

Nextiva S1900e Series User Guide

August 2006

Firmware Release 4.40/4.6x

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Nextiva S1900e Series

**Covering the S1900e-AS, S1900e-AS-XT, S1950e, S1950e-XT,
S1970e, and S1970e-XT**

Firmware Release 4.40/4.6x

User Guide

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Preface

The *Nextiva S1900e Series User Guide* presents the information and procedures on installing, configuring, and using the Nextiva™ S1900e series edge devices.

This guide covers the following firmware versions:

Edge device	Version
S1900e-AS	4.40
S1900e-AS-XT	4.60
S1950e	4.62
S1950e-XT	4.62
S1970e	4.62
S1970e-XT	4.62

Who Should Read this Guide

This guide is intended for managers, IT system administrators, engineers, and technicians who will use the S1900e series edge devices. It provides conceptual information on how to configure, install, and operate the devices.

This guide assumes that you are familiar with:

- Installation and manipulation of electronic equipment
- General use of computers
- Local area networks (LANs) and basic IP data communication concepts and practices
- Pan-tilt-zoom (PTZ) platforms (cameras and keyboards)
- Web browsers
- Microsoft Windows operating systems

How to Use this Guide

This guide contains all the information needed to install, configure, and use an S1900e series device.

Contents

The *Nextiva S1900e Series User Guide* is divided into the following chapters:

- 1. Overview**—Provides a brief description of the features of the S1900e series and illustrations of their casings.
- 2. Configuring and Installing the Device**—Presents the configuration and installation procedures for the S1900e series device.
- 3. Using the Web Interface**—Explains how to use the web interface to configure the device and view live video.

The guide also includes the following appendixes:

- A. Factory Default Configuration**—Lists the default parameter values of the S1900e series device.
- B. DHCP Support and APIPA**—Explains how the DHCP server and the Microsoft APIPA addressing scheme work.
- C. CLI Access**—Explains how to access the command line interface (CLI) of the device.
- D. RJ-45 Ethernet Cables**—Presents the pinouts of the straight-through and crossover Ethernet cables.
- E. Technical Specifications**—Lists the complete technical specifications of the S1900e series devices.

A glossary, an index, and compliance information complete the guide.

Conventions

The following typographic conventions are used throughout this guide:

Visual cue	Meaning
Connect	The name of an interface element you have to act on. A key to press. The value of an interface element.
<i>connection_name</i>	Text that must be replaced by a user-supplied value. Text representing variable content.
S1900e.vf	The name of a command, file, or directory. Text that appears on the screen. Examples of user-supplied values.

Related Documentation

In addition to this guide, the following documentation is also available:

- *Nextiva S1900e Series Installation Guide*
- *SConfigurator User Guide*
- *Release Notes*

All these documents are contained on the *Utilities* CD shipped with the device. Furthermore, a paper copy of the installation guide is included with your order.

Related Verint Video Solutions Products

You may use the S1900e series devices with the S1500e-R video receivers. You may also use them with the nDVR™ and Nextiva enterprise video management solutions. For more details, visit our web site. For pricing information, call your dealer.

About Us

Verint® Systems (NASDAQ: VRNT) is a leading global provider of video security, surveillance and business intelligence solutions. Verint Video Solutions transform digital video into actionable intelligence: timely, mission-critical insights for faster, more effective decisions.

Today, more than 1000 companies in 50 countries use Verint solutions to enhance security, boost operational efficiency, and fuel profitability.

Web Site

For information about the Nextiva line of products, visit www.verint.com/videosolutions.

To download data sheets and user documentation, use the following link: www.verint.com/smartsight/support.

To request the latest versions of firmware and software or to download other product-related documents, you need access to the Verint Video Solutions partner extranet. To register, go to <http://vvs.verint.com>.

Support

If you encounter any type of problem after reading this guide, contact your local distributor or Verint Video Solutions representative. You can also use the following sections on the Verint Video Solutions partner extranet to find the answers to your questions:

- Open a Support Ticket
- FAQ
- My Account

For assistance with the Nextiva edge devices and the related software, contact the Verint Video Solutions customer service team:

- By phone: 1 888 494-7337 option 1 (North America) or +1 450 686-9000 option 1, Monday to Friday, from 8:30 to 17:30 EST
- By fax: +1 450 686-0198

Warranty

Each product manufactured by Verint Systems is warranted to meet all published specifications and to be free from defects in material and workmanship for a period of three (3) years from date of delivery as evidenced by the Verint Systems packing slip or other transportation receipt. Products showing damage by misuse or abnormal conditions of operation, or which have been modified by Buyer or repaired or altered outside Verint Systems factory without a specific authorization from Verint Systems shall be excluded from this warranty. Verint Systems shall in no event be responsible for incidental or consequential damages including without limitation, personal injury or property damage.

The warranty becomes void if the product is altered in any way.

Verint Systems responsibility under this warranty shall be to repair or replace, at its option, defective work or returned parts with transportation charges to Verint Systems factory paid by Buyer and return paid by Verint Systems. If Verint Systems determines that the Product is not defective within the terms of the warranty, Buyer shall pay all handling and transportation costs. Verint Systems may, at its option, elect to correct any warranty defects by sending its supervisory or technical representative, at its expense, to customer's plant or location.

Since Verint Systems has no control over conditions of use, no warranty is made or implied as to suitability for customer's intended use. There are no warranties, expressed or implied, except as stated herein. This limitation on warranties shall not be modified by verbal representations.

Equipment shipped ex works Verint Systems factory shall become the property of Buyer, upon transfer to the common carrier. Buyer shall communicate directly with the carrier by immediately requesting carrier's inspection upon evidence of damage in shipment.

Buyer must obtain a return materials authorization (RMA) number and shipping instructions from Verint Systems prior to returning any product under warranty. Do not return any Verint Systems product to the factory until RMA and shipping instructions are received.

1

Overview

Designed for video monitoring and surveillance over IP networks, the Nextiva S1900e series is a highly compact, single-input edge device. Two compression modes are available to deliver video over 10/100Base-T networks: a proprietary MPEG-4-based mode and the MPEG-4 ISO 14496-2 compliant mode. The device can easily be extended over local and wide area networks (LANs and WANs) or the Internet using ISDN, PSTN, or xDSL routers. It is built on open standards to provide long-term investment protection.



You can use the S1900e series edge devices in point-to-point contexts as well as with video management and storage applications. Furthermore, they enable configuration and video viewing from web browsers.

This device is for indoor use only.

About the S1900e Series

The S1900e series contains many models covering different video resolution and functionality needs.

Each device is configured to interface, right out of the box, with the most popular camera data port configuration (4800 baud, 8 data bits, no parity, 1 stop bit).

Physical Characteristics

All S1900e series devices are transmitters (-T). Here is an overview of their features:

Device	Performance	Onboard analytics	Audio connectors	I/Os
S1900e-AS	4CIF resolution at 30 frames per second	✓	1/8 inch (3.5 mm) poles on terminal block	Two input dry contacts and one relay output
S1950e	2/3 D1 resolution at 30 frames per second		1/8 inch (3.5 mm) stereo jacks	One input dry contact and one relay output
S1970e	D1 resolution at 30 frames per second		1/8 inch (3.5 mm) stereo jacks	One input dry contact and one relay output

Furthermore, all devices have:

- One video input
- 12V DC power
- A serial port for the RS-422/485 protocol
- A reset button

The video analytics capabilities of the S1900e-AS can be used inside a Nextiva IntelliView solution. In the IntelliView Analytics Rule Builder, the S1900e-AS supports a maximum of five active rules and six views. For more information, refer to the documentation set of the Nextiva enterprise video management platform.

You can also purchase each device with the extended temperature option (the S1900e-AS-XT, S1950e-XT, and S1970e-XT).

Unless otherwise specified, the word *S1900e* refers to any of these devices.

Security

Every edge device comes with a unique SSL (Secure Sockets Layer) certificate for securing its IP link. SSL is a commonly used protocol for managing the security of IP message transmission. Therefore, the connections with another device, the SConfigurator tool, or a video management software can be secured.

If enabled, the SSL protocol secures the following data: I/O, serial port, and VSIP (a proprietary protocol) communication. It does not apply to audio and video transmission.

Once a device is in secure mode, you cannot access it anymore with Telnet, you access its web interface in secure mode only, and you cannot perform firmware updates through the IP network on it. However, you can configure it with SConfigurator.

For more information about this security feature, refer to the *SConfigurator User Guide*.

Video

The video frame rate of the edge device can be:

- NTSC—1 to 7, 10, 15, or 30 frames per second (fps)
- PAL—1 to 6, 8, 12, or 25 fps

The S1900e series devices can have the following video resolutions:

Resolution	Number of columns		Number of lines		Applies to
	NTSC/PAL	NTSC	PAL		
QCIF	176	128	144		All devices
CIF	352	240	288		All devices
2CIFH	704	240	288		All devices
4CIF	704	480	576		All devices
<i>All lines</i>	352	480	576		All devices
2/3 D1	480	480	576		All devices
VGA	640	480	576		All devices

The maximum frame rates (in frames per second) for the two available compression modes are, using the *NTSC (PAL)* format:

Resolution	MPEG-4-based mode			MPEG-4 ISO 14496-2 compliant mode		
	S1900e-AS	S1950e	S1970e	S1900e-AS	S1950e	S1970e
QCIF	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)
CIF	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)
2CIFH	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)
4CIF	30 (25)	15 (12.5)	30 (25)	30 (25)	15 (12.5)	30 (25)
<i>All lines</i>	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)
2/3 D1	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)	30 (25)
VGA	30 (25)	15 (12.5)	30 (25)	30 (25)	15 (12.5)	30 (25)

For more information about these video parameters, refer to the *SConfigurator User Guide*.

Shipment

Your S1900e shipment contains the following items:

- The requested transmitter device
- A 12V DC external power supply
- The *Utilities* CD containing the release notes and documentation for the device as well as the SConfigurator application
- The *Nextiva S1900e Series Installation Guide*

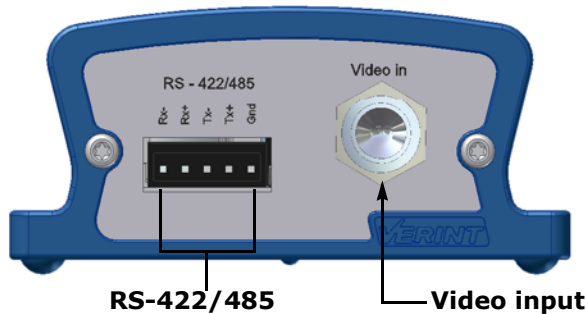
Casing Description

The S1900e electronics are enclosed in a non-weatherproof aluminum casing that is not meant for outdoor use. The front and back panels vary depending on the device.

