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Installation Guide

Avigilon™ HD Network Video Recorder

HD-NVR3-VAL-3TB, HD-NVR3-VAL-12TB and HD-NVR3-VAL-18TB

Avigilon Corporation
avigilon.com

PDF-NVR3VAL-A

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Introduction

The Avigilon HD Network Video Recorder is preloaded with Avigilon Control Center™ software and is configured for maximum performance and reliability. The HD Network Video Recorder can be easily integrated into any existing Avigilon surveillance system, or act as the base of a new site.

Overview

Front View
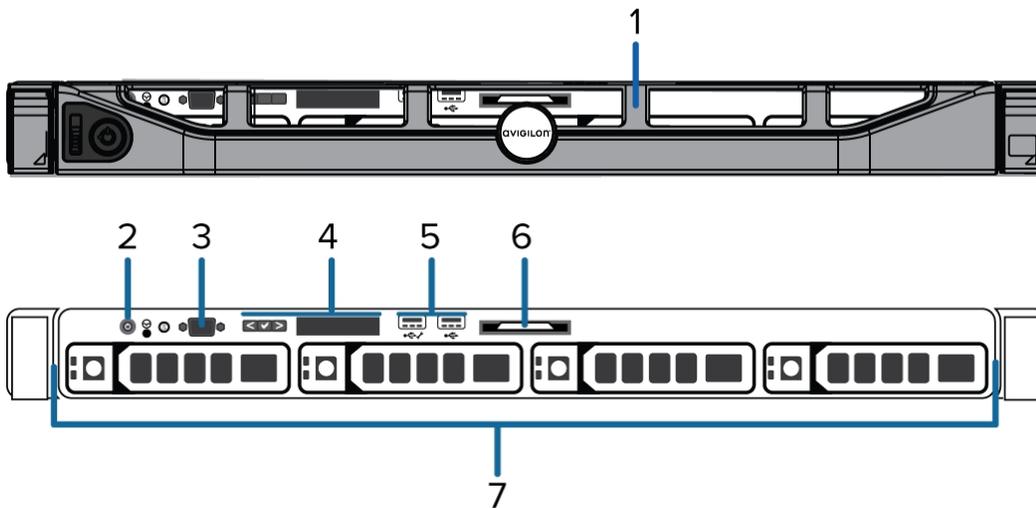
1. **Bezel**

   Protects against unauthorized physical access to the hard drives. The bezel must be removed to access the front of the recorder.

2. **Power button**

   Controls the power supply to the recorder.

3. **Video connector**

   Accepts a VGA monitor connection.

4. **LCD display**

   Provides information about system information and error messages. For details about the error messages, see the *Dell Event and Error Messages Reference Guide*.

5. **USB connectors**

   Accepts USB connections to external devices.

6. **Information tag**

   Provides the product service details, MAC addresses and a copy of the Windows license key.

7. **Hard drives**

   Provides access to hot-swappable hard drives. There are LED indicators on each hard drive.

Back View
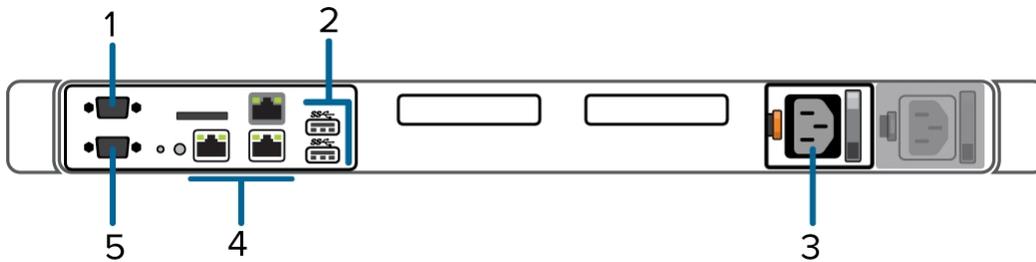
1. **Serial connector**

   Accepts connections to serial devices.

2. **USB connectors**

   Accepts USB connections to external devices.

3. **Power supply**

   Redundant power supply.

   Optional secondary power supply is available (HD-NVR3-VAL-2NDPS-NPC).

4. **1 Gigabit Ethernet ports**

   Accepts an Ethernet connection to multiple networks.

