



# Avigilon Control Center™ Standard Client User Guide

Version 6.2

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# What is the Avigilon Control Center Client?

The Avigilon Control Center (ACC) Client software works with the Avigilon Control Center Server software to give you access and control of your surveillance system.

The Client software allows you to view live and recorded video, monitor events, and control user access to the Avigilon Control Center system. The Client software also gives you the ability to configure your surveillance system.

The Client software can run on the same computer as the Server software, or run on a remote computer that connects to the site through a local area network (LAN) or a wide area network (WAN).

What you can do in the Client software depends on the Server software edition. There are three editions of the Server software available: Core, Standard and Enterprise. Visit the Avigilon website for an overview of the features available in each edition: <http://avigilon.com/products/video-surveillance/avigilon-control-center/editions/>.

## System Requirements

### Avigilon Certified Solution:

- 2 Monitor or 4 Monitor Professional High Performance Remote Monitoring Workstation  
(HD-RMWS3-2MN or HD-RMWS3-4MN)
  - Preloaded with ACC Client software.
  - Supports high resolution monitors.
  - Includes the adapters and accessories for quick deployment.
  - Avigilon warranty and support included

### ACC Client Software Requirements

	Minimum requirements	Recommended requirements
Monitor resolution	1280 x 1024	1920 x 1200
OS*	Windows 7 (32-bit or 64-bit), Windows 8.1 (32-bit or 64-bit) or Windows 10 (32-bit or 64-bit)	Windows 10 (64-bit)
CPU	Intel® dual-core CPU (2.0 GHz)	Intel Core™ i5 (Quad-core, 3.3 GHz)
System RAM	4 GB DDR3	8 GB DDR4
Video card	PCI Express, DirectX 10.0 compliant with 256 MB RAM	NVIDIA Quadro K620
Network card	1 Gbps	1 Gbps
Hard disk space	500 MB	500 MB

\* For all Windows versions, it is recommended that the latest Microsoft service pack be deployed.

# Updating the Help Files

The help files for the Avigilon Control Center Client software and Virtual Matrix software are stored with the Avigilon Control Center Server application.

If one of these components is ever updated before the others, the help files may become out of date or describe features that are not currently supported by your system.

- If the help files describe a new feature that is not currently supported by your copy of the software, upgrade to the latest version of the software.
- If the help files become out of date, download the latest help files from the Avigilon website: [avigilon.com](http://avigilon.com). Once downloaded, run the help installer on the server.

The help file installers are divided into the following regional language packs:

- Americas
  - English
  - French
  - Spanish
  - Portuguese (Brazil)
- Asia
  - Chinese (Simplified)
  - Chinese (Traditional)
  - Japanese
  - Korean
- Eastern Europe
  - Polish
  - Russian
- Western Europe
  - Danish
  - Dutch
  - French
  - German
  - Italian
  - Portuguese (Brazil)
  - Spanish
  - Swedish
- Middle East
  - Arabic

## For More Information

Visit Avigilon at [avigilon.com](http://avigilon.com) for additional product documentation.

## **Avigilon Resource Center**

Register for access to the Avigilon Resource Center to gain access to additional resources for your Avigilon products. The Resource Center provides free online training videos, product documentation, and other self-directed support resources.

Register and login at [https://avigilonresourcecenter.force.com/avigilon/avg\\_login](https://avigilonresourcecenter.force.com/avigilon/avg_login)

## **Technical Support**

To contact Avigilon Technical Support, go to <http://avigilon.com/contact-us/>

## **Upgrades**

Software and firmware upgrades will be made available for download as they become available. Check for available upgrades at: <http://avigilon.com/support-and-downloads/>

## **Feedback**

We value your feedback. Please send any comments on our products and services to [feedback@avigilon.com](mailto:feedback@avigilon.com)

# Getting Started

Once the Avigilon Control Center Client software has been installed, you can start using the Avigilon High Definition Stream Management (HDSM)<sup>™</sup> technology surveillance system immediately. Refer to any of the procedures in this section to help you get started.

## Initial System Setup


To ensure that you have set up the ACC system correctly, it is highly recommended that you review and complete the recommended procedures in the *Initial ACC<sup>™</sup> System Setup and Workflow Guide*. The guide is available on the Avigilon website: [avigilon.com/support-and-downloads/](https://www.avigilon.com/support-and-downloads/).

## Starting Up and Shutting Down

The Avigilon Control Center Client software can be started or shut down at anytime — video recording is not affected because it is controlled separately by the Server software.

### Starting Up the Client Software


Perform one of the following:

- In the Start menu, select **All Programs** or **All Apps > Avigilon > Avigilon Control Center Client**.
- Double-click  or desktop shortcut icon.
- From the Avigilon Control Center Admin Tool, click **Launch Control Center Client**. For more information, see the *Avigilon Control Center Server User Guide*.

When you are prompted, log in to your site. You can only access cameras and video after you log in.

For more information, see *Logging In to and Out of a Site* below.

### Shutting Down the Client Software

1. In the top-right corner of the Client software, select  > **Exit**.
2. When the confirmation dialog box appears, click **Yes**.

## Logging In to and Out of a Site




To access any of the features in your ACC surveillance system, you must log in to a site.

The default administrator access uses `administrator` as the username and no password. To maintain the security of the administrator account, it is recommended that your system administrator immediately create a password for this account after the first login. Your system administrator can then create user accounts for other users.

## Logging In

1. Open the Site Login tab. The Site Login tab is automatically displayed if you are launching the Client software for the first time.

To manually access the Site Login tab, do one of the following:

- From the top-right corner of the window, select  > **Log In...**
- From the top-left corner of the application window, click  to open the New Task menu, then click .

2. On the left side of the Site Login tab, select one or more sites.

If the site you want to log into is not shown, click **Find Site...** to discover the site.

3. Enter your username and password for the selected sites.
4. Click **Log In**.


You are logged into the selected sites.

If you want to be notified when new or disconnected sites come online, select the **Notify me when additional sites become available** check box.

If you want to see the login page each time you launch the Client software, select the **Show this tab on startup** check box. If you prefer not to login each time, you can disable this option and configure automatic login from the Client Settings dialog box.

## Logging Out

You can log out of one or all sites at any time.





To...	Do this...
Log out of one or select sites	<ul style="list-style-type: none"><li>• In the System Explorer, select one or more sites then right-click and select <b>Log Out</b>.</li></ul>
Log out of all sites	<ol style="list-style-type: none"><li>1. In the top-right corner of the Client, select  &gt; <b>Log Out</b>.</li><li>2. In the confirmation dialog box, click <b>Yes</b>.</li></ol>

### Related Tasks

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## Changing the Administrator Password

After you login with the default administrator credentials for the first time, it is recommended that you change the default administrator password.

1. At the top-left corner of the application window, click  to open the New Task menu.
2. From New Task menu, click .
3. In the Setup tab, click .
4. In the following dialog box, select the administrator user name and click .
5. Click **Change Password...**
6. In the following dialog box, enter a new password and then confirm the new password.
7. Click **OK**.

**Tip:** If you forget the administrator password, resetting the password is difficult and impacts every server in the site. To avoid this issue, it is highly recommended that you create at least one other administrator level user as a backup.

## Navigating the Client

Once you log in, the Avigilon Control Center Client application window is populated with all the features that are available to you.





**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.











**Figure 1:** The Avigilon Control Center Client application window

### Application Window Features

	Area	Description
1	System Explorer	Displays all the elements in your surveillance system.

	Area	Description
		<p>Use the <b>Search...</b> bar to quickly locate anything that is available in the System Explorer. You can search for items by name, and devices can also be searched for by location, logical ID, serial number and IP address.</p> <p><b>Tip:</b> The content of the System Explorer changes depending on the tab you have open. For example, servers are not listed in the View tab.</p>
2	View tab	<p>Allows you to monitor video and organize image panels. You can have multiple Views open at once.</p> <p>Click  to open a new View tab.</p>
3	Image panel	Displays live or recorded video from a camera. The video control buttons are displayed when you move your mouse into the image panel.
4	Toolbar	Provides quick access to commonly used tools.
5	Task tabs	Displays all the tabs that are currently open.
	New Task menu	Opens the New Task menu so you can select and open new task tabs. You can access advanced tools like Search and Export, or system administrative features like Site Setup.
	The Application Menu menu	This menu gives you access to local application settings like Client Settings. You can also open a new window from this menu.
	System message list	<p>The highlighted number shows the number of system messages that need your attention. Click the number to display the list of messages.</p> <p>The highlight color indicates the severity of the most recent message.</p> <ul style="list-style-type: none"> <li>• <b>Red</b> = Error</li> <li>• <b>Yellow</b> = Warning</li> <li>• <b>Green</b> = Information</li> </ul>

## System Explorer Icons

Icon	Description
	A site. Listed under a site are all the connected devices and linked features in the system.
	A virtual folder. Used to group and organize items in the View tab.
	A server. Only visible from system administration tabs and dialogs.
	A fixed camera.
	A PTZ camera.
	An encoder.
	A saved View.
	A map.



Icon	Description
	A web page.

# System Administration

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

In Avigilon Control Center software, servers are maintained in clusters called sites.

At the site level, you can manage your server and device connections, as well as set up site-wide system events.


At the server level, you can manage the recording and bandwidth for each of the server's connected cameras.

At the device level, you can edit the camera image quality and other device-specific features.

All the site, server and device settings can be configured from the Setup tab.

## Monitoring Site Health





To help you monitor the health of your site, you can access a quick overview in the Site Health tab.

- In the New Task menu, click . The Site Health tab is displayed.
  - To export a PDF copy of all the site details, click **Export Site Report to PDF** at the bottom-right corner.

The status icons beside each site name identifies the overall health of the site. In the System Explorer, select a site to display the status of the connected servers.

If your sites are configured into a family, you will be able to see the status of all child sites if you are logged into the parent site. If you are only logged into a child site, the parent site status is displayed as unknown.



The following health symbols identify the status of each component in the ACC software:

-  — the component is functioning normally.
-  — the component requires your attention.
-  — the component is unavailable or offline.
-  — the component status is unknown.


At the top of the tab, click any of the available filters to choose what type of information is displayed. By default, all available information is displayed.

To help you find information from a specific server in a site, enter the name of the server in the top search bar.

Listed information include:

Feature	Description
 <i>Server Name</i>	— at the top of each pane is the name of the individual server in the site. Beside the name is the server status.
 <b>General Information:</b>	Information about the server in the site.

Feature	Description
<b>Server IP:</b>	The server's IP address.
<b>Camera Licenses in Use:</b>	The number of cameras that are currently connected to the server.
<b>CPU Load of ACC Server:</b>	The percentage of server processing power that is used by the Avigilon Control Center Server software.
<b>Memory usage of ACC Server:</b>	The amount of memory used by the Avigilon Control Center Server software.
<b>System Available Memory:</b>	The amount of storage available for video recording.
<b>Up Time:</b>	The amount of time the server has been running since it was last rebooted.

 **Network Adapters:** The networks that the server is connected to, including the IP address of the network connection, the network speed and the amount of data passing through the connection.

<b>Adapter Name:</b>	The name of the network adapter that is connected to the server.
<b>Link Speed:</b>	The maximum speed supported by the network adapter.
<b>IP:</b>	The IP address of the network adapter.
<b>Incoming:</b>	The speed of incoming data. This includes recording video.
<b>Outgoing:</b>	The speed of outgoing data. This includes video streaming to the Client software.


 **Cameras:** Information about the devices that are connected to this server.

**NOTE:** If the device is disconnected, the device's details may still be displayed but the Compression column will be empty because there is no video streaming.

<b>General:</b>	The name, model number and location of the device.
<b>Network:</b>	The IP and MAC addresses of the device.
<b>Hardware:</b>	The serial number of the device.
<b>Compression:</b>	The video compression rate, resolution, quality and images per second (ips) of video streamed from the device.

## Managing User Connections



If you find that too many users are logged in through the same username, or inactive users are preventing active users from accessing a site, you can force specific users to log out.

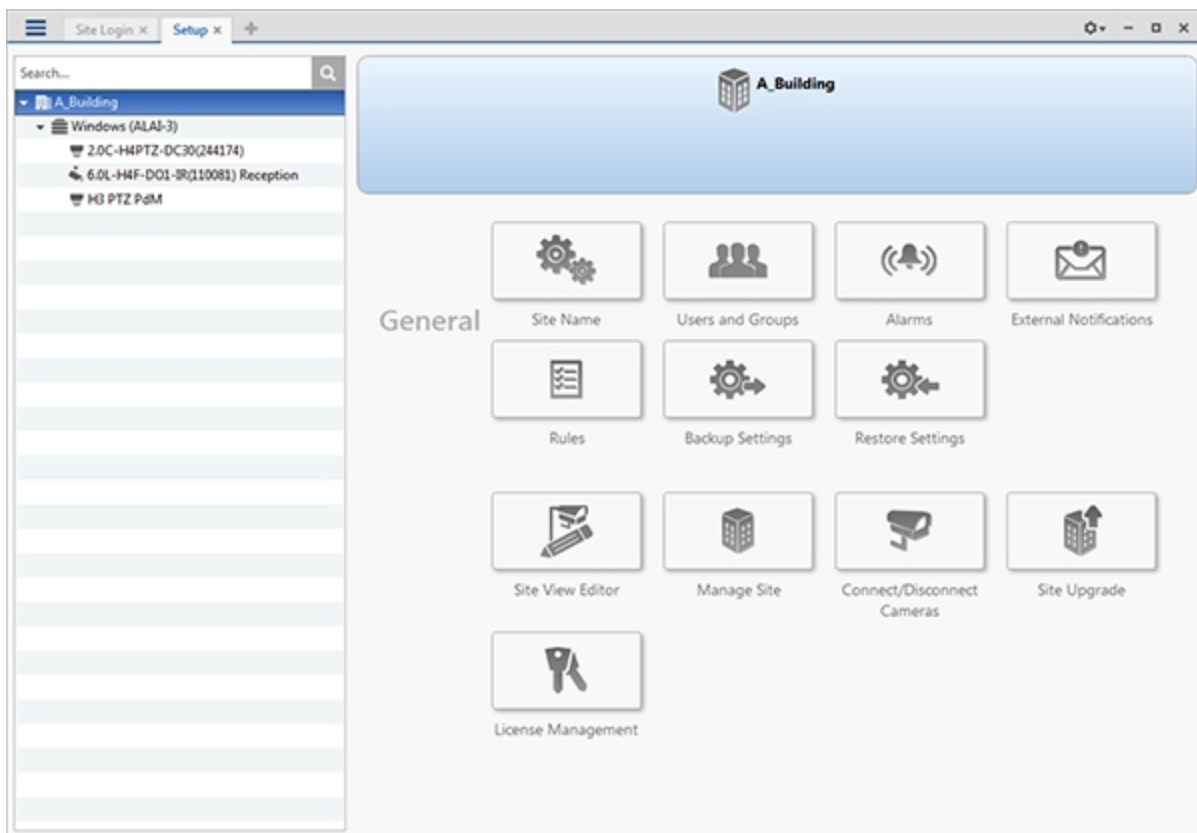
1. In the New Task menu, click . The User Connections tab is displayed.
2. Select a site from the System Explorer to display a list of all the current users on the right.
  - The users are listed by User Name and Machine Name so that users that share a login are displayed separately.
  - The Login Duration column lets you know how long that user has been logged in to the site.
3. To force a user to log out of a site, select a user then click **Log Users Out**.

## Accessing the Setup Tab

The Setup tab is where you would configure the majority of your system – including sites, servers and cameras.

Follow one of the following steps to open the Setup tab:

- At the top-left corner of the application window, click  to open the New Task menu then click .
- In the System Explorer, right-click the device you want to configure then select **Setup**.



**Figure 2:** The Setup tab

In the Setup tab, the System Explorer is displayed on the left and the Setup options are displayed on the right. The Setup options change depending on the device that is selected in the System Explorer.

# Site Settings

The settings stored at the site level impact all users and devices within the site.


These settings include user account information and email notifications. This is also where you can set up how the System Explorer is laid out, and where you can add or remove devices in a site.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

## Naming a Site

Give the site a meaningful name so that it can be easily identified in the System Explorer. Otherwise, the site uses the name assigned to the server it was originally discovered with.







1. In the site Setup tab, click .
2. In the following dialog box, enter a name for the site.
3. Click **OK**.

## Connecting/Disconnecting Cameras and Devices

Cameras and other devices are connected to a site through the linked servers. The server manages and stores the camera's recorded video, while the site manages the events that can be linked to the camera's video.

You can connect and disconnect cameras and devices through the Connect/Disconnect Cameras... tab.

A camera's connection status is indicated by the icon beside the camera name in the System Explorer. The status icons may appear over any device icon in the System Explorer.

Icon	Definition
 <b>Camera Connected</b>	The camera is connected to the server.
 <b>Camera Upgrading</b>	The camera is connected to the server and is currently upgrading its firmware.
 <b>Camera Connection Error</b>	The camera cannot connect to a server. This may be because the camera is no longer on the network or there is a network conflict.
 <b>Camera Disconnected</b>	The camera is disconnected but recorded video from the camera remains on the server.
<b>No Icon</b>	The camera is disconnected and no recorded video from the camera remains on the server.

### Discovering a Device

Avigilon and ONVIF® devices that are connected to the same network as the Avigilon Control Center Server are automatically detected and added to the Discovered Cameras list.

If a device is not automatically discovered, it may be on a different subnet or is a third party camera that needs to be manually discovered.



1. In the site Setup tab, click .

The Connect/Disconnect Cameras... tab is displayed.

2. In the top-left corner, click **Find Camera...**
3. In the Find Camera dialog box, complete the following fields to find the device:
  - **Search From Server:** select the server that you want the device to connect to.
  - **Search Type:** select a search type:
    - **IP Address** — select this option to discover a device by its IP address or hostname. The device and server's gateway IP address must be set correctly for the device to be found.
    - **IP Address Range** — select this option to discover a device by IP address range. Only devices with IP addresses in that range will be discovered.
  - **Camera Type:** select the device's brand name.

**Tip:** Select ONVIF to discover devices that are ONVIF compliant.
  - **Control Port:** enter the device control port. The default port number is 55080.
  - If required, enter the device's **User Name:** and **Password:**.
4. Click **OK**.

If the device is discovered, it is automatically added to the Discovered Cameras list. You can now connect the device to a server.

### *Connecting a Device to a Server*

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

To access a device from a site, it must be connected to a server within the site. The server manages and stores a camera's recorded video, while the site manages the events that can be linked to a camera's video.

Once a device has been discovered on the network, it can be connected to the server. If you do not see a device you want to connect, see *Discovering a Device* on the previous page.



1. In the site Setup tab, click .

The Connect/Disconnect Cameras... tab is displayed.

2. In the Discovered Cameras area, select one or more devices then click **Connect...**

**Tip:** You can also drag the device to a server on the Connected Cameras list.


3. In the Connect Camera dialog box, select the server you want the device to connect to.




**NOTE:** If you are connecting multiple devices, all the cameras must use the same connection settings.

4. If you are connecting a third-party device, you may choose to connect the device by its native driver. In the **Camera Type:** drop down list, select the device's brand name. If there is only one option in the drop down list, the system only supports one type of driver from the device.
5. If the camera supports a secure connection, the **Camera Control:** drop down list is displayed. Select one of the following options:

**NOTE:** The setting may not be displayed if the camera only supports one of the options.

- **Secure** — The system will protect and secure the camera's configuration and login details. This option is selected by default.
- **Unsecure** — The camera's configuration and login details will not be secured and may be accessible to users with unauthorized access.

Cameras with a secure connection are identified with the  icon in the Status column.

6. If it is not displayed, click  to display the Site View Editor and choose where the device appears in the System Explorer.
  - In the  site directory, drag devices up and down the right pane to set where it is displayed.
  - If your site includes  folders, select a location for the device in the left pane. The right pane updates to show what is stored in that directory.
  - If you are connecting multiple devices at the same time, the selected devices must be assigned to the same location.

**Tip:** If the site you want is not listed, you may need to connect the device to a different server. Make sure the selected server is connected to the site you want.

7. Click **OK**.
8. If the device is password protected, the Camera Authentication dialog box appears. Enter the device's username and password, then click **OK**.

---

### *Editing the Device Connection to a Server*



1. In the site Setup tab, click .

The Connect/Disconnect Cameras... tab is displayed.


2. Select the device connections you want to edit from the Connected Cameras list.
3. To edit the device connection details, click **Edit....** For details about the editable options, see *Connecting a Device to a Server* on the previous page.

If you selected multiple cameras, only the settings that are identical are displayed.

4. To change the camera password, click **Change Password...** then enter a new password in the following dialog box.
5. If the camera has an authentication error, click **Login to Camera...** then enter the correct password.
6. Click **OK**.


## Disconnecting a Device from a Server




1. In the site Setup tab, click . The Connect/Disconnect Cameras... tab is displayed.
2. Select the device you want to disconnect from the Connected Cameras list, then do one of the following:
  - Click **Disconnect**. The device will be disconnected from the server and moved to the Discovered Cameras list.
  - Drag the device into the **Discovered Cameras** list.

## Upgrading Camera Firmware

Camera firmware updates are typically included with the ACC Server update packages. Camera firmware updates are automatically downloaded and installed to the camera.

When the camera firmware is being upgraded, video from that camera cannot be displayed and the System Explorer will display  beside the camera name.



When the firmware upgrade is complete, the System Explorer will display  again and video from the camera will display.

## Users and Groups

When users are added to the ACC system, they are assigned to a group that defines their access permissions in a site. Use the Users and Groups dialog box to create and manage users and groups.

### Adding a User



1. In the site Setup tab, click .
2. In the Users tab, click .
3. When the Add/Edit User dialog box appears, complete the User Information area.
4. If you don't want this user to be active yet, select the **Disable user** check box. Disabled users are in the system but cannot access the site.
5. In the Login Timeout area, select the **Enable login timeout** check box to set the maximum amount of time the Avigilon Control Center Client software can be idle before the user is automatically logged out of the application.
6. In the Password area, complete the following fields:
  - **Password:** — enter a password for the user.
  - **Confirm Password:** — re-enter the password.
  - **Require password change on next login** — select this check box if the user must replace the password after the first login.
  - **Password Expiry (Days):** — specify the number of days before the password must be changed.
  - **Password never expires** — select this check box if the password never needs to be changed.
7. In the Member Of tab select the check box beside each access group the user belongs to.  
  
The other columns display the permissions that are included in the selected groups.
8. Click **OK**. The user is added to the site.






## Editing and Deleting a User

You can edit and delete users as needed.

**NOTE:** Be aware that you cannot edit or delete users that belong to the same ranked group as you or higher. This also means that you cannot edit your own user account unless you are part of an Unranked group.

**Tip:** If a user has access to more than one site, the changes to the user need to be made on each site.



1. In the site Setup tab, click .
2. In the Users tab, select a user then perform one of the following:
  - To edit the user's information, click . For details about the editable options, see *Adding a User* on the previous page.
  - To delete the user, click .

## Corporate Hierarchy

You can set up a Corporate Hierarchy in the system to reflect your organization's structure.


Groups are given ranks to help define what they have access to. Users cannot see groups of equal or higher rank than the group they belong to. If users belong to multiple groups of different ranks, they will be able to view all ranks below the highest rank they belong to.

### Setting Up a Corporate Hierarchy

Corporate hierarchy is set up by assigning ranks to different access permission groups. For more information about ranks, see *Ranks* on the next page.

You can assign ranks to permission groups through the Users and Groups dialog box. For more information about adding groups, see *Adding Groups* on page 18.



When you see the **Rank** option, you can select an existing rank or create a new one.

- To use an existing rank, select an option from the drop down list. The default option is *Unranked*.
- To add a rank, click . When you see the Edit Corporate Hierarchy dialog box, complete the following steps:

If you have not yet created a Corporate Hierarchy, a message will appear prompting you to create a new one. Click **Yes**.

The default rank is **Global**. It is the highest rank in the Corporate Hierarchy.

**NOTE:** The Global rank cannot be deleted. It can only be renamed.

1. Select **Global** then click . A new rank is added.
2. To rename the rank, double-click the name and enter a new one in the text field. Click anywhere outside the text field to save the new name.
3. Select a rank then click  to add a new rank immediately below the rank you selected.

**NOTE:** Ranks can only be added or deleted. They cannot be moved within the Corporate Hierarchy.

4. To delete a rank, select the rank then click . All subordinate ranks will also be deleted.

**NOTE:** Make sure there are no members in the rank before you delete it. Members of a deleted rank are automatically assigned the lowest position in the Corporate Hierarchy and may lose required permissions.

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

Now that you've set up the Corporate Hierarchy, you can assign ranks to permission groups to define what users can access within the system. For more information, see *Users and Groups* on page 15.

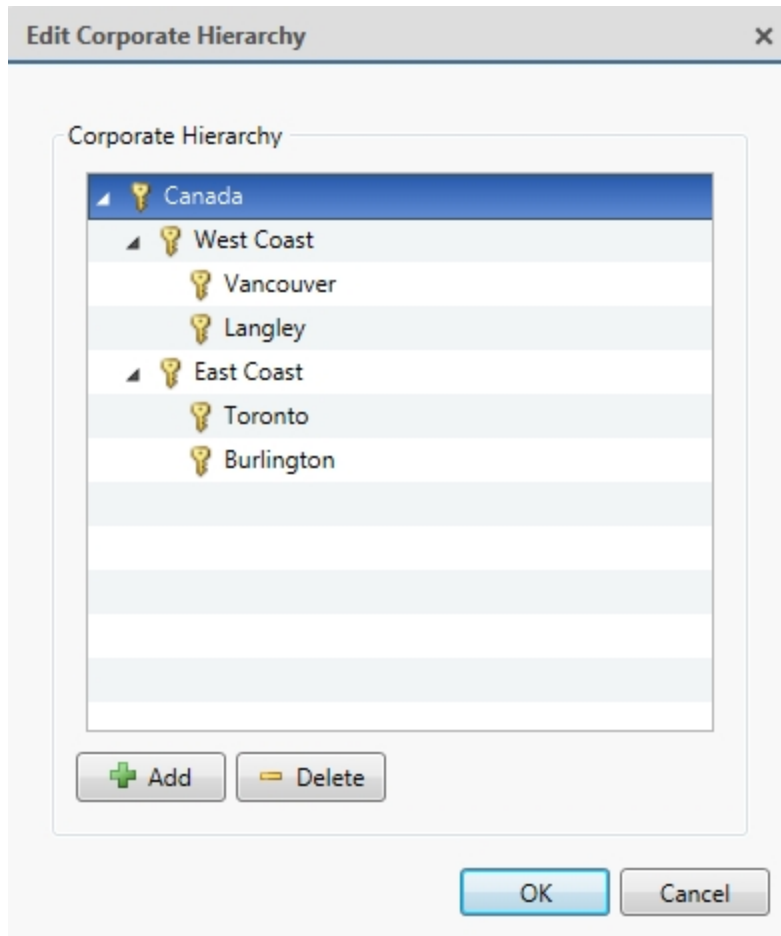
## Ranks

Ranks in the Corporate Hierarchy feature represent the different levels that may exist in your organization. Each rank can have different permissions and be responsible for subordinate ranks.

