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Web Interface User Guide

Avigilon High Definition H.264 IP Camera Models:

ENC-4P-H264, H3-B1, H3-B2, H3-B3, H3-BO1-IR, H3A-BO1-IR, H3-BO2-IR, H3A-BO2-IR, H3-D1, H3-D2, H3-DC1, H3-DC2, H3-3MH-DC1, H3-4MH-DC1, H3-DO1, H3A-DO1, H3-DO2, H3A-DO2, H3-3MH-DO1, H3-4MH-DO1, H3-DP1, H3A-DP1, H3-DP2, H3A-DP2, H3-3MH-DP1, H3-4MH-DP1, H3M-DC1, H3M-DO1, H3M-DP1, and H3PTZ

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Introduction

All Avigilon high definition H.264 IP cameras and encoders referenced in this guide include a web interface that allows you to view live video and configure the device through a web browser.

Before you access the web interface, make sure you complete all the procedures described in the device installation guide.

NOTE: Some options and features are disabled in the web interface if they are not supported by the camera model you are using.

System Requirements

The web interface can be accessed from any Windows, Mac, or mobile device using one of the following browsers:

- Microsoft Internet Explorer version 7.0 or later
- Mozilla Firefox™ version 3.6 or later
- Google Chrome™ version 8.0 or later
- Apple Safari version 5.0 or later
- Android™ 2.2 or later
- Apple iOS version 5.0 or later

Accessing the Camera Web Interface

After the camera or encoder has been installed, you need the device's IP address to access the web interface. The IP address can be found in one of the following places:

- Avigilon Control Center™ Client software: open the device Setup tab to see the details of the selected camera or encoder.
- Avigilon Camera Installation Tool: click the **Connect to Camera** button to see the details of the connected camera or encoder.

Once you have the IP address, complete the following procedure to access the web interface:

NOTE: The web browser must be configured to accept cookies or the camera web interface will not function correctly.

1. On a computer with internet access, enter the device's IP address into a web browser:

   http://<*camera IP address*>/

   For example: http://192.168.1.40/

2. You will automatically be prompted to enter your username and password to access the device.

   The default username is `admin`, and the default password is `admin`. It is recommended that you change the default password after your first login. For more information, see *Editing Users and Passwords* on page 23.

NOTE: You can only change the device password in the web interface. The password cannot be changed in the network video management software.

Live View

After you log in, the first page you see is the Live View. The Live View contains an image panel that displays the live video stream.

If you are accessing an HD Multisensor Dome Camera, there may be up to four image panels displayed. Click an image panel to zoom and control the image that is displayed.

Use the menu links in the top-left corner to navigate through the web interface. Click **Live View** any time to return to this page.

The following sections describe the buttons that may be displayed under the image panel if users have access to Pan-Tilt-Zoom (PTZ) controls. PTZ controls allow users to control the zoom, focus and positioning of a camera. To give a user PTZ controls, see *Adding a User* on page 23.

NOTE: Some options are disabled if they are not supported by the camera.

Using the Camera Zoom and Focus Controls

- To zoom out, move the slider towards the right.
- To zoom in, move the slider towards the left.
- To focus towards zero:
    - Click << to take a large step.
    - Click < to take a small step.
    - Click **0** to focus at zero.
- To focus towards infinity:
    - Click >> to take a large step.
    - Click > to take a small step.
    - Click **Inf** to focus at infinity.
- If the camera supports auto focusing, click **Auto Focus**.

Using Camera Presets

Users can save frequently used zoom and focus configurations as presets on the Live View page.

The presets can also be configured in the ACC Client software through the PTZ controls.

Adding a Camera Preset

1. On the Live View page, use the Zoom and Focus controls to focus the camera on a specific point in the video image.
2. Enter a name in the **Add Preset** field then click **Add**.

Moving the Camera to a Preset Position

To use a preset, select a configured preset from the **Presets** drop-down list and click **Go**.

Deleting a Preset

To delete a preset, select a preset from the drop-down list then click **Remove**.

Saving a Still Image

If you see the **Save Still to SD Card** button from the Live View page, the camera supports the ability to take snapshots of live video from the web interface.

To use this feature, the following settings are required for the camera:

- There is an SD card inserted in the camera. For more information, see the camera's installation guide.
- The camera's onboard storage settings are enabled on the Storage page. For more information, see *Storage* on page 20.
- The camera's video format must be set to MJPEG in the Compression and Image Rate page. For more information, see *Compression and Image Rate* on page 16.

Once all the requirements have been met, you can click **Save Still to SD Card** and the image that is displayed in the Live View page is automatically saved to the SD card.

To download the snapshot, see *Downloading Recorded Video from the Web Interface* on page 20.

Using the PTZ Camera Controls

If you are accessing a standalone Pan-Tilt-Zoom (PTZ) camera, you can control Focus and Presets in the same way as other cameras but you also have access to other features that are specific to the PTZ camera.

1. To zoom the camera:
    - Adjust the Zoom slider.
    - Or, click and drag to create a green box on the image panel to define the area you want to zoom in to see.
2. To move the camera:
    - Click anywhere on the image panel to center the camera to that point.
    - Or, drag your mouse from center to move the camera in that direction. The farther the arrow is from center, the faster the camera will move.
3. To perform a guard tour, select a tour from the drop down list then click **Start**. To setup a tour, see *Creating PTZ Tours* on page 28.
4. To stop a guard tour, click **Stop**. You can pause a tour at any time just by using the other PTZ controls.

Using the Encoder PTZ Controls

Any camera that is connected to an H.264 encoder can have the PTZ option enabled. Once enabled, the full pan, tilt and zoom controls are displayed in the Live View for that camera.

To enable PTZ for cameras that are connected to an encoder, see *Setting Up PTZ* on page 30.

1. Select a camera from the **Port** drop down list.

   NOTE: The PTZ controls are only displayed when the camera is displayed by itself.

2. To move the camera field of view, click one of the directional buttons on the far left.
3. To control the camera's Zoom, Iris or Focus, click the **+** or **-** buttons.
4. For **Presets**, you can perform any of the following:
   - To add a preset, move the camera's field of view into position then give the preset a name and click **Set**.
   - To use a preset, select a name or number from the drop down list and click **Go To**.
5. For **Patterns**, you can perform any of the following:
   - To record a pattern, select a number from the drop down list then click **Record**. Use the directional buttons to move the camera and create the pattern. When you are done, click **Stop**.
   - To run a pattern, select a number from the drop down list and click **Run**.
6. To activate an auxiliary command, select an Aux# from the drop down list and click **Start**. When you are finished, click **Stop**.

