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Web Interface User Guide

Avigilon™ High Definition H.264 IP Camera Models:

H4A-B, H4A-G-B, H4A-BO-IR, H4A-G-BO-IR, H4A-D, H4A-DC, H4A-DO, H4A-G-DO-IR, H4A-DP, H4A-G-DP-IR, H4F-DO, H4PRO-B, H4PTZ-DC, H4PTZ-DP, H4SL-BO, H4SL-DO, H3A-DP, H3A-BO-IR, H3A-D, H3A-DC, H3A-DO, H3A-DP

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PDF-H4WebUI-C

Revision: 1 - EN

20170417

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Introduction

All Avigilon high definition H.264 IP cameras include a web interface that allows you to view live video and configure the camera through a web browser.

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

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

System Requirements

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

- Windows Internet Explorer browser version 7.0 or later
- Mozilla Firefox browser version 3.6 or later
- Chrome browser 8.0 or later
- Safari 5.0 or later
- Android 2.2 (Froyo) browser or later
- Apple iOS 5.0 browser or later

Accessing the Camera Web Interface

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

- Avigilon Control Center (ACC)™ software — Open the device Setup tab to see the details of the selected camera.
- Avigilon Camera Configuration Tool — Go to the Network tab to see the details of the selected cameras.

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 access to the same network as the camera, enter the camera'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 for most cameras is `administrator` with no password.

   The default username for HD Pro and H3A cameras is `admin` and the default password is `admin`.

   It is recommended that you add a password after your first login. For more information, see *Editing Users and Passwords* on page 20.

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.

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 are 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 20.

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.

NOTE: Only users in the **Operator** and **Administrator** security groups can add or remove presets. For more information on security groups, see *Adding a User* on page 20.

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. To add this camera position as a preset, enter a name in the **Add Preset** field then click **Add**.
3. To use a preset, select a configured preset from the **Presets** drop down list and click **Go**.
4. To delete a preset, select a preset from the drop down list then click **Remove**.

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

Using the PTZ Camera Controls

If you are accessing an Avigilon H4 PTZ dome camera, you can control the zoom, 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:

   - Besides using the Zoom slider, you can also 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 an option from the**Tours** drop down list then click **Start**. To setup a tour, see *Creating PTZ Tours* on page 23.

4. To stop a guard tour, click **Stop**. You can pause a tour at any time just by using the other PTZ controls.

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 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 17.

- 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 13.

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 17.

Setup

NOTE: Some options are disabled if they are not supported by the camera or if you do not have the required user permissions.

The device's 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 links area, click **Setup** to display all the available setup options.

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

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

For the settings that are specific to PTZ cameras, see *PTZ Camera* on page 23.

For information specific to H4 Edge Solution (ES) cameras, see *ACC ES* on page 25.

General

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

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

1. In the **Name** field, give the camera a meaningful name.
2. In the **Location** field, describe the camera's location.
3. Select the **Disable camera status LEDs** check box to disable the LEDs located on the camera.
4. From the **Mode** drop down list, select the mode that the camera will operate in.

   This option is only displayed for higher bandwidth usage cameras.

   - **Full Feature** — This is the standard operating mode. Offers the full functionality of the camera.
   - **High Framerate** — This mode will use the maximum image rate possible but may disable self-learning video analytics or Wide Dynamic Range (WDR).
5. 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 Time
   - Display GMT Offset
   - Display Name
   - Display Location

6. In the Time Settings area, select how the camera keeps time.
    - If you prefer to manually set the camera's date and time, enter the 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.

      At the bottom of the page, you can click on *(Configure NTP Server)* link to go to the Network page. For more information on configuring the NTP server, see *Network* below.
7. Click **Apply** to save your settings.

Network

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

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 obtained from a DHCP server. If it cannot, 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.
        - **IP Address** — Enter the IP Address you want to use.
        - **Subnet Mask** — Enter the Subnet Mask you want to use.
        - **Default Gateway** — Enter 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. In the DNS Lookup area, select how the camera 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 camera 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 camera will attempt to connect to this server.
4. If you need to customize the hostname, enter it in the **Hostname** field.

5. 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

  If you want to limit camera access to secure connections only, clear the **Enable HTTP connections** check box. HTTP Port access is enabled by default.

- **HTTPS Port**: 443
- **RTSP Port**: 554

6. 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 keep time through an external 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:

  - Select the **Use NTP server when not connected to an external 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 5.
  - **DHCP:** select this option to automatically use an NTP server on the network.
  - **Manual:** select this option to manually enter a specific NTP server address in the **NTP Server** field.

7. 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.

8. 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. In the left menu pane, select **Network > 802.1X** page link.

2. On the Configure 802.1X Profiles page, select the preferred authentication method. You can configure multiple. Be aware that you can only enable one profile 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.

   Saved configurations are listed under **Saved 802.1X Configurations**.

