



**VideoXpert Toolbox  
v 3.3 Operations Manual**



VideoXpert<sup>TM</sup>

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## Performing Initial VideoXpert Server Configuration Using VxToolbox

VideoXpert Enterprise and VideoXpert Professional each come with a time-limited trial license. During this trial, you have access to all VideoXpert features, and you can ignore the **Licensing** tab within VideoXpert.

To use VideoXpert beyond the trial, you must apply a license to the server. Licensing requires either an Internet connection on the VideoXpert server itself, or access to a separate computer with Internet access.

1. After installing VideoXpert, click *Configure* or run VxToolbox for the first time on your system.
2. For VideoXpert Professional systems, in the *VideoXpert Basic System Setup* dialog box, type values in the *Company Name* and *Name Your System* fields, and then click **Save**.
3. For VideoXpert Professional system only, perform steps in the section titled [Configuring General Settings](#).
4. Perform the steps in the section titled [Adding Systems](#).
5. For VideoXpert Professional systems, set the VxToolbox password:
  - a. Click the menu icon (☰), and then click **Set VxToolbox Password**.
  - b. Type a value in the *Password* and *Reset Password* fields.
  - c. Click **Save**.
6. For VideoXpert Enterprise systems:
  - a. Set the password for the *admin* user on your system.

The screenshot shows a dialog box titled "Add a new VX System". It contains the following fields and options:

- Server Address: 127.0.0.1
- Server Port: 443
- Admin Username: admin
- Password: (empty field)
- Check SSL/TLS Certificate when connecting to this server and prompt me if the connection is insecure.
- Buttons: Cancel, Add

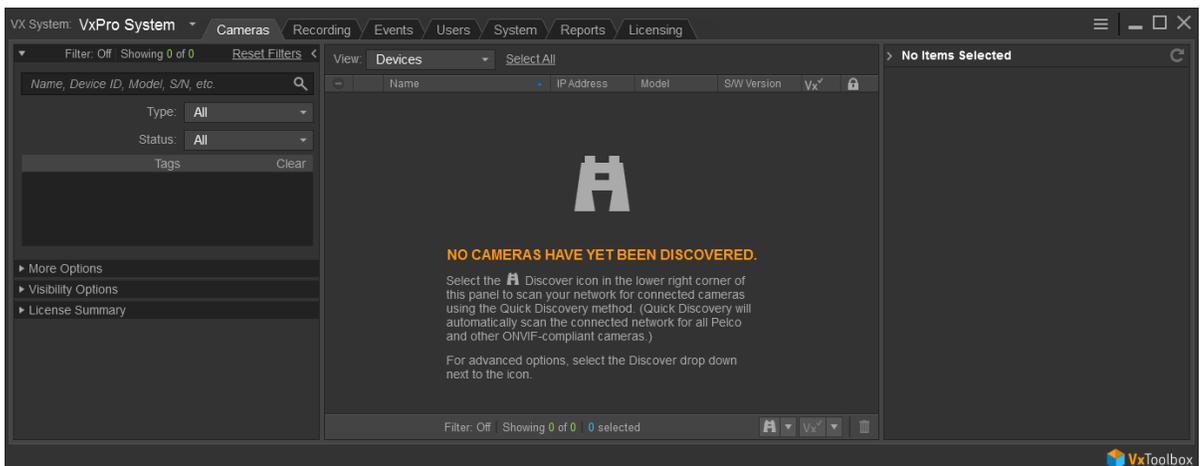
 Note: The default user name is *admin*. You must set a new password.

- b. (Optional) Click to select the checkbox to ensure that the system checks the SSL/TLS Certificate when connecting to the server.  
Enable this feature if your organization uses signed HTTPS certificates and the certificate has already been loaded using VxToolBox.

- c. Click **Add**.
- d. In the *VxToolbox Password Confirmation Window*, click **Set Password** (recommended) or **No Thanks**.
- e. If you clicked **Set Password**, in the *Set VxToolbox Password* dialog box, enter a password in the *Password* and *Retype Password* fields, and then click **Save**.



- f. In the *Configure VxToolbox* dialog box, click **OK**.
- g. If you enabled SSL/TLS Certificate checking, you might be required to interact with more dialog boxes. If so, follow the prompts.
- h. In the *Configuration Required* dialog box, enter a *Company Name*. This is the name by which the Pelco licensing portal will recognize your VX server. The name cannot be changed later.
- i. Click **Save & Continue**.  
The VxToolbox application opens.



## Logging Out

1. Click the menu icon () and then click **Exit**.
2. In the *Exit* confirmation dialog box, click **Exit**.

## Changing the VxToolbox Password

When starting VxToolbox, the application requests credentials. These credentials are local to the workstation and your VxToolbox installation; they do not log you in to any system or camera. Rather, your VxToolbox credentials protect your settings and the credentials for the individual cameras and systems you want to access from other users on the same workstation.

After logging in to VxToolbox, you can add systems with independent credentials, and pass credentials to cameras requiring them (closed authentication or third-party cameras).

Because your local VxToolbox environment may connect you to multiple systems and cameras, it is recommended that you protect your credentials and log out when you have finished using the application.

To change your VxToolbox password:

1. Click the menu icon () , and then select **Change VxToolbox Password**.
2. In the *Account Settings* dialog box, enter a new password, and then click **Save Changes**.

## Licensing Your System

VideoXpert is licensed for the system, for upgrades, and by channel--the video streams you view and record. It comes with one (1) license to start. A Lite license (VideoXpert Professional only) has four (4) channels, and a Demo license has unlimited channels. These are active only the first time you install the software, or if the software was pre-installed, the first time you start up the system. You must license additional channels to view or record additional streams.

You can license the system automatically or manually.

- Manual licensing allows you to license a system that does not have an Internet connection. See the section titled [Manually Activating Licenses](#)
- Automatic licensing requires your VideoXpert system to be connected to the Internet and have access to the Pelco licensing server. See the section titled [Automatically Activating Licenses](#).

If one or more licenses associated with the VideoXpert system are nearing or past the expiration date and require renewal, a warning dialog box will open. The dialog box lists the affected license(s) and the expiration date.



NOTE: You can also view your current licenses at any time. See section titled [Viewing the License Summary](#).

For assistance, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international).

## Viewing the License Summary

Entitlements are associated with licenses. A license might be a consolidation of several entitlements. To view licenses:

1. Open VxToolbox and click the **Licensing** tab.
2. In the *License Summary* table (bottom panel), view the list of licenses. For each license:
  - The license **Name** is listed. Unactivated **Entitlements** are listed as one license with the name **Pending**. The names in the *License Summary* table correspond to the names in the *Entitlements* table.
  - The **Total** column lists how many licenses and channels (sources) are included.
  - The **In Use** column identifies how many of the licenses and channels are in use.
  - The **Remaining** column identifies how many of the licenses and channels are not currently in use.

If one or more licenses are nearing expiration, three warning icons appear in the *Licensing Summary* area of the *Licensing* page:

- On the right of the **Licensing** tab, itself
- In the left panel, to the left of the license **Name**
- In the top of the *Details* (right) panel

Hover over any of these warning icons to display (the same) relevant information.

Click **Details** to instruct the system to use existing information to build an estimated price quote. If the necessary system variables cannot be retrieved, a default message is displayed instead of a quote.

For assistance, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international).

## Adding and Renewing Licenses

When you are notified that one or more licenses are expiring or have expired, when you see the warnings in the *License Summary* area of the *Licensing* page, purchase a Software Update Plan (SUP).

- SUPs are purchased in units of "channel-years".
- One channel-year represents the use of one (1) licensed channel for one (1) year.
- Channel-years are usually purchased in such a way as to allow each channel on the system to be licensed for a period of several years.  
For example: a system with 40 channels will need to purchase 80 channel-years to extend the SUP by two (2) years.
- Adding channels to or removing channels from the system adjusts the expiration date of the licenses to reflect how long it will take the connected channels to use the remaining channel-years.
- If your licenses expired before you renew them, part of your SUP is used to backfill the period of time when the previous SUP/licenses had lapsed.

When licenses expire, all associated features are disabled until new licenses are installed or until the existing licenses are renewed. If the SUP has expired, you cannot upgrade the system until the SUP is purchased or renewed.

For assistance, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international).

## Manually Activating Licenses

For manual licensing, you must have your activation ID and a separate computer with access to the licensing server at <http://licensing.pelco.com>. During the manual licensing process, you will need to transfer your Licensing Request File to a computer with Internet access during the activation process. If you received multiple activation IDs for VideoXpert products, you must complete the process below for each individual activation ID.

As a part of this process, you will download an Entitlement Request File and a Entitlement File; both files are specific to the product for which they were requested. It is recommended that you rename both files to reflect the system for which they are intended to prevent confusion during the licensing process.

1. Open VxToolbox and click the **Licensing** tab.
2. At the lower right corner of the *Entitlements* table (top panel), click the *Add License* icon (+).
3. Enter your activation ID in the *Activation ID* box.
4. If necessary, click to deselect the checkbox to *Automatically activate online*.
5. You will be prompted to save an activation request .bin file. Select a folder (optional) type in a file name, and then click **Save**.  
An Entitlement Request File (named either what you typed in or the same name as the *Activation ID*) with a .bin extension is downloaded to your computer.
6. Click **Enter**.
  - The *Entitlement Pending* status message appears at the top of the *Entitlements* table.
  - An entitlement named *Pending* will be listed in the table. At the far right of the *Pending* entitlement row will be two icons: *Download a new request (.bin) file* (📄) and *Remove this activation ID* (✕).

7. On a system connected to the Internet, open a new browser window or tab and go to the Pelco licensing server at <http://licensing.pelco.com>.
8. Under *Login*, click to select logging in **With User Name, With Entitlement ID**, or **With Activation ID**. You can also register as a **New User**.
9. Enter your credentials, and then click **Login** to access the Pelco licensing server.
10. Click the **Manage Devices** tab, and then click **Generate License**. The Entitlement File, named *response.bin*, will be downloaded to your computer. Copy the file and save it to the system on which you are hosting VxToolbox.
11. Return to the *Licensing* page within VxToolbox.
12. Click **Choose file** under the *Entitlements* section.
13. Select your Entitlement File (*response.bin*), and then click **Open**.
14. Click **Import License File**.

When the process is complete, VxToolbox will display the installed license(s) in the *Entitlements* table.

### Automatically Activating Licenses

If your system has an active Internet connection with access to to <http://licensing.pelco.com>, you can automatically activate licenses for your system.

1. Open VxToolbox and click the **Licensing** tab.
2. At the lower right corner of the *Entitlements* table (top panel), click the *Add License* icon (+).
3. Enter your activation ID in the *Activation ID* box.
4. If necessary, click to select the checkbox to *Automatically activate online*.
5. Click **Enter**.  
The system logs in to the Pelco licensing server and performs several tasks. Do not navigate away from this page until you see the *Add License* dialog box.
6. Click **OK**.

VxToolbox will display the installed license(s) in the *Entitlements* table.

### Installing Entitlements After Restoring Your System

It is highly recommended that you back up your system and save the response file used to apply your initial entitlement.

- If restoring your system after uninstalling VideoXpert, you can re-apply your initial entitlement or license.
- If you re-image your system, you cannot apply your previous entitlement. If you have re-imaged your system, contact Pelco Product Support at 1-800-289-9100 (USA and Canada) or +1-559-292-1981 (international) for assistance.

## Managing the System

For VideoXpert Enterprise, you must perform certain administrative actions from VxPortal; but for VideoXpert Professional, you can perform all administrative actions from VxToolbox. For all VideoXpert Systems, VxToolbox provides a single interface from which to manage and configure both cameras and your VideoXpert Systems. From VxToolbox, you can manage any system that you can access by IP address.

Selecting a system (by name) from the *VX System* menu allows you to configure that system; the settings you see are relevant to the system, and any discovery operations you perform are issued directly from that system.

Use the *VX System* menu to switch between various VideoXpert systems.

## Adding Systems

VxToolbox allows you to administer systems remotely. To add a system to VxToolbox, you must have network access to the system and your user account must be assigned the administrative role.

1. Access the Add a new VX system dialog box by one of these methods:
  - Click the menu icon () at the upper right corner of the window, click **Manage VX System Connections**, and then click the *Add a new VX System* icon () .
  - At the upper left corner of the window, use the *VX System* drop-down menu to select *Add a VX system*.
2. Enter an IP address in the *Server Address* field.
3. Enter a value in the *Server Port* field, or use the default port.
4. Enter the *Admin Username* and *Password* for the system you are adding.
5. If an SSL/TLS certificate has been uploaded and configured, click to select the checkbox for *Check SSL/TLS Certificate...* to validate the certificate.
6. Click **Add**.
7. Click the  at the top left of the *Manage VX System Connections* window to close it.

## Editing the System Validation

You can change whether the SSL/TLS certificate is validated when connecting to a system from VxToolbox. Editing a system only affects your settings within your local VxToolbox installation.

1. Click the menu icon () at the upper right corner of the window, and then click **Manage Vx System Connections**.
2. Select the system you want to edit.
3. In the right panel of the *Manage Vx System Connections* window, view the system connection information.
4. Click the *Edit VX System* icon () to edit system settings.
  - a. Enter the *Admin Username*.
  - b. Enter the *Password*.

- c. Click to select or deselect the checkbox for *Check SSL/TLS Certificate...*

**Edit VX System**

Server Address: 10.10.10.10

Server Port: 443

Admin Username: admin

Password: .....

Check SSL/TLS Certificate when connecting to this server and prompt me if the connection is insecure.

Cancel Save

5. Click **Save**.
6. In the *Update* dialog box, click **OK**.
7. Click the at the top left of the *Manage VX System Connections* window to close it.

## Removing a System

You can remove a system from VxToolbox. It can be re-added at any time.

1. Click the menu icon () at the upper right corner of the window, and then click **Manage Vx System Connections**.
2. Select the system you want to remove.
3. Click the *Delete* icon () to remove the system.
4. In the *Delete System* dialog box, click **OK** to confirm the deletion.
5. Click the at the top left of the *Manage VX System Connections* window to close it.

## Discovering Devices

VxToolbox can search the local network or the network belonging to any particular VideoXpert system for devices, or you can add devices manually to the VxToolbox list. Through VxToolbox, you can manage device settings for all the devices on the network, without having to go to individual device interfaces.

VxToolbox can discover Pelco cameras or third-party cameras supporting ONVIF.



Note: You must be connected to a VideoXpert system to add devices to the system.

### Finding Devices (Quick Discovery)

Use Quick Discovery to discover devices, but not add them. If you use Quick Discovery, you must add devices manually. Alternatively, use the *Quick Discovery and Add* option described in the section titled Finding and Adding Devices (Quick Discovery and Add). To use Quick Discovery, click **Devices**, and then do one of the following:

- Click the *Quick Discovery* icon (🔍) to perform a quick search for devices.
- Click the *Advanced Discovery Options* icon (⌵) to the right of the *Quick Discovery* icon, and then click **Quick Discovery**.

