SIGHTLOGIX®
ENTERPRISE SECURITY
SYSTEM GUIDE

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SightLogix Enterprise Security System Guide
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About this guide

This guide contains complete information for setting up, managing, and using the SightLogix® Enterprise Security System to detect intrusions. It is intended primarily for integrators who will be installing, configuring, and calibrating both SightLogix devices, the SightSensor® and SightTracker™.

2nd Generation and 3rd Generation SightSensors run on different hardware (as shown). Except where noted, you can assume that all information here applies to both generations.

Determining Your SightSensor Generation

3rd Generation SightSensor
Dimensions: 12.1 L" x 5.8 W" x 5.5 H"
(30.7 cm L x 14.7 cm W x 14.0 cm H)

2nd Generation SightSensor
Dimensions: 18.1 L" x 6.8 W" x 6.6 H"
(46 cm L x 17.3 cm W x 16.8 cm H)

Chapter 1, "Introduction," is a general description of the features, capabilities, and architecture of the SightLogix devices. It also introduces the interface screens of the SightMonitor. Read this chapter for an overview of the system.

Chapter 2, "Getting Started," gives step-by-step instructions for creating a site map, installing the SightSensors on an Ethernet network, adding devices to the site map, and calibrating devices to return GPS coordinates.

Chapter 3, "Setting up SightTrackers with PTZ Cameras," describes how to set up SightTrackers to enable Pelco® D protocol cameras to automatically track targets identified by SightSensors.

Chapter 4, "Setting Alarm Policies," describes the alarm policy options available for controlling when alarms are generated and what areas of the camera view can generate alarms.

Chapter 5, "Advanced Configuration," describes administrative functions for advanced calibration, monitoring cameras, changing video transmission settings, controlling the tracking and stabilizer functions, and addressing performance issues.

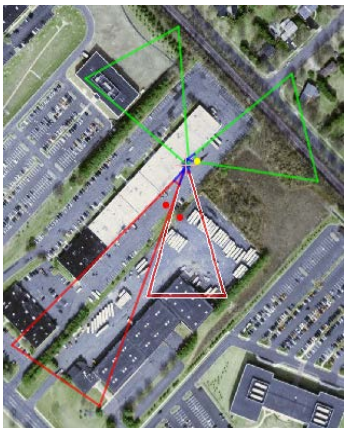
Appendix A, "Troubleshooting," suggests solutions to problems that can occur.

Contents

Chapter 1

Introduction

The SightLogix Enterprise Security System provides comprehensive, continuous video security to detect and flag security threats at outdoor sites. In addition to detecting targets, the system can be calibrated to return a target's GPS coordinates, allowing security personnel to immediately and accurately identify a target's exact location.



Targets—objects that violate a site's alarm policies—are overlaid on an aerial image of a site to visually show their location and accurately represent the detection zones of SightLogix devices.

Two video-intelligent devices

The SightLogix Enterprise Security System comprises two intelligent video devices:

- ***SightSensors*** are smart thermal (or IR) cameras with built-in processing that analyzes video to detect objects that violate a site's alarm policies. A video processing board with a high degree of processing sits inside the camera housing to both digitize and analyze video in real time, while also stabilizing the video to ensure a clear, stable image and enable even small objects to be detected. Equally important, stabilization reduces the number of alarms by removing camera movement as a factor in detected motions.
- ***SightTrackers*** enable dome or PTZ cameras to automatically zoom and track a target identified by a SightSensor, providing immediate, close-up inspection of detected targets. SightTrackers receive GPS coordinates and other tracking information directly from SightSensors and convert this information to pan/tilt/zoom settings.

The system is highly configurable for the requirements of individual sites. Alarm policies specify exactly when and where alarms are generated, and the types of objects that can trigger alarms. Video bandwidth can be customized for a site's network capacity.

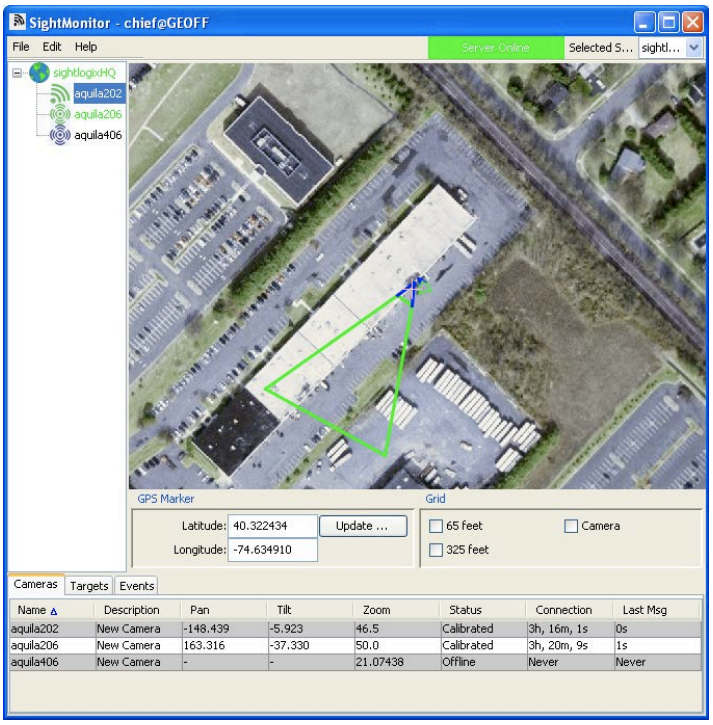
Both the initial setup and any system expansion are designed to be as easy for small sites of one or two cameras as for large sites with hundreds of cameras. Because all video processing is done at the devices, which are located at the edge of the network, installation is a relatively straightforward procedure of adding devices, connecting to a power source, making network connections, and connecting to a camera. Video is then immediately available for viewing.

SightLogix architecture

The SightLogix software adheres to the server-client architecture and consists of a single Coordination System (CS) server and one or more SightMonitor clients.

The CS server assigns each tracked object a unique ID and maintains configuration, camera, and target information in a database. Backing up this database ensures an easy and fast recovery if needed (see page 112).

The SightMonitor client is the graphical interface to the server. It displays target and camera information maintained by the server and it presents a series of user-input screens for calibrating and making configuration changes, such as setting up alarm policies or adjusting the video settings.

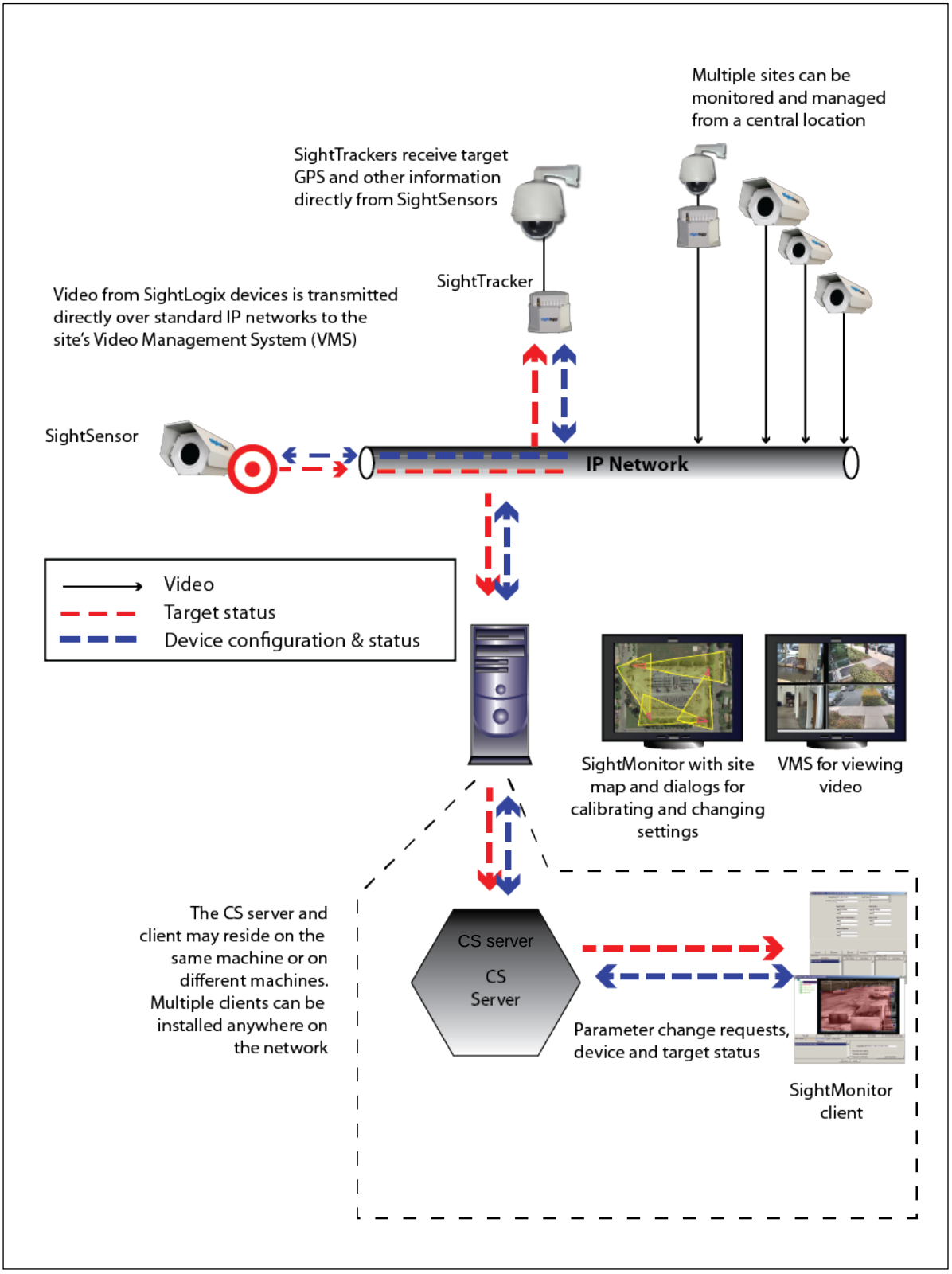


One CS server must be installed on the network. Multiple SightMonitor clients can be installed to allow users to view the SightMonitor from anywhere on the network.

Multiple sites can be managed simultaneously from a central server, with security personnel able to switch between sites and administrators able to add, configure, calibrate, and monitor cameras remotely using client software from any PC connected to the network.

SightLogix devices—SightSensors and SightTrackers—sit at the network edge, relaying video and alarm information to the video management system (VMS). Alarm information is sent directly from SightSensors to SightTrackers. Since SightTrackers receive information directly (and not from the Coordination System), there is no single point of failure and PTZ tracking occurs even if the Coordination System is down.

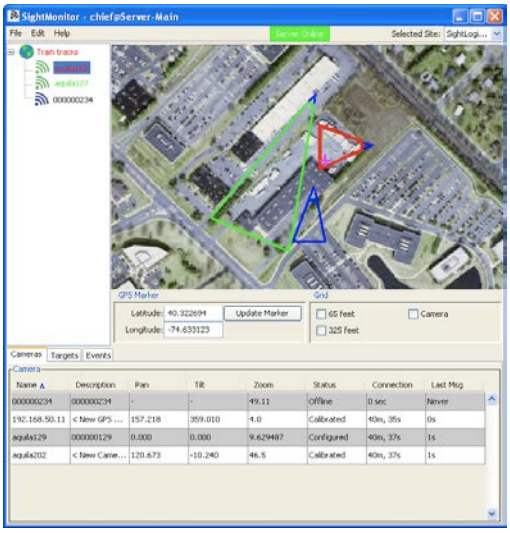
Figure 1.1
Video from a SightLogix device is transmitted to a video management system, and transmit target / camera information to the CS for display in the SightMonitor.



Overview of the interface

Video from SightSensors is displayed in the site's video management system (VMS). Target and camera information is displayed visually within the SightMonitor client, which includes an intuitive site map for graphically showing devices and targets in the correct geographic locations. The SightMonitor and VMS normally run as separate applications on side-by-side monitors.

Open the SightMonitor by selecting Start→All Programs→SightLogix→SightMonitor.



Video management system functions

Video viewing and alarm management

- View video, with targets identified
- View and replay current alarms
- Acknowledge alarms
- View archived video

SightMonitor functions

Configuration and situational awareness

- View targets in correct geographic location
- Visually monitor camera and target status
- Acknowledge warnings and severe events
- Access detailed camera, target, and system event information
- Set alarm policies
- Configure video transmission and other settings (such as video overlays)

About the SightMonitor

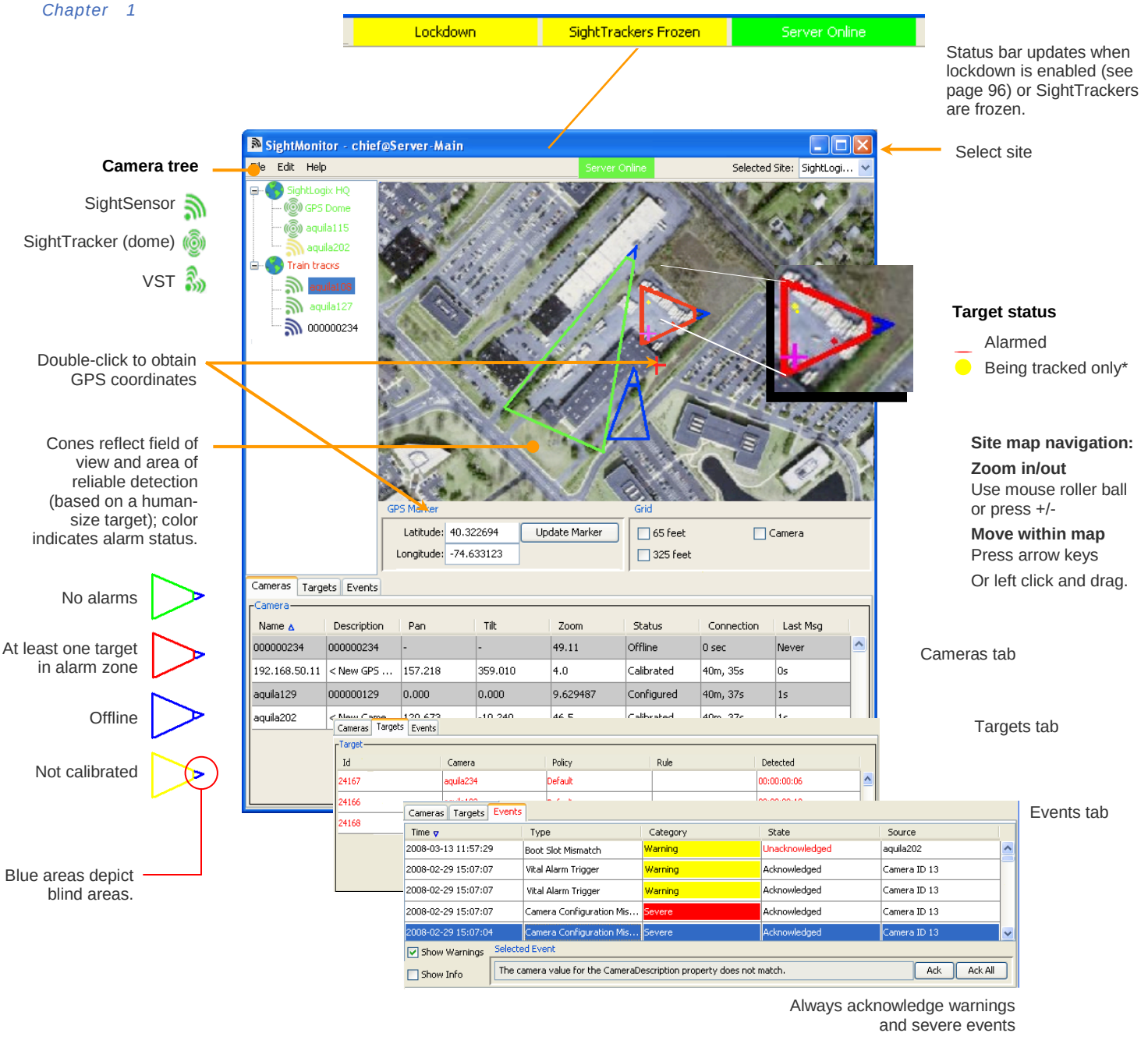
Camera and target information returned by the SightSensors is displayed in the SightMonitor client, which consists of the site map and the status tabs containing detailed information about each camera, target, and system event.

The site map is an aerial view that visually depicts the location and status of devices and targets within a geographic context. Double-click anywhere on the site map for GPS coordinates of any ground location (the system must be calibrated for this feature).

Cone-shaped detection zones, which represent the area of reliable detection for a human-size target for each camera, accurately reflect the zoom setting of a camera and thus its true field of view. If larger objects such as vehicles or watercraft are being tracked detection ranges will be proportionally greater.

Grids can be superimposed on the site image or within the camera cone to help measure distances. The grids show distances in increments of 20 or 100 meters (or 65 and 325 feet). A separate camera grid can be overlaid within the camera's concentric cones to measure distances relative to the camera.

Turn on one or more grids by selecting the appropriate checkboxes.



Camera status

Calibrated

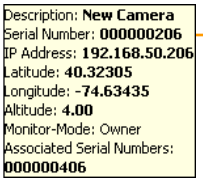
Configured but not calibrated

Connected

Offline

Managed from a different server

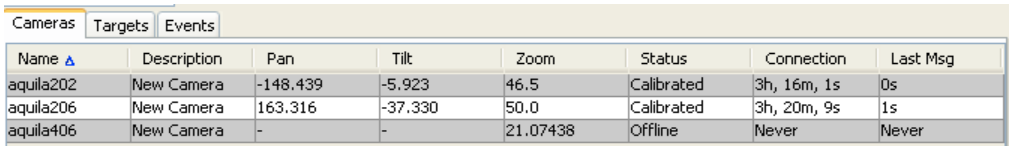
Selected device. Footprint of selected device is shown in a heavy outline. Device and site names are shown with red text when there is an alarm. Black text denotes offline cameras.



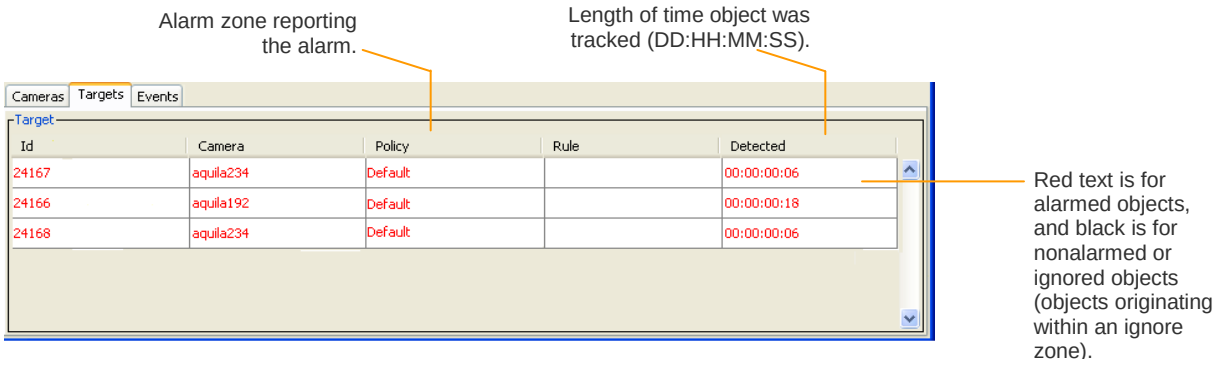
Rolling over a camera icon reveals GPS coordinates, description name, and the Coordination System server that manages the camera.

*To track only alarmed objects, unselect the Report Nonalarmed objects on the Sites dialog.

The Cameras tab lists camera-related information such as the status and camera type:



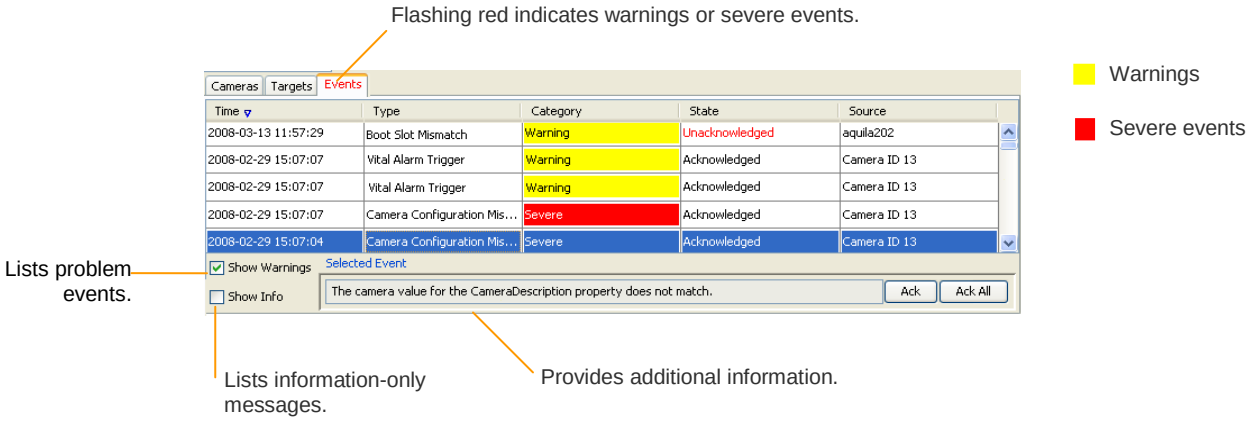
The Targets tab lists targets for five seconds after they were last tracked. This list can be sorted by clicking on a column head (Ctrl and click again for a secondary sorting). To sort by age, click at the top of the Detected column.



The Events tab lists system- and camera-related events, including both simple information-only messages (such as when the system is upgraded) as well as warnings and severe events that indicate the system is not working. Information-only and warning messages can be separately turned on or off.

Warnings may require maintenance; they include events such as low pressure or high temperatures, power supply problems, etc. Severe events, which can include communication failures between the Coordination System and devices, should be reported to SightLogix support.

Warnings and severe events should always be acknowledged. If more than 1000 events accumulate, early events will be automatically deleted to make room for recent ones. (Information-only events are automatically acknowledged.) Alarms are acknowledged at the VMS.



Audio alerts

Audio alerts are supported for three severe events.

- Network Connection Lost (all SightLogix devices)
  One or more SightLogix devices lost the network connection. (The alarm will continue until acknowledged even if the connection is restored.)
- Breach Enclosure (SightSensor and SightTracker only)
  The device housing has been opened. See page 26 for information on enabling breach enclosure alerts. Not all devices support a tamper signal.
- Battery is Low (available only on portable SightSensors configured for battery operation).

An audio alert repeats every 30 seconds until acknowledged. To disable audio alerts for SightSensors, de-select Enable Event Audio in the Camera dialog (for SightTrackers, the option is on the PTZ tab).

About alarms

Devices generate an alarm upon detecting a target that violates an alarm policy or, in the case of SightTrackers, when they automatically follow a target. Alarm information is immediately reflected in the SightMonitor's site map and relayed to the VMS program, where the security officer can acknowledge the alarm, view the video, and take the appropriate action.

By default, an alarm is reported per alarm condition. Thus multiple objects can trigger a single alarm. However, you can specify that alarms be generated per target (rather than per alarm condition).

The way in which alarms are reported is controlled by the Alarm Report option in the Sites dialog (see page 104). The default is Alarm, which generates an alarm per alarm condition; select the Target option to generate a motion level per target.

Messages from an event server are reported when the first alarmed target is tracked (Motion on event), and when the last alarmed target leaves the scene (Motion off event).

Note that the SightMonitor's targets tab provides information for each target.

Accessing and saving configuration settings

Configuration and accessing information about the site or a SightLogix device can usually be done through a right-click menu. Right-clicking a device icon opens a menu of configuration options. Right-clicking within the site map opens a menu for adding devices, editing the site, and editing the site's configuration *template*.

The template stores a site's configuration preferences. The template is applied to each new device you add so you don't have to individually enter common settings for each device. You can also apply parameter changes to an entire site using the template's Apply All function.

All system information is contained in a database. When you enter new information into a dialog box (such as when calibrating a device or editing an alarm policy), the information may change in the dialog but it is not entered into the database (or take effect) until you click OK or Save, depending on the dialog box.

Note: On dialog boxes with a Save button, selecting another tab exits the current tab page without saving changes.

First things first - What you need to do

To do an initial setup and begin using the system, follow the steps listed below. If you're upgrading from an existing system, go to page 112.

1. **Install the software and set up the site as described in Chapter 2.**
   You run installation once on a single server-grade machine to install both the CS server and client (SightMonitor). You can then install clients on other machines to allow remote users to manage and monitor the system.

2. **Start up the SightMonitor and log in.**
   Use the default username *chief* and the password is *change*. Logging in as chief allows you to access all SightLogix functionality.

   It is highly recommended that you change the default username and password to be unique for your site (page 99).

3. **Set up the site map by inserting an image of the site to be monitored.**
   See page 15 to insert a map image.

4. **Unpack the SightLogix devices, connect them to the network, and attach the appropriate cabling. Then install to a pole or wall.**
   Before permanently installing any SightLogix device, verify that it and all cables are in good working order.

   For all devices, attach the power cord and network cable.

   For SightTrackers, also install the cabling between the device and the PTZ camera.

   Installing the devices is described in Chapter 2. Additional procedures unique to the SightTracker are described in Chapter 3.

5. **Add the device to the site's video management system.**
   See the appropriate *SightLogix VMS Integration Guide* for your supported VMS on the SightLogix Partner Portal.

6. **Add the device to the SightMonitor device tree.**
   Add SightLogix devices using the discovery method (page 27) or by doing it individually (page 35). Verify that the device appears in the device tree (it should appear as a yellow icon). Also set the time zone.

7. **Set the camera position**
   This step is not necessary if you will not be calibrating and you will not be using the automatic mode for SightSensors.

8. **Perform calibration**
   See Chapter 3 to calibrate SightSensors. See Chapter 4 to calibrate SightTrackers. For SightSensors, also set the device's Day/Night mode as appropriate (see page i).

9. **Set up alarm policies** By default, any object moving within the camera view generates an alarm; alarm policies allow you to be more selective as to when alarms occur. See Chapter 5.

Chapter 2

Getting Started

This chapter describes the procedures for incorporating the SightLogix system into a site's surveillance environment. (Additional procedures unique to the SightTracker are described in Chapter 3.) These procedures include:

- Installing SightLogix software onto a PC and configuring a site template.
- Inserting an image of the site in the site map.
- Using a configuration template to make configuration changes to all devices (optional).
- Connecting the device to the network and to a power source
- Connecting all other cabling. For SightTrackers, this includes attaching a cable between the device and the PTZ camera.
- Adding the device to a video management system (VMS) and checking the video image to make sure it's capturing the area to be monitored.
- Adding the devices to the SightMonitor device tree.
- Calibrating the camera view (optional but highly recommended; requires a geo-referenced image). Calibration permits size and speed rules to be applied.

Once the system is set up, you can establish customized alarm policies as described in Chapter 5 to specify the conditions under which alarms are generated, including creating zones and time ranges. Once all setup is complete and the policies established, it is recommended that the system settings be completely backed up and stored on a backed up storage media. See page 112.

Site requirements

Installing SightLogix software requires the following:

- For both the CS and SightMonitor, a PC with a 2 GHz dual-core processor with at least 4GB of memory.

  The PC for CS can run Windows 7 Professional and Windows 10 (32-bit and 64-bit); Windows Server 203, 2008 and 2012 (32-bit and 64-bit).

- IP network. Cameras can connect to the network using copper wiring (CAT5e). 100MB and higher networks are required.
- Range of IP network addresses provided by the network administrator.

  Note: Since cameras in the site map may be named according to the hostname, you may want create hostnames that can also describe the camera location or view.

> A monitor for displaying the SightMonitor.

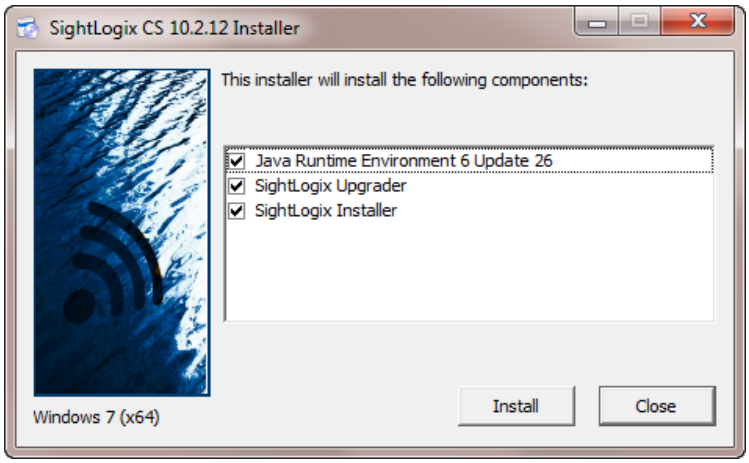
> Geo-referenced image of site to be monitored (optional), along with the GPS coordinates (latitude, longitude, and altitude) for the upper left and lower right corners, as well as width and height measurements (in meters) of the site. You can obtain aerial images from Google® Earth or other providers. Google Earth can be downloaded free from https://www.google.com/earth/.

Installing the SightLogix software

If you're upgrading from an existing system, see page 112.

You run installation once on a single server-grade machine on your network to install both the CS server and client (SightMonitor). Once installation is complete, you can install clients on other machines to allow multiple users to conveniently and simultaneously manage and monitor the system.

1. Install the CS installation CD and double-click the setup file.

2. 

   (The appropriate Java Runtime Environment will also be listed if it's not already installed on your system.)

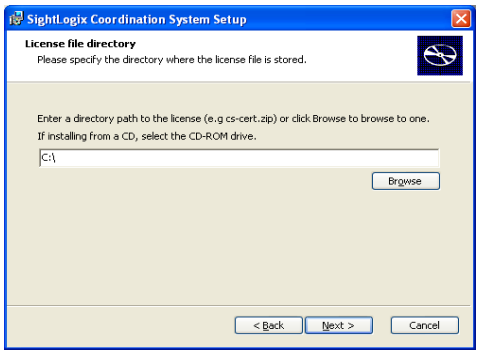
3. Click Install to begin, and advance through the screens by clicking the Next button on each screen.

   At the site license agreement screen, accept the terms as listed. You will not be able to continue unless you accept the terms as shown. Click Next.

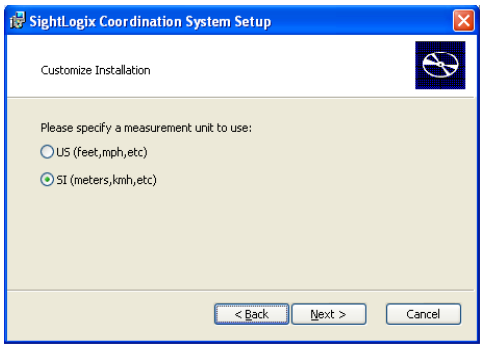
   When prompted for the location of the license file (the CS-certificate, which serves to uniquely identify the CS server), browse to the appropriate drive or folder.

   The CS Cert File is a self-extracting Zip file. Do not unzip this file.

   Click Next.



At the next screen, select the measurement units. Select either US standards (feet, mph) or international standards (SI), which is the default and displays metric measurements. Click Next.



Note: CS must be reinstalled to change between measurement units once a selection has been made and installed.

4. At the last screen, click Finish. You will see a notification that the software is installed.

Installing the client only (optional)

You can install a client on any PC that meets the minimum site requirements described for the CS, above.

If the PC does not have Java Runtime Environment, the installer will place the correct version on the PC and use it at runtime. To install the client, copy the following folder from the CS Server machine to the remote machine and then run the SightMonitor\sminstaller.exe.

64Bit Windows

%SYSTEMDRIVE%\Program Files(x86)\Sightlogix\CS\Tomcat\webapps\slcs\

32Bit Windows

%SYSTEMDRIVE%\Program Files\Sightlogix\CS\Tomcat\webapps\slcs\

Note: If port 8443 is blocked by a firewall or other security measure, this command will fail.

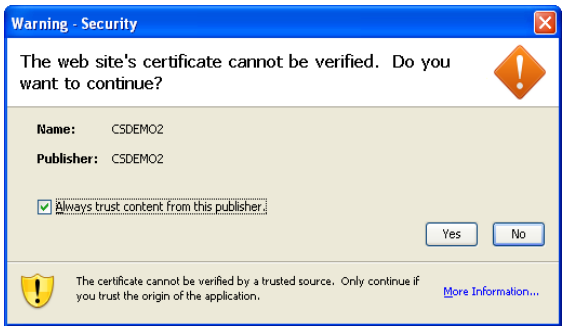
To create a shortcut to this webpage, do the following: Open the Java Web Start tool click Start>Run, and type `javaws -viewer`. In the list of applications that opens, right-click the SightMonitor Application and choose Install Shortcuts.

If you upgrade the server software and you've got clients running on remote systems, it's recommended that you clear the cached version of each remote client and both reload the webpage and update the shortcut. To clear the cached version: From the Java Web Start tool (see previous paragraph to open the tool), select all SightLogix applications and click Delete. Close the Web Start tool. Create a new shortcut if you wish.

Starting and logging into the SightMonitor

The SightMonitor is the graphical interface for viewing target information and configuring the system. To log in, Select Start→All Programs→SightLogix→SightMonitor.

The first time you start up the SightMonitor client after installation, you see these two screens, one after the other. In both cases, check that the name and publisher are what you expect, and click the check box for trusting the content. Then click Yes or Run. As the SightMonitor starts up for the first time, the Java Script progress bar appears.



These dialogs appear only the first time you start the SightMonitor.

Starting up SightMonitor prompts you for a username and password that determine your level of access. By default, four security groups are defined: chief, admin, officer, and guest.

Security Group	Username	Password	Access
Chief security officer	chief	change	All access of other groups, plus user and site configuration, and adding/removing devices.
Administrator	admin	change	Alarm policies, software & network settings.
Security officer	officer, guest	change	View target information and event notifications; reset tracker.

Use one of the assigned usernames and passwords listed here. For initially setting up the system, log in as chief security officer so you access all functionality. For more specific information on the tasks allowed each security group and to add or modify users, see page 99.

It is highly recommended that you immediately update the usernames and passwords to be unique and secure for your site.

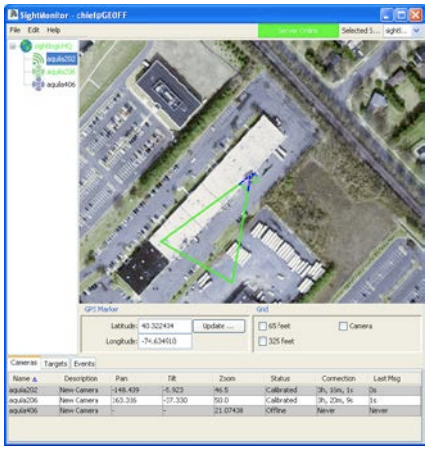
Note: Some VMS programs assume a username of *root* (though the password may change). Check the applicable section in the *SightLogix VMS Integration Guide* to see if your VMS requires a specific username.

To change the username or password, select Users from the Edit menu in the SightMonitor (specific instructions are given in the section "Adding and Managing Users" on page 99).

It is important that at least one person be defined as chief security officer; however, for security reasons, restrict chief security officer and administrator group to properly trained essential users only. Day-to-day monitoring should be performed by users in the security officer group only.

Creating a site map

The site map shows at a glance the location and status of devices and targets, providing an intuitive, visual awareness of where devices and targets are situated within the context of the surrounding area.



When you first open the SightMonitor, you see the aerial image for the SightLogix office. To replace this image with one for the site you're monitoring:

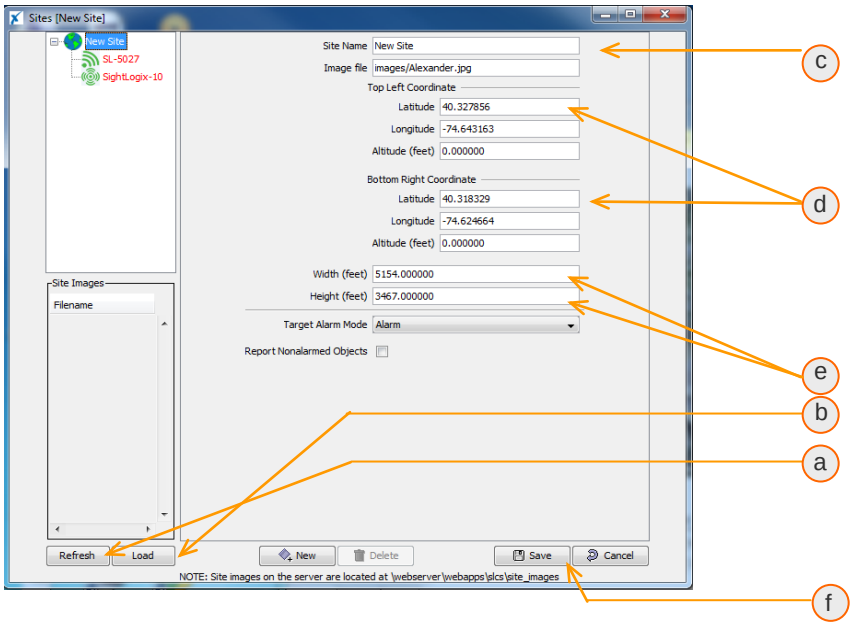
1. Obtain a geo-referenced image of the site.
   You can obtain aerial images from Google Earth or other providers. Google Earth can be downloaded free from https://www.google.com/earth/.