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 what 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, 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 request 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 an unexpected 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 the camera for 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

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

On the Image and Display page, you can control the camera's day/night and exposure settings.

The Image and Display 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 to use the new settings.

Below the image panel, the following information is displayed on the right:

- Current Exposure
- Current Gain
- Current Iris
- Last Known Light Level

Avigilon cameras have electronic zoom and focus controls, so you can set the camera's zoom and focus through this page as well.

1. Use the **Zoom** slider to adjust the camera's zoom position.
   - To zoom out, move the slider towards the right.
   - To zoom in, move the slider towards the left.
2. To manually focus the camera, use the **Focus** buttons:
   - 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 available, click **Auto Focus** to let the camera focus itself.

      NOTE: Once the focus is manually set, it will not change.
3. If the camera becomes defocused while in monochrome mode at night, adjust the **IR Focus Offset** slider to compensate for the focus shift caused by the built-in or external IR illuminators.
4. 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.

         Use the Day/Night Threshold 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 is only available when the Day/Night Mode setting is set to **Automatic**.

         The slider may display one of the following values:
         - **Day/Night Threshold (EV):** 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.
         - **Day/Night Threshold (gain dB):** The slider value is in decibels (dB).
   - Use the **Hysteresis** setting to refine the threshold offset.
      - Choose **Low** when the camera should switch from day to night in scenes where the difference between light and dark levels are small.
      - Choose **High** when the camera should switch modes when the difference between

light and dark levels are large.

- ○ The default value is **Medium**.
- **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 19.

- **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.

5. To adjust the exposure of the image, adjust the Exposure Settings:

- **Flicker Control:** If your video image flickers because of fluorescent lights around the camera, you can reduce the effects of the light by setting the Flicker Control to the same frequency as your lights. Generally, Europe is **50Hz** and North America is **60Hz**.
- **Enable Wide Dynamic Range:** 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.
- **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.

- **Exposure Offset:** This is an advanced setting that allows you to compensate for unusual lighting conditions by setting an exposure offset value. Negative values result in a persistently darker image, and positive values result in a persistently brighter image.
- **Maximum Exposure:** You can limit the automatic exposure setting by selecting a maximum exposure level. The Maximum Exposure drop down list is only available when the Exposure setting is set to Automatic.

  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.

- **Priority:** You can set **Image Rate** or **Exposure** as the priority.

  When set to **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.

- **Maximum Iris:** You can limit the largest iris opening the lens will use by setting a maximum iris opening. This value is an f-number. It is also given in EV relative to the widest possible opening of the lens. This setting is only available when the **Iris** setting is set to **Automatic**.

  The iris opening also affects how much of the scene is in focus. The smallest f-number (0 EV) sets the iris to the widest possible opening. This allows the most light into the camera, but places less of the scene in focus. Larger f-numbers (negative EV) result in a smaller maximum opening, placing more of the scene in focus. The camera will automatically correct for the decreased light by using a higher gain or a longer exposure time.

- **Preferred Iris:** You can set an ideal iris opening to give a well exposed and well focused image in the most frequent lighting conditions. This value is an f-number. It is also given in EV relative to the widest possible opening of the lens. This setting is only available when the **Iris** setting is set to **Automatic**.

  NOTE: The Preferred Iris value must be less than or the same as the Maximum Iris value.

  The smallest f-number (0 EV) sets the iris to the widest possible opening. This allows the most light into the camera, but places less of the scene in focus. Larger f-numbers (negative EV) result in smaller openings, placing more of the scene in focus. The camera will automatically correct for the decreased light by using a higher gain or a longer exposure time.

- **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.

- **Iris:** You can allow the camera to control the iris by selecting **Automatic**, or you can manually set it to **Open** or **Closed**.

- **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.

6. If you are configuring an H4 PTZ dome camera, you define additional settings in the Advanced Filters area.

   - **Enable Digital Defog:** If your PTZ dome camera is installed in a foggy environment, select the check box to increase the video contrast to help make objects more visible in the scene. From the **Defog Level** drop down list, select one of the available options: **Low**, **Medium** or **High**.

   - **Enable Image Stabilization:** If your PTZ dome camera is mounted to a pole or other surface that may be prone to shaking or vibrations, select this check box to enable the camera's built-in image stabilization feature.

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

Adjustments

On the Adjustments page, you can control the video image color, contrast, and brightness settings.

The Adjustments 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: Some features and options are disabled 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. Click **Apply** to save your changes.

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. The settings on this page only affect the video transmitted to the network video management software.

Avigilon cameras have dual stream capabilities. If the camera's streaming format is set to H.264, the camera's web interface can still display live video in JPEG format.

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 17.

2. In the **Image Rate** field, enter how many images per second you want the camera to stream over the network.

   If the camera is operating in High Framerate mode, then the maximum image rate is increased. For more information on the High Framerate mode, see *General* on page 5.

