Next Gen Sarix® Enhanced Series IP Cameras
Mini Dome, Bullet, and Box Cameras with SureVision 3.0 Technology

OPERATIONS MANUAL

Content

Important Notices Statement

For information about Pelco's product-specific important notices and thereto related information, refer to www.pelco.com/legal.

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)

Korean Class A EMC

이 점을 주의하시길 바라며 , 가정 외의 지역에서 사용하는 것을 목적
으로 합니다 .

Warranty Statement

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

UL Safety Notices

This product is intended to be supplied by a Listed Power Unit marked "L.P.S." (or "Limited Power Source") and rate output 24Vac, 50/60Hz, 1.28 minimum or 48 Vdc, 0.35A minimum.

The product shall be installed by a qualified service person and the installation shall conform to local codes.

Accessing the Device

By default, users do not have to log in to view video. Anyone who accesses the device can view live 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 Internet Explorer® or Mozilla® Firefox® for Microsoft® Windows® operating systems and Firefox for Mac® operating systems.

1. Open a Web browser.

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

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

3. To access the device in its initial out-of-the-box state, you will be able to set the initial administrator account password.

   NOTE: The initial out-of-the-box state is also called "Factory Default Status."

4. Click Log In.

Accessing Camera Settings

Access to camera settings is determined by user permissions. If you do not have access to camera settings, the Settings link will not appear in the upper-right corner of the interface.

1. Log in.

2. Click Settings.

3. 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 Video Page

The Live Video page provides access to video streams and PTZ controls (where applicable). If user permissions for the device allow public users to view video, the Live Video page will be available to all users with network access to the device.

Live Video Controls

Viewable controls are based on device model and user permissions.

	Select Stream: Click to select stream, transmission type, and player settings for your live view stream.
	Maximize Viewing Area: Scales the video stream to the full size of the browser.
	Return to Normal View: Returns the video stream to normal size. This icon is only available after the video stream has been maximized.
	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 it as a JPEG file.

Zoom and Focus Controls

IME and IBE Series cameras feature zoom and focus controls on both the Live Video page and the Focus Settings area of the Imaging tab. IXE Series cameras feature focus controls only on the Focus Settings area of the Imaging tab.

NOTE: The zoom and focus controls are available only after you have logged in.

Zoom Out:[1] Click and hold to zoom out.

Zoom In:[1] Click and hold to zoom in.

Full Range Auto-Focus: Click to start a full-range search to find the optimal focal point for the scene.

Day Manual Focus Position: (Available only when focus is set to Manual mode.) Click and drag the slider to adjust the day mode focus position.

Night Manual Focus Position: (Available only when focus is set to Manual mode.) Click and drag the slider to adjust the night mode focus position.

[1]IME Series cameras feature zoom and focus controls on both the live video page and the Focus Settings area of the Imaging tab. IXE Series cameras feature focus controls only on the Focus Settings area of the Imaging tab.

Selecting a Stream

From the Live Video page, you can select the video stream you want to view, and determine settings for the transmission of the video streams. Your device outputs four different video streams.

Primary Stream and **Secondary Stream**: Fully configurable video streams. You can configure both streams automatically using the camera's video presets, or you can customize them from the camera's A/V Streams / Video Configuration menu.

QuickView Stream: A predefined low resolution, low frame rate JPEG video stream that is available when configuring your camera's imaging settings, so you can see how your settings affect video in real time. The QuickView Stream is ideal for users with bandwidth or processing limitations that could cause a high resolution, high frame rate video stream to pause or pixelate.

1. Click the QuickView Stream icon.

2. Select Primary, Secondary, or QuickView.

   NOTE: If the secondary stream has not been configured, the option will be unavailable.

3. Configure display settings for your video stream. The availability of settings is dependent on the video compression standard used by the video stream:

   • **Transmission**: Available for JPEG or H.264 video streams; provides a choice between unicast or multicast transmission types.
   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.
   A **unicast** stream sends a separate transmission to each user requesting video from the camera. Each user viewing video from the camera consumes additional processing power, limiting the number of simultaneous users who can access video from the camera.

   • **Throttle**: Available for JPEG video streams; determines the maximum number of images that the device can deliver to clients per second. Lowering the throttle setting can compensate for bandwidth and processing limitations.

4. Click Select.

System Menu

The System menu contains general system time settings, and video text overlay settings. It also provides access to basic system information, and the backup, restore, and restart functions.

From the System menu, you can also access snapshots generated by event handlers.

Information Settings

The Information Settings page includes read-only fields for the firmware version, hardware version, model number, and serial number of the camera. This information is typically required by Pelco Product Support for troubleshooting purposes.

Snapshot Viewer

The Snapshot Viewer page displays a list of snapshots saved to the SD card when a "Write JPEG to SD Card" event handler is activated. From this page, you can open, download, or delete snapshots from the SD card. There are 100 snapshots displayed per page.

Changing the Device Name

Providing a user-friendly name might help you and other users identify the device on the network, and within other applications. The device name is the friendly name that appears both in the Web interface and within other applications that can find the device.

1. Select General Settings from the System menu.

2. Provide a user-friendly name in the Device Name box (2 to 63 characters).

3. Click Save.

Firmware Update

The camera firmware can be upgraded or downgraded in this page.