5. **Video connector**

   Accepts a VGA monitor connection.

Installation

Package Contents

Ensure the package contains the following:

- Avigilon HD Network Video Recorder
- Rack sliding rail assembly kit
- Cable management arm assembly kit
- Bezel and key
- Power cable
- Recovery USB — contains Windows recovery software and supporting materials.

Installing the Rack Rails and Cable Management Arm

If the recorder will be kept in a server rack, install the Rack Sliding Rails and the Cable Management Arm provided in the recorder package. Follow the procedures outlined in the *Rack Installation Instructions* and the *CMA Installation Instructions* provided in the assembly kits.

NOTE: The supplied Rack Sliding Rails are compatible with square and round hole racks.

Connecting Cables

Refer to the diagrams in the Overview section for the location of the different connectors. Make any of the following connections as required:

1. Connect a KVM switch or separate keyboard, mouse and monitor to the recorder.
    - Keyboard and mouse can be connected to any USB port on the recorder.
    - Monitor can be connected to any video connector at the front or back of the recorder.
2. Connect the recorder to your network using an Ethernet network cable.
3. Connect a power cable to the power supply at the back of the recorder.
4. Press the power button on the front of the recorder. Check that the recorder LED indicators display the correct status.

Configuring Windows Embedded Standard 7 Software

After the recorder starts, you will need to configure the Windows operating system for the first time.

1. On the first screen, carefully scroll through the list and select your preferred language.

   NOTE: You will not be able to change this setting after Windows software applies your settings at the end of this procedure.
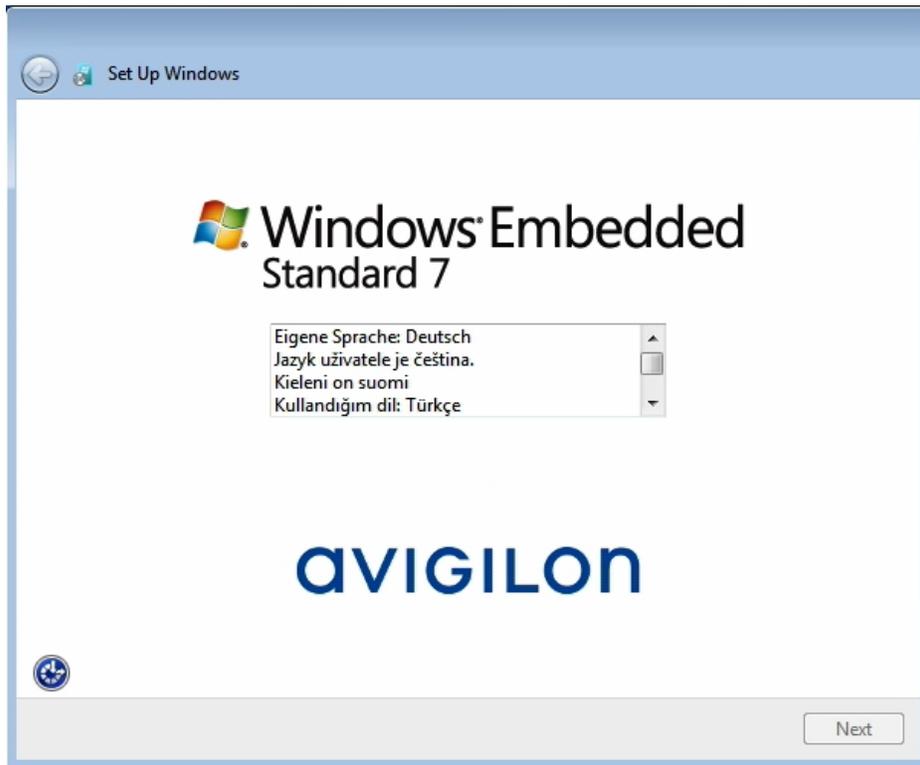
Figure 1: The language selection screen during initial Windows software set up. (Used with permission from Microsoft.)

2. Click **Next**.

3. Select your locale preferences then click **Next**.

4. Enter a user name for accessing the Windows software.

5. Enter a unique computer name or use the default computer name. When you are ready, click **Next**.

6. Set a password for the user name you entered on the previous screen. When you are ready, click **Next**.

7. On the following page is the end user license agreement for the Windows operating system. Review the terms then select the **I accept the license terms** check box and click **Next**.