   Images obtained from SightLogix are accompanied with a text file that contains GPS values for the image. If you don't have such a file, you need to record the GPS coordinates (latitude, longitude, and altitude) for the upper left and lower right corners, as well as width and height measurements (in meters or feet as required) of the site.

   If the width and height measurements don't correspond to the GPS coordinates you entered, you'll be prompted to accept different measurements calculated from the GPS coordinates.

2. Place the image in C:\Program Files\SightLogix\CS\Tomcat\webapps\slcs\site_images.

3 Open the Sites dialog and load your image. In the SightMonitor, right-click and select Edit Site. You'll need to click Refresh to update the list of images; select the image from the list and click Load. Enter the information as shown at the right.



Click Refresh (a) to update the filename list with the new image file you copied to the sites directory. Select the appropriate image file in the list and click Load (b). Enter a descriptive site name (c).

Enter the coordinates and altitude for the upper left and lower right corners (d). Enter an altitude, even if it's 0.0. Do not leave this field blank.

Enter the width and height of the site in meters or feet as required (e).

Click Save (f).

4. Click Save. If you're creating multiple sites, repeat for each site after clicking New and selecting the new site in the tree.

Installing SightLogix Devices

SightSensors ship with DHCP enabled with the assumption that there is a DHCP server on the network. If no DHCP service is detected after approximately one minute, a default IP address will be adopted for setup purposes to reach the device. After initial setup, the default IP address will no longer be used unless a factory reset has been performed.

The default IP address: 192.168.0.99

2nd Generation and 3rd Generation SightSensors have different hardware configurations. First determine which generation you are installing and follow the appropriate section below.

Determining Your SightSensor Generation	
	**3rd Generation SightSensor** Dimensions: 12.1 L" x 5.8 W" x 5.5 H" (30.7 cm L x 14.7 cm W x 14.0 cm H)
	**2nd Generation SightSensor** Dimensions: 18.1 L" x 6.8 W" x 6.6 H" (46 cm L x 17.3 cm W x 16.8 cm H)

Installing 3rd Generation SightSensor

Each SightLogix device comes equipped with an interface plate suitable either for attaching to a wall or pole.

If you're installing a SightTracker, see Chapter 3 for installation procedures.

Once the device is installed, connect it to the network and to a power source.

Install SightSensors according to these guidelines:

- Point it low enough to detect maximum height of the most distant target anticipated and no higher.
- Once in place, adjust it as necessary to capture the area to be monitored. Fixed SightSensor cameras will need to be physically adjusted..
- When installing multiple cameras, it is recommended that camera ranges slightly overlap to ensure complete coverage of an area with no gaps between coverage areas.

Wiring a 3rd Generation SightSensor

Each SightSensor camera comes equipped with a standard ¼-20 three-hole one-inch spacing plate suitable to attaching to a standard camera bracket (not supplied).

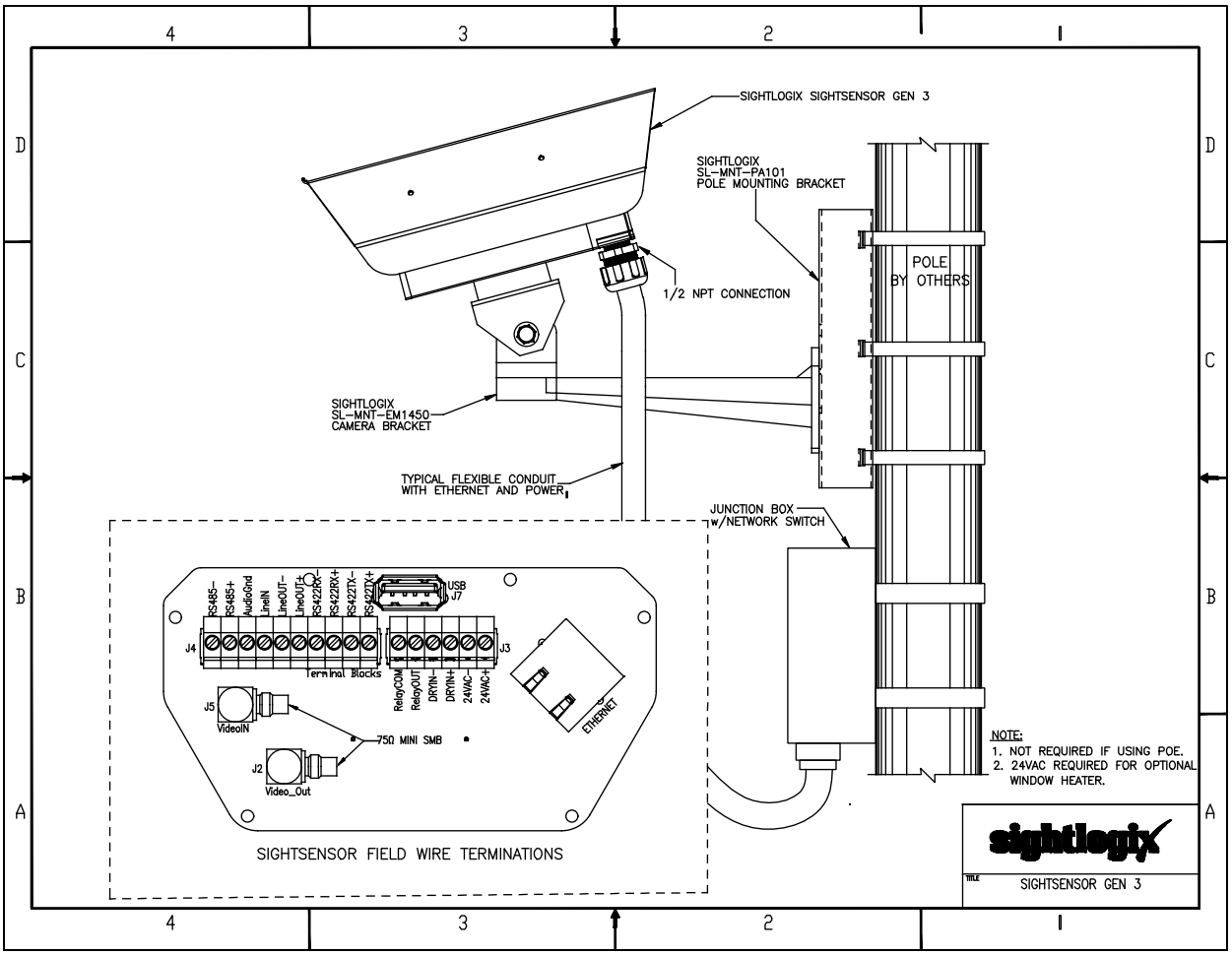
- Once in place, adjust the camera as necessary to capture the area to be monitored. Fixed cameras like the SightSensor will need to be physically adjusted.

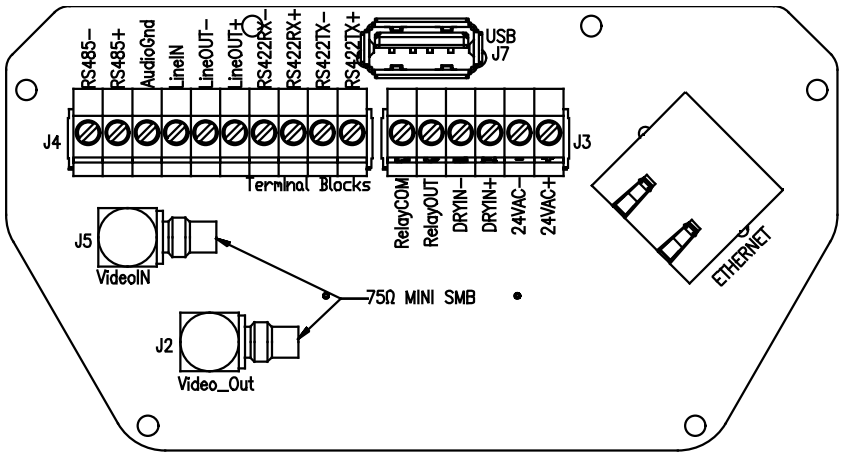
  Once the device is installed, connect the RJ45 jack to the Ethernet network. If using Power over Ethernet (PoE) make sure power is being supplied by the Ethernet device which the Ethernet cable has been plugged into or a PoE power injector in the cable run leading to the camera.

  Next connect 24VAC/DC if POE is not being used.

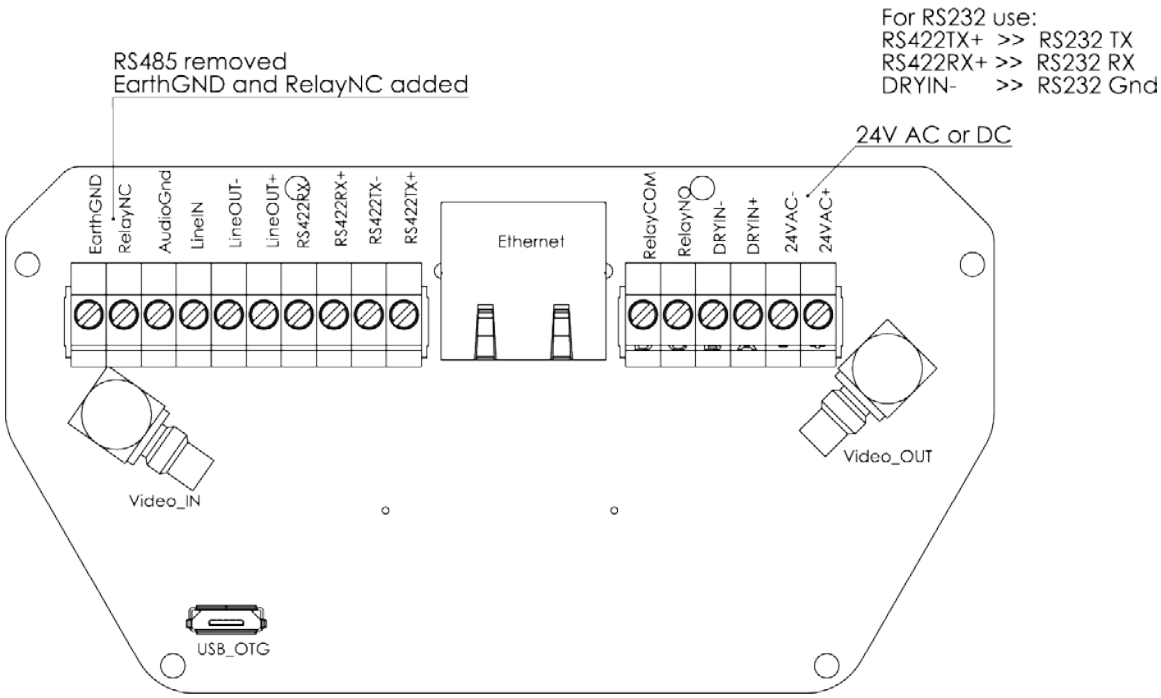
Follow the drawings below to connect the SightSensor using a standard Ethernet cable.

Some 3rd Generation SightSensors have slightly different wiring outerboards. Refer to the drawing that matches your camera.


SIGHTLOGIX SIGHTSENSOR GEN 3
SIGHTLOGIX
SL-MNT-PA101
POLE MOUNTING BRACKET
1/2 NPT CONNECTION
POLE
BY OTHERS
SIGHTLOGIX
SL-MNT-EM1450
CAMERA BRACKET
TYPICAL FLEXIBLE CONDUIT
WITH ETHERNET AND POWER
JUNCTION BOX
w/NETWORK SWITCH
RS485-
RS485+
AudioGnd
LineIN
LineOUT-
LineOUT+
RS422RX-
RS422RX+
RS422TX-
RS422TX+
USB
J7
J4
Terminal Blocks
J3
RelayCOM
RelayOUT
DRYIN-
DRYIN+
24VAC-
24VAC+
ETHERNET
J5
VideoIN
75Ω MINI SMB
J2
Video_Out
SIGHTSENSOR FIELD WIRE TERMINATIONS
NOTE:
1. NOT REQUIRED IF USING POE.
2. 24VAC REQUIRED FOR OPTIONAL
WINDOW HEATER.
sightlogix
TITLE
SIGHTSENSOR GEN 3



3rd Generation SightSensor Wire Terminations (Version 1)



3rd Generation SightSensor Wire Terminations (Version 2)

Wire Termination Descriptions, Version 1

Wire Termination Descriptions	
RS485–/ RS485+	RS485 signals to or from external device
LineIN/AudioGnd	Microphone input
LineOUT–/LineOut+	Audio output to an external amplifier
RS422RX–	Connect to RS422TX- signal from external device such as PTZ
RS422RX+	Connect to RS422TX+ or RS232RX signal from external device such as PTZ (DryIN- is ground for RS232)
RS422TX–	Connect to RS422RX- signal to external device such as PTZ
RS422TX+	Connect to RS422RX+ or RS232TX signal to external device such as PTZ (DryIN- is ground for RS232)
USB	USB connection to an external slave
RelayCOM/ RelayOUT	Dry contact relay output. Normally open; close when activated.
DryIN–/ DryIN+	Input signal: Open is OFF state; shorting DryIN- to DryIN+ is ON state.
24VAC-/24VAC+	Nominal 24V AC/DC power input
Video_IN	Video input from an analog PTZ/dome for SightTrackers. NTSC or PAL.
Video_Out:	Analog video output from SightSensor (NTSC)
Ethernet (RJ45)	Network connection; supports PoE IEEE 802.3af

Wire Termination Descriptions, Version 2

Wire Termination Descriptions	
EarthGND	Earth Ground connects to chassis ground
RelayNC	Relay Normally Closed
LineIN/AudioGnd	Microphone input
LineOUT–/ LineOut+	Audio output to an external amplifier
RS422RX–	Connect to RS422TX- signal from external device such as PTZ
RS422RX+	Connect to RS422TX+ or RS232RX signal from external device such as PTZ (DryIN- is ground for RS232)
RS422TX–	Connect to RS422RX- signal to external device such as PTZ
RS422TX+	Connect to RS422RX+ or RS232TX signal to external device such as PTZ (DryIN- is ground for RS232)
USB	USB connection to an external slave
RelayCOM/ RelayNO	Dry contact relay output. Normally open; close when activated.
DryIN–/ DryIN+	Input signal: Open is OFF state; shorting DryIN- to DryIN+ is ON state.
24VAC-/24VAC+	Nominal 24V AC/DC power input
Video_IN	Video input from an analog PTZ/dome for SightTrackers. NTSC or PAL.
Video_Out:	Analog video output from SightSensor (NTSC)
Ethernet (RJ45)	Network connection; supports PoE IEEE 802.3af

Surge Protection Grounding Lug

SightSensors have grounding and surge protection to provide further immunity from high current transients that can occur in installations that are subject to electrical storms and/or nearby lightning events. In order to protect against these high current events, installers are required to provide an earth connection to the grounding lug on the base of the camera, as shown.

Ensure the camera is properly grounded. Failure to properly ground the camera can lead to permanent damage to the camera. Typical to good grounding practices, the camera ground should be connected to the lowest resistance path possible.

You can learn best practices to protect your SightLogix equipment at http://www.sightlogix.com/surge.

Setting up dry contact alarm options

A dry contact alarm output is available at Relay /COM and Relay/Out pins of the IO Connector. A closed circuit will indicate alarm condition detected by the SightSensor. The maximum applied voltage across the dry contacts must be 30 volts or less and current of 100 mA or less.

A dry contact input is available at DryIN–/ DryIN+ pins of the IO Connector. A closed circuit will indicate active input when IO state is queried over the network or open circuit would indicate enclosure breach (SightTracker).

Note that dry contact functionality must also be enabled on the SightLogix device configuration window.

For SightSensors, open the Camera tab (right-click the device icon, choose Configure, then go to the Camera tab), and select Enable Opto In or Relay Out Mode as desired.

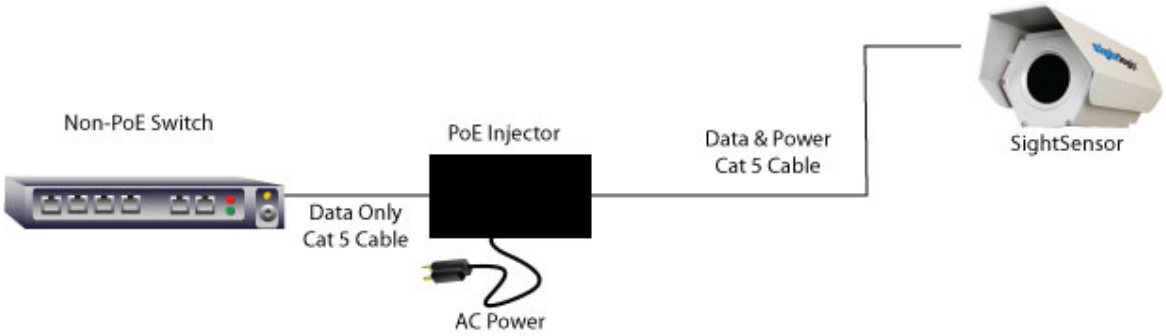
For SightTrackers, open the PTZ tab and select Enable Opto In or Relay Out Mode as desired.

Enabling Audio Alarm Broadcast

SightSensors can broadcast a pre-recorded message when an alarm is triggered. Connect LineOut+ and LineOut –to an amplifier and speaker to broadcast the default audio message when an alarm is triggered.

Supplying Power Using PoE

> For PoE, connect power to the PoE injector; connect the RJ45 jack from the camera cable to the Powered Device (PD) connection on the PoE injector. Then connect the PoE injector to the 10/100 Ethernet network, as shown.



Supplying Power Using a PoE Network Switch

> For installations where power is supplied by a network switch that is PoE enabled, connect the RJ45 jack from the camera cable to an available port on the network switch.

Replacing a SightLogix Device

1. Using a test computer or laptop on an isolated network configure new SightSensor or SightTracker with the same IP address and networking settings as the sensor or tracker to be replaced.
2. Start SightMonitor on the security network log in and select the SightSensor or SightTracker to be replaced using left mouse button.
3. Press right mouse button and select *configure* and make note of the Expected Serial Number of the device being replaced located on Network tab. Close configure window.
4. Press right mouse button on device to be replaced and select *Disconnect*.
5. Remove and replace sensor or tracker to be serviced.
6. Apply power to newly replaced sensor or tracker and pause one minute to allow device to initialize.
7. In SightMonitor of security network select sensor or tracker to be replaced using left mouse button. Press right mouse button and select *configure* in Network tab.
8. Change the Expected Serial Number from the old to the new serial number and press save.
9. Press right mouse button and select *Connect*. Pause up to one minute, new device will reset.
10. SightMonitor will now connect to the new device and it will inherit all calibration detection and rule settings as previous device.

11. Re-check detection rules if a SightSensor was replaced because new devices will likely not be pointed exactly as the previous. If necessary move policies using SightMonitor to match previous settings.

Factory Reset for 3rd Generation SightSensor

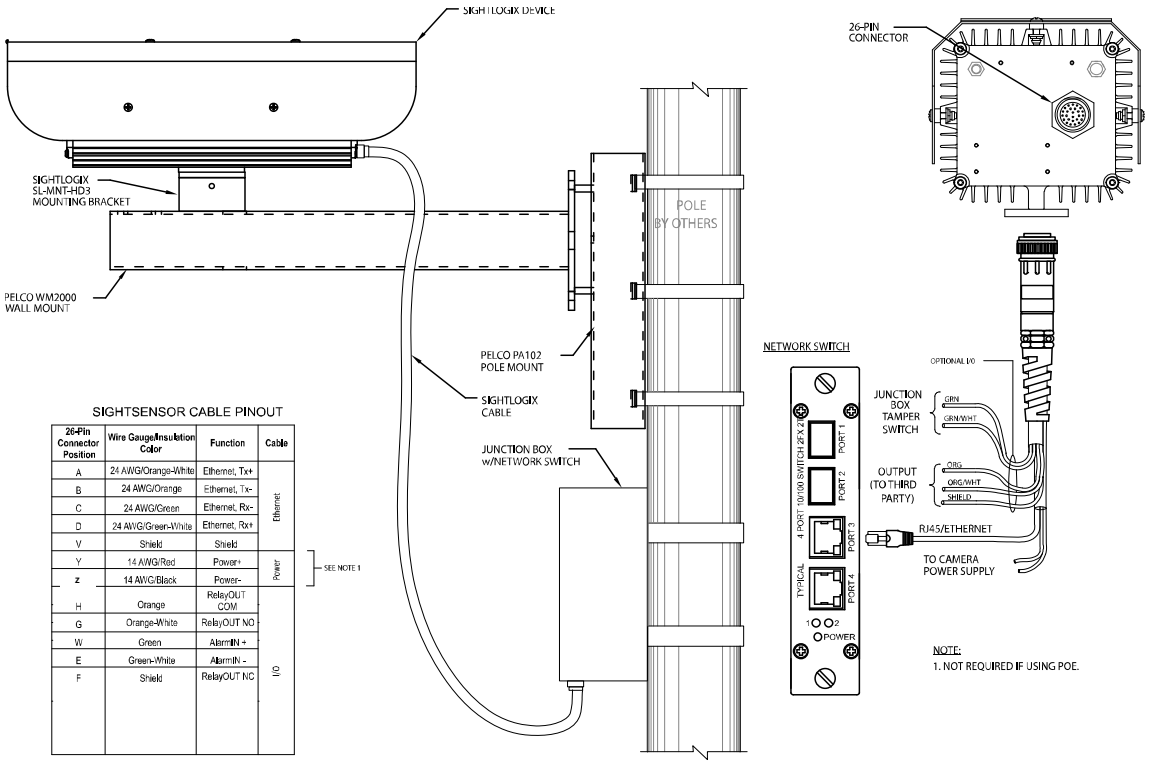
During the boot process, SightLogix devices will look for a short between Dry-Contact In and Relay-Out as shown below.

When this condition is detected, the camera will monitor the short for 20 seconds, while toggling the Relay which will create a rapid clicking sound. If the user removes the short during the 20 seconds, the camera will reset all configuration values back to the Factory state and reboot.

When in Factory Default state, the camera can be configured using SightMonitor.

When in Factory Default state, if the camera does not find a DHCP server on the network during the first 30 seconds, it will adopt the static address of 192.168.0.99 and Network Mask 255.255.255.0 and Broadcast address 192.168.0.255.

Wiring 2nd Generation SightSensors



SIGHTSENSOR CABLE PINOUT

26-Pin Connector Position	Wire Gauge/Insulation Color	Function	Cable
A	24 AWG/Orange-White	Ethernet, Tx+	Ethernet
B	24 AWG/Orange	Ethernet, Tx-	
C	24 AWG/Green	Ethernet, Rx-	
D	24 AWG/Green-White	Ethernet, Rx+	
V	Shield	Shield	
Y	14 AWG/Red	Power+	Power
Z	14 AWG/Black	Power-	
H	Orange	RelayOUT COM	I/O
G	Orange-White	RelayOUT NO	
W	Green	AlarmIN +	
E	Green-White	AlarmIN -	
F	Shield	RelayOUT NC	

SEE NOTE 1

Setting up dry contact alarm options (2nd Generation):

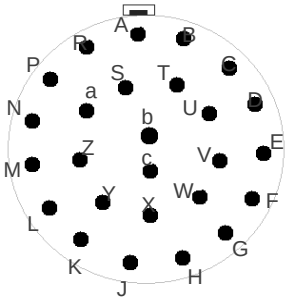
For the local alarm output, which activates a relay output to the 26-pin connector whenever an alarm is detected, use pins as follows: Relay common, use pin H; relay NC (normally closed), use pin F; and relay NO (normally open), use pin G.

If using a Universal Cable (U Cable), refer to the SightSensor Cable Pin Out Table below:

SIGHTSENSOR CABLE PINOUT

26-Pin Connector Position	Wire Gauge/Insulation Color	Function	Cable
A	24 AWG/Orange-White	Ethernet, Tx+	Ethernet
B	24 AWG/Orange	Ethernet, Tx-	
C	24 AWG/Green	Ethernet, Rx-	
D	24 AWG/Green-White	Ethernet, Rx+	
V	Shield	Shield	
Y	14 AWG/Red	Power+	Power
Z	14 AWG/Black	Power-	
H	Orange	RelayOUT COM	I/O
G	Orange-White	RelayOUT NO	
W	Green	AlarmIN +	
E	Green-White	AlarmIN -	
F	Shield	RelayOUT NC	

If you are using an unterminated connector, refer to the connector pins below.



External connector pins

For breach enclosure alarms (SightTrackers), or input signal from a dry contact (e.g., gate, door) connect a wire between E and W.

For output relay (e.g., siren, day/night illumination):
Relay NC (normally closed), use pin H and pin F.
Relay NO (normally open), use pin H and pin G.

For SightSensors, open the Camera tab (right-click the device icon, choose Configure, then go to the Camera tab), and select Enable Opto In or Relay Out Mode as appropriate.

For SightTrackers, open the PTZ tab and select Enable Opto In or Relay Out Mode as appropriate.

Replacing a SightLogix Device

12. Using a test computer or laptop on an isolated network configure new SightSensor or SightTracker with the same IP address and networking settings as the sensor or tracker to be replaced.
13. Start SightMonitor on the security network log in and select the SightSensor or SightTracker to be replaced using left mouse button.
14. Press right mouse button and select *configure* and make note of the Expected Serial Number of the device being replaced located on Network tab. Close configure window.
15. Press right mouse button on device to be replaced and select *Disconnect*.
16. Remove and replace sensor or tracker to be serviced.
17. Apply power to newly replaced sensor or tracker and pause one minute to allow device to initialize.
18. In SightMonitor of security network select sensor or tracker to be replaced using left mouse button. Press right mouse button and select *configure* in Network tab.
19. Change the Expected Serial Number from the old to the new serial number and press save.
20. Press right mouse button and select *Connect*. Pause up to one minute, new device will reset.
21. SightMonitor will now connect to the new device and it will inherit all calibration detection and rule settings as previous device.
22. Re-check detection rules if a SightSensor was replaced because new devices will likely not be pointed exactly as the previous. If necessary move policies using SightMonitor to match previous settings.

This ends the different setup instructions for each SightSensor generation. The rest of this chapter applies to both 2nd and 3rd generation devices.

Decoding the Flashing LEDs

The LED on the SightSensor indicates the progress of the camera's boot. After applying power to a camera, the normal LED sequence is:

- **Solid Red**
  The camera has power and is trying to load the firmware - approximately 8 seconds
- **Flashing Red** (1/2 second on, 1/2 second off)
  The camera has loaded the firmware and is starting to boot - approximately 4 seconds
- **Alternating Red/Green** (3/4 second green, 3/4 second red)
  Camera is attempting to find a network - approximately 4 seconds
- **Flashing Green** (1/2 second on, 1/2 second off)
  Camera has found a network for DHCP, the IP address has not yet been found. Camera will check all hardware and establish all services at this stage - approximately 18 seconds
- **Solid Green**
  Camera has finished booting and after 3 seconds will show the last octet of the IP address - approximately 3 seconds
- **Flashing IP**
  See below - approx 8 seconds flashing followed by 3 seconds of solid green
- **Off**
  After 2 minutes, the LED turns off no matter what it was indicating

Failure cases

If the camera does not show solid green for 3 seconds, the camera will show one of these states for approximately 8 seconds before showing solid red again (indicating the start of a new boot cycle)

- **Off**
  If the LED never turns on at all, check the power connections to the camera. When it receives power, the LED will show solid red
- **Solid Red**
  Camera failed to boot firmware. You will see a brief blink of the red LED every 15 seconds when the camera attempts to boot again.
- **Alternating Red/Green**
  Camera did not find a network either the Ethernet has no link or the wifi configuration failed to connect to the AP
- **Blinking Green**
  Camera did not establish ip address via dhcp or otherwise failed to complete the boot process

Flashing IP

If the camera successfully boots, after showing solid green for three seconds, the camera will flash out the last octet of the IP address in binary, for example:

- If the IP address is 192.168.50.148 then the camera reports 148
  - 148 decimal is 0xA4 in hexadecimal

- 0xA4 is binary 1 0 0 1 0 1 0 0
- Indicated as Red Green Green Red Green Red Green Green

Adding devices to the VMS

The actual procedure to add devices to your VMS depends on the VMS you're using, but normally you will have to do the following:

> Define the password and username for opening a connection between the VMS and a camera. (The default username is *sightlogix* or *root* and the default password is *push2edg* - both are case-sensitive.)

> Add each SightSensor as an AXIS 211 device (except where indicated), and add each SightTracker as an AXIS 213 device.

> Create an alarm and specify the actions to occur during an alarm (sounding an audible alert, inserting a bookmark in the video file to mark the start of an alarm).

Additional steps may be required depending on the VMS. See the documentation that came with your VMS for specific information, or refer to the *SightLogix VMS Integration Guide* for a summary of the steps.

Adding devices to the site map

There are two ways to add a SightSensor or SightTracker to the SightMonitor:

> Using the discovery process, in which devices transmit IP addresses and other necessary network and device information to the Coordination System.

  The discovery process can be used with all SightLogix devices—SightSensors and SightTrackers. Discovery has two modes, automatic—which works only if the devices are within the site's firewall and if the network, subnets, and routers are configured to relay the multicast address 239.255.255.253—and manual scan mode.

  The discovery process transmits over the Ethernet network.

> Individually adding the device by entering its IP address in the Add Camera dialog.

  If your network is not configured for broadcasting this information, you will need to individually enter network information as described on page 35.

  Devices must be connected to the network before being added to the site map.

Assigning an IP address using the Web-Based Network Setup Page

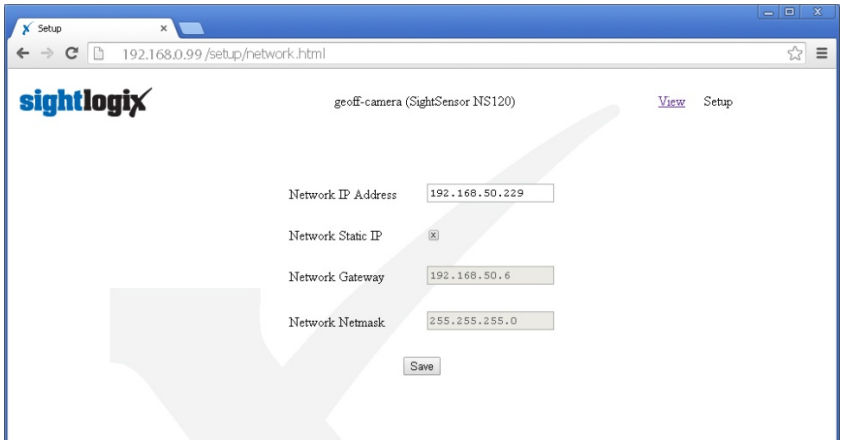
For convenience, SightLogix devices offer a Network Setup web page for easy configuration of a new Static IP Address (Gen 2 and Gen 3 SightSensors).

Note that the Network Setup Page is not available when a device is being managed by the Configuration System (CS) (you must first perform a factory default or release the device from the CS)

> From a browser, enter the existing IP address (i.e. http:// 192.168.0.99). The Configuration window opens, as shown.

> Click Setup.

> Enter the static IP address and other options, and click Save, as shown.



Creating and using configuration templates

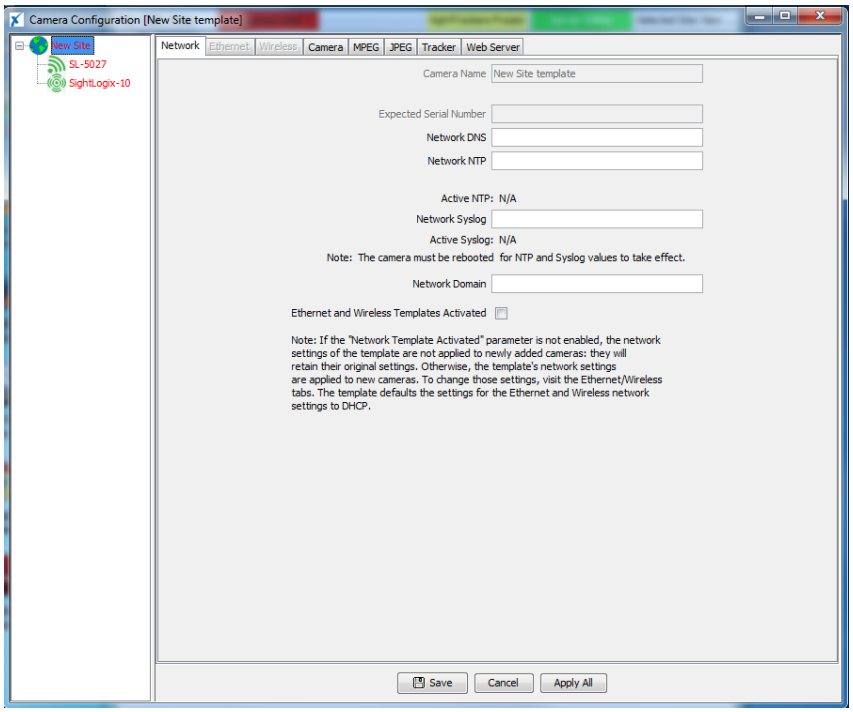
The template is used to selectively update configuration parameters to all devices at a site.

The template includes settings such as the time zone, day/night mode, usernames and passwords, network information, the choice of MPEG or JPEG and other video selections, the video overlay text fields, etc. (These fields are described later in this guide.)

The template does not include settings that must be set per individual device, such as the IP address.

Note: Machine-specific information such as the IP address is inserted automatically by the discovery method. If you don't use discovery, you'll need to enter the IP address manually.

To access the template, right-click the site icon or right-click within the site map and select Edit Camera Template. This opens the Configuration dialog (with the tabs for camera, MPEG/JPEG, Tracker, Web Server, Ethernet/Wireless tab).



Clicking Save saves changes to the template (but doesn't apply changes to devices).

Clicking Apply All saves changes and updates all devices at a site.

To use the template to apply changes to the configuration:

1. Open the template (right-click the site icon or right-click within the site map and select Edit Camera Template).
2. Make a change.
3. Click Apply All for the change to be applied in all devices at a site.
4. When asked to confirm an update to the site, click Yes.

Note: The Apply All button only makes changes in devices for the settings that are different from the saved template and will not overwrite other settings.

However, if a setting is currently correct on the template and you want to update all devices to be the same as the template, you must first change the template, and then apply the desired changes.

For example, if the MPEG overlay is on in the template but off in some devices and you want the overlay on for all devices, you would first turn it off in the template (but not apply to the devices) and then turn it on and apply to all devices.

The order of steps is as follows:

1. Open the template and change the setting so it is how you want to change it *from*.
2. Click Apply All but when asked to apply to site, click No.
3. In the template, change the setting to how you want it for all devices.

4. Click Apply All and when asked to apply to site, click Yes.

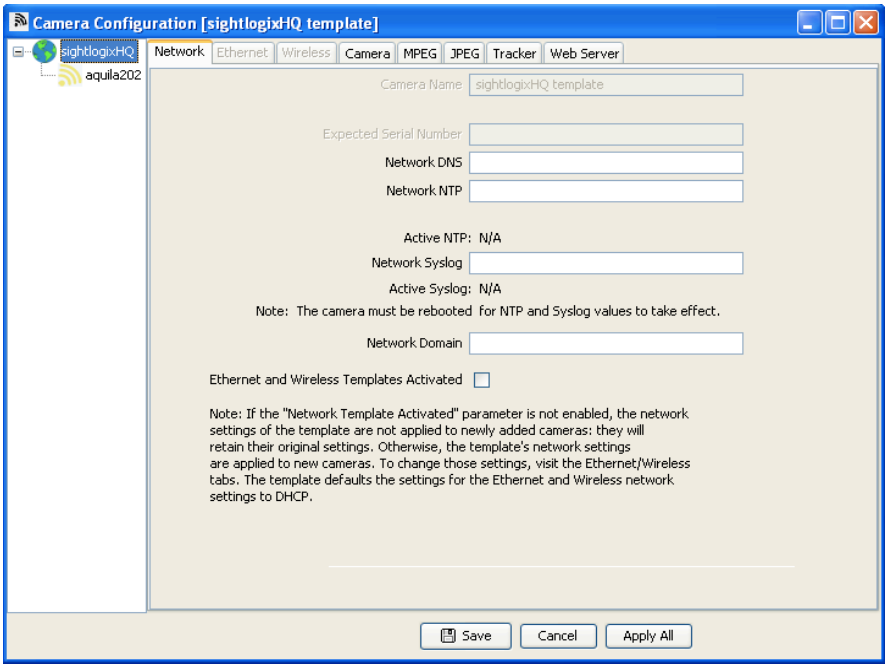
Using templates and network settings

When a camera is added to the system, its settings (such as timezone, stream type, etc.) are changed by the site template; however, by default the device's network parameters retain their existing settings. This ensures that devices will keep operating at the same network address when the template is applied.