3. In the **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.

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.

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

Enabling HDSM SmartCodec™ Settings

HDSM SmartCodec™ operates by separating foreground objects and background areas then reduces bandwidth by increasing compression to the background areas. In this way, maximum quality is retained for subjects of interest while reducing bandwidth for unchanging backgrounds.

Once enabled, the camera will automatically switch to idle scene mode settings when there are no motion events detected. A motion event is when the camera detects pixel motion in the scene. For more information see *Motion Detection* on page 16.

The camera uses pixel change motion to detect foreground objects and therefore uses the standard Motion Detection sensitivity settings of the camera.

NOTE: Additional, advanced settings can also be updated on the HDSM SmartCodec™ Advanced Settings page. For more information see *HDSM SmartCodec™ Advanced Settings* on the next page.

1. Select the **Enable** check box to enable the HDSM SmartCodec™ features.

2. In the **Min Image Rate** field, enter how many images per second you want the camera to stream when there is no motion in the scene.

3. In the **Idle Keyframe interval** field, enter the number of frames between each keyframe (between 1 and 254) when there is no motion in the scene.

4. In the **Bandwidth Reduction** field select one of the options:
   - **Low**
   - **Medium** (recommended)
   - **High**
   - **Custom**

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

Viewing the RTSP Stream URI

In 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. In the RTSP Stream URI area, choose one of the options from the **Protocol** drop down list then click **Apply**.
   - **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.
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.

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

   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.

Accessing the Still Image URI

In 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 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.

HDSM SmartCodec™ Advanced Settings

On the HDSM SmartCodec™ Advanced Settings page you can select settings for both motion and idle scenes. Other HDSM SmartCodec™ settings are entered in the HDSM SmartCodec™ Settings on the Compression and Image Rate page. For more information see *Enabling HDSM SmartCodec™ Settings* on the previous page.

1. In the **Background Quality** field in the **On Motion** section, enter the compression quality for the background (between the default of 6 and the lowest setting of 20).
2. In the **Post-motion delay** field in the **On Idle Scenes** section, enter the delay (in seconds) after motion has ended before the camera drops into idle scene settings (between 5 and 60).
3. In the **Image Rate** field in the **On Idle Scenes** section, enter the encoding frame rate (images per second) when there is no motion in the scene.
4. In the **Quality** field in the **On Idle Scenes** section, enter the compression quality (between 6 and 20).

5. In the **Max Bitrate** field in the **On Idle Scenes** section, enter the maximum number of kilobytes per second.

6. In the **Keyframe Interval** field in the **On Idle Scenes** section, enter the number of frames between each keyframe when there is no motion in the scene (between 1 and 254 frames).

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

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 detected 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** box.

   Once enabled, the camera can send motion alarm information to the VMS through the ONVIF protocol.

5. 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 64 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 any side of the box to resize the privacy zone.

        NOTE: Privacy zones can only be rectangular in shape.

    b. Click inside 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.

Storage

On the Storage page, you can enable the camera's onboard storage feature and download recorded video directly from the camera.

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* below.

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 extra 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 files you want to delete from the Recordings list then click **Delete**.
- To delete all 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.

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 in 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 in the **Circuit State** drop down list.
    c. Check the **IRCF to Out** box to allow the camera's IR Cut Filter to control the external output.

       This feature is typically used when the camera is connected to an external IR illuminator. Once enabled, the IR illuminator is turned on when the camera's IR Cut Filter is in monochrome mode.

    d. In the **Duration** field, enter how long the digital output is active for when triggered. You can enter any number between 100 and 3,600,000 milliseconds.
    e. Click **Trigger** to manually trigger the digital output from the web interface.
    f. Click **Apply** to save your changes.

Microphone

If a microphone 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 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 username 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 new user can only access the Image and Display page, Compression and Image Rate 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 (Administrator)` user.

1. On the Users page, select a user from the list.
2. Click **Remove**.

Keeping Usernames and Passwords After Firmware Revert

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, so the camera cannot connect to new servers without the appropriate credentials.

Important: If you forget your own 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, select 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.
- Click **Restore** to revert the camera 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.

- (H4SL-DO and H4SL-BO cameras only) If the camera lens stops performing as expected and you are unable to focus the lens through the Image and Display page, you may need to reinitialize the lens.

  Click **Reinitialize** then wait as the lens reinitializes. A green message is displayed at the bottom of the page when the process is complete.

- To upgrade the camera 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 (**http://avigilon.com/support-and-downloads/for-cameras-and-hardware/firmware-updates-and-downloads/**) and complete the following steps:
2. On the System page, 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.

PTZ Camera

Avigilon™ H4 PTZ cameras use many of the same settings as the other cameras. 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.

To create a tour, complete the following:

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.