S1900e-AS

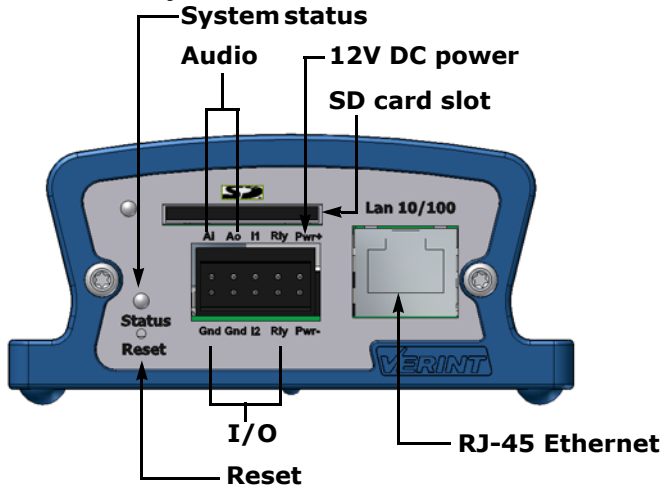
The front panel consists of:

- A five-pole connector for the RS-422/485 serial port
- One BNC connector for video input



The back panel consists of:

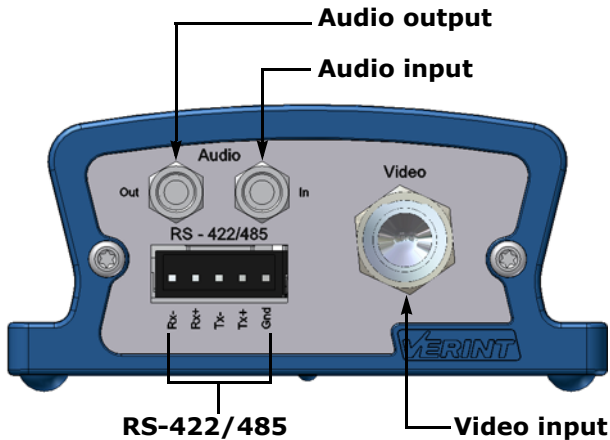
- An SD card slot (for future use)
- A system status LED
- Audio poles
- 12V DC power poles
- A reset button
- Two dry-contact inputs and one relay output
- An RJ-45 jack for the Ethernet network



S1950e and S1970e

The front panel consists of:

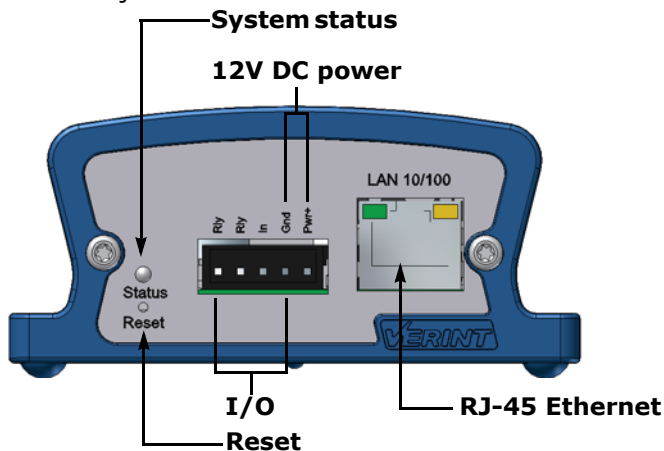
- A five-pole connector for the RS-422/485 serial port
- A pair of 1/8 inch (3.5 mm) I/O audio connectors
- One BNC connector for video input



The back panel consists of:

- A system status LED
- 12V DC power poles
- A reset button
- One dry contact input and one relay output

An RJ-45 jack for PoE or the Ethernet network



2

Configuring and Installing the Device

The steps required to prepare your S1900e device for operation are:

- Basic configuration
- Physical installation in its final location
- Connection to the serial port
- Alarm and audio configuration

Remember that your device is an indoor product that should not be used in an outdoor environment.

Configuring the Device

The configuration steps to execute are:

- Setting a series of parameters, including the IP address
- Establishing a point-to-point connection between the S1900e and a receiver, if required

To configure the device, you need the proprietary SConfigurator tool. It is included on the *Utilities* CD shipped with your device; you can also find its latest version on the Verint Video Solutions extranet (Technical Support, then Downloads, then Firmware Upgrades). You have to copy its executable file to the hard disk of your computer.

Computer Requirements

The minimum hardware and software requirements for the host computer needed to configure the edge device are:

- An Ethernet network card
- Internet Explorer 6.0
- Microsoft DirectX 8.1
- Windows 2000 Service Pack 2 or higher, or Windows XP Service Pack 2

Setting Device Parameters

The first step in installing an S1900e device is to change its IP address to ensure compatibility with an existing network. The default IP addresses of all devices are based on the APIPA addressing scheme and will be in the range 169.254.X.Y, where X and Y are relative to the MAC address of the individual device; for more information about APIPA, see page 39.

To work properly, devices on the same network must have unique IP addresses. The device will not prevent you from entering a duplicate address. However, its system status LED will turn to flashing red; then the device will use an APIPA address.

To set the parameters of a device:

1. In a lab, unpack the device and place it on a table.
2. Establish the Ethernet connection by plugging a cable (straight-through or crossover) into the LAN 10/100 connector on the back of the device.

The crossover cable is to directly connect the device to a computer; the straight-through cable is to integrate the S1900e on a network. For their detailed pinouts, see page 45.

3. Power the S1900e. If you are using the supplied power supply:
 - a. Plug the power supply wire with the dashed white lines in the Pwr- pole on the S1900e-AS, or the Gnd pole on the S1950e and S1970e, on the back of the device.
 - b. Plug the other power wire in the Pwr+ pole on the back of the device.

- c. Connect the electric plug into the outlet.

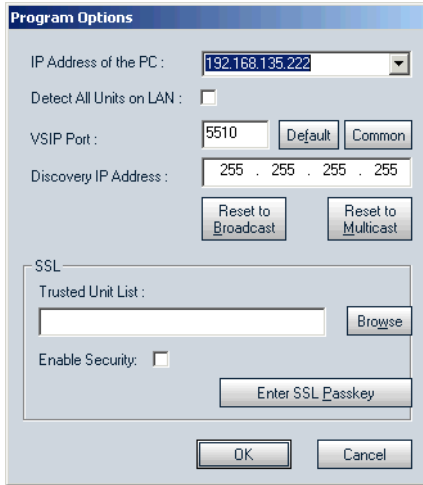
For any other power supply, refer to the manufacturer documentation for the proper wiring scheme.

- 4. Start SConfigurator.

The SConfigurator window appears.

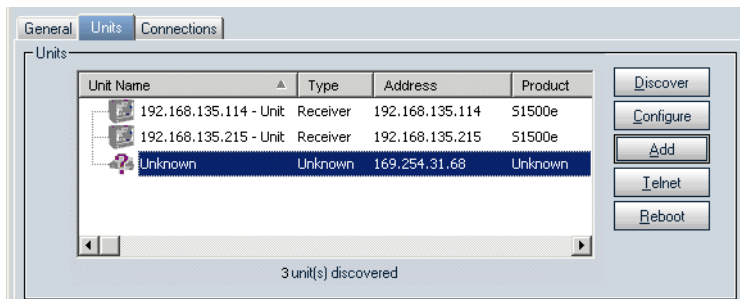
- 5. In the General tab, click **Program Options**.

The Program Options window appears.



- 6. Check **Detect All Units on LAN**.
- 7. Ensure that the **VSIP Port** is 5510; otherwise, click **Default**.
- 8. Ensure that the **Discovery IP Address** is 255.255.255.255; otherwise, click **Reset to Broadcast**.
- 9. Click **OK**.
- 10. Select the **Units** tab, then click **Discover**.

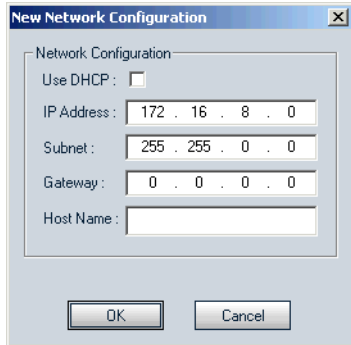
A device of type "Unknown" with a 169.254.X.Y IP address appears in the list; it corresponds to your new device.



2: Configuring and Installing the Device

11. Select the unknown device, then click **Configure**. In the Reconfigure unit? confirmation window, click **Yes**.

The New Network Configuration window appears.



The screenshot shows a window titled "New Network Configuration" with a close button (X). Inside, there is a section labeled "Network Configuration" containing a checkbox for "Use DHCP" which is unchecked. Below this are four text input fields: "IP Address" with the value "172 . 16 . 8 . 0", "Subnet" with "255 . 255 . 0 . 0", "Gateway" with "0 . 0 . 0 . 0", and "Host Name" which is empty. At the bottom of the window are two buttons: "OK" and "Cancel".

12. To use DHCP (Dynamic Host Configuration Protocol), check **Use DHCP**. Otherwise, enter the IP address, subnet mask, and gateway of the device, as provided by your network administrator.

For more information about DHCP, see page 39.

13. Click **OK**.

The device reboots with its new network configuration. It may take up to 20 seconds.

14. In the Units tab, click **Discover**.

The new S1900e device appears.

15. Select the device, then click **Configure**.

16. Configure the serial port parameters to match those of the target equipment (for instance, camera or PTZ keyboard).

For more information, refer to the *SConfigurator User Guide*.

The S1900e initial configuration is now complete. You perform further configuration with the web interface (see page 19), SConfigurator, or a video management software from Verint Video Solutions.

Using the Encoders

The composite signal of a video input is sent to two separate encoders. You can have the following scenarios with regards to the encoder use:

Scenario	Encoder 1	Encoder 2
point-to-point	point-to-point	unused
video management software	view at rate A	record at rate B
web interface	web viewing	point-to-point

Note: You should not use the web interface and a video management software at the same time.

Performing a Point-to-Point Connection

To view video on a monitor in a point-to-point context (as opposed to using a video management software), you have to create a fixed connection between an S1900e transmitter and an S1500e receiver. Typically, both devices sit on the same IP subnet as SConfigurator and have the same VSIP port; to access other devices, refer to the device discovery section in the *SConfigurator User Guide*.

Note: The receiver must be running firmware version 3.10 or higher.

For more information about the connection procedure or the video modes, refer to the “Managing Connections” chapter, in the *SConfigurator User Guide*.

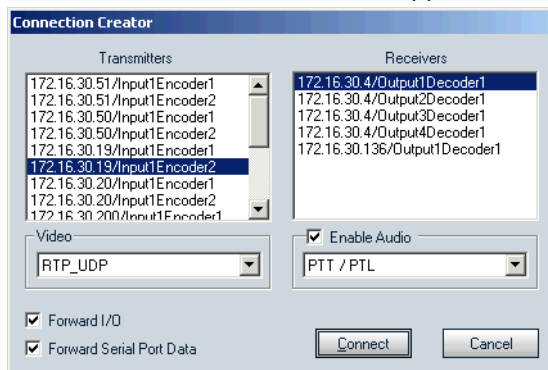
To perform a point-to-point connection:

1. Start SConfigurator.
2. In the Units tab, discover the desired devices.

The discovered devices appear in the Units box.

3. Select the **Connections** tab, then click **Add**.

The Connection Creator window appears.



4. Select a transmitter in the left column and a receiver in the right one.

In the Transmitters column, you have access to the two encoders of each input; the video stream is the same for both. Stream1 is typically reserved for web viewing, therefore you should use Stream2 for point-to-point connections.

5. In the **Video** list, select the desired video mode.
6. To disable I/O data transmission (for example, alarms) between the two selected devices, clear **Forward I/O**.
7. To disable serial port data transmission (like PTZ commands), clear **Forward Serial Port Data**.
8. To enable audio between the devices, ensure that **Enable Audio** is checked, then select the audio mode.
9. Click **Connect**.

You should now have video on the monitor connected to the receiver.

Installing the Device

When your device is successfully configured, it is ready to be installed in its final location.

To install the device:

1. Plug the video cable of the camera to the BNC connector on the device.
2. Plug the network cable into the LAN 10/100 Ethernet connector on the device.
3. Power the device.
4. If required, connect the serial port of the device to the camera (see next).

Note: The S1900e-AS device may heat more than one without analytics capabilities.

Performing Serial Connections

The S1900e device supports only the RS-422 and RS-485 asynchronous protocols. For any other protocol, you may need a converter.

RS-422/485

Most target devices (keyboards, PTZ cameras) use the RS-422/485 protocol for communication.