8. Select the correct date and time for the system then click **Next**.

9. Select the network mode for the appliance. The recommended option is **Work Network**.

Next, the Windows software restarts and applies your settings. Once restarted, you will need to license your Avigilon Control Center system.

Installing the Bezel

The bezel can be installed on the front of the recorder to help protect the power button and hard drives against unauthorized access.
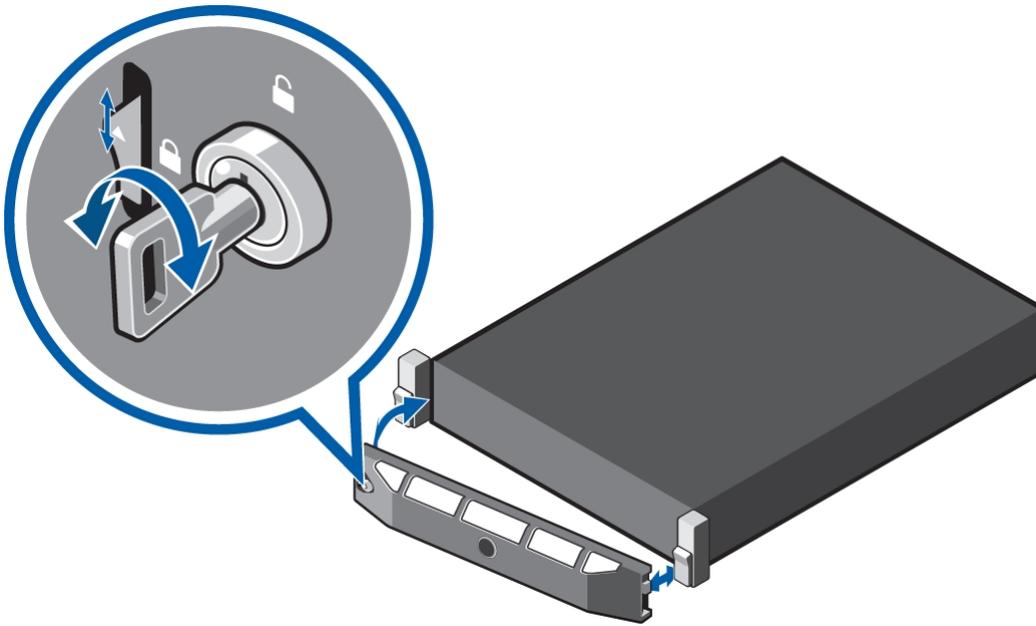
1. Slide the right end of the bezel against the right hinge of the recorder.
2. Push the left end of the bezel against the recorder until it clicks into place.
3. Use the provided key to lock the bezel.

Licensing the Avigilon Control Center (ACC)™ System

Before you can configure cameras and monitor live or recorded video, you will need to activate your ACC software license. The license is provided with the recorder. You will need to purchase a license if you don't already have one.

After the recorder restarts, the first screen you see is the Avigilon Control Center software license wizard.

Other parts of the ACC system may start while you perform this procedure, but you will not be able to use any of the features until after license activation is complete.

1. Click **License Activation**.
2. On the following screen, select one of the following:
   - **Internet Activation** – If the recorder has an internet connection, select this option to quickly license the Avigilon Control Center software.
   - **Manual Activation** – If the recorder is not currently connected to the internet or you plan to keep the system in a private intranet, select this option.

Internet Activation

1. On the Step 1: Generate Activation File page, enter your license key. A green check mark will appear beside your license key when it is correct.
2. Click **Next**.
3. On the Product Registration page, enter your contact information to receive product updates, then click

Next.

4. The Admin Tool connects to the Avigilon licensing server and activates the license.

   When the *Activation Succeeded* message is displayed, click **Finish**.

Manual Activation

1. Click **Step 2: Add License File**.

2. On the Enter Product Key page, enter your license key.

   A green check mark will appear beside your license key when it is correct.

3. Click **Next**.

4. On the Select Activation File page, confirm where the activation file will be saved. Click **[...]** to navigate to a different file location.

   You can rename the activation file, but you must keep the `.key` extension.

5. Click **Next**.

   On the following page, you will see the Activation File Saved message.

