PELCO™

Spectra Enhanced 7 Series

PTZ Dome Cameras

Table of Contents

Important Notices Statement

Regulatory Notices

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

Radio and Television Interference

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

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission's rules.

CAN ICES-3(A)/NMB-3(A)

Warranty Statement

For information about Pelco's product warranty and thereto related information, refer to www.pelco.com/warranty.

Legal Notice

SOME PELCO EQUIPMENT CONTAINS, AND THE SOFTWARE ENABLES, AUDIO/VISUAL AND RECORDING CAPABILITIES, THE IMPROPER USE OF WHICH MAY SUBJECT YOU TO CIVIL AND CRIMINAL PENALTIES. APPLICABLE LAWS REGARDING THE USE OF SUCH CAPABILITIES VARY BETWEEN JURISDICTIONS AND MAY REQUIRE, AMONG OTHER THINGS, EXPRESS WRITTEN CONSENT FROM RECORDED SUBJECTS. YOU ARE SOLELY RESPONSIBLE FOR INSURING STRICT COMPLIANCE WITH SUCH LAWS AND FOR STRICT ADHERENCE TO ANY/ALL RIGHTS OF PRIVACY AND PERSONALTY. USE OF THIS EQUIPMENT AND/OR SOFTWARE FOR ILLEGAL SURVEILLANCE OR MONITORING SHALL BE DEEMED UNAUTHORIZED USE IN VIOLATION OF THE END USER SOFTWARE AGREEMENT AND RESULT IN THE IMMEDIATE TERMINATION OF YOUR LICENSE RIGHTS THEREUNDER.

Audio Notice

NOTE: Improper use of audio/visual recording equipment may subject you to civil and criminal penalties. Applicable laws regarding the use of such capabilities vary between jurisdictions and may require, among other things, express written consent from the recorded subjects. You are solely

responsible for insuring strict compliance with such laws and for strict adherence to any/all rights of privacy and personalty.

Video Quality Caution

Frame Rate Notice Regarding User Selected Options

Pelco systems are capable of providing high quality video for both live viewing and playback. However, the systems can be used in lower quality modes, which can degrade picture quality, to allow for a slower rate of data transfer and to reduce the amount of video data stored. The picture quality can be degraded by either lowering the resolution, reducing the picture rate, or both. A picture degraded by having a reduced resolution may result in an image that is less clear or even indiscernible. A picture degraded by reducing the picture rate has fewer frames per second, which can result in images that appear to jump or move more quickly than normal during playback. Lower frame rates may result in a key event not being recorded by the system. Judgment as to the suitability of the products for users' purposes is solely the users' responsibility. Users shall determine the suitability of the products for their own intended application, picture rate and picture quality. In the event users intend to use the video for evidentiary purposes in a judicial proceeding or otherwise, users should consult with their attorney regarding any particular requirements for such use.

Open Source Software

This product includes certain open source or other software originated from third parties that is subject to the GNU General Public License (GPL), GNU Library/Lesser General Public License (LGPL) and different and/or additional copyright licenses, disclaimers, and notices. The exact terms of GPL, LGPL, and some other licenses are provided to you with this product. Please refer to the exact terms of the GPL and LGPL at http://www.fsf.org (Free Software Foundation) or http://www.opensource.org (Open Source Initiative) regarding your rights under said license. You may obtain a complete corresponding machine-readable copy of the source code of such software under the GPL or LGPL by sending your request to digitalsupport@pelco.com; the subject line should read Source Code Request. You will then receive an email with a link for you to download the source code. This offer is valid for a period of three (3) years from the date of the distribution of this product by Pelco.

CCC Power Cord Statement

Models shipped to China do not include power cords.

NOTE: A CCC approved power cord must be used to power the equipment when used in China.

KCC Certification

If you know the product is being submitted for KCC certification, add one of the following KCC statements and the respective heading to the Important Notices page of your English document. If the

KCC mark is not required, do not add this information. The statement should follow the French FCC translation in the Regulatory Notices section. When the document is translated, this text will already be included and translated per the requirements.

The Korean Class A statement applies to business/commercial product use. This notice indicates that the equipment has acquired electromagnetic conformity registration, so sellers and users are required to use caution.

The Korean Class B statement applies to residential product use. This notice indicates that the equipment has acquired electromagnetic conformity registration, so it can be used in both residential and other areas.

Korean Class A EMC

이 기기는 업무용 (A 급) 전자파 적합기기로서 판매자 또는 사용자는
이 점을 주의하시길 바라며 , 가정 외의 지역에서 사용하는 것을 목적
으로 합니다 .

Korean Class B EMC

이 기기는 가정용 (B 급) 전자파 적합기기 로서 주로 가정에서 사용하는
것을 목적으로 하며 , 모든 지역에서 사용할 수 있습니다 .

2.4 GHZ Radio Device

해당무선설비기기는 운용 중 전파혼신가능성이 있으므로
인명안전과 관련된 서비스는 할 수 없습니다

ESD Warning

WARNING: This product is sensitive to Electrostatic Discharge (ESD). To avoid ESD damage to this product, use ESD safe practices during installation. Before touching, adjusting or handling this product, correctly attach an ESD wrist strap to your wrist and appropriately discharge your body and tools. For more information about ESD control and safe handling practices of electronics, please refer to ANSI/ESD S20.20-1999 or contact the Electrostatic Discharge Association (www.esda.org).

Accessing the Device

By default, users do not have to log in to view video. If you want to prevent users from viewing video without logging in, you must change the permissions for public users.

The recommended browsers for your device are Mozilla® Firefox®, Google Chrome, or Microsoft Edge for Microsoft® Windows® operating systems and Firefox for Mac® operating systems.

1. Open a web browser.

NOTE: When opening the browser, you may see "This Camera is Not Secure" message. If you know the user information, then create a user to secure your camera. Otherwise, you can click **No Thanks** and establish user accounts at a later date.

2. Type the camera's IP address or host name in your browser's address bar and then click **Enter**.

NOTE: You can obtain your camera's IP address or access the camera using VXToolbox software.

3. Click **Log In** (if a user name and password exist, a log in dialog box appears).

Accessing Camera Settings

Access to camera settings is determined by user permissions. If you do not have access to camera settings, the settings symbol ⚙ will not appear in the top-center of the **Live View** window.

1. Click ⚙

2. Select the setting you want to change. Place your mouse pointer over any tab on the page to reveal submenus.

Device Configuration Sequence

Once the device is installed and power is applied, the device undergoes a configuration sequence, taking approximately 30 seconds to complete. The device will come online once the configuration sequence is complete.

NOTE: If the device is connected to a network without a DHCP server and DHCP is enabled, the configuration sequence can take up to two minutes to complete.

Live View

The **Live View** window provides access to video streams, viewing, and PTZ controls. By default, the camera does not have any pre-configured users, and anyone can access **Live View**. When a user is added to the system, that user must log in before accessing the **Live View**. After logging in, the user will have access to the **Live View** from that point forward.

Live View Controls

Video Stream Controls
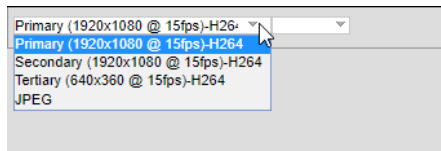
1. Use the pulldown menu to select a **Primary, Secondary, Tertiary,** or **JPEG** video stream.

NOTE: If the Secondary or Tertiary streams have not been configured, they will not be available for selection. Streams must be configured to use the H264 compression standard. Streams with any other compression standard will not be available for selection. Video streams can be configured under the **A/V Streams** menu.

Patterns, Scans, Presets, and Preset Tour Controls
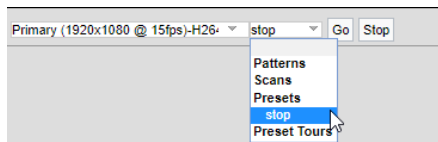
1. Click the preset name from the **Patterns, Scans, Presets,** or **Preset Tours** list.

NOTE: Only preconfigured patterns are available for selection. Go to the **PTZ** menu to configure patterns, scans, presets, and tours.

2. Click **Go** to run the pattern.

3. Click **Stop** to discontinue the motion.

Focus, Zoom, and Brightness Controls

From left to right, the icons represent:

- **Zoom Out:** Click and hold to zoom out.

- **Zoom In:** Click and hold to zoom in**.**

NOTE: You can also use the mouse scroll wheel to zoom in and out.

- **Focus Far:** Click and hold to focus on an object far away from the camera.

- **Focus Near:** Click and hold to focus on an object near the camera.

- **Decrease Brightness:** Click and hold to close the iris and darken the image.

- **Increase Brightness:** Click and hold to open the iris and brighten the image**.**

Viewing, Pan/Tilt, Streaming, and Snapshot Controls

NOTE: PTZ controls are available only after you have logged in to the camera.

From left to right, the icons represent:

- **Resize Viewing Area:** Allows you to zoom in on an area of interest. Click the icon and then draw a box to designate the area in which you want to center the camera's field of view and zoom in.

- **Center Viewing Area**: Engages click-to-center functionality. Click the icon and then click the location in which you want to center the camera's field of view.

- **Pan and Tilt**: Engages pan and tilt functions. Click the icon, and then click and drag the mouse within the video stream to pan and tilt the camera.

- **Open Stream in New Window**: Opens the video stream in an independent window.

- **Take a Snapshot**: Captures a still image from the video stream and saves as a JPEG file.

System Menu

The **System** menu provides access to the **General Settings, Backup and Restore, Firmware, OSDi, Snapshot Viewer, Storage Management,** and **Diagnostics** pages.

General Settings

1. **Device Name**: Configure the name for your device. Names can contain up to 63 alphanumeric characters. At least one character in the host name must be a letter.

2. **Enable LEDs:** Enable or turn off LED camera lights.

3. **Power Priority**: Select a priority power supply as either **24v** or **Power over Ethernet (PoE)**.

4. Click **Save**.

Time Settings

You can set your camera to discover a network time server (NTP) automatically, obtain the address of your NTP by manual entry, or determine time based on the camera's internal clock.