### Finding and Adding Devices (Quick Discovery and Add)

1. Click **Devices**, and then click the *Advanced Discovery Options* icon (⌵) to the right of the *Quick Discovery* icon.
2. Click **Quick Discovery and Add**.  
All Devices and Data Sources that are discovered by VxToolbox are added to the VX System to which you are connected.
3. If the *Recorder Assignment* dialog box opens, assign the third-party devices to a recorder.
  - a. Select an option from the *Select Recorder* drop-down menu.
  - b. Click **Add**.
  - c. If the devices cannot be added to the VX System, the *Operation Failure* dialog box opens. Make a note of the information in the box, click **OK**, and then try to add the devices to a different recorder. If necessary, contact Pelco Customer Support.

### Finding Devices (Advanced Discovery)

Using Advanced Discovery, you can search for devices by protocol type or you can add individual devices by IP address. You may want to add devices that do not support ONVIF or Pelco discovery methods using the IP address.

1. Click **Devices**, and then click the *Advanced Discovery Options* icon (⌵) to the right of the *Quick Discovery* icon.
2. Click **Advanced Discovery**.
3. To use Quick Discovery, but specify using either SSDP (Simple Service Discovery Protocol) or WS-Discovery (Web Services Dynamic Discovery):

- a. From the *Discovery Method* drop-down menu, select *Quick Discovery*.
  - b. Click to select or deselect the checkbox for *SSDP*.
  - c. Click to select or deselect the checkbox for *WS-Discovery*.
  - d. (Optional) Click to select the checkbox for *Add discovered devices to the VX system*.
4. If you want to discover devices by IP address or hostname:
- a. From the *Discovery Method* drop-down menu, select *Discover by IP or Hostname*.
  - b. Enter a value in the *Host* field.
  - c. (Optional) Enter a value in the *Port* field.
  - d. (Optional) Type values in the *Username* and *Password* fields.
  - e. (Optional) Click **Add Host Address**, and repeat the previous three steps.
  - f. (Optional) Click to select the checkbox for *Add discovered devices to the VX system*.
5. Click **Discover**.



Note: While this feature adds devices to the system, it does not commission them. To commission the devices, add them, then select them, right-click a device that is selected, and then click **Commission**.

## Adding an RTSP Device

To add a device that uses RTSP:

1. Click **Devices**, and then click the *Advanced Discovery Options* icon (▼) to the right of the *Quick Discovery* icon.
2. Click **Add RTSP Device**.
3. Type a value in the *Device Name* field.
4. (Optional) Click to select the checkbox for *Set Credentials*, and then enter values in the *Username* and *Password* fields.
5. Enter a value in the *URI* field.
6. (Optional) Click **Add Another URI to this Device**, and then enter a value in the *URI* field.
7. When you have added all URIs, click **Create**.

## Recognizing Device Credentials

Some devices require credentials for you to access their video or change their settings. The Authentication status column provides the status of each device, using the following icons:

Icon	Description
	Device requires authentication.
	Device does not require authentication.
	VxToolbox has authenticated to this device.
	This device is authenticated in VxToolbox, but not on the system with which it is associated. Click the icon to attempt to authenticate the device with the system.
	This device is authenticated on a particular system with which it is associated, but not in VxToolbox. You must first authenticate to view and/or edit the device.

## Adding Credentials to a Device

To add credentials to a device:

Click **Devices**.

1. Select the device requiring credentials.
2. Enter credentials in the appropriate fields, and then click **Submit**.

## Managing Devices on a System

You must add a device to VideoXpert to make it visible within the system and to manipulate device settings. VxToolbox enables you to add a device or change device settings.

You must commission a device to view its video or to use its video or resources within VideoXpert. VideoXpert typically commissions devices automatically when you add them to the system. In many cases, commissioning a device requires a license; the type of license required depends on the type of device you are commissioning.

Add or commission operations are available from the **Devices** tab for the selected system. Commissioning information is shown in the Added/Commissioned (Vx<sup>✓</sup>) column; you can expose this column by selecting *Added/Commissioned* from *Show Data Columns* in the filtering panel.

Symbols in the *Added/Commissioned* column are:

Icon	Status
	Not added; not commissioned
	Added; not commissioned
	Added; commissioned

## Adding and Commissioning Devices

VxToolbox will only provide adding and commissioning options applicable to the camera(s) you have selected. Add and Commission operations are relevant to the system you have selected from the *VX System* menu.

1. In the center panel of the *Devices* tab, select the devices you want to add and commission.
2. Perform one of the following steps:
  - Right-click the device, and then select **Add and Commission to [VX System name]**.
  - Click to select the device, and then click the *Add, Commission, and Assign Cameras to a recorder* icon () at the lower right of the center panel.
  - Click to select the device, click the *Addition, Commission and Assignment options* icon () and then click **Add and Commission to [VX System name]**.
3. If the *Authentication Notice* dialog box opens, follow the instructions in the dialog box.
4. If the *Recorder Assignment* dialog box opens, select a recorder from the drop-down menu, and then click **Add**.

The icon for the device changes from *Not added; not commissioned* () to *Added; commissioned* ()

## Adding Devices Without Commissioning

The Add operation is relevant to the system you have selected from the *VX System* menu.

1. In the center panel of the *Devices* tab, select the devices you want to add.
2. Perform one of the following steps:
  - Right-click the devices, and then select **Add to [VX System name]**.
  - Click the *Addition, Commission and Assignment options* icon () , and then click **Add to [VX System name]**.
3. If the *Recorder Assignment* dialog box opens, select a recorder from the drop-down menu, and then click **Add**.

The icons for the devices change from *Not added; not commissioned* () to *Added; not commissioned* () .

## Commissioning Devices that were Added Previously

VxToolbox will only provide commissioning options applicable to the camera(s) you have selected, and which were already added. Commission operations are relevant to the system you have selected from the *VX System* menu.

1. In the center panel of the *Devices* tab, select the devices you want to commission.
2. Perform one of the following steps:
  - Right-click the devices, and then select **Commission**.
  - Click the *Addition, Commission and Assignment options* icon () , and then click **Commission**.

The icons for the devices change from *Added; not commissioned* () to *Added; commissioned* () .

## Decommissioning Devices

VxToolbox can decommission the camera(s) you have selected, on system you have selected from the *VX System* menu.

1. In the center panel of the *Devices* tab, select the devices you want to decommission.
2. Perform one of the following steps:
  - Right-click the devices, and then select **Decommission**.
  - Click the *Addition, Commission and Assignment options* icon () , and then click **Decommission**.

The icons for the devices change from *Added; commissioned* () to *Added; not commissioned* () .

## Removing Devices

After a device is discovered, it will persist in the system's device registry until it is removed, even if the device no longer exists on the network.

Removing a device will prevent you from retrieving any associated recordings through VideoXpert Storage. To preserve access to recordings on VideoXpert Storage devices, decommission the devices until video for the device has expired or you are sure you will no longer need to access recordings for the device, then remove the device.

From VxToolbox, you can remove the device(s) you have selected, on the system you selected from the *VX System* menu.

1. In the center panel of the *Devices* tab, select the devices you want to remove.
2. Perform one of the following steps:
  - Right-click the devices, and then select **Remove**.
  - Right-click the devices, and then click the *Remove cameras from the list and/or VX System* icon () at the bottom right of the center panel.
  - Right-click the devices, click the *Addition, Commission and Assignment options* icon () and then click **Remove**.
3. In the *Remove Device(s)* confirmation dialog box, click **OK**.  
The devices are removed from the list. They can be discovered again at any time.

### Viewing Devices, Data Sources, or Alarms & Relays

The audio and video sources produced by a device (for example, a camera) are referred to as **data sources**.

A device can have more than one data source. For example, a multi-channel encoder may have multiple cameras connected to it, each with its own data source; a camera may have a microphone, producing audio and video data sources.

A device can have one or more alarms and relays, depending on the device. For example: an encoder typically has one alarm and one relay per device channel; a camera might have only one alarm and one relay for the device. Alarms are configured and relays are enabled on the *Devices* page.

- To view all devices on the system, in the *View* field drop-down menu, at the top of the center panel, select **Devices**.
- If a device and its data sources are distinguishable, you can see the individual data sources, alarms, and relays. To see the data sources, alarms, and relays that are associated with a specific device:
  - a. In the *View* field drop-down menu, select **Devices**.
  - b. Click to select a device (camera).
  - c. Click the expand icon () to the left of the device.  
Data sources, alarms (if any) and relays, (if enabled) are listed directly below the device.
- To view all data sources on the system, in the *View* field drop-down menu, at the top of the center panel, select **Data sources**.
- To view the list of alarms and relays on the system, in the *View* field drop-down menu, at the top of the center panel, select **Alarms & Relays**.

You can determine the status of an alarm or relay by the icons in the *State* column.

Icon	State
	Alarm is active
	Alarm is inactive
	Relay is active
	Relay is inactive

You can determine whether an alarm or relay is enabled or disabled by the icons in the *Enabled* column.

Icon	Enabled
	Yes
	No

### Finding and Filtering Existing Sources

Use filtering options to show the devices and data sources relevant to you within the system or environment you have selected. Filters appear in the left-most panel of the *Devices* tab and in some other tabs.

- Click to expand, and then enter values in, the *Filters Devices* field to filter by criteria including the device name, ID, model, IP address, serial number, vendor, or software version.
- Click to expand, and then click to select and deselect checkboxes in, the *Filter by Type* area.
- Click to expand, and then click to select and deselect checkboxes in, the *Filter by Status* area.
- Click in the *Filter by Tags* field, and type in or select a tag for which to filter. Tags are set in VxOpsCenter. Refer to the *VxOpsCenter User Guide* for more information.
- Click **Reset Filters** to clear the filters.

### Controlling the Columns Displayed in the Devices Window

On the *Devices* page, in the left panel, below the filter areas, click to select and deselect checkboxes in the *Show Data Columns* area.

### Viewing the License Summary

On the *Devices* page, in the left panel, below *Show Data Columns*, click to expand **License Summary**. View the system license information.

## Configuring the Rules Engine

The *Rules* tab allows you to configure events generated by a source to trigger a response. Rules can have one or more triggers, zero or more schedules, and one or more responses. There can be multiple rules on the system.

### Managing Rules

Use VxToolbox to create, duplicate, edit, or delete rules in the rules engine.

#### Creating a Rule

1. Click the **Rules** tab.
2. In the left panel, click the *Create a new Rule* icon . The *Edit Mode* (right) panel is activated.
3. Enter a value in the *Name of Rule* field.
4. Click to select the radio button for *Active* or *Inactive*.
5. Add one or more triggers for the rule. See the section titled [Adding a Trigger](#).
6. (Optional) Add one or more schedules to the rule. See the section titled [Adding a Schedule](#).
7. Add one or more responses to the rule. See the section titled [Adding a Response](#).
8. When you have finished configuring triggers, schedules, and responses, click **Save**.

#### Duplicating a Rule

To use an existing rule as a starting point to create a new rule:

1. Click the **Rules** tab.
2. (Optional) In the left panel, enter a value in the *Search Rules* field to filter the rules.
3. Click to select the rule to duplicate.
4. Click the *Duplicate the selected Rule* icon . The *Edit Mode* (right) panel is activated.
5. Enter a value in the *Name of Rule* field.
6. Click to select the radio button for *Active* or *Inactive*.
7. (Optional) Add, duplicate, edit, or delete one or more triggers for the rule. See the sections titled [Adding a Trigger](#), [Duplicating a Trigger](#), [Editing a Trigger](#), and [Deleting a Trigger](#).
8. (Optional) Add, create a copy of, edit, or delete one or more schedules for the rule. See the sections titled [Adding a Schedule](#), [Creating a Copy of a Schedule](#), [Editing a Schedule](#), and [Deleting a Schedule](#).
9. (Optional) Add, duplicate, edit, or delete one or more responses for the rule. See the sections titled [Adding a Response](#), [Duplicating a Response](#), [Editing a Response](#), or [Deleting a Response](#).
10. When you have finished configuring triggers, schedules, and responses, click **Save**.

#### Editing an Existing Rule

1. Click the **Rules** tab.
2. (Optional) In the left panel, enter a value in the *Search Rules* field to filter the rules.
3. Click to select the rule to edit.
4. Click the *Edit the selected Rule* icon . The *Edit Mode* (right) panel is activated.

5. Click to select the radio button for *Active* or *Inactive*.
6. (Optional) Add, duplicate, edit, or delete one or more triggers for the rule. See the sections titled [Adding a Trigger](#), [Duplicating a Trigger](#), [Editing an Existing Trigger](#), and [Deleting a Trigger](#).
7. (Optional) Add, create a copy of, edit, or delete one or more schedules for the rule. See the sections titled [Adding a Schedule](#), [Creating a Copy of an Existing Schedule](#), [Editing an Existing Schedule](#), and [Deleting a Schedule](#).
8. (Optional) Add, duplicate, edit, or delete one or more responses for the rule. See the sections titled [Adding a Response](#), [Duplicating an Existing Response](#), [Editing an Existing Response](#), or [Deleting a Response](#).
9. When you have finished editing triggers, schedules, and responses, click **Save**.

### Deleting a Rule

1. Click the **Rules** tab.
2. In the left panel (list of rules), click the rule to delete.
3. Click the *Delete the selected Rule* icon (.
4. In the confirmation dialog box, click **Delete**.

### Managing Triggers

Add, duplicate, edit, or delete triggers from a rule to control the type of events that will trigger one or more responses.

#### Adding a Trigger

To add an entirely new trigger to a rule:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. In the *Triggers* panel, click the *Add New Rule Trigger* icon (.
5. (Optional) In the *Select an Event to trigger this Rule* dialog box, narrow the list of events. To do so, you can select a category from the *Show* drop-down menu; you can also type a value in the *Search* field.
6. In the *Select an Event to trigger this Rule* dialog box, click to select an event.
7. In the *Select Event Sources to limit this Trigger for Rule* dialog box, click to select the appropriate radio button. The options vary depending on the trigger you have chosen. If you are prompted to do so, make any other necessary selections, and then click **Save**.
8. When you have finished configuring the rule, click **Save**.

#### Duplicating a Trigger

To use an existing trigger as a starting point to create a new trigger:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. In the *Triggers* panel, click to select a trigger to duplicate.

5. Click the *Duplicate Rule Trigger* icon (🔍).
6. (Optional) Edit the *When this event* settings, associated with the duplicate trigger:
  - a. In the *When this event* column, click the edit icon (✎) in the appropriate trigger.
  - b. (Optional) In the *Select an Event to trigger this Rule* dialog box, narrow the list of events. To do so, you can select a category from the *Show* drop-down menu; you can also type a value in the *Search* field.
  - c. Click to select the event.
  - d. Click **Save**.
7. (Optional) Edit the *is generated by* settings, associated with the duplicate trigger:
  - a. In the *is generated by* column, click the edit icon (✎) in the appropriate trigger.
  - b. In the *Select Event Sources to limit this Trigger for Rule* dialog box, click to select the appropriate radio button. The options vary depending on the trigger you have chosen. If you are prompted to do so, make any other necessary selections, and then click **Save**.
8. When you have finished configuring the rule, click **Save**.