6. Find the saved activation file and copy the file to a computer with internet access.

7. Open a web browser and go to **http://activate.avigilon.com**.

8. At the Avigilon License Activation web page, click **Browse** to locate your activation file, then click **Upload**.

9. The activated license file should download automatically. If not, allow the download to occur when you are prompted.

10. Complete the product registration section to receive product updates from Avigilon, then click **Register**.

11. Find the downloaded license file and copy the file to the recorder.

12. If the Activation File Saved message is still displayed in the Add License wizard, click **Next**. Otherwise skip this step.

13. Click **Step 2: Add License File**.

14. On the Import License File page, click **[...]** to locate the license file, then click **Next**.

15. When the *Activation Succeeded* message is displayed, click **Finish**.

Adding Licenses

If you choose to upgrade your existing license to a different edition, you will need to perform the licensing procedure again. In this case, you can access the Add License wizard from the Avigilon Control Center Server Admin Tool software.

1. To open the Admin Tool, perform one of the following:

   - Select **All Programs** or **All Apps** > **Avigilon** > **Avigilon Control Center Server** > **Avigilon Control Center Server Admin Tool**.

   - From the recorder desktop, double-click .

2. In the Admin Tool window, select the **Settings** tab and click **Licensing**.

3. Click **Add License**.

4. Complete either the **Internet Activation** or **Manual Activation** procedure to add the new license to your current system.

Networking

By default, the HD Network Video Recorder acquires an IP address on the network through DHCP. If you need to set up the recorder to use a static IP address or any specific network configuration, see the *Windows Help and Support* files for more information.

Configuring the Avigilon Control Center Software

After you set up and license the HD Network Video Recorder, it is recommended that you complete the following steps to configure the ACC system.

For more information about any of the following procedures, see the help files provided with the Avigilon Control Center Client software.

Starting Up and Shutting Down the Avigilon Control Center Client Software

After you install the ACC Client software, start the application and access the ACC ES Analytics ApplianceHD Network Video Recorder.

Starting Up the Client Software

Perform one of the following:

- In the Start menu, select **All Programs** or **All Apps** > **Avigilon** > **Avigilon Control Center Client**.

- Double-click 👁 or 👁 desktop shortcut icon.

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

Once the application has started, it will automatically display a list of all the sites that are connected to the same network. You will be prompted to log in to all sites.

Shutting Down the Client Software

1. In the top-right corner of the Client software, select ⚙ > **Exit**.

2. When the confirmation dialog box appears, click **Yes**.

Logging Into and Out of a Site

After you start the Client software, you are immediately asked to log in to a site. By default, the ACC ES Analytics ApplianceHD Network Video Recorder is automatically added to the system as a server within a site of the same name.

The default username is *administrator* with no password.

Logging In

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

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

   - From the top-right corner of the window, select ⚙ > **Log In...**.

   - From the top of the application window, click ⊞ to open the New Task menu, then click ⬚.

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

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

3. Enter your username and password for the selected sites.

   Or, select the **Use current Windows credentials** check box to automatically use the same username and password as your computer.

   NOTE: If you are unable to login using your current Windows credentials, your system may be using Kerberos as a network authentication protocol. Contact your network administrator for help.

4. Click **Log In**.

   You are logged into the selected sites.

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

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

Logging Out

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

To...	Do this...
Log out of one or select sites	- In the System Explorer, select one or more sites then right-click and select **Log Out**.
Log out of all sites	1. In the top-right corner of the Client, select ⚙ > **Log Out**. 2. In the confirmation dialog box, click **Yes**.

Changing the Administrator Password

After you log in to the ACC system for the first time, it is recommended that you change the default administrator password.

1. At the top of the application window, click to open the New Task menu. When the menu appears, click .

2. In the Setup tab, click .

3. In the following dialog box, select the administrator user name and click .

4. Click **Change Password...**.

5. In the following dialog box, enter a new password and then confirm the new password.

6. Click **OK**.

Tip: If you forget the default administrator password, resetting the password requires restoring the factory default settings on every server in the site. To avoid this issue, it is highly recommended that you create at least one other administrator level user as a backup.

Connecting Cameras to the Avigilon Control Center System

After all the cameras in your system have been physically connected to the ACC ES Analytics Appliancenetwork, you need to connect the cameras to the ACC system so that video can be recorded and indexed for search.

