

AVIGILON™



Avigilon NVR6 Premium Form D

User Guide

NVR6-PRM-FORM-D-72TB

NVR6-PRM-FORM-D-96TB

NVR6-PRM-FORM-D-120TB

NVR6-PRM-FORM-D-160TB

NVR6-PRM-FORM-D-200TB



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Introduction

The Avigilon Network Video Recorder (NVR6 Premium Form D) is preloaded with Avigilon Control Center (ACC) software and is configured for exceptional performance and reliability. The Network Video Recorder can be easily integrated into any existing Avigilon surveillance system or act as the base of a new site.

Before You Start

Avigilon recommends the use of an uninterruptible power supply (UPS) system to protect your video surveillance system hardware. A UPS system is used to protect critical equipment from mains supply problems, including spikes, voltage dips, fluctuations and complete power failures using a dedicated battery. It can also be used to power equipment during the time it takes for a standby generator to be started and synchronized.

Any UPS connection must include configuration to shut down the operating system on the appliance when battery power is low or there is 15 minutes of power remaining.

It is recommended that cameras not be connected to the appliance until after the appropriate network configuration has been set up.

Overview

Front View



Figure 1: Front view of NVR6 Premium Form D with front bezel installed

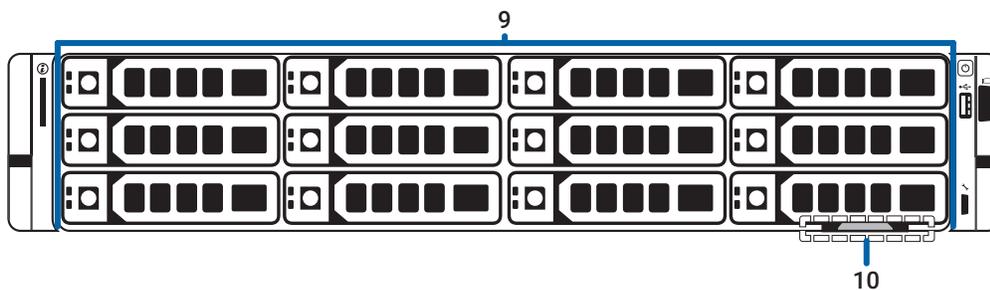


Figure 2: Front view of NVR6 Premium Form D with front bezel removed

- 1. Bezel lock**
Protects against unauthorized physical access.
- 2. Diagnostic indicators**
Provides information about system operations.
For more information about the above LED indicators, see [LED Indicators on page 17](#).
- 3. System health and  system identification button**
Displays the system health. Also identifies a recorder deployed in a rack with other equipment.
For more information, see [System Health and Identification Modes on page 20](#).
- 4. Bezel**
Protects against unauthorized physical access to the hard drives.
For more information, see [Install the Bezel on page 6](#).
- 5. Power button**
Controls the power supply to the recorder.
- 6. Video connector**
Accepts a VGA monitor connection.
- 7. USB 2.0 port**
Accepts USB connectors to external devices.
- 8. iDRAC Direct micro USB port and iDRAC Direct LED indicator**
Connects a laptop or desktop computer on the same network as the Integrated Dell™ Remote Access Controller (iDRAC) version 9.
For more information about the iDRAC web interface, see the information tag on your recorder and the [Enabling iDRAC Enterprise Features Setup Guide](#).

9. **Front hard drive bay**
Provides access to hot-swappable hard drives. There are LED indicators on each hard drive. Some drives may contain an empty hard drive tray.
10. **Information tag** (top and bottom views are not shown)
Slides out to provide the serial number, system information, and iDRAC account credentials for initial login to the iDRAC web interface.