Setup

NOTE: Certain options are not displayed if they are not supported by the camera model you are using or if you do not have the required user permissions.

The factory default settings allow you to use the camera or encoder immediately after installation. If you have special requirements, you can customize the settings through the web interface. In the top-left menu area, click **Setup** to display all the available setup pages.

A **Restore Defaults** button is available on each setup page to restore the factory default settings.

Be aware that some settings are only available through the camera's web interface and cannot be changed in the network video management software.

For information specific to the HD Multisensor Dome Cameras, see *HD Multisensor Dome Camera* on page 26.

For the settings that are specific to PTZ cameras, see *PTZ Camera* on page 28.

For the settings that are specific to encoders, see *Encoder* on page 30.

General

When you select the Setup link, the first page you see is the General page. The General page allows you to set the device identity.

1. In the **Name** field, give the device a meaningful name.
2. In the **Location** field, describe the device's location.
3. Select the **Disable camera status LEDs** check box to disable the LEDs located on the device.
4. If your camera supports onboard storage, select how the camera keeps time.
    - If you prefer to manually set the camera's date and time, enter the date, time and time zone on this page. Select the **Automatically adjust clock for Daylight Savings Time** check box if required.
    - If you prefer to auto-synchronize the camera's date and time with an NTP server, configure the NTP server on the Network page. For more information, see *Network* on the next page.
5. (HD Bullet Camera and HD Multisensor Dome Camera only) Select the **Disable configuration ethernet port** check box to disable the secondary Ethernet port underneath the camera.
6. (H.264 HD Cameras and HD Bullet Cameras only) Select any of the Overlay Setting check boxes to display and stamp that information on the camera's video stream. The options are:
    - Display Date
    - Display Name
    - Display Time
    - Display Location
    - Display GMT Offset

7. Click **Apply** to save your settings.

Network

On the Network page, you can change how the device connects to the server network and choose how the device keeps time.

Be aware that some options are disabled if they are not supported by the camera model you are using.

NOTE: You can only set the HTTPS port, the RTSP port, and the NTP Server in the camera web interface.

1. In the Address and Hostname area, select how the device obtains an IP address:
    - **Obtain an IP address automatically** select this option to connect to the network through an automatically assigned IP address.

      The IP address is usually obtained from a DHCP server. Otherwise, the IP address will default to addresses in the 169.254.x.x range.

    - **Use the following IP address** select this option to manually assign a static IP address.

      Enter the IP Address, Subnet Mask, and the Default Gateway you want to use.
2. Select the **Disable setting static IP address through ARP/Ping method** check box to disable the ARP/Ping method of setting an IP address.
3. (Analog Video Encoder only) If the encoder supports IPv6, select the **Enable IPv6** check box to configure the following settings.

   NOTE: Enabling IPv6 does not disable IPv4 settings.

    a. Select the **Accept Router Advertisements** check box if using Stateless Address Auto-Configuration (SLAAC).
    b. From the **DHCPv6 State** drop down list, select one of the following:
        - **Auto** — DHCPv6 state is determined by router advertisements (RA).

          NOTE: The Accept Router Advertisements setting must be enabled for this setting to perform as expected.

        - **Stateful** — the camera receives IP address, DNS and NTP information from the DHCPv6 server.
        - **Stateless** — the camera only receives DNS and NTP information from the DHCPv6 server. It does not accept an IP address from the DHCPv6 server.
        - **Off** — the camera does not communicate with the DHCPv6 server.
    c. In the **Static IPv6 Addresses** field, enter the preferred IPv6 address. Click + for additional addresses.

       To change the prefix length, enter the preferred IPv6 address using Classless Inter-Domain Routing (CIDR) notation. For example, `2001:db8::1/32` would indicate the address prefix is 32-bits long.

By default, the prefix length is set to `/64`.

NOTE: The configured prefix length may not display correctly in the web interface, but the prefix used by the device will be the configured length.

d. In the **Default Gateway** field, enter the Default Gateway you prefer to use. You can only assign a Default Gateway if RA is disabled.

The IPv6 addresses that can be used to access the camera are listed under the **Current IPv6 Addresses** area.

4. If you need to customize the hostname, enter it in the **Hostname** field.
5. In the DNS Lookup area, select how the device will obtain a Domain Name System (DNS) server address.
6. (Analog Video Encoder only) In the DNS Lookup area, select how the device will obtain a Domain Name System (DNS) server address.
    - **Obtain DNS server address automatically**: select this option to automatically find a DNS server.
    - **Use the following DNS server addresses**: select this option to manually set DNS server addresses. You can set up to three addresses:
        - **Preferred DNS server**: assign the address of the preferred DNS server in this field.
        - **Alternate DNS server 1**: (optional) assign the address of an alternate DNS server to this field. In the case that the preferred server is not available, the device will attempt to connect to this server.
        - **Alternate DNS server 2**: (optional) assign the address of another alternate DNS server to this field. In the case that both the preferred server and the first alternate server are unavailable, the device will attempt to connect to this server.
7. In the Control Ports area, you can specify which control ports are used to access the device. You can enter any port number between 1 and 65534. The default port numbers are:
    - **HTTP Port:** 80
    - **HTTPS Port:** 443
    - **RTSP Port:** 554
8. In the NTP Server area, decide if you want the camera to use a Network Time Protocol (NTP) server to keep time.

    By default, all Avigilon cameras models covered by this guide keep time through the Avigilon Control Center software.

    If the camera is connected to a different network video management software, or is recording by itself through the onboard storage feature, you may want the camera to keep time using one of the following options:

- (Cameras with onboard storage only) Select the **Use NTP Server when not connected to Avigilon Control Center Server** check box to allow the camera to keep time through an NTP server. You also have the option to manually set the camera's time on the General page. For more information, see *General* on page 6.
- **DHCP** select this option to automatically use the same NTP server as the rest of the network.
- **Manual** select this option to manually set which NTP server is used.