The default rank is **Global**. It is the highest rank in the Corporate Hierarchy and can configure all ranks that are added below it.

When you add ranks, be aware that users assigned to a rank can only edit other ranks that are subordinate in the Corporate Hierarchy. Any ranks that are above or parallel will not be accessible.

The following image is an example of a Corporate Hierarchy with multiple ranks. **Canada** is the highest, Global rank. **West Coast** and **East Coast** are of equal rank to each other, and one rank below **Canada**. Users belonging to **East Coast** cannot edit ranks below **West Coast** and vice versa.



## Unranked Groups

The Unranked groups are above the Corporate Hierarchy and cannot be deleted or edited.

Users belonging to Unranked groups are able to create and edit any ranked or Unranked groups and users if they have the **Setup user and group settings** privilege.

The default groups Administrators, Power Users, Restricted Users, and Standard Users are Unranked.

## Deleted Ranks

If a rank is deleted, groups in this rank are removed from the hierarchy and assigned an orphaned rank. An orphaned rank is the lowest rank possible and is only visible to Unranked and Global users.




Unranked and Global users can reassign group ranks at any time. Members of the orphaned rank have no Setup user and group settings privileges but still retain other privileges, e.g. viewing live video.

Deleting a rank will also delete all the ranks below it in the Corporate Hierarchy. Remotely synchronized users and groups may become inaccessible.


## Adding Groups

Groups define what features users have access to. Create new groups to change what users can access.

Groups can be given a rank in the Corporate Hierarchy to further define what the members of the group can access.

1. In the site Setup tab, click .
2. In the following dialog box, select the Groups tab and click .
3. In the pop-up dialog box, select an existing group to use as a template for your new group, then click **OK**.
4. In the Edit Group dialog box, complete the following:
  - a. Give the new group a name.
  - b. Select a rank for the group from the **Rank:** drop down list. To edit or view the entire Corporate Hierarchy, click .
  - c. Select the required **Group Privileges:** and **Access Rights:** for the group. Clear the check box of any feature or device that you do not want the group to have access to.
5. Select the Members tab to add users to the group.

If a user is added to the group through the Add/Edit User dialog box, the user is automatically added to the group's Members list.

- a. Click .
- b. Select the users that should be part of this new group. Only users that have been added to the site are displayed.

**Tip:** Enter the name of a user in the **Search...** field to locate specific users.

- c. Click **Add**. The users are added to the Members list.
6. Click **OK** to save the new group.

---

## Related Tasks

Setting Up a Corporate Hierarchy .....	16
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## Reference Materials

Group Permission Descriptions.....	110
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### Editing and Deleting a Group

You can change the access permissions for a set of users by editing their access group.



1. In the site Setup tab, click .
2. Select the Groups tab.
3. Select a group and do one of the following:
  - To edit the group, click . For details about the configurable options, see *Adding Groups* on the previous page.
  - To delete the group, click .

**NOTE:** Default groups cannot be deleted.

## External Notifications


You can configure the site to send email in response to specific events. You can set up an email server for the site and choose what events require email notifications.

If you use a central station monitoring service, you can set up external notifications to be sent between your site and the monitoring station.

### Setting Up the Email Server

To send email notifications, the site must be given access to an email server.



1. In the site Setup tab, click .
 

The External Notifications dialog box is displayed.
2. Select the Email Server tab.
3. In the Email Server Settings: area, complete the following:
  - a. **Sender Name:** enter a name to represent the site in all email notifications.
  - b. **Sender Email Address:** enter an email address for the site.
  - c. **Subject Line:** enter a subject line for all emails sent from the site. The default subject is *Avigilon Control Center System Event*.
  - d. **SMTP Server:** enter the SMTP server address used by the site.
  - e. **Port:** enter the SMTP port.
  - f. **Timeout (seconds):** enter the maximum amount of time the server will try to send an email before it quits.

4. (Optional) If the email server uses encryption, you can select the **Use secure connection (TLS/SSL)** check box.
5. (Optional) If the email account has a username and password, select the **Server requires authentication** check box.
  - Enter the **User Name:** and **Password:** for the email account.
6. Click **OK**.


### Configuring Email Notifications




In the Email Notifications dialog box, you can create email notification groups to specify who will receive email notifications when certain events occur.

Be aware that you cannot send any email notifications until you've set up an email server for the site. For more information, see *Setting Up the Email Server* on the previous page.


**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.



1. In the site Setup tab, click .
 

The External Notifications dialog box is displayed.
2. Make sure the Email Notifications tab is selected.
3. Click .
4. Enter an **Email Group Name:**.
5. In the **Email Recipients:** area, add all the user, group and individual emails that are part of this email group. Do any of the following:
  - Click  to add a site user or access group. In the dialog box, select all the required users and groups then click **OK**.
  - Click  to add individual emails. In the dialog box, enter the email address then click **OK**.

**Tip:** Make sure the site users in the Email Recipients: list have a valid email in their user account.

6. Click  to send a test email to everyone on the Email Recipients: list.
7. In the **Email Trigger:** area, select all the events that will trigger an email for this email group. Click the blue underlined text to define the event requirements.

**Tip:** If you require other events or more specific requirements, you can also configure email notification in the rules engine. For more information, see *Rules* on page 22.

8. To attach a snapshot of the email notification event, select the **Attach images from camera(s) linked to the event** check box.

**NOTE:** This option is disabled if *Motion Detect* is not selected because there are no images associated with system events, digital inputs, or POS transaction exceptions.

9. In the **Email Schedule:** area, select a schedule for the email notification. For more information, see *Scheduling Site Events* on page 30.
10. To limit the number of emails sent, enter the minimum amount of time between each email in the **Send**

**email at most every:** field.

11. Click **OK**.

The new email notification is saved and added to the Email Groups: list.


### *Editing and Deleting an Email Notification*

You can edit or delete email notifications as needed.



1. In the site Setup tab, click .

The External Notifications dialog box is displayed.

2. In the Email Notifications tab, do one of the following:
  - To edit an email notification, select the notification from the **Email Groups:** list then make the required changes. For more information about the editable options, see *Configuring Email Notifications* on the previous page.
  - To delete an email notification, select the notification from the **Email Groups:** list then click .

### *Enabling Central Station Monitoring*

If you use a central station monitoring service, you can set up the Avigilon Control Center System to communicate with your central monitoring service.

Consult with your central monitoring service for the correct settings for each field.



1. In the site Setup tab, click .

The External Notifications dialog box is displayed.

2. Select the Central Station Monitoring tab.
3. Select the **Enable Central Station Monitoring** check box to enable this service.
4. Complete the SMTP fields with the information provided by your central monitoring service.

The central monitoring service will typically provide you with a specific name, email and SMTP details to identify you in their system.

5. To periodically check the state of the connection to the central monitoring service, select a time interval from the **Minimum Heartbeat Interval:** drop down list.

The selected amount of time must pass before a confirmation message is sent. The confirmation message is only sent if no other notifications are sent during the set time period.

This feature allows the system to automatically send a message to the central monitoring service to confirm that the systems are still connected and no issues have occurred.

If the central monitoring service requires the system to send a heartbeat test message at specific intervals, select the option that is equal to half the requested interval. For example, if the central monitoring service requires a confirmation message be sent once a day, assign the system to send a message every 12 hours.

6. From the **Attachment:** options, select one of the following:

Attaching an image or video of an event allows the central monitoring service to verify alarms and take the appropriate actions.

- **None** — The system sends a message to the central monitoring service without any attachments.
- **Video Clip for Device Events** — The system automatically exports a video of the event in H.264 format, and attaches it in the message.
- **Image for Device Events** — The system takes a snapshot of the event and attaches it in the message.

**NOTE:** To send a message to the central monitoring service, the rule action for an event must be setup to **Send notification to Central Monitoring Station**.

7. Click **OK** to save your changes.
8. Create rules that will notify the central monitoring service of specific events.
  - On the Select Rule Action(s) page, make sure the **Send notification to Central Monitoring Station** option is selected. This ensures the central monitoring service is notified of the rule event.

For more information about creating rules, see *Adding a Rule* below.

**Tip:** The system Email Notifications feature works separately from the Central Station Monitoring feature, but you can configure the rules to send you the same notifications as the central monitoring service. When you create rules for the central monitoring service, include the **Send email** option on the Select Rule Action(s) page. You can configure the rule to send you details that are not included in the central monitoring notification.

## Rules


The Rules engine allows you to trigger specific actions when a certain event, or set of events, occurs.

For example, you can create a rule that starts a live stream when the back door is opened.


If the default email notification options are insufficient for your needs, you can use the Rules engine to set up more specific trigger events.

### *Adding a Rule*

**NOTE:** sites with a Standard license can have up to 3 rules in their system.


1. In the site Setup tab, click .

The Rules dialog box is displayed.

2. Click .
3. On the Select Rule Event(s) page, select all the events that will trigger the rule. If there is blue underlined text in the rule description, click on the text to further define the event.

When the trigger event is defined, click .


4. On the Select Rule Action(s) page, select all the actions that will occur in response to the triggers. If there is blue underlined text in the rule description, click on the text to further define the event.

When the action is defined, click .




5. On the Select Rule Condition(s) page, select the specific condition that will cause this rule to run. You can select more than one condition.


If there is blue underlined text in the rule description, click on the text to further define the condition.

When the condition is defined, click .

6. On the Select Rule Properties page, complete the following:
  - a. Enter a **Rule Name:** and a **Rule Description:**.
  - b. Select a **Schedule:** for the rule. For more information, see *Scheduling Site Events* on page 30.
  - c. Make sure the **Rule is enabled** check box is selected to enable the rule.
7. Click  to save the new rule.

### *Editing and Deleting a Rule*

1. In the site Setup tab, click . The Rules dialog box is displayed.
2. Select a rule, then do one of the following:
  - To edit the rule, click . Go through the **Rule Setup** wizard and make the required changes on each page. On the last page, click  to save your changes.

For details about the editable options, see *Adding a Rule* on the previous page.
  - To delete a rule, click . When the confirmation dialog box appears, click **OK**.

## **Licensing the Site**

The License Management dialog box gives you access to all the licenses in a site.

You can activate licenses to begin using your ACC system for normal operations, or activate new licensed features in your working ACC system.



If you ever need to perform a server hardware upgrade, you will need to deactivate your ACC Server license then activate the license again on the new server.

For more information about any of the licensing features, see the following procedures.

### *Activating a License*

You can activate a license for a new ACC system, or activate new licensed features for an operating ACC system. Once activated, you can immediately use the new licensed features.



1. At the top-left corner of the application window, click  to open the New Task menu then click .



2. In the site Setup tab, click .
3. In the License Management dialog box, click **Add License....**
4. In the following dialog box, select one of the following tabs:

- If you have internet access, select the **Automatic** tab.

To complete activating the license through this tab, see *Automatic Licensing* on the next page.

- If you do not have internet access, select the **Manual** tab.

To complete activating the license through this tab, see *Manual Licensing* on the next page.

When you are prompted to enter the product key, be aware of the following:

- A check mark will appear if the product key is valid.
- If you have multiple product keys, click **Add Key** and enter the next product key.

If you have multiple product keys listed in a text file, you can copy and paste them into the product key field. If invalid product keys are pasted, the number of invalid product keys are displayed. To view the invalid product keys, click **Copy To Clipboard** and paste the product keys into a text file.

**Tip:** You can also copy and paste the product keys into a text file to save a copy for future reference.

- If you need to remove the last product key, click **Remove Last Key**.
- To clear all the product keys, click **Clear**.

### *Deactivating a License*

You can deactivate individual licenses and activate them on a different site. For example if you are upgrading your server hardware, you can deactivate the license on the older server then activate the same license on the new server.

**NOTE:** There is a limit to the number of times a license can be deactivated. If you encounter an error while activating a previously deactivated license, this may be the issue. Contact Avigilon Technical Support for help.



1. In the site Setup tab, click .
2. In the License Management dialog box, select the license you want to deactivate.

You can select multiple licenses to deactivate them at the same time.

3. Click **Remove License....**
4. In the following dialog box, save a copy of the product keys.
  - a. Click **Copy to Clipboard**.
  - b. Paste the product keys in to a text file.
  - c. Save the text file.

5. Select one of the following tabs:

- If you have internet access, select the **Automatic** tab.

To complete deactivating the license through this tab, see *Automatic Licensing* below.

- If you do not have internet access, select the **Manual** tab.

To complete deactivating the license through this tab, see *Manual Licensing* below.

Once a license has been deactivated, you can activate the license on a new site. For more information, see *Activating a License* on page 23.

### *Automatic Licensing*

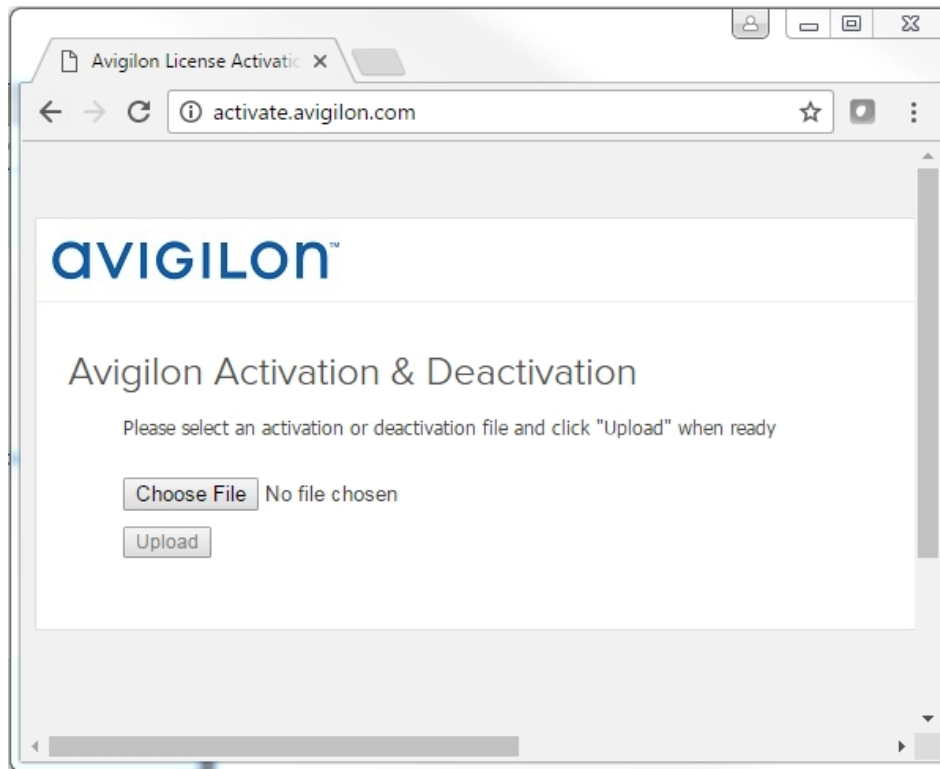
**NOTE:** You must have internet access to use this method.

1. Open the License Management dialog box then initiate the licensing task that you want to perform.
2. At the top of the following dialog box, select the **Automatic** tab.
3. If you are activating a license, you will be prompted to enter a license key or select the preferred demo license edition.
4. Click the button that will immediately apply your license changes.

### *Manual Licensing*

1. Open the License Management dialog box then initiate the licensing task that you want to perform.
2. At the top of the following dialog box, select the **Manual** tab.
3. If you are activating a license, you will be prompted to enter a license key or select the preferred demo license edition.
4. Click **Save File...**
5. From the Save As window, choose where you want to save the `.key` file that is generated by the system. You can rename the file as required.
6. Click **Save**.
7. Copy the `.key` file to a computer with internet access.

8. Open a web browser and go to <http://activate.avigilon.com>.



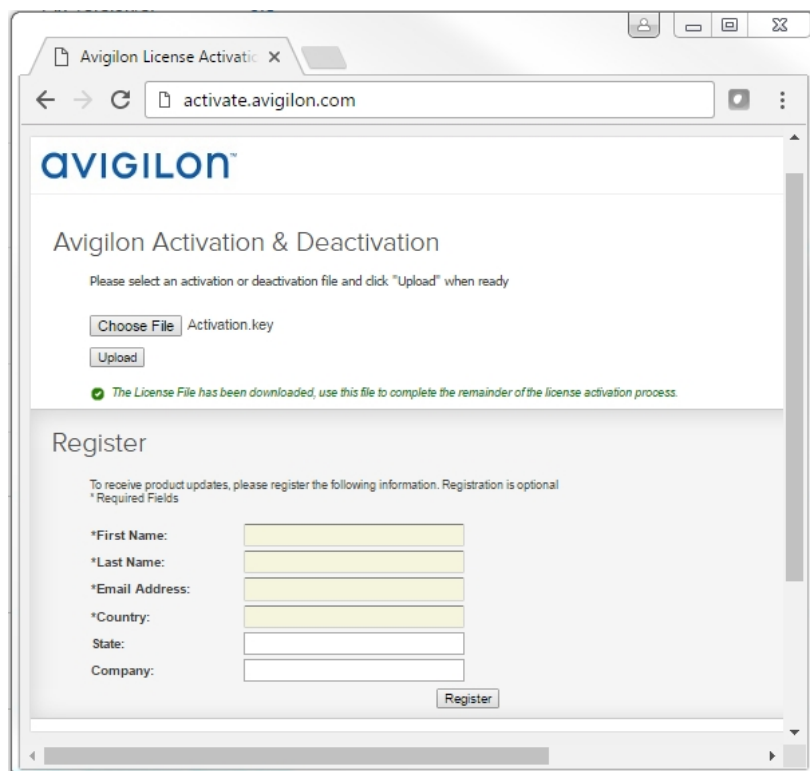
**Figure 3:** The Avigilon License Activation web page

9. Browse to the location of the `.key` file then click **Upload**.

The generated license file (`.lic`) should download automatically. If it does not, allow the download to occur when you are prompted.

10. Copy the downloaded `.lic` file to a location that would be accessible to the ACC Client software.

11. Complete the product registration page to receive product updates from Avigilon, then click **Register**.



**Figure 4:** The product registration web page

12. If you are deactivating a license, you can now activate the deactivated license on a different site. For more information, see *Activating a License* on page 23.

Otherwise, complete the remaining steps.

13. Return to the ACC Client and click **Apply...**
14. Locate the downloaded `.lic` file and click **Open**.
15. When the Confirm Licenses dialog box is displayed, click **OK**.

## Backing Up System Settings

You can back up site and server configuration settings so that they can be restored after an unexpected system failure or used on a different site.

If you want to back up or archive recorded video, see *Archive Video* on page 37.



1. In the site Setup tab, click .
2. In the following dialog box, select the server that you want to back up. The site settings are automatically included in the backup file.
3. If you want to encrypt the backup file, select the **Encrypt the backup file.** check box then enter a password.

The password is required when the backup file is used to restore the system settings. Be aware that if you lose the encryption password, the file can no longer be used.

**NOTE:** It is highly recommended that you enable the encryption option because the settings file may contain sensitive system information.

4. Click **OK**.
5. In the Save As dialog box, name and save the file.

The backup file is saved in Avigilon Settings File (.avs) format.

**NOTE:** Backup files can only be restored to servers that are running the same or more recent version of the Avigilon Control Center Server software.

## Restoring System Settings

**NOTE:** You cannot restore settings from a 5.2.2 or earlier server through this version of the Avigilon Control Center Client software.

If you have a backup Avigilon Settings File (.avs), you can restore the settings as needed. You would typically restore settings after a server has been replaced in the site, or when setting up several independent sites that require similar settings.

**NOTE:** Make sure the new site is licensed to run the same features as the server that generated the backup file. If not, you will lose access to features that were included in the backup file but are not supported by the new site.

Be aware that when you restore server settings, all existing settings are overwritten by the restored settings. When you restore site settings, the restored settings are merged with any existing settings.



1. In the site Setup tab, click .
2. In the following dialog box, find and select the .avs file that you want to restore.
3. If the backup file is encrypted, enter the required password in the following dialog box. You will not be asked to provide a password if the file is not encrypted.
4. Select the settings you want to restore.

By default, the system will select the recommended option for you.

- **Restore site and server settings** — select this option to restore all settings in the site and the selected server.

**NOTE:** If the server is part of a multi-server site, do not select this option because the site settings are maintained by the other connected servers.

- **Restore server settings** — select this option to restore all settings to the selected server.
- **Use custom settings** — click **Choose Settings** to specify the settings that you want to restore.

Be careful when selecting the custom settings because some settings have dependencies that may cause unexpected issues if they are not supported by the server.

5. Select the server that you want to restore the settings to.

It is recommended that you only select servers in the Recommended Servers list. Servers in this list do not have any existing device connections. Restoring settings to a server that is not in this list may overwrite existing device connection details or cause the system to exceed its license and processing limits.

6. Click **OK**.

If you restored the site settings, the settings are merged:

- Unique settings are added to the site.
- If the settings are identical, only the current site version is kept.
- If an import setting and a site setting have the same name but are configured differently, the import setting is added to the site and renamed in this format: *<setting name> (Import)*, like Email1 (Import).
  - In the rules engine, the Notify users (default) rule is always added and renamed, even if the settings are the same. The import version is enabled and the site version is disabled by default.
- The two site Views are combined.
  - The import settings take precedence.







For example, a map from the import file is already used in the site. Currently, the map is stored at the top of the site View. But in the import file, the map is kept at the bottom. After the import settings are merged with the current site settings, the map is moved to the bottom.

- Unorganized elements from the import file are listed at the bottom of the site View.
- User permission groups are merged.
  - If groups have the same name, the import settings are used and the users from both the import file and the current site are added to the group.
  - If the site supports new permissions not available in the import file, the new permissions are disabled by default for the imported group.
  - Default group settings (i.e. Administrators, Power Users, Restricted Users, Standard Users) will use the default site settings for permissions not available in the import file.
  - Groups added from the import file automatically gain access to all the new devices that were added since the settings were exported.
- Users with the same name will use the import settings, including passwords.



## Scheduling Site Events

Site events are actions that can affect the entire site, like email notifications. When you configure a site event, you are given the option to assign a schedule to the event. Schedules control when events can occur — at specific times during a day, or only on specific days.

When you see the **Schedule** option while configuring an event, you can select an existing schedule or create a new schedule.

- To use a preconfigured schedule, select an option from the drop down list. The default option is *Always*, which allows the event to run constantly.
- To change a schedule, select the schedule then click  > .
- To delete a schedule, select the schedule then click  > . In the following confirmation dialog box, click **OK**.
- To create a schedule, click  then select . When the Edit... dialog box is displayed, complete the following steps:
  1. Give the new schedule a name.
  2. Give the first recurrence a name.

You can add multiple recurrences to create a detailed schedule. For example, you could create one recurrence to cover every weekend, plus extra recurrences to cover public holidays.

- To add extra recurrences, click .
  - To delete a recurrence, select the recurrence then click .
3. For each recurrence, define the duration by entering a **Start:** and **End:** time.

Be aware that if you enter an End: time that is earlier than the Start: time, the event will span two days. For example, if the schedule is set to start at 12:00 pm and end at 11:59 am, the event is automatically enabled from 12:00 pm on day 1 and will end at 11:59 am on day 2.

4. In the **Start Date:** field, enter when the recurrence should begin.

5. In the Recurrence pattern area, select the frequency of the recurrence.

Option	Description
Daily	The event is enabled during the same time every day. <ul style="list-style-type: none"><li>Select the number of days between each schedule recurrence.</li></ul>
Weekly	The event is enabled during the same day and time every week. <ul style="list-style-type: none"><li>Select the day(s) of the week, then select the number of weeks between each schedule recurrence.</li></ul>
Monthly	The event is enabled during the same day and time every month. <ul style="list-style-type: none"><li>Select the specific day or weekday, then select the number of months between each schedule recurrence.</li></ul>
Yearly	The event is enabled during the same day and time every year. <ul style="list-style-type: none"><li>Select the specific day or weekday and month, then select the number of years between each schedule recurrence.</li></ul>

6. Add and complete any other recurrences that need to be part of the schedule.

7. Click **OK** to save the new schedule.

## Server Settings

Server settings are related to video recording on each server in the system. This includes configuring the recording schedule, data aging, and bandwidth usage.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

### Naming a Server

Give the server a meaningful name so that it can be easily identified in the System Explorer. Otherwise, the server uses the name that is assigned by Windows.



1. In the server Setup tab, click .
2. In the following dialog box, enter a name for the server.
3. Click **OK**.

### Recording Schedule

The ACC system uses a recording schedule to set when each connected camera should be recording video. By default, the server is set to record motion and configured events when they occur.


Once the recording schedule is set, video is recorded automatically.

#### *Adding and Editing a Recording Schedule Template*

The recording schedule is set by using templates that tell cameras when and what to record. For example, you can create one recording schedule template for weekdays and another for weekends.






1. In the server Setup tab, click . The Recording Schedule dialog box is displayed.
2. Click **Add Template** below the Templates: list.
3. Enter a name for the **New Template**.
4. Click the **Set Area** button, then click or drag the cursor across the **Recording Mode:** timeline to set the types of events that the cameras will record throughout the day. Individual rectangles on the Recording Mode: timeline are colored when they have been selected.

The **Recording Mode:** options include:

- **Continuous** — record video constantly.
  - **Motion** — only record video when motion is detected.
  - **Digital Inputs** — only record video when a digital input is activated.
  - **POS Transactions** — only record video when a point of sale (POS) transaction is made.
  - **License Plates** — only record video when a license plate is detected.
5. To disable recording in parts of the template, click the **Clear Area** button, then click or drag the cursor across the timeline to remove the set recording areas.
  6. If cameras are *not* recording in Continuous mode all day, you can set cameras to record reference images between events in the recording schedule.
    - Select the **Record a reference image every:** check box, then set the time between each reference image.

## Editing and Deleting a Template




1. In the Setup tab, select the server you want to edit then click .
2. In the Recording Schedule dialog box, select a template from the Templates: pane and do one of the following:
  - To edit a template, modify the schedule.
  - To rename a template, click **Rename Template** and enter a new name.
  - To delete a template, click **Delete Template**.
3. Click **OK** to save your changes.

## Setting Up a Weekly Recording Schedule

You can set up a weekly recording schedule by applying templates to cameras for each day of the week.



1. In the server Setup tab, click . The Recording Schedule dialog box is displayed.
2. Select a template from the Templates: list.
3. In the Default Week area, click the days of the week this template applies to for each camera.

Default Week							
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
5.0L-H4A-B2(1008185)	Weekend	Default	Default	Default	Default	Default	Weekend

**Figure 5:** The Recording Schedule dialog box: Default Week

4. Click **OK**.

## Recording and Bandwidth

While the Recording Schedule dialog box sets when and what cameras record, the Recording and Bandwidth dialog box sets how long recorded video is stored.

In the Recording and Bandwidth dialog box, you can change the data aging settings and set the maximum record time for each connected camera. The amount of data aging that is available depends on the camera that is connected to the system.