### Editing a Trigger

To use an existing trigger as a starting point to create a new trigger:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (✎). The *Edit Mode* (right) panel is activated.
4. In the *Triggers* panel, click the trigger to edit.
5. (Optional) Edit the *When this event* settings, associated with the duplicate trigger:
  - a. In the *When this event* column, click the edit icon (✎) in the appropriate trigger.
  - b. (Optional) In the *Select an Event to trigger this Rule* dialog box, narrow the list of events. To do so, you can select a category from the *Show* drop-down menu; you can also type a value in the *Search* field.
  - c. Click to select the event.
  - d. Click **Save**.
6. (Optional) Edit the *is generated by* settings, associated with the duplicate trigger:
  - a. In the *is generated by* column, click the edit icon (✎) in the appropriate trigger.
  - b. In the *Select Event Sources to limit this Trigger for Rule* dialog box, click to select the appropriate radio button. The options vary depending on the trigger you have chosen. If you are prompted to do so, make any other necessary selections, and then click **Save**.
7. When you have finished configuring the rule, click **Save**.

## Deleting a Trigger

If a trigger is no longer needed, delete it.

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. In the *Edit Mode* panel, click to select the trigger to delete.
5. Do one of the following:
  - Click the  at the left of the trigger entry.
  - Click the delete icon ().
6. When you have finished configuring the rule, click **Save**.

## Managing Schedules

You can set one or more schedules to limit the times during which an event triggers a response; or you can leave the *Schedules* panel unpopulated to allow the trigger/response combination at all times.

### Adding a Schedule

To create an entirely new schedule:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. At the bottom of the *Schedules* panel, click the *Edit Rule Schedules* icon ().
5. Click to select the *Add a new schedule* icon ().
6. In the *Create Schedule* dialog box, enter a value in the *Display Name* field.
7. Click to select the radio button for the increments.
8. (Optional) Click to select the checkbox for *24-Hr. Time*.
9. Click and drag in the calendar to select the times.
10. (Optional) Click to select the checkbox for *Within limited date range*, if you selected *Within limited date range*, you must also select the *Start on* and *End after* values.
11. Click **Add**.
12. In the *Select Schedules for Rule* dialog box, click to select the checkbox for the schedule to apply to the rule.
13. When you have finished configuring schedules, click **Save Changes**.
14. When you have finished configuring the rule, click **Save**.
15. (Optional) To quickly view the scheduled times, click to select the schedule, and then click the *View selected Rule Schedule* icon (). Click outside the calendar to close it.

## Creating a Copy of a Schedule

To use an existing schedule as a starting point to create a new schedule:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. Click the *Edit the selected Schedule* icon ().
5. Click to select (highlight) the schedule to copy.
6. Click the *Create a copy of the selected Schedule* icon ().
7. In the *Duplicate Schedule* dialog box, enter a new value in the *Display Name* field. If you do not enter a new value, the schedule will be saved as *[Original name] - Copy*.
8. Click to select the radio button for the increments.
9. Click to select or deselect the checkbox for *24-Hour Time*.
10. Click and drag in the calendar to select the times.
11. Click to select or deselect the checkbox for *Within limited date range*, if you select *Within limited date range*, you must also select the *Start on* and *End after* values.
12. Click **Add**.
13. When you have finished configuring schedules, click **Save Changes**.
14. When you have finished configuring the rule, click **Save**.
15. (Optional) To quickly view the scheduled times, click to select the schedule, and then click the *View selected Rule Schedule* icon (). Click outside the calendar to close it.

## Editing a Schedule

To edit an existing schedule:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. Click to select (highlight) the schedule to edit.
5. Click the *Edit Rule Schedules* icon ().
6. In the *Select Schedules for Rule* window, click to highlight the schedule to edit.
7. Click the *Edit the selected Schedule* icon ().
8. (Optional) In the *Edit the Schedule* dialog box, enter a new value in the *Display Name* field. If you do not enter a new value, the schedule will be saved with the original name.
9. Click to select the radio button for the increments.
10. Click to select or deselect the checkbox for *24-Hour Time*.
11. Click or click and drag in the calendar to select the times.
12. Click to select or deselect the checkbox for *Within limited date range*, if you select *Within limited date range*, you must also select the *Start on* and *End after* values.
13. Click **Save**.
14. When you have finished configuring schedules, click **Save Changes**.

15. When you have finished configuring the rule, click **Save**.
16. (Optional) To quickly view the scheduled times, click to select the schedule, and then click the *View selected Rule Schedule* icon (). Click outside the calendar to close it.

### Deleting a Schedule

1. Click to select the **Rules** tab.
2. Click to select the rule to delete.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. Click the *Edit the selected Schedule* icon ().
5. In the *Edit the Schedule* dialog box, click to select the schedule to delete.
6. Click the *Delete Schedule* icon ().
7. In the *Delete Schedule* confirmation dialog box, click **Delete Schedule**.
8. When you have finished configuring schedules, click **Save Changes**.
9. When you have finished configuring the rule, click **Save**.
10. (Optional) To quickly view the scheduled times, click to select the schedule, and then click the *View selected Rule Schedule* icon (). Click outside the calendar to close it.

### Managing Responses

Set one or more responses to the events in the rule.

#### Adding a Response

To add an entirely new response for a trigger:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (). The *Edit Mode* (right) panel is activated.
4. In the *Responses* panel, click the edit icon () to the right of *then this will happen*. The *Edit the Responses triggered by Rule* dialog box opens.
5. Click the *Add a new Response* icon ().
6. Click to select an option from the *Response Category* drop-down menu.
7. Select the appropriate options requested in the dialog box. These will vary depending on the *Response Category* that you chose in the previous step.
8. (Optional) If you selected a response type that is not Custom Script, you can change it to a custom script. To do so, click **Convert to Custom Script**, and then click **Convert** in the confirmation dialog box. The name of the response is changed to *Custom Script*, and the code is displayed.
9. When you have finished configuring responses, click **Save**.
10. When you have finished configuring the rule, click **Save**.

## Duplicating an Existing Response

To use an existing response as a starting point to create a new response:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (🔍). The *Edit Mode* (right) panel is activated.
4. In the *Responses* panel, click the edit icon (🔍) to the right of *then this will happen*. The *Edit the Responses triggered by Rule* dialog box opens.
5. Click to select the response to duplicate.
6. Click the *Duplicate the selected Response* icon (🔍).
7. With the duplicate highlighted, select the appropriate options requested in the dialog box. These will vary depending on the *Response Category* of the response you duplicated.
8. (Optional) If you selected a response type that is not Custom Script, you can change it to a custom script. To do so, click **Convert to Custom Script**, and then click **Convert** in the confirmation dialog box. The name of the response is changed to *Custom Script*, and the code is displayed.
9. When you have finished configuring responses, click **Save**.
10. When you have finished configuring the rule, click **Save**.

## Editing a Response

To edit an existing response:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (🔍). The *Edit Mode* (right) panel is activated.
4. In the *Responses* panel, click the edit icon (🔍) to the right of *then this will happen*. The *Edit the Responses triggered by Rule* dialog box opens.
5. Click to select the response to edit.
6. Select the appropriate options requested in the dialog box. These will vary depending on the *Response Category*.
7. (Optional) If you selected a response type that is not Custom Script, you can change it to a custom script. To do so, click **Convert to Custom Script**, and then click **Convert** in the confirmation dialog box. The name of the response is changed to *Custom Script*, and the code is displayed.
8. When you have finished configuring responses, click **Save**.
9. When you have finished configuring the rule, click **Save**.

## Deleting a Response

To delete a response:

1. Click to select the **Rules** tab.
2. Click to select the rule to edit.
3. Click the *Edit the selected Rule* icon (🔍). The *Edit Mode* (right) panel is activated.
4. In the *Responses* panel, click the edit icon (🔍) to the right of *then this will happen*. The *Edit the Responses triggered by Rule* dialog box opens.

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5. Click to select the response to delete.
6. Click the *Delete the selected Response* icon ()
7. In the confirmation dialog box, click **Delete**.
8. When you have finished configuring responses, click **Save**.
9. When you have finished configuring the rule, click **Save**.

## Configuring Recording

The *Recording* tab allows you to assign data sources (video and audio) to recorders within the *VX System* you have selected.

You can assign devices to recorders and create recording schedules through VxToolbox and VxStorage Portal; assigning data sources to a recorder without creating a schedule will prevent data sources from recording. You can perform advanced VxStorage configuration by connecting to the recorder using its IP address on port 9091.

### Configuring a Recorder

1. Click the **Recording** tab.
2. At the top of the left panel, click **Recorders**.
3. Click to select the recorder to configure.
4. If available at the bottom of the left panel, click the *Edit selected recorder's configuration* icon (🔧).  
Not every recorder has configurable settings. Update recorder configuration settings, depending on which are available for the recorder type.
  - a. (Optional) To change the recorder name, enter a new value in the *Name* field.
  - b. (Optional) If available, under *Maximum Retention Period*, enter a number in the *Discard Video after [#] Days* field, either by typing in a value or selecting a value using the up and down arrows.
  - c. If available, click to select the radio button for the *Transmission Method* field: *Multicast* or *Unicast*.
  - d. If available, click to select the radio button for the *Stream to Record* field: *Primary*, *Secondary*, or *Primary+Secondary*.
  - e. (Optional) If available, for cameras that have local recordings, click to select the checkbox for *Auto-backfill recording gaps using on-camera storage*.  
When selected, if there is a gap in recording of a camera (an edge device), the recorder will query the camera for recordings, and automatically download video and audio (if present) to fill the gap.  
If you select this checkbox, you must also:
    - Type or select a number from the drop-down menu in the *Download data from up to [#] cameras at a time* field.  
Downloading from more cameras uses more bandwidth, which will slow the data transmission rate.
    - Select a time-interval from the drop-down menu in the *Attempt to download every* field.  
If edge devices (cameras) and the recorder lose communication, the VX System will attempt to connect to the edge device again at the time-interval specified in this field.
    - Type or select a value in the *Stop trying to download after [#] failed attempts* field.
  - f. Click **Save Changes**.

## Assigning Cameras to a Recorder

The recorders and cameras you see in the *Recording* tab are relevant to the *VX System* you have selected.

1. Click the **Recording** tab.
2. At the top of the left panel, click **Recorders**.
3. Click to select the recorder to which you want to add or remove data sources. (Optional) Use filters to find the sources you want to add to the recorder. The data sources already associated with the recorder are listed in the *Data Sources Recording to [recorder name]* column.
4. In the *All Data Sources* area of the right panel, click to select the checkboxes for the devices you want to add to the recorder; click to deselect the checkboxes for the devices you want to remove from the recorder.

The update is immediately reflected in the *Data Sources Recording to [recorder name]* column.

## Adding a Recording Group to a Recorder

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *What to Record* (left) panel, click the *Create a New Recording Group* icon (+), or click to select a recording group similar to the one you will create, and then click the *Duplicate selected Recording Group* icon (■).
4. Enter a value in the *Name of Recording Group* field of the *New Recording Group* dialog box.
5. Click to select the radio button for *All Resources* or *Selected Resources*.
6. If you selected *Selected Resources*, in the *Add / Remove Cameras from Group* table, click to select the checkboxes for the sources to include in the recording group; click to deselect the checkboxes for the sources to exclude from the recording group. (Optional) Use the filter to find the sources you want to add to the group. You can also sort on the *Name* and *#columns* in the *Add / Remove Cameras from Group* table.
7. Click **Save**.

## Creating a Recording Schedule for a Recording Group

1. If necessary, click the **Recording** tab, and then click **Schedules**.
2. In the *What to Record* (left) panel, click to select the recording group for which create a recording schedule.
3. In the *When to Record* (center) panel, click the *Edit the Recording Schedules* icon (■) to open the *Select Schedules for Recording Group* dialog box.
4. In the *Select Schedules for Recording Group* dialog box, click to select the checkboxes to build the schedule you want to apply to the recording group.
5. (Optional) To create and select a schedule that is not in the list:
  - a. Click the *Add a New Schedule* icon (+); or click the *Create a copy of the selected schedule* icon (■) to start with a schedule that is close to what you want.
  - b. Enter a value in the *Display Name* field.
  - c. Click the appropriate radio button to the right of *Increments*, to select the available increments of time to record.

- d. Click to select or deselect the checkbox for **24-Hr. Time**. Deselecting the checkbox results in 12:00-11:59 AM and 12:00-11:59 PM recording timestamps.
  - e. Indicate the times and days to record by clicking to select boxes corresponding to a days and times. You can also click and drag to select a contiguous range of times and days. Click to deselect any days and times that you do not want to record.
  - f. (Optional) Click the checkbox to select **Within limited date range**, enter a date in the **Start on** and **End after** fields, either by selecting the dates from the calendars or by typing in a date using the mm/dd/yy format. You can deselect the checkbox to make the schedule unlimited by date.
  - g. Click **Add**.
  - h. In the **Select Schedules for Recording Group** dialog box, click to select the checkbox for the schedule you just created.
  - i. Click **Save Changes**.
6. (Optional) You can quickly view the recording schedule by clicking the **View selected Recording Schedule** icon () at the bottom left corner of the center panel.
  7. Click to select one of the **Recording Schedules**.
  8. In the **Recording Behaviors** (right) panel, click the **Create a new Recording Behavior** icon ()
  9. Click to select the radio button for either **Continuous Recording** or **Event-Triggered Recording (Full Frame Rate)**.
  10. If you selected **Continuous Recording**, click to select the radio button for either **Full Frame Rate** or **Reduced Frame Rate**.
  11. If you selected **Event-Triggered Recording (Full Frame Rate)**:
    - a. In the **Start Full Frame Rate Recording on** table, click to select the radio button for the type of event associated with the recording. Select an option in the **Associated Events** area or in the **Analytic Events** area.
    - b. Select a value in the **Start** field either by typing-in a number or selecting one using the up and down arrows.
    - c. In the **Stop Full Frame Rate Recordings on** table, click to select the radio button for **Timeout** or **No [analytic name]**, and then enter a value in the **Stop Recording** field, either by typing in a number or selecting one using the up and down arrows.
  12. Click **Add & Create Another** or **Add**.
  13. If you clicked **Add & Create Another**, repeat steps 9-12.
  14. Repeat steps 7-12 for each recording schedule created.