To use the RS-422/485 functionality, you need to:

1. Connect a twisted pair cable to the multipole connector on the front of the device. The connector gives access to the Tx+, Tx-, Rx+, Rx-, and ground signals.
2. Select the right operating mode (RS-422 4 wires, RS-485 2 wires, or RS-485 4 wires) using SConfigurator or a video management software.

To properly make the connection to a four-wire RS-422 or RS-485 serial device, use the following scheme (where the Tx connectors are for input and the Rx connectors are for output):

Peripheral connector	S1900e connector
Tx+	Tx+
Tx-	Tx-
Rx+	Rx+
Rx-	Rx-
ground	ground

For a two-wire RS-485 connection with a Nextiva device:

1. Create the Data- signal by shorting the Rx- and Tx- pins together.
2. Create the Data+ signal by shorting the Rx+ and Tx+ pins together.

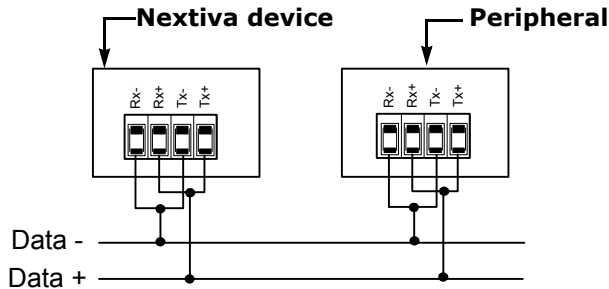
3. Use the following wiring scheme:

Peripheral connector	S1900e connector
Data+	Data+
Data-	Data-
ground	ground

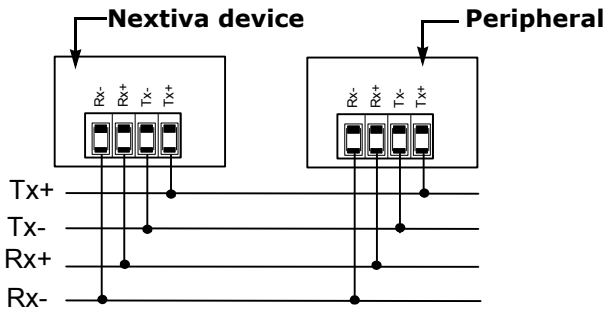
Multidrop Configurations

Two multidrop configurations are available, for two or four wires, only with the RS-485 protocol.

The two-wire configuration is:



The four-wire configuration is:



Configuring the I/Os

The input/output features on the multipole connector on the back of the device are used for alarms (or events) and audio control. The S1900e-AS has two input and one relay output terminals; the S1950e and S1970e have one input and one relay output terminals. On the S1900e-AS, the purpose of each terminal is:

- Input 1 (I1)—Either transparent alarm link with the relay output or PTL (push-to-listen) audio transmission mode
- Input 2 (I2)—Either alarm in a video management software or PTT (push-to-talk) audio transmission mode
- Output 1—Relay for the input 1 signal of the remote device

On the S1950e and S1970e, the dedicated purpose of the terminals is:

- In—Either transparent alarm link with the relay output or PTT (push-to-talk) audio transmission mode
- Rly—Relay for the input signal of the remote device

You can program PTL/PTT and an alarm on the first input at the same time. The relay of the remote device will be closed and PTL/PTT will be activated.

Since the S1900e devices are mostly used with a video management software, you will perform most configuration and activation steps within it. Otherwise, in a point-to-point context, use SConfigurator for setup.

Audio

To activate audio between a transmitter and a receiver, both devices must support audio.

Data Transmission

Two transmission modes for audio data are available:

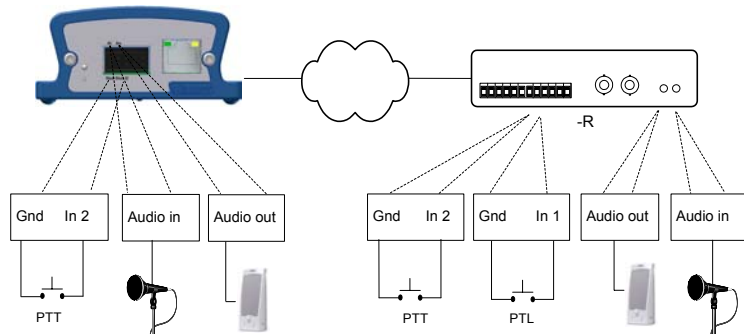
- Full duplex—Data is transferred in both directions simultaneously.
- PTT/PTL—The push-to-talk/push-to-listen mode allows you to control audio communication between two devices.

When creating a point-to-point connection between a receiver and a transmitter in SConfigurator, you set the transmission mode in the Connection Creator window.

To activate the audio transmission channel for PTT on the S1900e transmitter, you must trigger an activation switch (for example, a button) that is based on the shorting of the ground and input 2 (for the S1900e-AS) or single input (for the S1950e and S1970e) terminals.

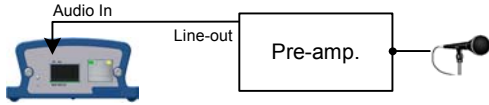
If the PTT switches of both the transmitter and receiver are activated at the same time, the receiver will have precedence: Audio will be transferred from the receiver to the transmitter. If the PTL and PTT functions of the receiver are activated at the same time, PTT will be activated and PTL will be ignored.

Here is a typical PTT/PTL application in a point-to-point context, using an S1900e-AS:



Audio Input/Output Types

The device supports the Line-in audio type, which requires a pre-amplifier. You connect the audio input on the device to the Line-out connector on the pre-amplifier.



With SConfigurator, you set the input type in the Audio pane.

The only available output type is Speaker: You plug a speaker directly on the audio output of the device.



In the Audio pane of the SConfigurator tool, you can set one output setting, the volume.

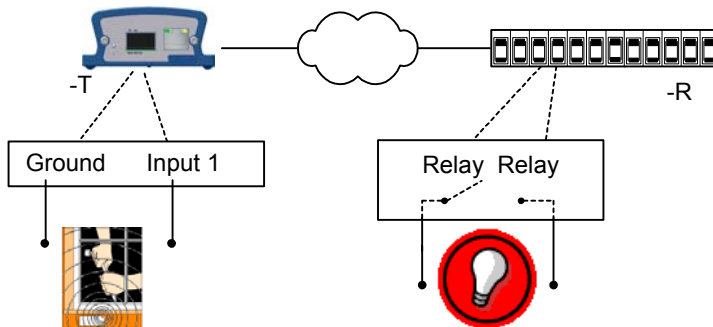
Specifications

The audio input/output specifications are (where 0 dBV = Vrms):

Mode	Gain	Impedance	Frequency range
Line-in	-20 to -3 dBV	30 kohm	300-3600 Hz
Speaker	-45 to -3 dBV	16 ohms min.	

Alarms

The S1900e devices can generate and receive alarms. A typical configuration requires you plug an event sensor to the input 1 and ground I/O terminals on the S1900e transmitter, and your alarm system to the Out section of a receiver. For example, using an S1900e-AS:



With SConfigurator, you activate the alarm process by checking the Forward I/O box in the Connection Creator window.

Updating the Firmware

You can update the firmware of the S1900e devices with the SConfigurator utility or a video management software; for the detailed procedure, refer to the documentation of the software. The latest firmware files are available on the Verint Video Solutions extranet (Technical Support, then Downloads, then Firmware Upgrades).

Warning: Firmware downgrade is not supported on any device. If you perform a downgrade, any problem encountered will not be covered by your product warranty.

The only method to update the firmware is through an IP network connection. If this update procedure fails:

1. Restart the same procedure immediately.
2. If the problem persists, move the device so that it is in the same IP subnet as the host computer, then restart the procedure.

You should take into consideration the following facts regarding firmware update using the IP network:

- It can be deactivated in the command line interface (CLI) or the web interface.
- Ensure that the IP link is stable before starting the procedure; therefore it is not recommended to perform it over the Internet.

Performing a Hardware Reset

You can perform two types of hardware reset on the S1900e device:

- A hard reset that will assign the factory default settings to the device (listed in Appendix A on page 37). All user-defined values will be lost. Following such a reset, you will need to reprogram the device (for instance, its IP address and VSIP port) for proper operation within its network.
- A soft reset during which the device will retain its configuration.

To perform a hard reset:

1. Press and hold the Reset button, until the system status LED flashes red very rapidly (it can take up to 10 seconds).
2. Hold the button for an additional five seconds, until the LED turns off.

The device is ready for use with the factory default settings.

To perform a soft reset:

- Press and hold the Reset button one second.

The device reboots, while retaining its configuration.

Red/Blue Display

If an S1900e transmitter currently streaming video to a management software loses its connection to a camera, the corresponding display tile in the software will present a half red, half blue/black pattern.

Activating Quality of Service

Quality of Service (QoS) is a set of low-level networking protocols giving higher priority to more important data flows while ensuring that the less important ones do not fail. QoS is an essential technology for organizations rolling out a new generation of network applications such as real-time voice communications and high-quality video delivery.

In the Nextiva edge devices, the two available QoS flavors are Type of Service (ToS) and Differentiated Service Code Points (DSCP).

For QoS to be taken into account, the network infrastructure equipment (switches and routers) must support one of these protocols. If any of these devices does not support QoS, the QoS data will simply be processed as traditional non-QoS data. Furthermore, all Nextiva edge devices on a network must support the same QoS protocol (or no protocols at all).

You can set a priority flag to three data types coming out of an edge device: video, audio, and control. A QoS-enabled switch (or router) uses this flag to determine how the current data compares to what is currently going through it.

To set the QoS values, you need to go in the command line interface (CLI) of the device, access the Advanced > Quality of Service menu. For the procedure to access the CLI, see page 41.

Status LED

The system status LED is a bicolor (green-red) LED providing detailed information on the current state of the device.

Condition	Indication
Steady red for 5 sec.	The device is powering up.
Flashing red (1 sec. intervals)	The IP address of the device is already assigned to another device on the network.
Flashing green (3 sec. intervals)	The firmware has started, but the device is not connected to the network.
Flashing green (1 sec. intervals)	The firmware has started, the device is connected to the network, but no video/audio/serial* data is transmitted.
Flashing green (0.2 sec. intervals)	The firmware has started, the device is connected to the network, and video/audio/serial* data is transmitted.
Three consecutive red blinks every 2 sec.	No video source is detected and no video is transmitted.
Flashing green-red (1 sec. intervals)	The device is undergoing a firmware update.
Flashing red (0.1 sec. intervals)	The device is being identified.

2: Configuring and Installing the Device

* At least one of them must be transferred to obtain the LED condition.

The following power-up conditions on the system status LED are abnormal:

- LED not lit—Check the power supply and cabling. If power is available and the LED stays off, call Verint Video Solutions customer service for assistance.
- Steady red LED persisting more than 10 seconds—There is an internal error that prevents the device from starting normally. Power down the device, wait 30 seconds, then power it up. If the condition persists, call Verint Video Solutions customer service.

3

Using the Web Interface

You can access the S1900e transmitter with a web browser for live viewing, configuration, or PTZ control. The S1900e supports the Pelco P and Kalatel PTZ protocols.

Getting Started

Depending on user account and security settings, you may have to provide a user name and password when logging into the web interface, or access it in secure mode.

If you upgraded your device from a previous firmware release, perform the following steps prior to using the web interface:

1. Open a Microsoft Internet Explorer window.
2. Delete the Internet cache:
 - a. On the **Tools** menu, open **Internet Options**.
 - b. In the **Temporary Internet files** box of the General tab, click **Delete Files**.
 - c. In the Delete Files window, check **Delete all offline content**, then click **OK**.
3. In the `Downloaded Program Files` folder on your computer (under either `C:\Windows` or `C:\WINNT`), delete the `SnPlayer Control` file.
4. Deactivate temporarily the popup blocker of your web browser.
5. In your Internet Explorer window, enter the IP address of the device using the `http://IP_address` format. If prompted when accessing live video data (see page 33), choose to install the `SnPlayer Control ActiveX` file (the file may install on its own).