In some instances, you may prefer to apply network settings to newly added devices via templates. To do so:

1. Open the template (right-click the site icon or right-click within the site map and select Edit Camera Template).
2. Click the Network tab of the Site settings, and check the box for Ethernet Templates Activated. This will allow the network template settings to apply.

Note that the template defaults the Network settings for Ethernet to DHCP.



Using the discovery process to add devices

Depending on your network configuration and router, the discovery process may be fully automatic or may require a manual discovery, which (unlike the automatic discovery) requires an IP range for each subnet.

In automatic discovery, which requires multicast packets to be traversing the network, a general request is transmitted and all devices respond upon receiving the requests. Automatic discovery is limited to being within the site's firewall and having the network subnets and routers configured to relay multicast address 239.255.255.253.

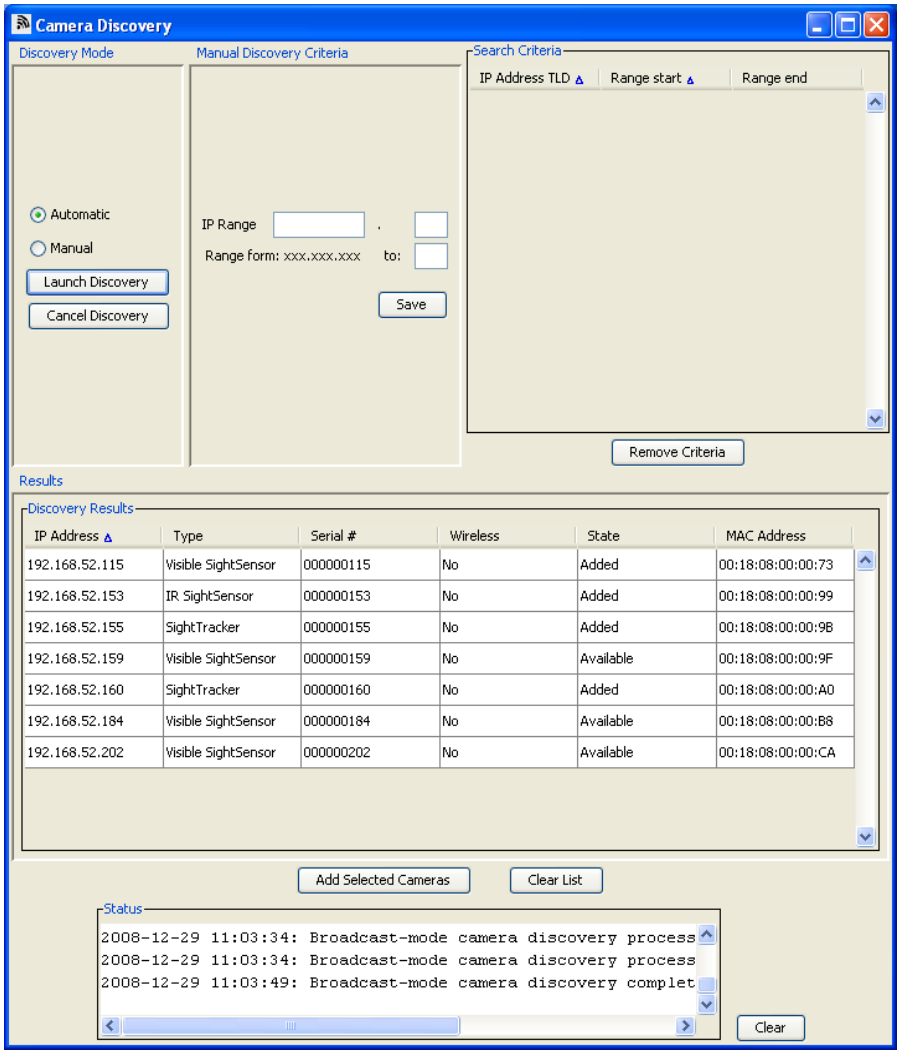
Manual discovery uses unicast, and only those devices with IP addresses in a specified range will respond.

This procedure assumes you're using DHCP, which is needed in order for the devices to negotiate the network. Once the devices are installed and sending video, you can switch to the use of static IP addresses; if changing to static IP addresses, do this before you physically install the devices.

Gen 3 Only: If no DHCP service is detected after approximately one minute, a default IP address will be adopted for setup purposes to reach the device. After initial setup, the default IP address will no longer be used unless a factory reset has been performed. The default IP address for Gen 3 SightSensors is http://192.168.0.99

Normally, you should start by using the automatic process since it's easy and quick. If not all devices respond, use the manual discovery process to pick up the non-responding ones. You will need the IP addresses of devices (or at least a range of IP addresses) for the manual process.

To open the discovery dialog, select Find Cameras from the File menu:



1. Run the automatic discovery first.

   With the Automatic radio button selected, click Launch Discovery. The results of all discovered devices (cameras) are listed.

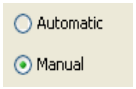
2. Check that all devices responded.

   If all devices responded, continue to step 4.

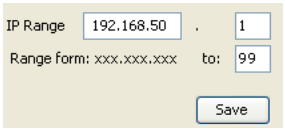
   If some did not, go to step 3 (you will need to obtain a range of IP addresses for each subnet).

3. If necessary, run the manual discovery to pick up non-responding devices.

   a. Click the Manual radio button.

   b. Type in (under Manual Discovery Criteria) the range of IP addresses for each subnet. Click Save. The range is listed under Search Criteria in the dialog. Do not use ranges of more than 150 addresses. If you need to scan more than 150 addresses, use multiple ranges.

   c. Repeat for each additional range.

   d. Click Launch Discovery.

   e. Again look at the list of results to see if all devices have responded.

   If not all devices are listed, you will need to individually enter the network information; see page 35.

4. Add each device to the site map.

   a. Select one or more entries in the Results table (use Control to select more than one device).

   b. Click Add Selected Cameras.

   c. Enter the device's IP address as prompted.

   Icons for each device are now listed in the SightMonitor's device tree and assigned a name based on their network hostnames (which can be set at the DHCP server) or their IP address. If you don't see the device, make sure the site icon is expanded.

After the devices are added, it's recommended that you assign each a descriptive name and check that the serial number is the one expected (see next page). Also set the time zone (page 36).

When they first appear, the icons are yellow to denote they are not calibrated. However, the system will now begin generating alarms for any object that moves within the camera view (see Table 2.1 for a list of the defaults assigned before shipment).

Individually adding a device

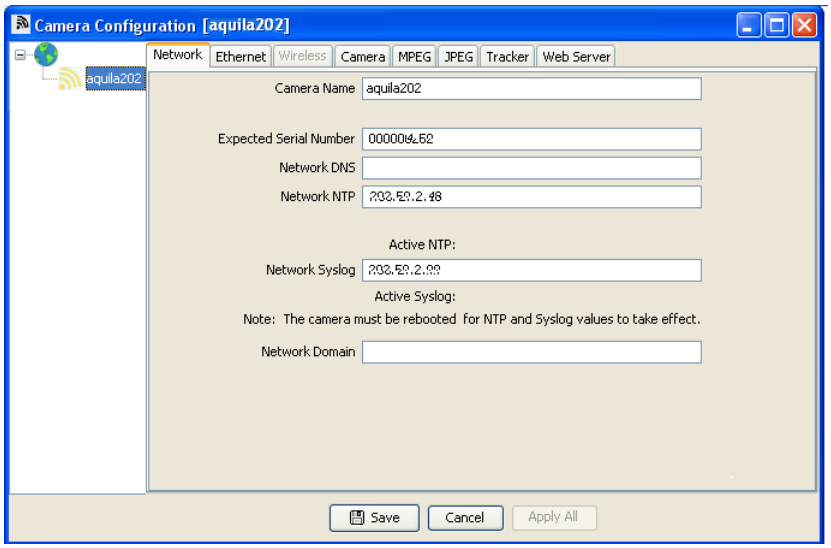
If you were not able to use the automatic or manual discovery procedure to add devices, explicitly add them as follows:

1. Right-click anywhere in the site map and select Add Camera.
2. Enter an IP address as prompted. This will automatically populate the device's Ethernet dialog with the serial number and will also enter other network information. No other information needs to be manually entered.

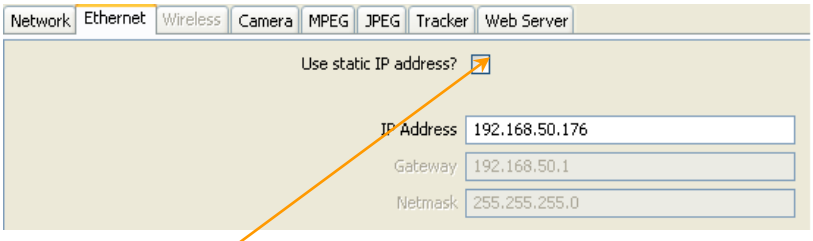
Naming the device and making changes

After adding a device, it's recommended you verify that the serial number entered is the one expected (found on the back of the camera): right-click the device icon→ Configure→ Network.

You may also want to enter a descriptive name for the device. Click OK to save changes.



If you want to make the IP address static, do so from the Ethernet dialog (right-click the device's icon→Configure→Ethernet):



Use Static IP Address should not be selected until after the cameras are fully installed. When this option is not selected, the camera makes a DHCP request at boot-time and must receive a response to complete booting successfully. Any IP address received is used to populate the field on this form and they are not then editable. When this option is enabled, the camera saves its current network settings and does not use the DHCP to acquire new settings at boot time.

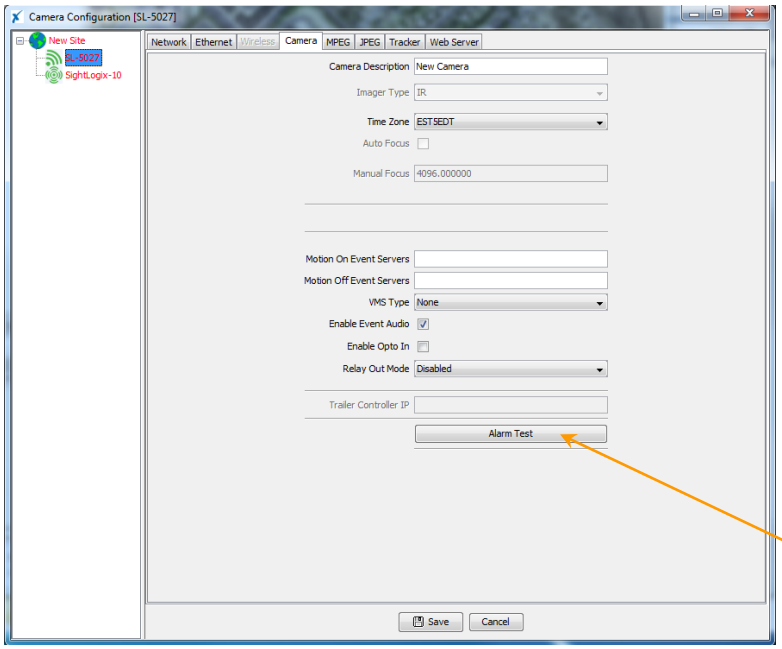
Note: With a static IP address, watch for conflicts that can occur if another device is assigned the same IP address.

The following table describes the fields of the Network dialog box:

Table 2.1 Network field descriptions	
Active Interface	Must be Ethernet during the initial installation.
Network DNS	IP address for a domain name server. Optional; not required when using IP addresses.
NTP address	Enter the address of the network time protocol server. This field is especially important since it defines the server that will be used by the camera to synchronize its clock. If the camera is not synchronized, it may not display the correct time in the video stream. Note: Sight Tracker(s) require NTP service availability. Windows time service is not compatible.
Network Syslog	(Optional) IP address of the machine on which the syslog server is installed. Knowing the syslog address allows the logging information created by the camera to be accessed, which can be helpful for troubleshooting. Leave this field blank if you do not wish the camera to log over the network.
Network Domain	Not implemented in this release.

Setting the time zone and other information

To set the correct time zone for a device and other important functions, select the Camera tab on the Configuration dialog. The fields are described below.



Equivalent to having the camera detect an alarmed target. Used for testing alarm reporting between device and the VMS.

Camera Tab Field Descriptions	
Camera Description	(Optional) Enter a descriptive name for the device (the name entered here appears in the Targets list; see page 7).
Time Zone	To set the device's time zone, select the country in which the device is located. If the country contains multiple time zones, a city selector appears. Select a city located in the same time zone as the device. By default, the time zone is set for Eastern Standard Time (or Eastern Daylight Savings time depending on time of year; the system updates automatically between daylight and savings time).
Motion On/Motion Off Event Servers	Example URLs: Cisco: Motion On "http://192.168.50.35/vsom/service/event_notify.php?id=1" DVTEL 6.0: Motion On and Off "dvtel://192.168.50.75:16000" Verint 6.0: Motion On "192.168.50.35:8081"
VMS Type	VMS systems require special, unique behavior. If you are using any of the VMS types listed in this drop down menu, select it. If the VMS you are using does not appear in the list, select "Default" which causes the device to emulate an Axis 211 camera. Motion On/Off Event Servers fields: These fields are for VMS systems that require events to be reported using specific protocols. A URL containing the protocol and the IP address of the associated system is entered in each of these fields. Refer to the SightLogix support web site http://www.sightlogix.com/portal.php for a list of URLs per system type.
Enable Event Audio	Enables the broadcast of a pre-recorded message when an alarm is triggered. Requires an amplifier and speaker to broadcast the default audio message.
Enable Opto In	Controls the dry-contact input behavior. Applications of Opto In could be reading door open/close states. *Enabled*: Allows monitoring of the input signal for SightSensors or enclosure breach event for SightTrackers. *Disabled* (default): Input is not used.

Relay Out Mode	Enable the dry contact output on the device. Three options are available: *Alarm:* The device's alarm state is reflected on the dry contact output. Useful for sounding a siren or flashing a light. *DayNight* : The dry contact output reflects the day/night state (before/after sunrise or sunset). Useful for controlling illumination. *Disabled* (default): Output is not used.

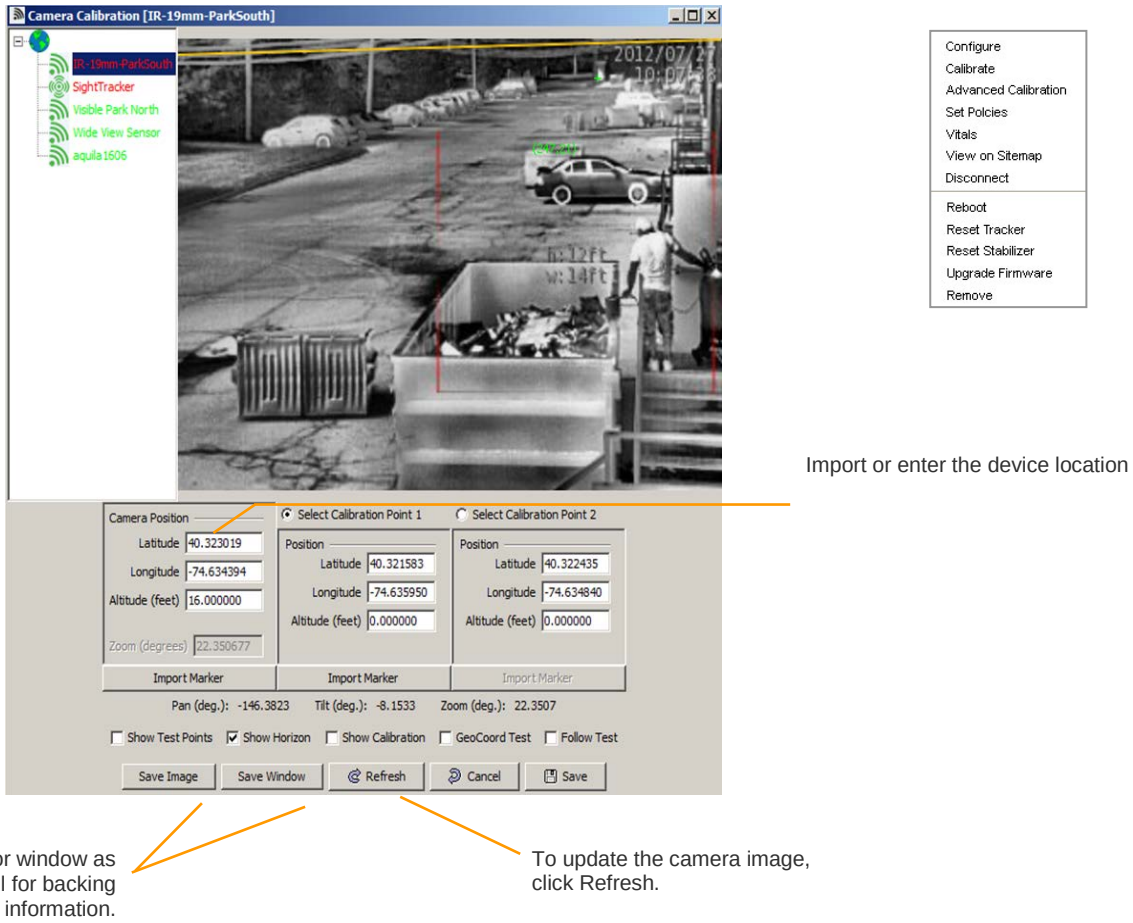
The next step is to calibrate the device so GPS coordinates can be associated with targets.

Setting the device position

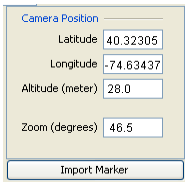
Setting the position of a SightSensor or SightTracker within the site map is required for calibration.

To set the camera position:

1. Right-click on the device icon and select Calibrate.



2. Under Camera position, import from map selection or enter the position manually of the device.



If entering the coordinates obtained with a GPS device, a precision of at least five decimal digits is recommended.

To import GPS coordinates from the site map: Double-click in the site map at the location of the camera to place the marker. (For closer placement, zoom in by using the mouse roller ball or pressing the + key.) Click **Import Marker**.

3. Enter the device's altitude, which is the height of the device off the ground in meters or feet as required. The altitude should be relative to the calibration points you select later

4. Click OK. You will not see a cone for the device until you calibrate.

Click the dialog's OK button to update SightSensor operation.

Calibrating SightSensors

This section explains how to calibrate a SightSensor for the most common situations. For advanced users, or to fine-tune calibration settings, refer to Advanced Calibration on page 99.

For information on calibrating PTZ cameras using the SightTracker, see Chapter 3.

In order for the camera and targets to be represented in the site map and for GPS coordinates to be obtained for targets or locations, you need to do a calibration. Calibration is also required if you will be setting alarm policies according to object size. If you don't need GPS information, calibration is not necessary though you may want to visualize the camera coverage areas on the site map.

GPS coordinates can be imported from the site map as described in this section or obtained using an accurate GPS device. If you're using a GPS device, it's recommended that two people participate, one in the field radioing in the GPS coordinates and the other at the PC to enter in the coordinates.

GPS coordinates obtained in the field can be represented in the site map by manually entering the GPS coordinates and clicking Update Marker in the Calibrate dialog (see next page) to place a marker at the site of those coordinates.

Entering calibration points

Calibration points are specific pixels you select in the camera view and explicitly associate with GPS coordinates. The coordinates can be imported from the site map, or you can obtain

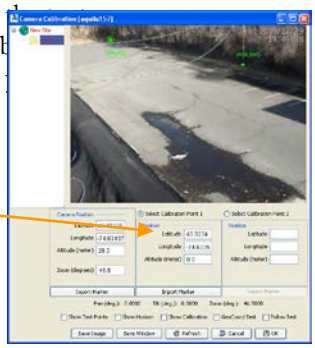
them using a GPS device. These points are then used by the system to calculate GPS coordinates for all other ground locations in the camera view.

Two calibration points are required. When selecting points, select a ground location next to a landmark or other permanent object and always select locations that can be easily identified in both the site map and the camera view. The points should be close to areas you're interested in monitoring. Points should be some distance away from one another. If the area is hilly with wide variations in elevation, select points that are roughly midway between the highest and lowest elevations.

It is important that the points you select in the site map or in the real world exactly match the corresponding points in the camera image; a test procedure ensures a good match. If you're using a geo-referenced site map and can identify landmarks in both the camera image and site map, calibration can go relatively easily.

Turning on the grids in the site map makes it easier to measure distances and locate points.

In featureless landscapes lacking distinctive landmarks, calibration may take some time; in such cases, you may have better results using a GPS device, where one team member is in the field radioing in GPS coordinates to the team member at the system entering information. You can mark a specific GPS location in the site map by entering the coordinates (in d box below the site map) and clicking Update Marker. The GPS coordinates denoted b marker can be imported directly into the Calibrate dialog. Use as accurate a device as

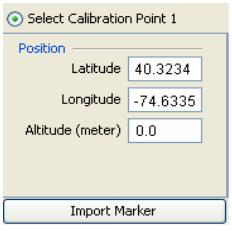


To create calibration points:

1. In the Calibration Points column, select the radio button for one of the calibration points.

2. In the site map, double-click to select the first calibration point. Zoom in by using the mouse roller ball or pressing +.

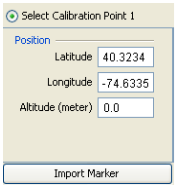
This procedure assumes you're obtaining GPS coordinates from the site map. If you're using a GPS device, enter the GPS coordinates into the Position text fields as shown here along with an altitude if appropriate; click Save. Repeat for the second calibration point and then skip to the calibration test procedure on page 41. Note that GPS coordinates that were manually entered into the site map (using Update Marker) can be imported.



3. In the video image, double-click at the point that corresponds to the point selected in the site map (this leaves a green marker).

Closely compare the point in the camera view with the point in the site map to make sure they are placed at the same locations.

4. Once the two points correlate closely, click Import Marker. This imports the GPS coordinates from the site map and populates the calibrate dialog box:



5. Enter an altitude (Typically 0 is correct for a level site).

6. Click OK to permanently store all calibration point information.

7. Click the radio button for the second calibration point and repeat steps 2-6 to create a second point. Once you click Save for the second point, the system recalculates the camera's pan, tilt, and zoom settings and also estimates the location and angle of the horizon. In the site map, the coverage area shifts to a new position.

Testing and saving the calibration

There are three parts to the calibration test for a SightSensor:

> Comparing the system-derived horizon to the real horizon.

> Verifying that test points in the camera view correspond to points in the site map.

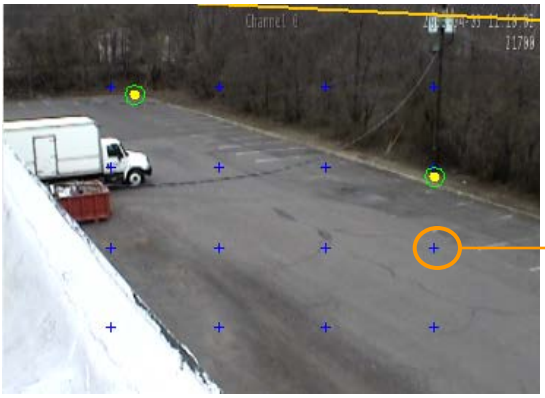
> Viewing the GPS coordinates of a single point, which you can compare to a landmark point whose GPS coordinates are already known (optional).

To show the system-derived horizon, click the Show Horizon checkbox. This draws a line across the camera view where the system thinks the horizon is. The horizon should be somewhat aligned with the real horizon. If the horizon is at the wrong angle, check the camera height; if the angle is good but at the wrong height, you may need to select new points.

To show test points, select the Show Test Points checkbox (the horizon will also be shown, though you can hide it by unselecting the Show Horizon checkbox). In the video image, you will see 16 points equally distributed below the horizon. These points should correspond to points shown in the site map, where the points should be parallel to the camera and exhibit a

linear arrangement of four groups of four points. (There are exceptions such as hilly sites where the horizon is obscured and calibration points are at different heights.)

If the arrangement is random and if the two sets of test points don't correspond, you need to recheck or correct the calibration (see next section).



System-calculated horizon
Check that it roughly matches the real horizon.

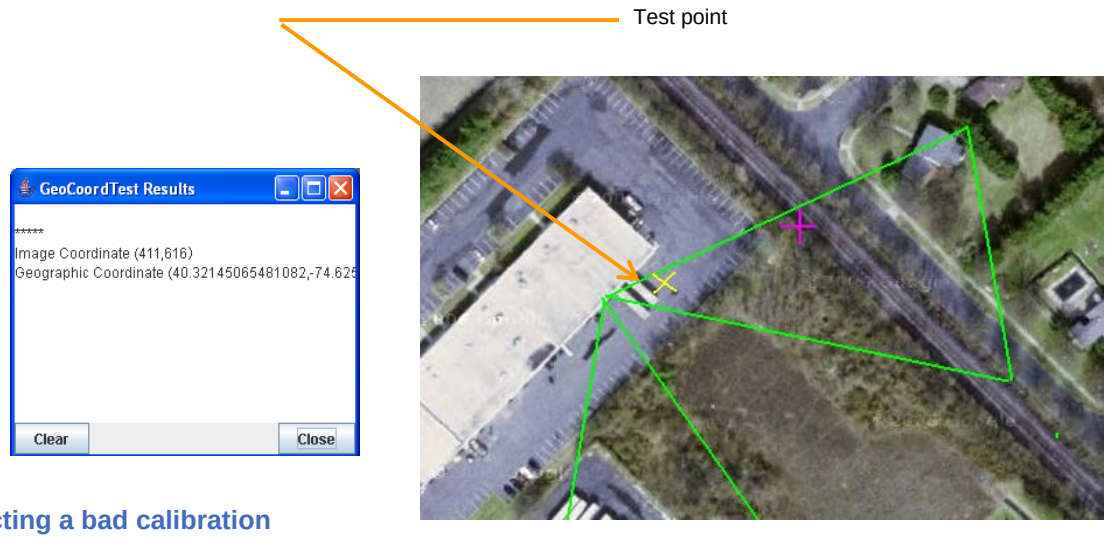
Test points here should correspond with points in site map.

A scattered distribution can indicate a poor calibration.

In a good calibration, the points will be parallel to the camera, arranged in a roughly linear fashion.

Once the calibration is shown to be good, it is recommended that you use the Save Image option on the Calibration dialog to create a JPEG image of the calibration information. This can be useful if you need ever need to reconstitute a calibration.

To retrieve the coordinates of a specific point: click GeoCoordTest and then double-click anywhere in the camera view to return the GPS coordinates of that point. This places a test point (circled in red) and opens a dialog with the coordinates calculated by the system. This procedure is useful for verifying the calibration by comparing the system-derived GPS to a reference point whose GPS is already known. The test point is also represented in the site map.



Contents of the results window can be copied to the clipboard.

Correcting a bad calibration

If a calibration is not good, check first that the camera height is correct. Verify that the elevation is the difference in height between the camera and the calibration points. If after reentering the camera height and retesting the calibration, the test points are still not correct, select different points.

For finer calibration options, refer to Advanced calibration on page 99.

Table 2.2 Default settings

Alarm generation

Default: Any object moving through the camera view at any time generates an alarm.

Alternatives:

Customize the alarm policies that determine the conditions under which alarms are generated:

- Redraw the existing default alarm zone or draw new alarm, ignore, and mask zones to more precisely define where alarms can and cannot be generated. See page 89.
- Use alarm rules to alarm only on targets that of a specific or size (aspect ratio), or are moving at a certain speed or specific direction.
- Specify the times when alarms can be generated. See page 92.
- Change the alarm zone into a tripwire zone so that alarms are generated only when an object exits, enters, or both. See page 93.
- Designate an illegal path by using from-zones. See page 94.

Video transmission

Default: SightSensors transmit both MPEG and motion JPEG; from your VMS you select one or both to view or archive.

MPEG is configured for high image quality and is intended for display. The bit rate varies, increasing when there is more information (such as during alarms), up to 2000000 bits. The frame rate is 30 fps, and textual information (e.g., time/date) is superimposed on the video.

Motion JPEG is configured for image archiving. To conserve disk space, it transmits at a slower frame rate (2 fps) when there are no alarms, though individual frames are at high quality; during alarms, the frame rate is 30 fps. The video is not obscured by overlays.

Alternatives:

Change the defaults for one or both channels, either to reduce the network load or increase image quality. To reduce amount of transmitted data, you can (1) select motion JPEG from your VMS, (2) use an image scaling of half, (3) lower the maximum bit rate, or (4) increase the I frame interval. See page 104.

Conversely, for better image quality, increase the maximum bit rate and decrease the interval between I frames.
Video overlay information **Default:** Overlays date/time and the camera's ID, and shows targets enclosed in the corners of a bounding box. **Alternatives:** Turn off any of the displayed information, and enable the following other information: channel description, motion tracks. See page 109.

Chapter 3

Setting Up SightTrackers with PTZ Cameras

SightTrackers enable PTZ cameras to automatically aim at a target's GPS position when an alarm occurs, enabling security personnel to get an immediate, close-up view of the event triggering the alarm.

The SightTracker is a separate unit that receives target GPS information from one or more associated SightSensors and then converts the information to pan/tilt settings to control the PTZ camera. The SightTracker also digitizes video from a PTZ camera for transmission over the network.

Currently, there is support for select analog and IP domes. Supported analog domes include Bosch VG-4 AutoDomes®, Pelco® D protocol cameras (Spectra® IV and Esprit®), and selected Flir and Aventura domes. IP domes include select Axis, Infinova, and Samsung cameras. Additional dome and PTZ cameras will be added in future releases.

The field of view of each PTZ camera attached to a SightTracker is represented within the site map by cones that dynamically update as the camera zooms or pans, either in response to an alarm or when controlled by the site's VMS.

PTZ cameras will continue to track an object as long as it remains in view of an associated SightSensor or until one of the following occurs:

- Another target becomes higher priority. In case of multiple targets, the default is to assign the highest priority to the newest target. However, you can specify a different priority (see page 87).
- The VMS operator takes control of the camera. Joystick control from the VMS is always able to immediately take control of the camera.
- The SightTracker is frozen.

Main Set Up Steps

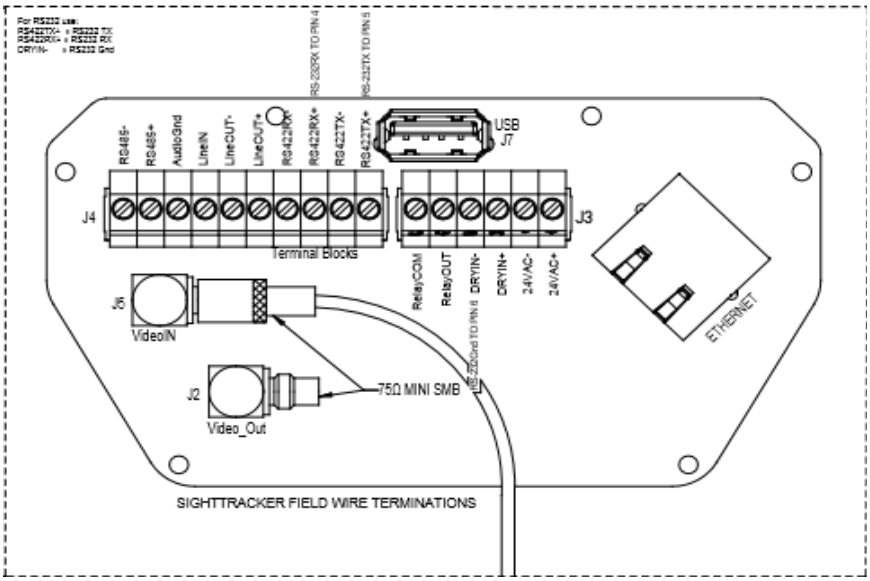
1. Installing SightTrackers
2. Add SightTracker to Camera List in SightLogix CS software
3. Turning off Line Sync Settings in camera
4. Calibrating PTZ Camera with SightTracker in SightLogix CS software
5. Associating PTZ Camera with SightSensor in SightLogix CS software
6. Performing Pair Wise Calibration in SightLogix CS software
7. Testing Camera Tracking in SightLogix CS software
8. (Optional) Changing Track Priority in SightLogix CS software

Installing SightTrackers

2nd Generation and 3rd Generation SightTrackers have different hardware configurations. First determine which generation you are installing and follow the appropriate section below.

Determining Your SightSensor Generation	
	3rd Generation SightTracker (Analog or IP PTZs)
	2nd Generation SightSensor (Anolog PTZs only)

Installing 3rd Generation SightTrackers with Analog PTZs



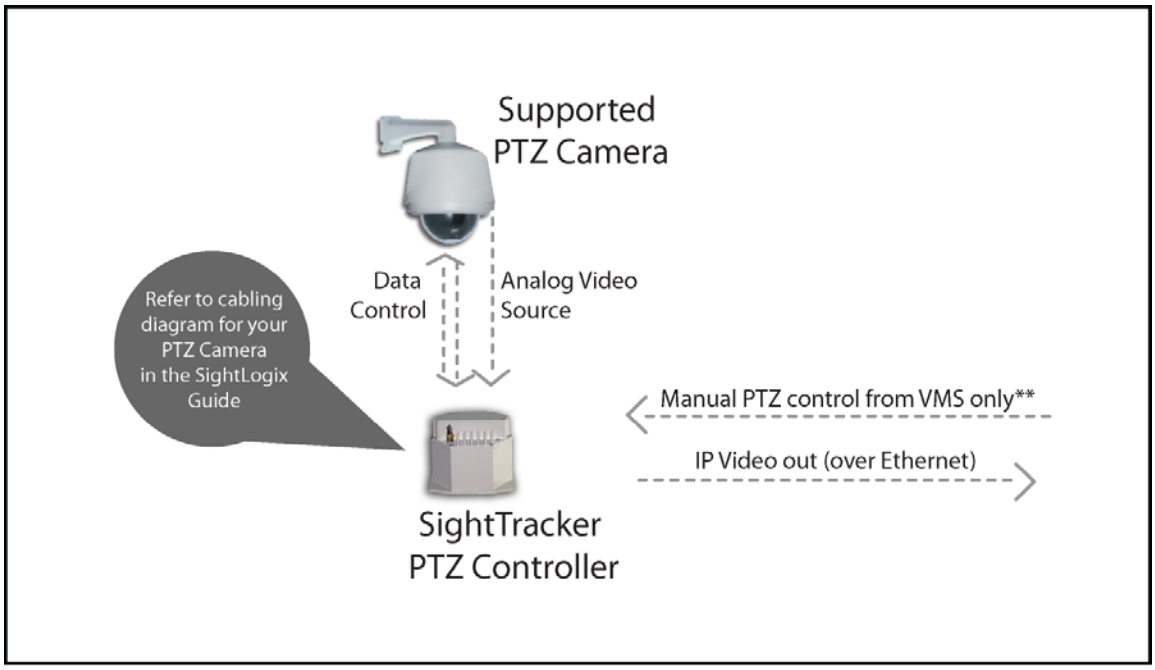
3rd Generation SightTracker Wire Terminations

One SightTracker is required for each PTZ camera, and each SightTracker has up to four required functional external connections on the terminal block:

- 24V power or PoE
- Ethernet
- RS422/RS232
- Analog Video In

The following is a complete list of what's required to attach a SightTracker to an analog PTZ camera:

- SightTracker unit
- NTP server available on the network (Required to allow auto-tracking function and configured in SightLogix CS)
- Compatible third-party PTZ camera
  - See the following sections for compatible PTZ cameras
- Serial Data - RS232 (3 wire) or RS-422 (4 wire)
- Ethernet network (RJ45)
- Single analog video connection cable (supplied)
- Power source for camera and SightTracker unit



**Note - Manual control of the PTZ over Ethernet is possible via your VMS joystick and/or keybord.
Do not connect a keyboard directly to the SightTracker to manually control a PTZ.

SightTracker may encode various mode messages at center bottom of the video sent to the VMS. Messages may include "User Mode" indicating a user is manually controlling the PTZ which is the highest priority PTZ control. "Auto Tracking" indicates an alarmed target has been detected in an associated Sight Sensor and the target is being automatically tracked by the PTZ via Sight Tracker.

If there is an overlay message in the center of the screen displaying "PTZ not detected" This indicates the PTZ is not communicating with the Sight Tracker as expected and may indicate no power at PTZ, serial communication lines are not connected properly to the PTZ or improper baud rate or protocol is selected in configuration.

Configuring Pelco D protocol cameras (Spectra® III, IV and Esprit®)

This section assumes the SightTracker has already been added to your VMS. If not, refer to the documentation that came with your VMS for adding an Axis 213 Dome Camera or a SightTracker unit.

Note: SightTracker units emulate the Axis 213 PTZ camera protocols which allow integration to many VMS systems.