- For JPEG2000 or JPEG compression cameras, data aging is available at three rates:
  - **High Bandwidth** keeps recordings at their original quality.
  - **Half Image Rate** discards half of the recorded data to make room for new recordings.
  - **Quarter Image Rate** keeps 1/4 of the original recorded data so that you can still see older video.
- For H.264 cameras that support data aging, data aging is available at two rates:
  - **High Bandwidth** keeps the original high quality video and the secondary stream of low resolution video.
  - **Low Bandwidth** only keeps the secondary stream of low resolution video.

**NOTE:** The data aging can only occur when the secondary stream is enabled.

- For H.264 cameras that *do not* support data aging, only the **High Bandwidth** video is kept.

By default, the system is set to keep recorded video for the maximum amount of time based on the available storage.

At the bottom of the Recording and Bandwidth dialog is the following statement:

*Total record time estimate is based on constant recording*


The retention time is determined by the **Max. Record Time** setting and the amortized data rate. Since the system can only provide an estimate of the data rate for the full retention period, the actual retention time can vary from the Max. Record Time setting by up to 30 minutes.



1. In the server Setup tab, click .

The Recording and Bandwidth dialog box is displayed.

The Data Aging column shows an estimate of the recording time that is available at each image rate, given the amount of space on the recording device.

2. In the Data Aging column, move the sliders to adjust the amount of time video is stored at each image rate.
  - To change the data aging settings for all linked cameras, move the slider for one linked camera and all linked cameras will be updated.
  - To change the data aging setting for one camera, break the camera's link to other cameras by clicking the  icon to the left of its name, then make your changes.
3. In the **Max. Record Time** column, manually enter a maximum record time or select one of the options from the drop down list for each camera.

**NOTE:** If the time estimated in the Total Record Time column is significantly shorter than what is set in the Max. Record Time column, the camera's actual recording time will be closer to the Total Record Time estimate.

4. Click **OK**.

## POS Transactions

The Point of Sale (POS) Transaction Engine is a licensed feature that records raw data from POS transaction sources. You can link cameras to specific POS transaction sources, and set up the system to make note of transaction exceptions.


Once POS transactions have been set up, you can see live and recorded POS transaction data in the View tab while watching any linked video.

To monitor live POS transactions, see *Monitoring Live POS Transactions* on page 82.

To review recorded POS transactions, see *Reviewing Recorded POS Transactions* on page 93.

### *Adding a POS Transaction Source*



1. In the server Setup tab, click . The POS Transactions dialog box is displayed.
2. Click . The POS Transactions Setup wizard is displayed.
3. On the Set Transaction Source Device page, enter the **Hostname/IP Address:** and the **Port:** of the POS transaction source device, then click **Next**.
4. On the Set Transaction Source Data Format page, select a data format, then click **Next**.

To add or edit a data format, click **Add** or **Edit**. Alternatively, click **Copy From** to duplicate then edit the selected data format.

For more information about adding a new data format, see *Adding a Transaction Source Data Format* on the next page.


5. On the Set Transaction Exceptions page, select any exceptions that need be monitored, then click **Next**. If you do not need to monitor for exceptions, you can skip this page.

To add or edit a transaction exception, click **Add** or **Edit**. For more information, see *Adding a Transaction Exception* on the next page.

6. On the Set Transaction Source Device page, select the cameras you want to link to the transaction source.


You can also set the amount of time video needs to be recorded before and after each transaction. The default value is 5 seconds.

When you are ready to continue, click **Next**.

7. On the Set Transaction Source Name and Description page, enter a name and description for the transaction source. Select **Enable transaction source** to start receiving data from the transaction source.
8. Click  to save the new transaction source.

### *Adding a Transaction Source Data Format*

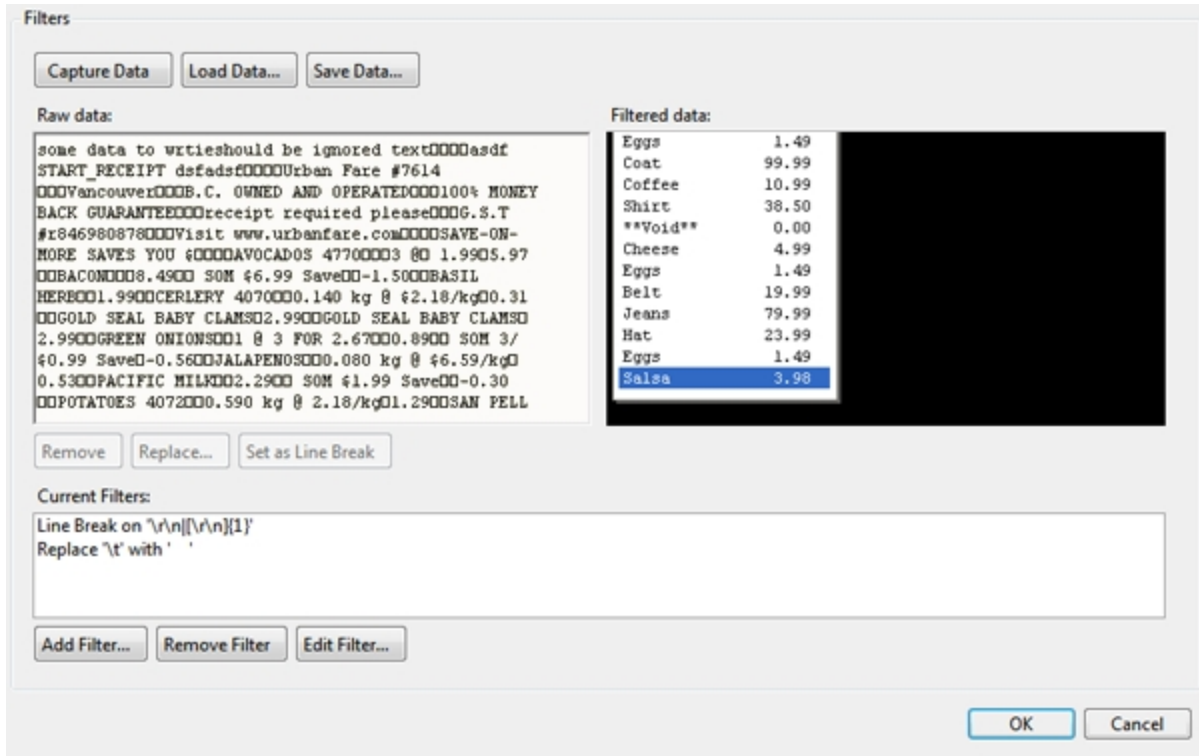
When you add a new POS transaction source, be aware that the transaction source must have a source data format.

1. In the POS Transactions Setup wizard, click  when you arrive on the Set Transaction Source Data Format page. The Configure Data Format dialog box is displayed.

For information about accessing this dialog box, see *Adding a POS Transaction Source* on the previous page.

2. In the Properties area, define the following:
  - **Name:** enter a name for the data format.
  - **Description:** enter a description of the data format.
  - **Transaction Start Text:** (required) enter the text that identifies the start of each transaction from the POS transaction source.
  - **Transaction End Text:** (optional) enter the text that identifies the end of each transaction.
  - **Encoding:** Select the encoding used by the POS transaction source.
3. Capture data from the transaction source. Perform any of the following to capture raw data of the source data format:

The following figure shows raw transaction data on the left and filtered transaction data on the right.



**Figure 6:** The Configure Data Format dialog box


- Click **Capture Data** to start capturing a raw transaction data sample.
  - Click **Stop Capture** to stop capturing transaction data.
  - Click **Load Data...** to load raw transaction data from a file.
  - Click **Save Data...** to save a copy of the transaction data that has been captured.
4. To create a new filter for the raw transaction data file, click **Add Filter....** The Configure Filter dialog box is displayed.

There are two default filters in the Current Filters: area — one to create line breaks and the other to delete extra white space at the beginning of each line. If you do not need extra filters, skip this step.

- a. In the **Text:** field, enter text for the filter to search for.
  - b. Select the **Match case** and/or **Match whole word** check box to focus the text filter to only find text with the same capitalization or an exact match.
  - c. In the **Method:** drop down list, select a search method. You can choose to filter text found through a **Normal** search, **Wildcards** search, or **Regular expressions** search.
  - d. In the **Action to Take:** area, select the action the system will take when the filter finds a match to your text criteria.
  - e. Click **OK**.
5. On the Configure Data Format screen, click **OK** to add the new data format to the data format list.

### *Adding a Transaction Exception*

To help monitor unusual transactions, you can set up transaction exceptions. Transaction exceptions can help you identify unauthorized discounts, fake returns, and manual price overrides.

1. In the POS Transactions Setup wizard, click  when you arrive on the Set Transaction Exceptions page.  
For information about accessing this page, see *Adding a POS Transaction Source* on page 34.
2. In the Configure Exception dialog box, enter a name for the exception.
3. Select one of the Text to Match options:

- **Match Text** — Enter text that will be monitored as a transaction exception.

The system will monitor all transactions for the text entered in the **Text to Match** field.

- **Match Value** — Enter the value that triggers the transaction exception. You can use the relational operators from the drop down list, and further define the value by entering any text that may appear before or after the value.

The exception will monitor all transactions for values that match what you enter in the **Text Before Value**, **Match when value**, and **Text After Value** fields.

4. Click **OK**.



The new transaction exception is added to the Set Transaction Exceptions page.

Repeat this procedure until all the required transaction exceptions have been added to the transaction source.

### *Editing and Deleting a POS Transaction Source*

1. In the server Setup tab, click .

The POS Transactions dialog box is displayed.

2. In the POS Transactions dialog box, select a POS transaction source, then do one of the following:
  - To edit the POS transaction source, click . Go through the POS Transactions Setup wizard and make the required changes on each page. On the last page, click  to save your changes.

For details about the editable options, see *Adding a POS Transaction Source* on page 34.

- To delete the POS transaction source, click .

When the confirmation dialog box is displayed, click **Yes**.

## **Archive Video**

To maintain a copy of all the video recorded in your system, you can archive the content into Avigilon Backup (AVK) format. AVK files can be opened in the Avigilon Control Center Player and re-exported as needed.

If you are running the ACC Server software on a network video recorder, you need to enable the Archive feature in the Avigilon Control Center Admin Tool. The Admin Tool is also where you manually set the archive folder location. For more information, see *The Avigilon Control Center Server User Guide*.

If you are running an Avigilon Edge Solution device, like the H4 ES camera, you would enable archiving through the product web interface.


If you only want to archive an individual event, it is recommended that you export the video instead. For more information, see *Export* on page 100.

## Archiving Recorded Video On Demand

Video archiving must be enabled in the Avigilon Control Center Admin Tool or Edge Solution device web interface before you can use the Archive feature.

Files are always archived in Avigilon Backup (AVK) format. You can review archived video in the Avigilon Control Center Player.

Once archives are enabled, you can trigger the system to archive video as required. You can archive video from any number of cameras in your system, and for an extended time range.

1. In the New Task menu, click .

The Archive tab is displayed.

2. In the System Explorer, select all the cameras you want to archive.

**NOTE:** You can only archive video from one server at a time.

3. In the **Archive Options** area, set the time range of the archive.

The time range is highlighted on the Timeline by the black time range markers. You can also drag the time range markers to change the time range.


4. Select the **Delete oldest archives when disk full** check box to allow the application to automatically overwrite old archive files when the archive folder is full.
5. Click **Start Archiving**.
6. When the archive is complete, click **OK**.

Each video archive is saved in a subfolder that is named after the archive time range.

## Enabling Server Analytics

Server analytics is an ACC ES Analytics Appliance feature that allows video analytics to be performed for cameras without self-learning video analytics capabilities.



1. In the server Setup tab, click .
2. In the following dialog box, a list of connected cameras are displayed.

Only cameras without video analytics capabilities are displayed.

If you do not have access rights for a camera, it will not be shown in this list.

3. To enable video analytics, select the check box beside the connected camera.

The Total Analytic Load bar displays the appliance's video analytics capacity. The percentage is based on the enabled camera's current Compression and Image Rate settings.

4. Click **OK**.

Your settings are now saved.

Video analytic events can now be set up for the enabled cameras from the camera's Setup tab.

# Device Settings

Device settings are used to adjust video quality and set up devices that can be connected to cameras and video analytics appliances. These settings include adjusting camera display quality, video compression and image rate.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

## General

Use the device General dialog box to set a device's identity and configure device PTZ settings. You can also reboot the device through the General dialog box.

### *Setting a Device's Identity*

In a device's General dialog box, you can give the device a name, describe the device's location and give the device a logical ID. The logical ID is needed to control the device through keyboard and joystick commands.



1. In the device Setup tab, click

The General dialog box is displayed.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

2. In the **Camera Name:** field, give the device a meaningful name to help you identify it. By default, the device model number is used as the device's name.
3. In the **Camera Location:** field, describe the device's location.
4. In the **Logical ID:** field, enter a unique number to allow the Client software and integrations to identify this device. By default, the device's Logical ID: is not set and must be manually added.

**Tip:** If **Display LogicalIDs** is enabled in Client Settings, the device's Logical ID will appear beside the device's name in the System Explorer.

5. (Cameras only) To disable the LEDs on a device, select the **Disable camera status LEDs**. This may be required if the device is installed in a covert location.
6. Click **OK**.

### *Configuring PTZ*

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

Use the camera General dialog box to enable and configure the motorized pan, tilt, zoom (PTZ) devices that may be connected to Avigilon cameras. PTZ devices are connected to Avigilon cameras through the RS-485 inputs.

Third-party PTZ camera controls cannot be configured through the Avigilon Control Center software.





1. In the camera Setup tab, click

The General dialog box is displayed.

2. In the PTZ area, select the **Enable PTZ controls** check box.

**NOTE:** If the features described in the following steps are not displayed, the camera only has a motorized zoom and focus lens. You will be able to control the zoom and focus settings through the PTZ Controls pane but other PTZ controls will not be available.

3. In the **Protocol:** drop down list, select the appropriate PTZ protocol. The available protocols include:

- AD Sensormatic
- AXSYS
- AXSYS DCU
- Ernitec ERNA
- Honeywell Diamond
- Kalatel ASCII
- Pelco D
- Pelco P
- TEB Ligne
- Videotec MACRO
- Videotec Legacy
- Vicon extended
- Vicon normal
- JVC JCBP

4. Enter the **Dip Switch Address:**, **Baud Rate:**, and **Parity:** for the PTZ device.

5. Click **OK**.

Once PTZ has been configured, you can use the camera's PTZ Controls while you watch the camera's live video stream. For more information, see *Controlling PTZ Cameras* on page 78.

### *Changing the Camera Operating Priority*

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

Depending on the scene, you may want the camera to maintain a specific frame rate rather than use all the available features. Or the reverse.

Choose what the camera should prioritize during normal operations.



1. In the device Setup tab, click

The General dialog box is displayed.

2. From the **Mode:** drop down list, select one of the following:

- **High Framerate** — the camera will hold the preferred image rate as the priority.

The camera will stream at the configured image rate even if it is unable to use other features supported by the camera. Depending on the camera model, disabled features may include self-learning video analytics, WDR and edge storage.

- **Full Feature** — the camera will maintain the function of all supported features as the priority.

The camera will dedicate more processing power towards maintaining the function of its key features, and use an optimized image rate. Depending on the camera feature, the image rate may be capped down to less than half the configured image rate.

3. Click **OK**.

### *Enabling or Disabling Video Analytics Display*

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

If you are configuring an Avigilon self-learning video analytics device, you can enable or disable the device from displaying the bounding boxes that highlight video analytics activity.

By default, this setting is enabled.



1. In the device Setup tab, click

The General dialog box is displayed.

2. To enable video analytics display, make sure the **Display video analytics activity** check box is selected.
3. To disable video analytics activity, clear the **Display video analytics activity** check box.

Once disabled, the View tab no longer displays bounding boxes in the camera's video stream, or in the camera's AVI video export.

The camera continues to detect video analytics data, so you will still be able to see bounding boxes while configuring video analytic events, Classified Object Motion Detection and Teach By Example. Bounding boxes will also be displayed when you perform a Motion or Classified Object Events search on the camera's video.

4. Click **OK**.

If you want to change this setting for all cameras rather than for specific devices, change the Video Analytics Activity overlay option in the Client Settings dialog box. For more information, see *Video Display Settings* on page 67.

## Rebooting a Device

You can restart all Avigilon devices through the device's General dialog box. This feature is not available for third party devices.



1. In the device Setup tab, click

The General dialog box is displayed.

2. Click **Reboot Camera....**

The device will disconnect from the Avigilon Control Center system and shut down. When the device starts up again, the device should automatically reconnect with the server it was previously connected to.

## Network

Use the device Network dialog box to change how a device connects to the server network.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.



1. In the device Setup tab, click

The Network dialog box is displayed.

2. Select how the device obtains an IP address:

- **Obtain an IP address automatically:** select this option for the device to connect to the network through an automatically assigned IP address.

The device will attempt to obtain an address from a DHCP server. If this fails, the device will obtain an address through Zero Configuration Networking (Zeroconf) and select an address in the 169.254.0.0/16 subnet.

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

Enter the **IP Address:**, **Subnet Mask:**, and **Gateway:** you want the device to use.

3. Select the **Control Port:** for connecting to the device. This port is also used for manually discovering the device on the network.
4. Click **OK**.
5. (Rialto Video analytics appliance only) When prompted, allow the system to restart the device.

## Image and Display

Use the Image and Display dialog box to control a camera's display settings for live and recorded video.

An image histogram is provided at the bottom of the window to help you configure your settings.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

## Changing Image and Display Settings



1. In the camera Setup tab, click .

The Image and Display dialog box is displayed.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

2. Use the focus controls to focus the camera. For more information, see *Zooming and Focusing the Camera Lens* on the next page.

3. Click  to toggle the Auto Contrast Adjustment.

This setting changes the contrast of the video displayed in this dialog box. It does not affect recorded video or video displayed in other views. By default, Auto Contrast Adjustment is off.

4. If the camera supports day/night control, select one of the following options from the **Day/Night Mode:** drop down list:

- **Automatic** — allow the camera to control the infrared cut filter based on the amount of light in the scene.

If available, move the **Day/Night Threshold:** slider to set the exposure value (EV) when the camera changes from day to night mode.

- **Day Mode** — the camera will only stream in color and the IR cut filter is disabled.
- **Night Mode** — the camera will only stream in monochrome and the IR cut filter is enabled.

5. Adjust the camera's image settings to best capture the scene. A preview of your changes are displayed in the image panel and the histogram.

**Tip:** Use the **Maximum Exposure:**, **Maximum Gain:**, and **Priority:** options to control low light behavior.

Option	Description
<b>Synchronize Image Settings with All Heads</b>  (Avigilon HD Multisensor Dome Cameras Only)	You can apply the same image settings to all camera heads by selecting this check box.  <b>NOTE:</b> Zoom and focus settings must be set individually.
<b>Exposure:</b>	You can allow the camera to control the exposure by selecting <b>Automatic</b> , or you can set a specific exposure rate.  <b>NOTE:</b> Increasing the manual exposure time may affect the image rate.
<b>Iris:</b>	You can allow the camera to control the iris by selecting <b>Automatic</b> , or you can manually set it to <b>Open</b> or <b>Closed</b> .
<b>Maximum Exposure:</b>	You can limit the automatic exposure setting by selecting a <b>Maximum Exposure:</b> level.  By setting a <b>Maximum Exposure:</b> 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.

Option	Description
<b>Maximum Gain:</b>	<p>You can limit the automatic gain setting by selecting a <b>Maximum Gain:</b> level.</p> <p>By setting a <b>Maximum Gain:</b> level for low light situations, you can maximize the detail of an image without creating excessive noise in the images.</p>
<b>Priority:</b>	<p>You can select <b>Image Rate</b> or <b>Exposure</b> as the priority.</p> <p>When set to <b>Image Rate</b>, 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.</p> <p>When set to <b>Exposure</b>, the camera will maintain the exposure setting as the priority, and will override the set image rate to achieve the best image possible.</p>
<b>Flicker Control:</b>	<p>If your video image flickers because of the fluorescent lights around the camera, you can reduce the effects of the flicker by setting the <b>Flicker Control:</b> to the same frequency as your lights. Generally, Europe is <b>50 Hz</b> and North America is <b>60 Hz</b>.</p>
<b>Backlight Compensation:</b>	<p>If your scene has areas of intense light that cause the overall image to be too dark, move the <b>Backlight Compensation:</b> slider until you achieve a well exposed image.</p>
<b>Enable Wide Dynamic Range</b>	<p>Select this box to 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.</p>
<b>Enable Adaptive IR Compensation</b>	<p>Select this box to enable automatic infrared adjustments through Adaptive IR Compensation. This allows the camera to automatically adjust the video image for saturation caused by IR illumination.</p>
<b>Saturation:</b>	<p>You can adjust the video's color intensity by moving the <b>Saturation:</b> slider until the video image meets your requirements.</p>
<b>Sharpening:</b>	<p>You can adjust the video sharpness to make the edges of objects more visible. Move the <b>Sharpening:</b> slider until the video image meets your requirements.</p>
<b>Image Rotation:</b>	<p>You can change the rotation of captured video. You can rotate the video 90, 180, or 270 degrees clockwise.</p>
<b>White Balance</b>	<p>You can control white balance settings to adjust for differences in light.</p> <p>You can allow the camera to control the white balance by selecting <b>Automatic White Balance</b>, or select <b>Custom White Balance</b> and manually set the <b>Red:</b> and <b>Blue:</b> settings.</p>

6. Click **Apply to Cameras...** to apply the same settings to other cameras of the same model.
7. Click **OK**.

### *Zooming and Focusing the Camera Lens*







If the camera has remote zoom and focus capabilities, you can control the camera's zoom and focus through the Image and Display dialog box.



1. In the camera Setup tab, click .

The Image and Display dialog box is displayed.

2. If the camera has a built-in auto-focus feature, you can choose one of the following:
  - **Continuous Focus** — the camera will automatically focus itself whenever the scene changes. Skip the following steps.
  - **Manual Focus** — you can manually focus the camera through the **Focus:** buttons. Once the focus is manually set, it will not change.
3. While you watch the preview in the image panel, complete the following steps to zoom and focus the camera:
  - a. Use the **Zoom:** buttons to zoom in to the distance you want to focus.
4. In the **Iris:** drop down list, select **Open**. When the iris is fully open, the camera's depth of field is the shortest.
5. Use the **Focus:** buttons until the image becomes clear.

Button	Description
<b>Auto Focus</b>	The camera will automatically focus one time.
	The camera will focus as close to zero as possible.
	Large step toward zero.
	Small step toward zero.
	Small step toward infinity.
	Large step toward infinity.
	Infinity.


6. Click **Apply to Cameras...** to apply the same settings to other cameras of the same model.
7. Click **OK**.

### *Dewarping a Fisheye Lens*

If your camera uses a supported fisheye or panomorph lens, you may choose to dewarp the image through the Avigilon Control Center software.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the camera Setup tab, click .
2. In the **View Perspective:** drop down list, select one of the following options:
  - **Floor:** select this option if the camera is installed to look up.
  - **Ceiling:** select this option if the camera is installed to look down.
  - **Wall:** select this option if the camera is installed to look at the horizon.
3. If available, edit the Image and Display settings.
4. Click **OK**.


The system dewarps the lens image based on the way it is installed. You will be able to control how video is displayed in an image panel through the PTZ controls.

## Compression and Image Rate

Use the camera Compression and Image Rate dialog box to modify the camera's frame rate and image quality settings for sending image data over the network.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the camera Setup tab, click .
- The Compression and Image Rate dialog box is displayed.
- The Bandwidth: area gives an estimate of the bandwidth used by the camera with the current settings. Adjust the settings as required.
- NOTE:** For cameras capable of maintaining multiple streams, the settings in this dialog box only affect the primary stream.
2. In the **Format:** drop down list, select the preferred streaming format.
  3. In the **Image Rate:** bar, move the slider to select the number of images per second (ips) you want the camera to stream over the network.
- For H.264 cameras and encoders, the image rate setting must be divisible by the maximum image rate. If you set the slider between two image rate settings, the application will round to the closest whole number.
4. In the **Image Quality:** drop down list, select an image quality setting. An image quality setting of **1** will produce the highest quality video and require the most bandwidth. The default setting is **6**.
  5. In the **Max Bit Rate:** field, select the maximum bandwidth the camera can use in kilobits per second (kbps).
  6. In the **Resolution:** drop down list, select the preferred image resolution.

7. In the **Keyframe Interval:** drop down list, enter the preferred number of frames between each keyframe.

To help you determine how frequently keyframes are recorded, the Keyframe Period: area tells you the amount of time that passes between each recorded keyframe.

It is recommended that you have at least one keyframe per second.

8. If your camera supports multiple video streams, you can select the **Enable Low Bandwidth Stream** check box. Depending on your version of the software, the check box may also be called "Enable secondary stream".

When enabled, the lower resolution video stream is used by the Avigilon HDSM™ feature to maximize bandwidth and storage efficiencies.

9. Click **Apply to Cameras...** to apply the same settings to other cameras of the same model.
10. Click **OK**.

### *Manually Adjusting Recorded Video Streams*

If you have a 1-3 megapixel Avigilon H4 HD camera, you have the option of manually adjusting the primary and secondary video stream, or allowing the system to automatically use HDSM technology. HDSM technology allows ACC software to automatically record both the primary and secondary stream so that the system can intelligently adjust video bandwidth and storage efficiencies to meet your requirements.

If your local regulations require that a specific video stream be recorded or be a certain resolution, you have the option of manually adjusting the settings to meet the requirements.

1. In the Compression and Image Rate dialog box, select **Manual** from the Recording Profile: drop down list.

The High Bandwidth Stream is automatically disabled for recorded video but the settings are still available for you to configure the live video stream. The Low Bandwidth Stream settings are enabled.

The default HDSM Auto option allows the system to use the HDSM feature for viewing live and recorded video. Be aware that if you are using the Manual setting, HDSM technology is disabled for recorded video but is still used for live video streams.

2. If you need to adjust the live video stream, change the High Bandwidth Stream settings first.

The High Bandwidth Stream settings are used to optimize the Low Bandwidth Stream settings, so some of the settings may change depending on your settings for the High Bandwidth Stream.

3. If it is not displayed, click  to display the Low Bandwidth Stream settings.

If you prefer to record a higher resolution video, clear the **Enable Low Bandwidth Stream** check box and adjust the High Bandwidth Stream settings.

4. In the **Resolution:** drop down list, select the preferred image resolution.
5. In the **Image Rate:** bar, move the slider to select the number of images per second (ips) you want the camera to stream over the network.
6. In the **Image Quality:** drop down list, select an image quality setting. An image quality setting of **1** will produce the highest quality video and require the most bandwidth. The default setting is **6**.
7. In the **Max Bit Rate:** field, select the maximum bandwidth the camera can use in kilobits per second (kbps).



8. In the **Keyframe Interval:** drop down list, enter the preferred number of frames between each keyframe.

To help you determine how frequently keyframes are recorded, the Keyframe Period: area tells you the amount of time that passes between each recorded keyframe.

It is recommended that you have at least one keyframe per second.