1. Select your **Time Serve**r setting as one of the following:

   - **Auto**: Allows your camera to discover and synchronize with your network time server (over IPv4 or IPv6).

   - **Manual**: Requires you to provide the address of your network time server.

   - **None**: When **None** is selected, the camera date format will default to mm/dd/1970.

2. Select your **Time Zone.**

3. Click **Save**.

GPS Settings

Use the **GPS Settings** option to establish the camera's GPS location.

1. Manually enter the **Latitude, Longitude,** and **Elevation** of the camera.

2. Click **Save.**

Generate System Log

If technical difficulties should occur, a **System Log** might help **Pelco Product Support** troubleshoot problems with your camera. You can contact **Pelco Product Support** at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international).

1. Click **Generate System Log**.

2. Select the location in which to save the log file and Click **Save**.

Reboot Camera

If you are recording video from your camera, rebooting the camera will cause a gap in video recording. It is important that you schedule maintenance before restarting the camera.

1. Click **Reboot Camera**.

Restore All Camera Defaults

If necessary, you can reset your camera's settings to their factory defaults.

1. Click **Restore All Camera Defaults** and choose one of two options:

   - **Soft Restore:** This will reset the camera back to factory defaults with the exception of network settings. All user settings and customizations will be lost and cannot be recovered.

   - **Hard Restore:** This will reset the camera back to factory defaults. All user settings and customizations and network settings will be lost and cannot be recovered.

Backup and Restore

Go to the **System** page and click the **Backup and Restore** tab.

If you accidentally change a setting or need to recover from a factory reset, you can back up and restore your device configuration. Camera backup files are stored in bin format.

NOTE: The restore feature is not intended to automatically configure multiple devices or to recover settings following a firmware upgrade.

Backup

1. Click **Generate Backup File**.

2. Click **Download Now** and specify the directory in which to save your backup file.

3. Click **OK** to save the backup file.

Restore

1. Click **Browse** to select a file and click **OK**.

2. Click **Choose File** and locate your device's backup file.

3. Click **"Upload and Restore"** to restart the camera and restore your camera settings.

Firmware

System Information

The information settings page includes read-only fields for the **Firmware Version**, **Hardware Version**, **Model Numbe**r, and **Serial Number** of the camera. This information is typically required by **Pelco Product Support** for troubleshooting purposes.

Firmware Update

To update the firmware:

1. Click **Browse** to select the firmware you would like to update.

2. Click **Upload**.

OSDi

The **OSDi** (Intelligent On Screen Display) allows the camera to show pertinent information as an overlay within the field of view. You can define up to four overlay rules for OSDi display.

If using the **Current Zone Label** overlay and multiple zones are in the field of view, the camera will display the labels in order of size from small to large. If all zones in the field of view are the same size, the camera will display zone labels in order of creation from old to new.

The camera will display the label in the active zone until the camera's field of view moves outside the zone. You can set the **Duration** of the display as **Indefinite** or, alternatively, you can define a number of seconds for the **Current Zone Label** to be displayed.

OSDi Overlays

1. Hover in the viewing window to display **Upper Left, Upper Center, Upper Right, Middle Left, Middle Center, Middle Right, Lower Left, Lower Center, Lower Right** buttons. Click the button representing the location in which you want to display the overlay.

2. Use the **Overlay Type** pull-down menu to choose between the following overlay types:

- **Plain Text:** Enter a plain text string of your choice.

- **Camera Name:** Display the camera's name.

- **Camera Name/Date/Time:** Display the camera's name, date, and time.

- **Date/Time:** Display the camera's date and time.

- **Date:** Display the camera's date.

- **Time:** Display the camera's time.

- **Event Source:** Display an event source on the overlay using a pre-defined **Event Source** and associated **Handler**. Under the **Steps to Enable Overlay** section, click the **Manage Handlers** or **Manage Sources** link. This will take you to the **Handlers** and **Sources** page under the **Events tab** in which you can establish or change the settings for **Event Source**.

- **PTZ Position:** Display the current **PTZ Position** in the format of **Pan°/Tilt° ZoomX Direction**. You can set the **Duration** of the display as **Indefinite** or, alternatively, you can define a number of seconds for the **PTZ Position** to be displayed on the overlay after movement stops.

- **Acquired PTZ Preset:** Display the name of a **PTZ Preset** as defined in the **PTZ Preset Settings.** This will only display as long as the preset is acquired by the camera. You can set the **Duration** of the display as **Indefinite** or, alternatively, you can define a number of seconds for the **PTZ Preset Name** to be displayed after the **Preset** is acquired.

- **Current Zone Label:** Display the label of the current zone. If a **Current Zone Label** has not been defined, click the **Manage Zones** link to go to the **PTZ Zones** tab where you can establish or create new zones. Under the **Duration** section, you can select the option to display the current zone label indefinitely or establish a specific length of time (in seconds) for which to display the current zone label.

- **Image:** Select an **Image File** to display by clicking **Choose File** and traversing to the local directory in which your image file is stored.

3. Click **Save**.

Snapshot Viewer

The **Snapshot Viewer** displays a list of snapshots when a **"Write JPEG to SD Card"** handler is activated. Video is saved to the SD card when a **Write Recording to SD Card** handler is activated. The saved video segments can be downloaded from the **Snapshot Viewer** page.

NOTE: Snapshot Viewer is not available when recording video to local storage. An SD card must be inserted and configured under **Event Handlers**.

1. Select the viewing option by choosing from **Select Visible, Deselect Visible, Select All, Deselect All, Delete Selected, Download Selected,** or **Refresh List**.

2. Use the **Search** box to find the snapshot of your choice on the SD card.

3. Click the **Show** drop-down to select the number of files to show per page. The default setting is 15, however up to 100 snapshots can be displayed. Maneuver through the snapshots or pages using the arrow buttons (**<, <<, >, >>**).

Storage Management

Device Information

Device Information provides information for the SD card. The following information will be displayed when an SD Card is properly installed:

- **Device Type**: SD Card

- **Free Space:** Expressed in MB

- **Total Size:** Expressed in MB

- **Status:** Ready to begin recording

NOTE: If there is no SD card in the camera or it was not properly installed, the **Status** will display **"There is no media in the SD card".**

Settings and Actions

Settings and Actions include:

- **Device Format:** Displays the SD card format with the option to reformat the device.

- **SD Allocation:** Establish how much storage to allocate between **Edge** and **Clip** storage.

Local Recording

The number of hours of video you can store on the SD card is established with **recording bit limits**. A bit rate limit below 1.5 Mbps allows a maximum of 48 hours of video at 30 fps regardless of resolution. You can increase the maximum available hours of storage by decreasing the frame rate.

1. **Recording State**: Check that the recording state is **"Ready"**.

2. **Record Metadata**: Check this box if you want metadata included.

3. Click **REC**.

NOTE: The numbers listed above do not include audio. With audio enabled, the number of hours you can record decreases. The impact is minimal above bit rates of 2.25 Mbps. At bit rates below 2.25 Mbps, the number of hours you can record may drop by approximately 40 percent.

Export Recording

1. Enter the **Start Date** and **Start Time** as well as the **End Date** and **End Time** manually into the **Date/Time** fields or use the calendar icons to set dates and times.

2. A menu will show the range of recordings available for export based on your specified dates and times.

3. Click **Export.**

NOTE: Exports are limited to 15-minute clips.

Diagnostics

Go to the **Client Connections, Temperature,** and **Power** diagnostic under the **System** page and **Diagnostics** tab.

Client Connections

Client Connections displays the number of active streams by **Client Address**, **Stream type**, and **Duration**.

Temperature

The **Temperature** setting displays the current processor temperature along with a graphical display of the **Maximum, Minimum,** and **Average Processor Temperature (C°)** for the current session and historical sessions.

Power

The current **Input Voltage** and **Power Usage** statistics are displayed within the **Power** section of the **Diagnostics** display. **Maximum, Minimum,** and **Average Input Voltage (mV)** and **Power Usage (mW)** statistics are graphically displayed for the current session and historical sessions.

Network & Security Menu

The **Network & Security** menu provides access for configuring **Network** settings, **Users & Security**, **TLS**, **Traffic Shaping**, **802.1x**, **SNMP**, and **Firewall**. You have the option of changing ports and adding firewall rules. By default, your device receives an address over DHCP, and all other network features are disabled.

Network

Network Hostname

Configure a **Network Hostname** for your device containing up to 63 alphanumeric characters. At least one character in the host name must be a letter.

Port Settings

Port Settings establish the ports over which users communicate with the device.

- **HTTP**: Pelco's **VideoXpert™** supports HTTP and HTTPS on any port. The default HTTP port is 80.

- **NOTE**: Do not change the HTTP port when connecting to a legacy Pelco video management system, as this may prevent you from viewing or recording video from your imaging device.

- **HTTPS**: Set **TLS** to **Optional** or **Required** and install a security certificate before altering the HTTPS port. The default HTTPS port is 443.

- **RTSP**: Spectra Enhanced 7 devices communicate with video management systems over **RTSP** and must use the default port of 554.

Network Interface

IPv4 Settings

By default, cameras are configured to obtain network settings over DHCP. If a DHCP server is not available, the camera defaults to an address of 192.168.0.20 on a 255.255.255 subnet. If 192.168.0.20 is already in use on the network, the camera will increment the address by one until it finds an unused address. Set DHCP to **Off** to configure a static address and manually set the subnet mask, gateway, and DNS Server settings.

IPv6 Settings

Your camera supports IPv6 configurations in conjunction with IPv4. The device does not support IPv6-only network deployments. The camera will accept up to sixteen IPv6 addresses, three IPv6 DNS servers, and three IPv6 gateways.

There are two configuration modes for IPv6 address assignment:

- **Auto**: Enables automatic configuration using router advertisement. Additional configuration can be provided over DHCPv6 (if available on your network). Auto allows you to manually configure additional address, DNS servers, and gateways.