Also, refer to the SightLogix VMS Integration Guide for additional detail on adding SightTrackers to specific VMS systems.

Integrating Pelco PTZ cameras with SightTrackers consists of the following steps:

- Physically install SightTracker and Pelco PTZ camera.
- Connect:
  - RS-422 (4 wire) serial data between SightTracker and camera
  - Ethernet to the SightTracker
  - Power to the SightTracker
- Install analog video cable from camera to SightTracker.
- Connect power to the camera

Notes:

- When using a Spectra IV PTZ running firmware 2.2 or later, set the baud rate to 4800 8 N 1.
- To maintain accuracy of Spectra PTZ cameras, the SightTracker includes a feature to perform a daily re-homing routine. When enabled from the PTZ dialog (or from the Camera tab of the template), re-homing is performed once every 24 hours and causes each PTZ camera to make one complete revolution (taking up to a minute). During this time, the camera cannot track targets or respond to commands.

- The re-homing routine will not occur when the camera is busy and will not begin until two minutes have passed since a target was last tracked. When SightTracker is restarted, the 24 hour re-homing

counter is reset.

> Re-homing can maintain peak accuracy of Spectra cameras, but is not needed for newer models of Spectra cameras.

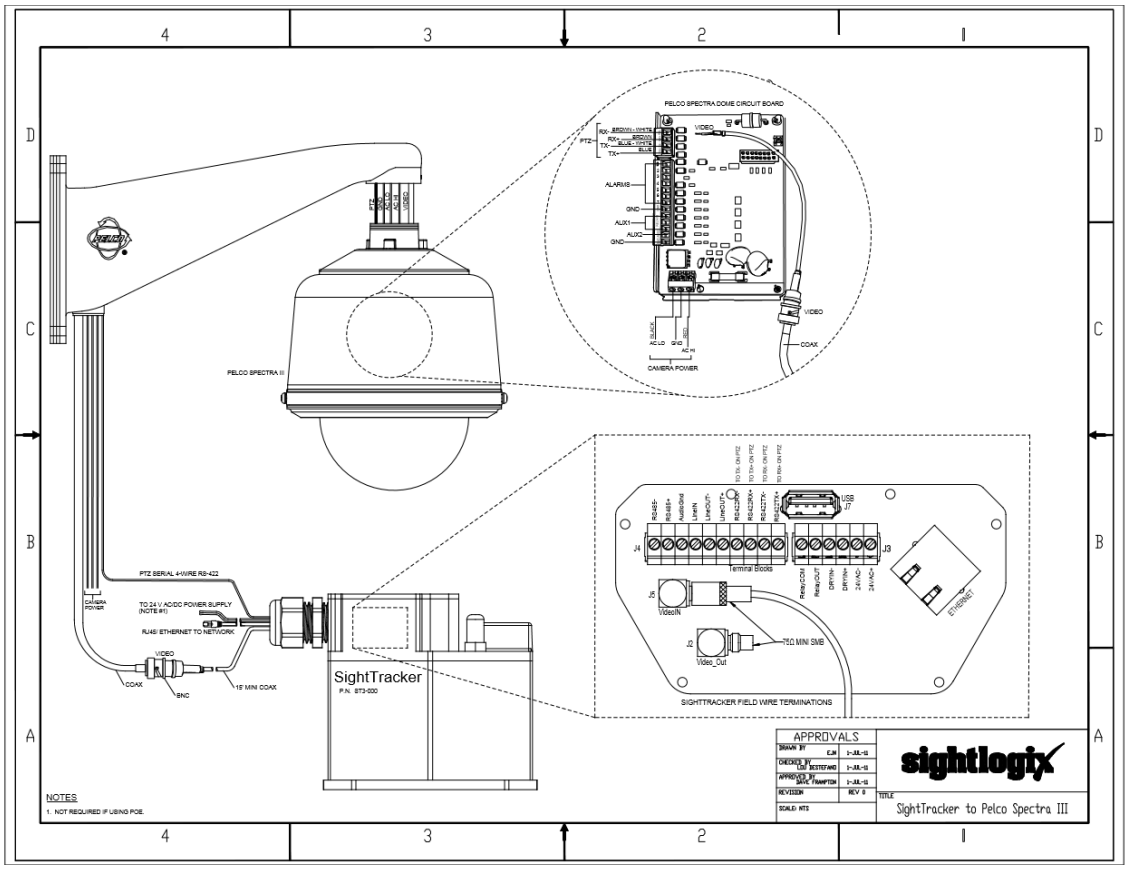
> The Pelco System Information settings should be set as shown.

Constructing the RS-422 cable

In order for the SightTracker to control the pan, tilt, and zoom camera moves, you'll need to connect a cable using twisted pairs according to the pin assignments of the connector on the back of the SightTracker.

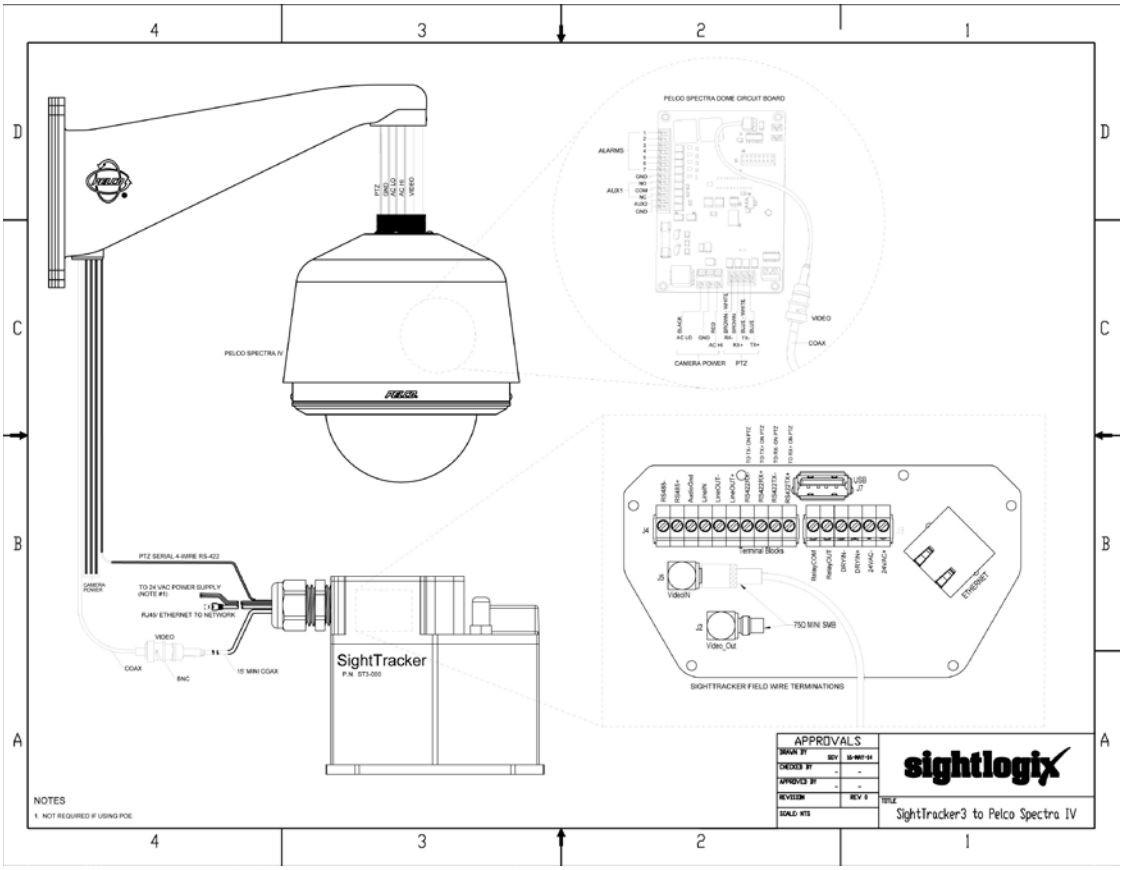
Pelco D Spectra III Installation

Refer to the following diagram for Pelco D Spectra III installation details.



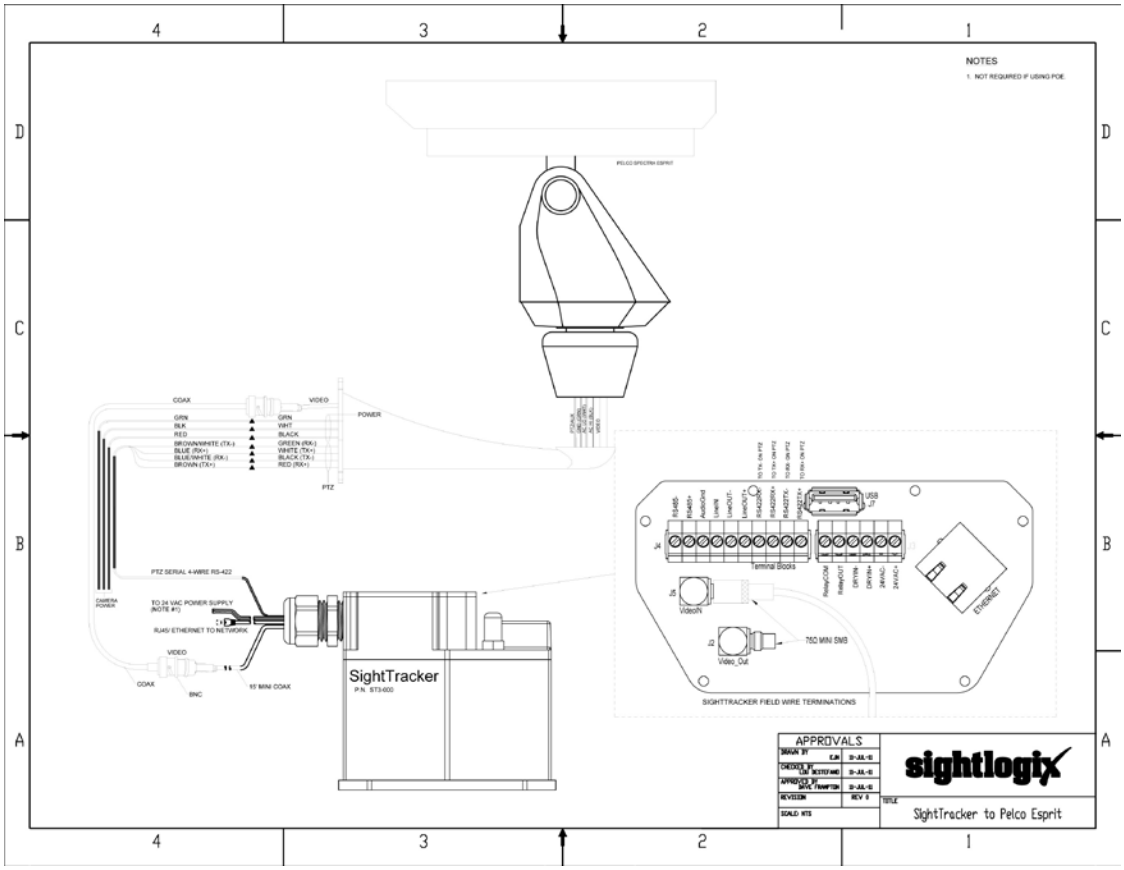
Pelco D Spectra IV Installation

Refer to the following diagram for Pelco D Spectra IV installation details.



Pelco D Esprit Installation

Refer to the following diagram for Pelco D Esprit installation details.



Configuring Bosch VG Series AutoDome

This section assumes the SightTracker has already been added to your VMS. If not, refer to the documentation that came with your VMS for adding an Axis 213 Dome Camera or a SightTracker unit.

Note: SightTracker units emulate the Axis 213 PTZ camera protocols which allow integration with many VMS systems.

Also, refer to the SightLogix VMS Integration Guide for additional detail on adding SightTrackers to specific VMS systems.

Integrating dome cameras with SightTrackers consists of the following steps:

> Physically install the SightTracker and Bosch PTZ camera.

> Connect:
  - RS-232 (3 wire) serial data connection to SightTracker unit
  - Ethernet to the SightTracker
  - Power to the SightTracker

> Install analog video cable from camera to SightTracker Analog In connector.

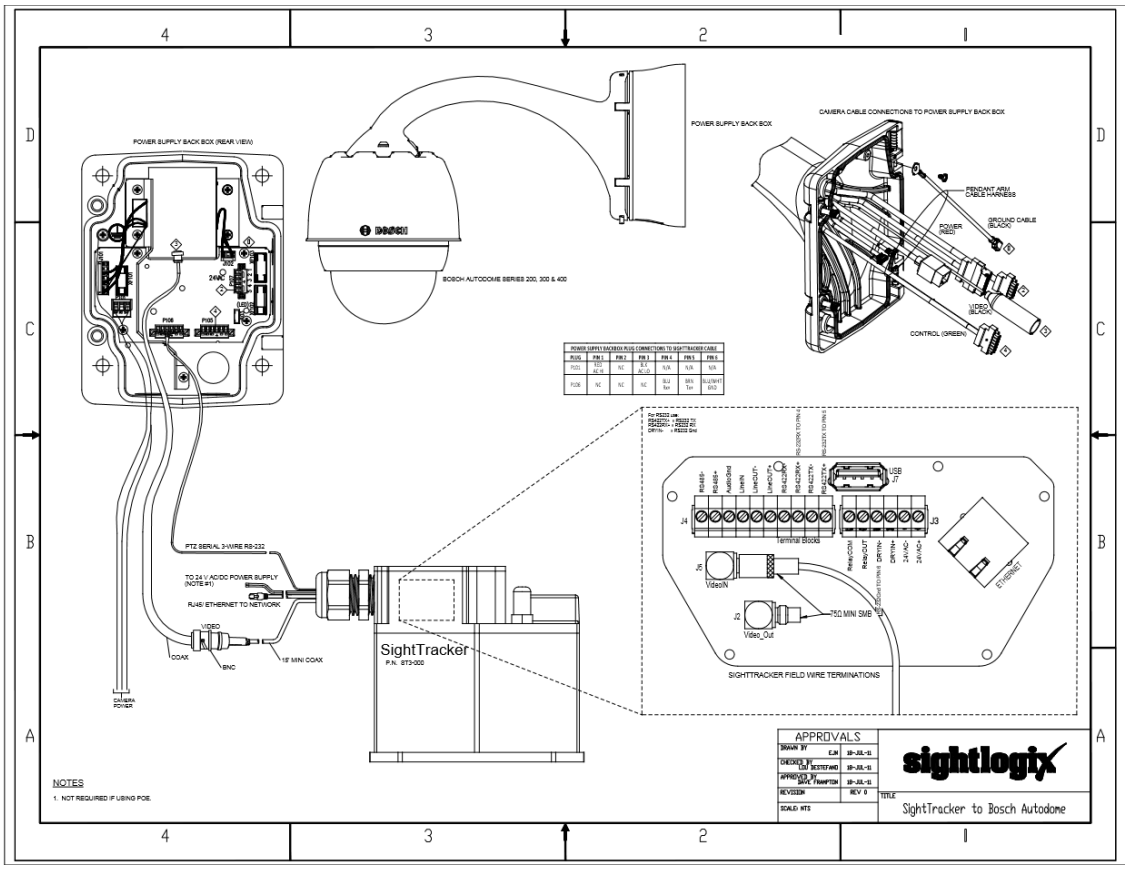
> ** See diagram and wiring chart below for proper pin / cable conductor assignments for connection to PTZ camera.

Notes:

> **Do not** assign a "fast address" to the Bosch Dome. This will prevent communications to the SightTracker.

> Confirm a 100 Ohm resistor is installed across the Bosch bi-phase control lines.

> **Ensure that the RS-232/RS-485 selector switch is positioned to RS-232 (inward away from the LED lights).** This switch is located on the bottom of the AutoDome CPU board, under the camera head and next to the LED lights. See the following diagram showing RS-232 switch location:


POWER SUPPLY BACK BOX (REAR VIEW)
POWER SUPPLY BACK BOX
CAMERA CABLE CONNECTIONS TO POWER SUPPLY BACK BOX
PENDANT ARM CABLE HARNESS
POWER (RED)
GROUND CABLE (BLACK)
VIDEO (BLACK)
CONTROL (GREEN)
BOSCH AUTODOME SERIES 200, 300 & 400
PTZ SERIAL 3-WIRE RS-232
TO 24 V AC/DC POWER SUPPLY (NOTE #1)
RJ45/ ETHERNET TO NETWORK
VIDEO
COAX
BNC
18" MINI COAX
SightTracker
P.N. ST3-005
CAMERA POWER
Terminal Blocks
VideoIN
Video_Out
75Ω MINI SMB
SIGHTTRACKER FIELD WIRE TERMINATIONS
NOTES
1. NOT REQUIRED IF USING POE.
APPROVALS
sightlogix
SightTracker to Bosch Autodome

The Bosch Communications Setup menu options should be configured as shown.

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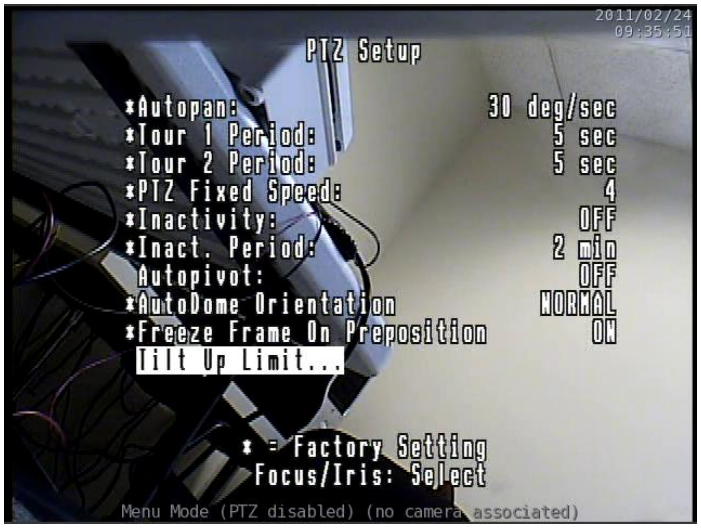
The Bosch PTZ Setup menu options should be configured as shown.



Configuring FLIR PTZ Cameras

This section assumes the PTZ camera has already been added to your VMS. If not, refer to the documentation that came with your VMS.

Requirements: FLIR Software Version 2.5.1.16 and Web Configuration version 2.8.3.

Integrating PTZ cameras with SightTrackers consists of the following steps:

> Constructing the RS-422 cable using the correct RS-422 pin assignments.

> Physically installing the SightTracker and attaching the cabling.

To maintain the accuracy of FLIR PTZ cameras, the SightTracker includes a feature to perform a daily re-homing routine. When enabled from the PTZ dialog (or from the Camera tab of the template), re-homing is performed once every 24 hours and causes each PTZ camera to make one complete revolution (taking up to a minute). During this time, the camera cannot track targets or respond to commands.

The re-homing routine will not occur when the camera is busy and will not begin until two minutes have passed since a target was last tracked. When SightTracker is restarted, the 24 hour re-homing counter is reset.

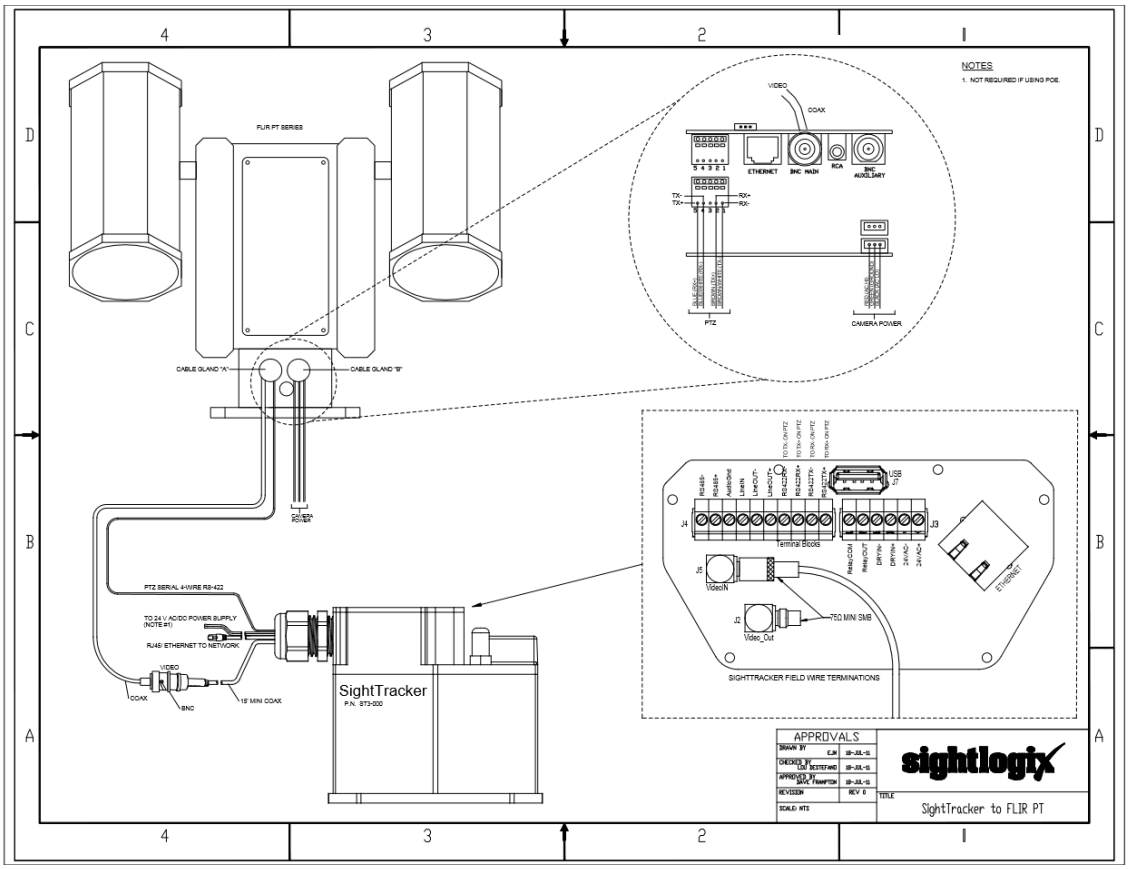
Re-homing can maintain peak accuracy of FLIR cameras.

Constructing the RS-422 cable

In order for the SightTracker to control the pan, tilt, and zoom camera moves, you'll need to connect a cable using twisted pairs according to the pin assignments of the connector on the back of the SightTracker.

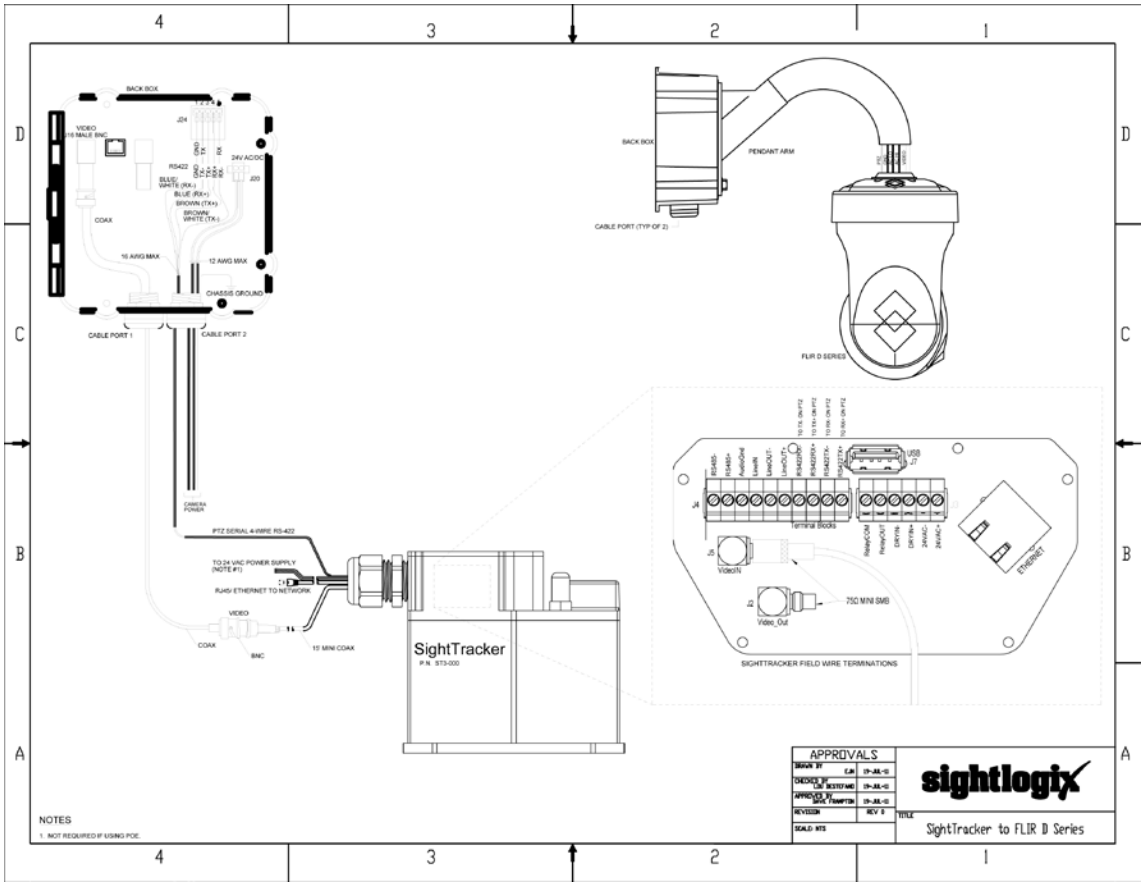
FLIR PTZ Installation

Refer to the following diagram for FLIR PTZ installation details.

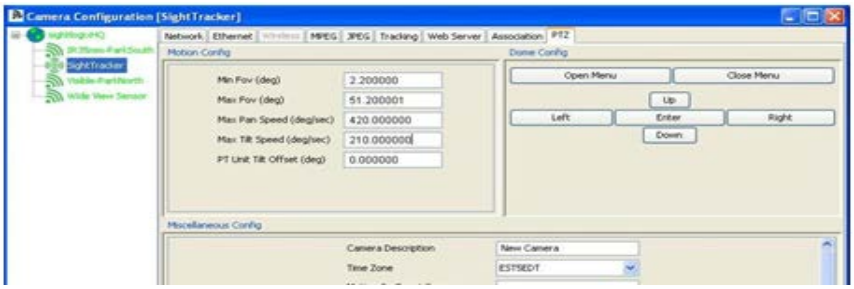

NOTES
1. NOT REQUIRED IF USING POE.
FLIR PT SERIES
CABLE GLAND "A"
CABLE GLAND "B"
VIDEO
COAX
ETHERNET
BNC MAIN
RCA
BNC AUXILIARY
PTZ
CAMERA POWER
PTZ SERIAL 4-WIRE RS-422
TO 24 V AC/DC POWER SUPPLY (NOTE #1)
RJ45/ ETHERNET TO NETWORK
COAX
BNC
15' MINI COAX
SightTracker
P.N. ST3-000
Terminal Blocks
VideoIN
Video_Out
75Ω MINI SMB
ETHERNET
SIGHTTRACKER FIELD WIRE TERMINATIONS
APPROVALS
DRAWN BY
CHECKED BY
APPROVED BY
REVISION
SCALE: NTS
sightlogix
TITLE
SightTracker to FLIR PT

FLIR D Installation

Refer to the following diagram for FLIR D installation details.



You must enter the following parameter in SightMonitor because the FLIR unit currently responds to our query as a generic Pelco D device.

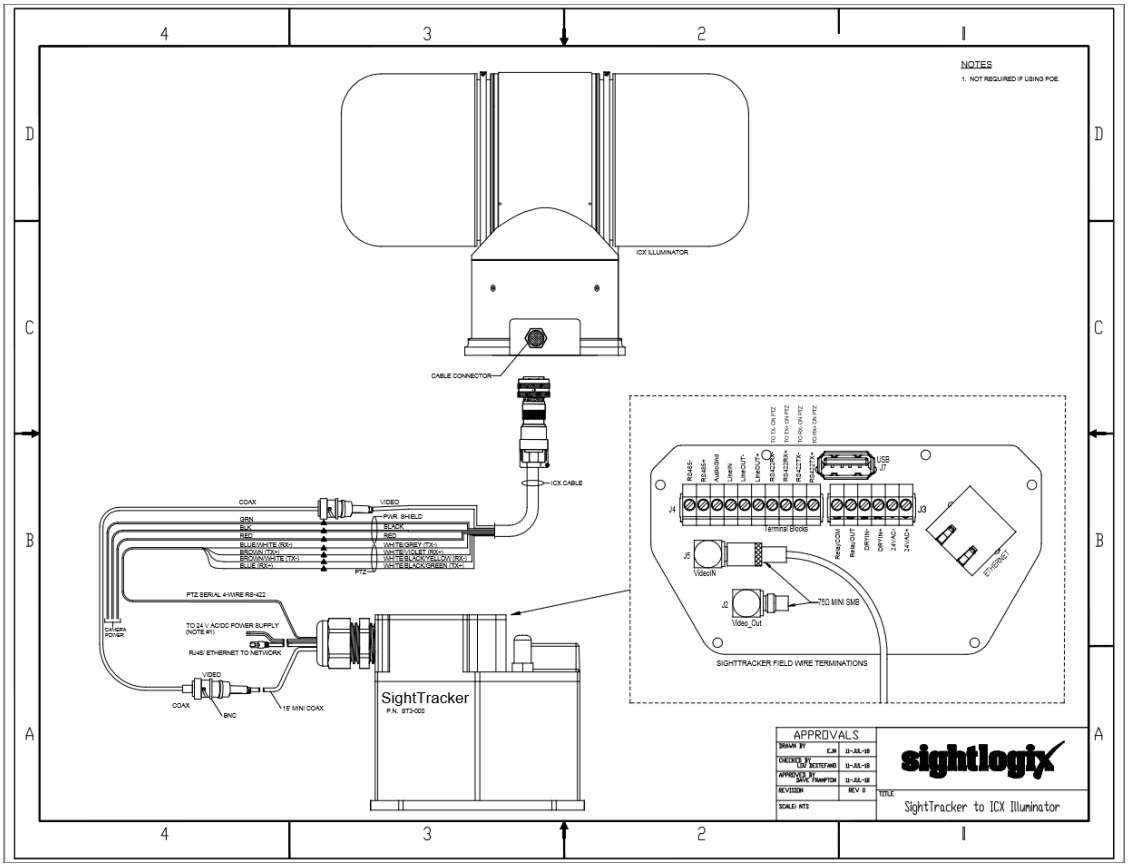


- Min Fov (deg) 2.200000
- Max Fov (deg) 51.200001
- Max Pan Speed (deg/sec) 420.000000
- Max Tilt Speed (deg/sec) 210.000000
- PT Unit Tilt Offset (deg) 0.000000

Configuring FLIR Ranger™ Illuminator

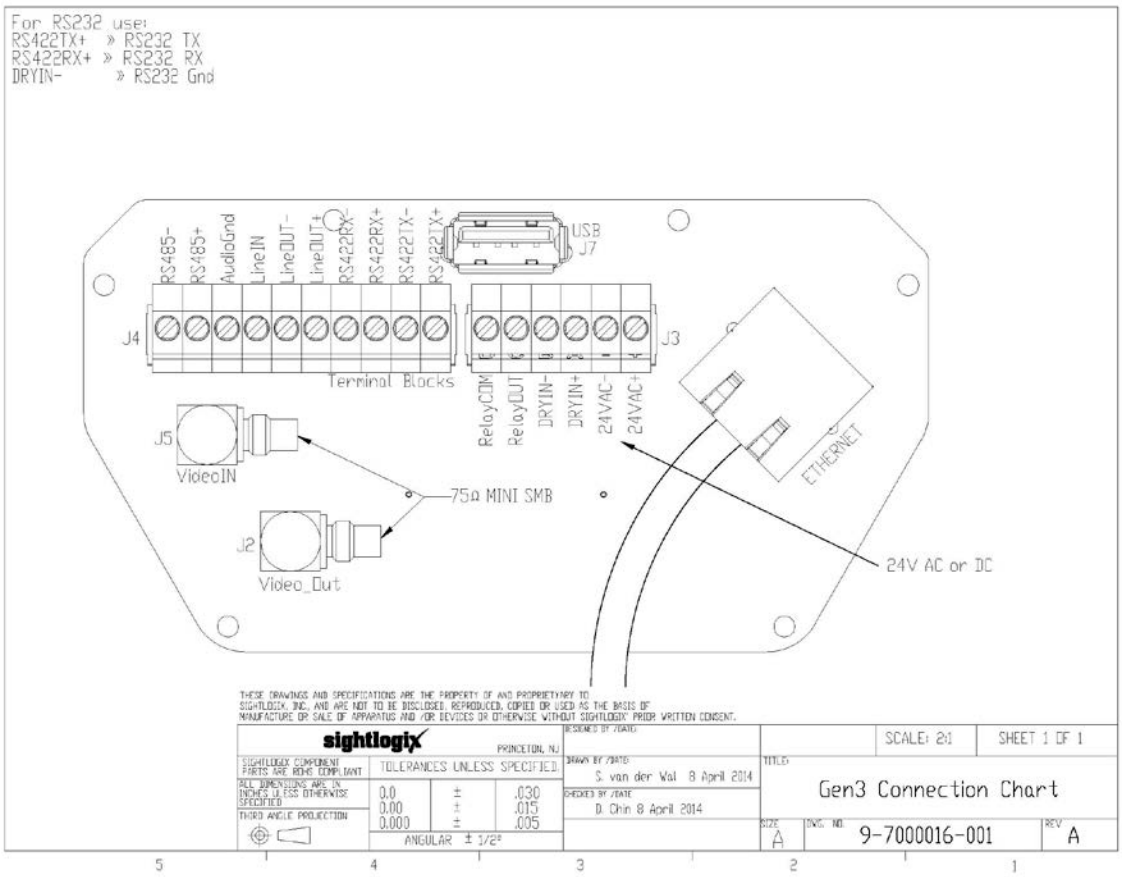
In order for the SightTracker to control the pan, tilt, and zoom camera moves, you'll need to connect a cable using twisted pairs according to the pin assignments of the connector on the back of the SightTracker.

Refer to the following diagram for installation details.

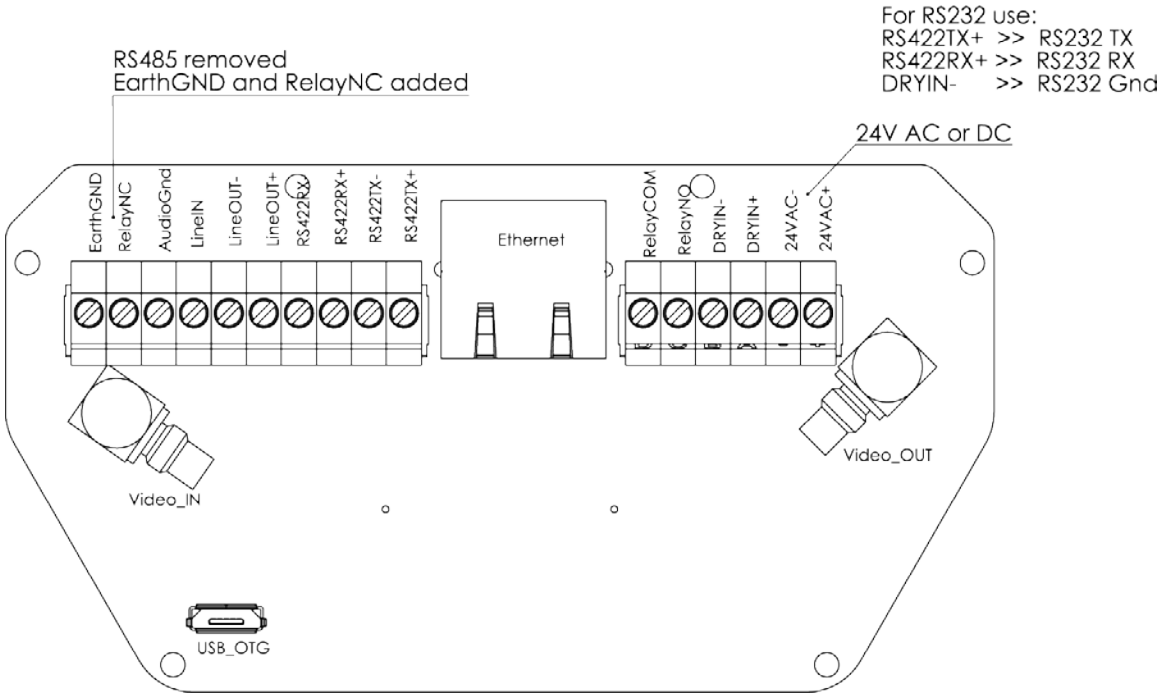


Note: Ensure that the Illuminiator is configured for Pelco D control protocol. Refer to the Illuminator documentation for these and other settings.