1. In the site Setup tab, click .

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

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

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

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

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

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

5. If the camera supports a secure connection, the **Camera Control:** drop down list is displayed. Select one of the following options:

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

- **Secure** — The system will protect and secure the camera's configuration and login details. This option is selected by default.

- **Unsecure** — The camera's configuration and login details will not be secured and may be accessible to users with unauthorized access.

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

6. If it is not displayed, click ⌄ to display the Site View Editor and choose where the device appears in the System Explorer.

   - In the 🏢 site directory, drag devices up and down the right pane to set where it is displayed.

   - If your site includes 🏢 folders, select a location for the device in the left pane. The right pane updates to show what is stored in that directory.

   - If you are connecting multiple devices at the same time, the selected devices must be assigned to the same location.

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

7. Click **OK**.

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

Setting the Recording Schedule

Once all the cameras have been connected, you can set when you want each camera to record video.

By default, all connected cameras are set to record when events are detected by the system. You can skip this procedure if you prefer to keep the default settings.

Before you can assign a recording schedule, you must create a template. The template allows you to assign the same schedule to multiple cameras.

Creating a Recording Template

The events that can be selected for the template depend on the licensed features in your system.

1. In the server Setup tab, click 📅 . The Recording Schedule dialog box is displayed.

2. Click **Add Template** below the Templates: list.

3. Enter a name for the **New Template**.

4. Click the **Set Area** button, then click or drag the cursor across the **Recording Mode:** timeline to set the types of events that the cameras will record throughout the day. Individual rectangles on the Recording Mode: timeline are colored when they have been selected.

   The **Recording Mode:** options include:

- **Continuous** — record video constantly.
- **Motion** — only record video when motion is detected.
- **POS Transactions** — only record video when a point of sale (POS) transaction is made.
- **License Plates** — only record video when a license plate is detected.

5. To disable recording in parts of the template, click the **Clear Area** button, then click or drag the cursor across the timeline to remove the set recording areas.

6. If cameras are *not* recording in Continuous mode all day, you can set cameras to record reference images between events in the recording schedule.

- Select the **Record a reference image every:** check box, then set the time between each reference image.

Setting Up a Weekly Recording Schedule

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

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

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

Figure 2: The Recording Schedule dialog box: Default Week

4. Click **OK**.

Setting Data Aging

Data aging defines how long recorded video is stored and the quality of the video as it ages over time. In the ACC system, the recorded image rate is slowly reduced so that recorded video can be viewed over a longer period of time while still making room for new recordings. You can adjust how long the full image rate video is kept, so that you have the best quality video when you need it.

The amount of data aging that is available depends on the camera you have connected to your system:

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

- **High Bandwidth** keeps the original high quality video and the secondary stream of low resolution video.

- **Low Bandwidth** only keeps the secondary stream of low resolution video.

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

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

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

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

Total record time estimate is based on constant recording

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

NOTE: The time shown in the Total Record Time column is an estimate only.

1. In the server Setup tab, click [icon] .

   The Recording and Bandwidth dialog box is displayed.

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

2. In the Data Aging column, move the sliders to adjust the amount of time video is stored at each image rate.

   - To change the data aging settings for all linked cameras, move the slider for one linked camera and all linked cameras will be updated.

   - To change the data aging setting for one camera, break the camera's link to other cameras by clicking the [icon] icon to the left of its name, then make your changes.

3. In the **Max. Record Time** column, manually enter a maximum record time or select one of the options from the drop down list for each camera.

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

4. Click **OK**.

Adding Users and Groups

If there will be other people using the system, you may want to add them as separate users rather than giving them access through the default administrator account.

Before you can add individual users, you will need to add permission groups that define what users have access to. By default, the system has the following groups:

- **Administrators** — has access to everything in the system.
- **Power Users** — has access to most features in the system except for the ability to import and export settings.
- **Restricted Users** — has access to live video only and can control audio and digital outputs.
- **Standard Users** — has access to live and recorded video, but cannot make any Setup changes.

It is highly recommended that the Administrators group includes at least two users. In the event one administrator user forgets the default administrator password, the second administrator user can be used to reset the password. If you do not have a second administrator user, you may need to completely reset the system.