1. Select General Settings from the System menu.

2. Click Browse to select the firmware you would like to upgrade/downgrade.

3. Click Upload.

Configuring Time Settings

You can set your device to discover a network time server (NTP) automatically, manually provide the address of your network time server, or determine time based on the device's internal clock.

1. Select General Settings from the System menu.

2. Select your time server setting:

    • **DHCP:** Allows your Sarix device 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:** The device will determine time from its internal clock. If you select None, you must also set your time zone. Sarix devices that are not synchronized with a time server can exhibit time drift.

3. Click Save.

Customizing the Text Overlay

You can set various informational overlays for video produced from your device, and you can determine the location of overlaying information using the Text Overlay settings. By default, all text overlays are hidden. The text overlays available for your device are dependent on your model.

1. Select General Settings from the System menu.

2. Select the display position and format for the overlay from the Position and Overlay Format drop-down menus.

3. Determine the text overlays you want to appear:

   • **Date/Time Overlay:** Displays the date and time in the live view overlay.

   • **Camera Name Overlay:** Displays the camera name in the live view overlay.

   • **Custom Text Overlay:** Displays the custom text with maximum 15 letters by entering text into the box in the live view overlay.

   • **Subtitle Overlay:** Displays five Custom Text Overlays at once in the live view overlay.

   NOTE: Each of the options can be put in only one corner at once in the live view overlay.

   NOTE: 60 is the maximum number of letters you are able to type in at once in the live view overlay.

4. Click Save.

Customizing the Image Overlay

You can set a custom image overlay for video produced from your device, and you can determine the location of the overlaying image using the Image Overlay settings. By default, all overlays are hidden.

1. Select General Settings from the System menu.

2. Select the display position for the overlay from the Position menu.

3. Choose an image file to upload.

   NOTE: The file format must be an 8-bit color bmp file having a maximum pixel count of 49152 pixels with the width of the image being a multiple of 32, the height a multiple of 4.

4. Click Save.

Restoring Default Settings

Restoring default settings will overwrite all of your existing settings with device defaults.

NOTE: If your device has been configured with a static IP address, restoring factory defaults will remove the static IP and set the device to obtain an address over DHCP.

1. Select General Settings from the System menu.

2. Click Restore All Camera Defaults.

Generating a System Log

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

1. Select General Settings from the System menu.

2. Click Generate System Log.

3. Select the location in which to save the log file.

4. Click Save.

Restarting the Camera

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

1. Select General Settings from the System menu.

2. Click Reboot Camera.

Backing Up and Restoring Settings

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

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

Backing Up Camera Settings

1. Select Backup and Restore from the System menu.

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

3. Click OK to save the backup file.

Restoring Camera Settings from a Backup

1. Select Backup and Restore from the System menu.

2. Click Choose File, locate your device's backup file, and then click OK.

3. Click "Upload and Restore;" the camera will restart and restore your camera's settings.

Storage Management

Users can implement local recording to the microSD/SDHC card up to 128GB. This page shows the capacity information of the micro SD card and a recording list with all the recoding files saved on the memory card. Users can also format the SD card and implement automatic recording cleanup through the setting page.

NOTE: Please format the microSD/SDHC card when using for the first time. Formatting will also be required when a memory card is being used on one camera already and later transferred to another camera with different software platform.

NOTE: It is not recommended to record with the microSD card for 24/7 continuously, as it may not be able to support long-term continuous data read/write. Please contact the manufacturer of the microSD card for information regarding the reliability and the life expectancy.

Device Information

Device Information includes read-only fields for the device type, free space, status, total size, and memory full of the device. This information is typically required by Pelco Product Support for troubleshooting purposes.

Device Setting

Configure the file system format to use on the SD card.

1. Choose vfat (default) or ext4 (recommended) as SD card's format.

2. Click Format to format the SD card.

Disk Cleanup Setting

Users can enable automatic recordings cleanup by specifying the time and storage limits. The setting range of time limits is from 1 to 999 day(s) or 1 to 142 week(s), and the setting range of storage limits is from 1 to 99% full.

Users can enable automatic disk cleanup by checking the box. It will cause the camera to remove recordings from the SD card that meet the criteria specified in the rest of the Disk Cleanup Setting section.

This function is disabled in factory default setting.

1. Check the box to enable the automatic disk cleanup function.

2. Users can remove recordings older than a certain age by choosing the maximum days or week. Specifies the maximum age for recordings. When a recording exceeds the specified age, it will be deleted.

3. User can remove the oldest recordings when disk memory exceeds a certain percentage. Species at what fill percentage the disk cleanup process will begin removing old recordings.

4. Click Save.

Recording List

Each video file on the microSD / SDHC card will be listed in the Recording list. The maximum file size is 60 MB (60 MB per file). When Continuous Recording is enabled the microSD/SDHC card may still be used to store media files generated in response to triggered events. In this case, when an event occurs the recording system will be used to store video clips or JPEG snapshots in response to the event. Once the event has concluded, the camera will return to the Continuous Recording mode.

