is in Mono mode (using a single channel). If disabled, this event will be ignored. • **Mono**: Select the sensitivity level above which audio will be considered mono. The sensitivity is a value between -1 (everything is mono) and +1 (only perfectly in phase audio is mono). • **Clear duration**: If the audio is not longer in Mono mode, this is the time interval to wait before resetting the alarm. • **Set duration**: If the audio is in Mono mode, this is the time interval to wait before triggering the alarm. • **Logging**: all audio alarm instances are recorded and available via an iControl alarm log records

Configuring SDI Output Probe Alarms

The SDI Output probe alarms allow you to monitor the feed that is being output via the SDI. The alarms monitor that the audio protocols being used match the protocol configured in the **SDI output** fields and the **Video Input Selection** fields.

To configure SDI Output alarms

1. Select the device from the **System** list.
2. From the **Input #**, select **SDI Output**.
3. To activate the SDI out feature, enable the **Enable SDI out** field.
4. Select the expected format of the SDI audio. You have the following choices:
   - **HDMI**: a High-Definition Multimedia Interface is a compact audio interface for transmitting uncompressed digital data.
   - **S/PDIF**: the Sony/Philips Digital Interconnect Format is a layer protocol that carries digital audio signals
   - **Analog**: the audio is split into the two main channels of left and right

Configuring Test Probe Alarms

Test alarms allows you to detect if a video test pattern or audio test tone is being generated on the current input. You can override the video or audio feed on the input using the **Test**, **Configuration** fields (see "Configuring the Test Mode", on page 104).

If you enable these alarms, they expect to find a video test pattern or audio test tone on the Input. If so, the alarm will display as green. If there is a video/audio feed playing on the Input, the alarm will display as red.

To configure Test Probe alarms

1. From the **Input #**, select **Test**, **Video Pattern Generator status** and enable one or both of the generator options:

- **Enable/Disable**: When enabled, this parameter reflects whether the video component of the test pattern is being displayed in the video feed. If disabled, this event is ignored.
- **Logging**: When enabled, test pattern status changes are logged via an available iControl.

2. From the **Input #**, select **Test**, **Audio Tone Generator status** and enable one or both of the generator options:
   - **Enable/Disable**: When enabled, this alarm will detect if the audio tone of the test pattern is being played in the audio feed. If disabled, this event will be ignored.
   - **Logging**: When enabled, test pattern status changes are logged via an available iControl.

Creating and Restoring a Configuration Backup

Once you have configured your device properly, you can create a backup of that configuration for security purposes. This creates a ZIP file that contains all your settings, their thresholds and configuration values. However, this backup file does not contain or change IP addresses.

If something happens to your configuration, or if you wish to retrieve a previous configuration, you can retrieve the backup file and it will be applied to the current device in *EdgeVision Configurator*.

See also

For more information about:

- Creating a backup of the current configuration, see page 120
- Restoring a backup, see page 120

Backing up the Current Configuration

To back up the current configuration

1. On the **File** menu, click **Create Backup**.

   SYSTEM RESPONSE: The **Create Backup** window appears.

2. Navigate to the location where you wish to save a backup copy of the current configuration, and then click **Save**.

   SYSTEM RESPONSE: The configuration backup is saved as a ZIP file. When you attempt to retrieve this file, you do not need to unzip it: the Retrieval feature accepts the ZIP archive format.

Restoring a Backup Configuration

When you restore a backed-up configuration file, it overwrites the configuration files on your device and restores the settings, their thresholds and configuration values. However, restoring this backup file does not change IP addresses or network settings for the device.

To restore a backup configuration

1. On the **File** menu, click **Retrieve Backup**.

   SYSTEM RESPONSE: The **Select Backup** window appears.

2. Navigate to the appropriate backup file (a ZIP archive, in the case of a full backup), select it, and then click **Open**.

   SYSTEM RESPONSE: A message appears prompting you to confirm your intention.