Back View

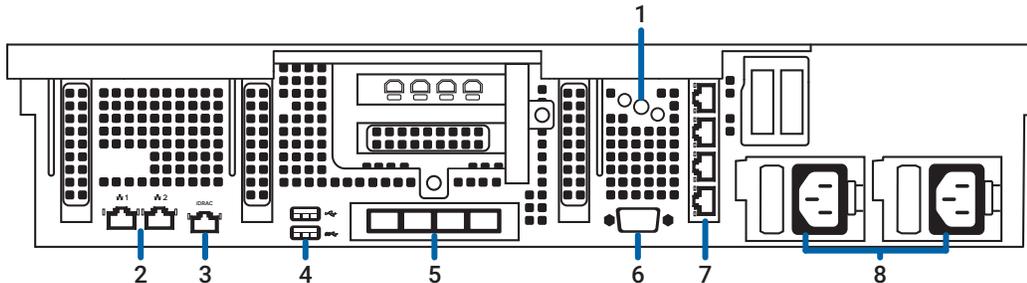


Figure 3: Back view of NVR6 Premium Form D

1. **System identification button**
Identifies a recorder deployed in a rack with other equipment. Also resets the iDRAC web interface without rebooting the operating system.
For more information about the iDRAC reset, see the [Enabling iDRAC Enterprise Features Setup Guide](#).
2. **Two (2) 1 Gbps Ethernet ports**
Accepts Ethernet connections to multiple networks and includes LED indicators of the connections.
3. **Out-of-Band Management (OOBM) port**
Accepts an OOBM RJ-45 connection and includes an LED indicator of the connection.
4. **Keyboard port and mouse port**
Accepts connectors to a keyboard and mouse.
5. **Four (4) 10/25 GbE SFP 28 Ethernet ports**
Accepts Ethernet connections to multiple networks and includes LED indicators of the connections.
6. **Video connector**
Accepts a VGA monitor connection.
7. **Four (4) 1 GbE Ethernet ports**
Accepts Ethernet connections to multiple networks and includes LED indicators of the connections.
8. **Power supply connector**
Accepts a power supply connection.

Package Contents

Ensure the package contains the following:

- Avigilon NVR6 Premium Form D Recorder
- Rack sliding rail assembly kit
- Cable management arm assembly kit
- Bezel and key
- Power cables
 - C13 / C14
 - Region specific
 - NA: NEMA 5-15P / C13
 - UK: BS 1363 / C13
 - EU: SCHUKO / C13
 - AU: AS3112 / C13

Installation

Connect Cables

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

1. Connect a KVM switch or separate keyboard, mouse and monitor to the recorder.
 - The keyboard and mouse can be connected to any USB port on the recorder.
 - The monitor can be connected to any video connector at the front or back of the recorder.
2. Connect the recorder to your network by plugging an Ethernet cable into one of the Ethernet ports.
3. For out-of-band management access and functionality, connect Ethernet cable to the OOBM connector.
4. Connect a power cable to each power supply at the back of the recorder.
5. Press the power button on the front of the recorder. Check that the recorder LED indicators display the correct status. For more information on the different LED status indicators, see [LED Indicators on page 17](#).