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**. When the confirmation dialog box appears, click **OK**.

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.

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 **Preset Speed Limit**, enter a maximum number of degrees per second to limit the speed that the camera is permitted to move to each preset location. Enter a number between the available range displayed on the right.

5. To set the **Pan/Tilt Speed Limit**, enter a maximum number of degrees per second to limit the speed that the camera moves when you manually control its mechanical pan and tilt. Enter a number between the available range displayed on the right.

6. 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°.

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

ACC ES

If you are configuring an H4 Edge Solution (ES) camera, you will see the ACC ES option in the left menu pane.

H4 ES cameras feature a server component that runs the Avigilon Control Center Server software. This allows each H4 ES camera to also act as its own site and server.

From the ACC ES pages, you can configure the streaming ports and archiving settings for the ACC Server software.

Checking the ACC ES Status

On the first ACC ES page, you can check the status of the Avigilon Control Center software.

- **Avigilon Control Center Information**
  - **ACC Site Name** — The name of the site that the camera is part of.
  - **ACC Server Name** — The name of the camera.
  - **ACC Server Status** — The status of the ACC Server software.
  - **ACC Server Version** — The version of the ACC Server software.

Configuring the ACC ES Administration Settings

On the Setup page, you can configure the Avigilon Control Center system admin settings like you would in the ACC Admin Tool.

Restarting the ACC Software

If the ACC Server software is not operating as expected, you can try to resolve the issue by restarting the server component.

1. On the Setup page, click **Disable ACC ES**.
2. Click **Apply**.

   The camera shuts down the ACC Server software.

3. Click **Enable ACC ES** to restart the ACC Server software.

Formatting the Recorded Video Drive

ACC ES HD cameras include a solid state drive that stores recorded video directly on the camera. If you ever need to delete all configuration and recorded video data, you can reinitialize the storage.

1. To format the SSD, click **Reinitialize Storage**.
2. When the browser displays the following error message, click **OK**:

   This will require the ACC ES application to restart and will delete all ACC ES configuration settings and data. Are you sure you want to continue?

The ACC Server software on the camera restarts. The camera will continue to stream video but will not record anything until the ACC Server software has finished loading.

Changing the Communication Ports

ACC Server communicates with the ACC Client software through a range of UDP and TCP ports. The port ranges only need to be changed if the Client software is trying to access two or more instances of the ACC Server that are behind the same NAT device (e.g. router), or if there is a port conflict.

1. In the Service Ports and RTP Ports area, you can change the Base Port that is used to access the ACC Server.
2. Click **Apply**.
3. When the browser displays the following error message, click **OK**:

   The new service base port or login limits will only take effect once Control Center Server is restarted. Restart Control Center Server now?

The ACC Server software on the camera restarts. The camera will continue to stream video but will not record anything until the ACC Server software has finishes loading.

Overriding the Login Limit

By default, only 2 users can log in to the site at the same time. If you need extra access for users who will not be monitoring video, you can override the recommended login limit.

1. In the Login Limit area, select the **Override ACC Client Login Limit** check box.
2. In the **Login Limit:** field, enter how many users you would like to be able to login to the camera site at the same time.
3. Click **Apply**.

The new setting is saved. More than 2 users can now log in to the camera site.

NOTE: If more than 2 users log into the site simultaneously, be aware that this may cause degraded camera performance depending on the camera settings.

Enabling Video Archiving

You must enable video archiving before you can use the archiving feature in the ACC Client software. The Archive page allows you to enable the video archiving feature and set the network location where archived video is saved.

1. Select the **Enable Archive** check box.
2. From the Network Protocol: drop down list, select one of the following:
   - **CIFS** — Common internet file system. The network path is typically in this format: *//<hostname or IP> / <path>*
   - **NFS** — Network file system. The network path is typically in this format: *<hostname or IP> : <path>*
3. In the **Network Path:** field, enter the path to the preferred video archiving location.
4. If the network location requires authentication, select the **Authentication** check box then enter the

credentials in the Username and Password fields.

5. Click **Apply**.

Next, set up Schedule Archiving in the ACC Client to allow the system to automatically archive recorded video to the selected network location.

Reviewing ACC Logs

The Logs page displays the site logs for Avigilon Control Center system events.

The most recent log event is always displayed first.

1. In the **Type** drop down list, select one of the following:
   - **Daemon Logs** — Logs of ACC Server operations. This includes logging into the site, creating events, etc.
   - **App Logs** — Logs of the ACC ES operations within the web interface.
2. Select one of the options from the Minimum Log Level drop down list:
   - **Error** — Sent when the system encounters a serious error. These are the highest level log messages.
   - **Warning** — Sent when the system encounters a minor error such as an invalid username and password. This is selected by default.
   - **Info** — Status information sent by the system. 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 to display.
4. Click **Update**.

The logs update to display the filtered information.