9. In the MTU area, set the Maximum Transmission Unit (MTU) size in bytes. Enter a number between the available range displayed on the right. You may want to lower the MTU size if your network connection is slow.
10. Click **Apply** when you are done.

Configuring 802.1x Port Based Authentication

If your network switch requires 802.1x port based authentication, you can set up the appropriate camera credentials so that the video stream is not blocked by the switch.

1. On the Network page, click **Configure 802.1X**.
2. On the following page, select the preferred authentication method. You can configure multiple profiles but only one can be enabled at a time.

   From the **EAP Method** drop down list, select one of the following and complete the related fields:

   - Select **PEAP** for username and password authentication.
     - **Configuration Name:** give the profile a name.
     - **EAP Identity:** enter the username that will be used to authenticate the camera.
     - **Password:** enter the password that will be used to authenticate the camera.
   - Select **EAP-TLS:** for certificate authentication.
     - **Configuration Name:** give the profile a name.
     - **EAP Identity:** enter the username that will be used to authenticate the camera.
     - **TLS Client Certificates:** select the PEM-encoded certificate file to authenticate the camera.
     - **Private Key:** select the PEM-encoded private key file to authenticate the camera.
     - **Private Key Password:** if the private key has a password, enter the password here.
     - Click **Upload Files** and the TLS Client Certificate and Private Key are uploaded to the camera. The uploaded files are used to generate a unique certificate to authenticate the camera. The unique certificate is displayed in the Uploaded Certificate field.
3. Click **Save Config** to save the authentication profile. If this is the first profile added to the camera, it is automatically enabled.
4. To use a different authentication profile, select the saved configuration then click **Enable**.
5. To delete one of the authentication profiles, select the saved configuration then click **Remove**.

Configuring SNMP

You can use the Simple Network Management Protocol (SNMP) to help manage cameras that are connected to the network. When SNMP is enabled, camera status information can be sent to an SNMP management station.

On the SNMP page, you can configure the camera's SNMP settings and choose the status information that is sent to the management station page. For more details on the status information or traps that will be sent, see the camera's Management Information Base (MIB) file on the Avigilon website: **http://avigilon.com/support-and-downloads**.

1. In the left-menu pane, select **Network > SNMP**.
2. On the SNMP page, select the **Enable SNMP** check box.
3. From the **Version** drop-down list, select the preferred SNMP version. Be aware that both versions can be configured, but only one can be enabled at a time:
    - **SNMP v2c**: Using SNMP v2c, you can make a request to the camera for status information through an SNMP Get request and receive trap notifications from the camera.

      In the **SNMP v2c Settings** area, select the **Enable Traps** check box to enable traps from the camera.

        a. **Read Community:** enter the read community name for the camera. The name is used to authenticate SNMP traffic. Only SNMP management stations with the same read community name will receive a response from the camera.

        b. **Trap Destination IP:** enter the IP address of the management station where the traps will be sent.

           In the Available Traps area, select the traps that will be sent:

            - **Temperature Alert:** a trap notification will be sent when the camera temperature rises above or falls below the supported threshold. A notification will also be sent when the camera temperature returns to normal.
            - **Camera Tampering:** a trap notification will be sent when the camera's video analytics detects a sudden scene change.
            - **Edge Storage Status:** a trap notification will be sent when the status of the SD card changes.

    - **SNMP v3:** Using SNMP v3, you can request status information through an SNMP Get request. SNMP v3 does not support traps.

      SNMP v3 offers greater security by allowing you to set a username and password for the camera. This camera uses SHA-1 type authentication and AES type encryption.

      In the SNMP v3 Settings area, complete the following:

        a. **Username:** enter the username that the management station must use when sending the SNMP Get request to the camera.

        b. **Password:** enter the password the management station must use with the chosen username.

4. Click **Apply** to save your changes.

Image and Display

On the Image and Display page, you can control the camera's video display settings, including the camera's electronic zoom and focus controls and day/night and exposure settings. The page includes an image panel that displays the camera's live video stream. When you click **Apply** to save your changes, the video stream is updated.

NOTE: This setup page is not available for encoders, and some options are not available if they are not supported by the camera model you are using.

Zoom and Focus Controls

1. Use the Zoom controls to adjust the camera's zoom position.
2. To manually focus the camera, use the **Focus** buttons:
    - To focus towards infinity:
        - Click **>>** to take a large step.
        - Click **>** to take a small step.
        - Click **Inf** to focus at infinity.
    - If available, click **Auto Focus** to let the camera focus itself.

    On cameras with an Iris option, select **Open** in the drop down list before using the **Focus** buttons to ensure a more accurate focus.

    NOTE: Once the focus is manually set, it will not change unless re-set.
3. Click the **Auto Focus** or the **Continuous Focus** option to enable the camera to focus itself whenever the scene changes if the camera has a built-in auto focus feature.
4. If the camera becomes defocused at night, adjust the **IR Focus Offset** setting to compensate for the focus shift caused by the built-in or external IR illuminators.
    a. Set the **IR Cut Filter** to Monochrome. The changes to the IR Focus Offset setting are not visible in color mode.
    b. Move the **IR Focus Offset** slider to the left to focus on closer objects and move the slider to the right to focus on farther objects.
    c. Set the **IR Cut Filter** back to Automatic.

    NOTE: The IR Focus Offset setting is reset each time you change the Zoom or Focus setting.

Multi-head Camera Adjustments (HD Multisensor Dome camera only)

If you are adjusting a multi-head camera, there are options that apply to the camera as a whole or to individual heads.

1. Select the All Heads tab to adjust the settings that apply to the whole camera.
2. In the All Heads tab, you can set the **Imaging mode**:
    - **Global** — apply the same settings to all camera heads. Use the settings listed in the All Heads tab to adjust the camera image settings. The same settings for each numbered tab is disabled.
    - **Per-head** — apply different settings to each camera head. Select the different tabs to change the settings for each camera head.
3. Select each numbered tab to adjust the zoom and focus controls for each camera head. These settings must be manually adjusted for each camera head.

Environmental Compensation (HD Multisensor Dome, HD Dome and Bullet Cameras with Adaptive Video Analytics)

To set how the camera compensates for the environmental lighting conditions, define the following settings:

- **Day/Night Mode:** Use the Day/Night Mode drop down list to set how the video image switches between day and night mode.
    - **Automatic**: When the light level is above the day/night threshold, the video image will be in color. When the light level goes below the day/night threshold, the camera will automatically open the IR cut filter and switch to monochrome mode. If IR illuminators are enabled, they also turn on.