9. Click **Apply to Cameras...** to apply the same settings to other cameras of the same model.
10. Click **OK**.

The changes immediately take effect. The ACC Client software will continue to use HDSM technology to manage the display of live video, but recorded video will only display the configured video stream.

The data aging settings in the Recording and Bandwidth dialog box update to reflect the new recording profile settings.

### *Enabling Idle Scene Mode*

**NOTE:** Only available to cameras that support this feature.


Idle scene mode offers the option to record video at a different frame rate and quality if there are no motion events detected in the scene.

A motion event is when the camera uses its Pixel Motion Detection or Classified Object Motion Detection ability to identify significant events in the scene. For more information, see *Motion Detection* on page 50.

Idle scene mode is typically used to set the camera to stream at a lower image rate and reduced quality to lower the bandwidth and storage used when the scene is idle.

**NOTE:** This option is only available if the camera is set to stream in H.264 format.

1. In the Compression and Image Rate dialog box, select the **Enable Idle Scene Mode** check box.

The Idle Scene Mode settings are displayed. If the settings do not automatically display, click  to reveal the settings.

2. In the **Post-Motion Delay:** field, enter the amount of time in seconds the scene must be idle before it switches to idle scene mode.
3. In the following **Image Rate:** bar, move the slider to select the number of images per second (ips) you want the camera to stream while the scene is idle.
4. In the **Image Quality:** drop down list, select the video image quality when the camera is in idle scene mode.
5. In the **Max Bit Rate:** field, select the maximum bandwidth the camera can use in this mode.
6. In the **Keyframe Interval:** drop down list, enter the preferred number of frames between each keyframe.

To help you determine how frequently keyframes are recorded, the Keyframe Period: area tells you the amount of time that passes between each recorded keyframe.

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

Next time the camera's field of view becomes quiet or idle, the camera will automatically switch to idle scene mode. The camera will automatically switch back to standard streaming mode when motion events are detected in the scene.


## Enabling HDSM SmartCodec™ Settings

**NOTE:** Only available to cameras that support this feature.

HDSM SmartCodec technology operates by separating foreground objects from the background image, then reduces bandwidth by increasing compression to the background image. In this way, higher quality image is retained for objects of interest in the foreground while reducing bandwidth for static backgrounds. When there is no motion in the scene, HDSM SmartCodec feature switches the camera into idle scene mode to increase bandwidth savings when there are no objects of interest.

HDSM SmartCodec feature uses the camera's motion detection area to help define when it should switch to idle scene mode. You can configure the motion detection area from the Motion Detection dialog box. For more information, see *Motion Detection* on the next page.

1. In the Compression and Image Rate dialog box, select the **Enable HDSM SmartCodec** check box.

The HDSM SmartCodec settings are displayed. If the settings do not automatically display, click  to reveal the settings.

2. In the **Bandwidth Reduction:** drop down list, select one of the following options:

- **Low**
- **Medium**
- **High**
- **Custom**

If the scene background does not provide any valuable information, for example a white hallway, choose **High** to maximize the bandwidth savings. If the scene background may cause objects of interest to behave differently, for example a traffic intersection, choose **Low**. This setting provides you with some bandwidth savings, while maintaining enough background clarity to see events in full context.

3. In the **On Motion:** section, choose the preferred **Background Image Quality:** option.

An image quality setting of **1** will produce the highest quality background image but require the most bandwidth.

When motion activity is detected, the foreground areas of the video are streamed and recorded using the High Bandwidth Stream settings while the background areas use the Background Image Quality: setting.

4. In the **On Idle Scene:** section, enter the **Post-Motion Delay:** setting in seconds. This field defines how long the scene must be idle before it switches to idle scene mode.
5. In the following **Image Rate:** bar, move the slider to select the number of images per second (ips) you want the camera to stream while the scene is idle.
6. In the **Image Quality:** drop down list, select the video image quality when the camera is in idle scene mode. This setting is applied to the foreground and background image.
7. In the **Max Bit Rate:** field, select the maximum bandwidth the camera can use in this mode.
8. In the **Keyframe Interval:** drop down list, enter the preferred number of frames between each keyframe.

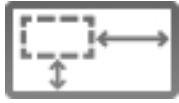
To help you determine how frequently keyframes are recorded, the **Keyframe Period:** area tells you the amount of time that passes between each recorded keyframe.

9. Click **OK** to save your settings.

## Image Dimensions

Use the Image Dimensions dialog box to set the image dimensions for the camera. You can crop the video image to help reduce bandwidth and increase the maximum image rate.

**NOTE:** This feature is only available for JPEG2000 cameras.



1. In the camera Setup tab, click .

The Image Dimensions dialog box is displayed.

2. Adjust the image dimensions by doing one of the following:
  - Drag the edges of the image until the video is cropped to fit your requirements.
  - Change the values for the **Top:**, **Left:**, **Width:**, and **Height:** fields.
3. Click **OK**.

## Motion Detection

Depending on the type of camera you are configuring, there may be two types of motion detection available: Pixel Motion Detection and Classified Object Motion Detection.

Pixel Motion Detection observes the video stream as a whole and considers any change in pixel as motion in the scene. This option is available to most cameras that are connected to the system.

Classified Object Motion Detection analyzes the video and only reports the motion of vehicles or persons. This option is only available to Avigilon self-learning video analytics devices.

### *Setting Up Pixel Motion Detection*






In the Motion Detection dialog box, use the Pixel Motion Detection tab to set up pixel motion detection. This allows you to define when the system will acknowledge motion in the scene.

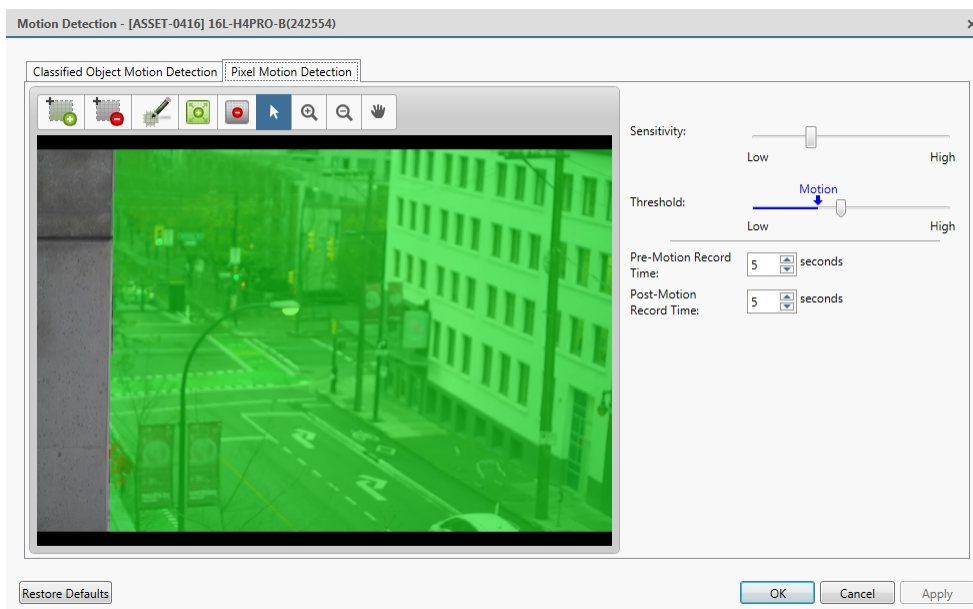


1. In the camera Setup tab, click .
2. In the Pixel Motion Detection tab, define the green motion detection area in the camera's field of view:

**NOTE:** Pixel motion detection is ignored in the areas that are not highlighted in green.

**Tip:** Refer to the red motion activity overlay to help you define the green motion detection area. The motion detection area should avoid areas prone to continuous pixel motion — like TVs, computer monitors, trees and moving shadows. These areas tend to trigger motion recording even though the motion activity may be insignificant.

-  — Click this button then draw green rectangles to define the pixel motion detection areas. You can draw multiple rectangles to create your pixel motion detection area.
-  — Click this button and draw rectangles to erase sections from the pixel motion detection area.
-  — Click this button and manually draw pixel motion detection areas with your mouse. This tool allows you to be very specific and highlight unusual shapes.
-  — Click this button to highlight the entire image panel for pixel motion detection.
-  — Click this button to clear the image panel of all pixel motion detection areas.



**Figure 7:** The Motion Detection dialog box: the Pixel Motion Detection tab

3. Define how sensitive the system should be to pixel motion.

- Move the **Sensitivity** slider to adjust how much each pixel must change before it is considered in motion.

When the sensitivity is High, even small movements are detected - like dust floating immediately before the camera lens.

- Move the **Threshold** slider to adjust how many pixels must change before the image is considered to have pixel motion.

When the threshold is High, only large motions are detected - like a truck driving across the scene.

**Tip:** The **Motion** indicator above the Threshold: slider will move to indicate how much motion is occurring in the current scene. Only when the Motion indicator moves to the right of the Threshold: marker will the camera detect the pixel motion.

- c. In the **Pre-Motion Record Time:** and **Post-Motion Record Time:** fields, specify how long video is recorded before and after the pixel motion event.
4. Click **OK** to save your settings.

### Setting Up Classified Object Motion Detection

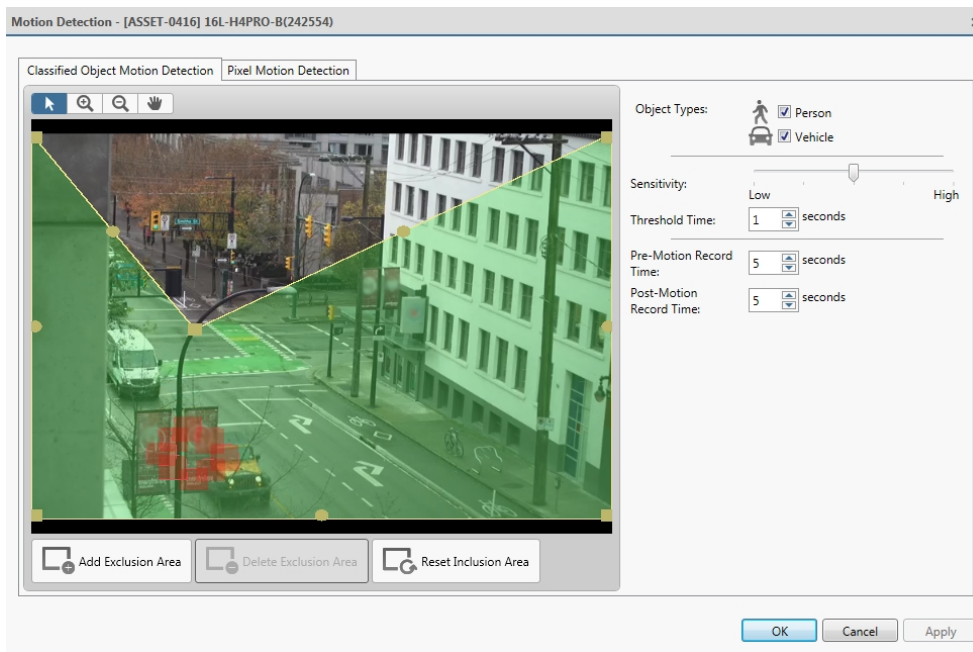
In the Motion Detection dialog box, use the Classified Object Motion Detection tab to set up object motion detection. This allows you to define when the system will acknowledge a person or vehicle in the scene.



1. In the device Setup tab, click .


The Motion Detection dialog box is displayed.

2. In the **Classified Object Motion Detection** tab, define the green motion detection area in the camera's field of view:



**Figure 8:** The Motion Detection dialog box: the Classified Object Motion Detection tab


- To change the shape or size of the green overlay, click and drag any of the yellow markers on the border. Extra markers are automatically added to help you fine tune the shape of the overlay.
- To move the green overlay, place the cursor over the green overlay until the cursor changes into a hand or the pan tool. Then, click and drag the green overlay to the desired location.

- Click  to add an exclusion area. The exclusion area is added inside the green overlay.

Classified object motion is *not* detected in exclusion areas.

- To set an exclusion area, move and resize the exclusion area as required then click anywhere on the green overlay.
- To edit an exclusion area, double-click the exclusion area then modify as required.

- Select an exclusion area then click  to delete the exclusion area.

- Click  to restore the default green overlay.

### 3. Define the objects that are detected by the system.

- Check the **Person** box to detect people in the area.
- Check the **Vehicle** boxes to detect vehicles in the area.
- Move the **Sensitivity** slider to adjust how sensitive the system is to the detection of classified objects.

If you set the slider to **Low**, the video analytics device will detect fewer objects because the system must be highly confident that it has detected a person or vehicle before you are notified of an event.

If you set the slider to **High**, the video analytics device will detect more objects because the system does not need to be as certain of the object classification before you are notified of a motion event.

Be aware that if the slider is set too low, the system may miss classified object motion. If the slider is set too high, the system may generate a higher number of false classified object motion detections. Adjust the **Sensitivity** slider to match the level of activity in the scene.

- In the **Threshold Time** field, adjust how long an object must be moving before it is considered a moving object.
- In the **Pre-Motion Record Time** and **Post-Motion Record Time** fields, specify how long video is recorded before and after a classified object motion detection event.

### 4. Click **Apply** to save your settings.

## Self-Learning Video Analytics

Video analytics appliances and Avigilon cameras with self-learning video analytics can be configured to learn their surroundings and detect specific events.

To configure Classified Object Motion Detection for a video analytics camera, see *Setting Up Classified Object Motion Detection* on the previous page.

## Configuring Video Analytics Cameras

Cameras with video analytics and cameras connected to ACC ES Analytics Appliances can be configured to better understand the scene where it is installed and improve the accuracy of the camera's classified object detection.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the device Setup tab, click .

The Video Analytics Configuration dialog box opens.

2. From the **Location:** drop down list, select the location that best describes where the camera is installed.

The Location: setting helps the camera identify what it should be looking for.

- **Outdoor** — this option is suitable for most outdoor environments. This setting optimizes the camera to identify vehicles and people.
- **Outdoor High Sensitivity** — only use this option if you require the system to be more sensitive than the Outdoor setting. This option is optimized to run with higher sensitivity for detecting people and vehicles in challenging outdoor scenes. Be aware that this option will generate more false positives.
- **Large Indoor Area** — this option only detects people and is optimized to detect people around obstructions, like chairs and desks, if the head and torso are visible.
- **Indoor Overhead** — this option is optimized for cameras mounted directly overhead and should only be used when a torso cannot be seen in the camera FoV. Any movement is assumed to be human. It can be used in areas with limited space but with high ceilings, or to monitor doors. It should not be used with the Avigilon Appearance Search feature, or to detect people traveling against the crowd.

**NOTE:** If you change the Location: setting after it has been set, the system will delete any data the device may have learned.

3. In the **Camera Type:** drop down list, select the type of camera that has been connected to this camera channel.

This helps the video analytics determine what type of image it should expect from the camera.

- **Day and Night** — select this option if the camera can stream video in color or black and white. This type of camera typically displays color video during the day and black and white video at night to capture as much detail as it can of the scene.
- **Color** — select this option if the camera can only stream video in color.
- **Black and White** — select this option if the camera can only stream video in black and white.
- **Thermal** — select this option if the camera can stream forward looking infrared (FLIR) video.

4. Move the **Tampering Sensitivity** slider to define how sensitive the camera is to sudden changes in the scene.

Tampering is defined as a sudden change in the camera field of view, usually caused by someone unexpectedly moving the camera. Lower the setting if small changes in the scene, like moving shadows, cause tampering events. If the camera is installed indoors and the scene is unlikely to change, you can increase the setting to capture more unusual events.

5. Select the **Enable Appearance Search** check box if you want to use this camera with the Avigilon Appearance Search feature.

**NOTE:** This option is only displayed if the camera is connected to a network video recorder that supports the Avigilon Appearance Search feature.

6. If the camera is too sensitive and falsely detects motion as classified objects, select the **Enable Noise Filter** check box.

Disable this option if the camera is not sensitive enough.

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

Next, you can enable self-learning and configure analytics events. For more information, see *Self-Learning* on page 57 or *Video Analytics Events* on page 61

### *Configuring Rialto Video Analytics Appliances*

To use a Rialto video analytics appliance, configure each connected camera channel for video analytics detection.

If you are configuring an analog video analytics appliance, the cameras are physically connected to each camera channel before the appliance is connected to the system.

If you are configuring an IP video analytics appliance, any camera on the network can be digitally connected to the appliance camera channels. Before you complete this procedure, connect the required cameras first.

**NOTE:** Rialto video analytics appliances do not support the Avigilon Appearance Search feature. Cameras connected to Rialto appliances do not have the option to be enabled for the feature.

1. Open the Setup tab, then select one of the appliance camera channels.



2. In the device Setup tab, click .

The Video Analytics Configuration dialog box opens.

3. Assign a camera to the channel.

Skip this step if you are configuring an analog appliance.



- From the **Linked Camera:** drop down list, select a camera for this camera channel.

Only cameras connected to the same server are listed.

**NOTE:** If the camera you link to has a resolution higher than 2.0 MP, the video analytics appliance will use the camera's secondary video stream. This does not affect the resolution of recorded video.

After you select the camera, the dialog box expands to display the video analytic event settings.

4. From the **Location:** drop down list, select the location that best describes where the camera is installed.

The Location: setting helps the camera identify what it should be looking for.

- **Outdoor**— this option is suitable for most outdoor environments. This setting optimizes the camera to identify vehicles and people.
- **Large Indoor Area** — this option only detects people and is optimized to detect people around obstructions, like chairs and desks, if the head and torso are visible.
- **Indoor Overhead** — this option is optimized for cameras mounted directly overhead and should only be used when a torso cannot be seen in the camera FoV. Any movement is assumed to be human. It can be used in areas with limited space but with high ceilings, or to monitor doors.
- **Outdoor High Sensitivity** — only use this option if you require the system to be more sensitive than the Outdoor setting. This option is optimized to run with higher sensitivity for detecting people and vehicles in challenging outdoor scenes. Be aware that this option will generate more false positives.

**NOTE:** If you change the Location: setting after it has been set, the system will delete any data the device may have learned.

5. In the **Camera Type:** drop down list, select the type of camera that has been connected to this camera channel.

This helps the video analytics appliance determine what type of image it should expect from the camera.

- **Color** — select this option if the camera can only stream video in color.
  - **Black and White** — select this option if the camera can only stream video in black and white.
  - **Day and Night** — select this option if the camera can stream video in color or black and white. This type of camera typically displays color video during the day and black and white video at night to capture as much detail as it can of the scene.
  - **Thermal** — select this option if the camera can stream forward looking infrared (FLIR) video.
6. Check the **Enable Noise Filter** box if the camera is too sensitive and falsely detects motion as classified objects. Disable this option if the camera is not sensitive enough.
  7. If you plan to enable self-learning or configure video analytic events, apply your changes now.

**Tip:** Each time you choose to save or apply your settings, you may be prompted to reboot. To save time, enter all your video analytic settings before you click Apply or OK.

For more information about self-learning, see *Self-Learning* on the next page.

For more information about video analytic events, see *Video Analytics Events* on page 61.

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

9. If you are prompted, allow the device to reboot.

## Self-Learning

Self-learning is the video analytics device's ability to perform self-adjustment of the scene. When self-learning is enabled, the video analytics device adjusts itself to the activity in its field of view. This can significantly improve the accuracy of human and vehicle classification.

Self-learning is configured from the Video Analytics Configuration dialog box. The Self-Learning Progress: status in the dialog box tells you the following information:

- **0% - 33%** — The device is in the initial learning stage where it begins to gather information on the scene.
- **34% - 66%** — The device is adjusting itself using the data it has gathered on the average person and average vehicle in the scene.
- **67% - 100%** — The device has established a high level of classified object detection accuracy.

The time needed for self-learning to reach 100% depends on the amount of activity in the scene. It generally requires approximately 200 high-confidence detections through the camera field of view for optimal self-learning calibration.

Once the camera becomes stable after initial installation, it is strongly recommended that the camera's self-learning setting be reset. During installation, a camera is frequently adjusted, so any self-learning the system was able to do would become invalid.

**NOTE:** Always reset self-learning after a camera is physically moved or adjusted, and if the focus or zoom level is changed. The change in the camera's field of view affects the video analytic results.

When self-learning is reset, all previous self-learning data is deleted and the device learns anew. By allowing the video analytics device to re-learn the scene, you are able to prevent false detections based on old data.

Typically, you only need to enable self-learning for the video analytics device to learn the scene. However, if the device continues to produce a large number of false object classifications after self-learning is complete, you may want to use the Teach By Example feature to refine the device's object classification capabilities. For more information, see *Teach By Example* on the next page

It is highly recommended that self-learning be enabled for all video analytics devices, except in the following circumstances:

- If you do not expect any humans or vehicles in the device's field of view.
- Scenes where objects can be observed to be moving at different heights. For example, overhead pedestrian bridges, train platforms, hills and underpasses.

## Enabling Self-Learning

The Video Analytics Configuration dialog box allows you to enable or disable self-learning in video analytics devices.



1. In the device Setup tab, click

The Video Analytics Configuration dialog box opens.

2. To enable self-learning, check the **Enable Self-Learning** box.
3. To disable self-learning, clear the **Enable Self-Learning** check box.

**NOTE:** Disabling self-learning may result in more classified objects being falsely detected.

Once disabled, the camera stops self-learning and no longer utilizes any learned information.

4. To reset self-learning, click **Self-Learning Reset**.
  - In the confirmation dialog box that appears, click **Yes**.

**NOTE:** When self-learning is reset, all previous self-learning data for the device is deleted.

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

### *Teach By Example*

For most scenes, the Avigilon self-learning feature is all that is required for the video analytics device to learn the scene and accurately classify objects of interest. In the exceptional situations where self-learning should be disabled, the Teach By Example feature can be used to help refine classified object detection.

The Teach By Example feature allows you to provide feedback on the accuracy of classified objects by reviewing recorded video and assigning true or false Teach Markers to detected objects. Teach Markers can be assigned then applied to devices by different users. Users who assign markers to detected objects are typically users who monitor video on a regular basis. You must assign 30 true and 30 false markers before they can be submitted and applied to a device. Users who apply the markers to the device may be an administrator who is less involved with day to day video monitoring.

For more information about when the self-learning feature should be enabled or disabled, see *Self-Learning* on the previous page.

### **Teach By Example Recommendations**

Teach by Example is a feature that allows users to provide feedback by validating the accuracy of classifications done by the system.

- Teach by Example is recommended if the system reports an undesirable number of false alarms after self-learning is complete or has been disabled.
- Teach by Example is not required, but can be used to help refine classification of people and vehicles to further reduce the number of false alarms.
- You can perform Teach by Example after self-learning is complete, or when self-learning is disabled.
- If you decide to disable self-learning after having executed a Teach by Example exercise, you may need to teach the system again to account for classified results that were previously filtered by self-learning.
- For changes in lighting, including the addition of infrared light, make sure you provide examples of true and false detections in the new lighting.

- Always restore the factory default Teach By Example settings after a camera is physically moved or adjusted, and if the focus or zoom level is changed. The change in the camera's field of view affects the video analytic results.

## Assigning Teach Markers

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

Assign true or false markers to the detected objects to help the device increase its detection accuracy. You can assign Teach Markers to recorded video from the Teach By Example tab or from search results.

**NOTE:** The Teach Markers are local to a single server and are created for individual cameras. They are not shared between servers or cameras.

You need at least 30 true Teach Markers and 30 false Teach Markers per camera to teach a video analytics device. Each camera will accept a maximum of 50 true Teach Markers and 50 false Teach Markers. A tally of the total number of assigned markers is displayed at the bottom of the Teach By Example tab.

1. Display recorded video from the analytics device in one of the following locations:



- In the device Setup tab, click

The Teach By Example tab opens.

Playback the recorded video until you encounter bounding boxes in the scene. For more information about controlling video playback, see *Playing Back Recorded Video* on page 89.

- In the New Task menu, click one of the following Search options:  or .

Perform a search then select a search result that includes bounding boxes. For more information about performing each of these searches, see *Search* on page 94.

2. Click inside a bounding box to display the Teach Markers menu.

People detected by the video analytics device are outlined in red bounding boxes and vehicles are outlined in blue bounding boxes.

3. Select one of the following options:

The options may be different depending on the detected object type.

- **True Person/True Vehicle** — Select this option if the video analytics device has correctly identified this object.
- **False Person/False Vehicle** — Select this option if the video analytics device has incorrectly identified this object.
- **Not Used** — Select this option if you do not want to use this object as a teaching sample.

After you've assigned the minimum number of Teach Markers, you can send the examples to the device. For more information, see *Applying Teach Markers to the Device* on the next page.

## Managing Teach Markers

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

After you've assigned Teach Markers to objects detected in the device's recorded video, you can modify or delete the Teach Markers before they are applied to the device.



1. In the device Setup tab, click .

The Teach By Example tab opens.

2. To edit Teach Markers:
  - a. Select an item from the **Teach Markers** list.
  - b. Click the related bounding box in the image panel then change the assigned object type.
  - c. Select **Not Used** to remove individual Teach Markers from the list.
3. To remove all the Teach Markers from the list, click **Clear All Markers**.

This will delete all the markers that are currently listed, but not the markers that have already been applied to the camera.

## Applying Teach Markers to the Device

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

After the minimum number of Teach Markers have been assigned, you can apply the markers to the device. This sends the true and false detection details to the device.



1. In the device Setup tab, click .

The Teach By Example tab opens.

2. To review the Teach Markers, select a marker from the list.

The associated video is displayed in the image panel and the details are displayed below.

You can sort the markers by clicking the column headings.

3. To apply all the Teach Markers to the video analytics device, click **Apply**.

**NOTE:** You must have a minimum of 30 true and 30 false Teach Markers, or an error message is displayed.

The Teach Markers information is sent to the device, and the device will now use the details to help increase its detection accuracy.


The listed Teach Markers are removed from the list because they have been applied to the device.

## Removing Teach Markers from the Device

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

If there are significant changes in the scene or if the camera is moved to a different location, you may want to remove the Teach Markers that have been applied to the device because the information is no longer accurate.



1. In the device Setup tab, click  .  
The Teach By Example tab opens.
2. Click **Restore to Factory Default**.
3. When you are prompted, click **Yes**.

The device's teach data is restored to the factory default settings.

If you have new Teach Markers prepared for the device, those markers are not deleted from the list. Only the markers that have already been applied to the device are removed.

## Video Analytics Events



You can set up specific video analytics events on each Avigilon self-learning video analytics device. Devices can be configured to detect a variety of human and vehicle activity within a scene.

The configured events can be used to set up detailed rules. For more information, see *Rules* on page 22.

## Adding Video Analytics Events

Before you can add video analytics events to rules and alarms, they must first be created for each video analytics device.



1. In the device Setup tab, click  .  
The Video Analytics Configuration dialog box opens.
2. Click  . The Analytics Event Configurations: dialog box opens.
3. Enter a name for the video analytics event.
4. Select the **Enabled** check box. If the check box is clear, the video analytics event will not detect or trigger any events.
5. In the Activity: area, select one of the following options:

**NOTE:** The option you select here will define the other settings that are displayed.

- **Objects in area** – the video analytics event will be triggered when the selected object type moves into the region of interest.