## Creating a Bump on Alarm Recording Schedule

A Bump on Alarm records continuous reduced frame rate (i-frame only) video during normal situations, and records full frame rate video during an alarm or event. The video timeline for cameras set to record using a Bump on Alarm schedule shows a small green bar for continuous recording and a larger blue bar during event- or alarm-driven recording.

To configure a Bump on Alarm schedule:

1. If necessary, click the **Recording** tab, and then click **Schedules**.
2. In the **What to Record** (left) panel, click to select the recording group for which create a recording schedule.

3. In the *When to Record* (center) panel, click to highlight the schedule to which you will add the bump on alarm behavior.
4. If there is no Continuous Recording (Reduced Frame Rate) recording scheduled, create one. See the section titled [Creating a Recording Schedule for a Recording Group](#).
5. Click to select the appropriate schedule.
6. Create a schedule for an alarm- or event-triggered recording:
  - a. In the *Recording Behaviors* (right) panel, click the *Create a new Recording Behavior* icon (). The *Recording Mode and Trigger* will already be set to *Event-Triggered Recording (Full Frame Rate)*.
  - b. Update the settings as described in the section titled [Creating a Recording Schedule for a Recording Group](#).

## Editing a Recording Group

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *Recording Groups* (left) panel, click to select the recording group to edit.
4. Click the *Edit selected Recording Group* icon () to open the *Edit Recording Group* window.
  - a. (Optional) Enter a new value in the *Name of Recording Group* field.
  - b. Click to select the radio button for *All Resources* or *Selected Resources*.
  - c. If you selected *Selected Resources*, in the *Add / Remove Cameras from Group* table, click to select the checkboxes for the sources to include in the recording group; click to deselect the checkboxes for the sources to exclude from the recording group.
  - d. Click **Save**.

## Editing a Recording Schedule

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *What to Record* (left) panel, click to select the recording group for which to configure the schedule.
4. (Optional) Edit the recording schedule.
5. In the *Sources* (center) panel, click the *Edit the Recording Schedule* icon ().
6. In the *Select Schedules for Recording Group* dialog box, click to select and deselect the checkboxes for schedules to associate with the recording group.
7. Click **Save Changes**.
8. (Optional) To create and select a schedule that is not in the list:
  - a. In the *Sources* (center) panel, click the *Edit the Recording Schedule* icon ().
  - b. Click the *Add a New Schedule* icon (); or click the *Create a copy of the selected schedule* icon () to start with a schedule that is close to what you want.
  - c. Enter a value in the *Display Name* field.

- d. Click the appropriate radio button to the right of *Increments*, to select the available increments of time to record.
- e. Click to select or deselect the checkbox for *24-Hour Time*. Deselecting the checkbox results in 12:00-11:59 AM and 12:00-11:59 PM recording timestamps.
- f. Indicate the times and days to record by clicking to select boxes corresponding to a days and times. You can also click and drag to select a contiguous range of times and days. Click to deselect any days and times that you do not want to record.
- g. (Optional) Click the checkbox to select *Within limited date range*, enter a date in the *Start on* and *End after* fields, either by selecting the dates from the calendars or by typing in a date using the mm/dd/yy format. You can deselect the checkbox to make the schedule unlimited by date.
- h. Click **Add**.
  - i. In the *Select Schedules for Recording Group* dialog box, click to select the checkbox for the schedule you just created.
9. Click **Save Changes**.
10. In the *Recording Behaviors* (right) panel, click to select an existing trigger.
11. Click the *Edit Selected Behavior* icon ()
12. In the *Edit Recording Behavior for Recording Group [group name]* dialog box, click to select the radio button for the *Recording Mode and Triggers: Continuous Recording* or *Event-Triggered Recording (Full Frame Rate)*.
13. If you selected *Continuous Recording*, click to select the radio button for either *Full Frame Rate* or *Reduced Frame Rate*.
14. If you selected *Event-Triggered Recording (Full Frame Rate)*:
  - a. In the *Start Full Frame Rate Recording on* table, click to select the radio button for the type of event associated with the recording. Select an option in the *Associated Events* area (*Motion Detected* or *Alarm Active*) or in the *[camera] Analytic Events* area.
  - b. Select a value in the *Start* field either by typing in a number or selecting one using the up and down arrows.
  - c. In the *Stop Full Frame Rate Recordings on* table, click to select the radio button for *Timeout* or *No [analytic name]*, enter a value in the *Stop Recording* field, either by typing-in a number or selecting one using the up and down arrows.
15. Click **Update**.

## Deleting a Recording Group

Deleting a Recording Group will also delete the associated Recording Schedules and Recording Behaviors.

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *What to Record* (left) panel, click to select the recording group to delete.
4. Click the *Delete selected Recording Group* icon ()
5. In the *Delete [recording group name]* dialog box, click **OK**.

## Deleting a Recording Schedule

This will delete the selected *Recording Schedule*, and the associated *Recording Behaviors*.

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *What to Record* (left) panel, click to select the recording group for which to delete the schedule.
4. In the *When to Record* (center) panel, click to select the schedule to delete.
5. At the bottom of the *When to Record* (center) panel, click the *Remove selected Recording Schedule* icon (🗑️).
6. In the *Remove Schedule from Recording Group* dialog box, click **Delete**.

## Deleting a Recording Behavior (Trigger)

If you delete all *Recording Behaviors* for a *Recording Schedule*, the *Recording Schedule* is also deleted.

1. Click the **Recording** tab.
2. At the top of the left panel, click **Schedules**.
3. In the *What to Record* (left) panel, click to select the recording group for which to delete the trigger.
4. In the *Recording Behaviors* (right) panel, click to select the *Trigger* to delete.
5. At the bottom of the *Recording Behaviors* (right) panel, click the *Delete selected Recording Behavior* icon (🗑️).
6. In the *Delete [behavior name]* dialog box, click **OK**.
7. Repeat this procedure as necessary.

## Managing Users and Roles

A role is a group of permissions defining abilities and responsibilities within a system. A user must be assigned at least one role to perform actions within the system.

If you are authenticating using LDAP, you are not required to manage users and roles, but you can in order to control settings that are not specified in LDAP.

### Understanding Internal and Restricted User Accounts

VideoXpert contains some hard-coded user accounts that are integral to the system. You cannot edit, disable, or delete these accounts, nor can you change roles or permissions for these users. You can, however, change the password for these accounts in the case of the admin and aggregator accounts, it is recommended that you change the password from the default.

User	Description
admin	This is the basic administrative user for VideoXpert. This user account possesses the “administrator” role is granted all available permissions within the system.
internal	This role is used internally within the system to perform server-side tasks. It is not visible in the <i>Users</i> page, under the <i>Users</i> tab.
rule_engine	This role supports the rules engine.
snmp	This role is used to collect diagnostic information for the SNMP service that is available on the product.

### Creating a Role

There are four default roles within VideoXpert:

- **Administrator** has full rights to the system.
- **Manager** has all Supervisor rights and the ability to configure recorders and devices within the system, including tags, recorder assignment, etc. Managers can also assign roles to users. (This role is available on VxPro Systems only.)
- **Supervisor** has advanced access to live and recorded video including investigations, PTZ control, and plug-ins. Supervisors can use plug-ins, configure events, and access workspaces configured by other users. (This role is available on VxPro Systems only.)
- **User** has basic rights to view live and recorded video. (This role is available on VxPro Systems only.)

Custom roles can also be created and assigned. To create a custom role:

1. Click the **Users** tab, and then click **Roles & Permissions** at the top left of the window.
2. Click the *Add a new role* icon .
3. In the *Create a new Role on the VX system* dialog box, enter a value in the *Role Name* field.
4. (Optional) Add one or more permissions individually for the role:
  - a. In the *Enabled Permissions* section of the window, click **Add a Permissions Category**.
  - b. Click to select a permissions category from the available categories.

- c. Click to select the radio button to *Allow ALL [Category] Permissions* or *Allow Selected [category] Permissions*.
  - d. If you selected *Allow Selected [Category] Permissions*, click **Add a Permission**; click to select a permission from the drop-down list (including **Select All [Category] Permissions**); if a confirmation dialog box opens, click **OK**.
  - e. In the permissions table that is displayed beneath *Allow Selected [Category] Permissions* click the **Select Resource** icon () to change the resource restrictions for the permission. In the *Manage Resource Restriction for* window, select **Match Parent Resources** (if present); **Allow All Resources**; **Allow Selected Resources**, and then select the resources to allow; or **Allow All Resources Except Selected**, and then select the resources to disallow.  

The table provides the list of permission, resources allowed for each permission, and the number of devices that are allowed.
  - f. (Optional) To delete a permission from the category, click the **Delete** icon ()
  - g. (Optional) Click **Add Another Permission**, and repeat the process.
5. (Optional) Add all available permissions to the role:
- a. In the *Enabled Permissions* section of the window, click **Add a Permissions Category**.
  - b. Click to select **Add All Categories**.
  - c. Click to expand one of the categories, and then click the radio button to *Allow ALL [Category] Permissions* or *Allow Selected [Category] Permissions*.
  - d. If you selected *Allow Selected [Category] Permissions*, click **Add a Permission**; click to select the permission (including **Select All [category] Permissions**).
  - e. In the permissions table that is displayed beneath *Allow Selected [Category] Permissions* click the **Select Resource** icon () to change the resource restrictions for the permission. In the *Manage Resource Restriction for* window, select **Match Parent Resources** (if present); **Allow All Resources**; **Allow Selected Resources**, and then select the resources to allow; or **Allow All Resources Except Selected**, and then select the resources to disallow.  

The table provides the list of permission, resources allowed for each permission, and the number of devices that are allowed.
  - f. (Optional) To delete a permission from the category, click the **Delete** icon ()
  - g. Repeat steps c through f for each of the categories.
6. To delete a category from the *Enabled Permissions* area, click the **Delete** icon () in the category title.
7. Click **Save**.

## Editing a Role

Renaming a role does not affect the users to whom the role is assigned.

1. Click the **Users** tab, and then click **Roles & Permissions** at the top left of the window.
2. Click to select the role to edit.
3. Click the *Edit the selected Role* icon ()
4. In the *Edit the Role* dialog box, change the role name and/or permissions as needed.

5. For detailed instructions, see the section titled [Creating a Role](#).
6. Click **Save**.

### Duplicating a Role

By default, a duplicate role retains the permissions of the original role. You can edit the permissions.

1. Click the **Users** tab, and then click **Roles & Permissions** at the top left of the window.
2. Click to select the role to duplicate.
3. Click the *Create a copy of the selected Role* icon ().
4. Enter a name for the duplicated role and edit the permissions as needed.
5. For detailed instructions, see the section titled [Creating a Role](#).
6. Click **Save**.

### Deleting a Role

1. Click the **Users** tab, and then click **Roles & Permissions** at the top left of the window.
2. Click to select the role to delete.
3. Click the *Delete Role* icon ().
4. In the confirmation dialog box, click **Delete**.

### Viewing Details of a Role

To quickly view the permissions assigned to a specific role:

1. Click the **Users** tab, and then click **Roles & Permissions** at the top left of the window.
2. In the right panel, click to select the role to view.
3. In the *Permissions of Role: [Role]* (right) panel, view the permissions for each category. The information in the *Permission of Role: [Role]* panel is the same information displayed in the permission tables when you created or edited a role.
4. (Optional) To see the users who are assigned to the role, click the expand icon () to the left of the role to display the list of users. To view the user's information in the **Users** page, hover over the user's name, and then click the change view icon () to the right of the name.

### Adding Users

When adding users to the system, you give them a temporary password.

You can also provide additional user information, to make it easier to associate user names with personnel; *Name* fields appear anywhere the system provides a user name.

1. Click the **Users** tab, and then click **Users** at the top left of the window.
2. Click the *Create a new User* icon ().
3. Enter a value in the *Username* field.
4. (Optional) Enter values in the *First Name* and *Last Name* fields.
5. Enter a value in the *Password* field.
6. (Optional) To require a user to change the password the first time the user logs in, click to select the checkbox for *Must change password on first login with new password*.

7. Choose a *Role* for the user from the drop-down menu.
8. (Optional) Click **Add another role**, and then choose a role for the user from the drop-down menu.
9. (Optional) To delete a role, click the *Remove this role from the selected user* icon (). This option is only available if more than one role is assigned to the user.
10. (Optional) To make the resources on this system available for aggregation (if this is an aggregated system), click to select the checkbox for *Allow this User to be used for Aggregation*.
11. (Optional) Enter a value in the *User ID#*, *Email Address*, *Phone*, and *Notes* fields.
12. Click **Add**.

### Searching for Users

1. Click the **Users** tab, and then click **Users** at the top left of the window.
2. Enter a value in the *Search Users* field.

The search applies to user name, first name, and last name values.

The search begins as soon as you enter the first character; results are further refined as you enter more characters.
3. Add or delete characters to change the search results.
4. (Optional) To clear the search field, either delete all characters or click the *Clear* icon () at the right of the *Search Users* field.

### Assigning Roles

VideoXpert contains pre-defined roles that you can assign to users. You cannot change these roles but you can create new roles (see [Creating a Role](#)); each user must be assigned a role to use VideoXpert. Any locking features or competing actions performed by users are prioritized by user level.

To assign roles to an existing user:

1. Click the **Users** tab, and then click **Users** at the top left of the window.
2. Select the user to whom you are assigning a role, and then click the *Edit the selected User* icon ().
3. Select a *Role* from the drop-down menu.
4. (Optional) To add another role to the user, click **Add another role**, and then select a *Role* from the drop-down menu.
5. (Optional) If appropriate, edit additional user information from this dialog box. See sections titled *Editing a Role* and *Resetting Passwords*.
6. Click **Save**.

### Resetting Passwords

Users with appropriate permissions can either reset users' passwords or force users to change their passwords.

Resetting a user's password will allow you to grant the user a temporary password. You may want to reset a user's password if a user does not remember his or her password, or the user is locked out of the system because of failed login attempts or because of letting the password change timer lapse.

Users with appropriate permissions can also reset other users' passwords and force users to change their passwords.

1. Click the **Users** tab, and then click **Users** at the top left of the window.
2. Select the user whose password you want to reset, and then click the *Edit the selected User* icon ().
3. Click **Change Password**
4. Enter a new value in the *New Password* and *Re-Enter New Password* fields.  
If you decide not to change the password, you must click **Do Not Change Password** in order to continue.
5. (Optional) If appropriate, edit additional user information from this dialog box. See sections titled *Editing a Role* and *Assigning Roles*.
6. Click **Save**.

### Deleting Users

1. Click the **Users** tab, and then click **Users** at the top left of the window.
1. Click to select the user you want to remove.
2. Click the *Delete User* icon ().
3. In the confirmation dialog box, click **Delete** to confirm your selection.

## Configuring VX System Settings

From VxToolbox, you can configure most settings on the VX System to which you are connected. Setting types include General Settings, Aggregation, LDAP, Backup, and SMTP settings. These are described in the following sections.