      When the Day/Night Mode setting is set to **Automatic** you can use the **Day/Night Threshold (EV)** slider to set the day/night threshold. Move the slider to set the light level when the camera switches between day mode and night mode. The slider value is in Exposure Values (EV).

      In day mode, the last known light level is displayed under the image panel and is also shown as a blue bar on the Day/Night Threshold slider.

    - **Color**: The video image will always be in color.
    - **Monochrome**: The video image will always be monochrome.
    - **External**: The camera will open the IR cut filter and switch to monochrome mode based on the digital input circuit state.

      NOTE: The default digital input circuit state is configured on the Digital Inputs and Outputs page. For more information see *Digital Inputs and Outputs* on page 22.
- **Enable IR:** You can manually enable or disable the IR illuminators that are installed on the camera.
- **Enable Adaptive IR Compensation:** You can enable automatic infrared adjustments through Adaptive IR Compensation. This allows the camera to automatically adjust the video image for saturation caused by IR illumination.

Video Image Adjustments (H.264 HD and HD Dome, HD and HD Dome and HD Bullet IR, Day/Night 20x HD PTZ Dome camera, and Micro Dome cameras)

To adjust the video image, make changes to any of the following settings:

- **Exposure:** You can allow the camera to control the exposure by selecting **Automatic**, or you can set a specific exposure rate.

  NOTE: Increasing the manual exposure time may affect the image rate.

- **Iris:** You can allow the camera to control the iris by selecting **Automatic**, or you can manually set it to **Open** or **Closed**.
- **IR Cut Filter:** Use the IR Cut Filter drop down list to set how the camera compensates for environmental lighting conditions:

  Set to **Automatic** to allow the camera to control the IR cut filter. During the day, the camera typically uses color mode as there is lots of light. At night, the camera opens the IR cut filter and switches to monochrome mode and uses infrared light to detect objects in the scene. If IR illuminators are available, they also turn on.

  Set to **Color** to make the image always be in color.

  Set to **Monochrome** to make the image always be monochrome.

  Set to **External** to have the IR Cut Filter triggered based on a digital input state.

  NOTE: The default digital input state must be configured on the Digital Inputs and Outputs page. For more information see *Digital Inputs and Outputs* on page 22

- **IR Cut Filter Threshold:** (PTZ cameras only) You can control when the camera switches between color and monochrome mode by setting an IR cut filter threshold. This setting is only available when the IR Cut Filter is set to **Automatic**.
  - Set to **High** to cause the camera to switch modes during the day such as when it is overcast.
  - Set to **Medium** to cause the camera to switch in dimmer scenes such as twilight. This is the default setting.
  - Set to **Low** to cause the camera to switch when the scene is dark, such as at night.
- **IR Cut Filter Hysteresis:** (PTZ cameras only) You can set how the camera controls the IR cut filter to switch between color and monochrome mode by setting the hysteresis range. This setting is only available when the IR Cut Filter setting is set to **Automatic**.
  - Set to **High:** when the camera should switch modes when the difference between light and dark levels are large. This setting is appropriate for scenes with external IR illuminators or large variations in light levels. This is the default setting.
  - Set to **Low** when the camera should switch modes when the difference between light and dark levels are smaller. This setting is appropriate for dimly lit scenes such as large interiors with sparse lighting.
- **Flicker Control:** If your video image flickers because of the fluorescent lights around the camera, you can reduce the effects of the flicker by setting Flicker Control to the same frequency as your lights. Generally, Europe is **50Hz** and North America is **60Hz**.
- **Backlight Compensation:** If your scene has areas of intense light that cause the overall image to be too dark, change the Backlight Compensation value until you achieve a well exposed image.

- **Maximum Exposure:** You can limit the automatic exposure setting by selecting a maximum exposure level.

  By setting a maximum exposure level for low light situations, you can control the camera's exposure time to let in the maximum amount of light without creating blurry images.

- **Maximum Gain:** You can limit the automatic gain setting by selecting a maximum gain level.

  By setting the maximum gain level for low light situations, you can maximize the detail of an image without creating excessive noise in the images.

- **Priority:** You can set **Max Image Rate** or **Exposure** as the priority.
  - When set to **Max Image Rate**, the camera will maintain the set image rate as the priority and will not adjust the exposure beyond what can be recorded for the set image rate.
  - When set to **Exposure** the camera will maintain the exposure setting as the priority, and will override the set image rate to achieve the best image possible.
- **Saturation:** You can adjust the video's color saturation by entering a percentage number. 0 creates a black and white image, while 100 creates intense color images.
- **Sharpness:** You can adjust the video's sharpness by entering a percentage number. 0 applies the least amount of sharpening, while 100 applies the most sharpening to make the edges of objects more visible.
- **Brightness:** You can adjust the video's brightness by entering a percentage number. 0 creates a dark image, while 100 creates a light-filled image.
- **Contrast:** You can adjust the video's contrast by entering a percentage number. 0 applies the least amount of contrast, while 100 applies the most contrast.
- **White Balance:** You can control the white balance settings to adjust for differences in light.

  You can allow the camera to control the white balance by selecting **Automatic**, or select **Custom** and manually set the Red and Blue settings.

- **WDR:** You can enable automatic color adjustments through Wide Dynamic Range (WDR). This allows the camera to adjust the video image to accommodate scenes where bright light and dark shadow are clearly visible.
- **IR Enabled:** You can manually enable or disable the IR illuminators that are installed on the camera.
- **Enable Adaptive IR Compensation:** You can enable automatic infrared adjustments through Adaptive IR Compensation. This allows the camera to automatically adjust the video image for saturation caused by IR illumination.

Adjustments

HD Multisensor, HD Dome and Bullet Cameras with Adaptive Video Analytics

On the Adjustments page, you can control the video image color, contrast, and brightness settings. The page also includes an image panel that displays the camera's live video stream. When you click **Apply** to save your changes, the video stream is updated.

NOTE: This setup page is not available for encoders, and some options are not available if they are not supported by the camera.