In the image panel, define the green region of interest. The green overlay can be configured like the Classified Object Motion Detection feature. For more information, see *Setting Up Classified Object Motion Detection* on page 52.

- **Object loitering** – the video analytics event will be triggered when the selected object type stays within the region of interest for an extended amount of time.

In the image panel, define the green region of interest.

- **Objects crossing beam** – the video analytics event will be triggered when the selected object type crosses the beam in the pointed direction.

In the image panel, move or resize the green directional beam as needed:



- To move the beam, click and drag the green beam in any direction.
- To change the length or rotate the beam, click one end of the beam and stretch or rotate the beam.



- To change the direction of the beam, click



- To detect objects traveling in either direction of the beam, click

6. In the **Object Types:** area, select  and/or .

7. Move the **Sensitivity:** slider to adjust how sensitive the video analytics device is to classified object motion.

If you set the slider to a lower Sensitivity: setting, the video analytics device will detect fewer objects because the system must have great confidence that it has detected a person or vehicle before you are notified of an event.

If you set the slider to a higher Sensitivity: setting, the video analytics device will detect more objects because the system will notify you of any possible object that could trigger the event.

**Tip:** By default, the Sensitivity: setting values range from **Low** to **High**. The Low setting is equal to **6/10** on a number scale, and High is equal to **10/10**. For greater control over this option, click **Show Advanced Options** to choose your setting from 1 to 10 — where 1 is the highest confidence setting.

For example, if a sensitivity of 6 is chosen, objects classified with a confidence of 40% and above will trigger the defined event.

8. If available, enter a time in the **Threshold Time:** field to define how long an object must be in the region of interest before it triggers a video analytics event.
9. Click **OK** to save your settings.

For more video analytic event options, click **Show Advanced Options**. For a description of the advanced options, see *Video Analytics Event Descriptions* on page 112.


## Editing and Deleting Video Analytics Events



1. In the device Setup tab, click .

The Video Analytics Configuration dialog box opens.

2. Select an event from the Analytics Event Configurations: list and do one of the following:

- To edit the video analytics event, click . In the following dialog box, make the required changes. For more information, see *Adding Video Analytics Events* on page 61.

**NOTE:** If you change the name of the event, any rules or alarms linked to the event may no longer function.

- To delete the video analytics event, click .

## Privacy Zones


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, like bathroom entrances and other private areas.

### *Adding a Privacy Zone*



1. In the camera Setup tab, click .

The Privacy Zones dialog box is displayed.


2. Click  and a green box will appear in the image panel.
3. Move and resize the green box until it covers the area you want to keep private.
4. Click **OK**.

### *Editing and Deleting a Privacy Zone*



1. In the camera Setup tab, click .

The Privacy Zones dialog box is displayed.

2. Select a privacy zone from the Privacy Zones: list and do one of the following:
  - To edit the privacy zone, adjust the green box in the image.
  - To delete the privacy zone, click .
3. Click **OK** to save your changes.

## Manual Recording

When you trigger manual recording in an image panel, you are telling the camera to record video outside of its recording schedule. Manual recording continues until it is stopped, or until the maximum manual recording time is reached.



To set the maximum manual recording time, follow these steps:



1. In the camera Setup tab, click .

The Manual Recording dialog box is displayed.

2. Define the following:
  - **Manual Recording Duration:** enter how long the camera should record if recording is not manually stopped.
  - **Pre-Trigger Record Time:** enter the amount of time video is recorded before manual recording is activated.
3. Click **Apply to Cameras...** to apply the same settings to other cameras of the same model.
4. Click **OK**.

For more information on manually recording video, see *Triggering Manual Recording* on page 81.

## Digital Inputs and Outputs

Use the Digital Inputs and Outputs dialog box to set up external digital input and output devices that are connected to the device (a camera or video analytics appliance).

The external devices can be used to create alarms or trigger recording events and specific actions through the Rules engine. For more information, see *Rules* on page 22.

### Setting Up Digital Inputs

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the device Setup tab, click .

The Digital Inputs and Outputs dialog box is displayed.

2. In the **Digital Inputs:** area, select an input.
3. Enter a **Name:** for the digital input.
4. In the **Recording Duration:** area, select one of the following:
  - Select **Follow event** to record the entire digital input event.
  - Select **Maximum time:** to limit the recording time.
5. Enter the **Pre-Event Record Time:** and **Post-Event Record Time:**.
6. Select the digital input's default **Circuit State:**.
7. Select cameras to link to this digital input.

If the Recording Schedule is configured to record digital inputs, the cameras selected in the **Link to Camera(s):** area are used to record the events triggered by this digital input.

8. Click **OK**.

## Setting Up Digital Outputs

Once a digital output is configured, you can manually trigger the digital output in an image panel. For more information, see *Triggering Digital Outputs* on page 82.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the device Setup tab, click .

The Digital Inputs and Outputs box is displayed.

2. In the **Digital Outputs:** area, select an output.
3. Enter a **Name:** for the digital output.
4. Select the digital output's default **Circuit State:**.
5. The **Trigger Behavior:** options define what occurs when the digital output is activated.
  - Select **Activate** to enable the digital output in continuous mode. The **Duration:** fields allow you to specify how long the digital output should be active for.
  - Select **Pulse** to enable the digital output in pulse mode. Specify the **Period:**, **Duty Cycle:**, and **Repeat Count:** for the pulse.
6. If there is only a **Trigger Duration:** field, specify the trigger duration in minutes and seconds.
7. In the Link to Camera(s): area, select the cameras that are permitted to trigger this digital output.

By default, the system automatically selects the camera that this digital output is connected to.

8. Click **OK**.

## Microphone

Use the Microphone dialog box to change the settings for any audio input device that is connected to a camera or video analytics appliance. You can also link the audio to other cameras.

To use this feature, a microphone must be connected to the device.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.



1. In the device Setup tab, click .

The Microphone dialog box is displayed.

2. If the device supports multiple audio inputs, select the one you want to edit from the **Microphone Inputs:** list.
3. Select the **Enable** check box to enable audio recording from microphones connected to the device.
4. Enter a name for the microphone.
5. In the **Gain:** drop down list, select the amount of analog gain that is applied to the audio input. The higher the dB setting, the louder the volume.
6. In the **Link to Camera(s):** area, select cameras to link to this audio.
7. Click **OK**.

## Speaker

Use the Speaker dialog box to change the settings for any audio output that is connected to a device (a camera or video analytics appliance). You can also link the audio to other devices.

To use this feature, speakers must be connected to the device and a microphone must be connected to your local Client.

**NOTE:** The dialog box may appear differently depending on the device. Options that are not supported by the device will be disabled or hidden.

1. In the device Setup tab, click .

The Speaker dialog box is displayed.

2. If multiple **Speaker Outputs:** are listed, select the one you want to edit.
3. Select the **Enable** check box to enable audio broadcasting. Speakers connected to the device will broadcast audio from the microphone that is connected to the local Client.
4. Select the **Record speaker output** check box to record what is broadcast.
5. Enter a name for the speaker.
6. The **Volume:** slider controls the volume of the speakers.
7. In the **Link to Camera(s):** area, select cameras to link to the speakers.
8. To test the **Microphone Level:**, speak into the microphone. The red bar will move to show the audio input level.
9. Click **OK**.

If you want to enable two-way audio for your local application, see *General Settings* below.


## Application Preferences

The Client Settings are used to set your preferences for your local copy of the ACC Client software. This includes saving your password, setting the language, saving your last window layout, configuring your joystick, and manually adding and removing sites.

### General Settings

Use the General settings to set your local Client preferences. Any changes you make will only affect this copy of the Client software.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

1. In the top-right corner of the Client, select  > **Client Settings**.
2. In the General tab, make any required changes:
  - **Save/restore window layout:** Select this check box if you want the Client to remember your layout preferences.
  - **Automatically launch full screen:** Select this check box if you want the Client to automatically launch in full screen mode each time it starts.

- **Display Notifications:** Select this check box if you want the Client to display system messages. System messages are listed in the red box at the top-right corner of the Client - click the red box to see the messages. System messages notify you of site events, system events and possible device connection issues.

If this check box is cleared, all system messages are hidden.

- **Synchronize recorded video playback:** Select this check box to allow the system to automatically synchronize the Timelines in all new View tabs.

For more information, see *Synchronizing Recorded Video Playback* on page 90.

**Cycle dwell time:** Enter the number of seconds the Client waits before it cycles to a different View tab. For more information, see *Cycling Through Views* on page 74.

- **Language:** Select a language from the drop down list to change the Client language. Select **Windows Default** for the Client to use the same language as the operating system.
- **Automatically log in to sites:** Select this check box to automatically log in to all sites you can access. Select the type of login you use:
  - Select **Using Windows Authentication** if you use your Windows login to access sites.
  - Select **Using saved user name and password:** if you use your Avigilon Control Center username and password.
- In the **Maximum Incoming Client Bandwidth:** area, you can set how much bandwidth is received by the client. This includes video streaming.

You can select **Unlimited** or **Other:**, and specify the maximum bandwidth allowance in kilobits per second (kbit/s).

- In the **Client Duplex Audio Setting:** area, decide if you want to enable two-way audio. This allows people in the video to talk with the operator monitoring the video.


You have the option of **Full-duplex** audio, which allows simultaneous communication, or **Half-duplex**, which only allows communication from one side at a time. To use this feature, you need to set up microphones and speakers to cameras. For more information, see *Microphone* on page 65 and *Speaker* on the previous page.

3. Click **OK** to save your changes.

## Video Display Settings

You can adjust the Client Display settings to improve how video is displayed on your monitor.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.




1. In the top-right corner of the application window, select  > **Client Settings > Display**.
2. Complete any of the following procedures to adjust how video is displayed in image panels.

### *Displaying Analog Video in Deinterlaced Mode*

Select the **Display Deinterlaced Images** check box if the analog video you are watching is showing interlacing artifacts. This setting will help improve video image and smooth out some of the artifacts.

## Displaying Image Overlays

Select any of the Image Overlays: options to set the type of information that is displayed over video.

Overlay	Description
Camera Name	Displays the name assigned to the camera.
Camera Location	Displays the location assigned to the camera.
Playback Timestamp	<p>(Recorded video only) Displays the exposure timestamp for the video.</p> <p>From the Timestamp Zone: area, select the time that should be displayed:</p> <ul style="list-style-type: none"><li>• <b>Show device time</b> — If you have cameras installed at different locations in your system, select this option to display the time recorded at the camera location.</li><li>• <b>Show local time</b> — Select this option to display the recorded video time in your local timezone.</li></ul>
Live Timestamp	<p>(Live video only) Displays the current date and time to the millisecond.</p> <p>From the Timestamp Zone: area, select the time that should be displayed:</p> <ul style="list-style-type: none"><li>• <b>Show device time</b> — If you have cameras installed at different locations in your system, select this option to display the time at the camera location.</li><li>• <b>Show local time</b> — Select this option to display the time in your local timezone.</li></ul>
Record Indicator	<p>(Live video only) Displays the recording status of a camera.</p> <p>The recording status is indicated by the round icon on the top-left corner of the image panel. The color of the icon shows the camera's recording status.</p> <ul style="list-style-type: none"><li>•  : recording triggered by a motion event</li><li>•  : recording</li><li>•  : not recording. Click this icon at any time to begin manual recording.</li></ul>
Motion Activity	Highlights motion in red.
Video Analytics Activity	<p>Bounding boxes outline objects detected in the video. The color of the bounding box identifies the object type:</p> <ul style="list-style-type: none"><li>• Red - a person</li><li>• Blue - a vehicle</li></ul> <p>The Video Analytics Activity overlay is only activated for video from a video analytics device.</p> <p><b>NOTE:</b> The bounding boxes may not be displayed if the feature is disabled on the specific device. For more information, see <i>Enabling or Disabling Video Analytics Display</i> on page 41.</p>

## Changing Display Quality

If your computer does not have enough network bandwidth or processing power, you may not be able to watch video at its full image rate and quality. You can configure the image panels to display video in high quality and low frame rate, or low quality and high frame rate.

Select a higher display quality setting if you need to see specific details or faces in the scene. Select a lower display quality setting if it's more important to see moving events as they occur.

The Change Display Quality: settings only affect the image panel display and do not affect the actual video quality or image rate between the camera and the server. Therefore, you can review recorded footage later to confirm what you saw in the image panel.

In the Change Display Quality: area, select one of the following options:

- **Maximum:** displays video at full resolution with the lowest image rate.
- **High (Default):** displays video at 1/4 resolution.
- **Medium:** displays video at 1/16 resolution.
- **Low:** displays video at 1/64 resolution with the highest image rate.

## Changing Display Adjustment Settings

The Display Adjustment Settings: allow you to configure the default values that will be applied to all video displayed in the View tab.

**NOTE:** This setting does not affect recorded video.

1. In the **Display Adjustment Settings:** area, move the sliders to adjust the **Gamma:**, **Black Level:**, and **White Level:** settings.

By default, the **Gamma:** setting is set to 0.55, the **Black Level:** setting is set to 0.5%, the **White Level:** setting is set to 98%, and Auto-Contrast is disabled.

2. Select the **Enable Auto-Contrast** check box to allow the system to automatically adjust the contrast level for the video stream.

**NOTE:** When Auto-Contrast is disabled, the **Black Level:** and **White Level:** settings cannot be adjusted.

3. Click **Restore to Factory Default** to revert to the factory default Display Adjustment Settings: settings.
4. Click **OK** to save your changes.

If video is being displayed in a View tab, the new settings will not take effect until the **Restore Defaults** option is selected in the image panel. For more information, see

## Joystick Settings


There are two types of joysticks supported by the Client: standard Microsoft DirectX USB joysticks and the Avigilon USB Professional Joystick Keyboard.

Access the Joystick settings to install the required drivers and configure your joystick options.

## Configuring an Avigilon USB Professional Joystick Keyboard For Left-Hand Use

The Avigilon USB Professional Joystick Keyboard is a USB add-on that contains a joystick for controlling zooming and panning within image panels, a jog shuttle for controlling the Timeline, and a keypad programmed with the Client software keyboard commands. For more information about the keypad commands that control the Client software, see *Keyboard Commands* on page 120.


By default, the keyboard is installed in right-hand mode. Change the Joystick settings to configure it for left-hand mode.

1. Connect the keyboard.
2. In the top-right corner of the Client, select  > **Client Settings** > **Joystick**.  
  
If the keyboard is not automatically detected, an error message is displayed. Click **Scan for Joysticks...**
3. In the Joystick tab, select the **Enable left-hand mode** check box.
4. Click **OK**. The keyboard is now configured for left-hand mode.
5. Rotate the keyboard until the joystick is on the left and the jog shuttle is on the right. Reinstall the keypad cover with the View button labels at the top.

For more information about the Avigilon USB Professional Joystick Keyboard, see the installation guide that is included with the device.

## Configuring a Standard USB Joystick

Use the Joystick settings to configure the buttons used in your standard Microsoft DirectX USB joystick.

1. Connect the joystick. In the top-right corner of the Client, select  > **Client Settings** > **Joystick**.
2. If the joystick is not automatically detected, an error message will appear. Click **Scan for Joysticks...**
3. In the Joystick tab, choose an action for each button on the joystick:
  - a. Press a button on the joystick to highlight its label in the dialog box.
  - b. Select an action for the button from the drop down list.  
  
Options include ways to control recorded video, Views, image panels, instant replay, audio, snapshots and PTZ.
  - c. Repeat this procedure for each button on the joystick.
4. Click **OK**.

## Discovering Sites




If your computer is on the same network segment (subnet) as a site, that site is automatically discovered and displayed in the System Explorer.

If the site you want to access is not listed, it is because the site is on a different subnet and must be manually discovered. There is no limit to the number of sites that can be discovered by the Client software.

**Tip:** After you discover and login to a parent site, all the child sites are automatically discovered.

By default, when a server is first connected to the system, it is added to a site with the same name. To locate a new server, you need to search for its site.

1. Open the Find Site dialog box.

- In the top-left corner of the application window, select  > . In the Site Login tab, click **Find Site...**
- Or, select  > **Client Settings > Site Networking**. In the Site Networking tab, click **Find Site...**

2. In the dialog box, enter the **IP Address/Hostname:** and the **Base Port:** of the server in the site you want to discover.

The base port is 38880 by default. You can change the base port number in the Avigilon Control Center Admin Tool. For more information, see *The Avigilon Control Center Server User Guide*.

3. Click **OK**.

If the site is found, it is automatically added to the site list.

If the site is not found, check the following then try again:


- The network settings are configured correctly.
- The firewall is not blocking the application.
- The Avigilon Control Center Server software is running on the server you searched for.

## Managing Site Logs

The Site Logs record events that occur in the ACC software. This can be useful for tracking system usage and diagnosing issues.

You can filter the items displayed in the log and save the log to a separate file for sending to Avigilon support.

**NOTE:** The Site Logs maintain a record of system events for as long as video data is available or 90 days, whichever is longer.

1. In the New Task menu, click .

The Site Logs tab is displayed.

2. In the top-left Event Types to Show: area, select the types of logs that you want to see.
3. In the Event Sources: area, you can filter the logs by selecting the specific site, server or device logs that you want to see.
4. In the Time Range to Search: area, set the date and time range of the search.
5. Click **Search**.
6. Select a search result to display the event details at the bottom of the tab.
7. To save the log search results, click **Save events to file...** You can choose to save the search results as a text file or a comma-separated values (CSV) file.



# Live Monitoring

Operators responsible for monitoring live video in a surveillance site can display live video and configure each View tab to meet your surveillance requirements.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.





## Organizing Views

A View tab is where you watch camera video. Inside the View tab is a set of image panels that allows you to organize how video is displayed.

You can arrange image panels into different layouts to take advantage of different camera angles and save View layouts that you like.

### Adding and Removing a View

View tabs allow you to customize how you monitor video. You can open a new View in the current window or open a View in a new window to make use of multiple monitors. Views can also be removed as required.

To...	Do this...
Open a new View tab	Click  . Or, press <code>Ctrl + T</code> .
Close a View tab	On the View tab, click  . Or, press <code>Ctrl + W</code> .
Open a new window	Select  > <b>New Window</b> . Or, press <code>Ctrl + N</code> . A new window appears. You can now position this window to make use of multiple monitors.
Close a window	In the top-right corner of the window, click  . <b>NOTE:</b> If you see a confirmation dialog box, it is because there is only one window open and closing this window will also close the application.

### View Layouts

You can organize how video is displayed through View layouts. You can choose to display video in 1 - 64 image panels. You can also customize the shape of image panels to accommodate cameras that are installed vertically to capture long hallways.

There are 10 pre-configured layouts that you can edit to fit your needs.


## Selecting a Layout for a View

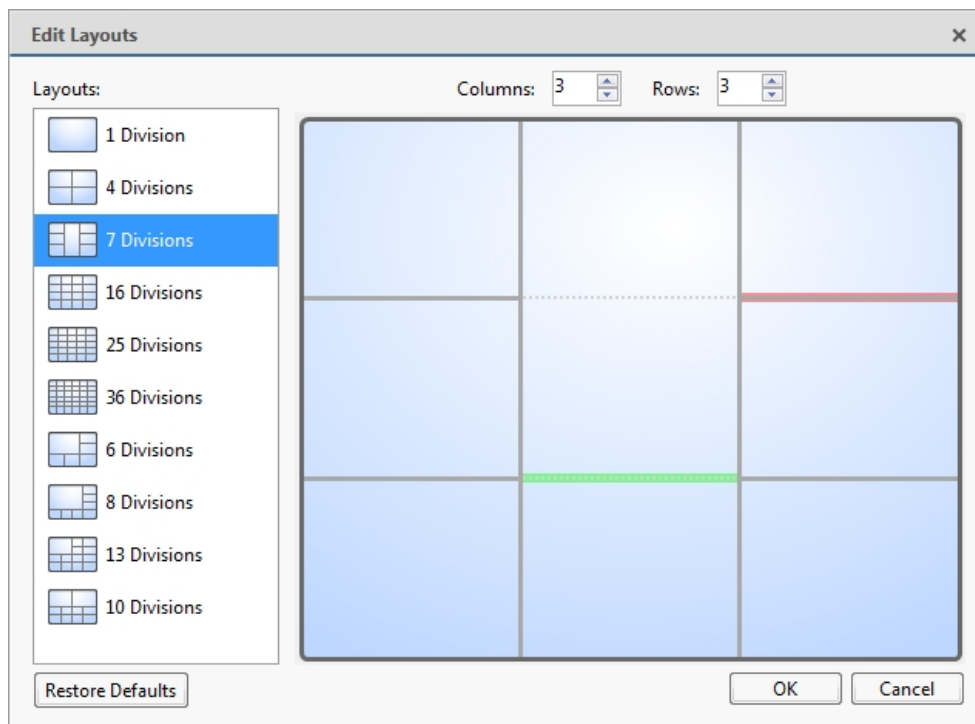
You can organize how video is displayed by selecting a View layout.

- On the toolbar, click  then select one of the layout options.

## Editing a View Layout

If the default View layouts do not fit your surveillance requirements, you can customize a View layout.

- On the toolbar, select  > **Edit Layouts....**
- In the Edit Layouts dialog box, select the layout you want to change.
- Enter the number of **Columns:** and **Rows:** you want in your layout.
- In the layout diagram, do any of the following to further customize the layout.



**Figure 9:** The Edit Layouts dialog box

- To create a larger image panel, select a gray line to delete the border between two image panels. When a line is highlighted in red, the line can be deleted.
- To restore an image panel, select a dotted line to divide a larger image panel into two. When a dotted line is highlighted in green, the line can be restored.
- To restore all default View layouts, click **Restore Defaults**. All custom layouts in the Layouts: list will be replaced.


**NOTE:** You can only add or subtract lines to create a rectangular shape.

- Click **OK** to save your changes. The previous View layout has been replaced with your customized layout.

**Tip:** The keyboard commands used to access View layouts are linked to the layout's position in the Layouts: list. For example, if your custom layout is placed at the top of the Layouts: list (layout 1), you can press **Alt + 1** to use that layout.

## Making a View Full Screen

You can maximize a View to fill an entire monitor screen.

- On the toolbar, click .

### Ending Full Screen Mode

- While the View is in full screen mode, click .

## Cycling Through Views

If you have multiple Views open, you can cycle through the View tabs by displaying each one for a few seconds. This is useful when monitoring a large number of cameras.





- To activate the Cycle Views feature, click .

To change the amount of time each View is displayed for, change the Cycle dwell time: setting. For more information, see *General Settings* on page 66.

## Saved Views

After you add videos to a View, adjust the layout to fit your preferences and zoom-in each video to the area of interest, you can save the View to share with other users in the site. A saved View remembers the current View layout, the cameras displayed in each image panel, and the image panel display settings.




### Saving a New View

1. From the toolbar, select  > **Save As New View**.
2. In the following dialog box, complete the following:
  - a. Select the site that the View should be added to.
  - b. Give the saved View a name.
  - c. Assign a number to the saved View in the **Logical ID:** field. The logical ID is a unique number that is used to open the saved View through keyboard commands.
  - d. If it is not displayed, click  to display the Site View Editor and choose where the saved View appears in the System Explorer.
    - In the  site directory, drag the saved View up and down the right pane to set where it is displayed.
    - If your site includes  folders, select a location for the saved View in the left pane. The right pane updates to show what is stored in that directory.
  - e. Click **OK**.


Your saved View is added to the System Explorer under the selected site. You can now manage the saved View as a part of your site.

## Opening a Saved View


Do one of the following:

- In the System Explorer, double-click the saved View (.
- In the System Explorer, right-click  and select **Open**.
- Drag  from the System Explorer to the current View in the application or new window.
- On your keyboard, press **CTRL + G**. When you are prompted, enter the saved View's logical ID then press **Enter**.


## Editing a Saved View

1. Open a saved View.
2. Make any required changes to the View tab.
3. From the tool bar, select  > **Update Saved View**.

## Renaming a Saved View

1. In the System Explorer, right-click  and select **Edit...**
2. In the Edit View dialog box, enter a new name or logical ID and click **OK**.

## Deleting a Saved View

1. In the System Explorer, right-click  and select **Delete**.
2. In the confirmation dialog box, click **Yes**.

# Controlling Live Video

**Tip:** If video appears slow, it may be a network issue between the ACC Client software and the server that the camera is connected to. Actual recorded video quality is not affected.

## Adding and Removing Cameras in a View

To monitor video, add a camera to a View tab. Camera video can be removed from a View tab at any time.

### Adding a Camera to a View

Do one of the following:


- Drag the camera from the System Explorer to an empty image panel in the View tab.
- Double-click a camera in the System Explorer.
- In the System Explorer, right-click the camera and select **Add To View**.

The camera is added to the next empty image panel in the View layout.

**Tip:** You can drag the same camera to multiple image panels to watch the video at different zoom levels.

### Removing a Camera from a View

Do one of the following:

- Right-click the image panel and select **Close**.
- Inside the image panel, click .

## Viewing Live and Recorded Video

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

When you monitor video, you can choose to watch live and recorded video in the same View tab, or only one type of video per View tab.

Once you've added cameras to the View tab, you can do the following:



- To switch all of the image panels in the View between live and recorded video, click either  **Live** or  **Recorded** on the toolbar.
- To switch individual image panels between live and recorded video, right-click the image panel and select either **Live** or **Recorded**.



Image panels displaying recorded video have a **green** border.

## Zooming and Panning in a Video

Use the zoom and pan tools to focus on specific areas in the video stream.


### *Using the Zoom Tools*

There are two ways to digitally zoom in and zoom out of a video image:

- Move your mouse over the video image, then rotate your mouse wheel forward and backward.
- On the toolbar, select  or , then click the image panel until you reach the desired zoom depth.

### *Using the Pan Tools*

There are two ways to pan through the video image:


- Right-click and drag inside an image panel.
- On the toolbar, select , then click and drag the video image in any direction inside the image panel.

## Maximizing and Restoring an Image Panel

You can maximize an image panel to enlarge the video display.


### *Maximizing an Image Panel*

Do one of the following:

- Right-click an image panel and select **Maximize**.
- Inside the image panel, click .
- Double-click the image panel.

### *Restoring an Image Panel*

In a maximized image panel, do one of the following:

- Right-click the maximized image panel and select **Restore Down**.
- Inside the image panel, click .
- Double-click the image panel.

## Making Image Panel Display Adjustments

You can change the image panel display settings to bring out video details that are hard to see with the image panel's default settings. These settings can also be adjusted in Client Settings. For more information, see *Changing Display Adjustment Settings* on page 69.

1. Right-click an image panel and select **Display Adjustments....**

The Display Adjustments... settings are displayed in a floating pane immediately beside the image panel.

2. Move the sliders to adjust the **Gamma:**, **Black Level:** and **White Level:**.

By default, **Gamma:** is set to 0.55, **Black Level:** is set to 0.5%, **White Level:** is set to 98%, and Auto-Contrast is disabled.

The image panel displays your changes.

3. Select the **Enable Auto-Contrast** check box to allow the system to automatically adjust the contrast level for the video stream.