•   **Download:** To open / download a video clip, select the file first, and then click on the <download> button below the Recording list field. The selected file window will popup. Click on the AVI file to directly play the video in the player or download it to a specified location.

Network Menu

The Network menu contains network configuration settings and options for your device; from this menu, you can set static IP addressing, enable SSL, enable SSH, configure 802.1x port security, and point your device to an SNMP manager. By default, your device receives an address over DHCP, and all other network features are disabled.

Changing General Network Settings

The General page, under the Network menu, contains standard network address settings for your device.

1. Select General from the Network menu.

2. Set your host name and change port settings (if necessary).

3. Set your IPv4 settings; if you set DHCP to Off, set your IP Address, Subnet Mask, Gateway, and DNS Server settings.

4. *(Optional)* Set IPv6 to On and configure IPv6 address settings.

5. Click Save.

General Network Settings

Host Name

You can configure a host name 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 determine the ports over which users communicate with the device.

HTTP: Do not change the HTTP port when connecting to a Pelco video management system (VMS); doing so may prevent you from viewing or recording video from your imaging device. The default HTTP port is 80.

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

RTSP: Sarix devices communicate with video management systems over RTSP. Do not change the RTSP port unless you are sure your VMS does not use the default setting. The default RTSP port is 554.

IPv4 Settings

By default, Sarix devices are configured to obtain network settings over DHCP. If the camera is connected to a Dynamic Host Configuration Protocol (DHCP) network and DHCP is set to On, the server automatically assigns an IP address to the camera. The default setting for the camera is DHCP On. To set the camera's IP address manually, set DHCP to Off.

NOTE:

When DHCP is on, but a DHCP server cannot be found:

*   Next Gen Sarix Enhanced cameras will support two IP addressing schemes: 169.254.x.x and 192.168.0.x (starting from 192.168.0.20).

    o   The default IP address on subnet mask 255.255.0.0 is automatically assigned as 169.254.x.y where x and y will take a value from 0 to 255 randomly. Please note cameras on the same subnet will not be assigned the same IP address to avoid IP conflicts.

    o   The device defaults to an address of 192.168.0.20 on a 255.255.255.0 subnet. If

192.168.0.20 is already in use on the network, the Sarix device will increment the address by one until it finds an unused address (for example, 192.169.0.21 if 192.168.0.20 is in use).

IPv6 Settings

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

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

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

NOTE:

• Sarix devices do not accept multicast, localhost, or undefined IPv6 addresses.

• Manually specified DNS servers are not validated by the device 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 device's IPv6 addresses. Behavior for a gateway that is not on the same network as the device's IPv6 addresses is undefined.

• Some video management systems (VMS), including Pelco systems, do not support connections to cameras and encoders over IPv6.

Configuring SSL

The SSL settings page includes SSL 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.

SSL is disabled by default. You must enable SSL to access the camera over HTTPS.

1. Select SSL from the Network menu.

2. Select your SSL mode:

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

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

   • **Required:** Requires that you install a signed SSL certificate and enables HTTPS access to the device. When attempting to access the device over HTTP, users will be automatically redirected to the HTTPS URL.

3. Click Save.

To generate a new certificate, please press the Install New Certificate button.

Selecting the Generate Self-signed Certificate radio button and pressing the Next button will lead to the Certificate group box to be repurposed with the same section of the SSL Configuration screen. You will need to apply the country code, state/province name, city name, common name, organization name, organizational unit name, and email address to generate self-signed certificate or generate certificate signing request options.

If Upload Certificate radio button is being selected, then click Choose File button and click Upload.

Enabling SSH

Advanced troubleshooting for problems that cannot be addressed through the device interface can be performed by establishing an SSH connection into the device. By default, SSH is off. The user name for SSH connections is *root*, and cannot be changed.

1. Select SSH from the Network menu.

2. Provide a password for the root user. Passwords are case-sensitive.

3. Confirm your password.

4. Click Save.

Configuring 802.1x Security

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

1. Select 802.1x from the Network menu.

2. Select On for 802.1x port security.

3. Select the (EAP) method from the Protocol drop-down menu.

4. Provide the authentication information for the EAP method you selected.

5. Click Save.

SNMP

Your device supports SNMP V2c and V3, and it can be configured to send traps. The MIB file for your device is available at *www.pelco.com*.

NOTE: SNMP V2c and SNMP V3 configuration settings are independent of each other, but only one SNMP mode can be active.

Configuring SNMP V2c

1. Select SNMP from the Network menu.

2. Select SNMP V2c.

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

4. Provide the address and community string for your trap server under Trap Configuration.

5. Click Save.

Configuring SNMP V3

1. Select SNMP from the Network menu.

2. Select SNMP V3.

3. Enter the SNMP user name the device will use to authenticate with the SNMP server.

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

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

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

7. Click Save.

Firewall

Text input field requires entry of a valid IP address (IPv4 or IPv6) after first choosing one of the options from the Protocol drop down selection list.

1. Select On for mode.

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

3. Select Protocol.

4. Click Save.

FTP

This page will enable or disable the FTP access to this camera.

1. Check Enable box.

2. Provide a password for access.

3. Confirm your password.

4. Enter the max connections value.

5. Click Save.

VMS Connectivity

You are able to set GB/T-28181 in this page. It will allow the configuration of the minimum required settings to establish a connection to a SIF server.