1. In the left menu pane, select **Image and Display** > **Adjustments**.
2. Adjust the video image as required.

   You can either use a preset configuration, or you can create your own custom configuration. Use the **Preset** drop down list to select the preferred configuration:

   a. **Avigilon:** This preset provides the recommended balance of brightness and color for video surveillance.
   b. **Standard:** This preset is configured for general day/night changes in an indoor or outdoor scene.
   c. **Vivid:** This preset provides increased color and brightness for a more saturated image.
   d. **Custom:** Select this option to manually adjust the following color settings:

      NOTE: The Brightness and Contrast settings are disabled if Wide Dynamic Range is enabled.

      - **Saturation:** You can adjust the video's color saturation by entering a percentage number.

        0 creates a black and white image, while 100 creates intense color images.

      - **Sharpness:** You can adjust the video's sharpness by entering a percentage number.

        0 applies the least amount of sharpening, while 100 applies the most sharpening to make the edges of objects more visible.

      - **Brightness:** You can adjust the video's brightness by entering a percentage number.

        0 creates a dark image, while 100 creates a light-filled image.

      - **Contrast:** You can adjust the video's contrast by entering a percentage number.

        0 applies the least amount of contrast, while 100 applies the most contrast.

3. Use the **White Balance** drop down list to select how the white balance settings are controlled:
   - **Automatic** — The camera will automatically control the white balance.
   - **Custom** — Manually set the **Red** and **Blue** levels.
4. Move the **Temporal Filter Strength** slider slightly to the left or right to adjust the amount of noise vs. blur in the scene. A temporal filter reduces image noise by averaging the image over several frames.

   Tip: Start by making small adjustments only because applying excessive changes may degrade overall image quality.

   If the image looks noisy, move the slider to the right to reduce the amount of noise in the scene and decrease the bandwidth used.

   If the image looks blurry, move the slider to the left to reduce the amount of blur in the scene and increase the bandwidth used.

   By default, the slider is set to the middle, i.e. 50.

Compression and Image Rate

On the Compression and Image Rate page, you can change the camera's compression and image quality settings for sending video over the network.

To enable easy access and lower bandwidth usage, the web interface only displays video in JPEG format and cannot be changed. The settings on this page only affect the video transmitted to the network video management software.

The Avigilon cameras covered by the is guide have dual stream capabilities, so even when the camera's streaming format is set to H.264, the camera's web interface can still display live video in JPEG format.

However, cameras that are connected to an Avigilon encoder do not typically have multi-stream capabilities. So once you set the video streaming format to H.264, live video from that camera is no longer displayed in the web interface.

NOTE: You can only set the RTSP stream settings in the camera web interface.

NOTE: The camera may automatically adjust compression quality in order to abide by the bandwidth cap specified.

1. In the **Format** drop down list, select the preferred streaming format for displaying the camera video in the network video management software.

   If you are using the Onboard Storage feature, select **H.264**. For more information, see *Enabling Onboard Storage* on page 20.

2. In the **Max Image Rate** field, enter a number between 1-30 to indicate how many images per second you want the camera to stream over the network.

3. In the **Max Quality** drop down list, select the desired image quality level.

   Image quality setting of 1 will produce the highest quality video and require the most bandwidth.

4. In the **Max Bitrate** field, enter the maximum bandwidth the camera can use. You can enter any number between 200-12000 kbps.

5. In the **Resolution** drop down list, select the preferred image resolution.

6. In the **Keyframe Interval** field, enter the number of frames between each keyframe. You can enter any number between 2-64.

7. Click **Apply** to save your changes.

Viewing the RTSP Stream URI

On the Compression and Image Rate page, you can also generate the camera's real time streaming protocol (RTSP) address. The RTSP Stream URI allows you to watch the camera's live video stream from any application that supports viewing RTSP streams, including many video players.

NOTE: You can only generate the RTSP stream address in the camera web interface.

1. If the Generate RTSP Stream URI button is not available, the RTSP stream URI is auto-generated.

   In the RTSP Stream URI area, the auto-generated URIs are displayed:

   - **Unicast** — select this option if you only plan to view the video stream from one video player at a time.
   - **Multicast** — select this option if you plan to view the video from more than one video player simultaneously.

     To view the RTSP stream:

     a. Copy and paste the generated address into your video player. DO NOT open the live video stream yet.
     b. Add your username and password to the beginning of the address in this format:

        rtsp://<username>:<password>@<generated RTSP Stream URI>/

        For example:
        `rtsp://admin:admin@192.168.1.79/defaultPrimary?streamType=u`

     c. Open the live video stream.

2. To watch the camera's live video stream from an external video player, click **Generate RTSP Stream URI**.

   The generated address is displayed at the bottom of the RTSP Stream URI area.

Accessing the Still Image URI

On the Compression and Image Rate page, you can access the last still image frame that the camera recorded.

- To access the still image, click the URI link in the Still Image URI area.

The last recorded frame of video from the camera's primary stream is displayed. You can choose to save or print the image directly from the browser.

Motion Detection

On the Motion Detection page, you can define the green motion detection areas in the camera's field of view. Motion detection is ignored in areas not highlighted in green.

To help you define motion sensitivity and threshold, motion is highlighted in red in the image panel.

NOTE: This motion detection setting configures pixel change detection in the camera's field of view. If you are configuring an Avigilon video analytics camera, you will need to configure the detailed analytics motion detection and other video analytics features through the Avigilon Control Center Client software. For more information, see the *Avigilon Control Center Client User Guide*.

1. Define the motion detection area.

   The entire field of view is highlighted for motion detection by default. To define the motion detection area, use any of the following tools:

   - Click **Clear All** to remove all motion detection areas on the video image.
   - Click **Set All** to set the motion detection area to span the entire video image.
   - To set a specific motion detection area, click **Select Area** then click and drag anywhere on the video image.
   - To clear a specific motion detection area, click **Clear Area** then click and drag over any motion detection area.
   - Use the **Zoom In** and **Zoom Out** buttons to locate specific areas in the video image.

2. In the **Sensitivity** field, enter a percentage number to define how much each pixel must change before it is considered in motion.

   The higher the sensitivity, the smaller the amount of pixel change is required before motion is detected.

3. In the **Threshold** field, enter a percentage number to define how many pixels must change before the image is considered to have motion.

   The higher the threshold, the higher the number of pixels must change before the image is considered to have motion.

4. If the camera is connected to a third-party video management system (VMS), check the **Enable Onvif MotionAlarm Event** check box.