- **Manual Only:** Provides a link-local address for the device and requires you to manually configure all other IPv6 address settings for the camera. Manually specified addresses require a prefix and must be input in the format prefix/IPv6Address. The camera will reject addresses that do not contain prefix information.

Cameras do not accept multicast, localhost, or undefined IPv6 addresses. Manually specified DNS servers are not validated by the camera and supersede automatically discovered DNS servers. Verify your DNS addresses before saving IPv6 settings. Manually specified gateways must be on the same network as the camera's IPv6 addresses. Behavior for a gateway that is not on the same network as the camera's IPv6 addresses is undefined.

NOTE: Pelco legacy video management systems do not support connections to cameras and encoders over IPv6.

Users & Security

Features under **Users & Security** allow you to manage user accounts and establish how your camera authenticates users.

User Management

Initially, the camera authentication is open for viewing and configuring without a user name and password. No user accounts exist in the default factory state. Once the **Admin** role is created and **Local Mode User Management** is enabled, your camera will authenticate local user accounts.

If you are a user with **Admin** permissions, you can configure, edit, and delete local user accounts at any time. When authenticating users locally, you will assign a role to each individual user. User permissions are governed by the role assigned to them. When authenticating users remotely, users will be assigned roles based on their CN and DN assignments.

Your camera supports the following four roles:

- **Admins:** Can access and change all camera settings. They can use all functionality of the cameras.

- **Managers:** Can access and change all settings, except user permissions. **Managers** are also unable to restore factory default settings.

- **Operators:** Can view video and have access to the **Live View** page controls.

- **Viewers**: Can view video.

1. Click **New User** or select the user whose permissions and settings you want to edit.

2. Select an **Access Level** for the user.

3. Provide a user name between 2 and 32 alphanumeric characters for the user. User names are not case-sensitive and are saved in lowercase characters.

4. Provide a password between 4 and 64 alphanumeric characters for the user. Passwords are case-sensitive.

5. Re-type your password in the appropriate box to confirm your password.

6. Click **Save**.

Security

Security options include **Open Authentication** or **Closed Authentication** access to the **Pelco API** or **RTSP/JPEG**. A user must be created before the security settings can be changed.

Pelco API

The **Pelco API** can be used for accessing your device(s). The **Open Authentication** option allows users to access a device through the **Pelco API** without authorization. Authorization for access will be required when the **Closed Authentication** option is selected.

RTSP/JPEG

Open or **Closed** authentication requirements can be set for streaming video via **RTSP** or **JPEG**.

NOTE: The **Open Authentication** setting leaves your camera open to various intrusions and is not recommended.

TLS

TLS Configuration

TLS Configuration lets you set the TLS mode to either **disabled, optional,** or **required**. You must install or generate a certificate before enabling HTTPS.

The TLS settings include **TLS configuration modes** and **certificate generation**. The camera can generate a certificate signing request (CSR) that can be sent to a certificate authority for a signature (for example, VeriSign®), or it can generate a self-signed certificate using the **Generate Self-Signed Certificate** option.

- **Disabled**: Disables HTTPS communications with the device.

- **Optional**: Requires that you install a signed TLS certificate and enables HTTPS access to the device, however the device will still be available over HTTP.

Certificate

1. Select the desired certificate install method and enter the certificate information in the provided form.

   - Click **Generate Self-signed Certificate** or **Generate Certificate Request** to open a form including all fields necessary for generating the associated certificate.

   - Click **Upload Certificate** to select and upload a certificate.

Traffic Shaping

Your camera can produce large I-frames, resulting in a traffic burst within each group of pictures as the camera transmits the frame. If your network infrastructure does not have the buffering capacity to smooth out the traffic, you may experience slow or jittery video. You may want to use this function if the framerate at your client is significantly lower than you would expect from the camera.

1. Enable **Traffic Shaping** with or without bursts, depending on your need.

2. Set the average transmission rate over a 1 ms period over Mbps when enabled without bursts or a 2 ms period in Mbps when enabled with bursts.

3. If you enabled traffic shaping with bursts, set the maximum size of bursts coming from the camera in kilobytes.

4. Click **Save**.

802.1x Security

By default, 802.1x security is off. Cameras support **EAP-MD5, EAP-TLS, EAP-TTLS,** and **EAP-PEAP** protocols.

1. Select the **(EAP)** method from the **Protocol** drop-down.

2. Provide the authentication information for the **EAP** method you selected.

3. Click **Save**.

SNMP

Your device supports **No SNMP Serve**r, **SNMP V2c** and **SNMP V3**. The MIB file for your device is available at www.pelco.com

Configuring SNMP V2c

1. Click **SNMP V2c**.

2. Provide the community string for your SNMP manager. The default community string is **"public"**.

3. Provide the **Read/Write Community String.**

4. Fill in the IP address of the host server.

5. Fill in the **Community String.**

6. Select the network protocol (NTCIP, Kapsch).

7. Click **Save**.

Configuring SNMP V3

1. Click **SNMP V3**.

2. Enter the SNMP user name the camera will use to authenticate with the SNMP server.

3. Select the encryption algorithm for authentication from the **Authentication** drop-down . If using MD5 or SHA authentication methods, enter your authentication code in the box provided.

4. Select the privacy protocol setting from the **Privacy** drop-down . If using DES or AES protocols, enter your privacy key in the box provided.

5. Enter the host name or IP address of your trap server in the **Address** box under **Trap Configuration**.

6. Select the network protocol (NTCIP, Kapsch)

7. Click **Save**.

Firewall

The text input field requires entry of a valid IP address (IPv4 or IPv6) after first choosing from one of the firewall options including:

1. Select **On, Allow,** or **Deny**.

NOTE: Incorrect configuration of these settings can result in being locked out of the camera. To prevent being locked out, establish the mode configuration:

- **Allow Mode**: Ensure workstation IP address/network does appear.

- **Deny Mode**: Ensure workstation IP address/network does not appear.

2. Enter valid IP address (IPv4 or IPv6).

3. Click **Save**.

Imaging

The Imaging menu provides **Image Enhancement, Digital Processing, Exposure, WDR, Day/Night transition, Focus, White Balance**, and **Window Blanking** capabilities.

Restoring Imaging Settings

The Imaging menu contains buttons that allow you to restore your camera's imaging settings.

- **Restore Settings to Defaults**: Reset your camera's settings to their factory defaults on the current webpage.

- **Restore All Imaging Settings:** Reset all of your camera's imaging settings to their factory defaults.

General Settings

General Settings control **Image Enhancement** and **Digital Processing** features.

Image Enhancement

Backlight Compensation

Use **Backlight Compensation** to enhance objects in the center of the picture when a bright backlight causes subjects in the picture to appear dark or silhouetted. Use **Off** for normal lighting situations.

Noise Reduction

Noise Reduction adjusts for video noise in the scene.

- **Off:** The camera does not compensate for video noise.

- **Normal:** Adjusts for noise in low-light scenes.

- **High:** Adjusts for a greater amount of noise in low-light scenes.

Defog Mode

The **Defog Mode** feature allows you to make the subject appear clearer when the surrounding area of the subject is foggy and low contrast. Choose **High, Medium, Low,** or **Off** for this mode. **Low** is used for slightly hazy conditions with a minimal amount of correction. **High** is used for foggier conditions and maximizes the amount of correction.

Digital Processing

Digital Processing settings adjust the color and detail of captured video. The availability of settings might change based on your camera model.

Quick Setup: Contains presets for digital processing settings. You can use any of the quick setup modes as a starting point for custom settings. Changing **sharpness, saturation, contrast,** or **brightness** settings automatically engages the **Custom** mode.

- **Normal**: A baseline for sharpness, saturation, contrast, and brightness. All the settings are set to default.

- **Vivid:** A setting that enhances color quality, lightens whites, and darkens blacks.

- **Custom:** Allows you to set your own, unique image quality settings.

Sharpness: Controls the clarity of detail in the scene. Increasing video sharpness increases video noise.

Saturation: Controls the intensity of colors in the scene.

Contrast: Controls the gradation between the darkest and lightest portions of the scene.

Brightness: Controls the lighting detail of the scene.

Exposure

Exposure settings help ensure that video contains an adequate level of detail and an appropriate amount of contrast between light and dark values.

Exposure

1. Select your camera's exposure **Mode**.

- **Auto:** Allows you to set maximum exposure time limits and maximum gain settings while retaining the full range of **Day/Night** controls.

- **Max Exposure Time (msec):** Establish how long the imaging sensor is exposed to light. Decreasing the maximum exposure time by reducing motion blurring. This setting is advantageous in capturing more detailed still images in low light.

- **Max Gain:** Increasing the gain allows for better sensitivity in low-light scenes but also increases video noise.

- **Manual**: Governs exposure settings based solely on **Exposure Time (msec)** and **Gain** settings. Engaging this setting prevents you from configuring an automatic **Day/Night**

mode. You should only engage this mode if lighting in the field of view is not expected to change during operation.

WDR

WDR attempts to compensate for large variances of bright and dark lighting within a scene.

1. **WDR** can be turned **Off,** set to **Normal,** or set to **High. Normal WDR** or **High WDR** is enabled based upon the maximum framerate.

2. Optional. Click the **Change Settings** link to navigate to the **A/V Streams** page where **Maximum Frame Rate** and **Aspect Ratio** settings can be established.

NOTE: Enabling **High WDR** is only recommended for scenes needing greater than 120dB dynamic range. You will see increased noise artifacts in the mid-tones at elevated temperatures.

Electronic Image Stabilization

Electronic Image Stabilization compensates for lens shake and jitter in the recorded video by smoothing the transition from one frame to another.

1. Enable **Electronic Image Stabilization** by choosing **On** or disable by choosing **Off**.

NOTE: **High WDR** and **Image Stabilization** cannot be used at the same time.

Day/Night

The **Day/Night** mode controls the IR cut filter, determining whether or not your camera captures color (day) or black and white (night) video. You can set the **Day/Night** position manually, but it is recommended that you engage the auto mode if lighting around your imaging device is expected to change drastically at any time.