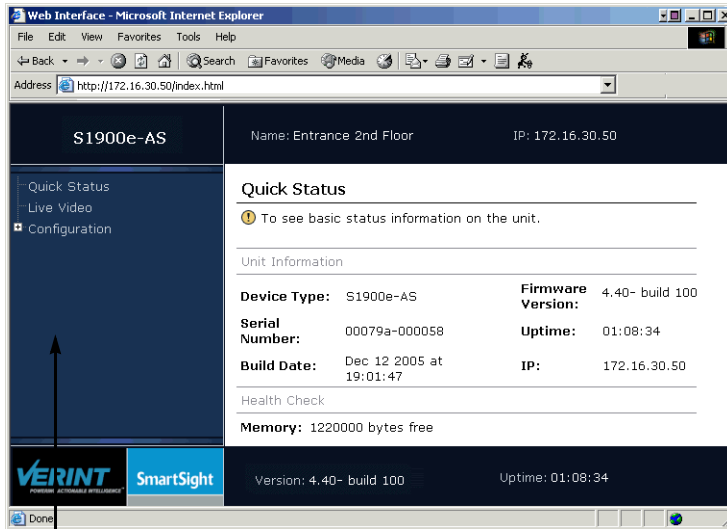
Note: You may need to lower the security level in your web browser to be able to install the ActiveX component. If the component is not installed, you will not see any video.

6. Reactivate your popup blocker.
7. If you do not see live video, clear the **Enable YUV Support** box (see page 33).

To use the web interface:

1. Start Internet Explorer.
2. In the **Address** box, enter the IP address of the device using the `http://IP_address` format.

The web interface window appears, presenting three types of information in the navigation pane.



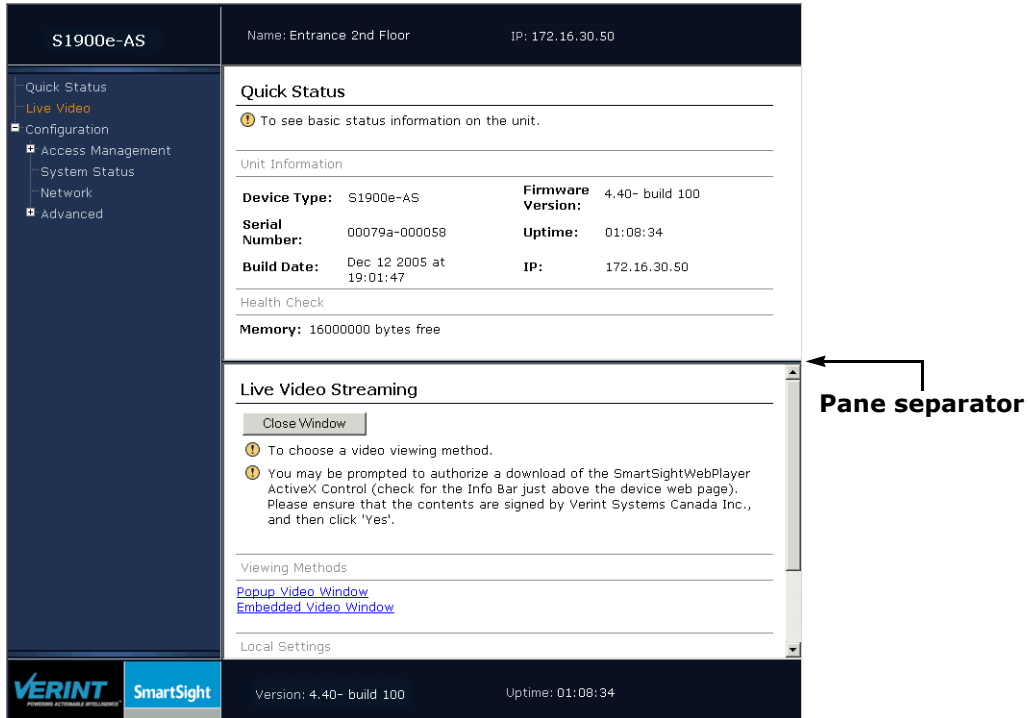
Navigation pane

3. To see basic information on the device, click **Quick Status**.
4. To configure the device:
 - a. Expand the **Configuration** node by clicking the plus (+) sign to its left.
 - b. Make the necessary changes.
 - c. Click **Apply**.

3: Using the Web Interface

5. To see the video stream coming out of the camera connected to the S1900e transmitter, click **Live Video** (for more information, see page 33).

The main web interface pane is split in two, with the live video data at the bottom. You can resize the two sub-panes by dragging the separator up or down.



Configuring the Device

You have access to the following parameter categories:

- Serial port
- Access management
- System status
- Network
- Video
- VSIP
- Audio
- System time
- HTTP

Serial Port

The device has one serial port, RS-422/485, for communicating with serial equipment (for example, PTZ cameras). For more information about the serial port settings of the specific product with which you want to interface, refer to its user guide or contact your product manufacturer.

The RS-422/485 parameters are:

S1900e-AS	
Name: Entrance 2nd Floor	IP: 172.16.30.50
Device Configuration	
⚠ This page displays configuration information.	
Serial Port	
Bit Rate	4800 bits/second
Parity	None
RS-422/485 Operating Mode	RS-422 4 Wires
Stop Bits	Two
Data Bits	8
<input type="button" value="Apply"/>	
Version: 4.40- build 100	Uptime: 01:08:34

- Bit Rate—The data rate of the target equipment. Possible values range from 1200 bps to 230,400 bps (for a transmitter) or to 115,200 bps (for a receiver). The required value is 9600.
- Parity—Odd, even, or no parity check. The required value is None.
- RS-422/485 Operating Mode—The way the RS-422/485 equipment will interface with the device. The required value is RS-422 4 Wires.
- Stop Bits—The number of stop bits in each transmission. The required value is One.
- Data Bits—The number of bits in transmitted data. The required value is 8.

Access Management

Access management takes care of user accounts and device security.

User Accounts

With user accounts, you can protect the configuration of the device by restricting its access with a user name and a password. Once the user account mode is activated, you need the user name/password combination to access the command line interface (CLI) of the device and the web interface.

Two types of users are available:

- Administrator—Has all rights and is automatically available when user accounts are activated.
- Web client—Only has access to live video and quick status in the web interface. Five web clients are available.

3: Using the Web Interface

The user account parameters are:

The screenshot shows the web interface for a Verint S1900e-AS device. The page title is "Device Configuration" and it displays configuration information. The "User Accounts" section is expanded, showing the following settings:

Setting	Value
User Accounts	Disabled
Administrator User Name	USERNAME
Administrator Password	PASSWORD
Web Client 1 User Name	
Web Client 1 Password	
Web Client 1	Disabled
Web Client 2 User Name	
Web Client 2 Password	
Web Client 2	Disabled

The interface also shows a navigation menu on the left with options like Quick Status, Live Video, Configuration, Serial Port, Access Management, User Accounts, Security, System Status, Network, and Advanced. The bottom of the page displays the Verint SmartSight logo, version 4.40-build 100, and uptime 01:08:34.

- **User Accounts**—To enable or disable the use of user names and passwords to access the device with the web interface or the command line interface. If disabled, anybody can access the device.
- **UserType User Name**—An alphanumeric string identifying a web interface user.
- **UserType Password**—An alphanumeric string of at least four characters long protecting the access to the device.
- **Web Client x**—To allow a web client to access the web interface.

Security

The security settings are relative to the protection of the device:

The screenshot shows the web interface for a Verint S1900e-AS device. The page title is "Device Configuration" and it displays configuration information. The "Security" section is expanded, showing the following settings:

Setting	Value
Telnet Session	Enabled
XML Report Generation	Enabled
IP Firmware Update	Enabled
HTTP Access	Enabled
Secure HTTP Access	Disabled
Global Security Profile	Disabled
SSL Passkey	

The "SSL Passkey" field has a description: "The passkey for SSL authentication (a maximum of 10 characters)." and an "Apply" button is visible below the field.

The interface also shows a navigation menu on the left with options like Quick Status, Live Video, Configuration, Serial Port, Access Management, User Accounts, Security, System Status, Network, and Advanced. The bottom of the page displays the Verint SmartSight logo, version 4.40-build 100, and uptime 01:08:34.

- **Telnet Session**—To enable or disable the access to the CLI of the device with Telnet.
- **XML Report Generation**—To enable or disable the generation of an XML report presenting the current state of the device.

- IP Firmware Update—To enable or disable the performance of firmware updates on the device through the IP network. This type of firmware update is the only one available for the devices.
- HTTP Access—To enable or disable the access to the web interface of the device. If you block this access, you can only set up the device with SConfigurator or Telnet.
- Secure HTTP Access—To enable or disable the access to the web interface of the device in a secure SSL context. If this context is enabled, you access the device with `https://` in your web browser and the user account mode is automatically activated (described on page 23).
- Global Security Profile—To enable or disable the complete SSL security on the device. Once this profile is activated on a device:
 - You cannot access it anymore with Telnet.
 - You cannot perform firmware updates through the IP network on it.
 - You access its web interface in a secure mode (that is, the secure HTTP access mode is enabled).
- SSL Passkey—The password to secure the connection with the device. The passkey must be the same for all devices and the software tools to allow proper secure communication between them.

Warning: You should not change this passkey with the web interface, since there could be eavesdropping on the network. You can use SConfigurator or a video management software to change it.

System Status

The system status information indicates the current values of internal device parameters.

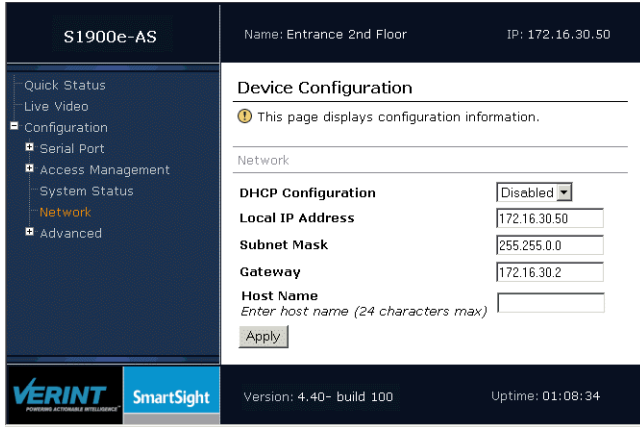
The screenshot shows the web interface for an S1900e-AS device. The top header displays the device name 'Entrance 2nd Floor' and IP address '172.16.30.50'. The left sidebar contains navigation options: Quick Status, Live Video, Configuration (with sub-items Serial Port, Access Management, System Status, and Network), and Advanced. The main content area is titled 'Device Configuration' and includes a note: 'This page displays configuration information.' Below this is the 'System Status' section, which lists the following parameters:

Firmware Version	4.40a build 100
Loader Version	4.00- build 408
Booter Version	5.00- build 38
Build Date	Jul 27 2005 at 11:47:05
CPU Info	MajRev[4] MinRev[0]
CPU Frequency	300375000
Uptime	01:08:34
Serial Number	00079a-000058
CPLD Version	0
Internal Value 1	800000 / 16
Audio Hardware	Present
Unit Tested (MM-YY)	Not Available

The footer of the interface shows the Verint logo with the tagline 'POWERING ACTIONABLE INTELLIGENCE', the SmartSight logo, and the device's own version '4.20b build 500' and uptime '01:08:34'.