   Once enabled, the H.264 camera can send motion alarm information to the VMS according to the appropriate ONVIF protocol.

   NOTE: Only H3 Multisensor and H3A cameras support the ONVIF MotionAlarm feature.

5. Click **Apply** to save your changes.

Tamper Detection

On the Tamper Detection page, you can set how sensitive the camera is to tampering.

To set the options for tampering:

1. In the **Sensitivity** field, enter a number between 1 and 10 to define how sensitive the camera is to a sudden change in the scene. The higher the setting, the more sensitive the camera is to detect scene changes.

   NOTE: A sudden change in the scene is usually caused by someone unexpectedly moving the camera. Lower the setting if small changes in the scene, like moving shadows, trigger too many tampering events. If the camera is installed indoors and the scene is unlikely to change, you can increase this setting to capture more unusual events.

2. In the **Trigger Delay** field, enter the number of seconds (up to 30 seconds) that the tamper condition must persist in the scene before the tamper event is sent.

Tamper Detection Switch

Cameras with a tamper detection switch can detect attempts to dismount the device. When the tamper detection switch is activated, an event notification is forwarded to the ACC system and alarms can be triggered to alert operators.

If the ACC system is integrated with the Avigilon Access Control Manager (ACM) software, the event is forwarded to the ACM™ software and processed according to its configuration.

In the Tamper Detection Switch sub section, you can view the tamper switch status and configure the Safety Relay behavior.

1. The Status field reports the state of the tamper detection switch:
   - **No Tamper**: The tamper detection switch is in its normal operating state.
   - **Tamper Detected**: The tamper detection switch has been activated (or the camera is not properly installed). If the camera is connected to a Safety Relay, lockout mode is activated, keeping the door securely locked, only permitting exiting from the secure side.
   - **Disabled**: Tamper detection switch is not enabled on the camera.
2. Check **Enable Tamper Detection Switch** if you want the camera to send notifications when the tamper detection switch is activated. This option is enabled by default.
   - Notifications received by a Safety Relay connected to the camera will activate the lockout mode, keeping the door securely locked, only permitting exiting from the secure side.
   - Notifications received by the ACC system integrated with an ACM system are forwarded to the ACM system for processing according to its configuration.
3. Check **Trigger Tamper Detection Switch On Video Tamper** if you want sudden changes in the camera's view to be treated by the ACC system as though the tamper detection switch has been activated. This option is disabled by default.
4. Click **Apply** to save your changes.

Privacy Zones

On the Privacy Zones page, you can set privacy zones in the camera's field of view to block out areas that you do not want to see or record. The camera supports up to four privacy zones.

1. To add a privacy zone, click **Add**. A privacy zone box is added to the video image.
2. To define the privacy zone area, perform any of the following:
   a. Drag the bottom or right side of the box to resize the privacy zone.

      NOTE: Privacy zones can only be rectangular in shape.

   b. Click the center of the box then drag to move the privacy zone.
   c. Click the **X** at the top right corner of the gray box to delete the privacy zone.

3. Click **Apply** to save the privacy zone settings.
4. If you are using a PTZ camera, a list of privacy zones is available at the bottom of the page. When you click one of the privacy zones, the camera moves and highlights that privacy zone in the image panel.

Storage

On the Storage page, you can enable the camera's onboard storage feature and download recorded video directly from the camera. Onboard storage is available only on cameras equipped with an SD card slot.

Enabling Onboard Storage

To use the camera's onboard storage feature, you must first insert an SD card into the camera. Refer to the camera's installation manual for the location of the SD card slot.

1. On the Storage page, select the **Enable Onboard Storage** check box.
2. By default, the camera is set to only record to the SD card when it is unable to communicate with the network video management server. If you prefer to have the camera record video to both the network video management server and to the SD card, clear the **Record only when server connection is interrupted** check box to disable the setting.
3. Select one of the following recording modes:
   - **Continuous:** the camera never stops recording to the SD card.
   - **On Motion:** the camera only records when there is motion in the scene.

     If you are configuring an Avigilon video analytics camera, the On Motion setting will record either pixel change in the scene or analytics motion events depending on how the camera is configured in the Avigilon Control Center Client software.

   The recorded video will be divided into files no more than five minutes in length or 100 MB in size.
4. On the Compression and Image Rate page, make sure the format is set to **H.264** to maximize the SD card recording capacity and performance.

Downloading Recorded Video from the Web Interface

Listed in the Recordings section are all the videos that have been recorded to the SD card.

It is recommended that you download recorded video from the web interface. However, if your bandwidth is limited, you can choose to download the recorded video directly from the SD card. For more information, see *Downloading Recorded Video from the SD Card* on the next page.

To download recorded video from the web interface, perform the following:

1. On the Storage page, select the check box beside all the videos you want to download.

   To help you find the video you want, you can filter the videos by date and time. Select the **Filter** check box then select the time range.
2. Click **Download**.

The selected video files are automatically downloaded to your browser's default Downloads folder. If you are prompted by the browser, allow the download to occur.

NOTE: Do not close your browser window until the download is complete or the file may not download correctly. This is important if you are downloading multiple video files because the files are downloaded one by one.

Downloading Recorded Video from the SD Card

If you do not have enough bandwidth to download recorded video directly from the web interface, you can choose to download the recorded video directly from the SD card.

To download recorded video directly from the SD card, perform the following:

1. In the Settings area, disable onboard storage by clearing the **Enable Onboard Storage** check box then click **Apply**.
2. Remove the SD card from the camera.
3. Insert the SD card into a card reader.
4. When the Windows AutoPlay dialog box appears, select **Open folder to view files**.
5. Open the Avigilon Camera Footage application.

   The Avigilon Camera Footage window lists all the video files that are stored in the SD card.

   - To download all the recorded videos, click **Download All**.
   - To download specific video, select the video files you want then click **Download Selected**.
6. When you are prompted, choose a location to save the video files.

   The files start downloading from the SD card and are saved to the selected location.
7. When you are ready, eject the SD card.
8. Insert the SD card back into the camera then select Enable Onboard Storage to begin recording to the SD card again.

Deleting Recorded Video

As the SD card becomes full, the camera automatically starts overwriting the oldest recorded video. You can also choose to manually delete video to make room for new recordings.