Adding Groups

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

   If a user is added to the group through the Add/Edit User dialog box, the user is automatically added to the group's Members list.
   a. Click .
   b. Select the users that should be part of this new group. Only users that have been added to the site are displayed.

      Tip: Enter the name of a user in the **Search...** field to locate specific users.
   c. Click **Add**. The users are added to the Members list.
6. Click **OK** to save the new group.

Adding Users

1. In the site Setup tab, click .
2. In the Users tab, click .
3. When the Add/Edit User dialog box appears, complete the User Information area.
4. If you don't want this user to be active yet, select the **Disable user** check box. Disabled users are in the system but cannot access the site.

5. In the Login Timeout area, select the **Enable login timeout** check box to set the maximum amount of time the Avigilon Control Center Client software can be idle before the user is automatically logged out of the application.

6. In the Password area, complete the following fields:

    - **Password:** — enter a password for the user.

    - **Confirm Password:** — re-enter the password.

    - **Require password change on next login** — select this check box if the user must replace the password after the first login.

    - **Password Expiry (Days):** — specify the number of days before the password must be changed.

    - **Password never expires** — select this check box if the password never needs to be changed.

7. In the Member Of tab select the check box beside each access group the user belongs to.

    The other columns display the permissions that are included in the selected groups.

8. Click **OK**. The user is added to the site.

Repeat this procedure to add all the users that are required.

Advanced Settings

After you've set up all the required settings in the ACC Client software, the system can start running.

The following list provides some advanced settings you can use to further customize your system. See the application Help files for details about how to configure each setting.

- Adjust camera settings

    - If camera video looks slightly blurry or unclear, you can adjust the camera's Image and Display settings.

    - If you want the camera to record at a different image rate, you can adjust the camera's Compression and Image Rate settings.

    - To reduce the amount of ambient motion detection for a specific camera, you can adjust the Motion Detection settings.

    - To maintain the privacy of certain areas, you can set Privacy Zones in the camera's field of view so that private spaces are never recorded.

- Corporate Hierarchy

    - If you are setting up an enterprise system that includes large, physically dispersed sites, you can use the Corporate Hierarchy feature to define system access at different levels of the organization.

- Alarms

    - Use the Alarms dialog box to create and manage alarms. Once an alarm has been created, you can monitor alarm events in the Alarms tab and in the ACC Mobile App.

- Self-Learning Video Analytics
  - If you have an Avigilon self-learning video analytics device, use the Video Analytics Configuration dialog box to configure classified object motion detection. Once configured, you can receive events, trigger alarms, define rules, and record video when specific object motion requires your attention.
- Email notifications
  - You can set up an SMTP email server to send you email notifications when system events occur.
  - If you have a Standard Edition licensed system, you can set up detailed rules to send you email notifications when specific events occur.
- Setup the Gateway
  - The ACC Gateway software allows you to access video from a remote web browser or mobile device. If the Gateway software is not set up, you cannot access video outside of your local network.
  - Install the ACC Mobile app on your mobile device so that you can remotely monitor live and recorded video.

Advanced Features

Checking System Health

The Server Administrator software is pre-installed on the recorder. The software provides information about the recorder's system operation status, and gives you remote access to the recorder for recovery operations.

If one of the LED indicators on the recorder is flashing an error warning, the Server Administrator will display details about the problem. For more information about the LED indicators, see *LED Indicators* on page 19.

1. Open the Server Administrator.
   - To open the Server Administrator locally, double-click the **Server Administrator** shortcut icon on the desktop.
   - To open the Server Administrator remotely, open a web browser and enter this address: https://*<recorder IP Address>*:1311/

     For example: `https://192.168.1.32:1311/` or `https://localhost:1311/`

   If you are using an intranet connection, your browser may display an error message. Allow the browser to ignore the certificate warnings.

2. On the login screen, enter the Windows software administrator username and password that was configured for the recorder.

3. On the Server Administrative home page, the health of the system components are displayed in the workspace on the right.
   - To see the health of other system components, expand and select a different component from the System Tree on the left.
   - The table displayed in the workspace lists system components and their status:

	The system component is running normally.
	The system component has a non-critical warning.
	The system component has a critical failure.
	The system component status is unknown.

   - To see the details of a system component, select the system component from the workspace.