Installing 3rd Generation SightTrackers with IP PTZs



3rd Generation SightTracker Wire Terminations (Version 1)



3rd Generation SightTracker Wire Terminations (Version 2)

One SightTracker is required for each PTZ camera, and each SightTracker has two required functional external connections on the terminal block:

- 24V power or PoE
- Ethernet, as shown

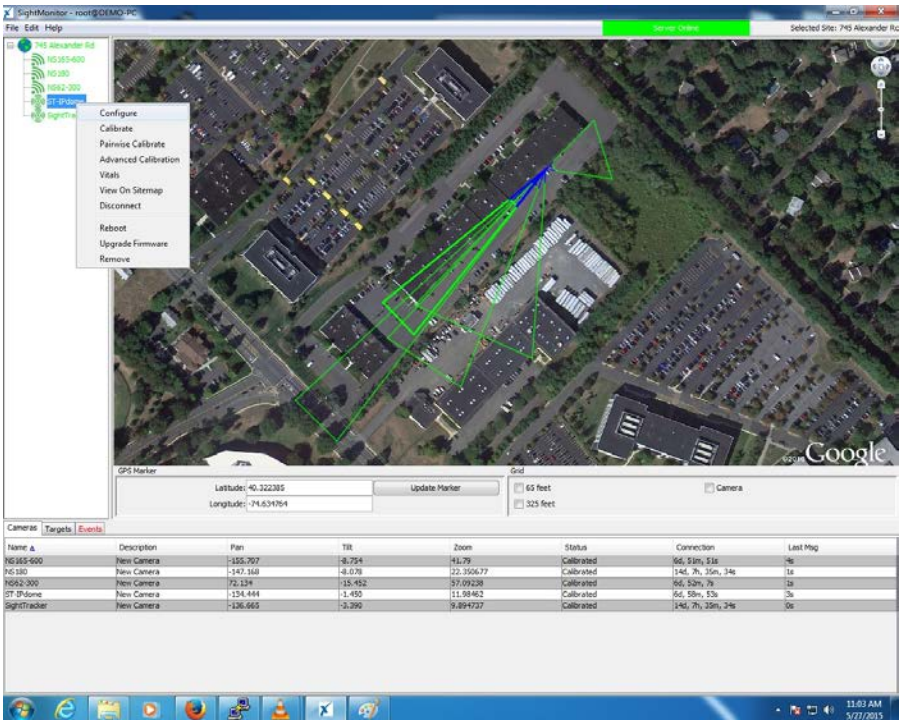
The following is a complete list of what's required to attach a SightTracker to an IP PTZ camera:

- SightTracker unit
- NTP server available on the network (Required to allow auto-tracking function and configured in SightLogix CS)
- Compatible third-party IP PTZ camera
- Ethernet network (RJ45)
- Power source for camera and SightTracker unit

Configuring IP PTZs

SightTracker has been qualified to work with Axis Q60-E Series IP Domes, Infinova V1492MR-20T25HE (20x Zoom), and Samsung SNP-6200RH.

Select the SightTracker, right-click and select Configure.



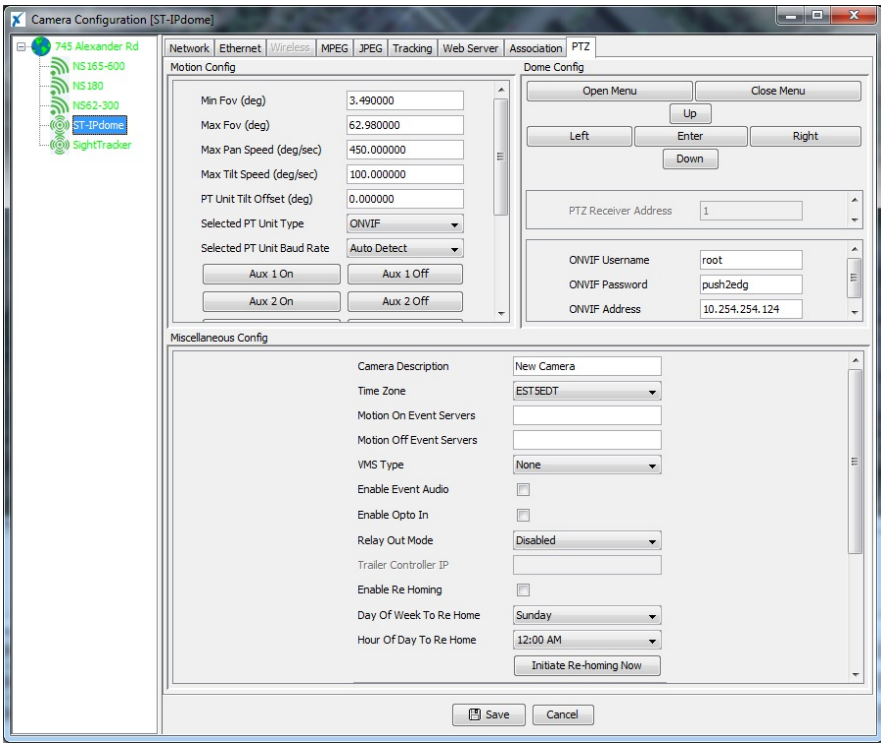
Under the PTZ tab, look for the Selected PT Unit Type field and select ONVIF.

An example follows:

> On the right-hand side, enter the information for ONVIF:

- ONVIF Username field: Enter the IP dome password
- ONVIF Password: Enter the IP dome password
- ONVIF Address: The IP address of the IP Dome.

> Click Save. The SightTracker will reboot.

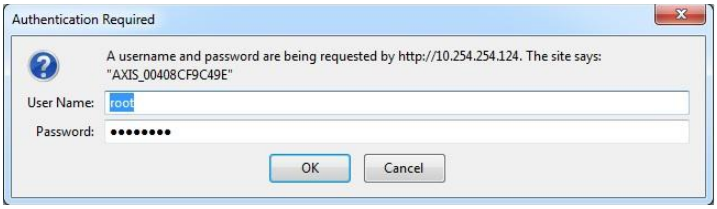


Adding an NTP Server

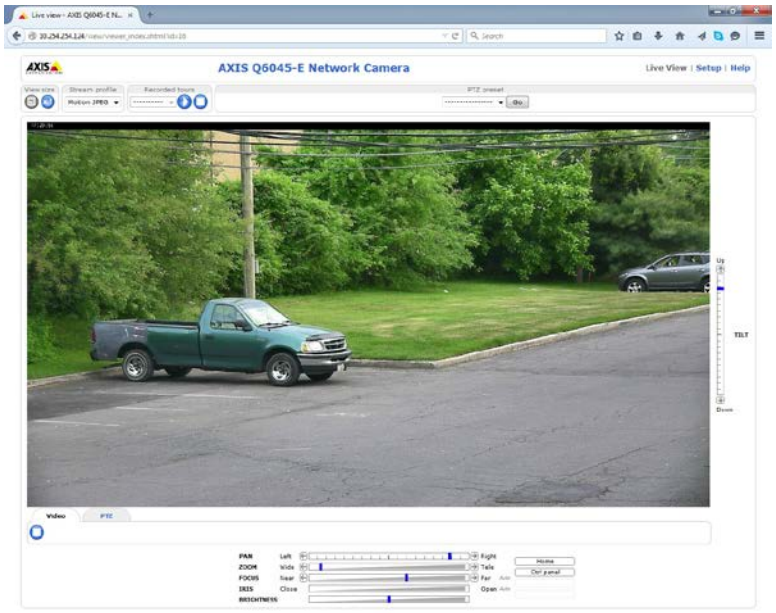
An NTP server is required for the SightTracker and the IP Dome to work properly.

Adding an NTP Server on an Axis IP PTZ

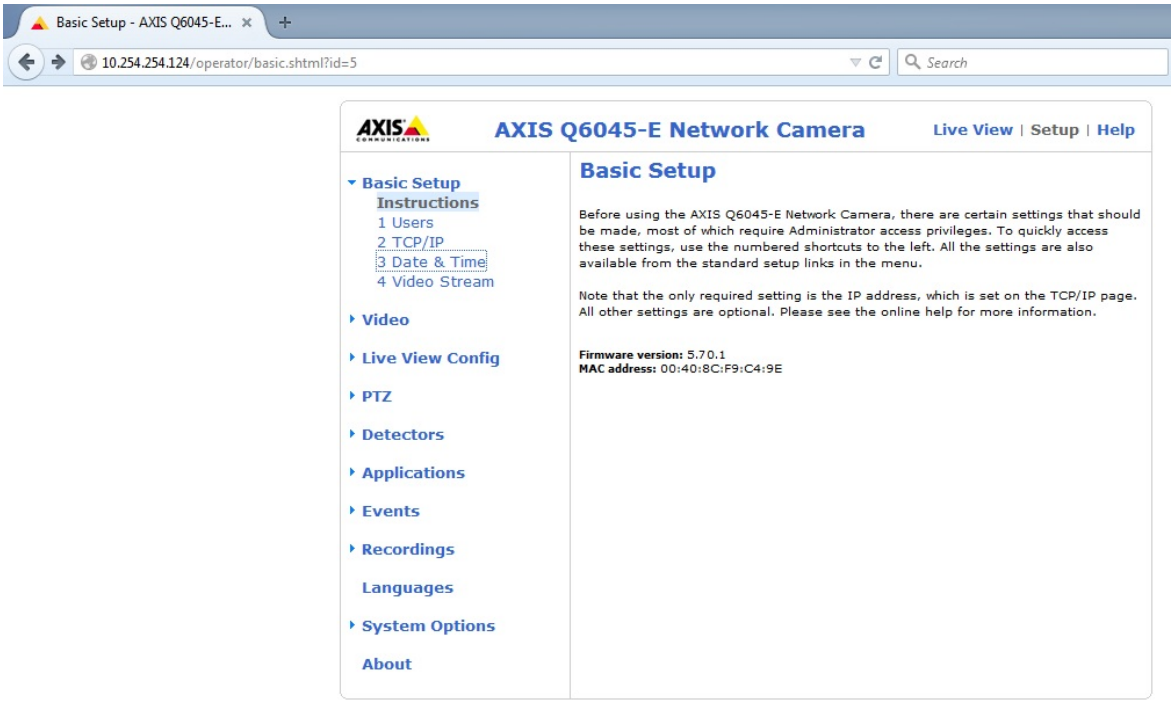
Use a browser and type in the IP Address of the IP Dome and login with the password.



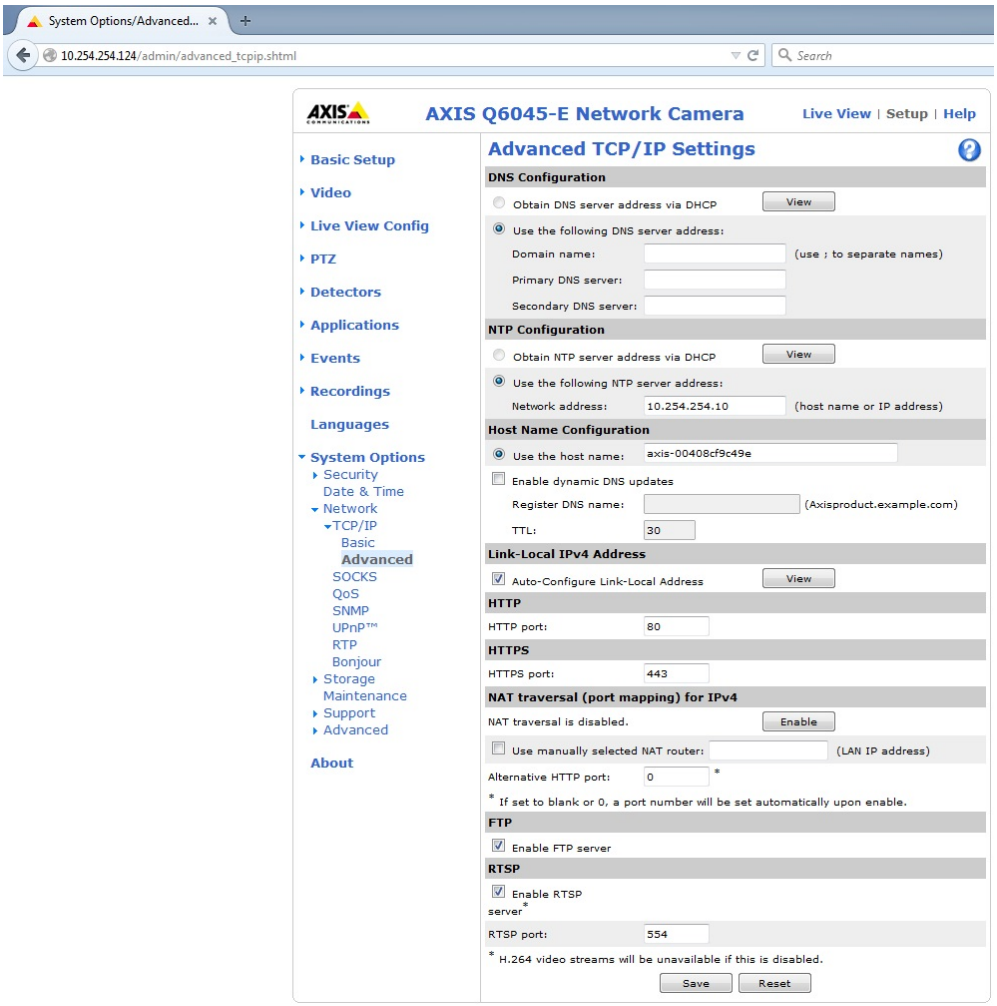
Select Setup.



Select Date & Time.



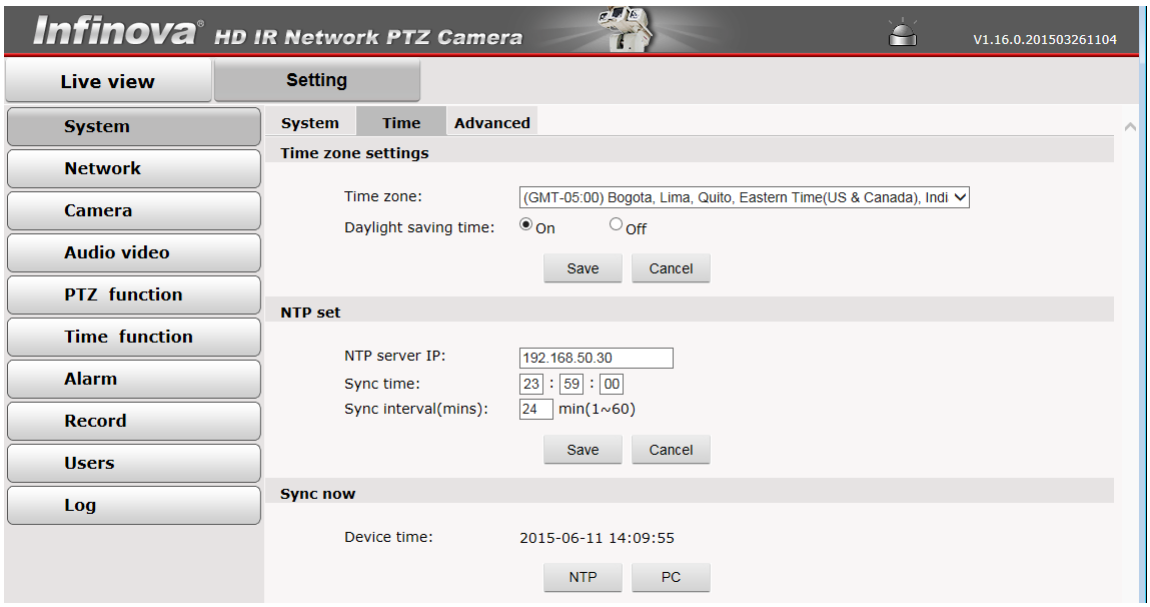
Enter the IP address of the NTP server under NTP Configuration section.



** Sightlogix has tested the AXIS IP Dome with Firmware 5.70.1. Prior versions may not work properly.

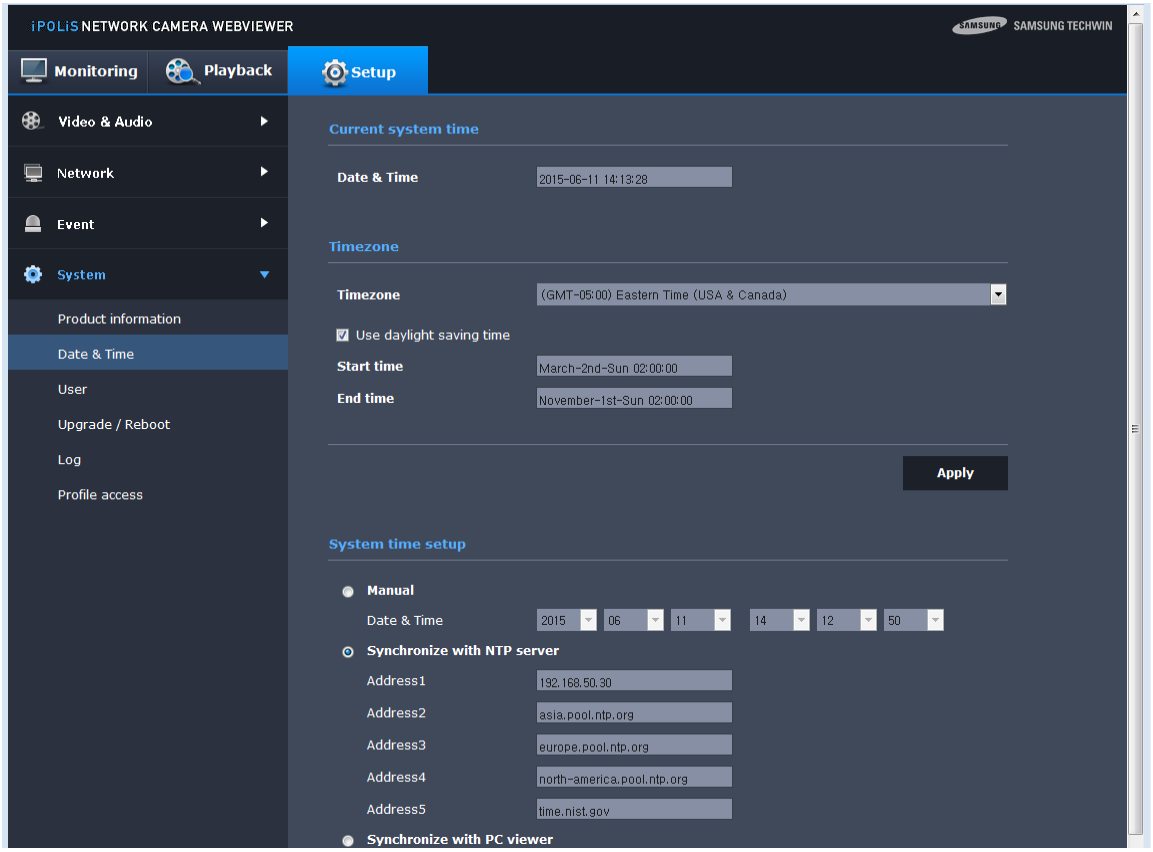
Adding an NTP Server on an Infinova IP PTZ

The following image shows where to configure the NTP server for Infinova. Please refer to your Infinova documentation for more detailed help.



Adding an NTP Server on Samsung IP PTZ

The following screenshot shows where to configure the NTP server for Samsung. Please refer to your Samsung documentation for more detailed help.



Installing 2nd Generation SightTrackers

Configuring Pelco D protocol cameras (Spectra® III, IV and Esprit®)

This section assumes the SightTracker has already been added to your VMS. If not, refer to the documentation that came with your VMS for adding an Axis 213 Dome Camera or a SightTracker unit.

Note: SightTracker units emulate the Axis 213 PTZ camera protocols which allow integration to many VMS systems.

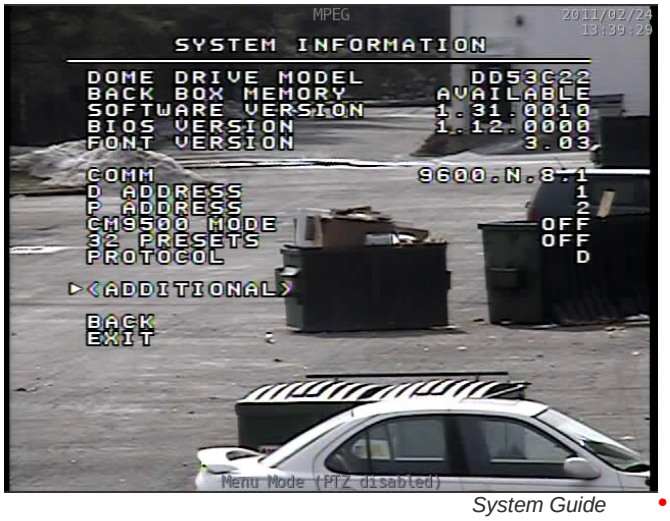
Also, refer to the SightLogix VMS Integration Guide for additional detail on adding SightTrackers to specific VMS systems.

Integrating Pelco PTZ cameras with SightTrackers consists of the following steps:

- Physically install SightTracker and Pelco PTZ camera.
- Using SightLogix Universal cable w/ 26-pin Mil-C bayonet connector (purchased separately) connect:
  - RS-422 (4 wire) serial data between SightTracker and camera
  - Ethernet to the SightTracker
  - Power to the SightTracker
  - * Alternately, use customer supplied cables and a SightLogix 26-pin Mil-C bayonet connector (purchased separately). See wiring chart below for proper pin/cable conductor assignments.
- Install analog video cable from camera to SightTracker.
- Connect power to the camera

Notes:

- When using a Spectra IV PTZ running firmware 2.2 or later, set the baud rate to 4800 8 N 1.
- To maintain accuracy of Spectra PTZ cameras, the SightTracker includes a feature to perform a daily re-homing routine. When enabled from the PTZ dialog (or from the Camera tab of the template), re-homing is performed once every 24 hours and causes each PTZ camera to make one complete revolution (taking up to a minute). During this time, the camera cannot track targets or respond to commands.
- The re-homing routine will not occur when the camera is busy and will not begin until two minutes have passed since a target was last tracked. When SightTracker is restarted, the 24 hour re-homing counter is reset.
- Re-homing can maintain peak accuracy of Spectra cameras, but is not needed for newer models of Spectra cameras.
- The Pelco System Information settings should be set as shown.

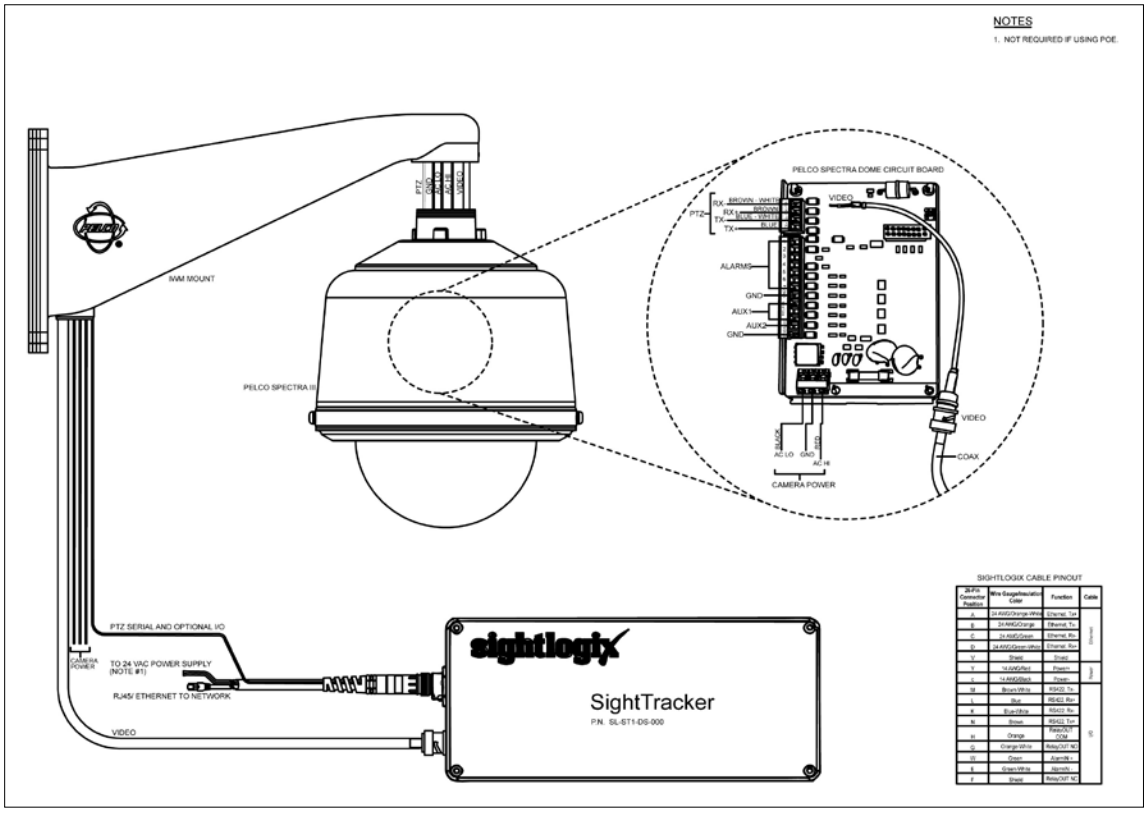


Constructing the RS-422 cable

In order for the SightTracker to control the pan, tilt, and zoom camera moves, you'll need to construct a cable using 24-26 gauge wire according to the pin assignments of the connector on the back of the SightTracker or use SightLogix Universal Cable with pre-terminated 26-pin Mil-C bayonet connector. These pin assignments are as follows:

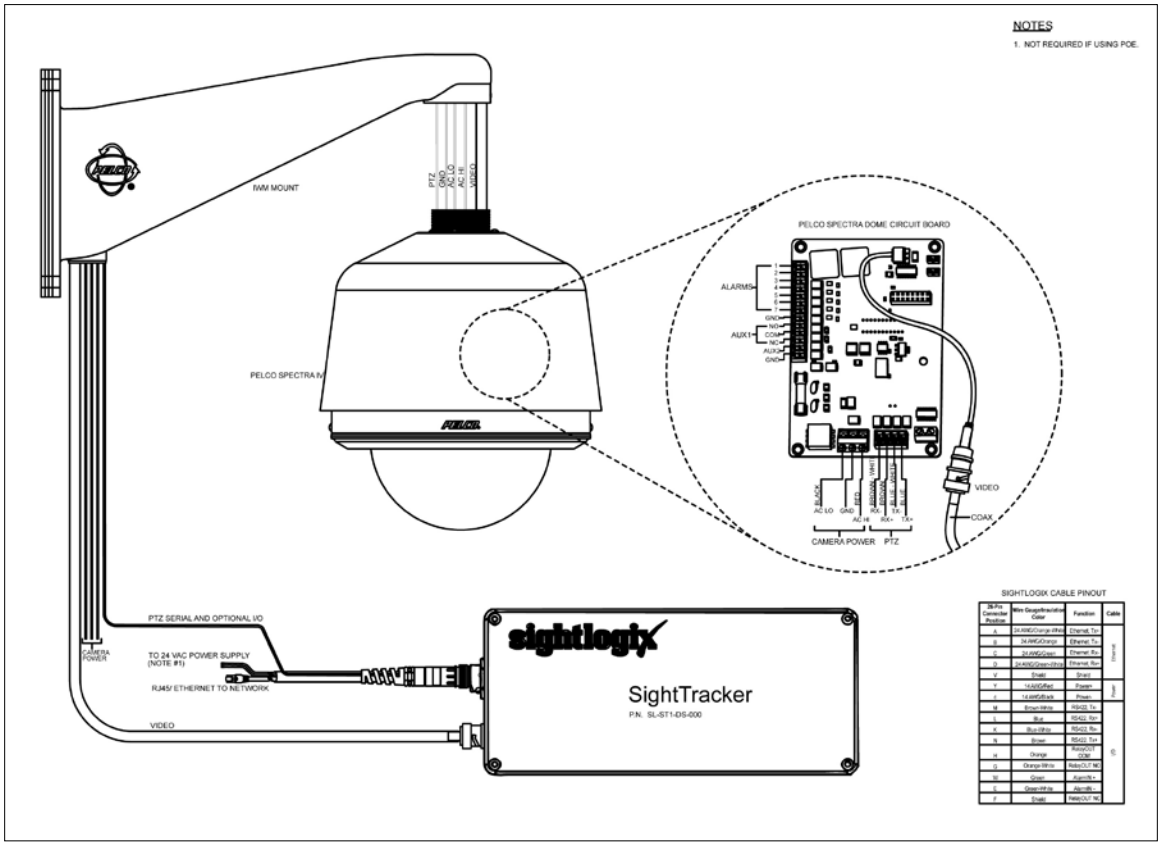
Pelco D Spectra III Installation

Refer to the following diagram for Pelco D Spectra III installation details.



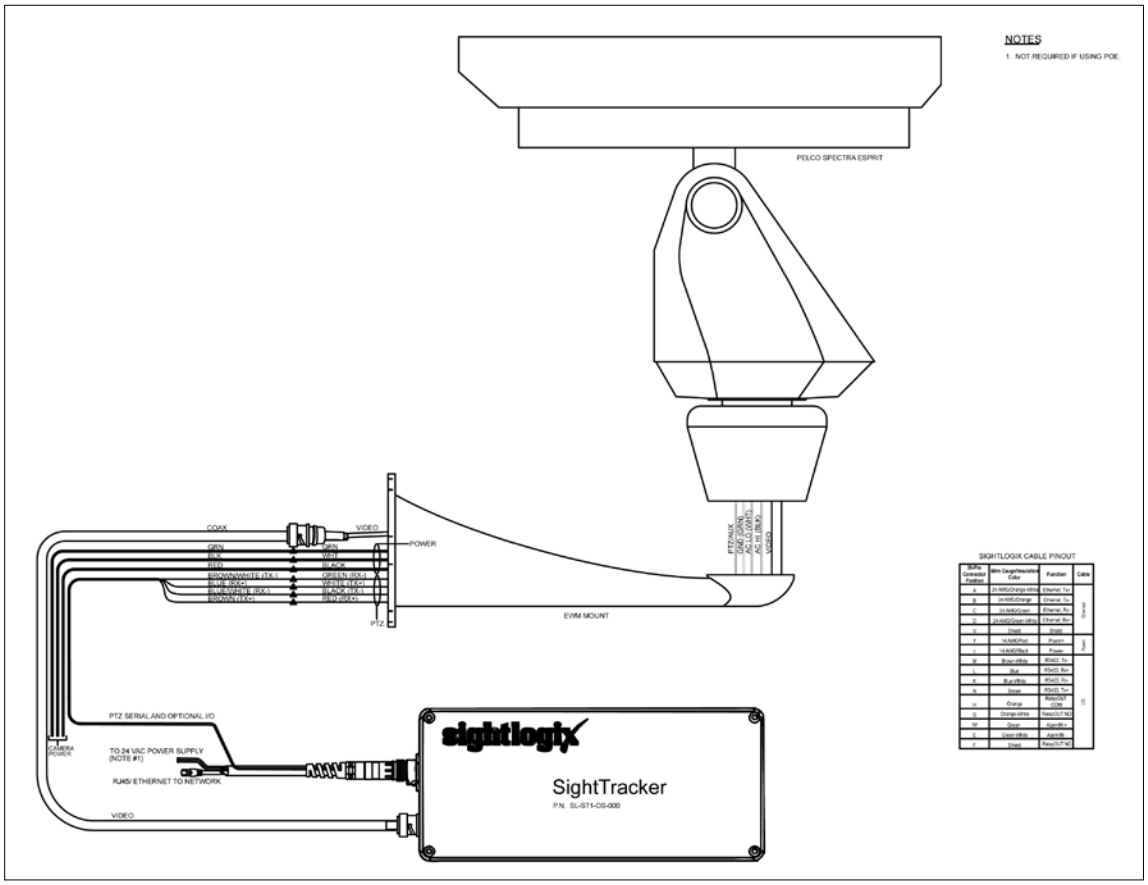
Pelco D Spectra IV Installation

Refer to the following diagram for Pelco D Spectra IV installation details.


NOTES
1. NOT REQUIRED IF USING POE.
IWM MOUNT
PTZ
GND
AC HI
VIDEO
PELCO SPECTRA IV
PELCO SPECTRA DOME CIRCUIT BOARD
ALARMS
AUX1
VIDEO
COAX
CAMERA POWER
PTZ
PTZ SERIAL AND OPTIONAL I/O
CAMERA POWER
TO 24 VAC POWER SUPPLY (NOTE #1)
RJ45/ ETHERNET TO NETWORK
VIDEO
sightlogix
SightTracker
P.N. SL-ST1-DS-000
SIGHTLOGIX CABLE PINOUT

Pelco D Esprit Installation

Refer to the following diagram for Pelco D Esprit installation details.



Configuring Bosch VG Series AutoDome

This section assumes the SightTracker has already been added to your VMS. If not, refer to the documentation that came with your VMS for adding an Axis 213 Dome Camera or a SightTracker unit.

Note: SightTracker units emulate the Axis 213 PTZ camera protocols which allow integration with many VMS systems.

Also, refer to the SightLogix VMS Integration Guide for additional detail on adding SightTrackers to specific VMS systems.

Integrating dome cameras with SightTrackers consists of the following steps:

> Physically install the SightTracker and Bosch PTZ camera.

> Using SightLogix Universal cable w/ 26-pin Mil-C bayonet connector (purchased separately) to SightTracker unit. This cable allows connection of the following:
  - RS-232 (3 wire) serial data connection to SightTracker unit
  - Ethernet to the SightTracker
  - Power to the SightTracker
  - * Alternately, use customer supplied cables and a SightLogix 26-pin Mil-C bayonet connector (purchased separately).

> Install analog video cable from camera BNC to SightTracker BNC connectors.

> Connect Ethernet RJ-45 connector from SightTracker cable to the network

> Connect power directly to PTZ camera and to the SightTracker cable as shown

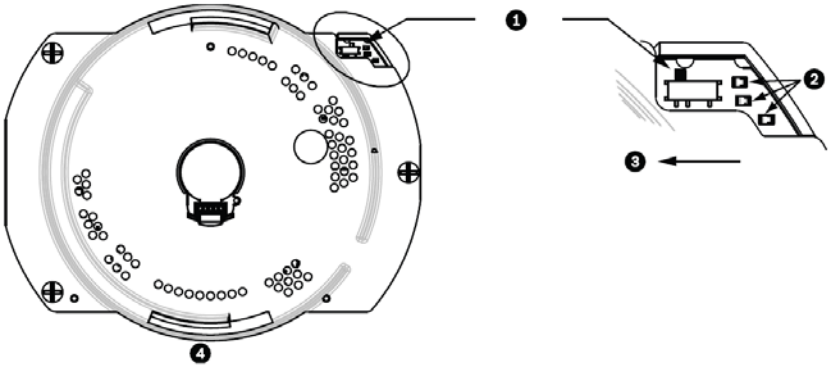
> ** See diagram and wiring chart below for proper pin / cable conductor assignments for connection to PTZ camera.

Notes:

> **Do not** assign a "fast address" to the Bosch Dome. This will prevent communications to the SightTracker.

> Confirm a 100 Ohm resistor is installed across the Bosch bi-phase control lines.

> **Ensure that the RS-232/RS-485 selector switch is positioned to RS-232 (inward away from the LED lights).** This switch is located on the bottom of the AutoDome CPU board, under the camera head and next to the LED lights. See the following diagram showing RS-232 switch location:

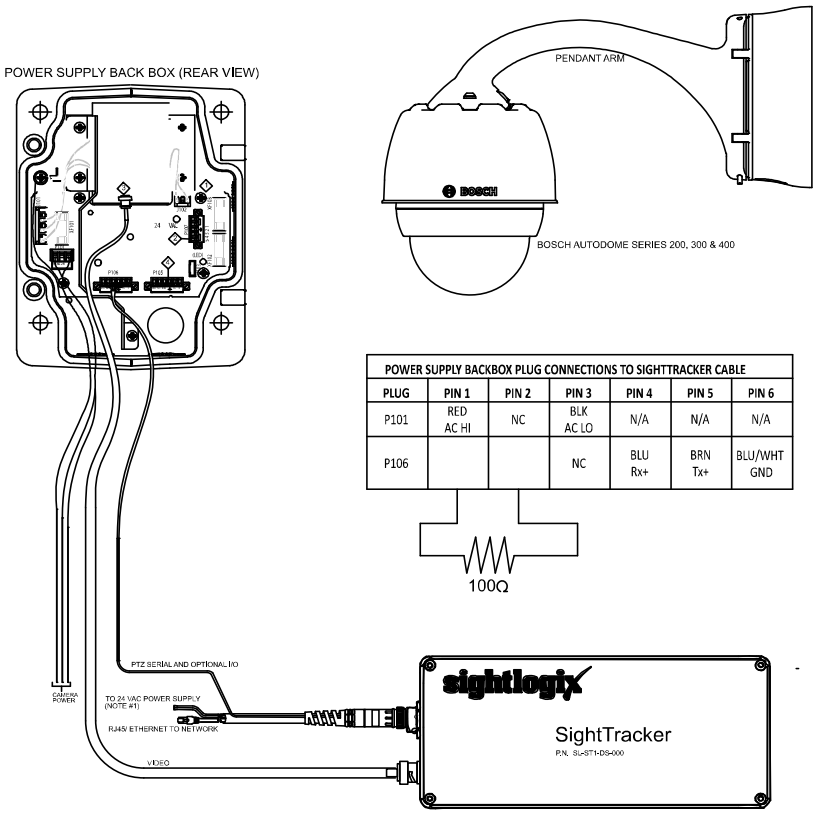


Position of CPU Switch for RS232 Operation (camera module not shown for clarity)

1	Switch Location
2	LEDs
3	RS232
4	CPU Module

NOTES

1. NOT REQUIRED IF USING POE.
2. 100Ω RESISTOR MUST BE INSTALLED BETWEEN PINS 1 & 2 OF P106.
3. FAST ADDRESS MUST NOT BE SET.