Network

The Network menu allows you to configure several parameters to ensure compatibility between the device and its IP network. The parameters are:



- DHCP Configuration—To enable or disable the use of DHCP (Dynamic Host Configuration Protocol) to automatically get a valid network configuration for the device from a server. You can set this option only if the device is connected to a network that uses a DHCP server. For more information about DHCP, see Appendix B on page 39.
- Local IP Address—The unique IP address of the device on the network. The IP address format is a 32-bit numeric address written as four numbers separated by periods. Each number is in the 0–255 range. Each device on a network must have a unique IP address.
- Subnet Mask—The binary configuration specifying in which subnet the IP address of the device belongs. A subnet is a portion of a network that shares a common address component. Unless otherwise specified by your network administrator, it is recommended to use a subnet mask of 255.255.255.0.
- Gateway—The IP address of the network point that acts as an entrance to another network. Never use the IP address of the device as the gateway value.
- Host Name—An alias for the IP address of the device. It is made up of 2 to 24 alphanumeric characters; the first one must be a character. This parameter is optional.

Note: It is up to the DHCP server to register the host name in the DNS server.

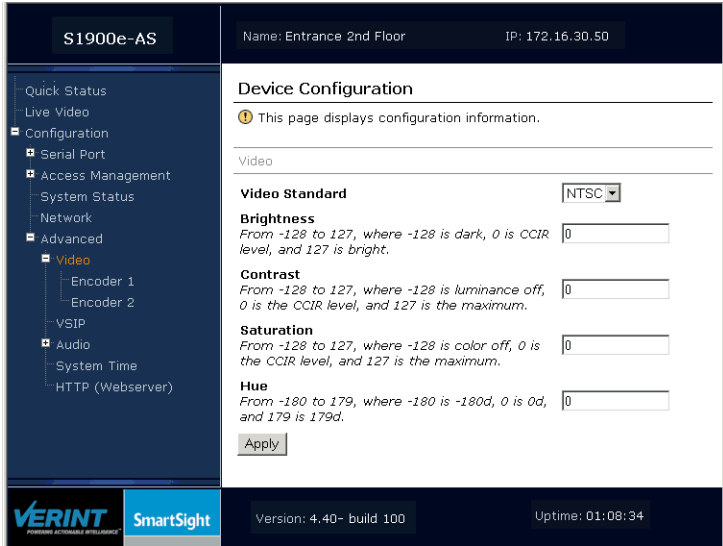
For more information about these settings, contact your network administrator.

Video

You can configure parameters relative to the encoding of video in the device. For more information about the video parameters, refer to the *SConfigurator User Guide*.

Common

The parameters common to all video functions of the device are:



- Video Standard—The analog display standard.
- Brightness—The total amount of light in a color.
- Contrast—The range of colors in the image.
- Saturation—The intensity of the colors in the image.
- Hue—The relative amounts of red, green, and blue in a color.
- Frame Format—The way the video is compressed; this parameter is available on the S1950e and S1970e only. Possible values are:
 - Field over Field—The proprietary mode used by the Nextiva edge devices.
 - Interlaced Frame—The MPEG-4 compliant mode where the two video fields are interlaced.
 - Deinterlaced Frame—The MPEG-4 compliant mode where the two video fields are converted to a progressive scan image by a deinterlacing filter. This filter removes interlaced artifacts for playback on a progressive scan monitor.

Encoders

For each encoder, the video parameters are:

S1900e-AS	Name: Entrance 2nd Floor	IP: 172.16.30.50
<ul style="list-style-type: none"> Quick Status Live Video Configuration <ul style="list-style-type: none"> Serial Port Access Management System Status Network Advanced <ul style="list-style-type: none"> Video <ul style="list-style-type: none"> Encoder 1 Encoder 2 VSIP Audio System Time HTTP (Webserver) 	<h3>Device Configuration</h3> <p>! This page displays configuration information.</p> <hr/> <p>Encoder 1</p> <p>Target Bit Rate The maximum number of generated kbits per second. From 9 to 6000.</p> <p><input type="text" value="2500"/> kbits/second</p> <p>Target Frame Rate The maximum number of generated frames per second. In NTSC: 1 to 7, 10, 15, or 30. In PAL: 1 to 6, 8, 12, or 25.</p> <p><input type="text" value="30"/> frames/second</p> <p>Minimum Quantizer A parameter related to video quality. From 2 to 31 (cannot be higher than Maximum Quantizer value).</p> <p><input type="text" value="3"/></p> <p>Maximum Quantizer A parameter related to video quality. From 2 to 31 (cannot be lower than Minimum Quantizer value).</p> <p><input type="text" value="12"/></p> <p>Input Filter Mode <input type="text" value="Low"/></p> <p>Noise Reduction Filter Mode <input type="text" value="Low"/></p> <p>Resolution <input type="text" value="CIF"/></p> <p>Rate Control Mode <input type="text" value="CFR (Constant Frame Rate)"/></p> <p>Intra Interval Add 1 Frame every X Frames, X between 0 and 1000</p> <p><input type="text" value="64"/></p> <p>Compression Mode <input type="text" value="SM4"/></p> <p>Deinterlacing Mode <input type="text" value="Off"/></p> <p><input type="button" value="Apply"/></p>	
	<p>Version: 4.40- build 100</p> <p>Uptime: 01:08:34</p>	

- **Target Bit Rate**—The maximum number of bits per second generated by the device. Valid bit rates range from 9 to 6000 kbps.
- **Target Frame Rate**—The maximum number of frames per seconds (fps) that will be encoded and transferred by the transmitter. This parameter can be set to 1 to 7, 10, 15, or 30 fps in NTSC mode and 1 to 6, 8, 12, or 25 fps in PAL mode.
- **Minimum Quantizer**—A parameter related to video quality. A higher quantizer value means less video quality but less bit rate, and vice versa. The value range is from 2 to 31.
- **Maximum Quantizer**—A parameter related to video quality. A higher quantizer value means less video quality but less bit rate, and vice versa. The value range is from 2 to 31.
- **Input Filter Mode**—The level of filtering applied to the video signal before it is encoded, helping to remove high frequency noise from lower quality cameras or noisy video feeds.
- **Noise Reduction Filter Mode**—The filtering of small variations in pixels in otherwise motionless sections of the video, to be used in all conditions to reduce the bit rate. Using this filter also helps reduce the number of false alarms in low light conditions.
- **Resolution**—The measure of how clear and crisp the video image appears. Each resolution corresponds to a specific number of pixels (columns * lines) for each picture of the video sequence.

- **Rate Control Mode**—The mode controlling the bit rate variation. The available modes are:
 - **CBR**—The Constant Bit Rate mode is the most effective to maintain the target bit rate. Video quality may suffer and the frame rate may decrease. This mode should be used when transmitting video over networks that have very limited bandwidths, and with an intra interval value of 0.
 - **CFR (Constant Frame Rate)**—This mode maintains the target frame rate. Video quality may suffer and the bit rate may exceed the target value.
 - **Nextiva Storage**—This is the optimized mode to be used only for the Nextiva enterprise video management software.
- **Intra Interval**—The frequency at which a complete video frame (called *I-frame*) is sent by the encoder. Possible values are in the 0–1000 range. A value of 0 indicates that no I-frame will be sent automatically by the device; a value of X means that a complete image refresh will occur every X frames.
- **Compression Mode**—The way the video is compressed. The following modes are available:
 - **SM4**—The proprietary MPEG-4-based mode.
 - **MPEG4 Compliant Simple Profile**—The MPEG-4 ISO 14496-2 compliant mode.
- **Deinterlacing Mode**—The way the video is compressed; this parameter is only available on the S1900e-AS. Possible values are:
 - **OFF**—The proprietary mode used by the Nextiva edge devices.
 - **Interlacing**—The MPEG-4 compliant mode where the two video fields are interlaced.
 - **Median Deinterlacing**—The MPEG-4 compliant mode where the two video fields are converted to a progressive scan image by a deinterlacing filter. This filter removes interlaced artifacts for playback on a progressive scan monitor.

VSIP

You can set the following parameters related to the VSIP proprietary communication protocol:

The screenshot shows the configuration page for a Nextiva S1900e-AS device. The page title is "S1900e-AS" and it displays the device name "Entrance 2nd Floor" and IP address "172.16.30.50". The "Device Configuration" section contains a warning message: "This page displays configuration information." Below this, the "VSIP" section is expanded, showing the following settings:

- VSIP Port:** 25258. Description: "The VSIP communication port of the unit. IP ports 9541, 65500, and those under 1024 must not be used."
- VSIP Multicast IP Address:** 224.16.32.1. Description: "The multicast IP address used by the unit to listen for VSIP queries."
- VSIP Discovery IP Address:** 255.255.255.255. Description: "The IP address used by the unit to make its presence known on the network."
- VSIP Unit Name:** Entrance 2nd Floor. Description: "The name of the unit."

An "Apply" button is located at the bottom of the VSIP configuration section. The footer of the interface includes the Verint logo, "SmartSight" branding, and system information: "Version: 4.40- build 100" and "Uptime: 01:08:34".

3: Using the Web Interface

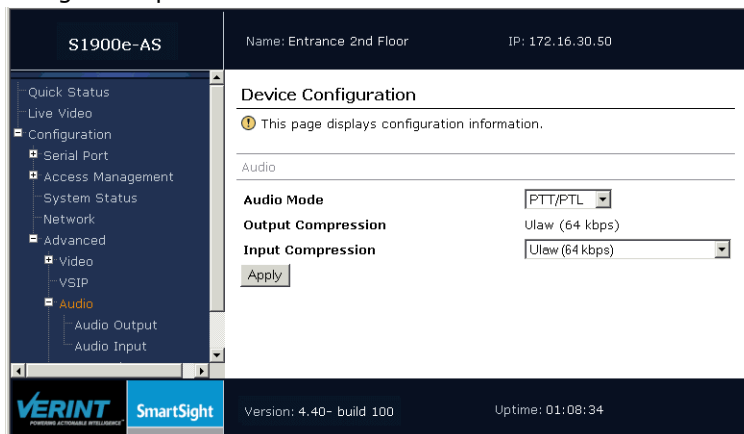
- **VSIP Port**—The communication port used by the device. The default value of all Nextiva devices is 5510.

Note: VSIP ports 9541, 65500, and those under 1024 are reserved and should not be used, not even for serial port, video, or audio communication. The maximum value is 65535.

- **VSIP Multicast IP Address**—The IP address used by the device to listen for VSIP queries. The current multicast address is 224.16.32.1 and should not be changed.
- **VSIP Discovery IP Address**—The IP address used by the device to make its presence known with the broadcast method. The broadcast address is 255.255.255.255.
- **VSIP Unit Name**—The name of the device.

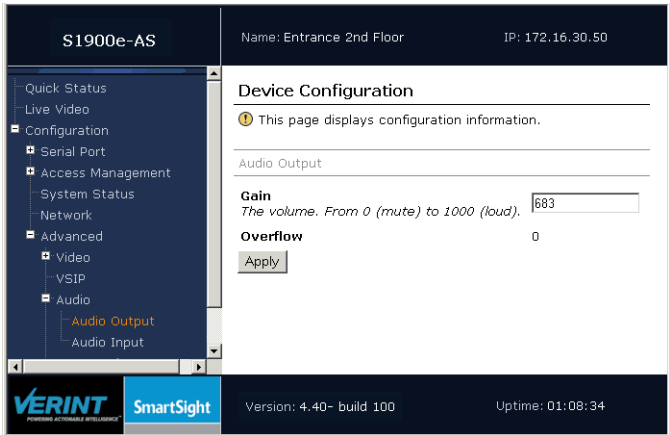
Audio

You can set general parameters, as well as specific values for the audio input and output. The general parameters are:

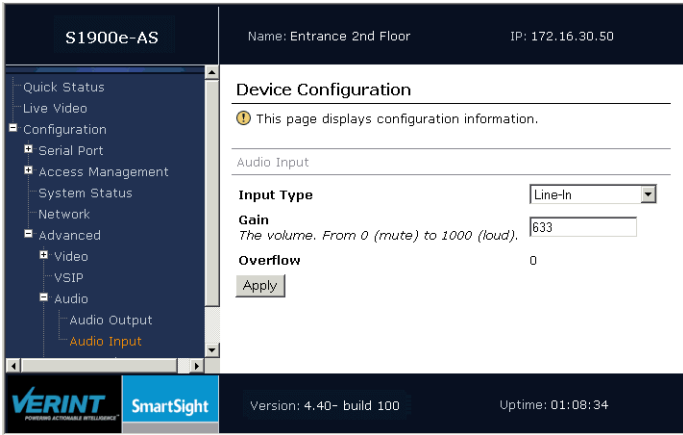


- **Audio Mode**—The audio transmission mode.
- **Output Compression**—The transfer mode for the audio data of the remote device.
- **Input Compression**—The transfer mode for the audio data of the local device.