### Aggregating Systems (VX Enterprise only)

VideoXpert Enterprise systems support an aggregation server, providing centralized access to a series of member systems and cameras.

When you add a system to the VideoXpert Enterprise aggregation server, the video for the member system becomes available at the aggregation level. However, you may not be able to change settings for the member system and some components from the aggregation level; you might have to access the member system directly to change the settings.

As a prerequisite to adding an aggregated system to VxToolbox, the aggregation server must be configured. See the current [VideoXpert Enterprise Installation and Configuration Guide](#).

1. Click the **System** tab.
2. Click **Aggregation**.
3. (Optional) To add or edit a system:
  - a. Click **Add System**, or click the *Edit this aggregated member system* icon  at the right of the appropriate server address row to edit an existing system.
  - b. In the **Server Address** field, provide the IP address of the system you want to aggregate. If aggregating a clustered system, enter the IP address of the load balancer governing the cluster of systems you want to aggregate.
  - c. In the **Port** field, enter the port number the system uses for HTTP/HTTPS communications.
  - d. (Optional) In the **Streaming Configuration / Connection Type** area, click to select the checkbox for **Allow RTSP/RTP**. (Optional) You can then click the checkbox to select **Allow UDP**. (Optional) Further, you can click the checkbox to select **Allow Multicast**.
  - e. In the **Bandwidth** field, provide the connection speed between the aggregation server and the VideoXpert system you are aggregating. The higher the connection speed, the better aggregated devices will perform within VideoXpert. Selecting speeds lower than 100 Mbps will cause all cameras for the aggregated system to return MJPEG video.  
  
 Note: The Media Gateway transcodes MJPEG video, and returns the full I-Frame rate requested by the camera. Cameras configured to deliver more than 2 I-frames per second will stress the performance of the Media Gateway and consume more bandwidth. It is recommended that cameras expected to return MJPEG video are configured to deliver no more than 2 I-frames per second to prevent cameras from taxing the Media Gateway.
  - f. Enter a value in the **Aggregation Username** field.
  - g. Enter a value in the **Password** field.
  - h. Click **Test Connection**. If the connection test fails, correct the information, and then click **Test Connection** again.
  - i. When the connection test passes, click **Add System**.

4. To refresh an aggregated member system so that the aggregating and member systems are synchronized, click the *Refresh this aggregated member system.* icon (🔄) at the right of the appropriate server address row.
5. To delete a system from aggregation, click the *Remove this member system.* icon (✖) at the right of the appropriate server address row.

### Configuring General Settings

1. Click the **System** tab.
2. Click **General Settings**.
3. Enter a value in the *VideoXpert System Name* field.
4. Configure clusters:
  - a. In the *Cluster Configuration* area, click to select or deselect the checkbox for *Multiple VxCores*.
  - b. Enter a value in the *VxCore Virtual IP Address* and *VxCore IP Address* fields.
  - c. If you selected *Multiple VxCores*, click **Add Another VxCore**, and then enter another value in the new *VxCore IP Address* field. Do this as many times as is needed, up to the maximum of three cores per cluster.
  - d. Enter a value in the *VxMediaGateway IP Address* field.
  - e. Click to select or deselect the checkbox for *Multiple VxMediaGateways*.
  - f. If you selected *Multiple VxMediaGateways*, enter a value (associated with the initial *VxMediaGateway IP Address*) in the *VxMediaGateway Virtual IP Address* field, and then enter a value for another gateway in the new *VxMediaGateway IP Address* field. To add more *VxMedia Gateways*, click **Add Another VxMediaGateway**, and then enter a value for another gateway in the new *VxMediaGateway IP Address* field.
5. Complete the System Configuration information:
  - a. In the *System Configuration* area, enter a value in the *NTP Server Address* field.
  - b. Specify an *RSTP Port*, either by typing in a number or selecting one using the up and down arrows.
  - c. Specify an *HTTPS Port*, either by typing in a number or selecting one using the up and down arrows.
  - d. Click to select or deselect the checkbox for *Store exports in an alternate location*. If you select the checkbox, then enter values in the *Network Storage Location*, *Username* (if required) and *Password* (if required) fields.
  - e. Under *Clip Lock Expiration*, click to select the radio button for either *Keep Clips Locked*; or *Unlock Clips after [#] Days*, and then select the number of days either by typing in a value or using the up and down arrows.
6. (Optional) In the *HTTPS Certificate* area:
  - a. Click **Show current certificate details** to view information including *Issued to*, *Issued by*, and *Period of Validity*. To close this field, click **Hide current certification details**.
  - b. (Optional) On VideoXpert Professional systems, click **Export current certificate to .pfx**; enter the password in the *Authenticate Certificate* dialog box, *Password* field; click **OK**; in the *Select SSL/TLS Certificate* window, browse to the appropriate folder, enter a name for the file, and then click **Save**.

- c. On VideoXpert Professional systems only, click **Install New Certificate**, browse to and select the certificate, click **Open**; in the *Install SSL/TLS Certificate* dialog box, in the *Password* field, enter the password, and then click **OK**. Click **OK** again in the *Install SSL/TLS Certificate* confirmation dialog box.
7. (Optional) To cancel any changes you have made before saving the settings, click **Revert** at the bottom of the panel.
8. Click **Save Settings**.

### Configuring Authentication

You can select the authentication method and parameters used.

- VideoXpert Authentication--see the section titled [Enabling VideoXpert Authentication](#)
- LDAP authentication using simple bind authentication--see the section titled [Configuring LDAP Authentication: Simple Bind](#).
- LDAP authentication using two-stage binding--see the sections titled and [Configuring LDAP Authentication: Two-Stage Bind Authentication](#).
- If you select LDAP authentication, you can also (optional) use retrieve users and roles from LDAP--see the sections titled and [Configuring LDAP Authentication: Retrieving Users and Roles From LDAP](#).

### Enabling VideoXpert Authentication

VideoXpert Authentication uses the internal VX system authentication instead of LDAP.

1. Go to the *System* page and click *LDAP*.
2. Click to select the radio button for *VideoXpert Authentication*.
3. Click **Save Settings**.

### Configuring LDAP Authentication: Simple Bind

LDAP authentication using simple bind authentication requires only the LDAP server name, port, Base DN, and search attributes.

1. Go to the *System* page and click *LDAP*.
2. If necessary, click to deselect the radio buttons for *Two-Stage Binding Authentication* and *Retrieve users and Roles From LDAP*.
3. Enter the host name or IP address of the LDAP server in the *LDAP Server* box.
4. (Optional) Click the *SSL/TLS* box if your LDAP server requires SSL/TLS authentication.
5. (Optional) Edit the server *Port* if the LDAP server is not on the default port (389).
6. Type a distinguished name (DN) in the *Base DN* box.
7. Type an attribute key name in the *Search Attributes* box.
8. Click **Test Connection** to verify that your LDAP connection and search settings are correct.
9. Click **Save Settings**.

Here is an example of a simple bind request.

- In the *Base DN* box, the administrator has entered "CN=Users,DC=example,DC=com".
- In the *Search Attributes* box, the administrator has entered "CN".

- The user has signed on using "Joe" as the login name and "Pword" as the password.
- VideoXpert sends to LDAP a bind request with the specified parameters.

This is different from what happens in a two-stage bind. See [Configuring LDAP Authentication: Two-Stage Bind Authentication](#).

### Configuring LDAP Authentication: Two-Stage Bind Authentication

Two-stage bind authentication uses the parameters of simple bind, but adds a superuser distinguished name and password.

1. Go to the **System** page and click **LDAP**.
2. Click to select the radio button for **Two-Stage Binding Authentication**.
3. Enter the host name or IP address of the LDAP server in the **LDAP Server** box.
4. (Optional) Click the **SSL/TLS** box if your LDAP server requires SSL/TLS authentication.
5. Edit the server **Port** if the LDAP server is not on the default port (389).
6. Type a distinguished name (DN) in the **Base DN** box.
7. Type an attribute key name in the **Search Attributes** box. When inputting multiple entries in a box, separate entries with commas only (no spaces).
8. Type a value in the **Superuser DN** field.
9. Type a value in the **Superuser DN Password** field.
10. Click **Test Connection** to verify that your LDAP connection and search settings are correct.
11. Click **Save Settings**.

Here is an example of a two-stage bind request.

- In the **Base DN** box, the administrator has entered "CN=Users,DC=example,DC=com".
- In the **Search Attributes** box, the administrator has entered "sAMAccountName,CN".
- The user has signed on using "Joe" as the login name and "Pword" as the password.
- VideoXpert first searches for an LDAP entry that has either sAMAccountName or CN set to "Joe".
- After finding the entry, VideoXpert sends to LDAP a bind request with the DN set to the DN of the entry that it found during the search, and that has the password set to "Pword".

### Configuring LDAP Authentication: Retrieving Users and Roles From LDAP

Retrieving Users and Roles From LDAP uses the parameters of two-stage binding, but adds a root VX DN and a VX system DN. These enable your system to use the LDAP server to retrieve User and Role assignments.

To retrieve users and roles from an LDAP server, you must first configure users and roles on that server. For example, if you are using an Active Directory LDAP server:

1. Access the **Active Directory Users and Computers** window.
2. Create a folder structure that is appropriate to the planned permissions structure (for example: to mirror the geographic locations of systems).
3. Within that folder structure, create groups with names that match the names of roles in VideoXpert.
4. Add users or other groups to these groups.
5. Save the settings and close Active Directory.

To configure LDAP authentication in VxToolbox to retrieve users and roles from LDAP:

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1. Launch VxToolbox.
2. Go to the **System** page and click **LDAP**.
3. Click to select the radio button for **Retrieve Users and Roles From LDAP**.
4. Enter the host name or IP address of the LDAP server in the **LDAP Server** box.
5. (Optional) Click the **SSL/TLS** box if your LDAP server requires SSL/TLS authentication.
6. (Optional) Edit the server **Port** if the LDAP server is not on the default port (389).
7. Type a distinguished name (DN) in the **Base DN** box.
8. Type an attribute key name in the **Search Attributes** box. When inputting multiple entries in a box, separate entries with commas only (no spaces).
9. Type a value in the **Superuser DN** field.
10. Type a value in the **Superuser DN Password** field.
11. (Optional) Type a value in the **Root VideoXpert DN** field.
  - If you are setting up only one VX System, you can leave this field blank.
  - If you are setting up multiple systems, this is the LDAP container under which all of the VX System information is stored for all of the systems. When determining which roles should be assigned to a user, the VX System will look for group entries within the VideoXpert System DN sub-container, and navigate up the LDAP tree until it reaches the Root VideoXpert DN container.
12. Type a value in the **VideoXpert System DN** field.

This is the LDAP container for the VideoXpert System. It can be nested inside sub-containers in any configuration. When determining which roles should be assigned to a user, the VX System will look for group entries within the VideoXpert System DN sub-container and navigate up the LDAP tree until it reaches the Root VideoXpert DN container.
13. Click **Test Connection** to verify that your LDAP connection and search settings are correct.
14. Click **Save Settings**.



NOTE: Permissions for each role must still be configured in the **Roles and Permissions** tab of VxToolbox.

Here is an example of configuring LDAP authentication in VxToolbox to retrieve users and roles from LDAP:

The following the users exist in your Active Directory system:

- Joe Jones (username=joe)
- Mary Smith (username=mary)—belongs to the AD group “Directors – West Region”

You have these four systems:

- Log Angeles
- San Francisco
- New York
- Boston

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You want to ensure that:

- All Directors for the West Region can log in to systems in the West Region, with permission to view live and recorded video for all cameras
- Joe Jones can log in to the New York system ONLY, and add devices and users to that system

You create the following roles with the following permissions on their VX systems, using VxToolbox:

- Directors: “View Video Sources” and “View Recorded Video”
- SysAdmins: “Manage User Accounts” and “Manage Cameras & Recorders”

You decide to store information about all of your VideoXpert systems under the following Root DN in AD:

- OU=VideoXpert,DC=example,DC=com

Under the root DN in AD, you create the following container entities:

- OU=New York,OU=East Region,OU=VideoXpert,DC=example,DC=com
- OU=Boston,OU=East Region,OU=VideoXpert,DC=example,DC=com
- OU=Los Angeles,OU=West Region,OU=VideoXpert,DC=example,DC=com
- OU=San Francisco,OU=West Region,OU=VideoXpert,DC=example,DC=com

Next, you create the following group entities:

- CN=Directors,OU=West Region,OU=VideoXpert,DC=example,DC=com
  - You add the existing AD group “Directors – West Region” to this group.
- CN=SysAdmins,OU=New York,OU=East Region,OU=VideoXpert,DC=example,DC=com
  - You add user “Joe Jones” to this group.

Finally, in VxToolbox, you:

- Enable “LDAP users and roles” on all 4 VX systems.
- Set the root DN to OU=VideoXpert,DC=example,DC=com on all 4 VX systems.
- Set the system DN to:
  - OU=New York, etc. on the New York system
  - OU=Boston, etc. on the Boston system
  - OU=Los Angeles, etc. on the Los Angeles system
  - OU=San Francisco, etc. on the San Francisco system

With this configuration:

- Mary Smith can log in to both the Los Angeles and San Francisco systems, using “mary” as her username and her AD password as the password. When Mary logs in:
  - The VX system creates a user account with name “mary” in VX (if it doesn’t already exist).
  - The VX system adds user mary to the Directors role.
- Joe Jones can log in to the New York system only. When Joe logs in:
  - The VX system creates a user account with name “joe” in VX (if it doesn’t already exist).
  - The VX system adds user joe to the SysAdmins role.

## Configuring System Backups

Pelco recommends that you back up your system after initial setup, when you have configured a significant number of users and devices, and after significant changes to your system configuration.

A system backup contains the system database, including the previous 30 days' events. Backups do not capture exported video or any settings that you might have changed outside of VxToolbox (for example: changes made directly to configuration scripts). The speed of each backup depends on the size of the VideoXpert database, network bandwidth, and other variables.

To configure system backups:

1. Click **System**, and then click **Backup**.
2. In the *Location* area:
  - a. Enter a value in the *Specify a Path* field.
  - b. (Optional) Enter values in the *Username* and *Password* fields.
  - c. Click **Test Connection**.
    - If the *Test Successful!* dialog box opens, click **OK**.
    - If the *Test Failed* dialog box opens, click **OK**, correct the information in the *Location* fields, and then click **Test Connection** again.
3. Enter a value in the *Retain (# of Backups)* field, either by typing in the number or selecting it using the up and down arrows.
4. (Optional) To trigger backups automatically:



Note: Ensure that you have correctly configured the backup location before you attempt to schedule backups.