POWER SUPPLY BACKBOX PLUG CONNECTIONS TO SIGHTTRACKER CABLE

PLUG	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6
P101	RED AC HI	NC	BLK AC LO	N/A	N/A	N/A
P106			NC	BLU Rx+	BRN Tx+	BLU/WHT GND

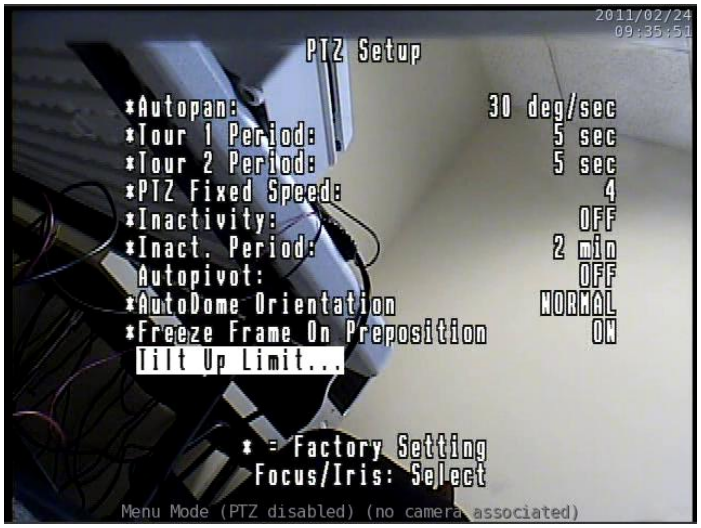
SIGHTLOGIX CABLE PINOUT

26-Pin Connector Position	Wire Gauge/Insulation Color	Function	Cable
A	24 AWG/Orange-White	Ethernet, Tx+	Ethernet
B	24 AWG/Orange	Ethernet, Tx-	
C	24 AWG/Green	Ethernet, Rx-	
D	24 AWG/Green-White	Ethernet, Rx+	
V	Shield	Shield	
Y	14 AWG/Red	Power+	Power
c	14 AWG/Black	Power-	
M	Brown-White	Not Connected	I/O
L	Blue	RS-232 TX+	
K	Blue-White	GND	
N	Brown	RS-232 RX+	
H	Orange	RelayOUT COM	
G	Orange-White	RelayOUT NO	
W	Green	AlarmIN +	
E	Green-White	AlarmIN -	
F	Shield	RelayOUT NC	

The Bosch Communications Setup menu options should be configured as shown.

.

The Bosch PTZ Setup menu options should be configured as shown.



Configuring FLIR PTZ Cameras

This section assumes the PTZ camera has already been added to your VMS. If not, refer to the documentation that came with your VMS.

Requirements: FLIR Software Version 2.5.1.16 and Web Configuration version 2.8.3.

Integrating PTZ cameras with SightTrackers consists of the following steps:

> Constructing the RS-422 cable using the correct RS-422 pin assignments.

> Physically installing the SightTracker and attaching the cabling.

To maintain the accuracy of FLIR PTZ cameras, the SightTracker includes a feature to perform a daily re-homing routine. When enabled from the PTZ dialog (or from the Camera tab of the template), re-homing is performed once every 24 hours and causes each PTZ camera to make one complete revolution (taking up to a minute). During this time, the camera cannot track targets or respond to commands.

The re-homing routine will not occur when the camera is busy and will not begin until two minutes have passed since a target was last tracked. When SightTracker is restarted, the 24 hour re-homing counter is reset.

Re-homing can maintain peak accuracy of FLIR cameras.

Constructing the RS-422 cable

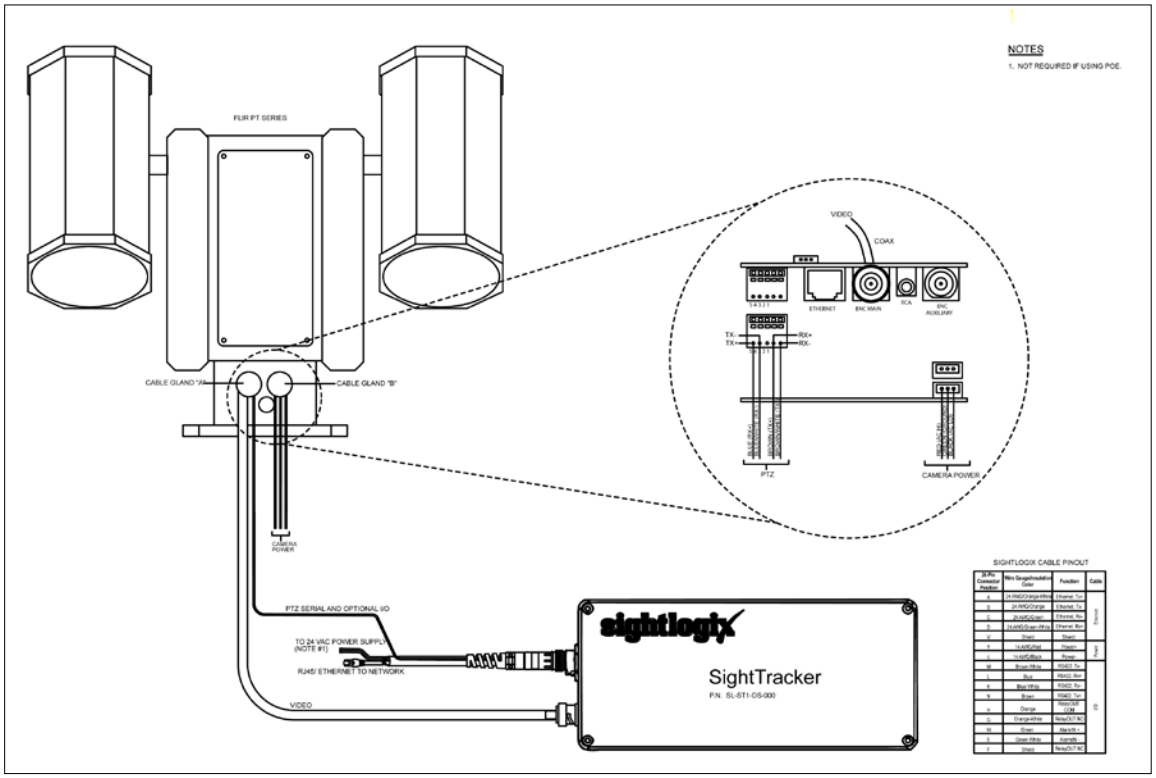
In order for the SightTracker to control the pan, tilt, and zoom camera moves, you'll need to construct a cable using 24-26 gauge wire according to the pin assignments of the connector on the back of the SightTracker. These pin assignments are as follows:

Table 3.1 RS-422 pin assignments

Signal type	26-pin bulkhead connector position	PTZ control function
Tx-	M	Rx-
Rx+	L	Tx+
GND	a	GND
Rx-	K	Tx-
Tx+	N	Rx+

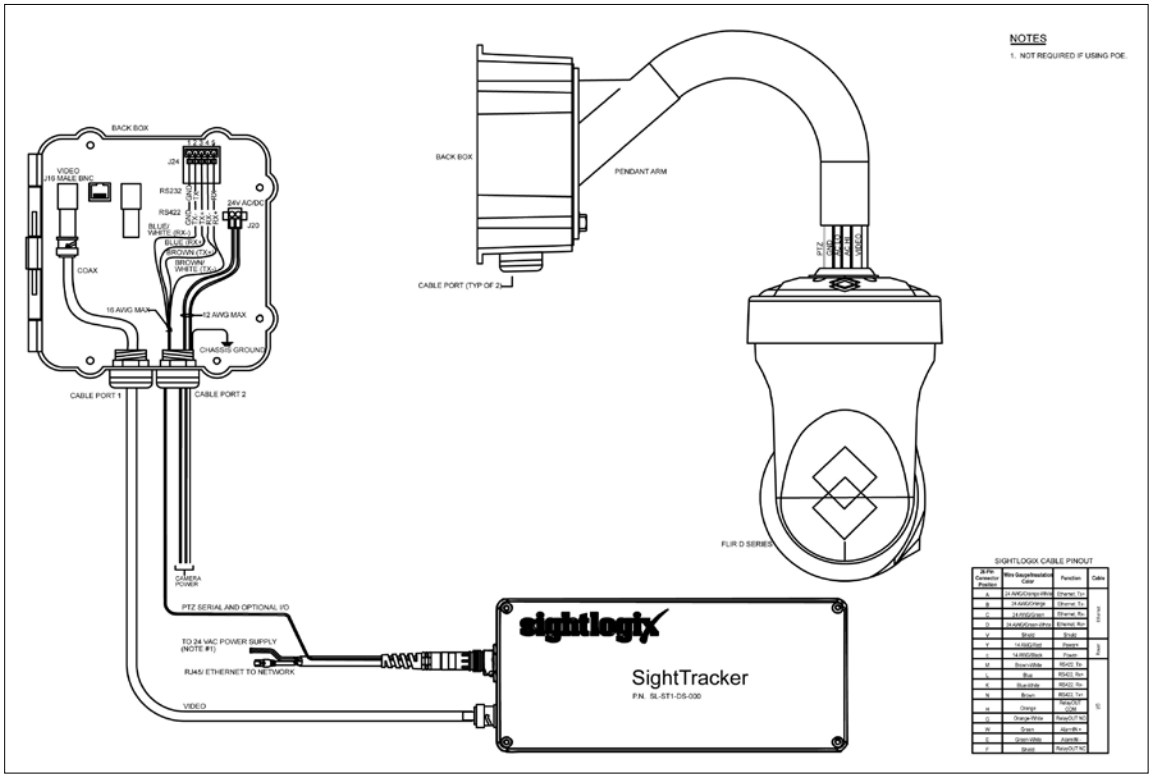
FLIR PTZ Installation

Refer to the following diagram for FLIR PTZ installation details.

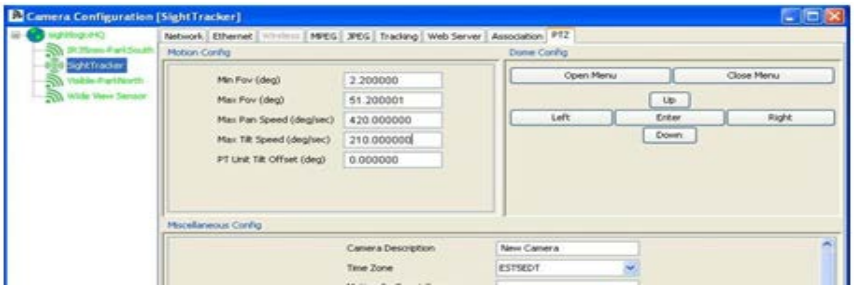


FLIR D Installation

Refer to the following diagram for FLIR D installation details.



You must enter the following parameter in SightMonitor because the FLIR unit currently responds to our query as a generic Pelco D device.



- Min Fov (deg) 2.200000
- Max Fov (deg) 51.200001
- Max Pan Speed (deg/sec) 420.000000
- Max Tilt Speed (deg/sec) 210.000000
- PT Unit Tilt Offset (deg) 0.000000

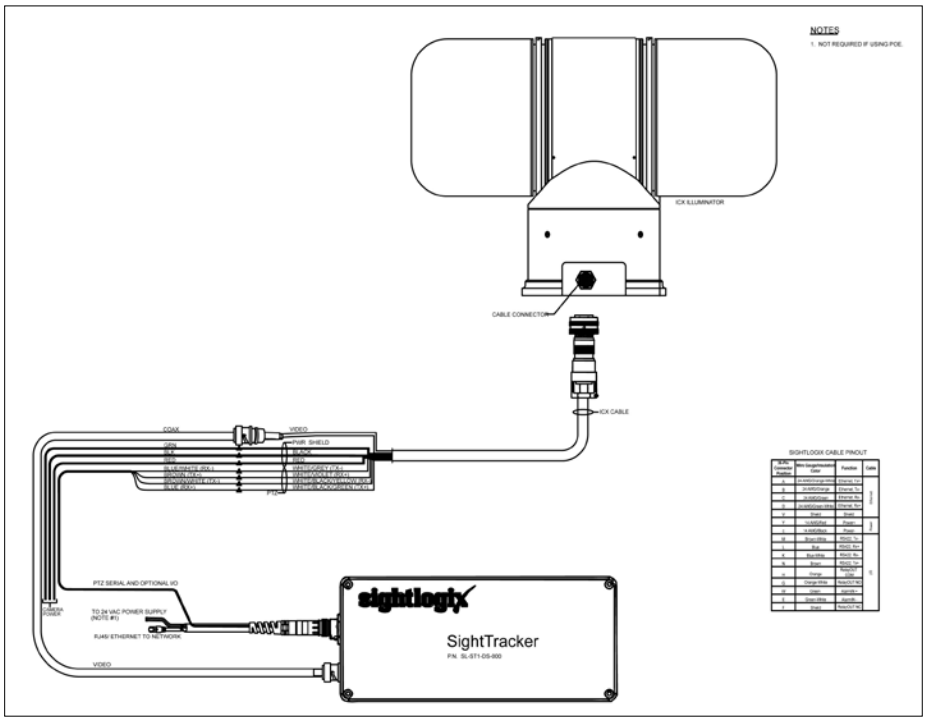
Configuring FLIR Ranger™ Illuminator

In order for the SightTracker to control an FLIR Ranger Illuminator camera, you'll need to construct a cable using 24-26 gauge wire according to the pin assignments of the connector on the back of the SightTracker. These pin assignments are as follows:

Table 3.1 RS-422 pin assignments

Signal type	26-pin bulkhead connector position	Illuminiator cable
Tx-	M (brown/white)	422B Black
Rx+	L (blue)	422Y Orange
GND	a	GND
Rx-	K (blue/white)	422Z Yellow
Tx+	N (brown)	422A Red

Refer to the following diagram for installation details.



Note: Ensure that the Illuminiator is configured for Pelco D control protocol. Refer to the Illuminator documentation for these and other settings.

Installing and Cabling the SightTracker

Note: If you will be enabling the breach enclosure alarm so that an audio alarm sounds whenever the camera housing is opened, do so before installing the camera.

Install the SightTracker as follows:

1. Mount the SightTracker within 50 feet of the PTZ camera. The plate at the back of the SightTracker allows it to be pole- or wall-mounted.
2. Attach the 26-pin Mil-C bayonet connector to the back of the SightTracker.
3. If the RS-422 and network cables are not pre-attached to the connector, insert one end of the just-constructed RS-422 cable into the bayonet connector, and insert the network cable.
4. Connect the other end of the RS-422 cable to the PTZ camera.
5. Connect a video cable between the PTZ camera and the SightTracker BNC connector.
6. Connect the SightTracker to your network using a standard network cable.
7. Connect the power cord to a power source.

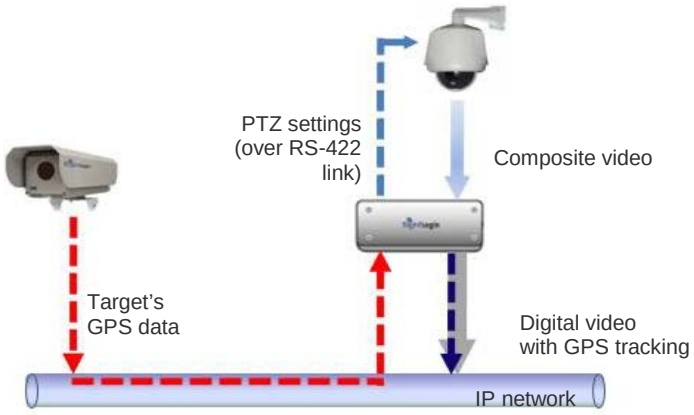


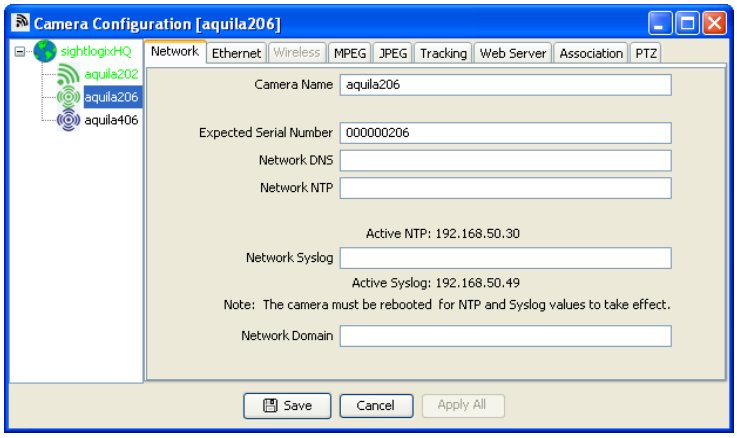
Figure 3.1 *GPS data is converted to PTZ commands by the SightTracker, which relays the information to the dome camera over an RS-422 link.*

Adding SightTrackers to the camera list

To add a SightTracker to a site's camera list, use the discovery procedure (see page 32) as you would with SightSensors.

To individually add a SightTracker, right click the site icon and select Add Camera; enter the IP address when prompted. The IP address is the only required information.

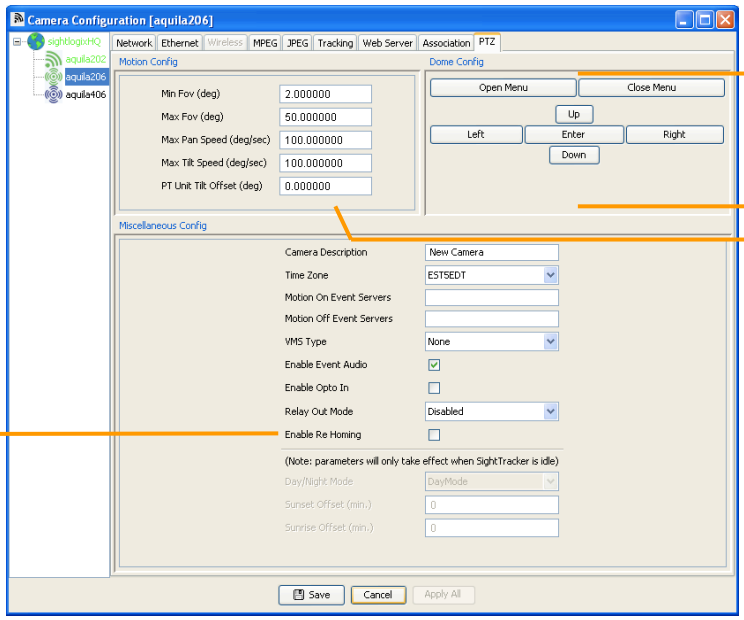
However, it is recommended to open the SightTracker's Network dialog (right-click on the icon and select Configure→Network) to enter a descriptive camera name and verify that the serial number shown is the one expected. Click Save if you change the name or make any other change.



Changing time zone and line sync settings

The PTZ camera's line sync setting must be turned off from the SightTracker's PTZ dialog:

1. Open the PTZ tab.



Navigation controls for accessing the dome camera's internal menu.

Range of values for camera's field of view (in degrees) and the maximum speed allowed for panning and tilting (in degrees per second).

This information is entered automatically for some camera types (for field of view, changes must be within the supported range). If values are not entered, refer to your camera manual and enter the information here.

Enter an offset if a perfectly horizontal camera is reporting a tilt (this may occur due to some factory adjustments). When a camera is looking at the horizon, the tilt offset reported in the camera tab of the site map should be 0. Enter a value equal to the offset. This will be subtracted from the offset commands sent to the camera (e.g., if the tilt offset reported for the horizon is +1.4, insert +1.4 as the offset).

Disables re-homing, which is performed once every 24-hours and takes up to 1 minute to perform; during this time, the camera cannot detect targets or respond to commands.

2. Click Open Menu to open the camera menu within the VMS.
3. Use the dialog's navigation buttons to move through the camera's menu until you get to the line sync setting. Menu systems differ according to the camera, but look for a Camera or Settings menu.

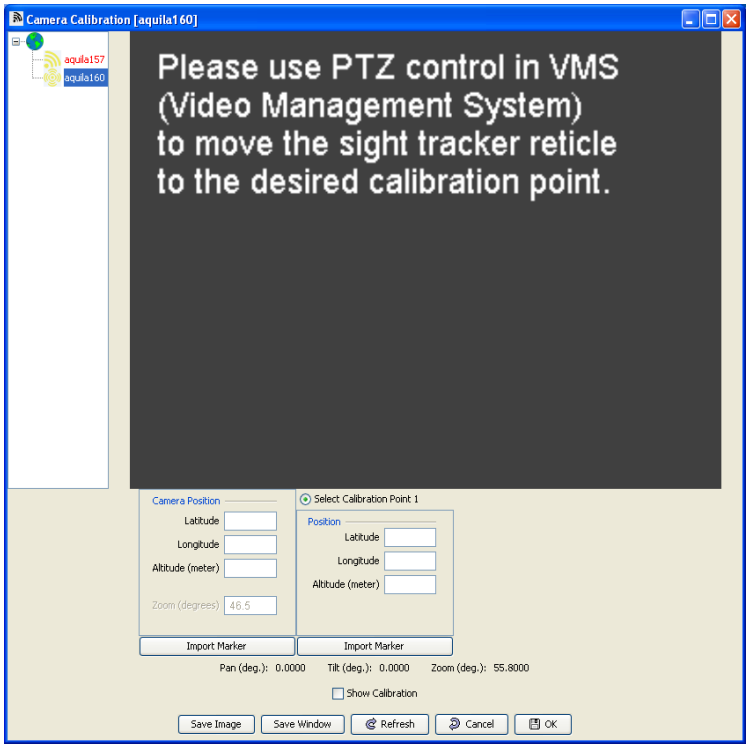
4. Turn off line sync. Then use the Exit option on the VMS menu.
5. From the PTZ tab, click Close Menu.
6. Set the time zone by choosing the appropriate zone from the dropdown menu.
7. If your PTZ camera supports day/night mode and you want to turn this feature on, select Day/Night from the Relay Out Mode dropdown menu.
8. Click OK.

Calibrating PTZ cameras

This procedure describes how to use the SightTracker to calibrate the PTZ camera image with GPS coordinates. The procedure is similar to calibrating a SightSensor, except that only a single calibration point is needed (not two).

If you haven't yet added the PTZ camera to your VMS, do it now. For more information, see the *SightLogix VMS Integration Guide*).

To calibrate a PTZ camera, view the PTZ camera's video from the VMS. Then in the SightMonitor, open the Calibrate dialog for the SightTracker (right-click its icon, select Configure→Calibrate) and do the following:



1. Enter the SightTracker's position as follows: Double-click in the site map at the location of the camera to place the marker. Enter the height of the camera. Then click Import Marker under Camera Position in the Calibrate dialog.

2. Select a landmark to use for calibration. Then in the site map, double-click at the location of the landmark.

   As with SightSensors, choose a point at ground level next to a landmark or other permanent object and always select a point that can be easily identified in both the site map and the camera view.

3. Using the VMS, orient the camera so the selected landmark is at the center of the image, which is denoted by the cross overlay.
4. In the Calibrate window under Calibration Point 1, click Import Marker to transfer the GPS location information and populate the pan, tilt, and zoom settings.

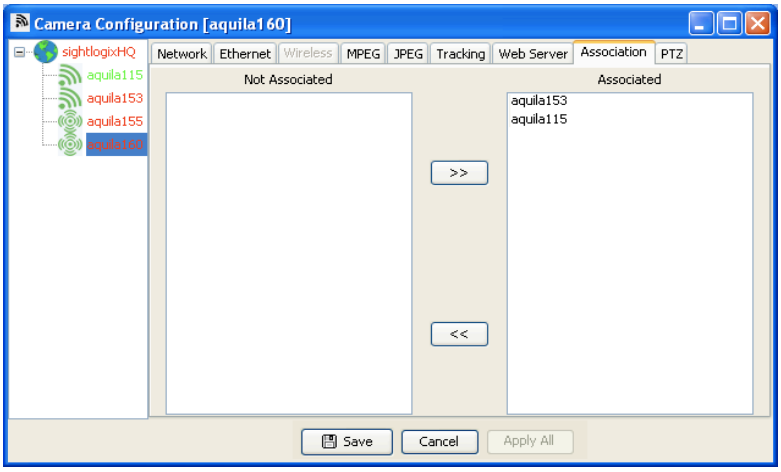
   Important: Do not import the calibration point information unless the camera (SightTracker) position information is already entered.
5. Click OK.

Associating a SightTracker with a device

Associating a SightTracker with a SightSensor enables GPS target data to be relayed to the SightTracker so it can properly aim the PTZ camera. Each SightTracker can be associated with up to 20 SightSensors, allowing PTZ cameras to provide close-up views of targets detected by all neighboring devices. SightSensors can provide target data for up to 20 SightTrackers, allowing multiple PTZs to provide coverage of an area.

You associate a SightTracker with a SightSensor as follows:

1. Open the Association dialog. (Right-click SightTracker icon → Configure → Association.)

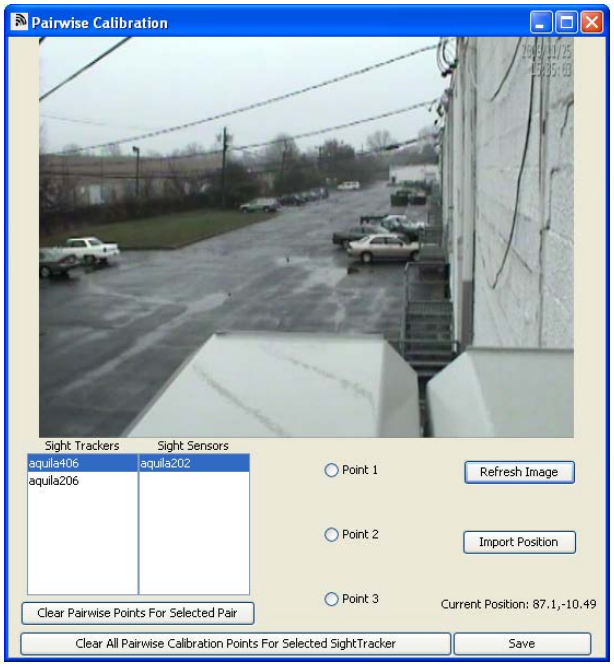


2. Move a SightSensors from the Not Associated to the Associated. Up to 20 SightSensors can be associated with each SightTracker.
3. Click OK.

Performing a pairwise calibration

The pairwise calibration more precisely aligns the GPS coordinates within the view of a dome camera with the GPS coordinates used to calibrate an associated SightSensor. This is an optional procedure but it is highly recommended since it improves tracking accuracy.

1. Right-click the SightTracker icon and select Pairwise Calibration.
2. In the dialog, select a SightTracker and an associated SightSensor. You'll see video from the selected device.



All pairwise calibrations are stored until you click Clear All Pairwise Calibration even if the association no longer exists.

Thus if you change a SightTracker's associations to different SightLogix devices, the calibrations will be saved in case you change the associations back to the original devices.

3. In the video image, double-click a reference point. This should be a point easily identified in both camera's views—that of the PTZ and that of the associated SightSensor
4. In the PTZ camera video image in the VMS, use the PTZ controller to align the cross overlay to the same reference point selected in the camera's image
5. Click Import Position.
6. Repeat for two additional points, selecting the appropriate radio button. Pairwise calibration works best when using reference points represent the entire field of view.
7. Click Save. Then repeat the procedure for each of the SightTracker's associations.

Testing that PTZ cameras track

The Follow Test option on the Calibrate dialog (right-click a SightSensor icon→Calibrate) enables you to test whether a PTZ camera will track a target.

When you select the Follow Test checkbox and then double-anywhere within the video image, verify from the VMS that the PTZ camera aims at the location selected.

Prioritizing targets to track

In case of multiple targets, a SightTracker will track the newest one by default. Thus if it's currently tracking a target and a new target appears, the PTZ camera will aim at the new target. Note that if two SightTrackers are associated with the same SightSensor and are set to the same priority, they will track the same target even in the case of multiple targets.

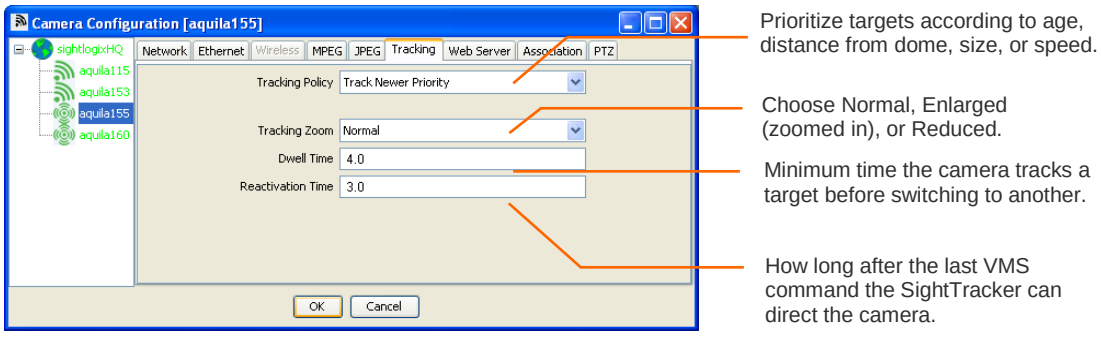
Set the priority from the SightTracker's Tracking tab (right-click icon→ Configure→Tracking):

> Change the default priority of targets to be one of the following: Track Newer Priority (default), Track Closer Priority (closer to the PTZ camera), Track Faster Priority, Track Bigger Priority, Track Older Priority, Track Farther Priority, Track Slower Priority, Track Smaller Priority.

> Specify the minimum time the PTZ camera tracks (or dwells on) the target currently being tracked before switching to a higher priority target if one exists. The default is 2 seconds. Use a longer time if you want to follow a target for more time before tracking a higher priority target.

> Select a zoom setting: Normal, to view a 12-meter scene around the target (default), Enlarged (8-meter scene), and Reduced (20-meter scene).

> Specify how long after the last VMS command, the Coordination System must wait before taking control of the camera to track a target (Reactivation Time). The default is 2 seconds.



Freezing SightTrackers

To stop SightTrackers from automatically directing PTZ cameras to aim at targets, right-click the site icon and click Freeze SightTrackers. Note that this suspends the functionality of *all* SightTrackers. The status bar updates to indicate that SightTrackers are frozen.

To re-activate SightTrackers, right-click the site icon and select Unfreeze SightTrackers.

Chapter 4

Setting Alarm Policies

By default, any object moving within an alarm zone generates an alarm; however, you can set the system to be more selective as to when alarms occur. For example, you may not want alarms generated during working hours, for objects that are only moving within a zone, or you may want only certain objects—differentiated by speed, size, or heading—to generate alarms.

You control alarm generation through *zones* and *alarm policies*. A zone is a specific area of the camera view that you define and specify whether or not it can generate alarms or even track objects. Three types of zones are supported: alarm zones where moving objects can generate alarms, mask zones where all movement is ignored, and ignore zones where objects originating in the zone are not tracked (though currently tracked objects are). For more about each alarm zone, see the next page.

An alarm policy is an alarm zone together with a set of rules that dictate the conditions under which alarms within that zone occur, or do not occur. These rules allow you to do the following:

- Specify the hours of the day or days of the week when alarms can occur. For example, you might set up a time range that is in effect only during nonworking hours, such as between 7:00 pm and 6:00 am on weekdays, but all 24 hours on the weekends.
- Designate the alarm zone to be a tripwire so only those objects that enter or exit a zone (or do both) generate alarms. Thus objects simply moving within the zone would not generate an alarm.
- Specify that an alarm be generated only if the target was tracked previously in a specified zone (called a *from-zone*).
- Specify that only certain types of objects can trigger an alarm. You specify objects by size, speed, direction, or shape (aspect ratio).

Each alarm zone can have multiple rules. For example, you can define one set of rules for a specific time range (such as working hours) and a different set for off hours.

Important: Any restrictions imposed by time ranges can be temporarily removed in a lockdown situation by right-clicking in the site map and selecting Lockdown. See page 96 for information about the lockdown feature.

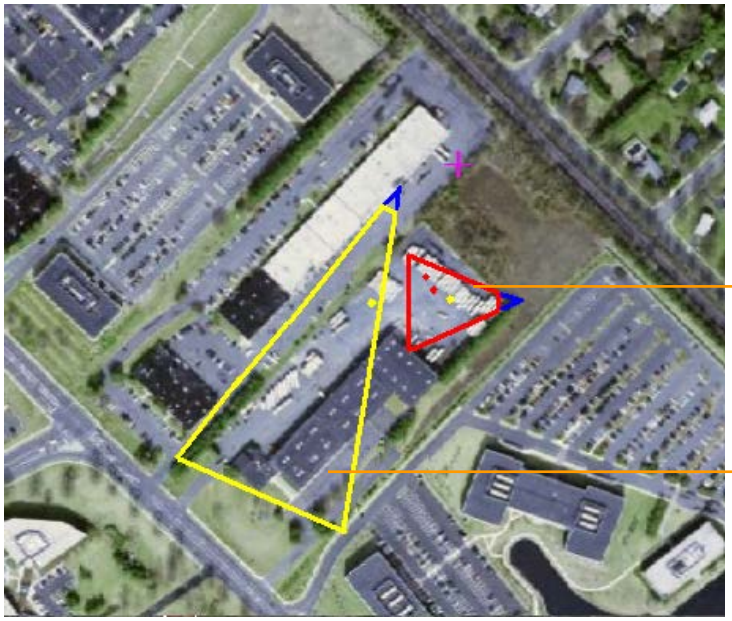
Alarm, mask, and ignore zones

Three zone types are supported:

- An alarm zone is an area that can generate an alarm. Any sensitive areas that you wish to secure should be included in an alarm zone.
- A mask zone is an area in which no motion detection or tracking occurs. This zone type is useful for excluding areas prone to nuisance alarms, such as large tree branches that occasionally move, areas where birds congregate, or roadways with traffic.
- An ignore zone also does not generate alarms, nor does it track objects that *originate* in the zone; however, an ignore zone, unlike a mask zone, continues to track objects that are already being tracked, such as those that move from alarm zones or undefined areas into the ignore zone.

In non-defined areas—those areas not included in zones—objects are tracked but do not generate alarms.

Tracked objects are represented in the site map: targets in alarm zones are shown in red, and tracked objects outside an alarm zone (those in undefined areas as well as tracked objects that have moved into an ignore zone) are shown in yellow. (To track only alarmed objects, unselect the Report Nonalarmed objects on the Sites dialog.) Targets in masked zones are never represented.



Targets in alarm zone. The camera footprint is outlined in red if at least one target is in an alarm zone. Individual targets are shown in red if alarmed, or in yellow if not alarmed.

If all targets are outside alarm zone (in either an undefined area or an ignore zone), the camera footprint is outlined in yellow.

Mask zones are especially helpful when objects in different zones overlap or are in such close proximity that they can be interpreted by the system as being one object. In this example, where the pedestrian and orange vehicle appear to touch, the system may interpret the two as a single object and then track the vehicle as it moves forward, even though it is not in (or never was in) an alarm zone. Defining the roadway as a mask zone prevents vehicles in the following example from being tracked.