1. Select the **Day/Night Mode**.

   - **Auto:** Engages day or night mode based on the **Transition Level** setting. This allows you to capture color video (**Day**) when enough light is available, and automatically switch to black and white video (**Night**) when light is unavailable.

   - **Manual:** Requires you to choose a **Day** or **Night** mode. **Day** captures color video whereas **Night** captures grayscale video.

2. (Optional) Set your camera's **Transition Level** to determine when the camera switches from **Day** to **Night** mode. The **Lighter** setting changes modes at higher lux values, while the **Darker** settings change modes at lower lux values.

3. (Optional) Set the **Transition Detect Time (sec)** to determine the frequency at which the device checks for adequate light to transition to day mode or night mode.

Focus

1. Select the **Focus mode**.

- **Auto**: Automatically back-focuses the camera on the subject in the center of the scene.

- **Manual**: Locks the camera's focus at a specified position. Manual focus is recommended only for indoor applications with a single, unchanging light source or when using analytics.

- **Sure Focus**: Causes your camera to auto focus when pan, tilt, and zoom (PTZ) operations are complete or if the IR cut filter changes state. When your camera achieves an auto focus lock, auto focus is turned off and the focal position will remain until the next PTZ operation. If 30 seconds pass without an auto focus lock, your camera will retain its focal position until the next PTZ action.

- **Focus Trace:** Enables your camera to use a focus trace curve when zooming based on the distance to ground-level targets in the scene. Distance to ground-level targets is determined by the **Install Height** setting. If **Auto Focus** is disabled, your camera will not perform auto-focus operations but will perform focus trace corrections when the tilt angle of your camera changes.

- **Min Focus Distance (m):** Default setting of 10m (meters) improves low light auto focus. Change the **Min Focus Distance (m)** to an expected minimum distance that the camera will need to focus on.

White Balance

Each **Sensor** has its own white balance settings. **Auto mode** is the default setting for each sensor. Selecting **Manual mode** allows you to adjust **White Balance** settings for the sensor.

1. Select a **White Balance** mode:

- **Auto:** The recommended setting for most lighting conditions. It has a color temperature range from 7,500K to 2,500K. It can be used to properly adjust white balance scenes illuminated by daylight to warm white sources.

- **Auto Tracking White**: Has the largest color temperature range.

- **Cool White**: A fixed white balance mode for cooler (bluer) sources such as true daylight, daylight fluorescent, white light LEDs, or metal halide sources.

- **Warm White**: A fixed white balance mode for warmer (more yellow) sources such as incandescent, tungsten-halogen, warm white compact florescent, or LED lighting.

- **Manual:** Allows manual adjustment of the red and blue range. This may be helpful in areas where lighting does not change, such as inside a casino or mall. Move the **Red** and **Blue** sliders to change color levels.

Window Blanking

Window Blanking is used to conceal user-defined privacy areas. A blanked area appears on the screen as a solid gray window. The camera can handle up to eight blanked windows as long as the total blanked area does not exceed 50 percent of the field of view.

NOTE: Window-blanking regions will not scale proportionally with changes in zoom. Set the zoom level for the camera before defining window-blanking regions.

Window Blanking

1. To enable **Window Blanking**, click **On**.

   NOTE: If you receive a **Calibration Incomplete** message, perform the following:

   - Click **Calibration**.

   - Click to center on an object to be covered and click **OK**.

   - Use your cursor to draw the region to be blanked and click **OK**.

   - Redraw the same region to be blanked and click **OK**.

   - You should now see the **Calibration Completed** message.

   - Click **Done**.

2. If necessary, maneuver the video preview to find the region you want to blank.

3. Drag the mouse across the video area that you want to blank. Select an existing blanking region to delete or edit its size and position. You have the option of drawing up to eight window blanking levels. Each window will be designated with a unique color.

Edit Window

The **Edit Window** displays each blanking window you have set.

1. Select a window in the **Edit Window** or in the **Preview Display** to move or resize the blanking window.

PTZ Menu

The **PTZ Menu** provides configuration options for **Positioning, Presets, Preset Tours, Patterns, Scans, PTZ Zones,** and **Pelco Camera Link.**

Positioning

Digital Zoom

1. Enable **Digital Zoom** by clicking **On.** Click **Off** to enable optical zoom.

Freeze Frame

Freeze Frame is a technique that stops the moving image of the film and holds it motionless on screen.

1. Click **On** to enable the **Freeze Frame** control.

Pan/Tilt Speed Control

1. Select the **Pan/Tilt Speed Control** type:

   - **A: Linear:** Pan and tilt speeds accelerate at a fixed rate.

   - **B: Exponential:** Pan and tilt speeds accelerate at a rate corresponding to the length of time for which a user engages pan and tilt controls. The longer a user engages pan and tilt controls, the faster the camera will pan and tilt.

   - **Proportional Velocity:** Automatically reduces pan and tilt speeds proportional to the camera's zoom level.

   - **Auto Flip:** Allows the dome to rotate 180 degrees when the tilt is pointing straight down (e.g. –90 degrees tilt angle).

   - **PTZ Resume:** Allows the dome to recover the last PTZ action requested before the camera loses power. The camera will resume the previous action upon start-up.

   - **Max Zoom Speed**: The numeric values that can be selected using the slider bar represents a percentage of the maximum zoom speed. Values range from 10 to 100. For example, setting the slider to 50 for 50% tells the camera to zoom at half the speed.

Pan Center Point (Azimuth Zero)

The **Pan Center Point** determines the zero point for pan operations. Setting a new center point automatically adjusts **Pan Limit Stop** settings to account for the new center point.

1. To determine the current center point, click **Go To Pan Center Point**.

2. To establish a new pattern center point, use the cursor or joystick to pan to the new center point location and click **Set New Pattern Center Point.**

3. Click **Restore Default Center Point** to restore the camera's default center position.

Limit Stops

Limit Stops allow you to limit the range of motion for your camera. Pan and tilt limit values are provided in degrees.

1. Click **Start Configuring Limits**.

    NOTE: During configuration, limits are disabled on the camera. You must complete the configuration process before limits will be enabled.

2. Configure the left and right pan limits and the top and bottom tilt limits. You can provide a value, in degrees, for each limit, or click **Get Current Pan/Tilt** to retrieve the current value from the video preview window.

3. Click **Save Limits**.

4. To remove all limits on the camera and restore default values, click **Remove Limits**.

Presets

A preset is a camera position that you can configure and call as a single command, allowing users to quickly move the camera to common positions. To establish a new preset:

1. Click **New** in the **Presets** window or select the preset you want to edit.

2. Enter a preset name in the **New** field when creating a new preset.

3. Select the **Focus Lock** mode:

    * **On**: The camera's focus settings are saved with the preset and are called with the preset. This ensures that the camera uses the expected focal point any time the preset is selected.

    * **Off**: The preset does not retain focus settings. This mode requires the camera to use current focus setting when the preset is selected.

If an operator has changed the focus of the camera before the preset is selected, it is possible that the camera will be out of focus when the camera displays the preset position later. Turn on **Focus Lock** to avoid this problem.

4. Position the camera using the pan and tilt controls.

5. Adjust the zoom and focus controls as necessary.

6. Click **Save**.

Preset Tours

You must configure presets before adding them to a preset tour. A **Preset Tour** is a series of presets through which your camera will cycle. You can configure the length of time for which the camera will remain at each preset position in the tour.

PTZ Tours

Existing tours will be listed in the **PTZ Tours** window with the options to **Run, Delete,** or create a **New tour.**

1. Click the **New** button or select the preset tour you want to edit.

2. Enter a preset name in the **Tour Name** field when creating a new PTZ tour.

3. Click and drag presets to the **"Tour workspace"** section of the page.

4. Set the dwell time for each preset to establish the length of time (in minutes or seconds) the camera will remain at a preset position before engaging the next preset in the tour.

5. Set the transition speed for each preset tour.

6. Click **>>** to the right of the **"Transition preview"** to review the tour.

7. Click **Save**.

Patterns

A pattern uses the path of motion recorded by the operator during configuration of the pattern. This is different from a **Preset Tour** in that a preset tour begins at one spot and ends at another, using the most direct path between them.

PTZ Patterns

1. To create a new PTZ pattern:

- Click **New**.

- In the **Create New Pattern** panel, type in a name for the pattern.

- Click Create Pattern and Start Recording.

- (Optional) Add a **Scan**, a **Preset,** or a **Preset Tour** as part of the pattern.

- Click **Run** to run the pattern and **Stop** to end the process.

2. To run an existing PTZ pattern:

- Select the name of the existing pattern from the list in the **PTZ Patterns** area.

- Click **Run** to start the pattern.

- Click **Stop** to stop the pattern.

- (Optional) Click **Re-record** to record over the current configuration and then click **OK**.

3. To rename an existing pattern:

- Select the name of the existing pattern from the list in the **PTZ Patterns** area.

- Type the new name into the **Name** field in the **Rename Pattern** panel.

- Click **Save**.

4. To delete an existing pattern:

- Select the name of the existing pattern from the list in the **PTZ Patterns** area.

- Click **Delete**.

- Click **OK** in the confirmation dialog box.

Scans

A **Scan** is a pan movement between two limits at a defined speed and a defined dwell time at each frame.

- A **Scan** configured with limits will change direction when a limit is reached. When configured without limits, or the limits are set to the same point, the scan will pan 360 degrees until interrupted by a manual movement or a stop.

- A scan can be started at any tilt angle and will maintain that tilt angle throughout the pan scan.

1. To create a new PTZ scan:

- Click **New**.

- In the **New Scan** area of the window, type in a name for the scan.

- (Optional) Type in a value for the **Left Pan Limit**, and then click **Save as Left Pan Limit**.

- (Optional) Type in a value for the **Right Pan Limit**, and then click **Save as Right Pan Limit**.

- Type in a **Speed** expressed in **Degrees/Seconds**.

- Type in a **Dwell Time** expressed in **Seconds**.

- Click **Save**.

- Select the newly created scan from the PTZ Scans area.

- Click **Run** to start the scan.

- Click **Stop** to end the scan.