1. Enter the IP address for the SIF server.

2. Configure valid value for the SIF server Port.

3. Enter Device ID.

4. Enter camera name, address, port, and password.

5. Enter valid AlarmIn ID.

6. Enter Keep Alive Time in seconds.

7. Enter Registration Interval in minutes.

8. Click Register.

Imaging Menu

The Imaging menu contains image quality, exposure, white balance, focus, and window blanking settings for your device. If your device supports pan and tilt positioning functions, you can configure positioning settings, preset positions, and preset tours from the Imaging menu.

Changing the Orientation of the Scene

The orientation settings allow you to rotate the image 180 degrees horizontally or vertically, compensating for cameras installed in inverted positions.

1. Select General from the Imaging menu.

2. Select an option to correct the camera's orientation.

Image Enhancement Settings

WDR: Select **Off**, **Normal (On)**, or **High (On)** to adjust the level of adjustment for bright or dark areas.

WDR Strength: Balances the bright and dark areas of a scene. Select **Default** or **Adjust Strength** to control the amount bright or dark areas in a scene.

Noise Reduction: Adjusts for video noise in the scene.

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

- **Low:** Adjusts for minor noise in low-light scenes.

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

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

3D Noise Reduction: Adjusts for video noise in low-light scenes. Turn off 3D noise reduction if details are blurred in moving objects.

Digital Processing Settings

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

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

- **Normal:** A baseline setting in which sharpness, saturation, contrast, and brightness are all set to zero.

- **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.

Configuring Exposure Settings

Exposure settings dictate the amount of light to which the imaging sensor is exposed. Your exposure settings help ensure that video contains an adequate level of detail and contrast between light and dark values.

Exposure Priority: Allows you to prioritize either image quality or frame rate in instances when auto-exposure settings conflict with settings on the stream configuration page.

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 Exposure from the Imaging menu.

2. Select your camera's Exposure Priority.

    • **Noise:** Prioritizes the best image quality in all conditions regardless of the frame rate selected.

    • **Motion:** Prioritizes a guaranteed frame rate in all lighting conditions.

3. Set the Max Gain setting. Increasing the gain increases the brightness of the image, but also increases video noise.

4. Set the Max Exposure Time. The maximum exposure time determines the time, in milliseconds, that the imaging sensor is exposed to light. Decreasing the maximum exposure time reduces motion blurring; increasing the maximum exposure time could help capture more detailed still images in low light.

5. 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; Night captures grayscale video.

6. *(Optional)* Set your camera's Transition Level, determining when the camera switches from Day to Night mode. Lighter settings cause the camera to change modes at higher lux values.

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

8. Click Save.

Configuring White Balance Settings

Auto White Balance: Defines how the camera processes video images to render true colors in a scene. When this setting is on, the camera maintains automatic color balance for most lighting conditions, including outdoor scenes, scenes with changing lighting conditions, or in scenes with more than one type of light source.

One Touch: To perform white balance by choosing a white area to adjust image white balance.

1. Locate an area that should appear white. Ensure that it is being illuminated by the same light as the rest of the scene. If no white is present, any pure white object (such as white paper) can be temporarily added to the scene.

2. Click as close to the center of the white area as possible. The color in the live preview image on the right will adjust. (please wait for a few seconds for it to refresh).

3.   Repeat if necessary to achieve desired results.

Manual: To adjust the Red and Blue value in the scene. Allowable value range is -128 to 127.

Configuring Focus Settings

Focus settings control the conditions under which the camera performs back focus operations. You can also zoom in or out using controls on the focus page.

1. Select Focus from the Imaging menu.

2. 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.

3. *(Optional)* Adjust the zoom to zoom the lens in or out.

Using Auto Focus Mode

1. Set Temperature Change Refocus to automatically refocus the camera if the environmental temperature increases or decreases by 5°C (41°F) or more.

2. Set Day/Night Switch Refocus to automatically refocus the camera when switching between day and night mode. Select On if the camera's focal length is greater than ~25 mm or the night scene uses mostly IR lighting.

3. *(Optional)* Click the Full Range Auto-Focus button to initiate a full-range search to focus on the optimal point within the scene rather than the default center focal point.

Using Manual Focus Mode

Manual focus is recommended when using analytics to avoid problems with scene recognition, which causes suspended analytic performance or false alarms.

Select either Day Manual Focus Position for scenes with brighter light, or Night Manual Focus Position for darker scenes.

Using the Window Blanking Feature

The Window Blanking feature allows you to block sections of your camera's field of view. The blanked areas persist in all video produced from the camera, whether viewing video directly through the camera's interface or from a higher-level recording device or system.

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

1. Select Window Blanking from the Imaging menu.

2. Select On for Window Blanking.

3. Click and drag the mouse across the area of your camera's video that you want to blank. Select an existing blanking region to delete it, or edit its size and position.

4. Click Save.

A/V Streams Menu

The A/V Streams menu contains settings for your device's video and audio streams.

Maximum Frame Rate:

You are able to select your maximum frame rate per second in this page.