Install the Sliding Rack Rails and Cable Management Arm

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

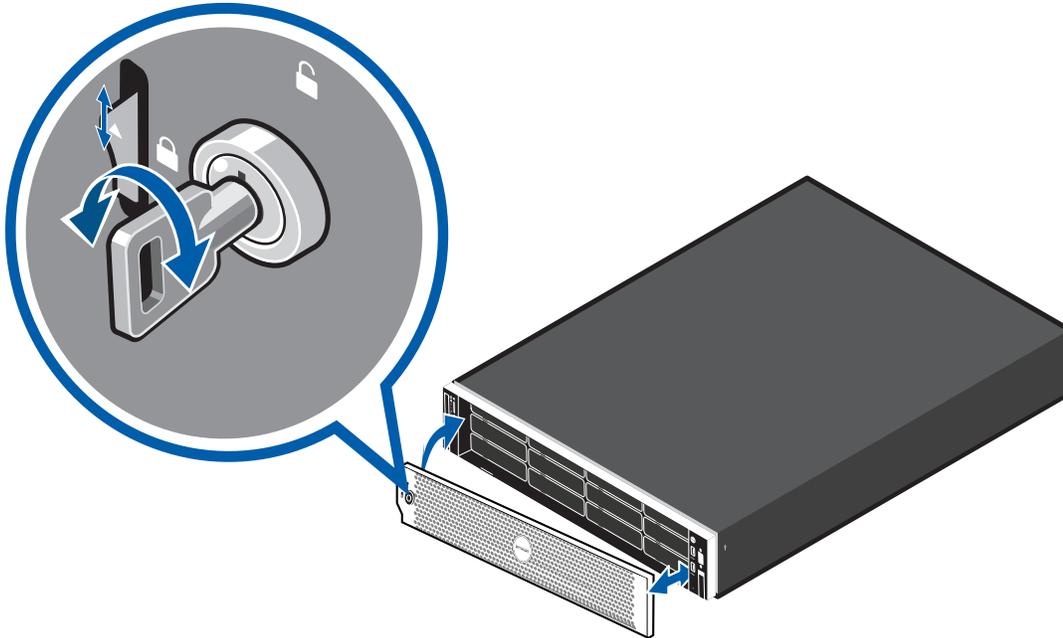


NOTE

When rack-mounting the recorder, ensure no interference occurs from the sliding arms of adjacent equipment in the rack. Every sliding rack rail on the server rack must be aligned before you insert the recorder into the rail for a smooth installation. For more information, refer to the dimensions in your server rack design documentation.

Install the Bezel

The bezel can be installed on the front of the NVR6 Premium Form D recorder to help protect the hard drives against unauthorized access.



1. Align and insert the right end of the bezel until it clicks into place.
2. Push the left end of the bezel into the front of the unit until it clicks into place.
3. Use the provided key to lock the bezel.

Configure the Operating System

Configure the preloaded Windows Server 2022 operating system.

Log into Windows Server for the First Time

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

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

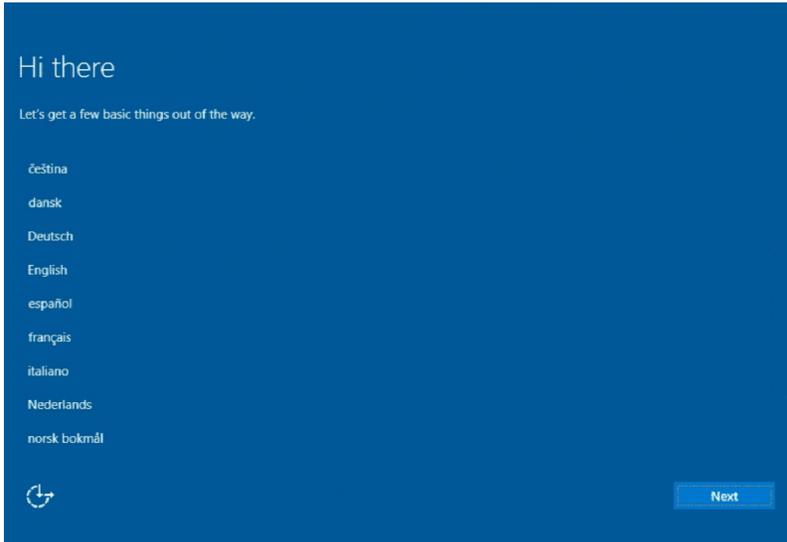


Figure 4: The language selection screen during initial Windows software set up. (Used with permission from Microsoft.)

2. Select the country/region, preferred app language and keyboard layout, and then click **Next**.



NOTE

If a language other than English is selected, the server will restart. This is normal Windows behavior. Proceed with step 3 once the server has finished restarting.

3. The End User License agreements are displayed. Review the terms and click **Accept**.
4. On the Customize settings screen, set a password for the local administrator account and click **Finish**. The password should:
 - Have a minimum length of 7 characters.
 - Meet complexity requirements. See <https://technet.microsoft.com/en-ca/library/cc956977.aspx> for details.

You cannot reuse your last 24 passwords.

The password will expire in 42 days.