The audio output parameters are:



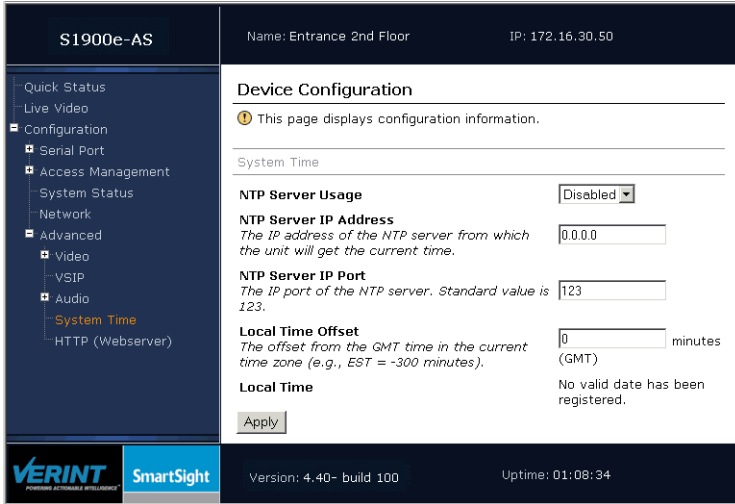
The parameters for audio input are:



- Input Type—The type of your audio source.
- Gain—The control for the volume.

System Time

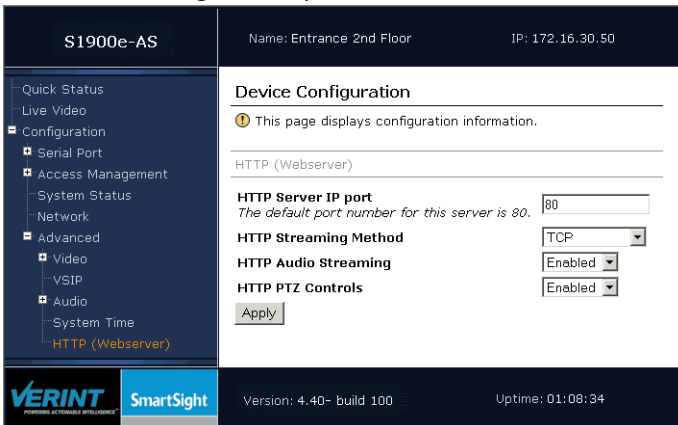
You can set the following parameters relative to the system time:



- NTP Server Usage—To enable or disable the use of the Network Time Protocol (NTP) to get the current time. NTP uses GMT to synchronize device clock time.
- NTP Server IP Address—The IP address of the NTP server from which the device will get the current time.
- NTP Server IP Port—The IP port of the NTP server. Default is 123.
- Local Time Offset—The offset in minutes from the GMT time in the current time zone (for instance, the offset for the Eastern Standard Time is -300 minutes).

HTTP (Webserver)

A series of configuration parameters are relative to the web interface itself:



Note: If you change any of these parameters, you must refresh the web page (for instance, by pressing F5).

- HTTP Server IP Port—The port number of the HTTP server.
- HTTP Streaming Method—The protocol used for transmitting video.
- HTTP Audio Streaming—To enable or disable the transmission of audio data.

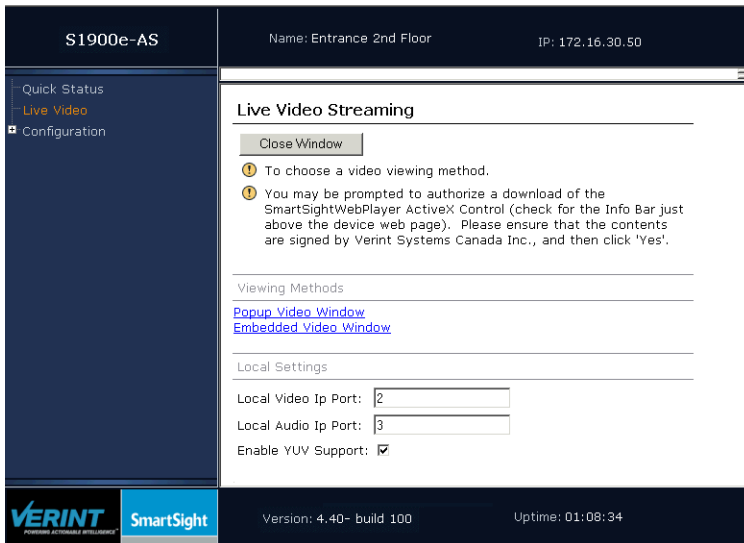
If you enable audio streaming on your computer, you may experience a click every 10 seconds. To stop it, remove the sound with a Control Panel utility: Open **Sounds and Multimedia**; in the Sounds tab, locate the **Windows Explorer** category, then select **Start Navigation**; change its sound to **(None)**.

- HTTP PTZ Controls—To enable or disable the transmission of PTZ data.

Viewing Live Video

Note: If you upgraded the device firmware, you need to perform the steps listed on page 20 prior to viewing live video.

You can view the stream coming out of the first encoder of the video source connected to the transmitter using one of the two available viewing methods, popup or embedded.



To close the live video sub-pane, click **Close Window**.

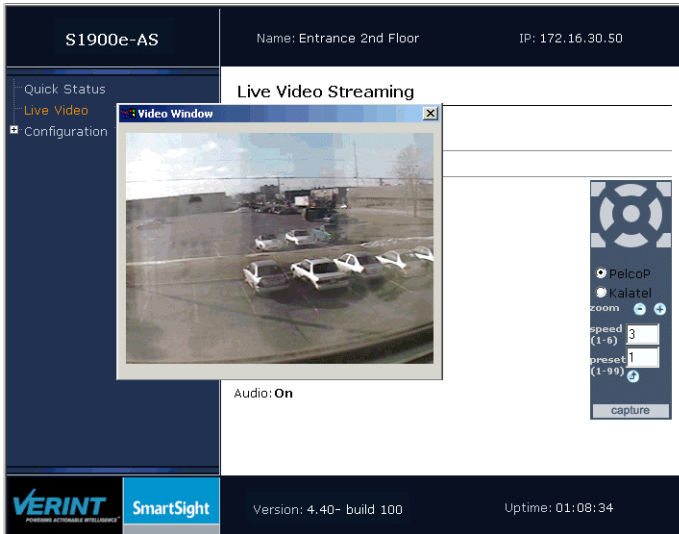
Before viewing live video on your computer, you may need to set up the following parameters:

Note: Unless you need to use a specific port, it is recommended to keep the default values in the Local Video IP Port and Local Audio IP Port boxes.

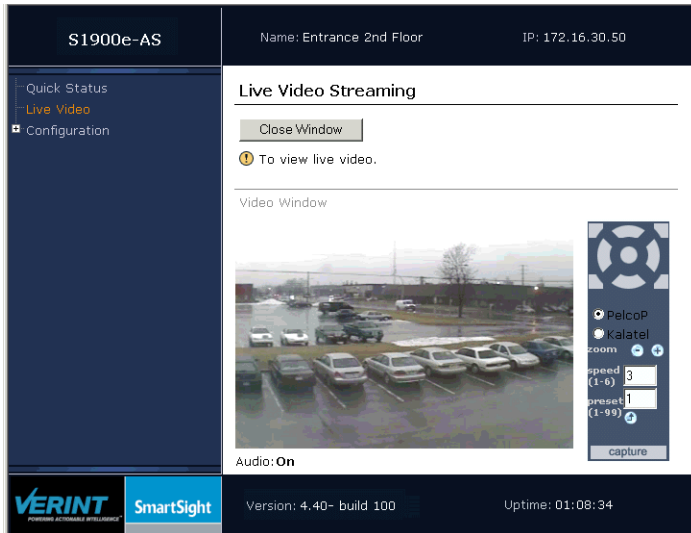
- Local Video IP Port—The port number on your computer that will receive video.
- Local Audio IP Port—The port number on your computer that will receive audio.
- Enable YUV Support—The indicator of whether YUV video conversion will be used. Most graphics video cards support YUV.

Presentation Windows

If you choose Popup Video Window, the video will be displayed in a separate window:

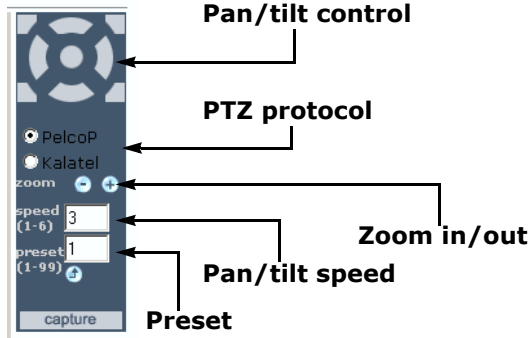


With an embedded window, the video will be displayed directly on the web page. For example:



PTZ Controls

The PTZ controls allow you to manage the movements of the active camera and to specify zoom values:



The control buttons allow you to pan (left or right) or tilt (up or down) the camera.

The + and - buttons allow you to zoom in or out respectively. You can also determine the camera pan-tilt speed by entering a number between 1 (slower) and 6 (faster).

You can also use the preset advanced function on automated PTZ cameras.

To send a copy of the video stream to the Windows clipboard, click **capture**.

A

Factory Default Configuration

A: Factory Default Configuration

The S1900e series is programmed at the factory with the following configuration:

Type	Configuration
Serial port	<ul style="list-style-type: none">■ Bit rate: 4800 bauds■ Data bits: 8■ Parity: none■ Stop bit: 1■ RS-422/485 operating mode: RS-422 4-wire
Access management	<ul style="list-style-type: none">■ User accounts: Disabled■ Telnet sessions: Enabled■ IP firmware update: Enabled■ Global security profile: Disabled■ SSL passkey: <empty>
Network	<ul style="list-style-type: none">■ DHCP configuration: Disabled■ IP address: 169.254.*.* (last two bytes of the MAC address of the device)■ Subnet mask: 255.255.0.0■ Gateway: 0.0.0.0
Video settings (North America)	<ul style="list-style-type: none">■ Target frame rate: 30 fps■ Target bit rate: 800 kbps■ Resolution: CIF (352 x 240)■ Maximum quantizer: 24■ Video standard: NTSC
Video settings (Europe)	<ul style="list-style-type: none">■ Target frame rate: 25 fps■ Target bit rate: 800 kbps■ Resolution: CIF (352 x 288)■ Maximum quantizer: 24■ Video standard: PAL
VSIP	<ul style="list-style-type: none">■ VSIP Port: 5510■ VSIP Multicast IP Address: 224.16.32.1■ VSIP Discovery IP Address: 255.255.255.255

B

DHCP Support and APIPA

DHCP (Dynamic Host Configuration Protocol) allows devices and computers connected to a network to automatically get a valid IP configuration from a dedicated server.