**NOTE:** When Auto-Contrast is disabled, the **Black Level:** and **White Level:** cannot be adjusted.


4. To clear your changes, click **Restore Defaults**.

If display adjustments have been made in the Client Settings, they will be applied to the image panel.


5. To set the selected levels as the default settings for all image panels going forward, click **Save as Defaults**.

## Listening to Audio in a View

If there is an audio input device linked to a camera, the  button is displayed in the image panel when you watch the camera's video. To listen to the streaming audio, make sure there are speakers connected to your computer. By default the audio is muted.



The camera's microphone must be enabled before you can listen to any audio. The  button is not displayed if the microphone is disabled.


To control audio playback, do any of the following:


- In the lower-right corner of the image panel, click  to mute or activate the audio.
- Move the slider to change the volume.

To enable the camera's microphone, see *Microphone* on page 65 for more information.

## Broadcasting Audio in a View

If there are speakers linked to a camera, the  button is displayed in the image panel when you watch the camera's video. The  button allows you to broadcast your verbal response to what is occurring in the video, like a Public Address (P.A.) system.

The camera's speakers must be enabled before you can broadcast any audio. The  button is not displayed if the speakers are disabled.

- To broadcast audio, hold  and speak into your microphone. The red bar moves to show the microphone's audio input levels. If the level is low, speak louder or adjust the microphone volume in the Windows Control Panel.
- Release the button to stop the broadcast.

To set up two-way audio, see *General Settings* on page 66.

For more information about enabling camera speakers, see *Speaker* on page 66.

## Using Instant Replay

To review an event that just occurred, you can immediately access recently recorded video through the instant replay feature.

- Right-click the image panel and select one of the instant replay options:
  - **Replay - 30 Seconds**
  - **Replay - 60 Seconds**
  - **Replay - 90 Seconds**

The image panel immediately plays back the camera's most recently recorded video.

## PTZ Cameras

PTZ cameras can be controlled through the image panel on-screen controls or by using the tools in the PTZ Controls pane.



Some tools and features may not be displayed if they are not supported by your camera.

### Controlling PTZ Cameras

Pan, Tilt, Zoom (PTZ) controls allow you to control cameras with PTZ features. You can control a PTZ camera by using the on-screen controls or by using the tools in the PTZ Controls pane.

For other ways to use the PTZ Controls, see *Keyboard Commands* on page 120.

**NOTE:** For video analytics devices, classified object detection only works when the camera is in its Home position.

1. In the toolbar, click . PTZ controls are now enabled in image panels that are displaying PTZ video.
2. In the image panel, click .

The PTZ Controls are displayed in a floating pane immediately beside the image panel.

**NOTE:** The controls may appear differently depending on the camera. Some options are disabled or hidden if they are not supported by the camera.







3. To pan or tilt, do one of the following:

- In the image panel, drag your mouse from the center to move the camera in that direction. The farther the cursor is from the center of the image panel, the faster the camera will move.
- If the camera supports Click to Center, click anywhere on the image panel to center the camera to that point.


















Figure 10: PTZ On-screen controls

4. Use the other PTZ controls to perform any of the following:

To...	Do this...
Zoom	<ul style="list-style-type: none"><li>• Click  to zoom in.</li><li>• Click  to zoom out.</li><li>• Click the image panel and use the mouse scroll wheel to zoom in and out.</li><li>• If the camera supports Drag to Zoom, click and drag to create a green box to define the area you want to zoom in and see.</li><li>• Right-click the image panel and select <b>Zoom Out Full</b>.</li></ul>
Control the iris	<ul style="list-style-type: none"><li>• Click  to close the iris.</li><li>• Click  to open the iris.</li></ul>
Control the focus	<ul style="list-style-type: none"><li>• Click  to focus near the camera.</li><li>• Click  to focus far from the camera.</li></ul>
Program a PTZ preset	<ol style="list-style-type: none"><li>1. Move the camera's field of view into position.</li></ol>








To...	Do this...
	<ol style="list-style-type: none"> <li>In the <b>Presets</b> drop down list, select a number then click .</li> <li>In the dialog box, enter a name for the preset.</li> <li>Select the <b>Set as home preset</b> check box if you want this to be the camera's Home preset.</li> <li>Click <b>OK</b>.</li> </ol>
Activate a PTZ preset	Select a preset then click  .
Return to the Home preset position	If the PTZ camera supports a Home preset position, click  to return the camera to its Home position.
Program a PTZ pattern	<ol style="list-style-type: none"> <li>In the PTZ Controls pane, select a pattern number and click .</li> <li>Use the PTZ controls to move the camera and create the pattern.</li> <li>Click  to stop recording the pattern.</li> </ol>
Activate a PTZ pattern	<p>In the PTZ Controls pane, select a pattern number and click .</p> <p>The pattern will repeat until the pattern is stopped or another pattern is run.</p>
Program a PTZ tour	For more information, see <i>Programming PTZ Tours</i> on the next page.
Activate a PTZ tour	<p>In the PTZ Controls pane, select a tour number and click .</p> <p>The tour will repeat until stopped or until other PTZ controls are used.</p>
Activate an auxiliary command	<ol style="list-style-type: none"> <li>Select an aux command number and click .</li> <li>Click  to turn off the auxiliary output.</li> </ol>
Display the PTZ camera on-screen menu	<ol style="list-style-type: none"> <li>Click .</li> <li>To move through the menu options, click any of the following: <ul style="list-style-type: none"> <li>Click  to move down the options.</li> <li>Click  to move up the options.</li> <li>Click  to confirm your selection.</li> <li>Click  to cancel your selection.</li> </ul> </li> </ol>
Lock the PTZ controls	<p>Click .</p> <p>Other users will be unable to use the PTZ controls for this camera until you unlock the controls or log out.</p>

## Programming PTZ Tours

If the PTZ camera supports guard tours, the tours can be programmed through the PTZ controls pane. 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:** For video analytics devices, classified object detection only works when the camera is in its Home position.

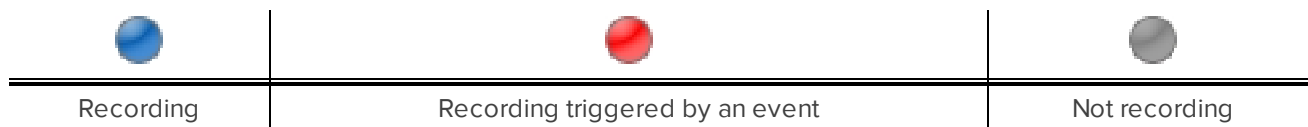
1. Create all the PTZ presets you need for this tour.
2. In the PTZ Controls pane, select a tour number then click . The Edit PTZ Tour dialog box is displayed.
3. Give the tour a name.
4. In the **Tour Pause Duration:** field, enter the amount of time before the tour repeats. Tours repeat until manually stopped, or until other PTZ controls are used.
5. In the **Tour 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.
6. Select the **Set as default tour** check box if you want this tour to run automatically.
  - The **Default Tour Idle Start Time:** field is now enabled. Enter the amount of time the PTZ camera must be idle before this tour automatically starts.
7. To add a preset to the list, click .
  - a. In the **Preset** column, select a preset from the drop down list.
  - b. In the **Move Speed** column, enter how fast you want the PTZ camera to move to this preset. The higher the %, the faster the camera moves.
  - 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. Repeat this step until all the presets for the tour have been added.
8. To remove a preset, select the preset then click .
9. To re-order a preset, select the preset then click  or . The preset order only affects tours that use Sequential mode.
10. Click **OK** to save the tour.

## Triggering Manual Recording

Cameras are set to follow a recording schedule. If an event occurs outside the camera's recording schedule, you can click the record indicator icon to force the camera to record the event. For more information about recording schedules, see *Recording Schedule* on page 31.



The Record Indicator overlay must be enabled to use manual recording. For more information, see *Video Display Settings* on page 67.

## Camera Recording States



## Starting and Stopping Manual Recording

In an image panel that is displaying video, do either of the following:

- In the top-left corner of the image panel, click  to start manual recording.  
The recording indicator is highlighted in blue to show that the camera is recording. Manual recording continues until it is stopped or until the maximum manual recording time is reached.
- Click  to manually stop video recording.


The maximum manual recording time is configured in the Manual Recording dialog box. For more information, see *Manual Recording* on page 63.

## Triggering Digital Outputs

While you monitor live video in an image panel, you can manually trigger any digital output that is connected to the camera.


Digital outputs are configured in the Digital Inputs and Outputs dialog box. For more information, see *Setting Up Digital Outputs* on page 65.

To trigger a digital output:

1. Open the camera's live video in an image panel.
2. In the image panel, click .
3. If there is more than one digital output linked to the camera, you will be prompted to select the digital output you want to trigger.

## Monitoring Live POS Transactions


If a camera is linked to a point of sale (POS) transaction source, you can monitor live POS transactions while you monitor video from the linked camera.

1. Open the camera's video in an image panel.
2. In the image panel, click .

**NOTE:** If the camera is not linked to a POS transaction source, the icon is not displayed.

If there is more than one POS transaction source linked to the camera, you will be prompted to select one. The POS transactions are displayed in the next image panel.

Each transaction is separated by date and time, and the most recent transaction is highlighted in blue.

3. To display cameras that are linked to the POS transaction source, click  in the POS transaction image panel.

If multiple cameras are connected to the POS transaction source, you will be prompted to select one.

## Triggering Custom Keyboard Commands

If your system has custom keyboard commands set up to run specific rule events, you can activate the keyboard commands by doing the following:

1. Press **Ctrl + K** on your keyboard.
2. Enter the custom keyboard command number to begin running the rule event.

Consult your system administrator for details about the custom keyboard commands that are available in your system. Custom keyboard commands are set up as rule events through the Rules engine. For more information about setting up rule events, see *Rules* on page 22.




## Working with Maps

A map is a graphical reference of your surveillance site. You can create a map out of any image of your location, then add cameras, encoders, saved Views, and other maps to the image to help you quickly navigate through your surveillance site.

### Adding a Map

You can create a map from any image in JPEG, BMP, PNG, or GIF format. The image is used as the map background and cameras are added on top to show where they are located in your surveillance site.

**NOTE:** The recommended map image size should be no more than 3000 x 3000 px or 9 MP. Larger images may cause rendering issues.

1. In the System Explorer, right-click a site or site folder and select **New Map...**
2. In the Map Properties dialog box, click **Change Image...** and locate your map image.
3. In the **Name:** field, enter a name for the map.
4. If it is not displayed, click  to display the Site View Editor and choose where the map appears in the System Explorer. By default, the map is added to the site that you initially selected.
  - In the  site directory, drag the map up and down the right pane to set where it is displayed.
  - If your site includes  folders, select a location for the map in the left pane. The right pane updates to show what is stored in that directory.
5. Click **OK**.

In the following Editing: Map tab, you can click **Edit Properties...** to open the Map Properties dialog box again.

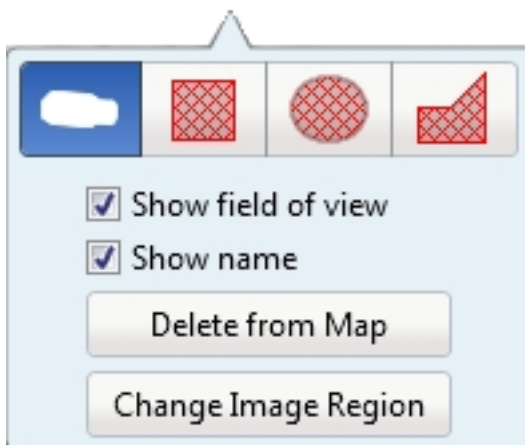
6. Drag and place cameras from the System Explorer onto the map.



**Figure 11:** The Editing: Map tab

By default a camera is displayed as an icon with a yellow triangle to represent its field of view.

- Drag the black points at the end of the yellow field of view to re-size and position the camera angle.
7. Drag encoders, saved Views and other maps that you need from the System Explorer onto the map.
  8. In the **Map Icon Properties** options, you can change the way icons are displayed on the map. Select any icon on the map then do the following:



**Figure 12:** Map Icon Properties options

- a. To replace an icon with a clickable shape region, select one of the shape buttons. You can replace the icon with a rectangle, ellipse or polygon region.
- b. Select the **Show name** check box to display the object's name on the map.
- c. Click **Delete from Map** to remove the object from the map.
- d. (Cameras only) Select the **Show field of view** check box to display the camera's yellow field of view. This option is only available when the camera icon is used.

Drag the corners of the yellow triangle to expand the field of view. Drag the black circle at the end of the triangle to rotate the field of view.




- e. (Cameras only) Click **Change Image Region** to define the specific area that is displayed when you access the camera from the map.

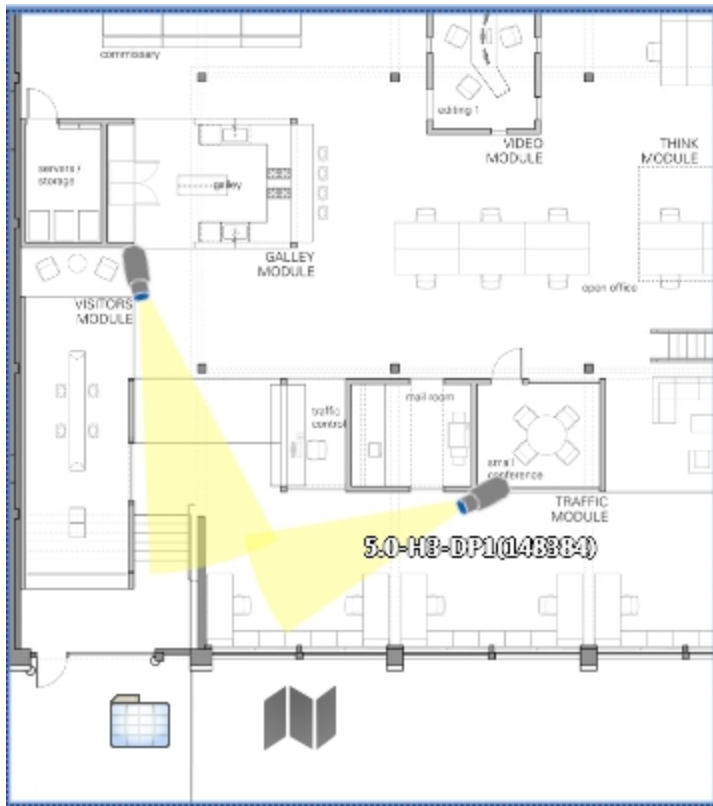
In the following dialog box, move and resize the green overlay to select the region you want to focus on, then click **OK**.

9. Click  to save your new map.

## Using a Map

You can open a map in any image panel, then open video or alarms from the map.

1. To open a map in an image panel, do one of the following:
  - Double-click  in the System Explorer.
  - Drag  from the System Explorer to an image panel.
  - In the System Explorer, right-click  and select **Add To View**.
2. When the map appears in an image panel, do any of the following:




**Figure 13:** Map in an image panel

To...	Do this...
Display video from a camera on the map	<ul style="list-style-type: none"> <li>• Drag a camera from the map to a different image panel, or</li> <li>• Click the camera on the map.</li> </ul>
Open a linked map	<ul style="list-style-type: none"> <li>• Click the map icon on the map.</li> </ul> <p>You can use the <b>Forward</b> and <b>Back</b> buttons to move between maps.</p>
Open a linked View	<ul style="list-style-type: none"> <li>• Click the saved View on the map.</li> </ul>

## Editing and Deleting a Map

You can update a map or delete an old map anytime.

1. In the System Explorer, right-click  then select one of the following:
  - To edit the map, select **Edit...** For more information about the available map options, see *Adding a Map* on page 83.
  - To delete the map, select **Delete**. When the confirmation dialog box appears, click **Yes**.

## Working with Web Pages

You can quickly review online content while monitoring videos by adding web pages to the System Explorer.




**NOTE:** Web pages will not load if you do not have internet access.

## Adding a Web Page

You can add web pages to a site for quick access to internet content that is related to your surveillance system.




1. In the System Explorer, right-click a site or site folder and select **New Web Page....**

The Web Page Properties dialog box is displayed.

2. In the **Name:** field, enter a name for the web page.
3. Enter the web page URL in the **URL:** field.
4. Select a **Zoom level:** for viewing the web page inside an image panel.
5. If it is not displayed, click  to display the Site View Editor and choose where the web page appears in the System Explorer. By default, the web page is added to the site you initially selected.
  - In the  site directory, drag the web page up and down the right pane to set where it is displayed.
  - If your site includes  folders, select a location for the web page in the left pane. The right pane updates to show what is stored in that directory.
6. Click **OK**.

## Using a Web Page

To open a web page, do one of the following:

- Double-click  in the System Explorer.
- Drag  from the System Explorer to an image panel.
- In the System Explorer, right-click  and select **Add To View**.

The web page is displayed in one of the image panels. Use the web browser buttons to navigate through the internet.




**Figure 14:** Web Page controls

**NOTE:** If the web page does not render, you may need to install the latest version of Internet Explorer.

## Editing and Deleting a Web Page

Whenever a web page address becomes out of date, you can choose to update the web page or delete the web page from the site.

- In the System Explorer, right-click  then select one of the following:
  - To edit the web page, select **Edit....** For more information about the editable options, see *Adding a Web Page* above.
  - To delete the web page, select **Delete**. When the confirmation dialog box is displayed, click **Yes**.



# Investigating Events

When you receive a report about an event, you can review the recorded video and use the following tools to investigate the sequence of events. The results of your investigation can be exported to provide evidence for prosecution as required.

## Controlling Recorded Video

**Tip:** If video appears slow, it may be a network issue between the ACC Client software and the server that the camera is connected to. Actual recorded video quality is not affected.

### Adding and Removing Cameras in a View

To monitor video, add a camera to a View tab. Camera video can be removed from a View tab at any time.

#### *Adding a Camera to a View*

Do one of the following:


- Drag the camera from the System Explorer to an empty image panel in the View tab.
- Double-click a camera in the System Explorer.
- In the System Explorer, right-click the camera and select **Add To View**.

The camera is added to the next empty image panel in the View layout.

**Tip:** You can drag the same camera to multiple image panels to watch the video at different zoom levels.

#### *Removing a Camera from a View*

Do one of the following:

- Right-click the image panel and select **Close**.
- Inside the image panel, click .

### Viewing Live and Recorded Video

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

When you monitor video, you can choose to watch live and recorded video in the same View tab, or only one type of video per View tab.

Once you've added cameras to the View tab, you can do the following:



- To switch all of the image panels in the View between live and recorded video, click either  **Live** or  **Recorded** on the toolbar.
- To switch individual image panels between live and recorded video, right-click the image panel and select either **Live** or **Recorded**.

Image panels displaying recorded video have a **green** border.

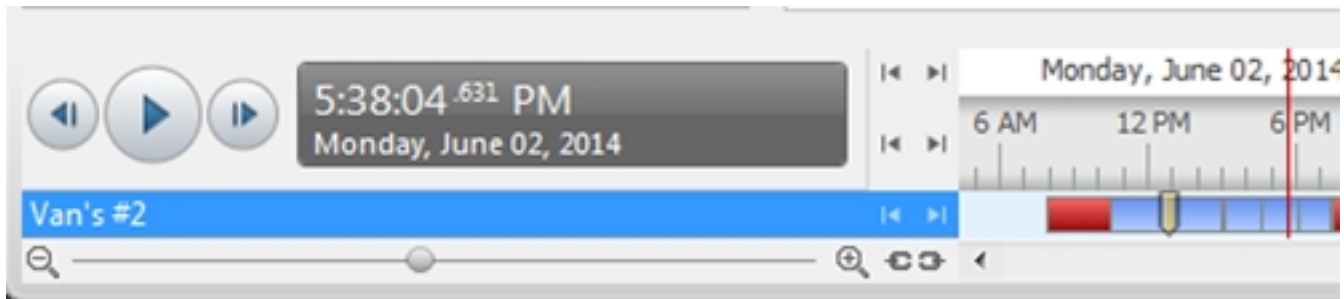
## Playing Back Recorded Video

The Timeline displays when video was recorded and lets you control video playback.











The colored bars on the Timeline show the camera's recording history:

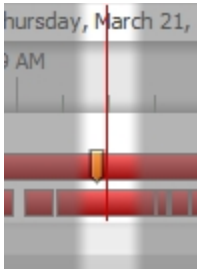
- A red bar shows the camera has recorded a motion event.
- A blue bar shows the camera has recorded video.
- White areas show when the camera has not recorded any video.
- A yellow bar is a bookmark in the camera's recording history.

For more information about bookmarks, see *Bookmarking Recorded Video* on page 91.



**Figure 15:** Playback controls on the Timeline

To...	Do this...	
Select a playback time	<ul style="list-style-type: none"> <li>• Click the dark gray date display and select a specific date and time.</li> <li>• Click a point on the Timeline.</li> </ul>	
Start playback	<p>Click .</p> <ul style="list-style-type: none"> <li>• Click  to fast forward. Tap the arrow again to increase the playback speed.</li> <li>• Click  to rewind. Tap the arrow again to increase the playback speed.</li> </ul> <p>You can play the video up to eight times the original speed.</p>	
Stop playback	<p>Click .</p> <ul style="list-style-type: none"> <li>• Click  to step forward one frame.</li> <li>• Click  to step backward one frame.</li> </ul>	
Jump forward or backward on the Timeline		On the Timeline, click  or  to move to set points on the Timeline.
Zoom in or out of the Timeline		<ul style="list-style-type: none"> <li>• Move the slider on the bottom left to zoom in or out on the Timeline.</li> </ul>

To...		Do this...
		<ul style="list-style-type: none"> <li>Place your mouse over the Timeline and use the scroll wheel to zoom in or out on the Timeline.</li> </ul> <p>You can zoom in to a quarter of a second, and zoom out to see years if recorded video exists.</p>
Center the Timeline on the time marker		Right-click the Timeline, and select <b>Center on Marker</b> .
Pan the Timeline		<ul style="list-style-type: none"> <li>Click and drag the time marker through the Timeline.</li> <li>Move the horizontal scroll bar under the Timeline.</li> <li>Right-click and drag the Timeline.</li> </ul>

## Synchronizing Recorded Video Playback

Synchronizing recorded video playback allows you to synchronize Timelines across multiple tabs while they are in recorded mode.

Synchronized recorded video playback is disabled by default. Once it is enabled, it will remain enabled until it is manually disabled.



**NOTE:** Tabs can only be synchronized to one time. You cannot synchronize groups of tabs to separate times.

### Enabling Synchronized Recorded Video Playback

- To enable synchronized video playback in all new View tabs, select  > **Client Settings > General > Synchronize recorded video playback**.

The Timelines in new View tabs are automatically centered on the current time.

Enabling synchronized recorded video playback in the Client Settings dialog box will not synchronize the Timelines of previously opened tabs, it will only synchronize new tabs that are opened after enabling synchronized recorded video playback. Previously opened tabs need to be synchronized individually.



- To synchronize playback between specific tabs, click  at the bottom of each Timeline. The icon changes to  to show that it is now synchronized.

The Timeline will synchronize with the first tab you selected.

### Disabling Synchronized Recorded Video Playback

- To disable synchronized recorded video playback in all new View tabs, clear the **Synchronize recorded video playback** check box in the Client Settings dialog box.


Previously synchronized tabs will remain synchronized.

- To disable synchronized video playback in individual tabs, click  at the bottom of the Timeline. The icon changes to  to show that synchronized playback is disabled.

The Timeline will continue to display the same time but will no longer be synchronized with other Timelines.

## Initiating a Search

While reviewing recorded video, you can initiate a search to find other instances of an object or event.

- In the top-left corner of the image panel, click  then select one of the following search options:
  - **Motion Search**
  - **Thumbnail Search**

The search will only be performed on the selected camera video. For more information about the available search options, see *Search* on page 94.

## Bookmarking Recorded Video

You can add bookmarks to recorded video to help you find and review an event later. Bookmarked video can be protected against scheduled data cleanup so that the video is never deleted.

### *Adding a Bookmark*

**Tip:** You can add a bookmark any time the Timeline is displayed.

1. Drag the time marker to where you want to start the bookmark, then right-click the Timeline and select **Add Bookmark**.

The Edit Bookmark dialog box appears, and the bookmark time range is highlighted on the Timeline.

2. Enter a name for the New Bookmark.
3. In the **Cameras:** pane, select all the cameras that need to be attached to this bookmark.

**NOTE:** You can only bookmark multiple cameras from the same site.

4. In the **Time Range to Bookmark:** area, enter the full duration of the bookmark.

You can also move the black time range markers on the Timeline to adjust the time range.

5. In the **Description:** field, enter any extra information that you want to include with the bookmark.
6. To protect the bookmark video from being deleted, select the **Protect bookmark data** check box.

**NOTE:** Protected bookmarks are never deleted. Be aware that bookmarked videos take up space and can become the oldest video on the server.

7. To make the bookmark private, select the **Bookmark is private** check box. Private bookmarks are only visible to the user who marked the bookmark as private, and the system administrator. No one else will have access to the bookmark.
8. Click **OK**.

## Exporting, Editing, or Deleting a Bookmark

- Click the bookmark on the Timeline, then do one of the following:



To...	Do this...
Export a bookmark	Click <b>Export</b> , then complete the Export tab. For more information, see <i>Export</i> on page 100.
Edit a bookmark	Click <b>Edit</b> , then make your changes. For more information about the editable options, see <i>Adding a Bookmark</i> on the previous page.
Delete a bookmark	Click <b>Delete</b> . When the confirmation dialog box appears, click <b>Yes</b> .

## Zooming and Panning in a Video

Use the zoom and pan tools to focus on specific areas in the video stream.


### Using the Zoom Tools

There are two ways to digitally zoom in and zoom out of a video image:

- Move your mouse over the video image, then rotate your mouse wheel forward and backward.
- On the toolbar, select  or , then click the image panel until you reach the desired zoom depth.

### Using the Pan Tools

There are two ways to pan through the video image:


- Right-click and drag inside an image panel.
- On the toolbar, select , then click and drag the video image in any direction inside the image panel.

## Maximizing and Restoring an Image Panel

You can maximize an image panel to enlarge the video display.


### Maximizing an Image Panel

Do one of the following:

- Right-click an image panel and select **Maximize**.
- Inside the image panel, click .
- Double-click the image panel.

### Restoring an Image Panel

In a maximized image panel, do one of the following:

- Right-click the maximized image panel and select **Restore Down**.
- Inside the image panel, click .
- Double-click the image panel.

## Making Image Panel Display Adjustments

You can change the image panel display settings to bring out video details that are hard to see with the image panel's default settings. These settings can also be adjusted in Client Settings. For more information, see *Changing Display Adjustment Settings* on page 69.

1. Right-click an image panel and select **Display Adjustments....**

The Display Adjustments... settings are displayed in a floating pane immediately beside the image panel.

2. Move the sliders to adjust the **Gamma:**, **Black Level:** and **White Level:**.

By default, **Gamma:** is set to 0.55, **Black Level:** is set to 0.5%, **White Level:** is set to 98%, and Auto-Contrast is disabled.

The image panel displays your changes.

3. Select the **Enable Auto-Contrast** check box to allow the system to automatically adjust the contrast level for the video stream.