On the Storage page, you can choose to delete video in the following ways:

- To delete individual video files, select all of the files you want to delete from the Recordings list then click **Delete**.
- To delete all of the recorded video files, click **Format Card** to format the SD card.

Digital Inputs and Outputs

On the Digital Inputs and Outputs page, you can set up the external input and output devices that are connected to the camera. This option does not appear for cameras that do not support digital inputs and outputs.

1. To configure a digital input:
    a. In the Digital Inputs area, enter a name for the digital input in the **Name** field.
    b. Select the appropriate state from the **Circuit State** drop-down list. The options are:
        - **Normally Open**
        - **Normally Closed**
    c. Click **Apply** to save your changes.

    Once the digital input is connected to the camera, you will see the connection status in the **Circuit Current State** area. The status is typically *Open* or *Closed*.
2. To configure a digital output:
    a. In the Digital Outputs area, enter a name for the digital output in the **Name** field.
    b. Select the appropriate state from the **Circuit State** drop-down list.
    c. In the **Duration** field, enter how long the digital output is active for when triggered. You can enter any number between 100 and 86,400,000 milliseconds.
    d. Click **Trigger** to manually trigger the digital output from the web interface.
    e. Click **Apply** to save your changes.

Microphone

If a microphone is supported by the camera and is connected to the camera, you can adjust the gain on the Microphone page. The higher the gain setting, the higher the microphone volume.

- Enter a number between the available range displayed on the right then click **Apply**.

If you are configuring an Avigilon Fisheye camera, there are two fields available:

1. **Internal Microphone Gain** — configures the gain for the microphone that is built into the camera.
2. **External Source Gain** — configures the gain for any microphone that is connected to the audio input.
3. In either field, enter a number between the available range displayed on the right then click **Apply**.

Speaker

If a speaker is supported by the camera and is connected to the camera, you can adjust the volume on the Speakers page.

- Enter a number between 0 and 100 to set the speaker volume then click **Apply**.

Users

On the Users page, you can add new users, edit existing users, and change passwords.

Adding a User

1. On the Users page, click **Add...**.
2. On the Add User page, enter a User Name and Password for the new user.
3. In the **Security Group** drop-down list, select the access permissions available to this new user.
    - **Administrator**: full access to all the available features in the camera web interface, including PTZ controls
    - **Operator**: has access to the Live View and PTZ controls but limited access to the Setup features. The user can access the General page, Image and Display page, Compression and Image Rate page, Motion Detection page, Privacy Zones page, Digital Inputs and Outputs page, Microphone page and the Speakers page. The new user can also configure onboard storage settings but cannot delete video recordings or format the SD card.
    - **User**: has access to the Live View and optional PTZ controls, but cannot access any of the Setup pages. To enable the PTZ controls, select the Use PTZ Controls check box.
4. Click **Apply** to add the user.

Editing Users and Passwords

1. On the Users page, select a user from the User Name (Security Group) list and click **Modify**.
2. To change the user's password, enter a new password for the user.
3. To change the user's security group, select a different group from the **Security Group** drop-down list.

    NOTE: You cannot change the security group for the administrator account.
4. Click **Apply** to save your changes.

Removing a User

NOTE: You cannot remove the default Administrator user.

1. On the Users page, select a user from the User Name (Security Group) list.
2. Click **Remove**.

Keeping Usernames and Passwords After Firmware Revert

NOTE: This feature is only available to cameras and not encoders.

To add a layer of security to protect the camera from theft, you have the option of keeping the camera's current usernames and passwords after a firmware revert.

Normally if you revert the camera firmware back to the factory default settings, the camera reverts to using the default username and password. When you enable this feature, the camera will continue to use the configured username and passwords even after the camera is reverted to its factory default settings.

Important: If you forget your username or password after enabling this setting, your camera warranty becomes void because you have disabled the primary method of restoring the factory default username and password.

1. At the bottom of the Users page, check the **Do not clear usernames or passwords on firmware revert** check box.
2. After you select the check box, the following popup message appears:

   > *Please store your administrator password in a safe place. Password recovery is not covered by warranty and loss of password may void your warranty.*

   Click **OK** if you agree to the feature limitations.

Always keep a copy of your password in a safe place to avoid losing access to your cameras.

System

On the System page, you can manually upgrade the camera firmware, reboot the camera, and restore all of the camera's factory default settings.

- Click **Reboot** to restart the camera or encoder.
- Click **Restore** to revert the camera or encoder firmware back to the factory default settings.

  Tip: If you've enabled the feature that maintains your username and password after a firmware revert, make sure you have a written copy of your current usernames and passwords. For more information, see *Keeping Usernames and Passwords After Firmware Revert* on the previous page.
- To upgrade the camera or encoder firmware, see *Upgrading the Camera Firmware* below.

Upgrading the Camera Firmware

To manually upgrade the camera 's firmware:

1. Download the latest version of the firmware .bin file from the Avigilon website (**avigilon.com/support-and-downloads/**) and complete the following steps:
2. On the System page, click Choose File to browse and locate the downloaded firmware file.
3. Click **Upgrade**. Wait until the camera upgrade is complete.

Device Log

The Device Log page allows you to view the camera's system logs and the camera access logs.

The most recent log event is always displayed first.

1. In the **Type** drop-down list, select one of the following:
    - **Access Logs** — Logs of users who have logged into the web interface.
    - **System Logs** — Logs of camera operations.
2. In the **Minimum Log Level** drop-down list, select the minimum level of log message you want to see:
    - **Error** — Sent when the camera encounters a serious error. These are the highest level log messages.
    - **Warning** — Sent when the camera encounters a minor error such as an invalid username and password.
    - **Info** — Status information sent by the camera. These are the lowest level log messages.
3. In the **Maximum Number of Logs** drop-down list, select the number of log messages you want displayed.
4. Click **Update**.

    The logs update to display the filtered information.

HD Multisensor Dome Camera

Avigilon HD Multisensor Dome Cameras use the same settings as the other cameras referenced in this guide, except these settings are multiplied by the number of heads on the camera. You can configure each head on the camera individually.

When you see the camera's video display, you will see either three or four image panels displayed — one for each head on the camera:

The top-left image panel is always for Head 1. The odd numbered heads are displayed on the left, and the even numbered heads are displayed on the right.