5. Press Ctrl+Alt+Delete to unlock and type in the credentials created in the previous step.
6. After you are logged in, the recorder will go through initial system setup.
7. The Setup dialog will start configuring the system storage. This process may take up to 30 minutes depending on the size of the storage volume.
8. After the setup procedure is complete, the system will restart.

Proceed to activate the license for the Avigilon Control Center software on your Network Video Recorder.

Activate the ACC Software and Connect to Avigilon Cloud Services

After you have deployed your NVR6 Premium Form D recorder, activate your ACC software and feature licenses and connect to Avigilon Cloud Services.

Activate ACC Software and Feature Licenses

You can activate, deactivate, and reactivate product or feature licenses. Licenses are called Product Keys in the ACC system, and Activation IDs in the licensing portal.



IMPORTANT

When a new server is added to or removed from a multi-server site, the existing site licenses become inactive and must be reactivated to confirm system changes. See [Reactivating a License below](#).

- [Initial ACC™ System Setup and Workflow Guide](#)
- [ACC 7 Help Center](#)

Printable versions of these guides are available on the Avigilon website: avigilon.com/product-documentation.

Once your license is activated, you can immediately use the new licensed features.

Connect to Avigilon Cloud Services (Optional)

After activating your ACC software, you can connect your ACC site to the cloud, which may require a subscription, and take advantage of the capabilities and features that provide centralized access across distributed systems.

To connect your site to Avigilon Cloud Services, see help.avigilon.com/avigilon-unity/video/cloud.

For information about the cloud services, see help.avigilon.com/cloud.

You can start to back up the system settings for your new site in the ACC Client software after it is configured. These settings include the ACC password, and the settings for the camera connections. For more information on backing up the site and server configurations, see the *Avigilon ACC Client User Guide*.

Reactivating a License

FOR ENTERPRISE EDITION

When servers are added to or removed from a site, the site licenses become inactive and must be reactivated to confirm system changes.

If you do not reactivate the affected licenses, the site will stop normal operations.

1. In the New Task menu , click **Site Setup**.
2. Click the site name, then click .
3. Click **Reactivate Licenses...**

If you have Internet access:

- a. Click **Reactivate Licenses**.
- b. Click **OK** to confirm your changes.

If you do not have Internet access:

- a. Select the **Manual** tab.
- b. Click **Save File...** and choose where you want to save the `.key` files.
- c. Copy the `.key` files to a computer with internet access:
 - i. Go to activate.avigilon.com.
 - ii. Click **Choose File** and select the `.key` file.
 - iii. Click **Upload**. A `capabilityResponse.bin` file should download automatically.
If not, allow the download to occur when you are prompted.
 - iv. Complete the product registration page to receive product updates from Avigilon.
 - v. Copy the `.bin` file to a computer running the ACC Client software.
- d. In the License Management dialog box, click **Apply...**
- e. Select the `.bin` file and click **Open**.
- f. Click **OK** to confirm your changes.

Upgrading the NVR6 Premium Form D to Unity Video

Your NVR6 Premium Form D comes with a bundled installer to upgrade to Unity Video. The instructions below will walk you through this upgrade.

To install Avigilon Unity Video using the Avigilon Unity Software Manager:

1. Navigate to the directory `C:\Avigilon\Control Center Installation Files\8.1.1.2-67\AvigilonUnity-CustomBundle-8.1.1.4`.
2. Locate the `AvigilonUnitySetup.exe` file. Right-click the file and select **Run as administrator**.



IMPORTANT

Do not launch the Software Manager from any other location.

3. Select **Install or Upgrade Applications using a Custom Bundle**.
4. Click **Next** to display the **Install Location** screen.
5. Click **Next** to display the **Select Software Options** screen.
6. Click **Next**. Review and agree to the license agreement, then click **Next** again.
7. Review the **Confirmation** screen and click **Install** to initiate the upgrade. After the upgrade is complete, a **Results** screen displays the applications that have been successfully upgraded.
8. Click **Finish** to exit the Software Manager.

After successfully installing Avigilon Unity Video, apply for licenses for each of the installed products within 30 days.