The APIPA (Automatic Private IP Addressing) scheme, available on the Windows operating systems, enables a device to assign itself a temporary IP address.

B: DHCP Support and APIPA

At startup, an edge device searches for a valid IP network configuration. The device requires this configuration prior to starting its functions. The network configuration for Nextiva devices consists of:

- An IP address
- A subnet mask
- A gateway

The device first looks in its local memory. If no configuration is found, it tries to contact a DHCP server. If DHCP configuration fails—if the device does not find a server or if it cannot get a configuration from it within one minute—the device assigns itself temporary network settings based on the APIPA addressing scheme. This scheme allows a device to find a unique IP address until it receives a complete network configuration, either manually or from a DHCP server.

A device in APIPA mode does not reside on the same subnet as the other devices on the IP network; therefore, it may not be able to see them or be visible to them. Devices use the following temporary APIPA configuration:

- IP address: 169.254. *. *
- Subnet mask: 255.255.0.0
- Gateway: 169.254. *. *

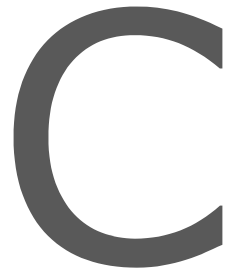
The *. * portion is based on the MAC address of the device.

A device is in APIPA mode:

- The first time it boots up
- After receiving a duplicate IP address
- After a hardware reset
- When the DHCP server does not have any available IP addresses

DHCP configuration is automatically disabled:

- After a firmware upgrade
- After a factory reset



CLI Access

You may need to access the command line interface (CLI) of an edge device to perform troubleshooting tasks, typically with the assistance of a Verint Video Solutions customer service specialist. The CLI is hierarchically organized, with menus, sub-menus, and individual options representing configuration parameters.

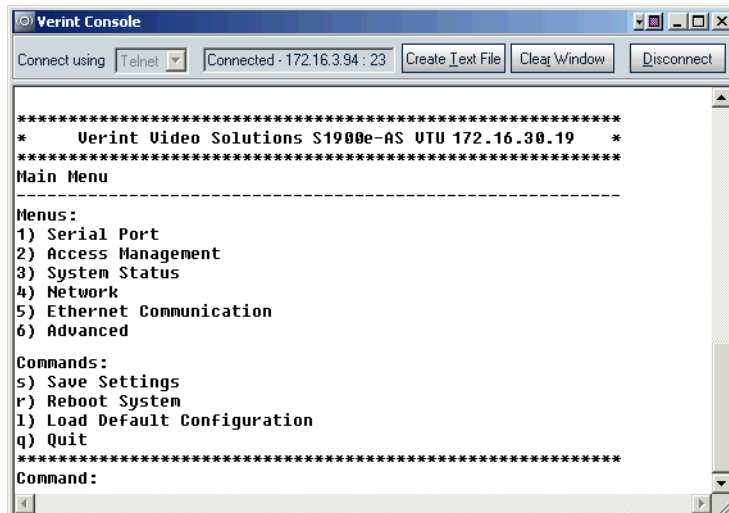
You can access the CLI with the SConfigurator tool, through the Telnet utility.

Note: Ensure that your computer and the S1900e device are in the same IP subnet.

To enter the CLI with Telnet:

1. Open SConfigurator.
2. In the Units tab, discover the devices.
3. Select the desired device, then click **Telnet**.

The CLI main menu appears in the Verint Console window.



The CLI has a timeout that is triggered after three minutes of inactivity. When the timeout occurs:

- You lose access to the command line.
 - The "Thank you for using the Verint Video Solutions CLI" message appears at the command line.
 - The Verint Console window becomes disabled.
 - The Disconnect button switches to Connect.
4. To reactivate the CLI after a timeout, click **Connect**.
 5. To work through the CLI menu structure, follow these guidelines:
 - To execute a command or open a menu, type in the corresponding letter or number, then press **Enter**.
 - To return to the previous menu, enter **p**.
 6. To end the CLI work session:
 - a. Save the settings by entering **s** at the main menu, then pressing **Enter**.
 - b. Exit the CLI by entering **q** at the main menu, then pressing **Enter**.
Depending on the changed settings, the device may perform a soft boot.

- c. Close the Verint Console window.

Warning: Do not use the Disconnect button to exit the CLI, since it does not save your settings.

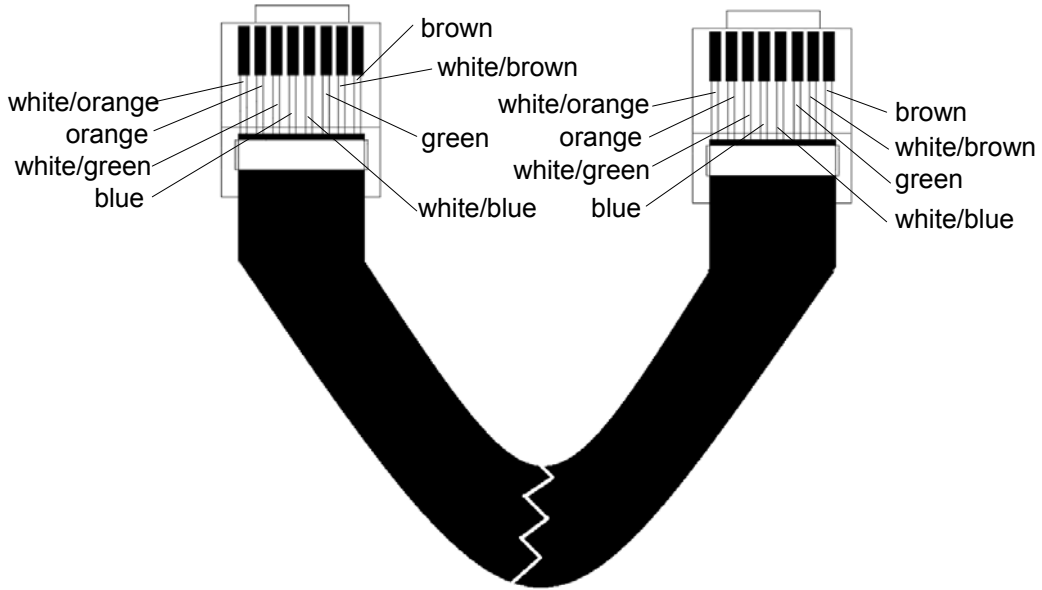
D

RJ-45 Ethernet Cables

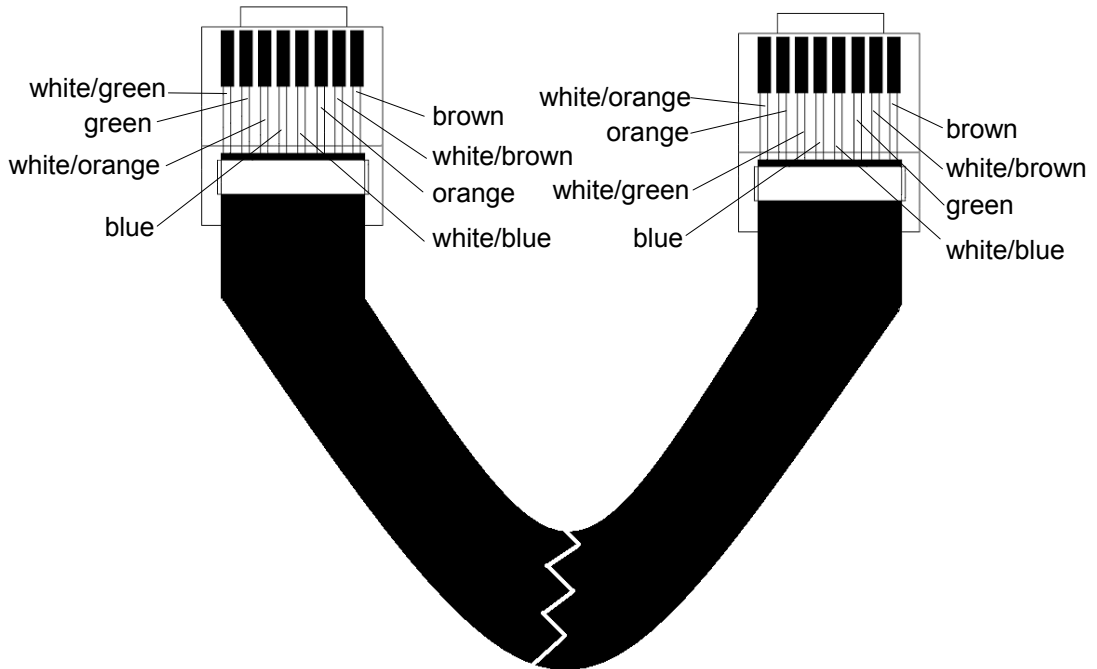
Depending on whether the device is integrated on a network or not, the Ethernet cable varies:

- If on a network, use a straight-through cable.
- To link it directly to a computer, use a crossover cable.

Here is the bottom view of the RJ-45 connectors on a straight-through cable:



Here is the bottom view of the RJ-45 connectors on a crossover cable:



E

Technical Specifications

Here are the S1900e series technical specifications:

Video	Compression	MPEG-4-based and MPEG-4 ISO 14496-2 compliant
	Frame rate	Up to 30 frames or 60 fields per second in NTSC (25 frames or 50 fields in PAL), programmable (full motion)
	Input	1 composite, 1 Vpp into 75 ohms
	Resolution	Scalable from 176 x 128 to 704 x 480 NTSC pixels (176 x 144 to 704 x 576 PAL pixels)
	Standard	NTSC or PAL
	Connectors	BNC female
	Bandwidth	Configurable between 9 and 6000 kbps
Serial Port	Electrical levels	RS-422/485 2/4 wires (230 kbps max.)
	Connectors	Pluggable screw-terminal strip
	Operating mode	Transparent serial port supporting any asynchronous serial protocol
Alarm and audio	Alarm input	S1900e-AS: 2 dry contacts S1950e, S1970e: 1 dry contact
	Alarm output	1 relay contact (48V AC/DC at 100 mA max.)
	Bidirectional audio	Input: -20 to -3 dBV into 30 kohm Output: -45 to -3 dBV into 16 ohms min.
	Audio connectors	S1900e-AS: 2 dry contacts S1950e, S1970e: One set of 1/8 inch (3.5 mm) input and output stereo jacks
Network	Interface	Ethernet 10/100Base-T
	Connector	RJ-45 jack
	Protocols	Transport: RTP/IP, UDP/IP, TCP/IP, multicast IP Others: DNS and DHCP client
	Security	SSL-based authentication
Power	Supply voltage	12V DC (5.5W)
	Consumption	4W max. (400 mA at 12V DC)
Physical	Enclosure	Aluminum extrusion with plastic end plates
	Size	non-XT models: 4.9L x 3.5W x 1.7H inches (124.5L x 89W x 43H millimeters) XT models: 7.8L x 3.5W x 1.7H (198L x 89W x 43H millimeters)
	Weight	S1900e-AS: 10 oz (282 g) S1900e-AS-XT: 13.8 oz (390 g) S1950e, S1970e: 8.8 oz (250 g) S1950e-XT, S1970e-XT: 12.6 oz (358 g)
	Environment	S1900e-AS: 32°F to 113°F (0°C to 45°C) S1900e-AS-XT: -22°F to 131°F (-30°C to +55°C) S1950e, S1970e: 32°F to 122°F (0°C to 50°C) S1950e-XT, S1970e-XT: -22°F to 140°F (-30°C to 60°C)
	Humidity	95% non condensing at 122°F (50°C)
Management	Configuration	Remote using Nextiva, nDVR, SConfigurator, Internet Explorer, or Telnet

Certification/ Regulation	USA	FCC part 15 (subpart B, class A)
	Canada	ICES-003/NMB-003
	Europe	CE marked, EN 55022:1998 Class A, EN 55024 S1950e, S1950e-XT, S1970e, S1970e-XT: Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 (RoHS)

Glossary

This glossary is common to the Nextiva line of edge device products.