1.   Select Video Configuration from A/V Streams menu.

2.   Select your desired maximum frame rate.

3.   Click Save.

Selecting Preset Video Configurations

The Video Presets page contains fully-configured video configurations for both your primary and secondary video streams, offering a balance between video performance and bandwidth. These presets can also be used as a starting point for a custom video configuration.

1.   Select Video Configuration from A/V Streams menu.

2.   Select your desired video preset stream configuration.

3.   Click Save.

Configuring Custom Video Streams

The Video Configuration page contains settings for customizing your camera's primary and secondary video streams. Although each stream can be configured independently, the Aspect Ratio and Maximum Frame Rate settings will limit the options available for the remaining settings, depending on the processing demands of your stream settings.

By default, all fields on the Video Configuration page 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.   Select Video Configuration from the A/V Streams menu.

2.   Set the Aspect Ratio and Maximum Frame Rate settings.

3.   *(Optional)* Provide a user-friendly name for your custom stream in the Name box (2 to 64 characters).

4.   Set the Compression Standard, Resolution, Image Rate, Bit Rate, and I-frame Interval settings for the primary stream.

5.   Configure Profile, QoS (DSCP) Codepoint, Profile, and Rate Control.

6.   Repeat steps 2 to 4 for the Secondary stream.

7.   Click Save.

Video Configuration Settings

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

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.

Compression Standards: Available compression standards depend upon the model of the device that you are using.

•   **MJPEG**: Has the same characteristics as JPEG but differs in its mode of transfer (RTP).

- **H.264**: The most processor-intensive compression standard but requires the least amount of 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 images per second (ips) 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.

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.

GOP: 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 in the following video frames. 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. This setting is only available for H.264 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 stream, which includes color reproduction and additional video compression. It is important you select a profile that is compatible with your recording device(s) to ensure that your camera's video stream can be decoded and viewed.

- **Baseline**: A simple profile with a low compression ratio. A baseline profile is compatible with more recorders but uses more bits to compress video than the other profiles. This profile supports I-frames and P-frames only. Use the baseline profile in applications with limited scene changes; for example, an indoor scene with a single, unchanging primary light source and minimal motion.

- **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, but more bits than the high 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.

Quality of Service (QoS) for Different Services Code Point (DSCP): A mechanism for prioritizing network traffic. This setting is available only with H.264 and MPEG-4 compression standards. Your network must be QoS-aware to take advantage of this setting. If you are unsure if your network is QoS-aware, contact your network administrator.

Maximum Bit Rate: This provides high-quality video and long recording time of variable bit rate while limiting variations in recording capacity consumption.

Configuring Audio

You can only enable audio through the primary video stream.

Audio is disabled by default, but you can enable and configure audio streams from the Audio Configuration page.

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

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 ensuring strict compliance with such laws and for strict adherence to any/all rights of privacy and personality.

1. Place your mouse pointer over the A/V Streams tab, and select Audio Configuration from the drop-down menu.

2. Enable Audio In

3. Select the encoding method.

4. Select your sample rate. The sample rate is the quality of the audio stream (measured in hertz).

5. Set the input level. Input sensitivity is measured on a scale from 0 to 255 (low to high).

NOTE: If the camera is installed in a noisy environment or the connected microphone has a built-in line amplifier, you should lower audio sensitivity.

6. Click Save.

To set Audio Out:

1. Place your mouse pointer over the A/V Streams tab, and select Audio Configuration from the drop-down menu.

2. Enable Audio Out.

3. Set the output level. Output sensitivity is measured on a scale from 0 to 255 (low to high).

4. Click Save.

Managing Local Recording

This device is capable of recording and storing video and audio to an SD card through the ONVIF API. To ensure reliable local storage, it is recommended that you use a 128 GB SanDisk Extreme® PLUS microSDHC™ UHS-I card with adapter. For more information about local storage capabilities, refer to the ONVIF Profile G specification.

NOTICE:

•   You must use a new SD card to ensure reliable local storage. If the card has previously been used or reformatted, the local storage feature may not function properly.

1. Place your mouse pointer over the A/V Streams tab, and select Local Recording from the drop-down menu.

2. Enable Continuous Recording.

3. Click Save.

Local Recording Storage Limits

The number of hours of video you can store on the SD card depends on several factors besides the capacity of the SD card. The bit rate is an important factor. For example, with the recommended 32 GB card at 1080p with a maximum bit rate of 7 Mbps, you can store over 10 hours of video. Scenes with lower complexity and less motion, which allow for lower resolutions and frame rates with lower bit rates, result in longer recording times. You can, for example, record more than 48 hours of video at standard definition of 1.5 Mbps maximum bit rate.

There is, however, a limit on the total number of frames that can be stored on the SD card. Below a bit rate of 1.5 Mbps, you can store 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.

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.

RTP Settings

The RTP Settings page provides access to advanced multicast and MTU settings.

Setting Static Multicast Addresses

You can set static multicast addresses and ports for all of your camera's multicast streams (primary, secondary, service, etc.).

Default, automatically-assigned multicast addresses are confined to the 239.x.x.x block in a scheme matching your IP address and network settings, you can determine the automatically-assigned multicast address(es) for your camera from the RTP page.