To control the video display:

- Click on an image panel then use the zoom and focus controls to adjust the video image.
- Move your mouse into the image panel then click to maximize the image panel. Click to restore the image panel.

Changing Settings Per Camera Head

When you adjust the video image settings, you will typically see a tab for each camera head. To change settings for a specific camera head, select that head's tab on the settings page and make the required changes.

If no tabs are displayed, the settings apply to the camera as a whole.

The **All Heads** tab is only displayed on the Image and Display, Adjustments, and Motion Detection pages. The **All Heads** tab on these pages allows you to change settings that apply to the whole camera and settings that can apply to specific camera heads.

1. Select the **All Heads** tab to adjust the settings that apply to the whole camera. These settings include Flicker Control and Enable WDR on the Image and Display page, as well as Saturation, Brightness, Sharpness and Contrast on the Image and Display > Adjustments page.
2. In the All Heads tab, you can set the **Imaging mode**:
    - Select **Global** to apply the same settings to all camera heads. Use the settings listed in the All Heads tab to adjust the camera image settings. The same settings for each numbered Head tab are disabled.
    - Select **Per-head** to apply different settings to each camera head. Select the different tabs to change the settings for each camera head.
3. Select each numbered tab to adjust the focus controls for each camera head. These settings must be manually adjusted for each camera head.

For more information about the different Image and Display settings, see *Image and Display* on page 11.

PTZ Camera

Avigilon™ H.264 HD PTZ cameras use many of the same settings as the other cameras referenced in this guide. The following settings are only available to PTZ cameras.

Creating PTZ Tours

For PTZ cameras, you have the option of running Tours from the Live View page. Tours allow the PTZ camera to automatically move between a series of preset positions, and can be set to pause at each preset for a specific amount of time for video monitoring.

NOTE: All the required presets must be added before a new tour can be created. For more information, see *Using Camera Presets* on page 3.

To create a tour, complete the following:

1. From the left-menu pane, select **PTZ Tours**.
2. Click **Create New Tour**.

   The New Tour dialog is displayed.
3. In the **Name** field, give the tour a name.
4. In the **Mode** drop-down list, select one of the following:
   - **Sequential:** the PTZ camera will go to each preset in the set order.
   - **Random:** the PTZ camera will go to each preset in random order.
5. Select the **Set as default tour** check box if you want this tour to run automatically.
   - The Default Tour Idle Start Time (Minutes) field is now enabled, enter the amount of time the PTZ camera must be idle for before this tour automatically begins.
6. In the **Tour Pause Duration (Minutes)** field, enter the amount of time before the tour repeats. Tours repeat until manually stopped, or until other PTZ controls are used.
7. To add a preset, click **Add Preset** and a preset is added to the list.
   a. In the Preset column, select a preset from the drop-down list.
   b. In the Move Speed column, enter a percentage of the maximum speed defined on the PTZ Limits page. This option sets how fast you want the PTZ camera to move to this preset. The Move Speed is 80% by default.
   c. In the View Time column, enter the amount of time you want the PTZ camera to stay at this preset position. The view time is 10 seconds by default.
   d. Continue until all the presets for this tour have been added.
8. To remove a preset, click the **(x)** icon to the far right of the preset.
9. To re-order a preset, click the up and down arrows or click and drag the left edge of the preset through the list.
10. Click **Apply** to save the tour.

Editing PTZ Tours

1. From the left menu pane, select **PTZ Tours**.
2. Click **Edit** beside the tour that you want to edit.
3. Make the changes you need.
4. To undo the changes that you've made, click **Discard Changes**.
5. Click **Apply** to save your changes.
6. To delete the tour, click **Delete Tour**. Click **OK** when the confirmation dialog box appears.

Defining PTZ Limits

Depending on where the PTZ camera is installed, you may want to limit the movement and zoom of the camera so that obstructions are never in view. For example, if the PTZ camera is installed close to the side of a building, you can set the limits so that the PTZ camera cannot move to show the wall it is installed against.

NOTE: Features and options are disabled if they are not supported by the camera.

1. From the left menu pane, click **PTZ Limits**.
2. To limit the maximum movement range, you can do one of the following:
   - In the image panel, move the PTZ camera as far left as you want to display then click the **From**  icon for the Pan Limit. Move the camera to the farthest point to the right and click the **To**  icon. Repeat this procedure for the Tilt Limit, only move the camera up and down. For information about moving the PTZ camera, see *Using the PTZ Camera Controls* on page 4
   - Below the image panel, you can set the Pan and Tilt Limit by adjusting the position of the two black dots on each circle. The gray area shows the set degree of movement. The Pan Limit sets the horizontal movement range and the Tilt Limit sets the vertical movement range.

     The blue arrow helps you identify where the camera is currently pointing.
3. To set the **Lens Zoom Limit**, enter a maximum zoom level. Enter a number between the available range displayed on the right.
4. To set the **Max Move Speed**, enter a maximum number of degrees per second to limit the speed that the camera is permitted to move. Enter a number between the available range displayed on the right.
5. To allow the camera to automatically correct the video image when the camera tilts more than 90°, select the **Enable E-Flip** check box. When this option is disabled, the video image is upside down when the camera tilts more than 90°.
6. Click **Apply** to save your settings.

Encoder

Avigilon H.264 HD encoders use many of the same settings as the cameras, but the following settings are only available to encoders.

Selecting a Port or Channel Option

An encoder can have up to 4 cameras and 4 audio devices connected at one time, so some pages in the web interface include a set of options for each port or channel on the encoder.

On pages with live video options, like Live View and Motion Detection, you can change the displayed camera by selecting a **Port** number from the drop down list.

On setup pages without video, the options are divided by video port or audio channel so that different options can be applied to each.

Enabling Video Input Termination

- To enable the video input termination, select a Port check box on the General page.

Setting Up PTZ

The H.264 encoders have pan, tilt and zoom (PTZ) setup options. Once enabled, the Live View will display the PTZ controls for the camera.

1. From the left setup menu, click **PTZ**.
2. Select a **Baud Rate** and **Parity**.
3. For each port that is connected to a PTZ camera, select the **Enable PTZ** check box.
4. Select a **Protocol** and enter a **Dip Switch Address**.
5. Click **Apply**.
6. To use the PTZ controls, see *Using the Encoder PTZ Controls* on page 5.