**NOTE:** When Auto-Contrast is disabled, the **Black Level:** and **White Level:** cannot be adjusted.


4. To clear your changes, click **Restore Defaults.**

If display adjustments have been made in the Client Settings, they will be applied to the image panel.


5. To set the selected levels as the default settings for all image panels going forward, click **Save as Defaults.**

## Listening to Audio in a View

If there is an audio input device linked to a camera, the  button is displayed in the image panel when you watch the camera's video. To listen to the streaming audio, make sure there are speakers connected to your computer. By default the audio is muted.

The camera's microphone must be enabled before you can listen to any audio. The  button is not displayed if the microphone is disabled.


To control audio playback, do any of the following:

- In the lower-right corner of the image panel, click  to mute or activate the audio.
- Move the slider to change the volume.


To enable the camera's microphone, see *Microphone* on page 65 for more information.

## Reviewing Recorded POS Transactions

While you watch recorded video, you can review POS transactions that occurred at the same time.

1. Select a camera that is linked to the POS transaction source and display the camera's recorded video
2. In the image panel, click .

If there is more than one POS transaction source linked to the camera, you will be prompted to select one. The POS transactions are displayed in the next image panel.

- Each transaction is separated by date and time.
  - When you select a transaction, the video jumps to that event on the Timeline.
  - Scroll up or down to see other recorded POS transactions.
3. To display cameras that are linked to the POS transaction source, click  in the POS transaction image panel.

If multiple cameras are connected to the POS transaction source, you will be prompted to select one.

4. Use the Timeline to review the video in more detail.

For more information about Timelines, see *Playing Back Recorded Video* on page 89.

If you want to find a specific POS transaction, see *Performing Text Source Transactions Search* on page 98.

## Triggering Custom Keyboard Commands

If your system has custom keyboard commands set up to run specific rule events, you can activate the keyboard commands by doing the following:




1. Press **Ctrl + K** on your keyboard.
2. Enter the custom keyboard command number to begin running the rule event.

Consult your system administrator for details about the custom keyboard commands that are available in your system. Custom keyboard commands are set up as rule events through the Rules engine. For more information about setting up rule events, see *Rules* on page 22.

## Search

You can quickly search for recorded video that is linked to an event or search through a camera's recording history.

The different search tabs can be accessed in the following ways:

- At the top-left corner of the application window, click  to open the New Task menu then choose one of the **Search** options.
- While the View tab is in Recorded mode, select the  **Search** menu from the toolbar then choose one of the search options.
- While watching recorded video, click  in the image panel then select an available search option. This search will only be performed on the selected camera video.

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

## Performing an Event Search

The  Event Search allows you to search for specific events that the system is configured to identify.

1. Open the Search: Event tab. For more information about accessing the search tab, see *Search* on the previous page
2. In the **Camera(s) to Search:** area, select all the cameras you want to include in the search.
3. In the **Time Range to Search:** area, set the date and time range of your search. The time range is highlighted on the Timeline by the black time range markers. You can also drag the time range markers to modify the time range.
4. In the **Events to Search For:** area, select the types of events to include in the search.
  - Select **Motion Events** to find events detected in the camera's Motion Detection area.
  - Select **Digital Input Events** to find events detected by digital inputs that are connected to the selected cameras.
  - Select **Classified Object Events** to find events detected in the camera's Video Analytics Configuration area.
  - Select **Arbitrary Events** to find events configured through the ONVIF driver.
5. Click **Search**.

### *Viewing Search Results*

1. In the **Search Results** area, select a search result. The event is highlighted on the Timeline and the video is displayed in the image panel. Details about the search result are displayed to the right.
2. Use the Timeline controls to review the event.


For more information, see *Playing Back Recorded Video* on page 89.
3. Click **Export this event** to export the selected event video.

For more information, see *Export* on page 100.
4. If you want to further refine your search, click **Perform a motion search on this event**. You can now search for detailed changes in the selected search result.

For more information, see *Performing a Motion Search* below.
5. Click **Bookmark this event** to bookmark the selected search result.

For more information, see *Bookmarking Recorded Video* on page 91.
6. Click **Add to new View** to display the search result video in a new View tab.
7. To export all listed search results, click **Export results to a file** and save the file. The search results can be saved as either a CSV or Text file.



## **Performing a Motion Search**

The  Motion Search tab allows you to search for classified object motion and pixel motion.

**NOTE:** Classified Object Motion search is always displayed but only video from a self-learning video analytics device will generate meaningful search results.



1. Open the Search: Motion tab. For more information about accessing the search tab, see *Search* on page 94
2. In the **Camera to Search:** area, select a camera.
3. In the **Time Range to Search:** area, set the date and time range of your search. The time range is highlighted on the Timeline by the black time range markers. You can also drag the time range markers to modify the time range.
4. Select the type of motion search that you would like to perform:
  - Click **Classified Object Motion** to search for objects detected by a video analytics camera.

- a. In the Classified Object Motion area, check the  box to search for persons.
- b. Check the  box to search for vehicles.
- c. Move the **Confidence:** slider to set how certain the system must be that it identified the correct object type.
- d. Enter a time in seconds in the **Object Duration:** field to define how long each result must be in the scene.
- e. Select one of the following options:
  - **Individual objects** — select this option to display each classified object as an individual search result.
  - **Joined by time** — select this option to display objects that appear simultaneously as one search result. Define the minimum number of **seconds apart** before the next search result is generated.

- Click **Pixel Motion** to search for tiny pixel changes in a specific area in the camera's field of view.
  - a. In the Pixel Search Options: area, drag the **Threshold:** slider to select the amount of motion required to return a search result.

A high threshold requires more pixels to change before results are found.

- b. Enter a number in the **Join results less than** field to set the minimum number of seconds between separate search results. You can enter any number between 1-100 seconds.

5. Define the green search area by using the tools above the image panel.

For more information about using the classified object motion tools, see *Setting Up Classified Object Motion Detection* on page 52.

For more information about using the pixel motion tools, see *Setting Up Pixel Motion Detection* on page 50.

6. Click **Search**.

### *Viewing Search Results*

Depending on the type of Motion Search you performed, some of the following options may not be available.

1. In the **Search Results** area, select a search result. The event is highlighted on the Timeline and the video is displayed in the image panel. Details about the search result are displayed to the right.

If you performed a Classified Object Motion search, the objects in the search result are highlighted in the image panel.

2. Use the Timeline controls to review the event.

For more information, see *Playing Back Recorded Video* on page 89.

3. Click **Export this event** to export the selected event video.

For more information, see *Export* on page 100.

4. Click **Bookmark this event** to bookmark the selected search result.

For more information, see *Bookmarking Recorded Video* on page 91.

5. Click **Add to new View** to display the search result video in a new View tab.

6. To export all listed search results, click **Export results to a file** and save the file. The search results can be saved as either a CSV or Text file.

7. If you performed a Classified Object Motion search and chose to join the search results, you will have the option to **Find individual objects in this event**. Click this button to perform a new search to identify each individual object in the search result.

## Performing a Thumbnail Search

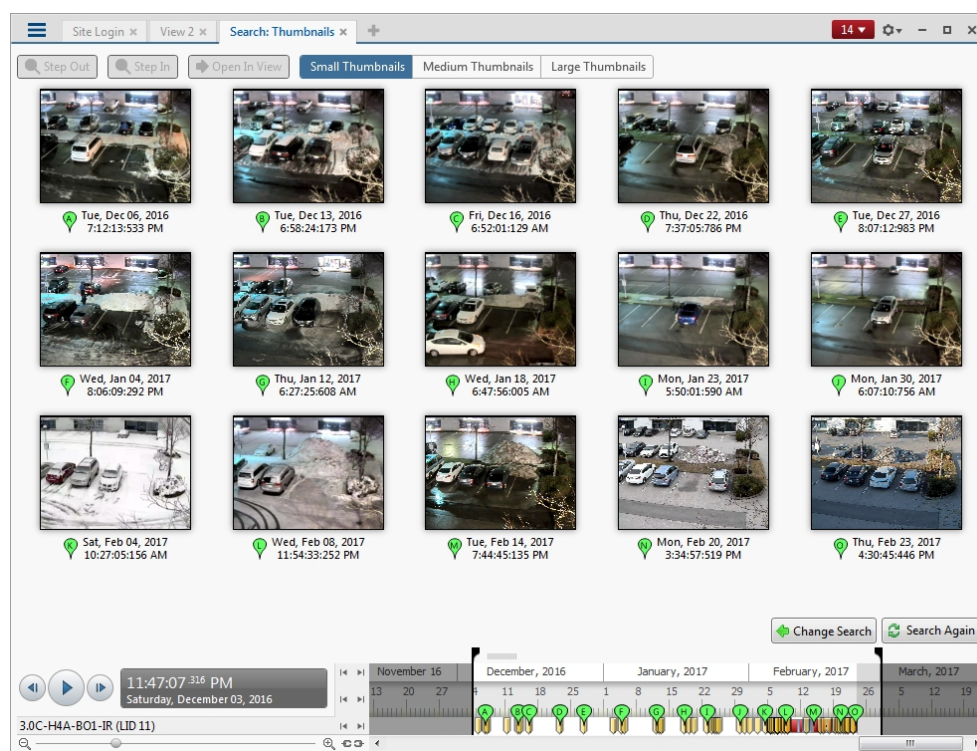
The  Thumbnail Search is a visual search that displays search results as a series of thumbnail images.

1. Open the Search: Thumbnails tab. For more information about accessing the search tab, see *Search* on page 94
2. In the **Camera to Search:** area, select a camera.
3. In the **Time Range to Search:** area, set the date and time range of your search. The time range is highlighted on the Timeline by the black time range markers. You can also drag the time range markers to modify the time range.
4. In the image panel, move or drag the edges of the green overlay to focus the search on one area in the video image. Only the area highlighted in green will be searched.
5. Click **Search**.

### Viewing Search Results

The search results display thumbnails at equal intervals on the Timeline.


1. To change the size of the search result thumbnails, select **Large Thumbnails**, **Medium Thumbnails** or **Small Thumbnails** from the menu above the search results.



**Figure 16:** The Search: Thumbnails results tab

2. Select a thumbnail to highlight the video on the Timeline.
3. Click **Step In**, or double-click the thumbnail to perform another search around the thumbnail.  
Click **Step Out** to return to the previous results page.
4. Click **Open In View** (after selecting a thumbnail) to open the recorded video in a new View.
5. Click **Change Search** to change the search criteria.

## Performing Text Source Transactions Search

The  Text Source Transactions Search allows you to search for specific transactions recorded by the POS transactions feature.

1. Open the Search: POS Transactions tab. For more information about accessing the search tab, see *Search* on page 94
2. In the **POS Transaction Sources to Search:** area, select all the POS transaction sources you would like to include in the search.
3. In the **Time Range to Search:** area, set the date and time range of your search. The time range is highlighted on the Timeline by the black time range markers. You can also drag the time range markers to modify the time range.
4. In the **Search Text:** area, enter any text that will help you filter the search results. For example, you can

enter product names or transaction values.

Use **Wildcards** and **Regular expressions** search methods to find a range of results. Leave the **Text:** field blank to find all transactions.

5. Click **Search**.

### *Viewing Search Results*

1. In the **Search Results** area, select a search result. The event is highlighted on the Timeline and the video is displayed in the image panel. Details about the search result are displayed to the right.

You can resize the image panel, search results and result details to see the information more clearly.

2. Use the Timeline controls to review the event.

For more information, see *Playing Back Recorded Video* on page 89.


3. If the search result is linked to multiple cameras, select a camera from the drop down list above the image panel to change the video that is displayed.

4. Click **Export this event** to export the selected event video.

For more information, see *Export* on the next page.

5. To export all listed search results, click **Export results to a file** and save the file. The search results can be saved as either a CSV or Text file.

## **Performing a Bookmark Search**

The  Bookmark Search allows you to search for a specific bookmark.

1. Open the Search: Bookmark tab. For more information about accessing the search tab, see *Search* on page 94
2. In the **Search:** field at the top of the tab, enter any text that may appear in the bookmark's title, description, linked camera name or the name of the user who created the bookmark.

The search is automatically performed on all the listed bookmarks until only the matches are displayed.

### *Viewing Search Results*

1. In the Bookmark list, select a bookmark.

The bookmark is highlighted on the Timeline and the video is displayed in the image panel. Details about the bookmark are displayed under the image panel.

To select and configure multiple bookmarks, see *Managing Multiple Bookmarks* on the next page.

2. Use the Timeline controls to review the event.

For more information, see *Playing Back Recorded Video* on page 89.

3. If the search result is linked to multiple cameras, select a camera from the drop down list above the image panel to change the video that is displayed.

4. To export the selected bookmark, click **Export this event**.

5. If you want to further refine your search, click **Perform a motion search on this event**. You can now search for more detailed changes in the selected bookmarked video.

For more information, see *Performing a Motion Search* on page 95.

6. To edit the bookmark, click **Edit this bookmark**.

For more information, see *Bookmarking Recorded Video* on page 91.

7. To export a list of all bookmarks in the system, click **Export results to a file** and save the file. The list can be saved as either a CSV or Text file.

### *Managing Multiple Bookmarks*

1. To select multiple bookmarks from the Bookmark list, do any of the following:
  - To select non-consecutive bookmarks, press **Ctrl** + click the bookmarks.
  - To select consecutive bookmarks, press **Shift** + click the bookmarks.
  - To select all bookmarks, press **Ctrl** + **A**.

Additional options are displayed below the Bookmark list. These options affect the selected bookmarks.

2. To protect selected bookmarks, click .

The bookmark video is protected from being deleted. Be aware that bookmarked videos take up space and can become the oldest video on the server.

3. To remove protection from protected bookmarks, click .

4. To export the selected bookmarks, click .

A new Export tab is opened. For more information, see *Export* below.

5. To delete selected bookmarks, click .

6. To deselect the bookmarks, click  on the left of the options bar.

## Export

You can export video in multiple video and image formats. The Export tab can be accessed from bookmark options, the New Task menu and any Search tab.


You can also export snapshots of an image panel as you monitor video.

It is recommended that you export video of individual events and back up video for your archives. For more information, see *Archive Video* on page 37.

### **Exporting a Snapshot of an Image**

You can export a snapshot of any image panel with video. When you export a snapshot, you are exporting what the image panel is currently displaying.

1. To export a snapshot, do one of the following:

- In the image panel, click  .
- Right-click the image panel and select **Save Snapshot**.

The Export tab opens and your snapshot is displayed in the image panel.

2. In the **Format:** drop down list, select the export file format then define your preferences:

Format	Export Options
<b>Native</b>  <b>NOTE:</b> The Native format requires the Avigilon Control Center Player to view.	<p>This is the recommended export format because the exported image maintains its original compression and can be authenticated against tampering in the Avigilon Control Center Player software.</p> <ul style="list-style-type: none"><li>• Select the <b>Export Control Center Player</b> check box if you want to include a copy of the Avigilon Control Center Player software with the export.</li><li>• Click <b>Burn to Disc</b> to burn the export file directly to disk rather than export the file first.</li></ul>
<b>PNG image</b>	<ol style="list-style-type: none"><li>1. In the <b>Resolution:</b> field, select a resolution for the video image. You can manually enter the resolution or click the drop down arrow to select a standard resolution.  <b>NOTE:</b> The Resolution: field automatically maintains the image aspect ratio.</li><li>2. Select the image overlays you want: <b>Timestamp</b>, <b>Camera name</b> and <b>Camera location</b>.</li><li>3. Click <b>Display Adjustments...</b> to adjust the <b>Gamma</b>:, <b>Black Level</b>: and <b>White Level</b>:</li></ol>
<b>JPEG image</b>	<ol style="list-style-type: none"><li>1. In the <b>Quality:</b> drop down list, select the exported image quality level.</li><li>2. Set the image <b>Resolution</b>:</li><li>3. Select the image overlays you want.</li><li>4. Click <b>Display Adjustments...</b> to modify the image quality.</li></ol>
<b>TIFF image</b>	<ol style="list-style-type: none"><li>1. Set the image <b>Resolution</b>:</li><li>2. Select the image overlays you want.</li><li>3. Click <b>Display Adjustments...</b> to modify the image quality.</li></ol>
<b>Print image</b>	<ol style="list-style-type: none"><li>1. Select the image overlays you want.</li><li>2. Click <b>Display Adjustments...</b> to modify the image quality.</li><li>3. Click <b>Printer Settings...</b> to change the selected printer and paper size.</li><li>4. Click <b>Add Export Notes...</b> to add notes about the snapshot. The notes are printed below the image.</li></ol>
<b>PDF file</b>	<ol style="list-style-type: none"><li>1. Select the image overlays you want.</li></ol>

Format	Export Options
	<ol style="list-style-type: none"> <li>Click <b>Display Adjustments...</b> to modify the image quality.</li> <li>Click <b>Add Export Notes...</b> to add notes about the snapshot.</li> </ol>

- Adjust the image region that is exported. You can zoom, pan, or crop the image to only export the region of interest. Depending on the camera, you can adjust the image region in the following ways:
  - If available, use the zoom and pan tools above the image panel to adjust the video image that is exported.
  - Otherwise, click **Change Image Region...**. In the **Change Image Region...** dialog box, move and resize the green overlay to select the region you want to export, then click **OK**. Only areas highlighted in green will be exported.
- Click **Start Export**.
- In the Save As dialog box, name the export file and click **Save**. If you are printing the snapshot, the image is sent to your printer instead.

The Preview area displays the snapshot you are exporting.



- When the export is complete, click **OK**.

## Exporting Native Video

The Native (AVE) format is the recommended format for exporting video. You can export video from multiple cameras in a single file, and the video maintains its original compression. AVE video export also includes the original video metadata so you can search the exported video, including video analytics data. AVE video is played in the Avigilon Control Center Player, where the video can be authenticated against tampering and re-exported to other formats.

If there is audio linked to the video, the audio is automatically included in the export.

If you are exporting a large amount of video for your records, back up the video instead. For more information, see *Archiving Recorded Video On Demand* on page 38.

- At the top-left corner of the application window, select  > . The Export tab opens.
- In the **Format:** drop down list, select **Native**.
- From the **Cameras:** drop down explorer, select the camera video that you want to export.

A preview of the video is displayed in the image panel. Use the Timeline controls to playback the video. For more information, see *Playing Back Recorded Video* on page 89.

**Tip:** You can select more than one camera for this type of export.

- Enter the Time Range you want to export. The Time Range is highlighted on the Timeline by black time range markers. You can also drag the time range markers to modify the time range.

5. If you want to add another video clip to the export, click **Add clip** then select the required cameras and time range.

The Add clip feature allows you to export video from different combinations of cameras and different time ranges as one export file.

For example, there is a person that is suspected of stealing from a store. During the investigation, you discover that the same person visits the store multiple times over one week. The Add clip feature allows you to export one file that includes all video of the suspect from the week.

Repeat this step until you've added all the clips that you need. You can remove a clip from the export by clicking the **X** button in the top-right corner of the clip area.

6. From the **Image Rate:** drop down list, select how many images per second are exported.

For example, the video is streaming at 30 images per second. If you select **1/2**, only 15 images for that second will be exported.

To define a specific image rate, select **Custom (ips)** then enter the image rate in minutes and seconds. If you enter 1 minute and 0 seconds, one frame of video is exported for each minute of the export.

7. To automatically divide the export into separate files, select a **Maximum file size:**.

This option allows you to export smaller files for storing in a flash drive or on optical media.

This setting is automatically disabled if you choose to burn the export to disc because the system auto-detects the disc size.

8. If you want to include a copy of the Player application with the export, select the **Export Control Center Player** check box.

9. Click one of the following:

**Tip:** While the file is being exported, you can continue to use the Client software for regular operations in the other tabs.

- **Start Export:** to save the file locally.
  - In the Save As dialog box, name the export file and click **Save**.
- **Burn to Disc:** to burn the file directly to disc media.
  - a. When the dialog box appears, insert a disc and select the media burning drive.
  - b. Name the export file. The file name is automatically given a numbered suffix to help identify which file you are playing if the export spans multiple discs.
  - c. Click **Burn to Disc** to start the export. If this button is disabled, the disc may be corrupt or full.
  - d. Monitor the export progress to see if extra discs are required. When a disc is full, the export automatically pauses and you are asked to insert a new disc. After you insert a new disc, click **Resume Export**.

The number of discs required to export a video varies widely depending on the type of camera and disc used. Video is stored on the server with minimal compression to maximize the function of Avigilon HDSM technology, so the size of an export can be quite large due to the camera's high megapixel resolution and frame rate.





Generally, if you export a 2 minute video from a 2MP H.264 HD camera into AVE format, you will export a 93 MB file. To reduce the number of discs required, you can lower the frame rate or use a disc type with a larger capacity. Be aware that reducing the frame rate too much may cause the exported video to be jerky or missing data.

10. When the export is complete, click **OK**.

## Exporting AVI Video

Video exported in Audio Video Interleave (AVI) format can be played in most media players. Be aware that you can only export one video at a time in this format.

If there is audio linked to the video, the audio is automatically included in the export.

1. At the top-left corner of the application window, select  >  . The Export tab opens.
2. In the **Format:** drop down list, select **AVI video**.
3. From the **Cameras:** drop down explorer, select the camera video that you want to export.  
  
A preview of the video is displayed in the image panel. Use the Timeline controls to playback the video. For more information, see *Playing Back Recorded Video* on page 89.
4. Enter the Time Range you want to export. The Time Range is highlighted on the Timeline by black time range markers. You can also drag the time range markers to modify the time range.
5. In the **Encoder:** field, select the compression used. The VC-1 (Windows Media Video) compression is included by default because it is tailored for high-resolution AVI encoding.

If you are planning to burn the export to disc, it is important to select a compression method to help reduce the export size and maintain video quality.

6. In the **Quality:** drop down list, select the exported image quality level.  
  
**NOTE:** You can only change the Quality: setting if you've selected an Encoder: for the export.
7. In the **Resolution:** field, select a resolution for the video image. You can manually enter the resolution or click the drop down arrow to select a standard resolution.

**NOTE:** The Resolution: field automatically maintains the image aspect ratio.

8. From the **Image Rate:** drop down list, select how many images per second are exported.

For example, the video is streaming at 30 images per second. If you select **1/2**, only 15 images for that second will be exported.

To define a specific image rate, select **Custom (ips)** then enter the image rate in minutes and seconds. If you enter 1 minute and 0 seconds, one frame of video is exported for each minute of the export.

9. To automatically divide the export into separate files, select a **Maximum file size:**

This option allows you to export smaller files for storing in a flash drive or on optical media.

This setting is automatically disabled if you choose to burn the export to disc because the system auto-detects the disc size.

10. Select the **Skip recording gaps** check box to avoid pauses in the video caused by gaps in the recording.

11. Select the image overlays that you want to display in the export: **Timestamp**, **Camera name** and **Camera location**.

**NOTE:** The Timestamp displays the time that was recorded by the server that the camera is connected to.

Select the **Video Analytics Activity** overlay to include classified object bounding boxes in the export. The bounding boxes will be embedded in the video and cannot be removed from the export.

12. Adjust the image region that is exported. You can zoom, pan, or crop the image to only export the region of interest. Depending on the camera, you can adjust the image region in the following ways:
  - If available, use the zoom and pan tools above the image panel to adjust the video image that is exported.
  - Otherwise, click **Change Image Region...** In the **Change Image Region...** dialog box, move and resize the green overlay to select the region you want to export, then click **OK**. Only areas highlighted in green will be exported.

13. Click **Display Adjustments...** to adjust the **Gamma**:, **Black Level**:, **White Level**:, or **Enable Auto-Contrast**.

The Display Adjustment Settings: can be adjusted and restored for all image panels from the **Client Settings**. For more information, see *Changing Display Adjustment Settings* on page 69.

The Display Adjustment Settings: can be adjusted for each image panel or for all image panels from the **Display Adjustments...** floating pane. For more information, see *Making Image Panel Display Adjustments* on page 93.

14. Click one of the following:

**Tip:** While the file is being exported, you can continue to use the Client software for regular operations in the other tabs.

- **Start Export:** to save the file locally.
  - In the Save As dialog box, name the export file and click **Save**.
- **Burn to Disc:** to burn the file directly to disc media.
  - a. When the dialog box appears, insert a disc and select the media burning drive.
  - b. Name the export file. The file name is automatically given a numbered suffix to help identify which file you are playing if the export spans multiple discs.
  - c. Click **Burn to Disc** to start the export. If this button is disabled, the disc may be corrupt or full.
  - d. Monitor the export progress to see if extra discs are required. When a disc is full, the export automatically pauses and you are asked to insert a new disc. After you insert a new disc, click **Resume Export**.

The number of discs required to export a video varies widely depending on the type of camera and disc used. Video is stored on the server with minimal compression to maximize the function of Avigilon HDSM technology, so the size of an export can be quite large due to the camera's high megapixel resolution and frame rate.

Generally, if you export a 2 minute video from a 2MP H.264 HD camera into uncompressed AVI format, you will export a 2.7 GB file. If you select an **Encoder:** format and compress the video, you can export a 224 MB video at high quality. It is recommended that you always select an Encoder: format for AVI export to help significantly reduce the file size.

To further reduce the file size you can select a lower quality setting, lower the export frame rate, reduce the video resolution, or focus the export on a specific image region. Be aware that reducing each of the available settings too much may cause the export to be blurry or missing frames.



If it is important to have a high quality and full frame rate export, it is recommended that you use the AVE export format instead. AVE export intelligently compresses the video to create a smaller export file while maintaining video data so that you can search, re-export video, and authenticate the video against tampering through the Avigilon Control Center Player software.

15. When the export is complete, click **OK**.

## Exporting Still Images

Video can be exported as a series of still PNG images, JPEG images, or TIFF images. When you export a series of still images, you are exporting each frame of video as an independent file.

If you only want one photo of the video you are watching, take a snapshot. For more information, see *Exporting a Snapshot of an Image* on page 100.

1. At the top-left corner of the application window, select  >  . The Export tab opens.
2. In the **Format:** drop down list, select **PNG images**, **JPEG images**, or **TIFF images**.
3. From the **Cameras:** drop down explorer, select the camera video that you want to export.

A preview of the video is displayed in the image panel. Use the Timeline controls to playback the video. For more information, see *Playing Back Recorded Video* on page 89.

4. Enter the Time Range you want to export. The Time Range is highlighted on the Timeline by black time range markers. You can also drag the time range markers to modify the time range.
5. (JPEG only) In the **Quality:** drop down list, select the exported image quality level.
6. In the **Resolution:** field, select a resolution for the video image. You can manually enter the resolution or click the drop down arrow to select a standard resolution.

**NOTE:** The Resolution: field automatically maintains the image aspect ratio.

7. From the **Image Rate:** drop down list, select how many images per second are exported.

For example, the video is streaming at 30 images per second. If you select **1/2**, only 15 images for that second will be exported.

To define a specific image rate, select **Custom (ips)** then enter the image rate in minutes and seconds. If you enter 1 minute and 0 seconds, one frame of video is exported for each minute of the export.

8. To limit the number of images that are exported, enter a maximum number in the **Images to Export:** field or use the default Unlimited setting.