Access Point A device acting as a communication switch for connecting wireless edge devices to a wired LAN. Access points are mainly used with wireless transmitters to transfer wireless content onto the wired IP network.

APIPA (Automatic Private IP Addressing) A feature of Windows-based operating systems that enables a device to automatically assign itself an IP address when there is no Dynamic Host Configuration Protocol (DHCP) server available to perform that function. Also known as *AutoIP*.

Bridge A device linking a wireless network to a wired Ethernet network. The newest Nextiva bridge is the S3100.

Camera See *S2500e*, *S2600e Series*, or *S2700e Series*.

CCTV (closed circuit television) A television system in which signals are not publicly distributed; cameras are connected to television monitors in a limited area such as a store, an office building, or on a college campus. CCTV is commonly used in surveillance systems.

CIF (common intermediate format) A video format that easily supports both NTSC and PAL signals. Many CIF flavors are available, including CIF, QCIF, 2CIF, and 4CIF. Each flavor corresponds to a specific number of lines and columns per video frame.

CLI (command line interface) A textual user interface in which the user responds to a prompt by typing a command.

Codec (coder/decoder) A device that encodes or decodes a signal.

Configuration Assistant A proprietary graphical program used to configure and update the firmware of the S1100 edge devices.

DCE (data communication equipment) In an RS-232 communication channel, a device that connects to the RS-232 interface. Nextiva edge devices and modems are DCE.

Decoder See *Receiver*.

DHCP (Dynamic Host Configuration Protocol) A communication protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in a network.

DTE (data terminal equipment) In an RS-232 communication channel, the device to which the RS-232 interface connects. Computers, switches, multiplexers, cameras, and keyboards are DTE.

DVR (digital video recorder) A device (usually a computer) that acts like a VCR in that it has the ability to record and play back video images. The DVR takes the feed from a camera and records it into a digital format on a storage device which is most commonly the hard drive.

Edge Device A Nextiva device transmitting or receiving video signals through an IP network. The devices can be wireless or wired; some transmitters are IP cameras.

Encoder See *Transmitter*.

Ethernet A local area network (LAN) architecture using a bus or star topology and supporting data transfer rates of 10, 100, and 1000 Mbps. It is one of the most widely implemented LAN standards. The 802.11 protocols are often referred to as "wireless Ethernet."

Firmware Software stored in read-only memory (ROM) or programmable ROM (PROM), therefore becoming a permanent part of a computing device.

IP (Internet Protocol) The network layer for the TCP/IP protocol suite widely used on Ethernet networks.

IP Camera See *S2500e*, *S2600e Series*, or *S2700e Series*.

LAN (local area network) A computer network that spans a relatively small area. A LAN can connect workstations, personal computers, and surveillance equipment (like edge devices). See also *WAN*.

MPEG-4 A graphics and video lossy compression algorithm standard that is derived from MPEG-1, MPEG-2, and H.263. MPEG-4 extends these earlier algorithms with synthesis of speech and video, fractal compression, computer visualization, and artificial intelligence-based image processing techniques.

Multicast Communication between a sender and multiple receivers on a network; the devices can be located across multiple subnets, but not through the Internet. Multicast is a set of protocols using UDP/IP for transport.

nDVR A video management and storage software sold by Verint Video Solutions. This graphical product is used in conjunction with wired and wireless edge devices.

Nextiva The powerful, enterprise-class video management platform and suite of applications from Verint that helps enhance security and improve performance. Nextiva simplifies the management of large scale, distributed video operations and promotes efficient use of network resources.

NTSC (National Television Standards Committee) The North American standard (525-line interlaced raster-scanned video) for the generation, transmission, and reception of television signals. In addition to North America, the NTSC standard is used in Central America, a number of South American countries, and some Asian countries, including Japan. Compare with *PAL*.

NTP (Network Time Protocol) A protocol designed to synchronize the clocks of devices over a network.

OSD (on-screen display) Status information displayed on the video monitor connected to a receiver edge device.

PAL (Phase Alternation by Line) A television signal standard (625 lines) used in the United Kingdom, much of western Europe, several South American countries, some Middle East and Asian countries, several African countries, Australia, New Zealand, and other Pacific island countries. Compare with *NTSC*.

PTL (push-to-listen) In a two-way system, the communication mode in which the listener must push a button while listening.

PTT (push-to-talk) In a two-way system, the communication mode in which the talker must push a button while talking.

PTZ Camera (pan-tilt-zoom) An electronic camera that can be rotated left, right, up, or down as well as zoomed in to get a magnified view of an object or area. A PTZ camera monitors a larger area than a fixed camera.

QoS (Quality of Service) A set of low-level networking protocols giving higher priority to more important data flows while ensuring that the less important ones do not fail.

Receiver A device converting a digital video signal into an analog form. Also called *decoder*.

Repeater A range extender for wireless links. The Nextiva repeater is made up of two S3100 bridges.

RF (radio frequency) Any frequency within the electromagnetic spectrum associated with radio wave propagation. When a modulated signal is supplied to an antenna, an electromagnetic field is created that is able to propagate through space. Many wireless technologies are based on RF field propagation.

RS-232 A standard interface approved by the Electronic Industries Alliance (EIA) for connecting serial devices.

RS-422 A standard interface approved by the Electronic Industries Alliance (EIA) for connecting serial devices, designed to replace the older RS-232 standard because it supports higher data rates and greater immunity to electrical interference.

RS-485 An Electronics Industry Alliance (EIA) standard for multipoint communications.

S1000 Series The series of secure outdoor wireless video systems (one receiver and one transmitter per system). The series covers the 2.4 GHz band in North America and Europe and the 5 GHz band in North America. Starting with firmware release 3.20, the S1000 series is replaced by the S1100 edge devices.

S1000w The outdoor wireless video transmitter operating on the 2.4 GHz frequency band.

S1100 The newest series of secure outdoor wireless video systems (one receiver and one transmitter per system) covering the 2.4 and 5 GHz bands in North America and Europe.

S1100w The multiband (2.4 and 5 GHz) outdoor wireless video transmitter operating in North America and Europe.

S1500e Series The series of wired edge devices (receivers and transmitters) designed for video monitoring and surveillance over IP networks. The transmitters in the series offer from one to eight video inputs; the series proposes two receivers with one and four video outputs.

S1700e Series The series of wired video transmitters designed for video monitoring and surveillance over IP networks, offering DVD-quality video and power over Ethernet. The transmitter in the series offers one video input and web access.

S1708e Series The series of wired video transmitters designed for a variety of video monitoring and surveillance applications in which a high concentration of cameras terminates within the same area. The transmitters in the series offer 4, 8, 12, or 24 video inputs. Some models offer onboard video analytics capabilities.

S1900e Series The highly compact, single-input video transmitter designed for video monitoring and surveillance over IP networks, offering various video qualities and functionality sets, as well as web access for configuration and live viewing. The series includes the S1900e-AS (with onboard analytics capabilities), the S1950e (a cost optimized solution), and the S1970e (for better video performance).

S1900e-Vicon The board holding the S1900e compact IP technology, to be included into Vicon SurveyorVFT dome cameras.

S2500e The MPEG-4-compliant professional IP camera integrating a video sensor and an Ethernet encoder in the same compact enclosure.

S2600e Series The set of professional IP cameras with a super wide range for excellent quality in high-contrast environments. These MPEG-4-compliant cameras integrate a video sensor and an Ethernet encoder in the same compact enclosure. The series includes color, day/night, and analytics-ready cameras. All models provide web access for configuration and live viewing.

S2700e Series The set of high-resolution, IP mini-dome cameras with triple axis lens rotation for flexible installation, and low lux sensitivity for crisp clear images in a variety of lighting conditions. The S2700e cameras offer DVD-quality video and web access for configuration and live viewing.

S3100 The outdoor, wireless, digital video bridging device. It has many uses, including linking edge devices (wireless or wired) to an Ethernet LAN and acting as a range extender.

SConfigurator A proprietary graphical program used to configure and update the firmware of edge device and outdoor wireless bridge devices.

Serial Port An interface that can be used for serial communication, in which only one bit is transmitted at a time. A serial port is a general-purpose interface that can be used for almost any type of device.

SSL (Secure Sockets Layer) A commonly used protocol for transmitting private documents via the Internet. SSL works by using a public key to encrypt data that is transferred over the SSL connection. The SSL protocol secures the following data: I/O, serial port, and VSIP communication; it does not apply to audio and video transmission.

Transceiver (transmitter/receiver) A device that both transmits and receives analog or digital signals.

Transmitter A device sending video signals captured with a connected camera to a receiver. The transmitter converts the analog signal into a digital form before transmitting it. Also called *encoder*.

VSIP (Video Services over IP) A proprietary communication protocol for sending messages between a computer and a Nextiva edge device, or between two devices.

WAN (wide area network) A computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more local area networks (LANs).

WEP (Wired Equivalent Privacy) A security protocol for wireless local area networks (WLANs) defined in the 802.11b standard. It is designed to afford wireless networks the same level of protection as a comparable wired network.

Wireless Cell A group of wireless devices that communicate together on the same radio frequency channel and share the same wireless passkey.

Wireless Transmission A technology in which electronic devices send information to receivers using radio waves rather than wiring.

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Compliance

FCC Statement

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.

Industry Canada Statement

This Class A digital apparatus complies with Canadian ICES-003.

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

EN 55022 Statement

This is to certify that the Nextiva Models S1900e, S1950e, and S1970e Ethernet video servers are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/ECC, Article 4a. Conformity is declared by the application of EN55022 Class A (CISPR 22).

Declaration of Conformity

Manufacturer:

Verint Systems Inc.
1800 Berlier
Laval, Québec
H7L 4S4
Canada

Declares under sole responsibility that the product:

Product name: Ethernet video server
Model number: S1900e-AS, S1950e, S1970e

To which this declaration relates is in conformity with the following standards or other documents:

EMC Directive 89/336/EEC:

EN55022:1998 class A

EN55024:1998

EN 61000-4-3:1996	3V/m
EN 61000-4-6:1996	3Vrms
EN 61000-4-2:1995	4kV CD, 8 kV AD
EN 61000-4-4:1995	1kV (power), 500V (signal)
EN 61000-4-11:1994	
EN 61000-4-5:1995	2kV L-E, 1kV L-L
ENV50204:1995	

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

July 5th, 2005
Laval, Canada



Willie Kounkar
Vice President, Product Development
Verint Video Solutions

RoHS Declaration of Compliance

June 14th, 2006

Verint believes in the importance of conducting our business in a manner that will help protect the environment as well as our employees, customers, and the public.

To that end, we are committed to bringing our existing and future product lines into EU RoHS Directive compliance.

Thus, as of July 1 2006, the following products, S1950e and S1970e, will comply with the DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 (RoHS) regarding the restriction of the use of certain hazardous substances in electrical and electronic equipment.

The S1950e and S1970e products will not exceed the maximum concentrations of 0.1% by weight in homogenous materials for lead, hex chrome, mercury, PBB, PBDE, and 0.01% for cadmium. In addition, the S1950e and S1970e products will qualify for the "lead in servers solders" exemption as set forth in the Directive.

This declaration is provided based on reasonable inquiry of our suppliers and represents our actual knowledge based on the information provided by our suppliers.

Sincerely,



Willie Kouncar
Vice President, Product Development
Verint Video Solutions