   - To retrieve the backup, click **Yes**.
   - To cancel this backup retrieval, click **No**.

Restoring Factory Defaults

If you wish to restore the default IP network settings of your configuration from scratch, you can reload the factory defaults from the device into *EdgeVision Configurator*. The factory defaults are hard-coded in the device.

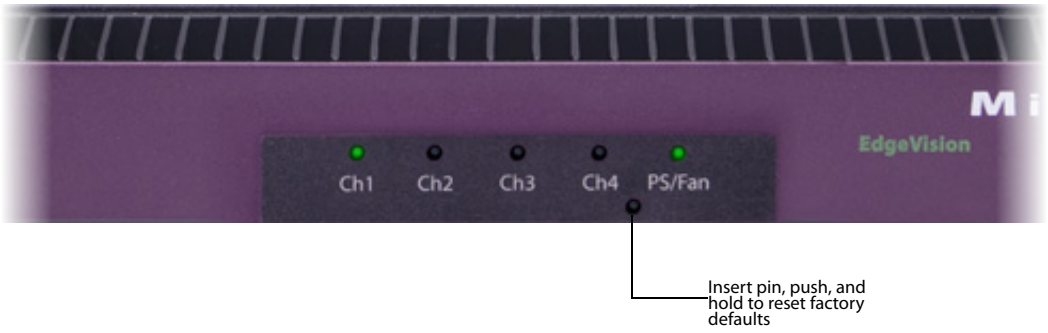
Notes

- Unless you know that you do not want the current configuration to be saved, you should make a backup of the current configuration for future use before restoring the factory defaults. For more information on how to make and retrieve a backup, see "Creating and Restoring a Configuration Backup", on page 120.
- Restoring the Factory Defaults also re-establishes the Ethernet port settings of the device and may interrupt communication with the device.

To restore factory defaults

1. On the **File** menu, click **Restore Factory Defaults**.
2. Confirm that you want to restore these defaults.
   - To restore the factory defaults, click **Yes**.
   - To cancel this action, click **No**.

Note: You can also restore the factory defaults on the device by pressing the inset button on the front of the device. You will need an object about the size of a paperclip to be able to reach the Reset button inside the device.



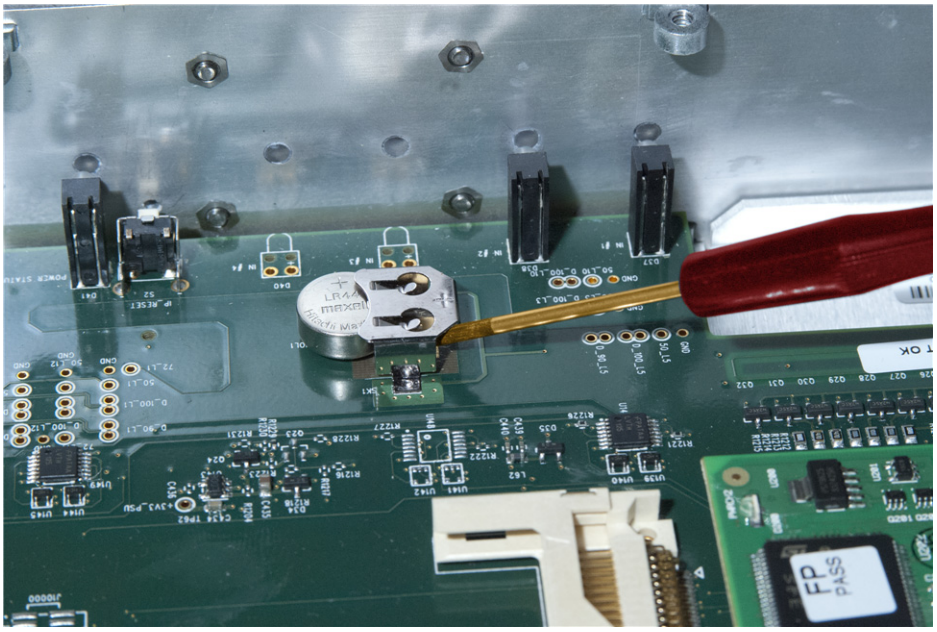
Disposal and Recycling Information

Your Grass Valley equipment comes with at least one silver-oxide button battery ($Zn\text{-}Ag_20$) located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Before disposing of your Grass Valley equipment, please perform the following procedure to safely remove the battery:

To remove the battery

1. Make sure the AC adapter is unplugged from the power outlet.
2. Remove the protective cover from your equipment.
3. Gently remove the battery from its casing using a blunt instrument for leverage such as a screwdriver if necessary.



4. Dispose of the battery and equipment according to your local environmental laws and guidelines.

WARNING: Be careful not to short-circuit the batteries by adhering to the appropriate safe handling practices. Do not dispose of batteries in a fire as they may explode. Batteries may explode if damaged or overheated. Do not dispose of batteries as household waste. Do not dismantle, open or shred batteries. Keep batteries out of the reach of children. In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes. Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

See also

For more information about recycling, please contact Grass Valley Technologies Partnership (see "Contact Us", on page 127).

Supplier's Declaration of Conformity

Miranda
A BELDEN BRAND

CE

SUPPLIER'S DECLARATION of CONFORMITY
According to ISO/IEC 17050-2:2004

This Supplier's Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Manufacturer's Name:	Miranda Technologies Partnership.
Manufacturer's Address:	3499 Douglas B. Floreani, Montreal, Quebec, H4S 2C6, Canada. Tel: +1-514-333-1772, Fax: +1-514-333-9828. www.miranda.com
European Contact:	Miranda Technologies Ltd. Hithercroft Road, Wallingford, Oxford, OX10 9DG, UK, Tel: +44 (0) 1491 820222

Miranda Doc. No.: **928-99C01-200**

Conforming device:

Name:	EdgeVision
Description:	Multi-channel, quality of experience monitoring
Assembly No.:	928-9900-109

The product/device of the declaration described above is in conformity with the relevant Union harmonization legislation and the requirements of the following standards:

CE

Directive 2004/108/EC	**Electromagnetic Compatibility**
EN 55022: 2006/A2:2010	Conducted emissions, Class A
EN 55022: 2006/A2:2010	Radiated emissions, Class A
EN 61000-3-2: 2006+A1+A2:2010	Harmonic current emission limits
EN 61000-3-3:2008	Voltage fluctuation and flicker limitations
EN 61000-4-2: 2009	Electrostatic discharge immunity
EN 61000-4-3: 2006/A2:2010	Radiated electromagnetic field immunity – RF
EN 61000-4-4: 2004/A1:2010	EFT immunity
EN 61000-4-5: 2006	Surge immunity
EN 61000-4-6: 2009	Conducted immunity
EN 61000-4-8: 2010	Power frequency magnetic field immunity
EN 61000-4-11: 2004	Voltage dips, short-interrupt and voltage variation immunity
ENV50204: 1995	Radiated EMF immunity – RF 900MHz pulsed

FC

U.S. Code of Federal Regulations (CFR): Title 47, Part 15, Subpart B, Class A, Digital Devices, Unintentional Radiators.

c SP US

CSA C22.2 No. 60950-1, 2007, 2nd Edition
UL 60950-1, 2007, 2nd Edition
EN 60950-1, 2nd Edition, (2006/95/EC - Low Voltage Directive)
Safety for Information Technology Equipment

Isaac C. Cohen
Compliance Specialist

Signed in Montréal, Québec, Canada on the 2013-03-06

Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the *Contact Us* section of Grass Valley's Web site (`www.grassvalley.com`).

An online form for e-mail contact is also available from the Web site.

Corporate Head Office

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