1. Go to the **RTP Settings** page from the **A/V Streams** menu.

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

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

4. Determine whether or not to **Always Multicast this stream**. This setting eliminates 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.

5. Click **Save**.

Enabling "Always On" Multicast

From the **RTP** page, you can enable the **Always Multicast this Stream** setting. This setting eliminates 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.

Setting the Maximum Transfer Unit Size

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

1. Go to the **RTP Settings** page from the **A/V Streams** menu.

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

3. Click **Save**.

Smart Compression

Smart Compression can greatly reduce the bit rates produced by your camera at the potential cost of a slight to moderate degradation in video quality, depending on the compression level you set. This change in video quality is dependent on the complexity of the scene and the compression level you select. The **High** Smart Compression setting can reduce the bit rate up to 90% of the expected bit rate.

From the **Smart Compression** page, you can also set a dynamic group of pictures (GoP) length, allowing 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.

NOTE: Dynamic or long GOP lengths may cause compatibility issues with some video management systems (VMS). Ensure your VMS supports dynamic GOP settings before enabling this setting.

Configuring Smart Compression

1. Go to the **Smart Compression** page from the **A/V Streams** menu.

2. Indicate you Smart Compression Level.

3. (Optional) Enable Dynamic GOP Length.

a. (Optional) Set the maximum GOP length for your streams if you want to limit the upper limit of the dynamic GOP setting.

   NOTE: Dynamic or long GOP lengths may cause compatibility issues with some video management systems (VMS). Ensure you VMS supports dynamic GOP settings before enabling this setting.

4. Click **Save**.

Users

The Users menu contains settings determining how your Sarix device authenticates users (locally or remotely) and an interface for managing local user accounts.

Access Levels and User Roles

User permissions are governed by the role assigned to a user. When authenticating users locally, you will assign a role to each individual user. When authenticating users remotely, users will be assigned roles based on their CN and DN assignments. Your device supports the following four roles:

- **Admins**: Can access and change all camera settings.

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

- **Operators**: Can view video and use the API.

- **Viewers**: Can view video and use the API.

Configuring Local Users

When user management is enabled, your device authenticates local user accounts. By default, your device contains only the *admin* user account. You can configure additional local users from the Users page. If you are a user with Admin permissions, you can delete local user accounts at any time.

1. Select Users from the Users menu.

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

3. Select an Access Level for the user.

4. 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.

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

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

7. Click Save.

Events

The Events tab contains settings for camera events and analytics.

An **event** is a user-defined occurrence, consisting of a source and a handler. A **source** defines the trigger for an event; a **handler** defines the action your Sarix device will take when the event source occurs. When configuring a source, you can link the source to multiple handlers, 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 Endura® or third-party systems that support alarms using Pelco's API. The analytic behaviors available for your imaging device are dependent on your model and firmware version.

Sources

An event source defines the trigger for an event, something that must occur before your Sarix device takes action (defined by a handler).

Configuring an Alarm Event Source

An alarm source triggers an event upon a signal from an external signaling device, such as a door contact or a motion detector.

1. Select Sources from the Events menu.

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

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

4. Select Alarm from the Type drop-down menu.

5. Select the alarm you want to trigger when an event occurs from the Alarm drop-down menu.

    NOTE: IBE Series cameras have two alarm inputs. IME and IXE Series cameras have one alarm input.

6. Set the dwell time for the alarm between 0.1 and 25 seconds. Dwell time is the amount of time that the source will remain active during an alarm event.

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

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

9. Click Submit.

Configuring an Analytic Event Source

An analytic event source triggers an event when a behavior defined by a video analytic occurs.

1. Select Sources from the Events menu.

2. Click Any Analytics.

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

4. Click Submit.

Configuring System Event Source

A system source triggers an event when your Sarix device boots.

1. Select Sources from the Events menu.

2. Click New Source, or select the source you want to edit.

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

4. Select Boot.

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

6. Click Submit.

Configuring a Timer Event Source

A timer event source triggers an event at specified intervals of time.

1. Select Sources from the Events menu.

2. Click New Source, or select the source you want to edit.

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

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 Submit.

Configuring a Motion Detection Event Source

A motion detection event source triggers an event.

1. Select Sources from the Events menu.

2. Click New Source, or select the source you want to edit.

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

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

5. Click Submit.

Configuring a Network Loss Event Source

A network loss event source triggers when the camera is unable to reach a specified network address.

1. Select Sources from the Events menu.

2. Click New Source, or select the source you want to edit.

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

4. Enter the IP Address for the device that you want to detect (ping).

5. Configure the frequency at which the camera will attempt to reach the specified address.

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

7. Click Submit.

Deleting an Event Source

1. Select Sources from the Events menu.

2. Select the source that you want to delete.

3. Click Delete Source to remove the event source.

Handlers

Event handlers are the actions that your Sarix device takes when an event source occurs. The availability of handlers might change based on your device model.

Configuring an Event Handler: SMTP

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

1. Select Handlers from the Events menu.

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

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

4. Select SMTP Notification Handler for the handler Type.

5. Provide the SMTP server address, port, username, password, and authentication method.

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

7. (Optional) Select the "Attach Video" checkbox if you want to attach a JPEG snapshot or video clip as an attachment to the email.