Troubleshooting

Network Configuration

By default, the NVR6 Premium Form D acquires an IP address on the network through DHCP. If you need to set up the NVR6 Premium Form D to use a static IP address or any specific network configuration, see the *Windows Help and Support* files for more information.

Monitoring System Health

You can monitor the health of the system components in the Site Health page in either the ACC Client software or Avigilon Cloud Services (ACS). See the Help files provided with the ACC Client software, the *Avigilon ACC Client User Guide*, or the *Avigilon Cloud Services Client User Guide* available from the Avigilon website for more information.

Operating System Recovery By Avigilon Recovery Partition

If you need to recover the Windows operating system, the NVR6 Premium Form D includes an onboard recovery partition that is separate from the operating system partition. The advantage of using the Avigilon recovery partition is that you do not need an internet connection to download the recovery image and you do not need to create a bootable USB recovery device.



IMPORTANT

Your operating system drive will be erased and restored to factory settings. Before you proceed with operating system recovery, complete any necessary backups of custom ACC configuration and video recordings.

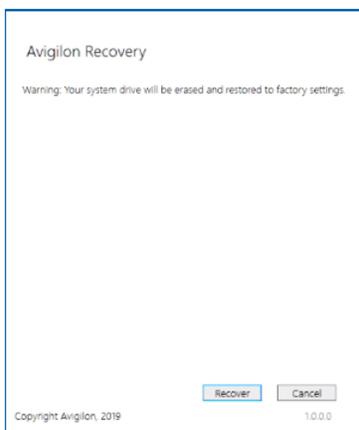


NOTE

After operating system recovery, you need to reinstall the previously installed ACC software. Depending on when your NVR6 Premium Form D was shipped, it is recommended that you connect to the network when possible to install updates for Windows and ACC Client software after system recovery is completed.

1. Start operating system recovery in one of the following ways:
 - On your Windows desktop, select  and then hold down the **Shift** key and select **Restart**.
 - On your locked Windows screen, select  and then hold down the **Shift** key and select **Restart**.
 - During direct boot of the operating system, repeatedly press the down-arrow key and select the partition.
2. On the **Choose an option** screen, select **Use another operating system**.
3. Select the **OS Recovery** partition.

4. On the **Avigilon Recovery** window, select **Recover**.



Allow up to half an hour for the recovery to complete.

5. After system reboot, complete the Windows setup process.
For more information about setting up the Windows operating system, see [Log into Windows 10 for the First Time on page 1](#) or [Log into Windows Server for the First Time on page 7](#).
6. Navigate to `C:\Avigilon\Control Center Installation Files`, and run the ACC installer for the version of ACC software in use at your site.
If needed, connect to the internet and download the required ACC installers.
7. After reinstalling the ACC software, reactivate the ACC licenses.
For more information about reinstalling and reactivating the ACC software, see avigilon.com/recovery.

Operating System Recovery By External USB

If you need to recover the Windows operating system on the Network Video Recorder and you have access to the internet, download the latest Avigilon Recovery Image from avigilon.com/recovery and refer to Support and Downloads for the following information:

- Minimum size of the USB recovery device
- Creating an external USB recovery device
- Recovering the operating system from an external USB recovery device

The general steps are:

1. Load the Avigilon Recovery Image onto a USB recovery device.
For the instructions on creating a USB recovery device, see the [Windows Upgrade and Recovery Guide for Avigilon](#).
2. Plug the USB recovery device into the recorder.
3. Press the **F11** key while booting the recorder.
4. On the UEFI Boot menu, select the USB recovery device.

Maintenance

Checking System Health

You can check your system health through the ACC Client Site Health or with the Server Administrator software.

ACC Client Site Health

You can check on the health of the system components in the Site Health in the ACC Client software. See [Site Health](#) in the *ACC Client User Guide* for more information.

Server Administrator Software 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 17](#).

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/`.

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

2. If asked to log in, enter the Windows software administrator username and password that was configured for the recorder.
3. On the Server Administrator 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.