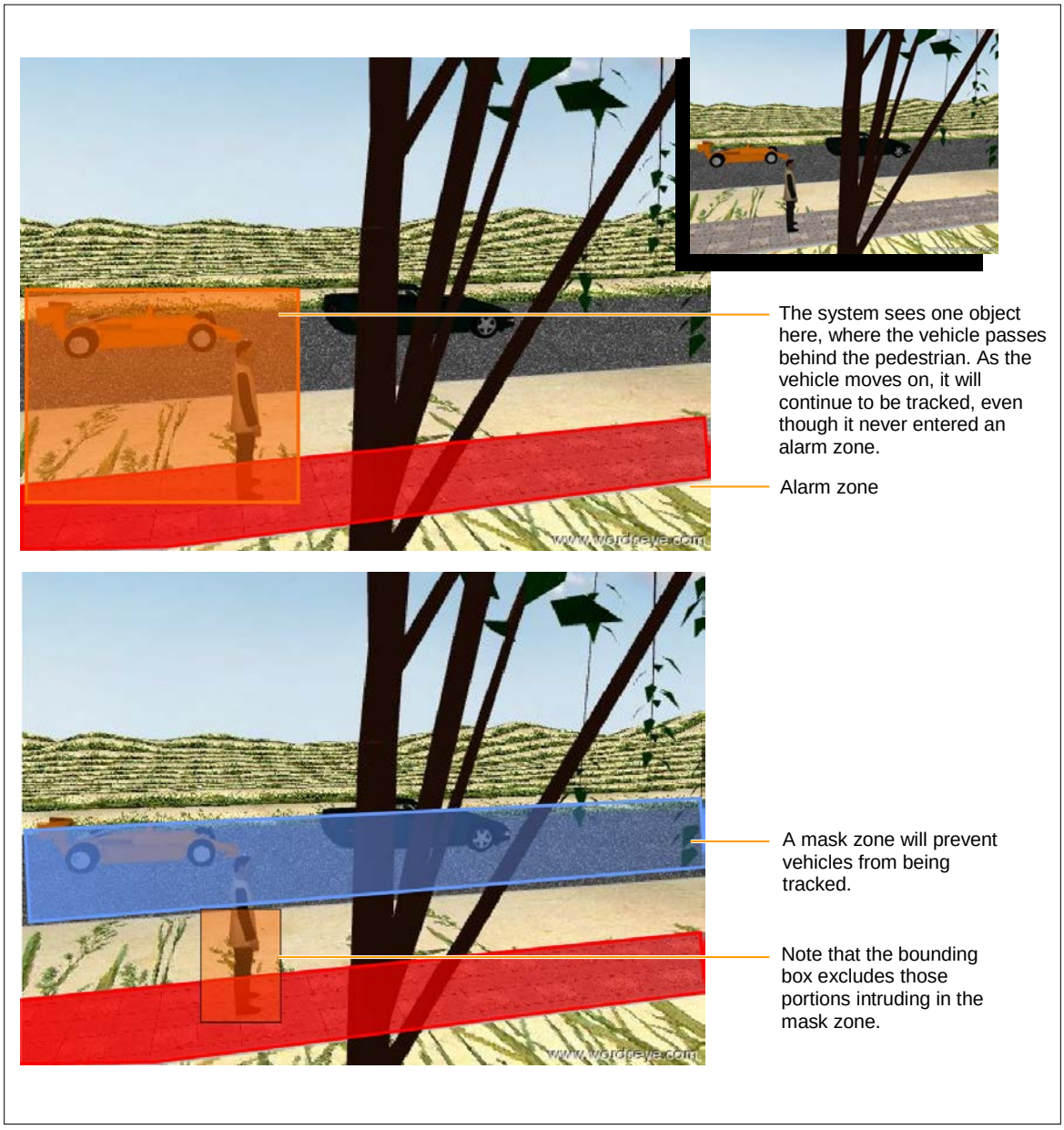


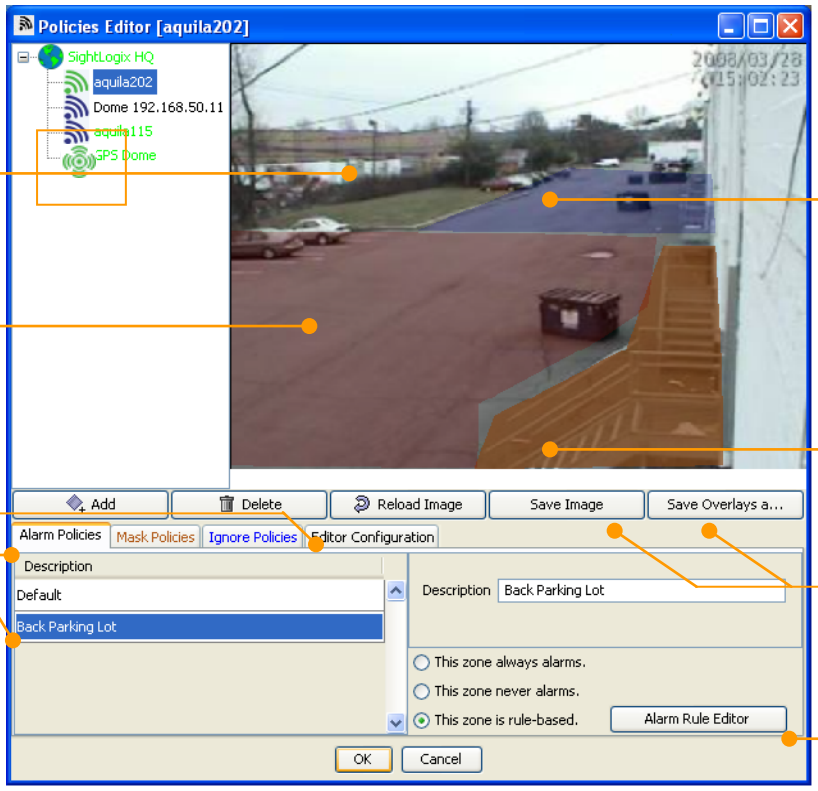
Figure 4.1
Mask zones are used to ensure that some motion is never tracked.

Creating and editing zones

When defining alarm zones, keep in mind that objects will trigger an alarm only when its midpoint is within the alarm zone. For example, a large tractor-trailer will be halfway into a zone before an alarm is generated. Also, always draw alarm zones on the ground; alarms are generated only when an object's ground position is within an alarm zone.

To edit an alarm zone (to create a new zone, see next page):

1. Right-click on the camera icon and select Set Policies. The first time you access the dialog shown here, you will see a single alarm zone that covers the entire image.



Undefined area
Objects are tracked but do not generate alarms.

Alarm zone
Alarms are generated if all rule conditions (if any) are met.

Changes opacity & other zone settings.

Before editing a zone, select zone type, (alarm, mask, ignore), then individual zone.

Ignore zone
Objects originating here are not tracked (but already tracked objects will be tracked).

Mask zone
No motion detection performed.

Saves a JPEG of current image (or image and overlays). Useful for backing up policy information.

Opens dialog for creating alarm rules (see page 92). Selectable only for rule-based zones.

2. With the Alarm Policies tab selected, select the desired zone. Then use the mouse to move the nodes as appropriate to redraw the zone.

   Note that by default, alarm zones always alarms. Normally it's recommended that you create rule-based alarms so that alarms are generated only under conditions that you specify. This will reduce nuisance alarms. See next page for details.

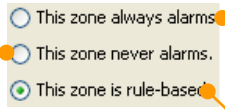
3. Click OK.

To add a new zone:

1. Go to the Alarm Policies, Mask Policies, or Ignore Policies tab page as appropriate.
2. Click New to add a new zone. It's given the default name <New Alarm/Mask/Ignore Policy>.
3. Select the new policy in the policy list.

4. (Optional). To give a descriptive name to the zone, enter a name for the zone in the Description text box and click OK.

5. If you're creating an alarm policy, specify whether it always alarms, never alarms, or alarms only under certain conditions.



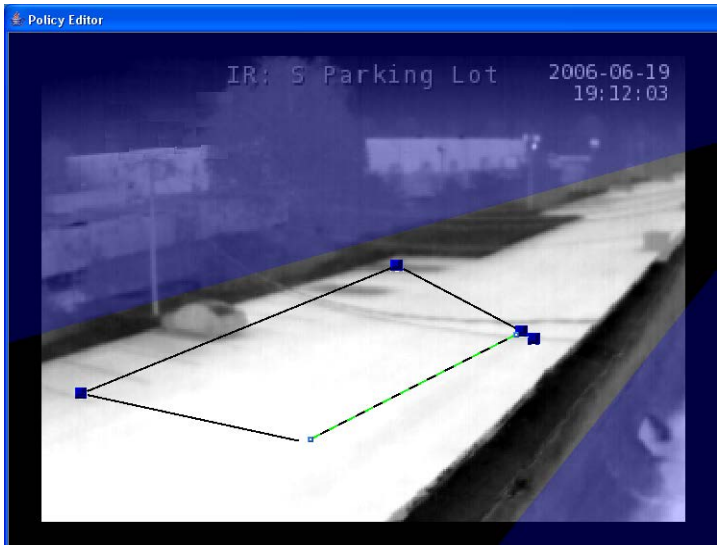
Never alarms (though objects are tracked). Useful for defining From zones.

Any object moving anywhere sets off an alarm. Not recommended since anything (a cat, for example) sets off an alarm. Use a rule-based alarm for more constraints on alarms.

Alarms only under conditions set by rules. Recommended for reducing nuisance alarms (a cat, for example, would not alarm if the object size was defined as 2 feet tall and one foot wide). See page 92 for setting rules. A ruled-based zone with no rules is the same as an always-alarm zone.

If you select a ruled-based alarm, define the rules as described starting on the next page.

6. Left-click to begin drawing the first segment; left-click to start each new segment. Double-click left to place the last segment and close the zone.



To delete extra anchor points, hover the anchor point and right-click.

To add a new anchor point, hover over the line segment and click left.

7. Click OK.

   Once you create a zone, you should test that the targets are picked up properly and are shown in the proper color (red for targets in alarm zones, and yellow for targets in undefined areas or for targets that moved into ignore zone from an alarm zone).

To delete a zone, select the zone name in the list of zones, and click the Delete button.

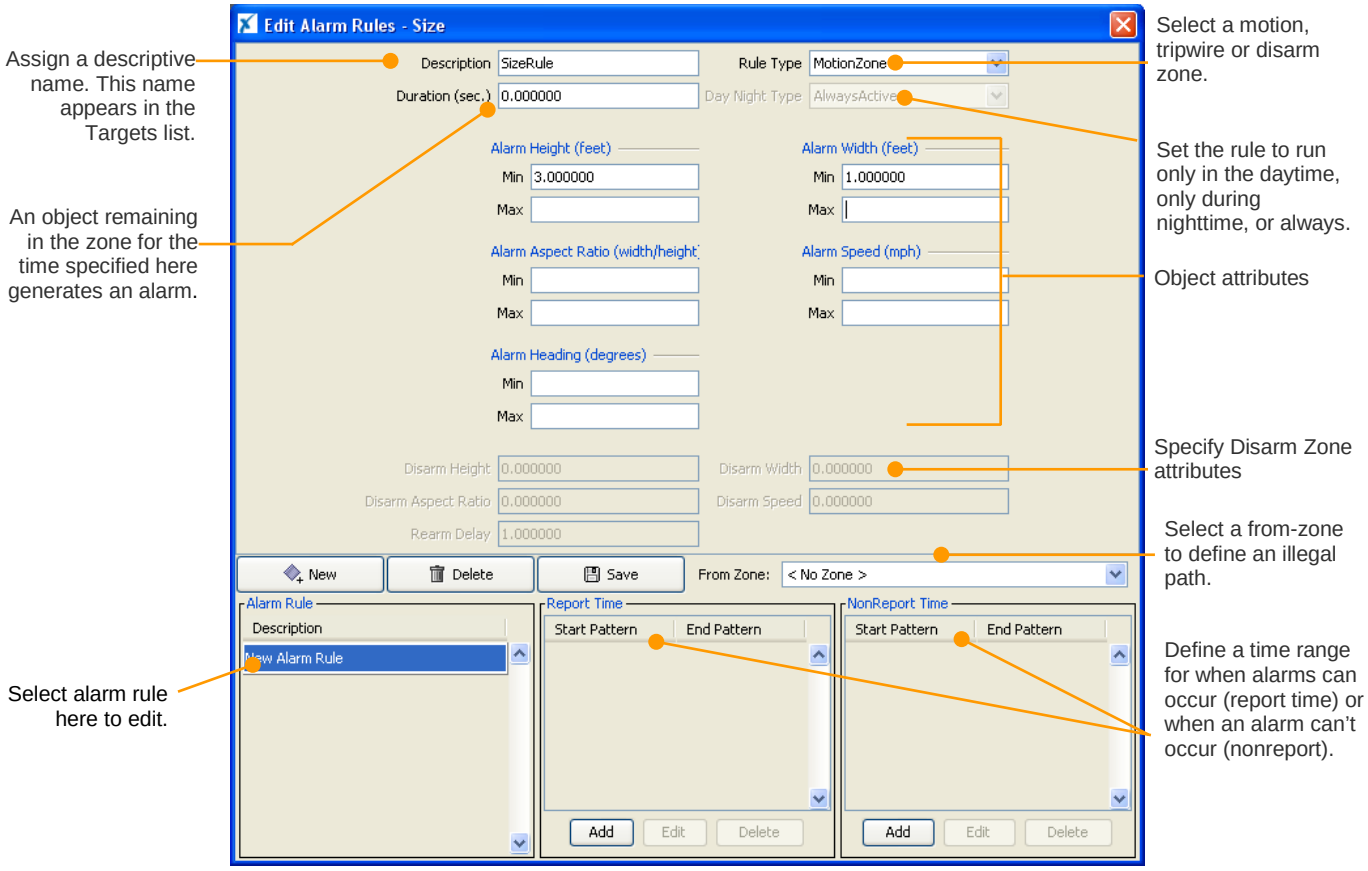
Note: For this release, it is strongly recommended that you do not overlap zones.

Applying rules to alarm zones

Alarm zones can be associated with a set of rules that specify more precisely the conditions under which alarms are generated. These rules restrict alarms by time, by the duration of time spent in the zone, by tripwire, by previous path, or by target attributes such as the

target's size, speed, direction, and shape (aspect ratio). By default, no rule set is created for an alarm zone (meaning any moving object generates an alarm at any time).

You set up the alarm rules using the alarm rule editor, which is accessed by clicking the Alarm Rule Editor button on the Zones dialog (an alarm zone must be selected).



To apply any type of rule—time range, tripwire type, object attribute—first create a rule set as follows: (1) Click New and assign a name to the rule set (you'll be renaming it from a default name); (2) select the alarm rule at bottom left; (3) define one or more rules; (4) click Save.

When editing a rule set, first select the appropriate rule set at the bottom of the dialog.

Setting a time duration for objects to remain in a zone

Use the duration setting to alarm on objects that remain in a zone longer than a specified minimum time period. For instance, you would use the duration setting when you didn't want to alarm on cars or objects passing through a zone, but only on those that stopped or lingered. When combined with other alarm rules, duration allows alarms to be generated based on loitering and other types of behavior.

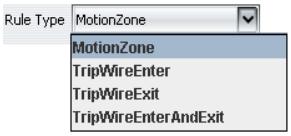
Specifying a tripwire zone

By default, any object moving within a zone triggers an alarm. However, you can specify that alarms be triggered only when an object enters or exits a zone, or does both. You do this by

changing the zone from a motion zone to a tripwire zone. There are three types of tripwire zones: TripWireEnter, TripWireExit, and TripWireEnterandExit.

You create a tripwire zone as follows:

1. From the Edit Alarm Rules dialog (page 93), select an alarm zone (at lower left).
2. From the dialog's Alarm Rule dropdown menu, select the appropriate tripwire type.
3. Click Save to save the rule change.



Specifying a from-zone to denote an illegal path

You can alarm on only those objects that were previously tracked in a specific zone before moving to the current one. To do so, use the From Zone dropdown list to specify the previous zone.

Any object that at any time was tracked in the from-zone will generate an alarm when it moves to the current one.

Setting time ranges

A time range specifies the hours when alarms can be generated for a particular alarm zone. By default, an alarm zone is in effect for all 24 hours.

Important: Any restrictions imposed by time ranges can be temporarily removed in a Lockdown situation by checking Lockdown state in the Sites dialog. See page 96 for more information about the lockdown feature.

To set a specific time range:

1. From the Edit Alarm Rules dialog, select an alarm policy.
2. Click Add under Report Time if you're specifying a time range for alarms, or click Add under Nonreport Time to specify a time range when alarms cannot occur.

3. Depending on how you want to define a time range, enter both a start and end pattern for the appropriate field or fields. (Asterisks denote no constraints for a field.) Hours are entered using a 24-hour clock.

   For example, for alarms to be generated only during work hours, enter 0700 for the start pattern (in hour field) and 1800 for end pattern; in day of week, enter 02 (for Monday; Sunday is 1) and 6 for Friday in the end pattern. See Table 4.1 for the syntax for the fields.

Note: The start time is included in the range, and the end time is outside the range.

4. Click the Save button.
5. Repeat for each additional time range to be associated with the zone.

To edit or delete a time range, select the range and click Edit or Delete as appropriate.

Table 4.1 Time range settings

Field	Value range
Minute	0-59. For example, entering 10 and 20 enables the time range between the 10th and 20th minutes for every hour.
Hour	0-24
Day (of the month)	1-31. Use this field when a single day has a different set of alarm rules than other days. For example, if the 15th day of the month requires different alarm zone generation from all other days, enter 15 in this field.
Month of the year	1-12
Day of the week	1-7, with Sunday being 1.
Nth occurrence of day in month	1-6, with 6 being last day of month only.
Year	YYYY

Asterisks in any field apply no restrictions (for example, * in the day field indicates all days). Use a comma to separate multiple entries for a field.

Specifying target attributes

You can restrict alarms according to an object's size, shape (aspect ratio), speed, or direction.

Note: Speed and heading for an object takes 2 seconds to become valid after a target is tracked. Thus adding a speed to a rule will cause a delay in responding to a new target

Table 4.2 Target attributes

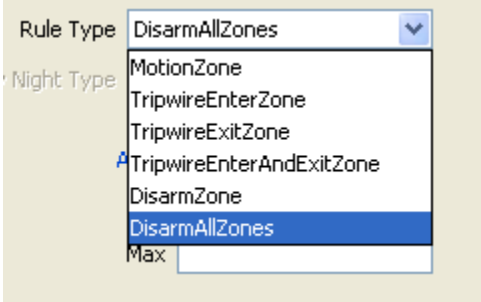
Information	Unit, range to enter
Height, width	Meters or feet as previously selected in install process
Speed	Meters per second or miles per hour as previously selected in install process
Heading	Degrees from North
Aspect ratio	Enter a number or fraction that represents the result of a ratio of width to height. For example, to alarm on people as opposed to vehicles, you would enter a figure less than 1 since people, being twice as tall as wide, would have a ratio less than 1, (~.4 to .2). Vehicles, being wider than tall, would have a value greater than 1.

Leave a field blank for no constraints.

Specifying a Disarm zone

Zones which contain disarm rules include a condition under which the zone will no longer trigger alarms. There are two types of disarm zones, "DisarmZone" and "DisarmAllZones".

As the name implies, if the disarm condition is met for a DisarmAllZones, any other Disarm zones also become disarmed. It is important to note that a zone will not disable if it is already alarmed. The alarm condition should include a duration so that the disarm condition can be met before the alarm condition.



It is useful, when configuring disarm rules, to visualize the zone in the video using the zones overlay control. The red zone will become green when the disarm condition is met.

While the object which triggers the disarm of a zone is being tracked, (the object has an orange bonding box rather than yellow when a site has non-alarmed objects enabled), the zone stays disarmed. The zone stays in disarm mode, even if the object is no longer satisfying the disarm conditions. The zone is re-armed after the object is no longer tracked, and after the Rearm Delay. An extra delay is often useful if a large object has perhaps created movement in the alarm zone.

Guidelines to minimizing false and nuisance alarms

> Utilize disarm rules to disarm alarm zones during conditions which cause alarm rules to be met inappropriately. For example, when a delivery truck obscures a camera view every week.

Activating all alarm policies with lockdown

The lockdown feature immediately activates all alarm rules, even those that are currently disabled according the alarm policy schedule. To initiate lockdown, right-click within the site image and select Lockdown.

Lockdown is specifically designed for situations in which employees, students, and others are confined as a security measure when an unauthorized intruder poses an immediate threat. Enabling lockdown immediately activates all alarm policies, so that motion detection and other alarms can be utilized to locate the threat. Thus if your site normally alarms on motion only at night, enabling lockdown during the day activates the night-time motion detection.

Lockdown status is signaled in the status bar when enabled.

Guidelines to minimizing false and nuisance alarms

To minimize false and nuisance alarms, follow these guidelines:

- Use alarm policies to specify that alarms occur only at specific times, dates, weekends, and holidays.
- Unless your site must specifically guard against aircraft threats, use mask zones to eliminate the sky as a source of alarms. Large birds and aircraft and other objects in the sky are not usually considered a threat to most installations.
- Point the camera low enough to detect maximum height of a target in background and no higher.
- Use zone rules such as from – to instead of simple motion.
- Utilize minimum size rules to filter trash and small animals.
- Set a minimum time rule of 0.2 to 0.75 seconds to eliminate transients such as flying insects or reflections.
- Anticipate elevated areas where animals such as birds or squirrels may congregate and set off an alarm by appearing in an alarm zone from the camera's perspective.
- Do not include detection zone areas with draped power lines or foliage that will move during severe weather.

Chapter 5

Advanced Configuration

This chapter describes additional administrative functions, such as how to manage users, back up system settings, and further customize the system for a site's specific requirements. It also includes an advanced calibration procedure. Normally you shouldn't have to refer to this chapter very often.

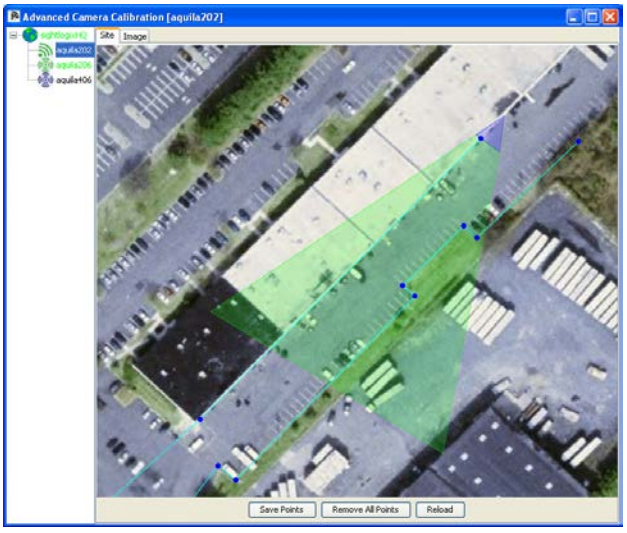
Advanced calibration

Advanced Calibration is for advanced SightLogix certified users only who need to fine-tune calibration settings. Complete the standard calibration process before doing an advanced calibration.

Conceptually, Advanced Calibration is performed by drawing lines along physical boundaries on the aerial site map image to create a virtual "trace" of clearly definable objects. These trace lines are then displayed as reference points on the SightSensor's actual field of view. Advanced Calibration essentially aligns the features on the site map with what the camera is actually seeing, providing a more accurate correlation between the two.

To access the Advanced Calibration settings, right-click the device icon in the SightMonitor camera tree and select Advanced Calibration.

Step 1: Mark your features on the overhead map



Select the Site tab to view the site map. This is where you will use drawing tools to mark easily distinguished features in the image. Features are buildings, landmarks, or other clearly defined elements including a corner curb, fence line, or along the wall of a building where it meets the ground.

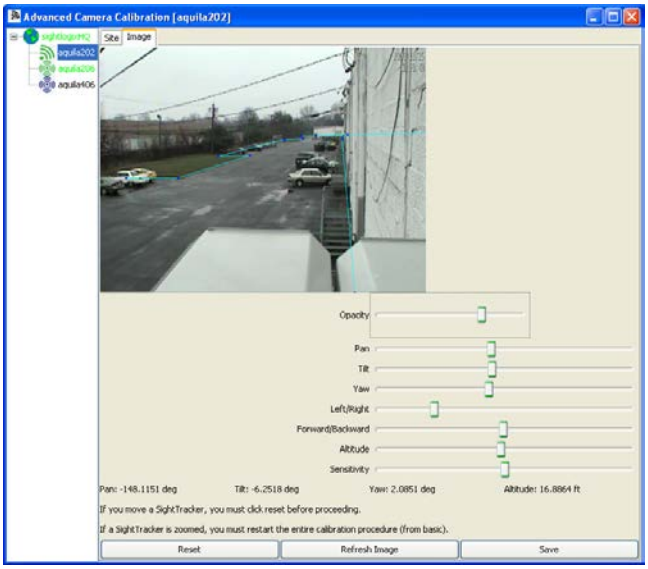
To begin a feature, click once; continue the feature by clicking on a different spot in the image. To finish the current feature, double click. Delete any point by right-clicking it. Choosing a variety of features both near the camera and far from it provides more details for a finer calibration.

For better accuracy, zoom in to pinpoint a feature location using the mouse-wheel or the +/- keys. You can also change position of the site map by dragging with the mouse.

Selecting features on the Site tab does not alter the calibration settings; calibration settings are only changed via the sliders on the Image tab, described below.

When you are satisfied with your feature selections (tab over to the Image window to check your accuracy), click Save Points. To revert to the previously saved state, click the reset button.

Step 2: Adjust the features with the image tab sliders



To align your feature drawings to the camera's actual field of view, select the Image tab. This displays the lines and points created in the previous step.

Use the sliders to align the points and lines to the image view, as described below.

Opacity: Controls the transparency of the feature lines.

Pan: If you imagine a camera mounted on a pole, twisting the pole changes the pan of the camera's POV.

Tilt: If you imagine a camera mounted on a horizontal bar, twisting the bar changes the tilt of the camera's POV.

Yaw: If you imagine a bar running right through the lens of the camera, twisting that bar changes the yaw.

Left/Right: If you imagine the camera mounted on pole, moving the pole physically to the left or right changes this setting.

Forward/Backward: If you imagine the camera mounted on pole, moving the pole physically forward or backward changes this setting.

Altitude: If you imagine the camera mounted on pole, raising or lowering the pole height changes this value of the pole in the scene.

Sensitivity bar

The Sensitivity bar affects the amount that the slider options change their parameters when they are adjusted. Moving the Sensitivity bar to the left makes the slider options less sensitive (i.e., moving a slider *x* pixels will have greater effect); moving the bar to the right makes the slider options more sensitive (i.e., moving one slider *x* pixels will have less effect). For example: to move forward a greater distance, slide the Sensitivity bar to the left, and then adjust the Forward/Backward bar.

As you refine and adjust the calibration, use the sensitivity slider to make more minute adjustments. When you change the Sensitivity bar setting, all sliders snap back to the center position, providing more room for additional adjustments.

Continue to adjust the sliders until the points in the image match up to the features that were selected on the aerial map. Click Save when finished.

Advanced calibration tips

- Begin by defining a horizontal line from camera's Point of View and adjust the yaw until that line is horizontal in the image.
- Choose obvious points in the Image tab that are easy to match between the Sight tab view.
- The Pan and Left/Right sliders have similar effects on the matching of the points, as does the Tilt and Altitude. A subtle difference is that Pan and Tilt do not typically change the angles of the connecting lines as much as Left/Right and Altitude. You can use Left/Right and Altitude to get the angles of the lines correct first, and then line up the points with Pan/Tilt.
- Adjusting Forward/Backward and Left/Right will move the pink cross on the sitemap. These represent the new position of the camera. Use the cross to make sure you're not changing the position in an inappropriate manner.
- The Pan, Tilt, Yaw and Altitude readouts in the Image tab provide a numerical reference to indicate the amount of orientation and position change of the camera. Refer to these numbers to ensure that you have not made excessive changes.
- If the points and lines seem to be too close together or too far apart, adjust the Forward/Backward slider until they appear more accurately separated.
- Switch between the Image and Site tab to see the updated camera cone (from your adjustments) or add/delete/change the features.
- As you change calibration settings, you can perform a Follow Test (in the standard calibration window) to verify the accuracy of the new parameters.

Adding and managing users

All users of SightLogix must be associated with one of the following security groups: chief security officer, administrator, and security officer. The username and password entered by a user when starting SightMonitor identifies the group to which the user belongs.

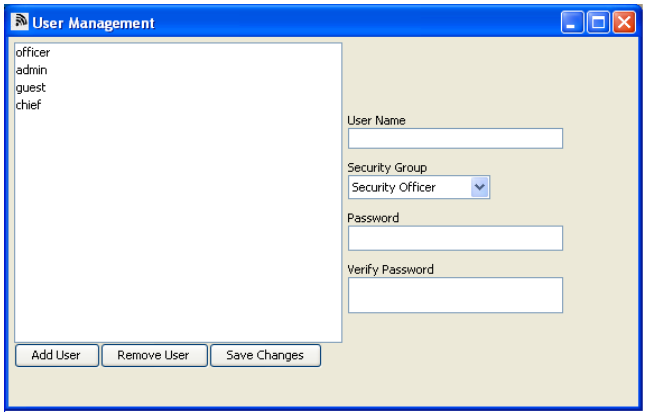
Security group	Default username	Default password
Chief security officer	chief	change
Administrator	admin	change
Security officer	officer	change
Security officer	guest	change

The following table summarizes the privileges accorded each of the security groups:

	Chief security officer	Administrator	Security officer
User management	●		
Add sites, add/remove cameras	●		
Reboot camera	●	●	
Activate lockdown	●		
Network, communication settings	●	●	
Upgrade software	●		
Alarm policies	●	●	
Camera configuration & calibration	●	No Calibration	
View target info	●	●	●
Reset tracker	●	●	●

Important: For security reasons, you should restrict the chief security officer and administrator groups to properly trained essential users only. Day-to-day monitoring of the system should be performed by users in the security officer group only.

Adding and managing users and their login information is done from the User Management dialog box, which is accessible by choosing Users from the Edit menu:



When you first open the User Management dialog, you see the four default users corresponding to each of the security groups (guest is the same as officer). You can add new users or change information about an existing user.

To add a new user:

1. Enter a user name.
2. Select a security group from the dropdown list.

3. Type (and retype) a password.
4. Click Add User.

To make a change to an existing user (such as changing the password):

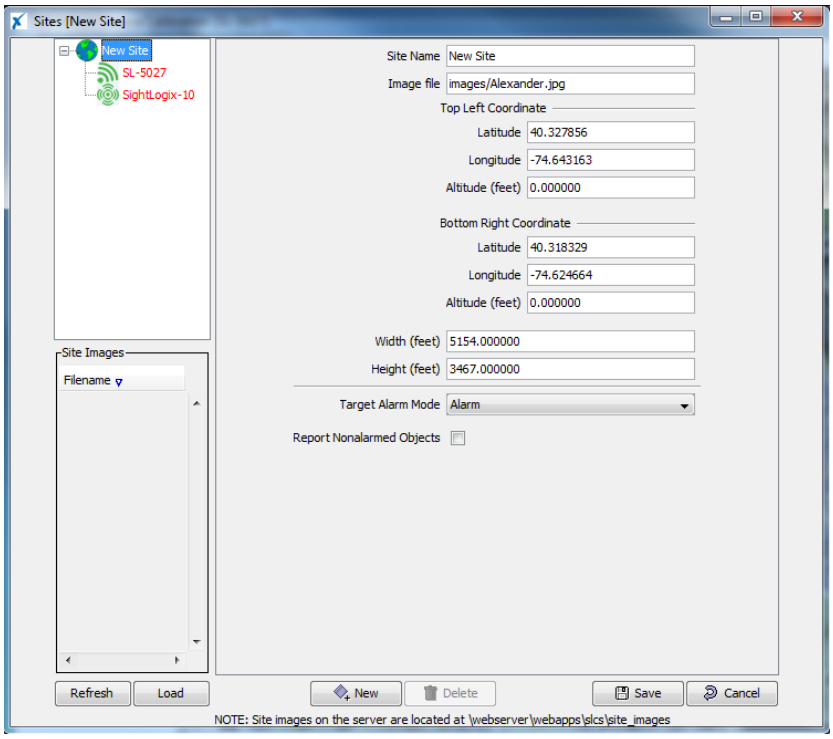
1. Select the user from the list at left.
2. Enter the new username or password (the password must be typed twice), or change the security group that the user belongs to.
3. Click Save Changes.

Important: Make sure at least one user is always assigned to the chief security group. If no one is designated as a chief security officer, no users can be added (or deleted) and passwords cannot be changed since only the chief security officer has permission to change user login information.

Managing Sites

The Sites dialog allows you to edit information about a current site or add a new site. For instance, you may want to change the site name, use a different aerial image, or tweak the GPS coordinates or image size information.

To edit open the Sites dialog, right-click anywhere on the site map and select Edit Site.



Target Alarm Mode: Choose "Target" or "Alarm" mode.

In the default *Alarm Mode* the alarm state is True whenever an alarmed object is being tracked and False when no alarmed objects are being tracked.

In *Target Mode*, the Alarm state will be briefly true whenever a new alarmed object is detected.

For VMS systems which record whenever objects are being tracked, the default mode is usually more useful.

However, for VMS systems that are event-driven, Target mode provides extra information. Each transition from non-alarm to alarm state causes a new event for each new alarmed object.

To edit a site, change the current information and click Save. For step-by-step instructions on inserting a new aerial image or creating a new site, see page 15.

Changing the video transmission settings

Image quality and bandwidth allocation are controlled from the video settings, which allow you to set the frame rate, the maximum bit rate, and other parameters (see Table 5.1 for descriptions). Video settings are applied independently for each channel.

By default, MPEG displays high-quality video for viewing purposes, while JPEG is configured for lower-quality video for archiving (the resolution of individual I frames is high, however, to ensure detail in still frames). The target frame rate for the MPEG channel is set for 30 frames per second; for the JPEG channel, it is set for 3 frames per second when no alarms are occurring and 10 frames per second during an alarm.

Not all VMS programs support both channels.

Video transmission settings are a tradeoff between network capacity concerns and the quality of the image or the smoothness of the video motion. A higher image quality necessarily requires more image data, contributing to the network load.

On low-bandwidth networks, such as wireless point-to-point connections, where limited bandwidth is likely to be an issue, you may need to adjust the video transmission settings to limit the amount of video being transmitted. To do so, you can do the following:

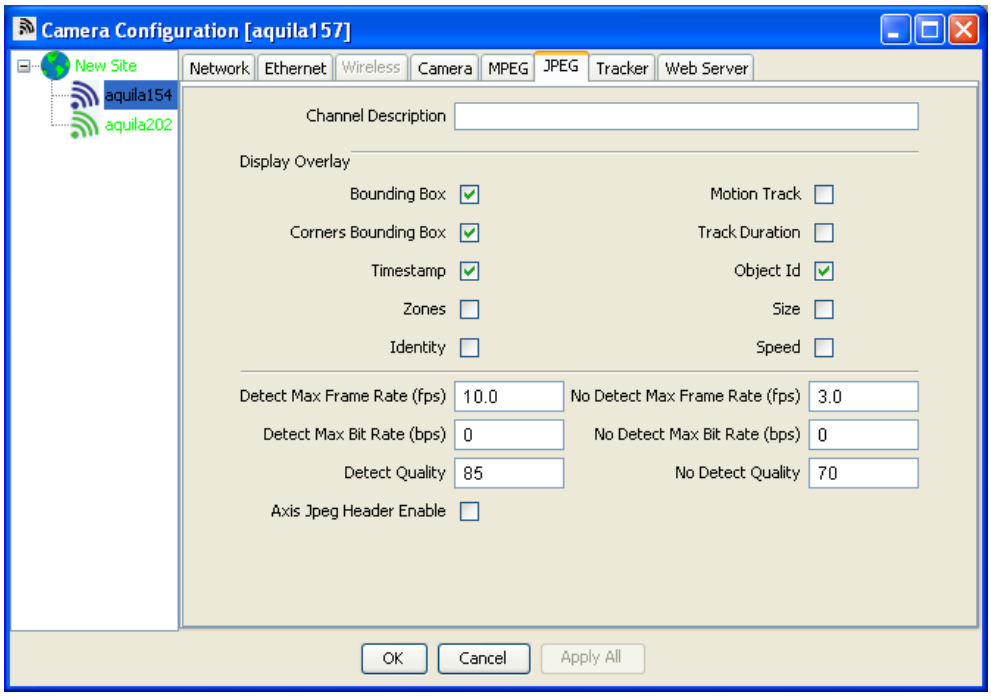
- Specify a lower bit rate.
- Set your VMS to view the motion JPEG channel (rather than the MPEG channel).
- Use an image scaling of half.
- On the MPEG channel, use the CBR (constant bit rate) instead of the VBR (variable bit rate) setting to precisely control the amount of data transmitted.
- On the MPEG channel, increase the quant value, which allows poorer-quality (lower-data) frames to be transmitted.
- On the MPEG channel, increase the frame interval, so that fewer high-resolution I frames are transmitted.

Conversely, to increase image quality, specify a lower quant value or increase the maximum bit rate.

You can normally obtain the current bit rate from the VMS.

To change video transmission settings:

1. Right-click on the appropriate camera icon and select Configuration.
2. Go to the MPEG or JPEG tab, which opens one of the dialogs shown on the next page (the dialog for a SightTracker will have a single overlay option).
3. Change the information as needed (see Table 5.1 on the next page for details).
4. Click OK.