The export stops when the maximum number is reached, or when the end of the export time range is reached.

9. Select the image overlays that you want to display in the export: **Timestamp**, **Camera name** and **Camera location**.

**NOTE:** The Timestamp displays the time that was recorded by the server that the camera is connected to.

10. Adjust the image region that is exported. You can zoom, pan, or crop the image to only export the region of interest. Depending on the camera, you can adjust the image region in the following ways:
  - If available, use the zoom and pan tools above the image panel to adjust the video image that is exported.
  - Otherwise, click **Change Image Region...**. In the **Change Image Region...** dialog box, move and resize the green overlay to select the region you want to export, then click **OK**. Only areas highlighted in green will be exported.
11. Click **Display Adjustments...** to adjust the **Gamma**:, **Black Level**:, **White Level**:, or **Enable Auto-Contrast**.

The Display Adjustment Settings: can be adjusted and restored for all image panels from the **Client Settings**. For more information, see *Changing Display Adjustment Settings* on page 69.

The Display Adjustment Settings: can be adjusted for each image panel or for all image panels from the **Display Adjustments...** floating pane. For more information, see *Making Image Panel Display Adjustments* on page 93.

12. Click **Start Export**.
13. In the Save As dialog box, name the export file and click **Save**.



The Preview area displays the video you are exporting.

14. When the export is complete, click **OK**.

## Exporting a Print Image

You can export a frame of video directly to your printer or as a PDF. The export can also include any notes you may have about the image.

**Tip:** You can perform a similar export by taking a snapshot. For more information, see *Exporting a Snapshot of an Image* on page 100.

1. At the top-left corner of the application window, select  > . The Export tab opens.
2. In the **Format:** drop down list, select **Print image** or **PDF file**.
3. From the **Cameras:** drop down explorer, select the camera video that you want to export.

A preview of the video is displayed in the image panel. Use the Timeline controls to playback the video. For more information, see *Playing Back Recorded Video* on page 89.
4. On the Timeline, move the red time marker to locate the video image that you want to export.
5. Select the image overlays that you want to display in the export: **Timestamp**, **Camera name** and **Camera location**.

**NOTE:** The Timestamp displays the time that was recorded by the server that the camera is connected to.
6. Adjust the image region that is exported. You can zoom, pan, or crop the image to only export the region

of interest. Depending on the camera, you can adjust the image region in the following ways:

- If available, use the zoom and pan tools above the image panel to adjust the video image that is exported.
- Otherwise, click **Change Image Region...**. In the **Change Image Region...** dialog box, move and resize the green overlay to select the region you want to export, then click **OK**. Only areas highlighted in green will be exported.

7. Click **Display Adjustments...** to adjust the **Gamma**, **Black Level**, **White Level**, or **Enable Auto-Contrast**.

The Display Adjustment Settings: can be adjusted and restored for all image panels from the **Client Settings**. For more information, see *Changing Display Adjustment Settings* on page 69.

The Display Adjustment Settings: can be adjusted for each image panel or for all image panels from the **Display Adjustments...** floating pane. For more information, see *Making Image Panel Display Adjustments* on page 93.

8. (Print Image Only) Click **Printer Settings...** to change the printer and paper size.
9. Click **Add Export Notes...** to add notes about the exported image. The notes are added below the image.
10. Click **Start Export**.
  - If you are exporting a Print image, the image is sent to the printer.
  - If you are exporting a PDF file, save the image.



The Preview area displays the video you are exporting.

11. When the export is complete, click **OK**.

## Exporting WAV Audio

If you want to export audio with video, simply export the video in Native or AVI format. Any audio that is linked to the video is automatically included in the export file.

This procedure exports the audio alone.

1. At the top-left corner of the application window, select  > . The Export tab opens.
2. In the **Format:** drop down list, select **WAV audio**.
3. In the **Cameras:** drop down list, select the camera that the audio is linked to.
4. Enter the Time Range you want to export. The Time Range is highlighted on the Timeline by black time range markers. You can also drag the time range markers to modify the time range.
5. Click **Start Export**.
6. In the Save As dialog box, name the export file and click **Save**.

The Preview area displays the video that is linked to the audio you are exporting.

7. When the export is complete, click **OK**.

# Appendix

## Detailed Feature Descriptions

**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.

This section provides a detailed list of the options that are available when you configure the following features:

### Email Notification Trigger Descriptions

The following table shows the email notification trigger options that are available when you set up an email notification. For more information about setting up an email notification, see *Configuring Email Notifications* on page 20.

Email Notification Trigger	Description
System event	<p>Email notifications are sent when one of the following rule events occurs:</p> <ul style="list-style-type: none"><li>• Server application starting up</li><li>• Server application shutting down</li><li>• Server application terminated unexpectedly</li><li>• Server application low on resources</li><li>• Server application installation error</li><li>• Server connection lost</li><li>• Server hardware event</li><li>• Connection created to standby server</li><li>• Connection removed from standby server</li><li>• Connection failure</li><li>• Connection restored</li><li>• Network connection found</li><li>• Network connection lost</li><li>• Network packet loss acceptable</li><li>• Network packet loss unacceptable</li><li>• License expires soon</li><li>• License expired</li><li>• Database error</li><li>• Data initialization error</li><li>• Data volume size reduced</li><li>• Data write error</li><li>• Data upgrade started</li><li>• Data upgrade completed</li></ul>

Email Notification Trigger	Description
	<ul style="list-style-type: none"> <li>• Data upgrade failed</li> <li>• Data volume failed</li> <li>• Data volume recovered</li> <li>• Data recovery started</li> <li>• Data recovery completed</li> <li>• Data recovery failed</li> <li>• Firmware upgrade failed</li> <li>• Recording interrupted</li> <li>• Recording resumed</li> </ul>
Motion detected on __	An email notification is sent when camera motion detection has started. You can select the camera.
Digital input activated on __	An email notification is sent when a digital input has been activated. You can select the digital input.
POS transaction exception on __	An email notification is sent when a POS transaction exception occurs. You can select the transaction source.

## Group Permission Descriptions

The following table shows the options that are available when you set up a permission group. For more information about setting up a permission group, see *Adding Groups* on page 18.

Group Permission		Description
View live images		Allows users to watch a camera's live video stream in a View.
	Use PTZ controls	Allows users to use a camera's PTZ controls.
	Lock PTZ controls	Allows users to lock a camera's PTZ controls.
	Trigger manual recording	Allows users to trigger manual recording while watching video in a View.
	Trigger digital outputs	Allows users to trigger digital outputs while watching video in a View.
	Broadcast to speakers	Allows users to broadcast audio through speakers that are connected to a camera.
View recorded images		Allows users to watch a camera's recorded video in a View.
	Export images	Allows users to export recorded images.
	Archive images	Allows users to back up recorded images.
	Create teach markers	Allows users to assign Teach Markers in recorded video.
Manage saved views		Allows users to add and edit saved Views.
Manage maps		Allows users to add and edit maps.

Group Permission		Description
Manage web pages		Allows users to add and edit web pages.
Manage user sessions		Allows users to log other users out of the site.
Listen to microphones		Allows users to listen to microphones that are connected to a camera.
Setup cameras		Allows users to configure cameras.
	Setup general settings	Allows users to edit a camera's General dialog box.
	Setup network settings	Allows users to edit the Network dialog box.
	Setup image and display settings	Allows users to edit the Image and Display dialog box.
	Setup compression and image rate settings	Allows users to edit the Compression and Image Rate dialog box.
	Setup image dimension settings	Allows users to edit the Image Dimensions dialog box.
	Setup motion detection settings	Allows users to edit the Motion Detection dialog box.
	Setup privacy zone settings	Allows users to edit the Privacy Zones dialog box.
	Setup manual recording settings	Allows users to edit the Manual Recording dialog box.
	Setup digital input & output settings	Allows users to edit the Digital Inputs and Outputs dialog box.
	Setup microphone settings	Allows users to edit the Microphone dialog box.
	Setup speaker settings	Allows users to edit the Speaker dialog box.
	Setup analytics settings	Allows user to edit the Video Analytics Configuration dialog box.
	Setup teach by example	Allows users access to the Teach By Example tab, and the ability to apply or remove Teach Markers from an analytics device.
Setup sites		Allows users to configure sites.
	Setup name	Allows users to edit the site name.
	Manage site	Allows users to add and upgrade servers in a site.
	Setup site view	Allows users to organize the order of cameras in the System Explorer.
	Setup user and group settings	Allows users to edit the Users and Groups dialog box.
	Setup corporate hierarchy	Allows users to edit the Edit Corporate Hierarchy dialog box.
	Setup POS transaction settings	Allows users to edit the POS Transactions dialog



Group Permission		Description
		box.
	Setup external notification settings	Allows users to edit the Email Notifications dialog box.
	Setup rule engine settings	Allows users to edit the Rules dialog box.
	View site logs	Allows users to view Site Logs.
	Connect and disconnect cameras	Allows users to connect and disconnect cameras to servers.
	View Site Health	Allows users to see Site Health details.
Setup servers		Allows users to configure servers.
	Manage server	Allows users to edit the server name.
	Setup schedule settings	Allows users to edit the camera Recording Schedule.
	Setup recording and bandwidth settings	Allows users to edit the camera Recording and Bandwidth settings.
	Setup scheduled archive settings	Allows users to set up Scheduled Archive.
	Backup settings	Allows users to back up server settings.

## Video Analytics Event Descriptions

The following table shows the Activity: options that can be used when configuring video analytics events. These triggers are based on the activity of detected classified objects.

**NOTE:** All events are reset when their duration reaches the specified Timeout: period.

For more information, see *Adding Video Analytics Events* on page 61.

Activity:	Description	Advanced Options
<b>Objects in area</b>	<p>The event is triggered when the selected number of objects are present in the region of interest (ROI).</p> <p>The object can appear from within the ROI or enter from outside.</p> <p>Only one event is activated when the specified number of classified objects are detected in the area. Additional ROI in the area do not trigger additional events.</p>	<ul style="list-style-type: none"> <li>• <b>Number of Objects:</b> enter the maximum number of objects that can be in the ROI before the event is triggered. The default number is 1.</li> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Object loitering</b>	The event is triggered for each object that stays within the ROI for an extended amount of time. The event is reset when the object leaves the ROI.	<ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Objects crossing beam</b>	The event is triggered when the specified Number of Objects: have crossed the	<ul style="list-style-type: none"> <li>• <b>Number of Objects:</b> if the specified</li> </ul>

Activity:	Description	Advanced Options
	<p>directional beam placed over the camera's field of view. The beam can be unidirectional or bidirectional.</p> <p>If the number of objects is exceeded, a new event is not triggered until the event timeout.</p>	<p>number of objects chosen is 1, then the video analytic event is triggered as soon as 1 object crosses the beam. If the specified number of objects is 2 or more, then the video analytic event is triggered when the specified number of objects cross the beam. The objects must be travelling in the direction set by the user, during the chosen time threshold.</p> <ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Object appears or enters area</b>	<p>The event is triggered once for each classified object in the ROI. The classified object can appear from within the ROI or enter from outside the ROI.</p> <p>This video analytic event causes many alarms. For example, if 20 objects are detected within the ROI, 20 rules/alarms are triggered— one for each object.</p>	<ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Object not present in area</b>	<p>The event is triggered when no objects are present in the ROI.</p>	<ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Objects enter area</b>	<p>The event is triggered when the specified number of classified objects are detected in the field of view (FoV) then subsequently enters the ROI. The ROI must be less than the camera FoV, so that there is time to detect the object before it enters the ROI.</p> <p>Only one event is activated when the specified number of classified objects are detected within the configured time threshold. Additional ROI do not trigger additional events.</p>	<ul style="list-style-type: none"> <li>• <b>Number of Objects:</b> if the specified number of objects chosen is 1, then the video analytic event is triggered as soon as 1 object enters the area. If the specified number of objects is 2 or more, then the video analytic event is triggered when the specified number of objects enters the area. The objects must enter the area during the chosen time threshold.</li> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Objects leave area</b>	<p>The opposite of Objects enter area.</p> <p>The event is triggered when the specified number of classified objects is detected</p>	<ul style="list-style-type: none"> <li>• <b>Number of Objects:</b> if the specified number of objects chosen is 1, then the video analytic event is triggered</li> </ul>

Activity:	Description	Advanced Options
	inside the ROI then subsequently exits the ROI. The ROI must be less than the FoV of the camera.	<p>as soon as 1 object exits the area. If the specified number of objects is 2 or more, then the video analytic event is triggered when the specified number of objects exits the area. The objects must enter the area during the chosen time threshold</p> <ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Object stops in area</b>	<p>The event is triggered if a classified object is detected moving within the ROI then stops moving for the specified time. One event is activated for each classified object that stops.</p> <p><b>NOTE:</b> An object can be tracked for up to 15 minutes.</p>	<ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> </ul>
<b>Direction violated</b>	<p>The event is triggered for each object that moves within 22 degrees of the prohibited direction. One event is activated for each classified object that moves in the prohibited direction.</p>	<ul style="list-style-type: none"> <li>• <b>Timeout:</b> enter the maximum duration of the event. After this time, if the event is still active, a new event is triggered in the system.</li> <li>• <b>Prohibited Direction:</b> move the arrow in the circle to define the direction that objects should not be traveling.</li> </ul>

## Rule Event and Action Descriptions

The following tables describe the trigger events and actions that are available when you set up a rule. For more information about setting up a rule, see *Adding a Rule* on page 22.

### Rule Events

Rule events are the events that trigger a rule.

Rule Events		Description
Server Events		
	Server application starting up	Server software starts up.
	Server application shutting down	Server software shuts down.
	Server application terminated unexpectedly	Server software shuts down unexpectedly.
	Server application low on resources	Server software is low on memory or storage.
	Server application installation error	Server software was installed incorrectly.

Rule Events		Description
	License expires soon	Server software license expires soon.
	License expired	Server software license has expired.
	Database error	Server database has generated an error.
	Data initialization error	Server database has generated an error during initialization.
	Data volume failed	Server data volume has failed.
	Data volume recovered	Server data volume was recovered.
	Data volume size reduced	Server data volume size was reduced.
	Data write error	Server generated an error while writing data.
	Data upgrade started	Server data upgrade has started.
	Data upgrade completed	Server data upgrade has completed.
	Data upgrade failed	Server data upgrade has failed.
	Data recovery started	Server data recovery has started.
	Data recovery completed	Server data recovery has completed.
	Data recovery failed	Server data recovery has failed.
	Bookmark save failed	A bookmark failed to save.
	Network connection found	Server network connection was found.
	Network connection lost	Server network connection was lost.
	Email send error	An error was generated while sending an email notification.
	Server hardware event	A server hardware error has occurred.
	Archiving started	Server backup has started.
	Archiving completed	Server backup has completed.
	Archiving failed	Server backup has failed.
	Server connection lost	Server connection to the site was lost.
	Analytics server queue full	Video analytics service is unable to process all the objects detected by the system. This typically occurs if the system detects a large number of objects in a short period of time.
	Analytics server connection lost	Server is unable to communicate with the video analytics service to perform Avigilon Appearance Search queries.
Device Events		
	Connection created	A camera or device has connected to a server.
	Connection removed	A camera or device has disconnected from a server.
	Connection created to standby server	A camera or device has connected to a standby server.

Rule Events		Description
	Connection removed from standby server	A camera or device has disconnected from a standby server.
	Connection failure	A camera or device connection has failed.
	Connection restored	A camera or device connection has been restored.
	Network packet loss unacceptable	A camera or device network packet loss is unacceptable.
	Network packet loss acceptable	A camera or device network packet loss is acceptable.
	Motion detection started	Motion detection has started on a camera.
	Motion detection ended	Motion detection has ended on a camera.
	Video analytics event started	A video analytics event has started.
	Video analytics event ended	A video analytics event has ended.
	Tampering detected	A video analytics camera or device has detected an unexpected change in the scene.
	Recording started	A camera or device recording has started.
	Recording ended	A camera or device recording has ended.
	Recording interrupted	A camera or device recording was interrupted.
	Recording resumed	A camera or device recording has resumed.
	Digital input activated	A camera or device digital input was activated.
	Digital input deactivated	A camera or device digital input was deactivated.
	Firmware upgrade started	A camera or device firmware upgrade has started.
	Firmware upgrade completed	A camera or device firmware upgrade has been completed.
	Firmware upgrade failed	A camera or device firmware upgrade has failed.
	Obsolete firmware detected	A camera or device is detected to be running obsolete firmware. The system is unable to perform an automatic upgrade.
	User-defined event started	Customized third-party camera ONVIF event has started.
	User-defined event ended	Customized third-party camera ONVIF event has ended
User Events		
	User login	A user has logged in.
	User logout	A user has logged out.
	Server setting changed	A user has changed the server settings.
	Site setting changed	A user has changed the site settings.

Rule Events		Description
	Device setting changed	A user has changed the camera or device settings.
	Device connected	A user has connected a camera or device to a server.
	Device disconnected	A user has disconnected a camera or device from a server.
	Digital output triggered	A user has manually triggered a digital output.
	Bookmark added	A user has added a bookmark.
	Bookmark updated	A user has updated a bookmark.
	Bookmark deleted	A user has deleted a bookmark.
	PTZ moved	A user has moved a PTZ camera.
	PTZ idle	A user has left a PTZ camera idle.
	Export performed	A user has performed a video export.
	Speaker activated	A user is broadcasting audio through camera or device speakers.
	Speaker deactivated	A user has stopped broadcasting audio.
	Virtual matrix monitor opened	A user has opened a Virtual Matrix monitor in the View.
	Map added	A user has added a new map.
	Map updated	A user has updated a map.
	Map deleted	A user has deleted a map.
	View added	A user has added a saved View.
	View updated	A user has updated a saved View.
	View deleted	A user has deleted a saved View.
	Web Page added	A user has added a new web page.
	Web Page updated	A user has updated a web page.
	Web Page deleted	A user has deleted a web page.
	Site View updated	A user has updated the way cameras are organized in the System Explorer.
	Custom keyboard command triggered	A user has triggered a custom keyboard command.
Alarm Events		
	Alarm acknowledged	An alarm has been acknowledged.
	Alarm auto acknowledged	An alarm has been acknowledged automatically.
	Alarm triggered	An alarm has been triggered.
	Alarm assigned	An alarm has been assigned to a user.
	Alarm unassigned	An alarm has been unassigned from a user.

Rule Events		Description
	Alarm purged	An alarm has been purged.
POS Transaction Events		
	POS transaction started	A POS transaction has started.
	POS transaction ended	A POS transaction has ended.
	POS transaction exception	A POS transaction exception has occurred.
License Plate Recognition Events		
	License plate detection started	License plate detection has started.
	License plate detection ended	License plate detection has ended.
	License plate watchlist match	A license plate on the LPR Watch List has been detected.

### Rule Actions

Rule actions are the response to a rule event.

Rule Actions		Description
User Notification Actions		
	Display on-screen message	An on-screen message is displayed about the rule event.
	Send email	An email notification is sent about the rule event to the selected recipient(s).
	Send notification to Central Monitoring Station	An email notification is sent to the central monitoring station.
	Play a sound	A notification sound is played within the Client when the rule event occurs.
Monitoring Actions		
	Start live streaming	The linked live video stream is displayed when the rule event occurs.
	Create Bookmark	The recorded video of the rule event is bookmarked.
	Open a saved view	The selected saved View is automatically displayed.
Device Actions		
	Reboot camera	The camera or device reboots when the rule event occurs.
	Trigger digital output	A digital output is triggered when the rule event occurs.
PTZ Actions		
	Go to Preset	The selected PTZ camera moves to the selected preset position when the rule event occurs.

Rule Actions		Description
	Go to Home Preset	The selected PTZ camera moves to the home position when the rule event occurs.
	Run a Pattern	The selected PTZ camera runs a selected pattern when the rule event occurs.
	Set Auxiliary	The selected PTZ camera starts the selected auxiliary command when the rule event occurs.
	Clear Auxiliary	The selected PTZ camera ends the selected auxiliary command when the rule event occurs.

### Rule Conditions

Rule conditions are the scenarios that must be met before the rule is triggered.

Rule Condition		Description
Device Events		
	Digital input is active	The rule is triggered if the connected digital input is active while the selected rule event occurs.
	Digital input is not active	The rule is triggered if the connected digital input is inactive while the selected rule event occurs.

## Updating the ACC™ Client Software

Avigilon Control Center Client software updates are typically included with the Avigilon Control Center Server update packages. When you first open the Client software, you may be prompted to update with the following popup message:

*A new version of Avigilon Control Center Client is available for download from server %1%.*

Choose one of the following options:

- Click **Update** to allow the Client software to update. The software update is automatically downloaded and a dialog box displays the download progress.

When the update has finished downloading, click **Update Avigilon Control Center Client**. When the installation wizard appears, follow the prompts to complete the update.

- Click **Do Not Update** to continue working with the Client software without updating. The Client software will not be updated, and you can continue working with the software as before.

The Client software can also be downloaded from the Software Updates & Downloads page of the Avigilon website: [avigilon.com/support-and-downloads/](http://avigilon.com/support-and-downloads/).


## Reporting Bugs

If an error occurs in the ACC software, you can contact Avigilon Technical Support at [support@avigilon.com](mailto:support@avigilon.com) or +1.888.281.5182 option 1.



To help diagnose your problem, the Avigilon Technical Support team may ask you to provide a System Bug Report. The System Bug Report is a zip file generated by the Avigilon Control Center Client software that contains the system log and error reports for each of the servers that you can access.

To generate a System Bug Report:

1. Select  > **System Bug Report...**
2. When the Download System Bug Report dialog box appears, click **Download**.
3. In the Save As dialog box, name the file and click **Save**.
4. Once the System Bug Report has downloaded successfully, click **Close**.









## Keyboard Commands






Use any of the keyboard commands below to help you navigate the Avigilon Control Center Client software.

The Key Combination column shows the commands used on a standard keyboard, while the Keypad Combination column shows the commands used on an Avigilon USB Professional Joystick Keyboard.





**NOTE:** Some features are not displayed if the server does not have the required license, or if you do not have the required user permissions.






### Image Panel & Camera Commands

Command	Key Combination	Keypad Combination (Image Panel buttons)
Select an image panel  Image panel # is displayed after pressing the first key.	* + <image panel #> + Enter	 + <image panel #> + 
Add a camera to the View  The camera's <a href="#">logical ID</a> is required.	/ + <logical ID> + Enter	 + <logical ID> + 
Select the next image panel	Tab	
Select the previous image panel	Shift + Tab	
Clear image panel selection	* + 0 + Enter	 + 0 + 
Remove camera from the selected image panel	Backspace	
Maximize/Restore the selected image panel	Ctrl + E	

Command	Key Combination	Keypad Combination (Image Panel buttons)
Replay 30 seconds	Ctrl + ,	
Replay 60 seconds	Ctrl + .	
Replay 90 seconds	Ctrl + /	
Add a bookmark for selected camera <b>NOTE:</b> For recorded video only.	Ctrl + B	
Start/Stop manual recording for the selected camera	R	
Activate/Mute audio for the selected camera	A	
Broadcast audio	S Hold to speak. Release to stop broadcasting.	 Hold to speak. Release to stop broadcasting.
Take a snapshot of the selected image panel	F4	
Display linked POS transaction source/camera	Ctrl + I	
Enable digital output	K	
Trigger custom keyboard command	Ctrl + K	





















## View Tab Commands

Command	Key Combination	Keypad Combination (View buttons)
Select the next View	Ctrl + Tab	
Select the previous View	Ctrl + Shift + Tab	
Jump to View #_	Ctrl + 1 to 9	
Start/Stop cycle Views	Ctrl + Y	
Open a new View	Ctrl + T	
Close current View	Ctrl + W	
Open a new window	Ctrl + N	










Command	Key Combination	Keypad Combination (View buttons)
Switch current View to display live video	Ctrl + L	
Switch current View to display recorded video	Ctrl + P	
Remove all cameras from the current View	Ctrl + Backspace	
Full screen a View/End full screen	F11	
Open a saved View  The saved View's <a href="#">logical ID</a> is required.	Ctrl + G + <logical ID>	 + <logical ID> + 

## View Layout Commands




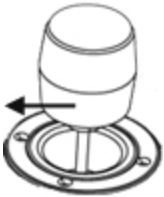
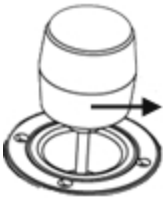

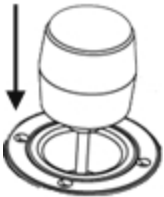


**NOTE:** Customized View layouts are linked to their position in the Layouts list. For example, if your custom layout is placed at the top of the Layouts list, you can use the keyboard command for layout 1 to select the custom layout.










Command	Key Combination	Keypad Combination (View buttons)
Change to layout 1	Alt + 1	 + 
Change to layout 2	Alt + 2	 + 
Change to layout 3	Alt + 3	 + 
Change to layout 4	Alt + 4	 + 
Change to layout 5	Alt + 5	 + 
Change to layout 6	Alt + 6	 + 
Change to layout 7	Alt + 7	 + 
Change to layout 8	Alt + 8	 + 
Change to layout 9	Alt + 9	 + 
Change to layout 10	Alt + 0	 + 
Change to next layout	Alt + ]	
Change to previous layout	Alt + [	

## Playback Commands

Command	Key Combination	Keypad Combination (Timeline buttons)
Play/Pause video playback	Spacebar	
Increase playback speed	Page Up	
Decrease playback speed	Page Down	
Step to next frame	Shift + →	
Step to previous frame	Shift + ←	
Go to next event	Alt + →	
Go to previous event	Alt + ←	
Go forward one second	Ctrl + →	
Go forward five seconds	Ctrl + Shift + →	
Go backward one second	Ctrl + ←	
Go backward five seconds	Ctrl + Shift + ←	
Zoom in on the Timeline	Ctrl + Alt + +	
Zoom out on the Timeline	Ctrl + Alt + -	
Scroll forward on the Timeline	Ctrl + Alt + →	
Scroll backward on the Timeline	Ctrl + Alt + ←	
Move the Timeline marker forward		
Move the Timeline marker backward		
Go to the start of the Timeline	Ctrl + Alt + Home	
Go to the end of the Timeline	Ctrl + Alt + End	
Center the Timeline on the time marker	Ctrl + C	

## PTZ Commands (Digital and Mechanical)

Command	Key Combination	Keypad Combination (PTZ buttons)
Toggle PTZ controls	Ctrl + D	
Zoom in	+	
Zoom out	-	
Pan left	←	
Pan right	→	
Tilt up	↑	
Tilt down	↓	
Open iris	Home	
Close iris	End	

Command	Key Combination	Keypad Combination (PTZ buttons)
Focus near	Insert	
Focus far	Delete	
PTZ menu left	←	
PTZ menu right	→	
PTZ menu up	↑	
PTZ menu down	↓	
Activate preset	Q + <Preset #>	 + <Preset #> + 
Run pattern		 + <Pattern #> + 
Start auxiliary	W + <Aux #>	 + <Aux #> + 
Stop auxiliary	E + <Aux #>	 + <Aux #> + 