2. To edit a scan

- Select the name of the existing scan from the list in the **PTZ Scans** area.

- Use the **Scan Name** field to enter the name of the scan you wish to edit.

- (Optional) Type in a value for the **Left Pan Limit**, and then click **Save as Left Pan Limit**.

- (Optional) Type in a value for the **Right Pan Limit**, and then click **Save as Right Pan Limit**.

- Type in a **Speed** expressed in **Degrees/Seconds**.

- Type in a **Dwell Time** expressed in **Seconds**.

- Click **Save**.

NOTE: Scan limits are optional. **Scan** limits will be disabled if the **Left** and **Right Pan** limits are set to the same value.

3. To run an existing PTZ scan:

- Select the name of the existing scan from the list in the **PTZ Scans** area.

- Click **Run** to run the existing scan.

- Click **Stop** to stop the existing scan.

- Click **Delete,** if you wish to delete an existing scan.

PTZ Zones

When the camera is in view of a zone, the zone name will appear as an **Intelligent On Screen Display (OSDi).** Click **Manage OSDi Settings** to configure the **Current Zone Label** on the **OSDi** page and enable this feature.

1. To create a new **PTZ Zone**:

   - Click New Zone.

   - Type a new **Zone Name** within the **New Zone** section.

   - Use the **pan, tilt,** and **zoom** controls to select the **Zone Position**.

   - Click **Save**.

2. To edit an existing zone:

   - Select the zone from the **PTZ Zones** area.

   - Make the desired edits in the **Edit Zone** area.

   - Click **Save**.

3. To delete an existing zone:

   - Select the zone from the **PTZ Zones** area.

   - Click **Delete Zone**.

Pelco Camera Link

The **Pelco Camera Link** automatically tracks objects of interest. You can link Pelco's **Optera™** and a nearby, mounted Spectra Enhanced camera. **Optera™** provides seamless panoramic coverage for total situational awareness while the Spectra Enhanced with 30x optical zoom provides detail and automatic object tracking.

When **Auto tracking** is enabled, **Pelco Camera Link** acts as an automatic PTZ operator. **Pelco Camera Link** uses the analytic information from **Optera™** to enable point and zoom so the camera will follow moving objects in the scene.

Setup

1. Establish a connection with **Optera™** by specifying the address and credentials of the Optera system. Enter the **IP Address, Username**, and **Password**.

2. Alternatively, you can click the **Advanced** button to specify the **IP Address, Username, Password, SSL/TLS,** and **HTTP Port parameters.**

3. Click **Connect** to link the camera with the **Optera™** system.

4. Click **Disconnect** to disconnect the link between the camera and the **Optera™** system.

5. Configure the **Optera™ Analytics** by clicking **Go to Optera Analytics™ Page**. Once you are at the **Pelco Camera Link** configuration page, you can establish a connection by activating and enabling '**2-Camera Tracking**' as an **Optera™ Analytic profile**, and then return to this page and refresh.

6. Calibrate the connected cameras by clicking the **Calibrate** button. Doing so will calibrate the connected cameras so that they know where they are relative to one another.

A/V Streams Menu

A/V Streams provides access to **Preset Configurations**, **Video Configurations**, **Audio Configurations**, **RTP Settings**, and **Smart Compression** settings for your device's video and audio streams.

Video Presets

Video Presets are fully-configured video configurations that offer a good balance of video performance to bandwidth. These presets may also be used as a starting point for a custom configuration. Video preset configurations may vary depending on the camera model.

Preset Configuration

Current Configuration (custom): This box displays user specified (custom settings) for primary, secondary, and tertiary streams. Alternatively, select your desired **Preset Configurations** of **High**, **Medium**, or **Low** and click **Save**.

NOTE: Details for **Preset Configuration** are displayed in the user interface next to the desired profile.

Preset Configurations include:

- **High:** Primary Stream H264, 30 IPS, 1920x1080, 6000 kbps | Secondary Stream H264, 30 IPS, 1920x1080, 6000 kbps | Tertiary Stream H264, 30 IPS, 640x360, 1250 kbps

- **Medium:** Primary Stream H264, 15 IPS, 1920x1080, 3850 kbps | Secondary Stream H264, 15 IPS, 1920x1080, 3850 kbps | Tertiary Stream H264, 15 IPS, 640x360, 900 kbps

- **Low:** Primary Stream H264, 15 IPS, 1280x720, 2400 kbps | Secondary Stream H264, 10 IPS, 1280x720, 2050 kbps | Tertiary Stream H264, 10 IPS, 640x360, 600 kbps

Video Configuration

Custom Video Stream Configuration

Custom Video Stream Configuration contains settings for customizing your camera's primary, secondary, and tertiary video streams. Each stream can be configured independently, although the **Aspect Ratio** and **Maximum Frame Rate** settings will limit the options available for the remaining setting and depending on the processing demands of your stream settings.

By default, all fields under **Video Configuration** are populated with settings from your **Video Presets**. You can clear all fields or use the default settings as a starting point for your custom stream.

1. Set the **Maximum Frame Rate** and **Aspect Ratio** settings.

   • **Maximum Frame Rate:** The maximum number of video frames contained per second. Higher values result in higher quality video with less flicker but consume more bandwidth.

   • **Aspect Ratio:** The ratio of height to width of the video frame.

2. Configure the following video stream settings:

   • **Stream Name: T**his setting is typically **Primary, Secondary,** or **Tertiary**, however you can enter any stream name of your choosing.

   • **Enable:** This setting provides the ability to turn any stream **ON** or **OFF**. Select **Enable** from the drop down menu to turn the stream on or **Disable** to turn it off.

   • **Compression Standards:** Available compression standards include MJPEG, H.264, and H.265.

   • **H264**: Compression standard used in high-definition video players such as Blu-ray™ and HD-DVD. H.264 is the most processor-intensive compression.

   • **H.265**: An improvement of H.264 that provides better compression efficiency while improving image quality and lowering processor workload.

   • **MJPEG**: Provides the least impact on the camera's processor, but it requires the most bandwidth.

   • **Resolution:** The quality of the video stream, rendered in pixels for both width and height. Higher values result in greater video quality but consume more bandwidth.

   • **Image Rate:** The number of frames per second (fps) available for the video stream configuration. Available image rates depend upon the model of the device that you are using.

   • **Bit Rate:** The quality of the video stream, rendered in kilobits per second. Higher values result in greater video quality but consume more bandwidth.

   • **I-Frame Interval**: Determines the number of partial frames that occur between intra-coded frames (I-frames) in your video stream. I-frames are complete images, used as a reference for change. Following an I-frame, the camera will capture and encode only video data in the scene differing from the I-frame until the next I-frame.

NOTE: The **I-Frame Interval** setting is only available for H.264 and H.265 video streams. Increasing the I-frame interval can improve video compression rates and reduce the size of video data; however, higher values are recommended only for highly-reliable networks.

- **Profile**: Defines the subset of bit stream features in an H.264 or H.265 stream, which includes color reproduction and additional video compression. It is important to select a profile that is compatible with your recording device(s) in order to ensure that your camera's video stream can be decoded and viewed.

- **Main**: An intermediate profile with a moderate compression ratio. This profile is compatible with most recorders and uses fewer bits to compress video than the baseline profile. The main profile supports I-frames, P-frames, and B-frames.

- **High**: A complex profile with a high compression ratio. This is the primary profile for high-definition television applications. The high profile supports I-frames, P-frames, and B-frames.

- **QoS (DSCP) Codepoint**: A mechanism for prioritizing network traffic. This setting is available with H.264 and H.265 compression standards. Your network must be QoS-aware to take advantage of this setting.

- **Endura Signing:** Endura signing is a technology designed to prevent the tampering of video and ensure video authenticity for use in legal proceedings. Only exported video is validated in the Pelco export player when the user clicks on the **"Authenticate"** button. **Live View** is not validated. This setting is available only with H.264 and MJPEG compression standards.

- **Rate Control:** Determines the bit rate and quality of each frame in the H.264 or H.265 video stream. Rate control settings are a compromise between image quality and the resources required for video storage. The availability of rate control settings depends upon the model of the camera that you are using.

- **CBR:** The constant bit rate (CBR) streams video at a fixed number of bits per second. **CBR** uses the full capacity of the bit rate setting for scenes with or without motion. Video is always streamed at the user bit rate setting.

- **CVBR**: The constrained variable bit rate (CVBR) provides high-quality video and long recording time of variable bit rate while limiting variations in recording capacity consumption.

  NOTE: When you change video stream configuration settings, the camera automatically adjusts the bit rate. Choosing a bit rate below the camera's automatic setting might reduce video quality and limit stream configuration options.

Audio Configuration

You can only enable audio through the primary video stream. By default, **Audio** is disabled.

NOTE: Audio and video might not be synchronized when viewing the primary stream through a browser. You might experience up to a 3-second delay in video when viewing the primary stream with audio enabled.

1. Enable **Audio**

2. Select your audio device.

   - **Native Line In**: This setting applies only to products with built-in audio support and enables audio from a microphone connected to the audio-in connector.

3. Select your **sample rate** which is the quality of the audio stream (measured in hertz per second).

4. Choose **PCMU, PCMA,** or **PCM16 Encoding** type.

5. Set the **Input Level**. Input sensitivity is measured on a scale from 0 to 100 (low to high).

6. Click **Save**.

RTP Settings

Multicast

Multicast: A multicast stream sends video data to multiple users from the same transmission. Each multicast user connecting to the camera consumes no additional processing power.

You can set static multicast addresses and ports for your camera's primary, secondary, tertiary, or audio streams. Automatically-assigned multicast addresses are confined to the 239.x.x.x block in a scheme matching your IP address and network settings by default. You can determine the automatically-assigned multicast address(es) for your camera from the RTP .

1. Enter static multicast addresses and ports for your streams as necessary.

2. Set the **Time to Live (TTL)** for each stream. **TTL** is the number of routers the stream can pass through before it expires.