8. (Optional) Set a Day/Time Inclusion Filter to determine the days and times during which the handler will be active. If you do not specify a filter, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

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

10. Click Submit.

Configuring an Event Handler: SD Record Handler

This event handler captures and saves either a JPEG or video clip to an SD card when an event source is triggered. Media 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. Install an SD card in the slot located on the back of the camera.

2. Select Handlers from the Events menu.

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

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

5. Select the SD Record Handler for the handler type.

6. Select a time standard from the Filename Format menu. The media files saved to the SD card will be given file names corresponding to the date and time of the event.

7. Provide a size limit for the media files. Do not select a size limit that exceeds the available memory on the SD card.

8. (Optional) Set a Day/Time Inclusion Filter to determine the days and times during which the handler will be active. If you do not specify a filter, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

9. (Optional) Select one or more sources that you want to trigger this event handler.

10. Click Submit.

Configuring an Event Handler: FTP Upload Handler

This event handler captures and uploads either a JPEG or video clip to an FTP server when an event source is triggered. Media 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. Select Handlers from the Events menu.

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

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

4. Select the FTP Upload Handler for the handler type.

5. Provide the address of your FTP server in the Server box.

6. Provide the credentials the device 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.

7. Provide the path in which to store media files on your FTP server in the Base Path box.

8. Select the File Name for your media files. Files are named according to the date and time at which they are recorded.

9. (Optional) Set a Day/Time Inclusion filter to determine the days and times during which the handler will be active. If you do not specify a filter, the handler will remain active at all times. All time values must be formatted in 24-hour notation.

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

11. Click Submit.

Configuring an Event Handler: Relay Open/Close Handler

The Open/Close handler opens or closes a relay when a source event occurs.

1. Select Handlers from the Events menu.

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

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

4. Select the Relay Open/Close Handler for the handler Type.

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

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

7. Set the pulse count for the relay. The pulse count is the number of relay pulses (number of on and off cycles).

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

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

10. Click Submit.

Deleting an Event Handler

1. Select Handlers from the Events menu.

2. Select the handler that you want to delete.

3. Click Delete Handler.

Analytic Configuration

Analytic configurations are contained within profiles; you must create a profile to enable analytic behaviors. By default, all analytics are disabled. An analytic **profile** consists of profile settings calibrated to maximize the accuracy of analytic detection, the analytic behaviors you want to enable, and the zones within the field of view that your device will monitor for each enabled behavior.

The imaging device is capable of running up to two behaviors at the same time. You can configure multiple profiles and multiple behaviors per profile. However, the complexity of each profile, including active behaviors and zones per behavior, increases the processing load on your imaging device. If the imaging device cannot support the processing requirement of a profile, either due to the complexity of the profile itself, or because other profiles are also running, you will not be able to run the profile.

Once configured, your imaging device will monitor your defined zones for activity violating the parameters of the behavior. You can view analytic events through your device's event stream. However, analytic alarms are only transmitted through the Pelco API, and are therefore only available with compatible VMS systems or through direct integration.

Profile Settings

Profile settings: Define the attributes of a normal scene within the field of view of your imaging device, providing context for analytic behaviors. Properly configured profile settings help ensure the accuracy of analytic behaviors. Each profile contains the following profile settings:

Camera View: Defines the vertical height of the camera's location relative to the area being monitored. The camera view options are Angle, Overhead or Horizontal. The default Camera view setting is Angle.

Sensitivity: Defines the relative amount of motion, between 1 (low) and 10 (high), that will trigger a behavior. The default Sensitivity setting is 8. The higher the setting, the greater the chance for false alarms; lower settings will reduce the chance of false alarms, but might result in missed violations.

Calibrate Scene: Defines the sizes of the objects on the near left, near right, and an object in the distance. This allows you to adjust an analytic profile's scene setup to reflect the perspective and viewing angle of your camera. A properly calibrated scene makes the object sizes you set when configuring zones for a behavior more meaningful, increasing the accuracy of analytics.

Behaviors

Behaviors: Analyze the camera's field of view to detect and trigger events or alarms when specific activity occurs. You can configure multiple analytic behaviors per profile. However, each analytic behavior has its own settings; many analytic behaviors also require you to configure zones that the camera will monitor for activity. The analytic behaviors available to your device are dependent upon the model and firmware version.

Behavior Settings

Each analytic behavior contains a number of settings determining the conditions under which events are triggered. The settings available are dependent on the analytic behavior that you are configuring.

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.

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

Alarm severity: Defines the severity of alarms triggered. Alarm severity helps you and other users prioritize alarms.

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.

Delay before alarm: Defines the amount of time an object must remain in a zone before triggering an alarm. For the Camera Sabotage behavior, this defines the delay between a scene violation and the trigger of an alarm.

Alarm at (Object Counting): Determines the number of objects crossed over a zone in Object Removal that will trigger an alarm.

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 Analytics

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 Abandoned Object behavior contains light traffic where people or objects within the field of view are continually moving, there are minimal obstructions, and the background is clean. If heavy traffic or a busy background is unavoidable, place monitoring zones in relatively stable areas.