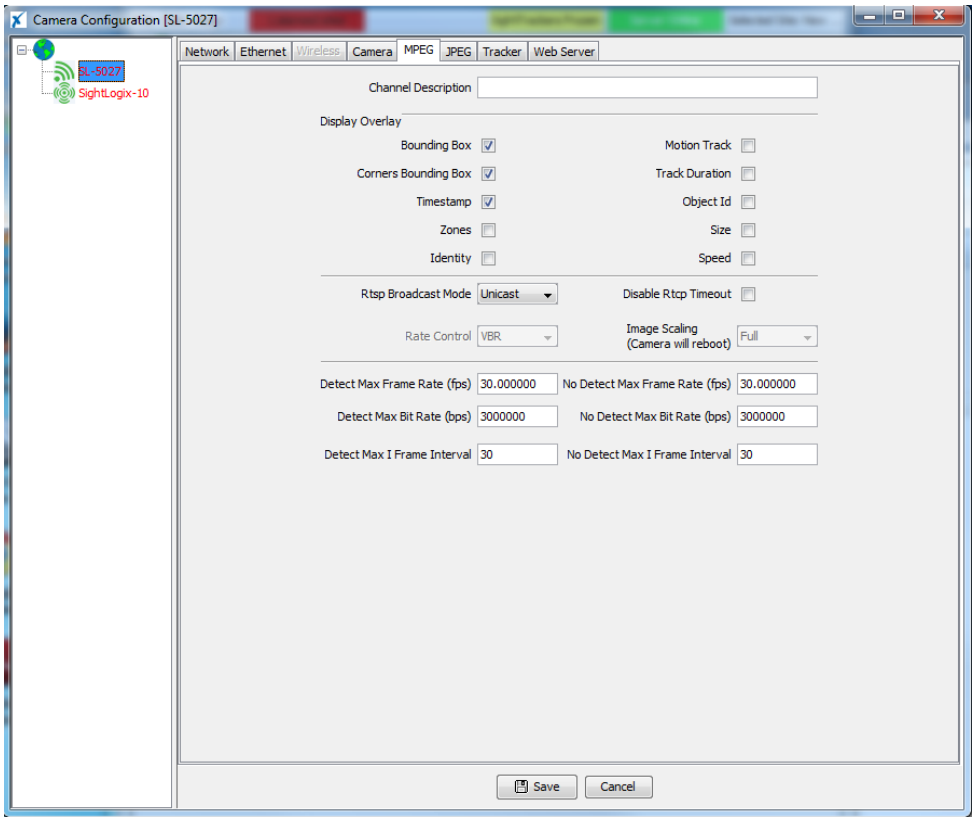

Camera Configuration [SL-5027]
SL-5027
SightLogix-10
Network
Ethernet
Wireless
Camera
MPEG
JPEG
Tracker
Web Server
Channel Description
Display Overlay
Bounding Box
Corners Bounding Box
Timestamp
Zones
Identity
Motion Track
Track Duration
Object Id
Size
Speed
Rtsp Broadcast Mode
Unicast
Disable Rtcp Timeout
Rate Control
VBR
Image Scaling
(Camera will reboot)
Full
Detect Max Frame Rate (fps)
30.000000
No Detect Max Frame Rate (fps)
30.000000
Detect Max Bit Rate (bps)
3000000
No Detect Max Bit Rate (bps)
3000000
Detect Max I Frame Interval
30
No Detect Max I Frame Interval
30
Save
Cancel

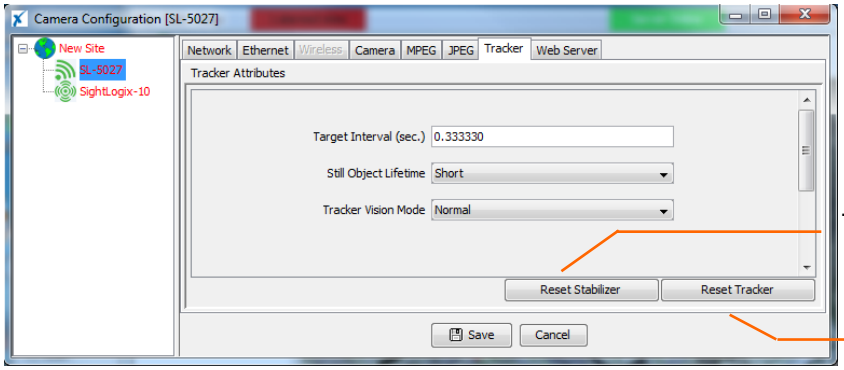
Table 5.1 Video channel settings

Setting	Description
Rtsp Broadcast Mode	Choose Unicast or Multicast
Disable Rtscp Timeout	Can be used to prevent the video stream from shutting down with some VMS systems. Note that this may cause video to continue streaming unnecessarily on the network when no client is listening.
Rate control	Specifies whether the bit rate can vary in response to more complex video images (the default behavior), or if it remains constant. Choose one: VBR (variable bit rate): **Default**. Varies the bit rate depending on the complexity of data, allowing a higher bit rate for more complex video segments (such as when there are multiple targets) and a lower bit rate when not much is occurring. Consistent image quality is maintained, but the bit rate varies (you can specify a maximum value). CBR (constant bit rate): Data is transmitted at a constant, predictable rate, even if the video information becomes more complex. Note that image quality can degrade if there is not enough information to fully describe a complex scene. Normally CBR should be used on low-bandwidth, point-to-point connections where available capacity is an issue. In general, use VBR for better image quality; use CBR when network bandwidth is limited.
Image scaling	Specifies whether a full frame is displayed or half the frame.
Detect/No Detect Max Frame Rate*	Requested frame rate, stated as frames per second (fps). Note that the actual rate might be lower if frames are being dropped due to insufficient computing resources (this can occur when frames are very complex). The default is 30 fps for MPEG and 3 fps for JPEG when there are no alarms (10 fps when alarmed).
Detect/No Detect Bit rate*	CBR only. Specifies a constant bit rate for MPEG. The default is 500000 bits per second. The bit rate for motion JPEG is 0, meaning unconstrained by a maximum number (bits are transmitted as fast as can be supported).
Max bit rate*	VBR only. Assigns the maximum bit rate allocated for the MPEG channel. The default is 3000000 bits per second.
Detect/No Detect Maximum I frame interval*	Specifies how often a full-resolution frame (an I frame) is transmitted; frames in the intervals between I frames carry only enough information to describe scene changes. Since I frames require more bandwidth, increasing the interval reduces the network load and a longer I frame interval is less resistant to packet loss. The default is 30 frames.

** Can be set independently for both the alarmed state (detect) and unalarmed (non-detect) state.*

Controlling object tracking

Tracker controls determine how sensitive the system is to movement and how quickly the system identifies a moving object as a target or recognizes that a now-stationary object should no longer be identified as a target. You control tracking from the Tracker tab on the Camera Configuration dialog (right-click a camera icon and select Configuration):



Refreshes the image and immediately stabilizes on the new image.

Clears all currently tracked objects.

Select a tracker mode that applies to the particular environmental conditions. Click OK after changing a setting.

Table 5.2 Tracker configuration settings

Field	Value range
Object interval	Specifies how often the camera reports the position of a tracked object to the Coordination System. A smaller interval reports more often and results in smoother map tracking motion but uses more network bandwidth. Larger numbers use less network bandwidth but may result in jerky tracking in the map overlay.
Still Object Lifetime	The length of time required before a target that stops moving is no longer identified as a target. The interval can be short, medium, or long. (Although there is some variation depending on certain factors, short is usually around 30 seconds, medium around 1 minute, and long around 2 minutes.)

Tracker Vision Mode	Normal: Default vision mode; used for most circumstances. Water: Use this mode when the device is looking out over water. Falling Object: Use this mode for primarily detecting falling objects. Grassy: Use this mode when the device's field of view contains primarily a grassy area. Long Object Detection: Use this mode when the device will be used primarily to detect long objects such as trains or large boats. Water mode (Large Object Detection): Use this mode when detecting large objects in a body of water. Water mode (Large Slow Object Detection): Use this mode when detecting large, slow moving objects in a body of water. Normal No Stabilizer: Turns stabilization off. This mode may be useful if moving objects occupy a large amount of the sensor field of view. Such as a walkway with many people moving or a busy road or railway. Grassy No Stabilizer: Use this mode when the device's field of view contains primarily a grassy area and large moving objects may occupy a significant portion of the Field of View (e.g., trains)

Resetting the stabilizer

To ensure a smooth video image, video is continuously stabilized at the camera before it is relayed over the network. To perform stabilization, the camera retains in memory a number of frames that it references in order to match up with incoming frames. If you re-orient the camera to change the view, these images in the camera memory will linger for a short time.

To quickly update the camera view for the new camera orientation, click Reset Stabilizer.

Configuring web authentication

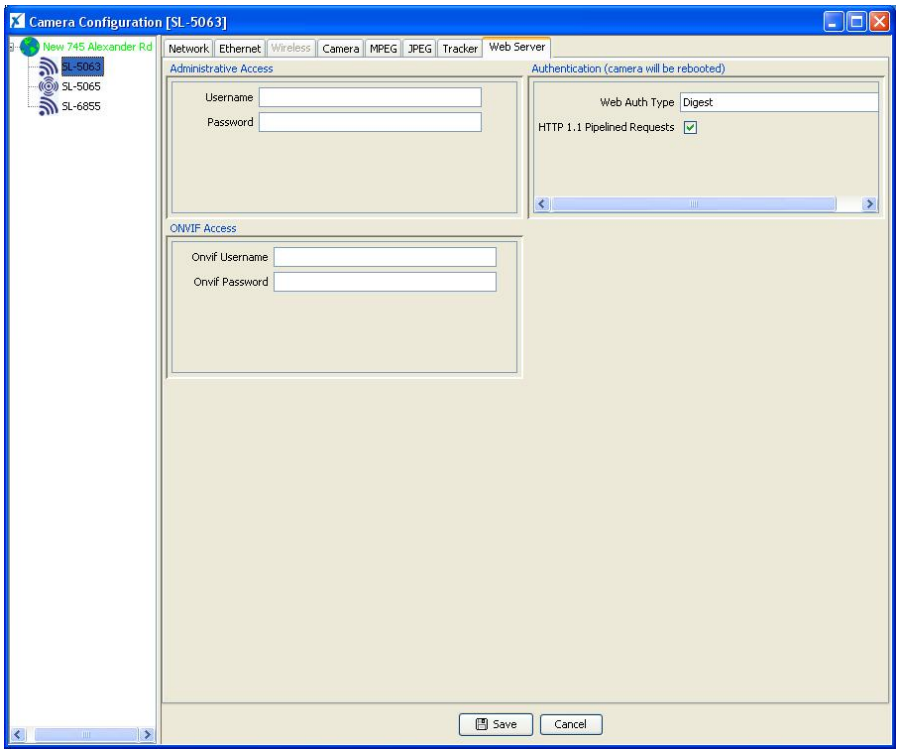
Web authentication is used to send video and other information to the VMS (as well as other programs and devices) and requires a username and password. The default username is *sightlogix* (or *root*), and the default password is *push2edg* It is recommended you assign your own username and password.

The default web authentication is basic, which is supported by all VMS programs. However, basic does not encrypt network data and is therefore not as secure as the digest method.

If your VMS supports the digest authentication, it is recommended you change the authentication type to use digest. Changing the type of authentication will cause the SightSensor or other SightLogix device to reboot.

Note: HTTP Pipelined Requests is provided only for compatibility with specific VMS programs.

To configure web authentication, right-click the device icon→Configure→Web Server.



Configuring Access to the Camera Using Onvif Authentication

Set ONVIF authentication by entering the ONVIF Access username/password on the Web Services tab, as shown. This features are provided for 3rd Generation SightSensors running both 10.x and 15.x firmware.

Overlaying information on video

By default, date/time information is superimposed on the video image for both channels. However, you can superimpose additional information, or turn off display of the date and time. To do so, right-click a SightLogix device icon, select Configure, and go to the MPEG or JPEG tab. Select or deselect the appropriate checkboxes (see page 112 for examples of overlays); click OK.

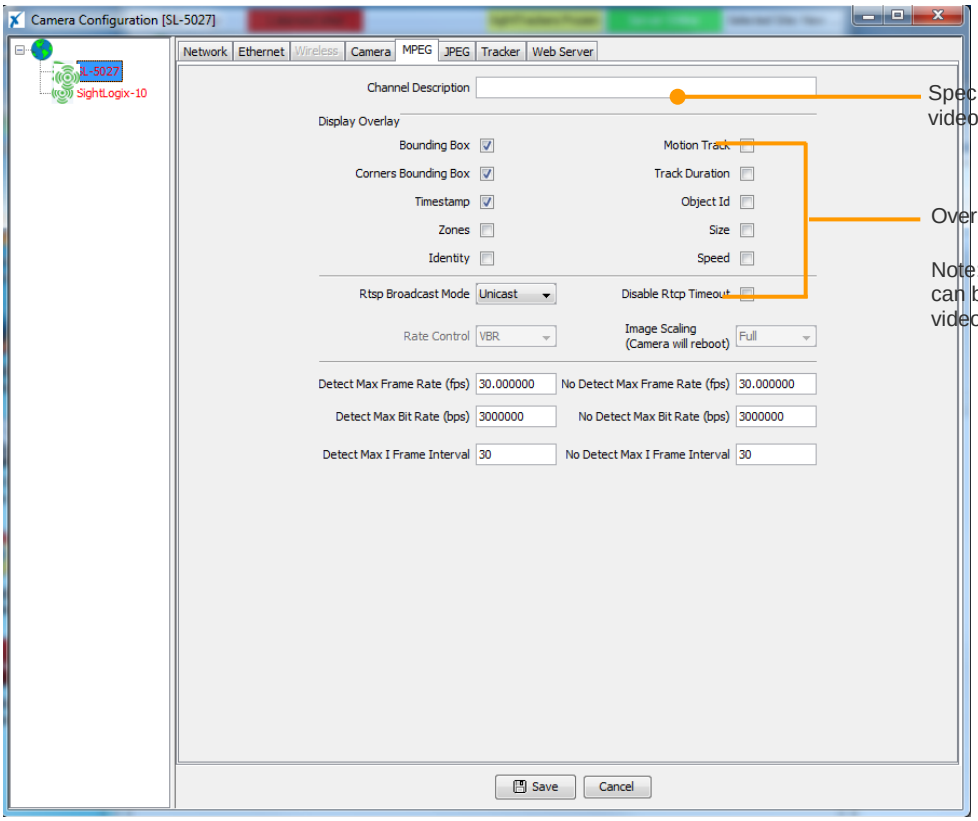
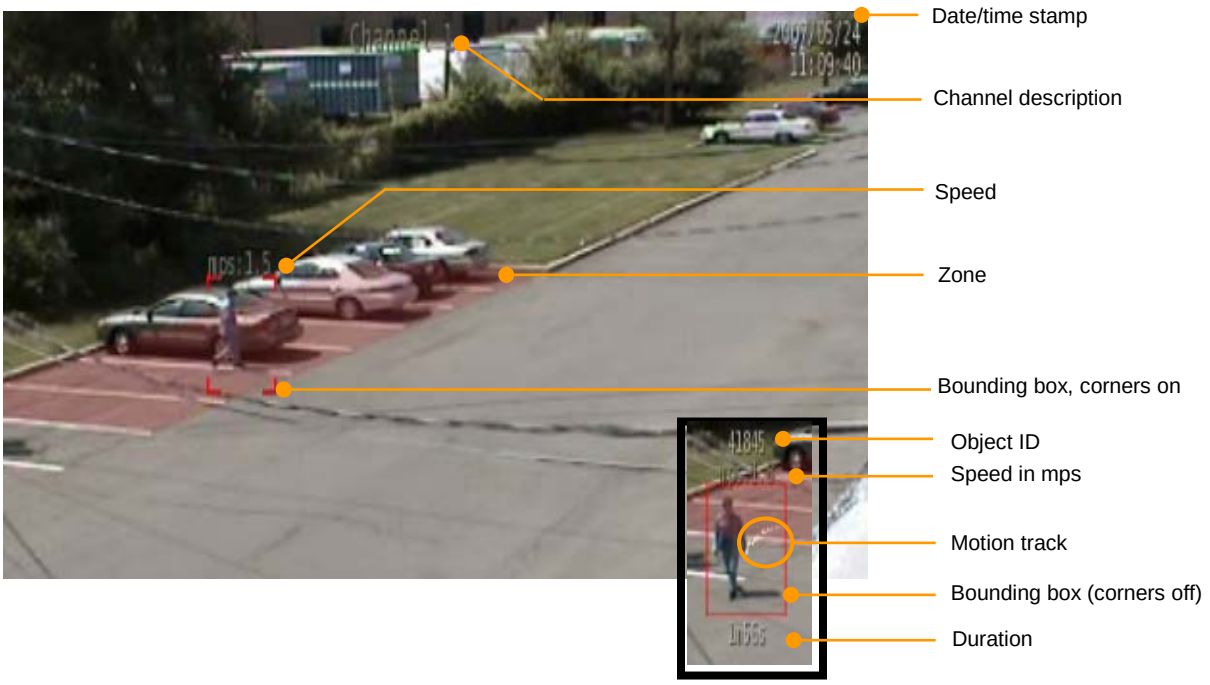


Table 5.3 Video overlay information*

Information	Description
Bounding box	Encloses a target in red if the target is in an alarm zone, or in yellow if target is outside an alarm zone.
Corners bounding box	Rather than completely enclosing an object in a bounding box, you can display only the corners of the bounding box.
Time stamp	Current date and time.
Zones	Overlays any defined alarm, mask, or ignore zones.
Identity	Serial number and Mac address.
Motion track	Transitory tracks that follow a target, fading after a few seconds. Gives a rough indication of a target's speed and direction.
Track duration	Length of time (in seconds) object was tracked.
Object ID	A unique ID assigned to a target.
Size	Displays object size in feet for US unit or meter for SI unit.
Speed	Displays approximate speed of target in mph for US unit or mps for SI unit.

* SightTracker supports only the time stamp.



Upgrading to a new SightLogix Enterprise system

Installing new software— both the server (Coordination System) and client (SightMonitor)— over an existing installation consists of the following steps:

> Backing up current settings. This step is optional but recommended (current alarm policy and other information is not overwritten during an upgrade).

> Running the install program. You run installation once on a single server-grade machine on your network to install both the server and client. Once installation is complete, you can install clients on other machines to allow multiple users to conveniently and simultaneously manage and monitor the system. See page 114 for instructions on installing the SightMonitor client separately.

> Starting up the SightMonitor and logging in.

> Uploading the new firmware to the cameras.

Each step is described in its own section.

Backing up system settings

It is recommended that you periodically back up system settings to save calibration and alarm policy information.

The upgrade procedure does not overwrite current alarm policy, user logins, and other information. However, you may want to back up your policies and settings as a precaution. In any case, it's usually prudent to back up this information periodically.

Backing up alarm policies and other information consists of copying the database and security directories: Do this as follows:

1. Exit from the SightMonitor if it's running.
2. Stop the SightLogix service: From the Start menu, open Control Panel→Administrative Tools→Services. Locate SightLogix and select it. Click the option to stop the service.
3. Make copies of these directories:

   C:\Program Files\SightLogix\CS\DB
   C:\Program Files\SightLogix\CS\TomCat\webapps\slcs\security
   C:\Program Files\SightLogix\CS\Tomcat\webapps\slcs\site_images (32 bit systems)
   C:\Program Files (x86)\SightLogix\CS\Tomcat\webapps\slcs\site_images (64 bit systems)
4. Restart the SightLogix service: From the Start menu, open Control Panel→Administrative Tools→Services. Locate SightLogix and select it. Click the option to stop the service.

Note: You may also want to create and save screen images of the alarm zones and calibration points so you can easily reproduce the zones or place calibration points in the same locations, if needed. Both the calibration dialog and policies editor have options Save Window for this purpose.

If you need to later restore the information, simply copy the information from the backup directories to the original directories from which the information was copied, and restart the SightLogix service.

Restoring the Database after Backup

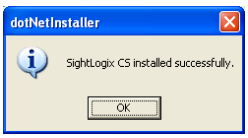
1. Close all SightMonitor dialog windows.
2. On computer running the SightMonitor windows service, open services.msc (windows services).
3. Scroll down to Sightlogix Coordination System service.
4. Select Sightlogix Coordination System service and press stop.
5. Open a windows file browser (press windows key and E key simultaneously). Browse to: C:\Program Files\sightlogix\cs
6. Delete or rename the db directory to be replaced. Copy previous backup of db directory to C:\Program Files\sightlogix\cs and rename backup directory db
7. Go to windows services and restart SightLogix service. Sight Monitor will now work normally with backed up data base configuration.

Running the install program to upgrade the software

1. Install the CS installation CD and double-click the setup file.
2. Click Install to begin and advance through the screens by clicking the Next button on each screen.

   When the site license agreement screen appears, accept the terms as listed. You will not be able to continue unless you accept the terms as shown. Click Next.

   When prompted, select the measurement units to be displayed. Select either US standards (feet, mph) or international standards (SI), which is the default and displays metric measurements. Click Next.
3. At the last screen, click Finish. You will see a notification that the software is installed.



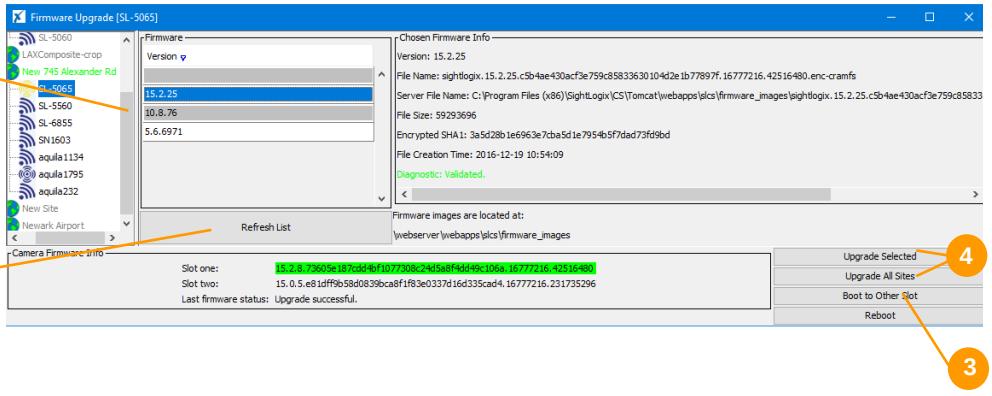
You can now log in using a previously created username and password.

Upgrading the firmware

Upgrades to the camera firmware will occasionally be made available for adding features or improving performance. A new release typically includes new camera firmware. Normally firmware is copied to C:\Program Files\SightLogix\CS\webserver\webapps\slcs\ firmware_images on the hard drive during the software installation procedure.

Note: During firmware upgrades, the network connection between the camera and the Coordination System will be busy; target updates will be delayed.

Once the firmware has been copied to the hard drive, open the Firmware Upload dialog (right-click a device icon and select Firmware Upload; if you're upgrading all devices, select it from the site's Edit menu). Then do the following:



1. Click Refresh List to update the firmware list.
2. Select the version of firmware you want to load from the firmware list.
    a. 1st Generation and 2nd Generation devices use firmware version number 5 (for ex, 5.xx.bbbb). 3rd Generation devices use firmware versions number 10 (for ex, 10.xx.bbbb) OR number 15 (for ex, 15.xx.bbbb).

    When updating an existing camera, choose the software family running on the device that matches the family of firmware you are installing

    b. The highest version number in the list is the most recent release.

    c. Upgrade each Generation of devices to the highest firmware in the list. This may require running the upgrade process twice for each generation present on your network.
3. Click *Upgrade Selected* to upgrade only the selected device, or click *Upgrade All Sites* to update all devices at the site.

When new firmware is loading for a site, the progress bar is an average of all the devices. To see progress for an individual device, select the appropriate device icon.

Once the firmware is finished being uploaded, the device or all devices will be automatically rebooted.

Note: Devices hold two copies of the firmware for redundancy, each in one slot. It is required to perform this upgrade process two times so both copies of the firmware are loaded and are the same. Repeat until all devices report the same version of firmware on both slots.

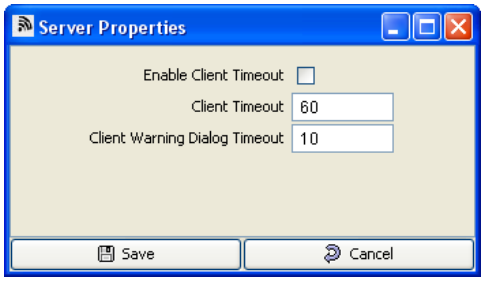
For sites that have multiple-Generation devices, repeat the upgrade process for each generation two times.

If you experience problems using the new software, return to the Firmware Upload dialog, reselect the previous software (click Boot to Other Slot), and reboot. Then contact SightLogix.

To reboot all of the devices associated with the site to the current slot at one time, click Reboot.

Client timeout

For added security, SightMonitor clients can be configured to automatically log out after a specified period of inactivity.



Choose Server Properties from the SightMonitor Edit menu and place a check mark in the Enable Client Timeout field.

The following options are provided:

Client Timeout: Enter the period of inactivity that must pass before timing out.

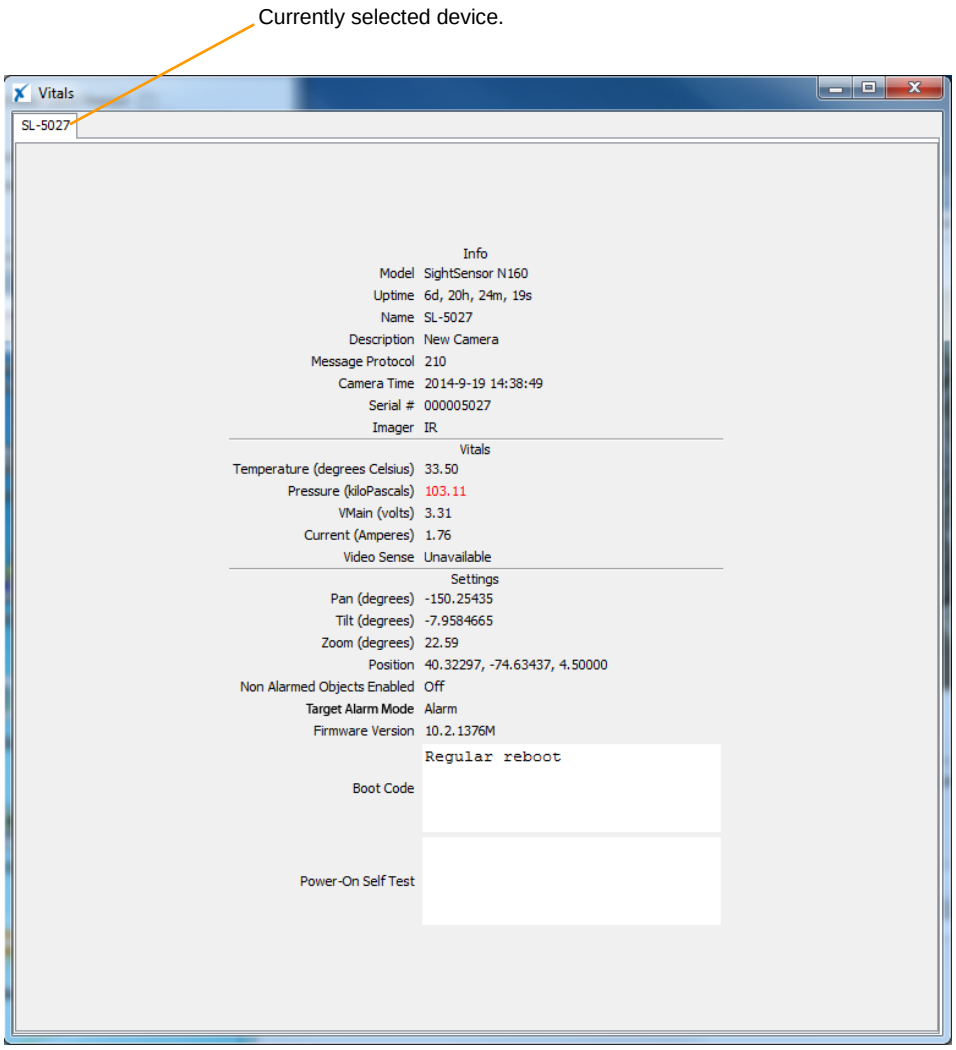
Client Warning Dialog Timeout: Enter the period of time that the warning message will display prior to timeout.

When done, click Save.

Note that Client Timeout is a global setting and applies to all SightMonitor clients logged into the Configuration System. Users must re-enter their Configuration System credentials in order to log back into the system.

Troubleshooting

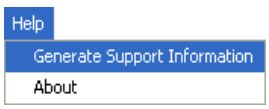
When problems occur with device performance, you can quickly check statistics such as PTZ settings, temperature, and voltage consumption, by right-clicking on the device icon in the SightMonitor camera tree and selecting Vitals.



Each time you open a Vitals screen, a tab is created for that device so you can easily re-access it. See Table A.1 for descriptions of each field.

Table A.1 Vitals statistics	
Setting	**Description**
Model	Shows the SightSensor model.
Uptime	Length of time since the camera was last rebooted.
Description	Hostname or IP address
Message Protocol	Revision number for SightLogix software used to communicate with the cameras.
Serial Number	Unique ID assigned before shipping to identify camera and housing parts.
Imager	Information about the type of imager.
Temperature, pressure	Temperature (in Celsius) and pressure reported by the device. Problems may occur if temperature exceeds 70° C.
Voltage information (VMain, Current)	Voltage usage for various device components. Too much Out of range voltage can indicate a failure.
Pan, tilt, zoom	Camera orientation information
Position	GPS location of device (as entered in the Calibration dialog).
Non-alarmed Objects Enabled	Specifies whether moving targets are displayed if they are not triggering alarms.
Target Alarm Mode	Displays the Target Alarm Mode selected on the Site Settings page.
Boot code	Description for reboot. It includes the reason for the reboot, which can be a hardware reboot (such as power recycle), a user-requested software reset, or a software watchdog, which occurs when the device reboots itself after detecting a problem. In addition, the code gives the progress made during a reboot and numerical ID for the boot.
Power On Self Test	

When reporting problems, use the Help menu's Generate Support Information to save device information to a file, and email this file to SightLogix with questions. From the Help menu, select Generate Support Information and save the support file (which will be time-stamped) to a directory.



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Erasing targets that persist

Targets may occasionally persist on screen although they no longer identify a moving object. This can occur, for example, when a vehicle moves into an alarm zone and parks for a period of time (or when a car drives away, leaving a ghost target).

To erase such targets, right-click on the SightSensor icon and select Reset Tracker, which resets the scene from scratch. (Reset Tracker is also available on the Tracker tab of the Camera Configuration dialog.) Note that this erases all target information for the camera.

Symptoms & solutions

Problem: A device is offline.

Solution: This problem is almost always due to power not being present or cables being unconnected. So check both the power and network connections.

If the problem is not caused by disconnected cables, check whether the device is disabled in the Configuration Window. Then open the Vitals screen (right-click on the device icon and select Vitals) to see the last reported state. Check the temperature. If the temperature is too high (70° C or above), contact SightLogix.

Problem: A ghost image remains in the camera view even though the original target is gone.

Solution: An object that was present when the Tracker learned a scene will leave a ghost target when it moves from the scene. To erase such targets, right-click on the SightSensor icon and select Reset Tracker.

Problem: The image quality is not good.

Solution: Decrease the quant value (right-click the appropriate device icon, select Configure, and then open the MPEG page) to increase the information used to describe the scene. Note that the quant value is nonlinear, with increasing impact at lower values.

If this does not appreciably increase the image quality, also increase the maximum bit rate (be sure VBR is selected) to ensure enough bits are allocated.

Problem: The motion in the video image is jerky.

Solution: Frames may be dropping out. First verify whether you are looking at the MPEG, which is set for 30 frames per second. (By default, the JPEG channel, which is meant for archiving, is set for 3 frames per second when no alarms are being reported.)

If frames are being dropped from the MPEG channel, increase the quant value to allow more frames to be transmitted (right-click the device icon and select Configure; go to the MPEG tab). Note that image quality will decrease as the quant value increases.

Problem: When you move or re-aim the camera, the previous camera view remains.

Solution: The camera has stabilized on the previous camera view and is attempting to match up the new view with the previous one.

Reset the tracker as follows: Right-click the SightSensor and select Reset Tracker.

Problem: When using the Alarm Test option on the Camera dialog to verify that alarm information is relayed to the VMS program via Motion On Event Server, no alarm is received at the VMS.

Solution: There may be an inconsistency between the IP address that was entered in the Camera dialog vs. actual the IP address of the server.

Verify that the correct IP address was entered in the Camera Configuration Motion on Event Server dialog. If possible, configure the Camera with a Syslog server address and check the log for errors delivering the events. If this problem persists, contact SightLogix.

Problem: Even though alarm rules define an object size, the RDK is alarming on objects of different sizes.

Solution: The RDK may not be calibrated properly. Or the zoom was changed without recalibrating the SightSensor (always recalibrate after changing the zoom).

Glossary

alarm. A condition triggered when a target (a tracked moving object) moves into or within an alarm zone and meets all conditions defined by the zone's alarm policies. The actual alarm is triggered by a motion event at a SightSensor.

alarm policy. A zone and its associated alarm rules. Together the zone and alarm rules specify the exact location and the conditions under which an alarm is (or is not) generated. For example, one alarm policy may specify that alarms be generated only in designated zones within the camera view or only during nonworking hours; another may specify that only objects entering a zone generate an alarm.

alarm rule. A condition applied to the generation of alarms within an alarm zone. Such rules restrict the generation of alarms according to time, time spent in an alarm zone, type of object, or other attributes.

alarm zone. A defined area of the camera view in which alarms may be generated. An alarm zone can be associated with alarm rules that restrict alarms according to time, type of object, or other attributes.

bit rate. A measure of the rate of data content in a video stream, given as bits per second. Generally, the higher the bit rate, the higher the video quality. Lowering the bit rate enables lower-bandwidth networks to carry more video streams.

dome camera. A camera, normally a PTZ camera, that can adjust to different settings (pan, tilt, and zoom) to get a better view of an area or object. Dome cameras can be associated with SightSensors to automatically aim at a preset location when the SightSensor detects a target.

frame rate. The number of frames that are shown or sent each second. Video is usually displayed at 30 frames per second. At slower rates, motion is less smooth and may become jerky.

from-zone. A designation applied to an alarm zone when defining an illegal path. If an object has previously passed into a from-zone before it enters the current zone (the one being defined by an alarm rule), an alarm will be generated.

I frame. As defined by the MPEG video compression format, an I frame contains all information necessary to completely describe a scene. By default I frames are sent once per second. Frames relayed during the interval between I frames contain only enough information to describe changes between it and the preceding I frame. Image quality degrades as the length of time between I frames lengthens.

JPEG. A compression method for still images. SightSensors transmit sequences of JPEG-compressed images to transmit video over the network. See also *motion JPEG*.

ignore zone. A defined area of the camera view in which new objects—objects originating within the zone—are not tracked. However, objects already being tracked, such as those coming from alarm zones or undefined areas, will continue to be tracked. No alarms are generated while targets remain in an ignore zone.

MPEG. Moving Pictures Experts Group. A set of standards established for the compression of digital video and audio data. One channel of SightSensors transmits MPEG video over the network.

mask zone. A defined area of the camera view in which motion is never tracked. No targets are identified (even if they were previously tracked) nor are alarms ever generated from a mask zone, making mask zones useful for reducing nuisance alarms generated from moving tree branches, birds, traffic, or other nuisances.

motion detection. Video analysis that identifies objects moving independently of the background.

motion JPEG. A video clip composed of a sequence of JPEG video frames that can be transmitted over a network. One channel of SightSensors transmits video over the network using this technique.

resolution. A measure of the amount of detail contained in an image. Image sharpness and clarity improve as resolution increases.

SightSensor. An intelligent surveillance camera with built-in processing that analyzes video to detect objects that violate a site's alarm policies. When calibrated, SightSensors also return the GPS coordinates of all targets.

SightTracker. A device that enables PTZ cameras to automatically and immediately aim at a target identified by a SightSensor, providing for immediate, close-up inspection of detected targets. SightTrackers receive GPS coordinates and other tracking information from SightSensors and convert this information to pan/tilt/zoom settings.

site map. An aerial view of an entire site showing the correct geographic locations of cameras and targets.

stabilization. The process of removing camera motion to make objects remain stable even when the camera is moving.

target. In motion detection, an object that has been identified as moving independently of the background and that has been determined not to be caused by environmental conditions such as rain or wind-blown foliage. Targets generate alarms when they occur in alarm zones and meet the conditions imposed by the user-defined alarm rules.

tripwire alarm. An alarm that is not generated until an object crosses the boundary of a zone. If a zone is defined as a tripwire zone, objects that move entirely within the zone do not generate an alarm. To create a tripwire alarm, create an alarm policy that defines a zone as a tripwire zone (for entering or exiting a zone, or both**).**

zone. A defined area of the camera view associated with specific instructions on when, how, and whether alarms should be generated or whether objects should be tracked. Supported zones include alarm zones, mask zones, and ignore zones

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