3. Choose **Always Multicast** this stream if you want to eliminate the need for a client to connect to the camera to initiate a stream. When enabled, the camera begins sending the multicast stream when it starts up, without requiring initiation from a client.

4. Click **Save**.

TCP/IP

You can adjust the maximum transfer unit size to adjust to your network's constraints.

1. Set the **Max Transfer Unit** (MTU) size.

2. Click **Save**.

NOTE: The camera will automatically reboot after clicking **Save**.

Smart Compression

Pelco Smart Compression Technology lowers bandwidth and storage requirements while retaining image quality and critical information for forensic purposes. Benefits include reduced storage capacity requirements, high resolution, and upgradable firmware to protect your investment without sacrificing quality down the road.

To work correctly, gathering bitrate statistics requires the date and time to be set correctly. If you have not set your time zone, you will receive an **"Inaccurate Date and Time"** message. Date and time can be set in **General Settings**.

Prior to establishing settings for **Pelco Smart Compression**, use **A/V Streams** to configure the video and audio streams for the camera.

Configuring Smart Compression

Settings and Short Term-Graph

1. Select **Settings and Short-Term Graph.**

2. Select your **Smart Compression Level**:

    - **Off:** No bitrate reduction.

    - **Low**: No visible effect on video quality in most scenes.

    - **Medium**: Visible effect on video quality in some scenes.

    - **High**: Video quality degraded in many scenes.

3. (Optional) **Enable Dynamic GoP Length**. If you want to place an upper limit on the **Dynamic GoP length**, set the **Optimal Maximum GoP Length** for each stream.

NOTE: The option to establish the **Dynamic GoP Length** is enabled when compression levels are set to **Low, Medium,** or **High**.

4. (Optional) Set the **Optional Maximum GoP Length** for your streams if you want to establish the upper limit of the **Dynamic GoP** setting.

Dynamic GOP Length: By enabling a **dynamic Group of Pictures (GOP)**, the number of I-frames are automatically reduced in scenes with minimal motion. Based on the complexity of scenes and the amount of motion occurring, such as in a storage room that has limited activity, up to 70% bandwidth savings can be achieved.

The option to establish the **Dynamic GOP Length** is enabled when compression levels are set to **Low, Medium,** or **High**. Dynamic GOP allows the camera to update picture groups depending on scene composition and motion. A dynamic GoP can further reduce bit rates produced by the camera by allowing the camera to increase the GOP length when there is little action in the scene.

For each video stream, you can enable Dynamic GOP Length as well as establish an Optional Maximum GOP Length. GOP length will change dynamically based on variable conditions that your camera may be monitoring.

Configuring Long-Term Rate Control

Set **Long-Term Rate Control** to ensure storage does not exceed a specific size.

1. Run the camera for multiple days which should represent the number of times the length of the observation period will be used.

2. Select **Long-Term Rate Control.**

3. Select the **Video Stream** to which you will apply the settings.

4. Select the **Bitrate Units**: either **total kbps** or **Gbytes/day.**

5. In the **Long-Term Rate Controls** area:

   • Click **Enabled** to enable the **Controls**.

NOTE: You can **Disable** the **Controls** at any time.

   • Use the slider bar to select the **Average Bitrate Limit**, type in a value, or click **Copy to Slider.**

   • Use the slider bar to select the Observation Period in Days, or type in a value.

6. Click **Save.**

7. To view the **Long-Term Graph** for either stream:

   • Select either the **Primary** or **Secondary Video Stream**.

- Select the **Bitrate Units** in **kbps** or **Gbytes/day**.

- In the **Long-Term Graph** data viewer, click **Update**. The graph helps you understand how much storage the camera will use.

- (Optional) **Delete Long-Term Data** for **Secondary** or **Primary**.

Events

Events provides access to camera event and analytic settings and include **Source, Handlers, Analytic Configuration,** and **Event Stream**. An event is a user-defined occurrence, consisting of a **Source** and a **Handler**. A **Source** defines the trigger for an event, and a **Handler** defines the action your camera will take when the event source occurs.

When configuring a **Source**, you can link the source to multiple handlers, thus providing multiple outcomes for the event. When configuring a **Handler**, you can link the handler to multiple sources, providing a single outcome for multiple events.

Analytics are specialized event sources that are triggered by the user-defined behaviors or scenarios occurring within your imaging device's field of view. **Analytics** are compatible with **VideoXpert®** or third-party systems that support events using **ONVIF** or **Pelco's API**.

NOTE: The analytic behaviors available for your camera are dependent on your model and firmware version.

Sources

An event source defines the trigger for an event, something that must occur before your camera takes action (defined by a handler). You can configure **Alarm**, **Analytics**, **Timer**, **System**, **Park Action**, and **Network Loss** events.

Configuring an Alarm Event Source

Alarm Event Source triggers an event upon a signal from external signaling devices such as a door contact or a motion detector.

1. Click **New Source** or select the source you want to edit.

2. Provide a name, between 2 and 23 alphanumeric characters for the event source in the **Name** box.

3. Select **Alarm** from the **Type** drop-down. This alarm will be triggered when an event occurs.

4. Set the dwell time for the alarm between 1 and 25 seconds. Dwell time is the amount of time that the source will remain active during an alarm event.

5. Select the polarity of your alarm input (normally open or closed).

6. Select either **True** or **False** from the Supervised drop-down .

7. Click the **Handler** that determines what action occurs in response to the alarm event.

8. Click **Save**.

Configuring an Analytic Event Source

Analytic Event Source triggers an event when a behavior defined by a video analytic occurs.

1. Check **New Source** or select an existing source you want to edit.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **Analytics** from the **Type** drop-down menu.

4. (Optional) If available, select the handler(s) that you want to associate with this source.

5. Click **Save**.

Configuring a Timer Event Source

Timer Event Source triggers an event at specified intervals of time.

1. Click **New Source** or select the source you want to edit.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **Timer** from the **Type** drop-down.

4. Configure the frequency of the event.

5. (Optional) If available, select the handler(s) that you want to associate with this source.

6. Click **Save**.

Configuring a System Event Source

System Event Source triggers an event when your camera boots.

1. Click **New Source** or select the existing source you want to edit.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **System Type** drop-down.

4. (Optional) If available, select the handler(s) that you want to associate with this source.

5. Click **Save**.

Configuring a Parking Action

Park Action Source triggers an event when the camera stops moving after a defined interval.

1. Click **New Source** or select the source you want to edit.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **Park Action Type** drop-down.

4. Enter the number of seconds to wait after the camera stops before triggering. The dwell time must be greater than 30 seconds.

5. (Optional) If available, select the handler(s) that you want to associate with this source.

6. Click **Save**.

Configuring a Network Loss Event Source

Network Loss Event Source triggers an event if the connection to a network is lost.

1. Click **New Source** or select the source you want to edit.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **Network Loss** from **Type** drop-down.

4. Enter the IP address that will be monitored for ping requests

5. Establish the frequency, in minutes, which the network device is contacted

6. Click **Save**

Deleting an Event Source

1. Select the source that you want to delete.

2. Click **Delete Source** to remove the event source.

Handlers

Event Handlers are the actions that your camera takes when an event source occurs. Handlers include **Send Email, Upload JPEG to FTP Server, Write JPEG to SD Card, Run Pattern, Go to Preset, Run Tour, Run Scan, Open/Close Relay, Display Overlay, Play Audio, Write Recording to SD Card,**

and **Upload Recording to FTP Server**. The availability of handlers might change based on your camera model.

Configuring an Event Handler: Send Email

You must have provided your camera with the address of an SMTP mail server from **General Settings** (available under the System) for your camera to send email notification for events.

The **Send Email** event handler sends an email from your camera when a source event is triggered.

1. Click the **New** button or select the handler you want to reconfigure.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select **Send Email** for the handler **Type**.

4. Provide the necessary information for your email in the **To, From, Subject,** and **Message** boxes.

5. (Optional) Select the **JPEG Snapshot** box if you want to send a JPEG snapshot as an attachment to the email.

6. (Optional) Select the **Attach Raw Event Data** box if you want the email to include extra data about the event. For example, select this box if the event is triggered by an alarm and you want to receive data about the state, time, or type of alarm.

7. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

8. Select the source(s) that you want to trigger this event handler.

9. Click **Save**.

Configuring an Event Handler: Upload JPEG to FTP Server

This event handler captures and uploads a JPEG to an FTP server when an event source is triggered. JPEG files are named according to the date and time at which they are recorded; although, you can determine the order of factors in the date-and-time filename.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event source in the **Name** box.

3. Select the **Upload JPEG to FTP Server** handler type.

4. Provide the address of your FTP server in the **Server** box.

5. Provide the credentials the camera will use to authenticate with the FTP server; the user name must be between 1 and 32 alpha- numeric characters, and the **Password** must be between 4 and 16 alphanumeric characters.

6. Provide the path in which to store JPEG files on your FTP server in the **Base Path** box.

7. Select the **File Name** for your JPEG snapshots. JPEG files are named according to the date and time at which they are recorded.

8. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

9. Select the source(s) that you want to trigger this event handler.

10. Click **Save**.

Configuring an Event Handler: Write JPEG to SD Card

This event handler captures and uploads a JPEG to an SD card when an event source is triggered. JPEG files are named according to the date and time at which they are recorded; although, you can determine the order of factors in the date-and-time filename.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Write JPEG to SD card** handler type.

4. Select the **File Name** for your JPEG snapshots. JPEG files are named according to the date and time at which they are recorded.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**.

Configuring an Event Handler: Run Pattern

This event handler executes a **Run Pattern** when an event source is triggered.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Run Pattern** handler type.

4. Select the **Pattern** for your **Run Pattern** handler.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**.

Configuring an Event Handler: Go to Preset

This event handler executes a **Preset Tour** when an event source is triggered.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Preset** handler type.

4. Select the **Preset** for your **Go to Preset** handler.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**.

Configuring an Event Handler: Run Tour

This event handler executes a **Run Tour** when an event source is triggered.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Run Tour** handler type.

4. Select the **Tour** for your **Run Tour** handler.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**.

Configuring an Event Handler: Run Scan

This event handler executes a **Run Scan** when an event source is triggered.