Avoid crowded scenes where people or objects remain in one place for long periods of time.

Intrusion Detection

The Intrusion Detection behavior detects and tracks objects that enter a scene and then triggers an alarm when the objects enter a user-defined zone.

The Intrusion Detection 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 Intrusion 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 Intrusion Detection behavior is one 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.

Camera Sabotage

The Camera Sabotage behavior detects contrast changes in the field of view, and triggers an alarm if the lens is obstructed by spray paint, a cloth, or if it is covered with a lens cap. Any unauthorized repositioning of the imaging device also triggers an alarm.

Ideal Scene Setup for Camera Sabotage

Install the camera in a high position, looking down on the scene. The field of view should be as large as possible. A small field of view could result in the view being blocked by an adjacent object.

Avoid scenes with a dark, uniform background, low lighting, and large moving objects.

Wrong Direction

The Wrong Direction 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 Wrong Direction

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 selection for the Wrong Direction behavior 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 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

The Loitering Detection behavior 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.

Idea 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 relatively stable area.

Avoid crowded scenes where people move in all directions or stand in one place for long periods of time.

Object Counting

The Object Counting behavior counts the number of objects that crossed over 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 Object Counting

If you plan to detect people, install the camera pointing downward (vertically) above regular motion activity. If you plan to detect vehicles, install the camera pointing downward at a slight angle above regular motion activity.

The ideal scene for the Object Counting behavior contains light traffic, minimal obstructions, and a clean background. If heavy traffic or a busy background is unavoidable, place zones (polygon or line) in relatively 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 analytic 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 the Object Removal behavior 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 break-downs, 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 in relatively stable areas.

Avoid crowded scenes where people or objects remain in place for long periods of time.

Zones

Some analytic behaviors require you to configure zones. A zone is a defined boundary that your imaging device monitors for an analytic behavior. A zone can be defined by a polygon or line. Zones defined by polygons trigger analytics based on motion within the zone; zones defined by lines trigger analytic events when an object within the scene crosses the line.

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.

NOTE:

- The availability of zone drawing tools is dependent on the analytic behavior you are configuring.

- Zones will not scale proportionally with changes in zoom. Set the zoom level for the camera before defining zones.

> **Box:** Tracks objects in a defined zone and triggers an alarm if the objects move in the same direction as defined.

⬠	**Polygon:** Tracks objects in a defined 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.
▥	**Exclude Zone Box Tool:** Ignores objects inside a defined zone.
◈	**Exclude Zone Polygon Tool:** Ignores objects inside a defined zone.
⬚	**Object Size Filter:** Sets the minimum and maximum object size for a zone.

Configuring an Analytic Profile

A profile consists of profile settings, the behaviors you want to operate on the profile, and the zones you want to monitor for selected behaviors. The instructions below describe how to configure a profile, but there are many settings and possibilities for each step below; the following sections provide a detailed understanding of the settings and controls available for each behavior.

1. Select Analytic Configuration from the Events menu.

2. Click New to create a new profile or select the profile you would like to edit.

3. Configure Profile Settings.

4. Calibrate the scene. Click Calibrate Scene, adjust the scene accordingly, and then click Return to Main View.

5. Select a behavior.

6. Configure advanced settings for the behavior.

7. Configure zones for the behavior.

8. Select Activate Behavior to ensure that the behavior and all zones are enabled when you run the profile.

9. Repeat the previous 4 steps to activate additional behaviors on the profile.

10. Click Save.

Calibrating a Scene

The Calibrate Scene option, under Profile Settings, allows you to adjust an analytic profile's scene setup to reflect the perspective and viewing angle of your camera. A properly calibrated scene makes the object sizes you set when configuring zones for a behavior more meaningful, increasing the accuracy of analytics.

It is important that you calibrate the scene before running a profile. If you find that you are encountering an excess of false alarms, or are not registering normal analytic alarms, you might need to recalibrate the scene for the profile.

1. Select Analytic Configuration from the Events menu.

2. Select the profile for which you want to calibrate the scene, or create a new profile.

3. Click Calibrate Scene

4. (Optional) Click Pause to pause the field of view if the scene contains moving objects. This allows you to more easily calibrate the scene and focus on near and far objects.

5. Adjust each of the blue boxes to account for objects in the scene. There are boxes for objects at the near left, near right, and an object in the distance; drag the boxes over appropriate objects, and adjust the size of each box to approximate the size of the object the box overlays.

6. Select "Enable Calibration" to Enable the Calibration settings performed.

7. Click Return to Main Menu.

8. Finish adjusting the profile, and then click Save.

Running Profiles

An analytic profile must be running for your imaging device to monitor the profile for analytic behaviors.

The complexity of each profile, including active behaviors and zones per behavior, increases the processing load on your imaging device. If the imaging device cannot support the processing requirement of a profile, either due to the complexity of the profile itself, or because other profiles are also running, you will not be able to run the profile.

1. Select Analytic Configuration from the Events menu.

2. Select the profile you want to run or stop.

3. Click Run to activate the profile or Stop to deactivate the profile.

NOTE: Stopping or deleting a profile deactivates all of the behaviors associated with that profile

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.

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