For more information about the features in the Server Administrator, see the Help system provided in the software. The System Administrator is also the tool used to customize the RAID settings, assign a hot spare and remotely monitor the system health.

Replacing Hard Drives

1. Locate the failed hard drive at the front or back of the recorder.
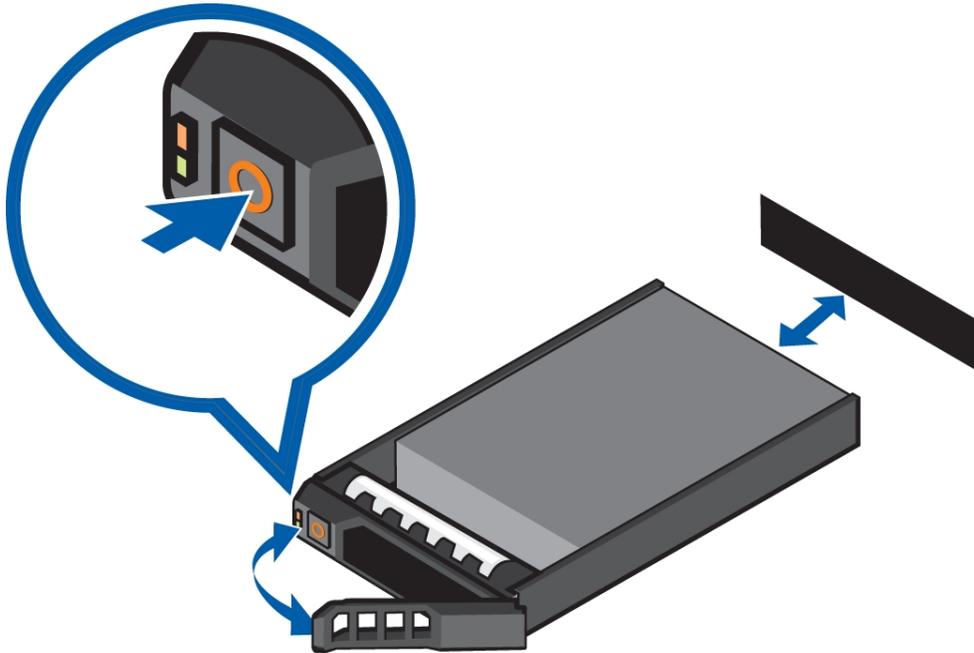
2. Press the release button on the front left of the hard drive.
3. When the handle is released, pull the hard drive out of the recorder.
4. Remove the four screws from the side of the hard drive carrier.
5. Lift the failed hard drive out of the carrier.
6. Insert a new hard drive into the carrier then screw it into place. The hard drive connectors should face the back.
7. When the hard drive is secured in the carrier, insert the hard drive back into the recorder.
8. Once the hard drive is inserted all the way in, push the handle against the hard drive to lock it into place.

The recorder immediately starts rebuilding the hard drive. The progress is displayed in the Server Administrator. This may take several hours.

LED Indicators

The following tables describe what the LEDs on the recorder indicate.

Power Status Indicators

The power button on the front of the recorder lights up when power is on.

Additional information about the power supply is provided by the power status indicator on the back of the recorder. The following table describes what the LEDs indicate:
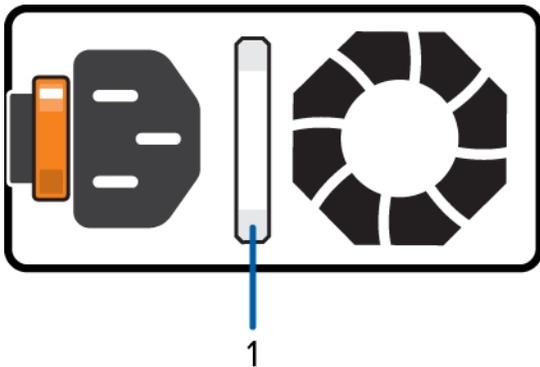
Figure 3: (1) The power status indicator.

LED Indicator	Description
Off	Power is not connected.
Green	Power is supplied to the recorder.
Flashing green	Firmware update is being applied to the power supply unit.
Flashing green then turns off	The redundant power supply is mismatched. This only occurs if you have a secondary redundant power supply installed.
Flashing orange	There is a problem with the power supply.