1. Click **New Handler** or **Select** the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Run Scan** handler type.

4. Select the **Select the Scan** for your **Run Scan** handler.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**.

Configuring an Event Handler: Open/Close Relay

This event handler executes an **Open/Close Relay** when an event source is triggered.

1. Click **New** or select the handler you want to reconfigure.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select **Open/Close Relay**.

4. Select the individual relay you want to trigger when an event occurs from the **Relay** drop-down.

5. Set the **Relay Mode** to **Pulse** or **Trigger** based on the type of relay being used.

6. Use the **On Time** controls to set the amount of time the relay will remain open, up to 200 seconds.

7. Use the **Off Time** controls to set the amount of time the relay will remain closed, up to 200 seconds.

8. Set the **Pulse Count** for the relay. The pulse count is the number of relay pulses (number of on and off cycles).

9. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

10. If available, select the source(s) that you want to trigger this event handler.

11. Click **Save**.

Configuring an Event Handler: Display Overlay

The **Display Overlay** event handler displays an OSDi of the source name when any connected source is triggered. When using the **Event Source** overlay and the **Display Overlay** handler, the camera will push any connected event sources to the OSDi when triggered.

NOTE: Overlay configuration settings are available on the **OSDi page**.

1. Click **New Handler** or select the handler you want to reconfigure.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select the **Display Overlay** handler type.

4. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

5. Select the source(s) that you want to trigger this event handler.

6. Click **Save**.

Configuring an Event Handler: Play Audio

This event handler plays an audio file when an event source is triggered.

1. Click **New** or select the handler you want to reconfigure.

2. Provide a name, between 2 and 23 alphanumeric characters, for the event handler in the **Name** box.

3. Select **Play Audio** from the **Type** drop-down.

4. Click **Browse** and select a valid .WAV file to be played when the event occurs.

5. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation Select the source(s) that you want to trigger this event handler.

6. Select the source(s) that you want to trigger this event handler.

7. Click **Save**

Configuring an Event Handler: Write Recording to SD Card

This event handler captures and uploads video to an SD card when an event source is triggered. Video files are named according to the date and time at which they are recorded; although, you can determine the order of factors in the date-and-time filename.

1. Click **New** or select the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event source in the **Name** box.

3. Select **Write Recording to SD Card** as the event type.

4. Enter **Pre-Event Buff**er duration, **Post-Event Buffer** duration, and **Size Limit** for the Recording to be written for the SD Card.

5. Select the **File Name** for your JPEG snapshots. JPEG files are named according to the date and time at which they are recorded.

6. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

7. Select the source(s) that you want to trigger this event handler.

8. Click **Save**

Configuring an Event Handler: Upload Recording to FTP Server

This event handler captures and uploads a recording to an FTP server when an event source is triggered. Recording files are named according to the date and time at which they are recorded; although, you can determine the order of factors in the date-and-time filename.

1. Click **New** or select the handler you want to reconfigure.

2. Provide a name, between 2 to 23 alphanumeric characters, for the event source in the **Name** box.

3. Select the **Upload Recording to FTP Server** handler type.

4. Provide the address of your FTP server in the **Server** box.

5. Provide the credentials the camera will use to authenticate with the FTP server; the user name must be between 1 and 32 alpha- numeric characters, and the Password must be between 4 and 16 alphanumeric characters.

6. Provide the path in which to store the video files on your FTP server in the **Base Path** box.

7. Select the **File Name** for your video files (named according to the date and time at which they are recorded).

8. (Optional) Set time filters to determine the days and times during which the handler will be active. If you do not select any filters, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

9. Select the source(s) that you want to trigger this event handler.

10. Click **Save**.

Deleting an Event Handler

1. Select the handler that you want to delete.

2. Click **Delete Handler**.

Analytic Configuration

The **Analytic Configuration** section allows you to analyze the camera's field of view to detect and trigger events or alarms when specific activity occurs. Analytic configurations are contained within **Profiles** that define the zones in which analytic behaviors are deployed. You must create a profile to enable analytic behaviors.

You can configure multiple analytic behaviors per profile. Each analytic behavior has its own settings, and many analytic behaviors also require you to configure zones that the camera will monitor for activity. The analytic behaviors available to your camera are dependent on your model and firmware version.

Basic

The **Basic** menu contains **Motion Detection**, **Edit Mask**, and **Sabotage Detection** functions.

Motion Detection

1. Check **Enabled.**

2. Enter an **Event logging (profile) name**.

3. Establish an alarm priority by selecting **Alarm Severity of Minor, Normal, Major,** or **Critical**.

4. Establish the sensitivity to the amount of change in motion within the camera's field view that triggers a handler behavior. Choose a **Sensitivity level of Low, Medium,** or **High**.

5. User the slider bar or text input box to set the **Threshold %** and establish how much motion needs to occur in order to trigger the alarm.

   NOTE: **Motion Detection** requires a mask to be drawn to indicate where the camera should look for motion. Use the **Edit Mask** controls to setup the mask.

Edit Mask

1. Select **Edit Mask** to **Draw** or **Erase** sections of the mask.

2. Select a **Rectangle** or **Paintbrush** (line) drawing **Tool**.

3. Use the mouse cursor to **Draw** the mask or **Erase** any portion of the mask.

4. Revert back to a previous state by clicking **Undo**.

5. Clicking **Redo** will reverse the **Undo** action.

6. Click **Save.**

Sabotage Detection

1. Check **Enabled.**

2. Establish **Low, Medium,** or **High** sensitivity to motion that will trigger a handler behavior.

3. Enter an **Event logging (profile) name**.

4. Establish an alarm priority by selecting **Alarm Severity of Minor, Normal, Major,** or **Critical**.

5. Click **Save.**

Enhanced

The **Enhanced** analytic configuration menu contains **Scene Settings, Select Behaviors, Drawing Tools,** a **Zone list,** and **Zone settings**.

Scene Settings

Depending on the chosen **Select Behavior**, one or more of the following **Scene Settings** will be available.

1. Select a **Camera preset.**

NOTE: **Scene Settings** is only available if you have configured a preset. Clicking the **Manage Presets** link will direct you to the **Presets PTZ** tab where you can create or edit camera presets.

2. Select a **Scene Type** of **Indoor** or **Outdoor**.

3. Choose a **Still** or **Noisy Background** based on the expected amount of background movement in the scene. A stable background with few moving objects should be set to **Still**. A busy background, with many moving objects should be set to **Noisy**.

4. Use the **Fine tuning** option to define zone violation sensitivity. Available settings include **Conservative, Normal,** or **Aggressive**. The **Conservative** setting is the least sensitive setting, reducing the number of false alarms but might prevent the camera from detecting zone violations. The **Aggressive** setting is the most sensitive setting for detecting all suspect violations but might cause the camera to trigger more false alarms.

5. Establish the **Sensitivity** or relative amount of motion, **between 1 (low) and 10 (high)**, that will trigger a behavior. The higher the setting, the greater the chance for false alarms, while lower settings will reduce the chance of false alarms but might result in missed violations.

6. **Consistency** helps trigger a behavior when an object moves into the frame from a consistent direction. Use the slider bar or manually enter a number to select a sensitivity from 0 (low) to 10 (high).

7. The **Calibration** function will show as **Not Completed** or **Completed**. If calibration is **Not Completed**, click **Calibrate Scene**. This will open a separate **Calibrate Scene** page from which you will:

    • Click **Set height**. This will bring up a blue square. Place the blue square over an object at a distance and set the real-world height of the object in either feet or meters.

    • Click **Set width**. Two yellow lines appear. Measure the width of a far object using the line denoted by "**Width of a far object**" and the width of a near object using the line denoted by "**Width of near object**".

    • Click **Return to Main**.

8. You should now see that the **Calibration** shows as **Completed.**

Select Behaviors

Select Behaviors define the attributes of a scene within the field of view of your camera and provide context for analytic behaviors. **Select Behaviors** include **Abandoned Object, Adaptive Motion, AutoTracker, Directional Motion, Loitering Detection, Object Counting, Object Removal,** and **Stopped Vehicle**

Settings for "chosen select behavior"

Activate Behavior: Check to activate the chosen select behavior.

Enable advanced options: Advanced options are only available for certain **Select Behaviors**.

Advanced Options:

    • **Sensitivity**: Overrides the global **Profile** sensitivity setting for the selected behavior, defining the relative amount of motion, between **1 (low) and 10 (high)** that will trigger an event or alarm. **Sensitivity** is an advanced option for some behaviors.

    • **Object Speed**: Adjusts for speed if the scene is configured to track moving objects at a slower or faster rate than actual speed.

Zone Settings

You can establish the conditions under the **Zone Settings** section to determine which events are triggered for a **Select Behavior.** The availability of settings depends on the chosen **Select Behavior.**

NOTE: **AutoTracker** has its own behavior-specific settings as described in the **AutoTracker Settings** section.

- **Name**: Type a name of your choosing for the selected **Zone**.

- **Enable Alarm**: Enables a zone alarm. Analytic events for the zone will appear in the event stream when viewing **Live View** and will trigger **Event Handlers** if the **Analytic Event** source is enabled.

- **Alarm Severity**: Sets the alarm priority as **Minor, Normal, Major,** or **Critical**.

- **Dwell time**: Defines the amount of time that an alarm will remain active when an alarm-triggering object exits the field of view or the zone. Dwell time can be set between 10 to 300 seconds.

- **Object Counting**: Determines the number of objects entering into a zone that will trigger an alarm.

- **Delay before alarm**: Defines the amount of time an object must remain in a zone before triggering an alarm.

- **Direction**: Determines the direction of motion a zone should track. **Events** will be triggered only when your camera detects motion in the specified direction.

- **Sensitivity**: Overrides the global **Profile** sensitivity setting for the selected behavior, defining the relative amount of motion, between 1 (low) and 10 (high) that will trigger an event or alarm. **Sensitivity** is an advanced option for some behaviors.