- a. Click to select the checkbox for *Backup Automatically*.
  - b. Enter a value in the *Time of Day* field, either by typing in the time or selecting it using the clock icon (🕒).
  - c. Enter a value in the *Expiration (Days)* field, either by typing in the number or selecting it using the up and down arrows.
5. (Optional) After you have correctly configured backups, you can make a backup immediately. To do so, click **Backup Now**.
    - a. At the top of the window, a green checkmark and “Backup is currently in progress...” message is displayed. It will disappear when the backup is complete. If the backup fails, an error message is displayed.
    - b. To cancel the backup, click the trash bin icon (🗑️) directly below the backup message.
  6. (Optional) To cancel the changes and return to the previously saved settings, click **Revert**.
  7. Click **Save Settings**.

## Restoring Databases on VideoXpert Enterprise Systems (VideoXpert Enterprise only)

### Replacing One or More Core Nodes

This procedure assumes that you have one or more functioning Cores from the original cluster, and that you need to replace one or more core nodes.

1. Install and/or update Core software on the replacement node(s) to the exact version on the remaining Cores of your existing cluster.
2. In VxToolbox, on the **Devices** tab, find the defunct Core and delete it. See the current version of the *VideoXpert Toolbox Operations Manual* section titled *Removing Devices*.
3. In VxToolbox, on the **System** tab, add the new Core to your existing cluster. See the current version of the *VideoXpert Enterprise Installation Manual* section titled *Installing VxCore/Media Gateway, VxStorage, and VxToolbox*.

### Performing an Emergency Restoration of a Database Backup on VideoXpert Enterprise Systems

This procedure assumes that none of the Cores from the original cluster are available. It also assumes that you have installed the same version of Core software on all the replacement Cores and that you have not configured the cluster.

1. Select one Core (node) in the cluster to be the primary node.
2. Copy the appropriate database backup from your configured network storage location to the primary node.
3. On the primary node, open a command prompt (cmd) window as Administrator. In the cmd window:
  - a. Navigate to the installation directory of Core, typically "C:\Program Files\Pelco\Core".
  - b. Run the set command to set the full path to the database backup as a variable. For example: "set DbBackup=C:\Path\To\My\Backup\core-123124125.sql".
  - c. Run the restore script using the command "utils\manual\_restore\_db.bat %DbBackup% catastrophic".  
The script might take several minutes to complete.
4. After the script has completed, use VxToolbox to connect to the primary node with the credentials from your original cluster, and then configure the cluster with all of the replacement Cores (nodes).

### Manually Restoring a Database Backup on VideoXpert Enterprise Systems

This procedure assumes that you have a fully functioning VxCore cluster, and you need to restore to a previous backup because you have lost valuable data.

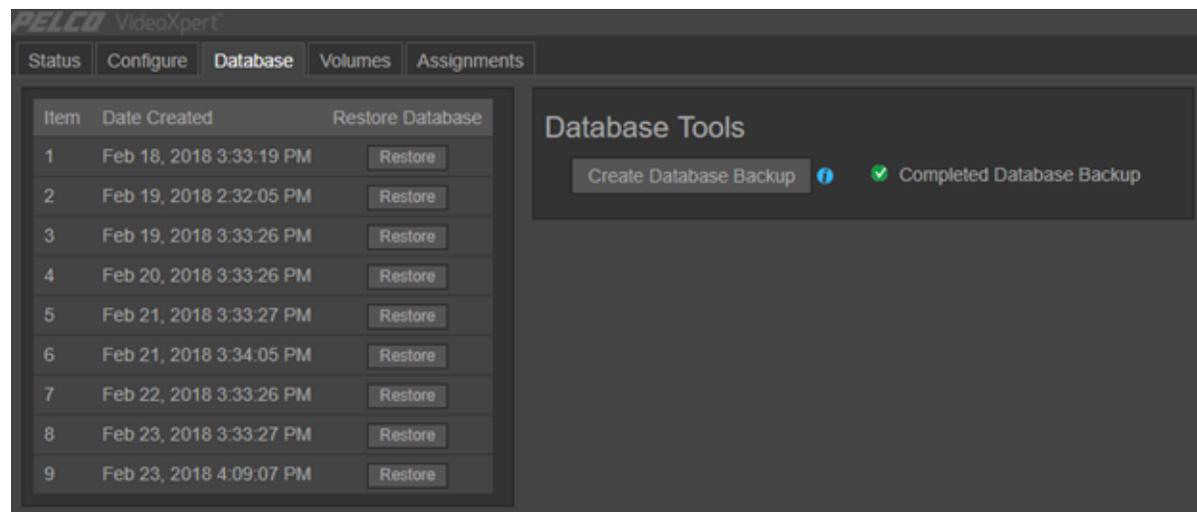
 **CAUTION:** This procedure will cause you to lose all data that has been added after the backup was taken, so you must be sure that your old data is worth more than the newer data.

1. Select one node in the cluster to be the primary node.
2. Copy the appropriate database backup from your configured network storage location to the primary node.
3. Shut down the VideoXpert Core and VideoXpert Core Database services on everything except the primary node.

4. On the primary node, open a command prompt (cmd) window as Administrator. In the cmd window:
  - a. Navigate to the installation directory of Core, typically “C:\Program Files\Pelco\Core”.
  - b. Run the set command to set the full path to the database backup as a variable. For example:  
“set DbBackup=C:\Path\To\My\Backup\core-123124125.sql”.
  - c. Run the restore script using the command “utils\manual\_restore\_db.bat %DbBackup%”.  
The script might take several minutes to complete.
5. After the script has completed, start the VideoXpert Core service on all other nodes in the cluster.

### Backing Up and Restoring the Database on VideoXpert Professional Systems (VideoXpert Professional only)

VideoXpert Storage takes database recovery points daily, and stores these points for eight days. You can also initiate a manual backup, an example of which is shown as *Item 9* in the screen capture below. If your database enters an error state, you can restore to one of the available points from the *Database* page.



The screenshot shows the VideoXpert web interface with the 'Database' tab selected. On the left, there is a table with the following data:

Item	Date Created	Restore Database
1	Feb 18, 2018 3:33:19 PM	Restore
2	Feb 19, 2018 2:32:05 PM	Restore
3	Feb 19, 2018 3:33:26 PM	Restore
4	Feb 20, 2018 3:33:26 PM	Restore
5	Feb 21, 2018 3:33:27 PM	Restore
6	Feb 21, 2018 3:34:05 PM	Restore
7	Feb 22, 2018 3:33:26 PM	Restore
8	Feb 23, 2018 3:33:27 PM	Restore
9	Feb 23, 2018 4:09:07 PM	Restore

On the right, the 'Database Tools' section shows a 'Create Database Backup' button with a blue information icon and a green checkmark next to the text 'Completed Database Backup'.

### Manually Backing Up the Database on VideoXpert Professional Systems

1. In VideoXpert Storage Portal, click the **Database** tab.
2. In the *Database Tools* area, click **Create Database Backup**.
3. In the *Backup Database* confirmation dialog box, click **Backup**.

When the backup is complete, *Completed Database Backup* will be displayed in the *Database Tools* area of the window.

### Restoring the Database on VideoXpert Professional Systems

Restoring the database restores camera associations (provided the camera still exists within the VideoXpert environment) and storage settings. Restoring the database will not affect video directly; you will not lose video when restoring to an earlier time. However, if you have added cameras to the recorder after a backup was taken, and restore to that backup, you will lose access to video for any cameras the database restore process removes from the database.



Note: The NTP server address is not recovered during backup or restore. The NTP address must be reset manually after the backup or restore is complete.

1. In VideoXpert Storage Portal, click the **Database** tab.
2. In the table, locate the backup to be restored, and then click the corresponding **Restore** button.
3. In the *Backup from [identifier]* confirmation dialog box, click **Restore**.  
Restoring can take several minutes, and there is no way to cancel a restoration that is in progress.

When the restore operation is complete, *Completed Restore for Backup [#]* will be displayed in the *Database Tools* area of the window.

### Configuring the SMTP Server

You can configure the SMTP server to send email from the host to an email address. To do so:

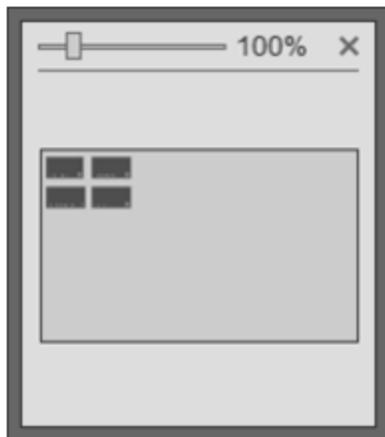
1. Click **System**, and then click **SMTP**.
2. If the *Mail From* field is not already populated with the correct value, enter a valid email address in the *Mail From* field.
3. Enter a value in the *SMTP Host* field.
4. Enter a number in the *SMTP Port* field.
5. (Optional) Click to select the checkbox for *Enable SMTPS*.
6. (Optional) Click to select the checkbox for *Enforce validation of the server's certificate*.
7. Enter a value in the *Username* field.
8. Enter a value in the *Password* field.
9. Click **Send Test Email**, enter an email address in the *Send Test Email* dialog box, in the *Send to Email* field, and then click **Send Email**.
  - If the *Send Test Email* dialog box returns "Test email sent successfully!", click **OK**.
  - If the *Send Test Email* dialog box returns "Test email failed...", click **Try Again**, either correct the email address, and then click **Send Email**; or click **Cancel**, correct any errors in the SMTP configuration, and then try to send a test email again.
10. (Optional) To cancel the changes and return to the previously saved settings, click **Revert**.
11. Click **Save Settings**.

## Using Monitor Walls

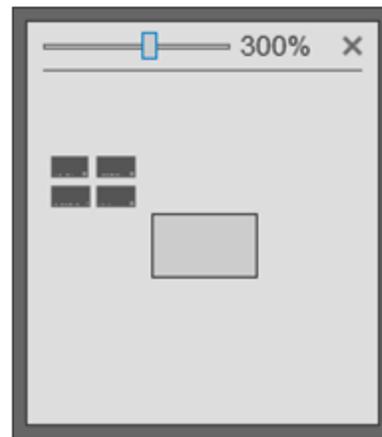
You can use existing monitors to configure several monitor walls.

### Creating a Monitor Wall

1. Click **Monitor Walls** to access the page.
2. At the bottom of the left panel, click the *Add a new Monitor Wall* icon (+).
3. In the *Add a Monitor Wall* field at the upper left corner of the monitor wall window, enter a name for the monitor wall.
4. In the *Drag Monitors to assign* (right) panel, click and drag a monitor to the location you would like it to appear on the monitor wall. Repeat this step for each monitor that you want to add.
  - To refresh the list of monitors, in the upper right corner of the *Drag Monitors to assign* (right) panel, click the *Refresh* icon (G).
  - To filter the list of monitors, in the *Drag Monitors to assign* (right) panel, enter a value in the *Search Monitors* field.
5. (Optional) To delete a monitor from the monitor wall, in the left panel, click the *Delete* icon (trash) in the monitor to delete.
6. (Optional) Scale the monitors:
  - To resize the monitors individually, click on a monitor and drag a corner to resize it.
  - To zoom in and out on all monitors by the same percentage, in the preview window, drag the selector bar to the appropriate magnification level. The images below show the monitor wall preview at 100% magnification and at 300% magnification. Notice that the monitors are no longer included in the frame.



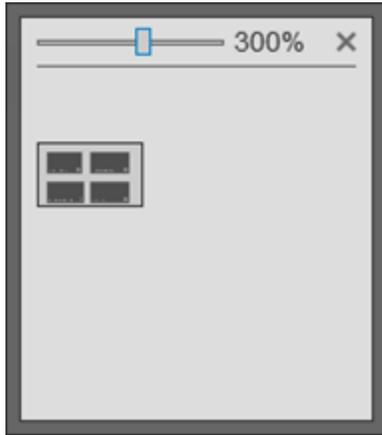
100% Magnification



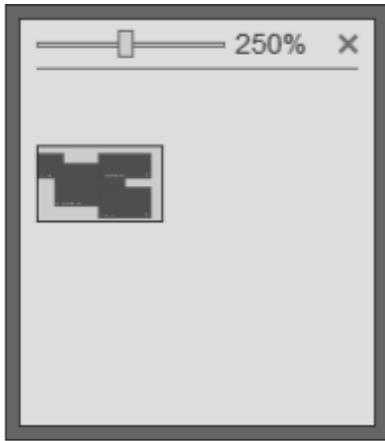
300% Magnification

7. (Optional) If necessary, move the monitors into the monitor wall frame:
  - Use the scroll bars at the bottom and right edges of the monitor wall window to bring the monitors into view.

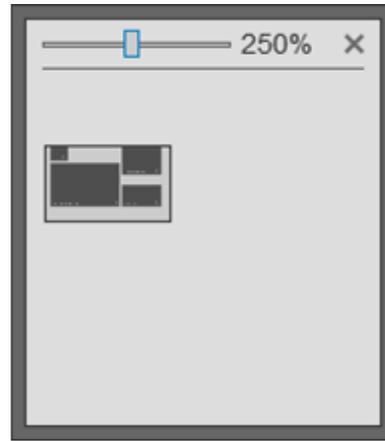
- In the preview window, drag the monitor wall frame so that the appropriate monitors are in the frame. The image below shows the monitors at 300% magnification, but they are now included in the monitor wall frame.



8. (Optional) Rearrange the monitors in any configuration by dragging them to the desired locations on the monitor wall. The image below shows the monitor wall with overlapping monitors and without overlapping monitors.



**With Overlapping Monitors**



**Without Overlapping Monitors**

9. When you are satisfied with the look of the monitor wall, click **Save**.

### Editing a Monitor Wall

1. Click **Monitor Walls** to access the page.
2. In the left panel, click to select the monitor wall to edit.
3. At the bottom of the left panel, click the *Edit the selected Monitor Wall* icon (✎).
4. Update the monitor wall as needed, using the steps in the section titled [Creating a Monitor Wall](#).
5. When you are satisfied with the look of the monitor wall, click **Save**.

### Deleting a Monitor Wall

1. Click **Monitor Walls** to access the page.
2. In the left panel, click to select the monitor wall to delete.

## VideoXpert Toolbox v 3.3 Operations Manual

3. At the bottom of the left panel, click the *Delete the selected Monitor Wall* icon ().
4. In the confirmation dialog box, click **Delete**.

## Using Reports

From the *Reports* page, you can create and generate reports, and export them from the system. Reports are exported in CSV format.

- Report Templates preloaded to VxToolbox are:
  - Default Camera Report
  - Default Device Report
  - Default Event Report
  - Default Recording Gap Report
  - Default Role Report
  - Default Camera Role Access Report
  - Default Storage Report
  - Default User Report
  - Default User Action Report

You can edit an existing report template, or create a new one and edit the template details to include only the information needed.

Generating reports containing a large number of events might take some time. You can navigate away from the *Reports* page while the system generates your report. If your report parameters are too large, the request might time-out and the system might ask you to narrow your search.

## Creating a Report Template

You can generate reports either manually or automatically from any of the templates in the *Report Templates* panel. To create a new template.