Network Link Status Indicators

When the recorder is connected to the network, the recorder's connection status LEDs above the Ethernet port display the recorder's connection status to the network. The following table describes what the LEDs indicate:
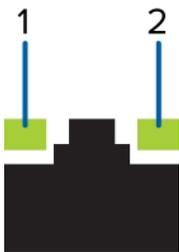
Figure 4: (1) Link LED. (2) Connection Status LED.

LED Indicator	Description
Off	The recorder is not connected to a network.
Link LED is green	The recorder is connected to a network at the maximum port speed (1 Gbps or 10 Gbps).
Link LED is orange	The recorder is connected to a network at less than the maximum port speed.
Connection Status LED is blinking green	The recorder is working with other parts of the Avigilon Control Center software.

Hard Drive RAID Status Indicators

Each hard drive has its own set of LED indicators to show its activity and status.
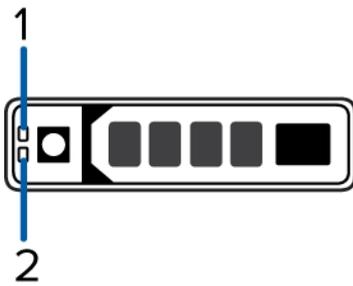

Figure 5: (1) Status LED. (2) Activity LED.

The Activity LED flashes green when the hard drives are working. The following table describes what the Status LEDs indicate:

LED Indicator	Description
Green	The hard drive is online.
Off	The hard drive is disconnected from the recorder.
Two short green flashes every second	The system is identifying a new hard drive, or preparing a hard drive for removal.
Flashes green, orange then off	The hard drive is predicted to fail.
Four short orange flashes per second	The hard drive has failed.
Flashes green slowly	The hard drive is rebuilding.
Blinks green for three seconds, orange for three seconds and off for six seconds	The hard drive rebuild has been aborted.

Specifications

System

Avigilon Control Center Software	Enterprise, Standard and Core
Operating System	Windows Embedded Standard 7 software
Hard Disk Drive Configuration	Near-line SAS, hot swappable, RAID 5

Mechanical

Dimensions (LxWxH)	674.7 mm x 482.4 mm x 42.95 mm; 26.56" x 18.99" x 1.69"
Weight	13.8 kg (30.42 lb)
Form Factor	1U rack

Electrical

Power Input	100 to 240 V AC, 50/60 Hz, autoranging
Power Consumption	350 W (1194.2 BTU/hr)
Power Supply	Single — optional secondary power supply (HD-NVR3-VAL-2NDPS-NPC)

Environmental

Operating Temperature	10 °C to 35 °C (50 °F to 95 °F) with no direct sunlight on the equipment.
Storage Temperature	-40 °C to 65 °C (-40 °F to 149 °F)
Operating Humidity	10% to 80% Relative Humidity with 29°C (84.2°F) maximum dew point.
Storage Humidity	5% to 95% RH with 33°C (91°F) maximum dew point. Atmosphere must be non-condensing at all times.
Operating Vibration	0.26 Grms at 5 Hz to 350 Hz
Storage Vibration	1.88 Grms at 10 Hz to 500 Hz for 15 min
Operating Shock	Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 40 G for up to 2.3 ms.
Storage Shock	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the system) of 71 G for up to 2 ms.
Operating Altitutde	3,048 m (10,000 ft).
Storage Altitutde	12,000 m (39,370 ft)

Certifications

Safety	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 / A2:2013 UL/CSA/IEC 60950-1, 2 Ed + Am 1: 2009 + Am 2: 2013 EN 62311:2008
Power Efficiency	80 PLUS Titanium ENERGY STAR 2.0

Electromagnetic Emissions	EN 55032:2012+AC2011/CISPR 22:2008
	EN 61000-3-2:2006 + A1:2009 + A2:2009/IEC 61000-3-2:2005 + A1:2008 + A2:2009 (Class A)
	EN 61000-3-3:2013/IEC 61000-3-3:2013
Electromagnetic Immunity	EN 55024:2010/CISPR 24:2010
Directives	RoHS, Reach (SVHC), WEEE

Limited Warranty and Technical Support

Avigilon warranty terms for this product is provided at **avigilon.com/warranty**.

Warranty service and technical support can be obtained by contacting Avigilon Technical Support:
avigilon.com/contact-us/.