- **Object Speed:** Adjusts the selected behavior's speed setting if the scene is configured to track moving objects at a slower or faster rate than actual speed. **Object Speed** defines the relative speed, between 1 (low) and 10 (high), that will trigger an event or alarm.

- **Zone Sensitivity**: Defines the relative amount of motion within the selected zone that will trigger an event or alarm. Zone sensitivity can be set at a lower or higher setting than the overall sensitivity setting for the rest of the scene or the **Profile** sensitivity setting for the selected behavior.

- **Edit Mask:** Specifies which areas within the camera view to ignore so that alerts are triggered only if there is motion in the unmasked part of the video feed.

AutoTracker Behavior-Specific Settings

- **Name**: Type a name of your choosing for the selected **Zone**.

- **Sensitivity:** Overrides the global **Profile** sensitivity setting for the selected behavior and defines the relative amount of motion, between 1 (low) and 10 (high) that will trigger an event or alarm. **Auto** sets the sensitivity level from 1 to 10 automatically according to the amount of motion detected in a scene. Select **Manual** to set a user-defined sensitivity level from 1 to 10.

- **Dwell time:** Defines the amount of time that an alarm will remain active when an alarm-triggering object exits the field of view or the zone. Dwell time can be set between 10 to 300 seconds.

- **Follow options:** Determines whether an object is tracked only within the current field of view or beyond. Choose **Unlimited** to continue to follow an object even when it moves beyond the present field of view. Choose **Limit to current view** to follow the object only while it is within the present field of view.

- **Camera placement**: Defines the vertical height of the camera's location relative to the monitored area.

- **Unit:** Defines the unit of measurement as either **Meters** or **Feet**.

- **Optimize zoom settings for objects of this type:** Defines the type of object to be tracked.

- **Average Width**: Defines the average width of objects to track.

- **Average Height**: Defines the average height of objects to track.

Drawing Tools

Drawing Tools: When configuring a zone-based analytic behavior, you can draw zones by selecting one of the zone-drawing tools and then clicking within the scene to draw the zone.

Depending on the chosen **Select Behavior**, one or more of the following **Scene Settings** will be available.

- **Rectangle**: Tracks objects in a defined rectangular zone and triggers an alarm if the objects move in the same direction as defined.

- **Polygon**: Tracks objects in a defined polygonal zone and triggers an alarm if the objects move in the same direction as defined.

- **Line**: Tracks objects that cross a line and triggers an alarm if the objects move in the same direction as defined.

- **Rectangular Excluded Zone**: Ignores objects inside a defined rectangular zone.

- **Polygon Excluded Zone**: Ignores objects inside a defined polygon zone.

- **Set Object Size filters**: Allows the user to set the minimum and maximum object size for a zone. Objects that fall outside these limits will not get detected.

- (AutoTracker Only) **Display Size**: Sets the relative size of a tracked object in comparison to the surrounding scene and maintains the size of the object within the scene.

Zone list:

A zone drawn with any of the **Drawing Tools** will appear in the **Zone list** section.

- Click the zone from the list that you wish to configure.

- Click **Save** in order to activate the **Zone Settings** options for that particular zone.

- Click **X** if you wish to delete the zone from the **Zone list**.

Zone settings:

Available **Zone settings** depend on the chosen **Select Behavior.**

- **Name:** Type the zone name of your choice in the **Name** field.

- **Direction:** Determines the direction of motion a zone should track. Events will only be triggered when your camera detects motion in the specified direction.

- **Enable Alarm:** Enables a zone alarm. Analytic events for the zone will appear in the event stream when viewing live video and trigger event handlers if the **Analytic Event** source is enabled.

- **Alarm Severity**: Defines the severity of alarms triggered. Alarm severity helps prioritize alarms.

- **Alarm at:** Determines the number of objects entered into a zone that will trigger an alarm.

- **Zone Sensitivity**: Defines the relative amount of motion within the selected zone that will trigger an event or alarm.

- **Delay before alarm:** Defines the amount of time an object must remain in a zone before triggering an alarm.

- **Reset counter on alarm**: Check this option to reset all object counting parameters.

How to Use Select Behaviors

The following section describes the function of each **Select Behavior** and the ideal situation in which to use the behavior.

Abandoned Object

The **Abandoned Object** behavior detects objects placed within a defined zone and triggers an alarm if objects remain in the zone longer than the user-defined time allows.

Ideal Scene Setup for Abandoned Object: An airport terminal is a typical installation for the **Abandoned Object** behavior. This behavior can also detect objects left behind at an ATM, signaling possible card skimming.

Adaptive Motion

The **Adaptive Motion** behavior detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone. This behavior is designed to work indoors and outdoors to track a few moving objects in uncrowded fields of view. The behavior learns the background scene over time and adjusts to changing conditions like snow, fog, wind, and rain.

Ideal Scene Setup for Adaptive Motion: Install the camera in a ceiling or against a wall with the lens pointing at a slight downward angle, above regular motion activity. **Adaptive Motion** is best suited for scenes with light traffic and a clean background. If heavy traffic or a busy background is unavoidable, place zones in a relatively stable area. Avoid crowded scenes where people move in all directions or stand in place for long periods of time.

NOTE: Objects that are very small might not be classified as the correct object type. This could result in false alarms or alarms not being triggered. If objects appear too small in the scene, zoom in on the particular zone of interest or move the camera closer to the zone of interest to increase the relative size of the objects in the scene.

AutoTracker

The **AutoTracker** behavior detects and tracks movement in the field of view. When configured, the system automatically pans and tilts to follow the moving object until the object stops or disappears from the monitored area.

NOTE: When advanced options are enabled for **AutoTracker** behaviors, any excluded zones that you have previously created within the scene are disabled. You can create additional excluded zones, but the zones will remain exclusive to the behavior within the selected profile.

Ideal Scene Setup for AutoTracker: The ideal scene for **AutoTracker** contains light traffic and a clean background. If heavy traffic or a busy background is unavoidable, place zones in relatively stable areas. Avoid crowded scenes where people move in all directions or stand in place for long periods of time.

Directional Motion

The **Directional Motion** behavior generates an alarm in a high traffic area when a person or object moves in a specified direction. Examples of typical installations for this behavior include airports, entrances and exits, and vehicle traffic through tunnels.

In an airport installation, cameras observe passengers boarding a plane in a terminal. If a person moves in the opposite direction of the normal flow of traffic, an alarm triggers. In a tunnel installation, an operator wants to observe traffic flow. If a car enters a tunnel through an exit, an alarm alerts the operator to activate the traffic signals to stop all traffic in the tunnel. In an entrance or exit installation, a camera is pointed at an exit door. If a person tries to enter through the exit door, an alarm triggers.

Ideal Scene Setup for Directional Motion: Install the camera in a ceiling or against a wall with the lens pointing at a slight downward angle, above regular motion activity. The width of the object you want to detect should be at least one-tenth of the total width of the scene. To achieve increased accuracy in a crowded scene, set the width of the object to one-sixth of the total width of the scene.

The ideal scene for **Directional Motion** contains light traffic with all people and objects moving in the same direction, minimal obstructions, and a clean background; however, the behavior can be used in settings that do not meet all of these requirements. If heavy traffic or a busy background is unavoidable, place zones in a relatively stable areas. Avoid crowded scenes in which people move in all directions or stand in one place for long periods of time.

Loitering Detection

Loitering Detection identifies when people or vehicles remain in a defined zone longer than the user-defined time allows. This behavior is effective in real-time notification of suspicious behavior around ATMs, stairwells, and school grounds.

Ideal Scene Setup for Loitering Detection: Install the camera in a ceiling or against a wall with the lens pointing at a slight downward angle, above regular motion activity. The ideal scene for **Loitering Detection** behavior is one with light traffic and a clean background. If heavy traffic or a busy background is unavoidable, place the user-defined zone in a stable area. Avoid crowded scenes where people move in all directions or stand in one place for long periods of time.

Object Counting

Object Counting counts the number of objects that enter a user-defined zone. This behavior can be used to count people at a store entrance/exit or inside a store where the traffic is light. It might also be used to monitor vehicle traffic on highways, local streets and roads, parking lots, and garages.

Ideal scene for the Object Counting: The **Object Counting** behavior works well in situations with light traffic, minimal obstructions, and a clean background. If heavy traffic or a busy background is unavoidable, place zones (polygon or line) in stable areas. A one-directional motion scene (for example, a vertical hallway) is preferable. Avoid crowded scenes in which people or objects move in all directions or remain in place for long periods of time.

Object Removal

The **Object Removal** behavior triggers an alarm if an object is removed from a user-defined zone. It is ideal for detecting the removal of high-value objects, such as a painting from a wall or a statue from a pedestal.

Ideal Scene for Object Removal: Install the camera in a high position looking down on the scene. The monitored object should occupy a quarter of the camera scene, and the field of view should be as wide as possible. The ideal scene selection for **Object Removal** is a clean background with stable lighting and minimal obstruction.

Stopped Vehicle

The **Stopped Vehicle** behavior detects vehicles stopped near a sensitive area and sets an alarm if the vehicle is present for longer than a user-specified period of time. This behavior is ideal for parking enforcement, identifying suspicious parking, finding traffic lane breakdowns, and spotting vehicles waiting at gates.

Ideal Scene for Stopped Vehicle: Install the camera in a ceiling or against a wall with the lens pointing at a slight downward angle, above regular motion activities. The ideal scene for the **Stopped Vehicle** analytic behavior contains light traffic in which vehicles are continually moving, there are minimal scene obstructions, and the background is clean. If heavy traffic or a busy background is unavoidable, place monitoring zones relatively stable areas. Avoid crowded scenes where people or objects remain in place.

Event Stream

The **Event Stream** displays a list of alerts triggered by an active analytic behavior. The alert includes a screen capture, the triggered profile, and the zone in which the event was detected.

Pelco Troubleshooting Contact Information

If the instructions provided fail to solve your problem, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international) for assistance. Be sure to have the serial number available when calling.

Do not try to repair the unit yourself. Leave maintenance and repairs to qualified technical personnel only.

PELCO™