1. Click the **Reports** tab.
2. In the *Report Templates* list in the left panel, create a new report template using one of the following methods:
  - To make a copy of an existing template from the *Report Templates* panel, select the template in the *Report Templates* panel, and then click the *Create a copy of the selected Report Template* icon (📄). A new template (named the same as the original template - *Copy*) is added to the list.
  - To make a copy of an existing template from the *Template Details for [template name]* panel, select the template, and then click the **Save as New Template** button at the lower left of the *Template Details for [template name]* window (upper left panel). In the *Save New Template* dialog box, enter a value in the *Template Name* field, and then click **Save**.
  - To start with a blank template, click the *Create a new Report Template* icon (⊕). A *New Unsaved Template* is added to the list.
3. Click to select the new report template.
4. If the *Report Type* drop-down menu is available, select from the report type.

The report type can only be selected if you started with a blank template; if you copied an existing template, the copy is assigned the same report type as the original.

5. If the *Include [report type] (rows)* field is displayed:
  - a. Click to select **All** or **Selected** from the drop-down menu.
  - b. If you clicked **Selected**, click the *Select [report type] sources* icon () under the drop-down menu; in the *Select [report type]* window, click to select and deselect the appropriate options, and then click **OK**.
6. In the *Include Info (columns)* field, click to select and deselect the checkboxes for information to include in the report template.

As you select and deselect this information, you can preview the report in the *Column Preview for [report template name]* panel in the (vertical) center of the window.
7. If the *Time Range* field is displayed, select an option from the drop-down menu. If you select **Custom**, set start and end dates and times in the *Date & Time* fields, either by typing in values (mm/dd/yy and hh:mm AM or PM formats) or by using the selectors available by clicking the date icon () or the time icon ()
8. (Optional) To generate a report for this template automatically:
  - a. Click to select the checkbox for *Automatically Generate this Report*.
  - b. From the drop-down menu below the option, select the day of the week on which the report will be generated.
  - c. Type or select a time in the *at* field.
  - d. (Optional) Click to select the checkbox for *Automatically Export to .csv*. If you select this, enter a *Network Storage Location*, *Username*, and *Password*. The user name and password are optional.
9. Click **Save template changes** or **Save as new template**.
10. If the *Save New Template* dialog box is displayed, type a new name in the *Template Name* field, and then click **Save**.

### Editing a Report Template

If appropriate, you can edit an existing template.

1. Click the **Reports** tab.
2. In the *Report Templates* list in the left panel, click to select the template to edit.
3. In the *Template Details for [template name]* (right) panel, make any changes needed to the template, except for the *Report Type*. The *Report Type* cannot be edited.
4. To save this over the existing template, click **Save template changes**.

If you do not want to overwrite the existing template, you can click **Revert** to cancel the changes, or click **Save as new template** to save the settings as a new template.

### Deleting a Report Template

If appropriate, delete a template.

1. Click the **Reports** tab.
2. In the *Report Templates* list in the left panel, click to select the template to delete.
3. Click the *Delete Template* icon ()
4. In the confirmation dialog box, click **OK**.

## Generating a Report Manually

Even if a report is generated automatically, you can generate the report manually, as needed.

1. Click the **Reports** tab.
2. In the *Report Templates* list in the left panel, click to select the report to generate.
3. In the *Column Preview for [report template name]* panel (vertical center of the window), at the right of the panel:
  - a. Type a value in the *Name your report* field, or keep the default report name.
  - b. Click **Generate Report**.

The report is listed in the *Generated Reports* table at the bottom of the window.

## Exporting a Generated Report

To export a report from the *Generated Reports* table:

1. Click the **Reports** tab.
2. In the *Generated Reports* table at the bottom of the window, click to select the report to export.
3. Click **Export to .csv**.
4. Browse to a file location and, if appropriate, type a new value in the *File name* field.
5. Click **Save**.

## Deleting a Generated Report

To delete a report from the *Generated Reports* table:

1. Click the **Reports** tab.
2. In the *Generated Reports* table at the bottom of the window, click to select the report to delete.
3. Click the *Remove report file* icon ().
4. In the confirmation dialog box, click **OK**.

## Managing Events

From the Events tab, you can configure event details and notifications to ensure that the right users are notified when the system records a particular action or alarm.

### Setting Event Log Retention Periods

By default, events expire every 30 days. However, you can opt to keep events for up to 90 days, and you can set different expiration periods for both events local to the system and events from aggregated sites. These event retention settings are listed in the upper right corner of the page in a statement: *System events discarded after <x> days. <y> days for events coming from remote systems.*



Note: Event retention settings for aggregated events only affect the event log on the local system. The event log on the remote system has its own event log and may have different retention settings.

To change event retention settings:

1. Click **Events**.
2. Click the *Event Configuration* icon () at the upper left of the page.
3. Set the retention periods for both local events and events coming from remote systems, either by typing in numbers or selecting them using the up and down arrows.
4. If you reduce the number of days to retain event information, read the warning that is displayed in the *Global Event Configuration* dialog box and adjust the values accordingly.
5. Click **Save Changes**.

### Finding and Filtering Events

Use filtering options to show the events relevant to you. Filters appear in the left-most panel of the *Events* tab and in some other tabs. Click the expand the *Filter* panel, and then do one or more of the following.

- Enter values in the *Filters Devices* field to filter by name, ID, model, IP address, serial number, vendor, or software version.
- Select an event *Category* from the pull-down menu.
- Select an event *Notification* from the pull-down menu.
- Enter a range in the *Severity* fields. To do so, either type in the severity to and from values. or select them using the up and down arrows.
- Select the event *Roles* from the pull-down menu.
- Click **Reset Filters** to clear the filters.

The events matching the filter criteria will be listed in the main panel.

### Viewing and Configuring Event Details

1. Click **Events**.
2. In the center panel, click to select the event you want to view or modify. You can use the filter, as described in the section titled *Finding and Filtering Events*.
3. Event details are shown in the right column. If necessary, click to expand **Event Details**.

4. To edit the event details settings, access the *Event Details for* dialog box by one of these methods:
  - In the right panel, click the edit icon (✎) to the right of *Event Details*.
  - Right-click the event name, and then click **Edit Event Details**.
5. In the *Event Details for* dialog box, change event settings as necessary.
  - Click to select or deselect the checkbox for *Active* to determine whether VideoXpert will report the event. If you select *Active*, VideoXpert will report the event.
  - Click to select or deselect the *Use Custom Display Name*.
  - If you selected *Use Custom Display Name*, enter a name in the corresponding field.
  - The *Custom Display Name* is how VideoXpert will represent the event.
  - Change the *Severity*, if necessary, either by typing a value in the *Severity* field, or by using the up and down arrows to select a value. The severity may help users determine whether or not they need to act on an event.
6. Click **Save Changes**.

### Viewing and Configuring Event Notifications

1. Click the **Events** tab.
2. In the center panel, click to select the event you want to view or modify. You can use the filter, as described in the section titled *Finding and Filtering Events*.
3. Event notification settings are shown in the right column. If necessary, click to expand **Notification Settings**, and view the notification information.
4. To edit the event notification settings, access the *Notification Settings* dialog box by one of these methods:
  - In the right panel, click the edit icon (✎) to the right of *Notification Settings*.
  - Right-click the event name, and then click **Edit Notification Settings**.
5. Click to select the radio box for the appropriate *Notification Type*.
6. If you selected *Pop-Up Banner*, configure these notification settings:
  - a. Scroll to the bottom of the dialog box.
  - b. Click the checkbox to select or deselect *Play Sound With Banner*.
  - c. Select the radio button for either *Standard Chime* or *Custom Sound*. If you select *Custom Sound*, browse to the *Audio File*, and then click **Open**.
  - d. Type or select a value for *Play Sound [#] times*.
  - e. Type or select a value in the *Delay Sound Playback For [#] seconds between iterations* field.
  - f. In the *Auto-Acknowledge After* area (automatically selected, and cannot be deselected), type or select a number, and then select a unit of time (for example, **Minutes**) from the drop-down menu.
  - g. Click to select or deselect the checkbox for *Do Not Hide Cell Alerts*. Events associated with individual video sources provide alerts within VxOpsCenter cells; these alerts hide after three seconds. Select this option to prevent the alert from hiding.
  - h. Click to select and deselect the checkboxes for the *User Roles to Notify*.

7. If you selected *Pop-Up Banner; Requires Acknowledgment*, configure these notification settings:
  - a. Click the checkbox to select or deselect *Play Sound With Banner*.
  - b. If you selected *Play Sound with Banner*, select the radio button for either *Standard Chime* or *Custom Sound*. If you select *Custom Sound*, browse to the *Audio File*, and then click **Open**.
  - c. If you selected *Play Sound With Banner*, type or select a value for *Play Sound [#] times*.
  - d. If you selected *Play Sound With Banner*, type or select a value in the *Delay Sound Playback For [#] seconds between iterations* field.
  - e. (Optional) Click to select the checkbox for *Auto-Acknowledge After*, type or select a number, and then select a unit of time (for example, **Minutes**) from the drop-down menu.
  - f. (Optional) Click to select the checkbox for *Allow Snooze (And Set Snooze Time)*, and then click the checkboxes to select and deselect the available intervals.
  - g. Click to select or deselect the checkbox for *Do Not Hide Cell Alerts*. Events associated with individual video sources provide alerts within VxOpsCenter cells; these alerts hide after three seconds. Select this option to prevent the alert from hiding.
  - h. Click to select and deselect the checkboxes for the *User Roles to Notify*.
8. If you selected *No Pop-Up Banner; Requires Acknowledgment*, configure these notification settings:
  - a. Click the checkbox to select or deselect *Play Sound With Banner*.
  - b. If you selected *Play Sound with Banner*, select the radio button for either *Standard Chime* or *Custom Sound*. If you select *Custom Sound*, browse to the *Audio File*, and then click **Open**.
  - c. If you selected *Play Sound with Banner*, select a value for *Play Sound [#] times*.
  - d. If you selected *Play Sound with Banner*, select a value in the *Delay Sound Playback For [#] seconds between iterations* field.
  - e. (Optional) Click to select the checkbox for *Auto-Acknowledge After*, select a number either by typing in a value or using the up and down arrows, and then select a unit of time (for example, **Minutes**) from the drop-down menu.
  - f. Click to select or deselect the checkbox for *Do Not Hide Cell Alerts*. Events associated with individual video sources provide alerts within VxOpsCenter cells; these alerts hide after three seconds. Select this option to prevent the alert from hiding.
  - g. Click to select and deselect the checkboxes for the *User Roles to Notify*.
9. Click **Save Changes**.

## Using VideoXpert Maps Import Utility

The VxMaps Import Utility is used to import AutoCAD 2013 DWG files, allowing customers to use their pre-existing building maps with the VideoXpert VxMaps plug-in.

- In VxToolbox, ensure that your system is set up for VxMaps. You can then create a new map, view or edit an existing map, manage permissions for maps, and remove an existing map. Prerequisites are:
  - VideoXpert Enterprise or VideoXpert Professional v 2.5 or later
  - ArcGIS Desktop Basic license
  - .dwg files in AutoCAD 2013
- In VxOpsCenter, the operator can launch and configure the mapping plug-in, select a map file, add cameras to the map, manage available maps, set user preferences for mapping, and view an existing map. Refer to the current version of the *VideoXpert OpsCenter User Guide* (for Enterprise systems) or the *VideoXpert OpsCenter* section of the current version of the *VideoXpert Professional User Guide*.

## Preparing Your System

The VxMaps Import Utility requires the following prerequisites to function properly:

- If you are using a Windows 7 Operating System, ensure that the platform update is installed. It can be found at <https://www.microsoft.com/en-us/download/details.aspx?id=36805>.
- Ensure that Visual C + + Redistributable for Visual Studio 2015 is installed. It can be found at <https://www.microsoft.com/en-us/download/details.aspx?id=48145>.
- Install Esri's ArcGIS Pro and ArcMap software, with at least the "ArcGIS Desktop Basic Single Use Term License" license level applied to the software.
- Install VideoXpert Enterprise v 2.2 or greater and the latest version of VxToolbox (1.4.1.x).
- AutoCAD files must use the 2013 format.
- Camera blocks in AutoCAD must be placed on one or more layers that only include the camera blocks.
- Camera blocks in AutoCAD must include specific attributes so that VxMaps can represent the camera appropriately:
  - Attribute "VxCameraNumber" must be populated with the VideoXpert camera number. If VxCameraNumber is not populated, the map will represent the camera as a "FIXED" camera with a "?" in the center.
  - Attribute "VxCameraType" must be populated with the VideoXpert camera type. Available types are "FIXED", "PTZ", and "IMMERSIVE". If VxCameraType is not populated, cameras will display as FIXED cameras on the map.
- The DWG file must not include any symbol which is larger than 40kB for Polylines and 10kB for Polygons; any Polyline which is larger than 40kB and any Polygon which is larger than 10kB will be removed from the map.

## Creating a New Map

1. If you have not already done so, start VxToolbox on the PC where ArcGIS Pro is installed, click the **Maps** tab.
2. In the left panel, click the add icon (+).
3. In the *Add a Map* dialog box, click to select the appropriate radio button:
  - For an outdoor map, select *Add a World Map (ESRI Street Map)*.
  - For an indoor map, select *Add GeoDB Map from a DWG file(s)*.
  - To use a jpeg or png file, select *Add a Raster Map (jpeg or png)*.
4. If you selected an indoor map:
  - a. In the *Select DWG file(s) to convert* area, click **Browse**, select all files (including all xref dwg files), and then click **Open**.
  - b. Wait for the map to convert.
  - c. This can take an hour or more for large files. Progress is indicated in the *Processing...* bar.  
 Note: At any time during this process, you can click **Start Over** to return to the initial *Add a Map* dialog box, where you can select the map type, etc. You can also click **Back**, when it is enabled, to return to the previous step in this process.
  - d. In the *Conversion Complete* screen, click the checkboxes to select all layers to include in and deselect all layers to exclude from the map, and then click **Next**.
  - e. In the *Designate which included layers will serve as CAMERA layers* area, click the checkboxes to select the layers dedicated to cameras and deselect the layers that are not, and then click **Next**.
  - f. In the *Name your map and save to your VX System* area, click **Download CSV Report** to see details about which cameras were found, and which were not.
  - g. If the map is correct, click to select the radio button for either *Update Existing Map* or *Save New Map*.
  - h. If you selected *Update Existing Map*, select a map from the *Select Existing Map* drop-down menu, click the map you wish to update, and then click **Save to VX System**.
  - i. If you selected *Save New Map*, type a name in the *Map Name* field, and then click **Save to VX System**.
  - j. When you have added all needed maps, click the **X** at the top, right of the *Add a Map* dialog box to close it.
5. If you selected an outdoor map:
  - a. Type a value in the *Name* field.
  - b. Click **Save**.
6. If you selected a raster map:
  - a. Type a value in the *Name* field.
  - b. Click **Browse...**, navigate to and select the file, and then click **Open**.
  - c. Click **Save**.

## Viewing an Existing Map

1. Start VxToolbox on the PC on which ArcGIS Pro is installed, and then select your VideoXpert system from the top left drop down-menu.  
Ensure that the user logging in is assigned the “administrator” role or has all of the maps permissions assigned.
2. Click the **Maps** tab.
3. From the list of maps in the left panel, click the map to preview.  
The selected map is displayed in the right panel.

## Editing an Existing Map

1. If you have not already done so, start VxToolbox on the PC where ArcGIS Pro is installed, click the **Maps** tab, and then (in the left panel) click to select the map.
2. Click the edit icon (.
3. (Optional) To rename the map, type a new name in the *Edit Map* field.
4. (Optional) To add cameras to the map, drag them from the *Cameras* tab in the left panel to the appropriate location on the map.
5. (Optional) To add a link from the current map to another map, drag a map name from the *Maps* tab in the left panel to the appropriate location on the current map.
6. (Optional) To move a camera or linked map on the map press and hold Ctrl, click the camera or map to be moved, and move it to the appropriate location.
7. To rotate a camera, right-click it, and then select a value in the *Set Rotation* window, either by using the slider bar or by typing a value in the field.
8. To remove a camera or a linked map from the map, right click it, and then click **Remove From Map**.
9. (Optional) To replace an AutoCAD map file:
  - a. Above the map in the right panel, click **Edit/Replace Map File**.
  - b. Follow the instructions in the section titled [Creating a New Map](#).
  - c. Click the **X** in the upper right corner of the *Edit/Replace Map File* dialog box to close it.
10. Click **Save**.

## Removing an Existing Map

1. If you have not already done so, start VxToolbox on the PC where ArcGIS Pro is installed, click the **Maps** tab, and then (in the left panel) click to select the map.
2. Click the delete icon (.

## Managing Permissions for Maps

After you have created maps, use VxToolbox to assign map permissions to different roles.

1. If you have not already done so, start VxToolbox on the PC on which ArcGIS Pro is installed.
2. Refer to the section titled [Managing Users and Roles](#) for instructions to add, edit, and assign roles.

## Appendix A: Working With Permissions

Permissions define the actions a user can perform within the system. Where necessary, permissions are defined in a parent-child hierarchy; to assign a child permission, you must first define the parent permission.

Some features are not mapped to an obvious permission; in some cases, a feature might require compounding permissions. For example, users may have the “Place Cameras on Map” permission. However, users must also possess the “View Video Sources” permission for cameras they want to place in order to view video thumbnails and verify that they are placing maps in the right locations on the map. Pay attention to compound or complex cases listed below to ensure that your users have the permissions they require to perform their surveillance roles within VideoXpert.

### Understanding Permission Resource Restrictions

Permissions grant access to resources. Some permissions allow all-or-nothing access, using the “Any” setting; some permissions allow you to select the resources to which a user has access using the “selected resource” settings.

“Any” indicates that a permission is available in all cases. If the permission does not support restrictions, but is an “on/off” permission, “Any” is the only resource option; if the permission allows “Selected Resources,” selecting “Any” allows a user to access all resources covered by the permission. For example, selecting “Any” for the “View Video Sources” permission grants a user access to view live video from all video sources within VideoXpert. If that same user was restricted to “Selected Resources” for the “Use PTZ Mode” permission, then the user would be able to view video from all cameras but could only initiate PTZ controls for the cameras to which he or she had access.

### Using Plugin Permissions

Plugin permission provide access to plugins and related features within plugins. Plugins operate in accordance with the “View Live Video” surveillance permission; even if a user has access to a plugin, the user might not be able to effectively use the plugin without access to related cameras.

Permission	Actual Resource	Any	Selected	Description
Use eConnect	eConnect plug-in	X		This permission provides access to eConnect data. The permission is for “Any Resource” but operates in accordance with the “View Video Sources” permission. If a user has access to “View Video Sources” for a particular camera, and this permission is enabled, a user can view eConnect data for that camera.
Use Map	Mapping plugin	X		Allows users to access the mapping plug-in.
View Maps	Drawing (map)	X	X	Determines the maps to which a user has access. Maps only show cameras for which the user possesses the “View Video Sources” permission.
Manage Map Files				Allows users to upload, delete, and select available map layers
Place Cameras on map				Allows users to add and arrange cameras on the map; camera availability is limited by the “View Video Sources” permission.

## Using Supervision and Reports Permissions

Supervision and Report permissions provide access to supervisors checking user activities auditing the system. These permissions are not hierarchical.

Permission	Actual Resource	Any	Selected	Description
Multiview	Users	X		Enables a supervisor to see users that are viewing a camera in real time.
Access Reports	Reports	X		Allows users to export reports.
Audit User Activity	User Action Report	X		Allows users to export User Actions reports.
Access User Views	Users	X	X	Provides access to workspaces and tabs created by other users. Note that you can restrict this permission by user, but not by tab or workspace. Users with this permission can access all tabs or workspaces created by selected users.
Manage System Views	Views	X		Allows users to delete or rename user views, and perform other relevant actions.

## Using Device Management Permissions

These permissions grant users the ability to edit devices on the devices page, or tags at the system level.

Permission	Actual Resource	Any	Selected	Description
Configure Monitor Wall Decoders	Decoders/ Workstations	X	X	Provides the ability to configure decoders.
Setup Edge Devices	Devices	X	X	Allows configuration of devices.
Manage System Tags	Tags	X		Provides the ability to create, edit, delete, and assign System/Global tags. This permission does not apply to personal tags created or assigned through VxOpsCenter; personal tags only appear to the creating user and only the creating user can assign, modify, or delete his or her own personal tags.

## Using User Management Permissions

These permissions grant users the ability to manage user account settings.

Permission	Actual Resource	Any	Selected	Description
Manage User Accounts	Users	X	X	Grants the ability to create, update, or delete user accounts.
Manage Aggregator Accounts	Aggregator User	X		Grants the ability to manage (change the password for) the "Aggregator" user account.

Permission	Actual Resource	Any	Selected	Description
Assign Roles to Users	Users	X		Grants the ability to assign roles to users.
Manage Roles	Roles	X		Grants the ability to create, delete, and assign permissions to roles.

### Using Event Management Permissions

Event management permissions enable users to view, act on, and configure event notifications. There is no hierarchy for these permissions, but in most cases, a user that can configure events should have access to the event log and be able to handle events.

Permission	Actual Resource	Any	Selected	Description
Handle Events	Event notifications	X		Allows a user to act on event notifications, marking them as “in progress” or acknowledging them.  <b>Note:</b> this permission does not guarantee that a user will receive events, only that the users with this permission can act on event notifications they receive. Event notifications are defined within each event; the ability to modify events is granted by the “Configure Events” permission.
Configure Events	Events	X		Provides the ability to configure events.
View Event History	Events	X		Allows users to view the event history.

### Using System Management Permissions

System Management permissions should be reserved for administrators. Users with these permissions can modify system configuration settings; these changes should be carefully planned by administrators to ensure that they do not interfere with video recording or interrupt surveillance operations.

Permission	Actual Resource	Any	Selected	Description
Configure Recording	Recorders	X		Allows configuration of recording, including recording schedules, camera assignments, and retention periods; this permission does not affect access to the VXS Recorder interface.
Manage System Servers	Core	X		Provides the ability to edit settings.

### Using Surveillance Permissions

Surveillance permissions are common permissions required by operators in your VideoXpert environment. These permissions grant access to view live or recorded video, control cameras, and bookmark moments of interest.

Permission	Actual Resource	Any	Selected	Description
View Video Sources	Cameras/ Audio Sources	X	X	Enables users to access live video or audio. Audio sources are tied to video sources; granting access to a video source automatically grants access to associated audio sources.
Launch Saved Views Remotely	Views	X		Allows a user to send a view to another user. Users with this permission can also force recipients to accept views.
Create System Bookmarks	Bookmarks	X		Allows a user to create or edit bookmarks.
Delete System Bookmarks	Bookmarks	X		Allows a user to delete bookmarks.
Use PTZ Mode	Cameras	X	X	Provides the ability to pan, tilt, and zoom a camera. This permission includes a priority; priority determines who can control a camera in the event of competing users. If two or more users attempt to control a camera, the user with the highest priority will take command and lower priority users will be locked out.
Manage PTZ Mode	Cameras	X	X	Provides the ability to set PTZ priorities.
Lock PTZ Mode	Cameras	X	X	Provides the ability to lock a camera into a particular PTZ position. PTZ locks may be overridden by users with higher priority than the user who set the lock.

### Using Investigation Permissions

Investigation permissions grant access to recorded video and the ability to export video from the system. Typical setups will want to assign the same access level to “view recorded video” permissions as to “view video sources”.

Permission	Actual Resource	Any	Selected	Description
View Recorded Video	Cameras/Audio Sources	X	X	Enables users to access live video or audio. Audio sources are presently tied to video sources; granting access to a video source automatically grants access to associated audio sources.
Manage Exports	Exports	X		Allows a user to edit or delete entries in the “Manage Exports” window.
Export Media Clips	Exports	X		Allows a user to export and download recorded video; a user can only export recorded video for sources defined in the “View Recorded Video” permission.

## Using Special Case Permissions

Some features don't map directly to a permission; they may either require compound permissions, or a permission that is not plainly apparent. To use the following features, ensure that the user has the listed permissions.

Feature	Required Permission(s)
Collaborative Tabs	Manage System Views
Bookmarking	View Video Sources; View Recorded Video; Create System Bookmarks

## Appendix B: Understanding Event Types and Reporting

You can pull reports (in CSV format) containing events and configuration information to audit your system and VideoXpert users. Reports requiring a start date and time include an event history; reports that do not require a start date and time provide current configuration information only. Depending on the date and time range you set, some reports may take several minutes for the system to process.

Event types typically refer to who or what is the cause of an event, and do not necessarily determine the report in which an event will appear.

- Admin events typically occur at the administrative level.
- Analytic events are the result of software analytics.
- Client events that are reported by the client.
- External events, which are injected into the system by a third party.
- Hardware events resulting from physical hardware issues and sensor readings.
- System events are typically the result of normal operator actions.

The system holds events for 30 days. You cannot obtain reports past the 30 day threshold.

Event	Event Type	Online/ Offline	User Actions	Event History
Core DB Backup Failed	Admin			X
Core DB Backup Halted	Admin		X	X
Core DB Backup Removed	Admin		X	X
Core DB Backup Restore	Admin		X	X
Core DB Backup Started	Admin		X	X
Core DB Backup Success	Admin			X
Device Added	Admin		X	X
Device Commissioned	Admin			
Device Decommissioned	Admin			
Device Modified	Admin		X	X
Device Removed	Admin		X	X
Drawing Added	Admin		X	X
Drawing Image Modified	Admin		X	X
Drawing Image Removed	Admin		X	X
Drawing Image Retrieved	Admin		X	X
Drawing Marker Added	Admin		X	X
Drawing Marker Modified	Admin		X	X
Drawing Marker Removed	Admin		X	X
Drawing Modified	Admin		X	X

Event	Event Type	Online/ Offline	User Actions	Event History
Drawing Removed	Admin		X	X
License Expired	Admin		X	X
Notification Added	Admin		X	X
Notification Added Role	Admin		X	X
Notification Removed	Admin		X	X
Notification Removed Role	Admin		X	X
Privilege Added	Admin		X	X
Privilege Modified	Admin		X	X
Privilege Removed	Admin		X	X
Role Added	Admin		X	X
Role Modified	Admin		X	X
Role Removed	Admin		X	X
Schedule Added	Admin		X	X
Schedule Modified	Admin		X	X
Schedule Removed	Admin		X	X
Situation Added	Admin		X	X
Situation Modified	Admin		X	X
Situation Notification Added	Admin		X	X
Situation Notification Removed	Admin		X	X
Situation Removed	Admin		X	X
User Added	Admin		X	X
User Modified	Admin		X	X
User New Password	Admin		X	X
User Removed	Admin		X	X
User Role Added	Admin		X	X
User Role Removed	Admin		X	X
Abandoned Object	Analytic			X
No Abandoned Object	Analytic			X
Adaptive Motion	Analytic			X
No Adaptive Motion	Analytic			X
Directional Motion	Analytic			X
No Directional Motion	Analytic			X

Event	Event Type	Online/ Offline	User Actions	Event History
Loitering	Analytic			X
No Loitering	Analytic			X
Object Count	Analytic			X
No Object Count	Analytic			X
Object Removal	Analytic			X
No Object Removal	Analytic			X
Sabotage	Analytic			X
No Sabotage	Analytic			X
Stopped Vehicle	Analytic			X
No Stopped Vehicle	Analytic			X
Motion Detected	Analytic			X
No Motion Detected	Analytic			X
User Logged Off	Client		X	X
User Logged On	Client		X	X
Client Snoozed Event	Client		X	X
Saved View Accepted	Client		X	X
Saved View Received	Client		X	X
Saved View Sent	Client		X	X
Client Tab Added	Client		X	X
Client Tab Modified	Client		X	X
Client Tab Removed	Client		X	X
Client Workspace Added	Client		X	X
Client Workspace Modified	Client		X	X
Client Workspace Removed	Client		X	X
CPU Load	Hardware			X
Disk Failure	Hardware			X
Fan Failure	Hardware			X
Input Loss	Hardware			X
Input Restored	Hardware			X
Link Speed Changed	Hardware			X
Memory Load	Hardware			X
Packet Loss	Hardware			X

Event	Event Type	Online/ Offline	User Actions	Event History
Power Supply Failure	Hardware			X
Temperature Issue	Hardware			X
UPS Low	Hardware			X
Volume Full	Hardware			X
Alarm Active	System			X
Alarm Inactive	System			X
Bookmark Added	System		X	X
Bookmark Modified	System		X	X
Bookmark Removed	System		X	X
Client Push	System			X
Client Push Acknowledged	System			X
database_fault	System			X
Device Offline	System	X		X
Device Online	System	X		X
Export Deleted	System		X	X
Export Download	System		X	X
Export Failure	System			X
Export Started	System		X	X
Export Successful	System			X
Fault	System			X
PTZ Lock	System		X	X
PTZ Pattern Triggered	System		X	X
PTZ Preset Triggered	System		X	X
PTZ Unlock	System		X	X
Quick Report Downloaded	System		X	X
Retention Low	System			X
Stream Loss	System			X
Stream View Denied	System			X
Stream View Started	System		X	X
Stream View Stopped	System		X	X
Stream View Timeout	System			X
Tag Added	System		X	X

Event	Event Type	Online/ Offline	User Actions	Event History
Tag Linked	System		X	X
Tag Merged	System		X	X
Tag Modified	System		X	X
Tag Removed	System		X	X
Tag Unlinked	System		X	X



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