The Server Administrator is also used to customize the Redundant Array of Independent Disks (RAID) settings, assign a hot spare and remotely monitor the system health. For more information about the features in the Server Administrator, see the Help system provided in the software.

Replacing Hard Drives



NOTE

Before powering down the recorder for any upgrade, recovery or maintenance, back up critical recorder data and programs. For more information, see the *Windows™ Upgrade and Recovery Guide for Avigilon Systems* ([link](#)).

If one of the hard drives fail, you can replace the failed drive while the recorder continues to run. If more than two hard drives fail at the same time, contact Avigilon Technical Support immediately for recovery instructions.

If your recorder is still under warranty, contact Avigilon Technical Support to replace the failed hard drive.



IMPORTANT

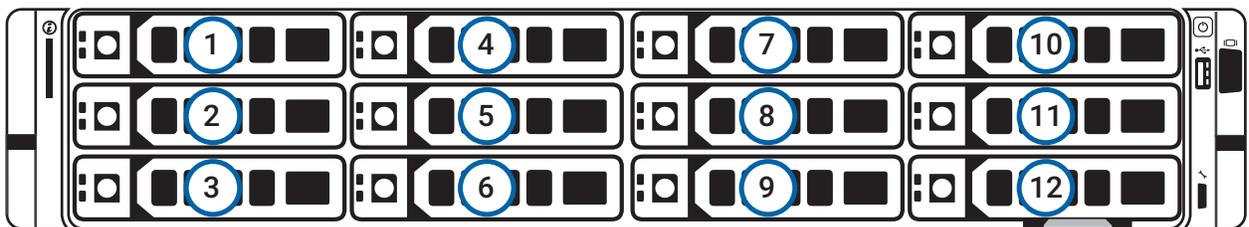
Only replace a hard drive if the hard drive LED indicator and the Server Administrator displays an error.

1. Open the Server Administrator.
2. Check which hard drive has failed, then disconnect the drive through the Server Administrator software.
3. Remove the bezel.
4. Perform the following procedures.

Guidelines

When replacing hard drives, observe the following general guidelines:

- If only one drive is used, install the drive in the drive bay with the lowest device number. For example:



WARNING

Opening or removing the system cover while the system is powered on may expose you to a risk of electric shock.



CAUTION

Do not operate the system without the cover for a duration exceeding five minutes. Operating the system without the system cover can result in component damage.



CAUTION

To ensure proper operation and cooling, all bays in the system and system fans must be always populated with a component or a blank.

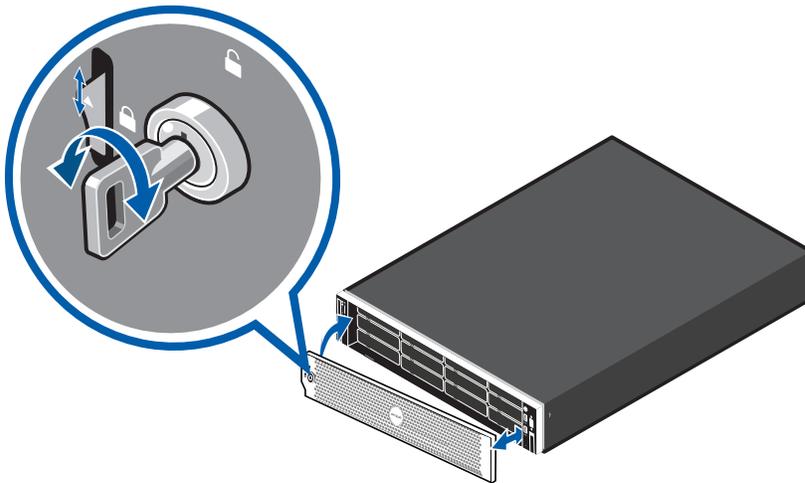
Replacing a Hard Drive Blank

The hard drives on the NVR6 Premium Form D are set up in a RAID configuration. This allows information to be recorded across several hard drives.

If one hard drive fails, there is enough information on the other hard drives for the recorder to continue recording video.

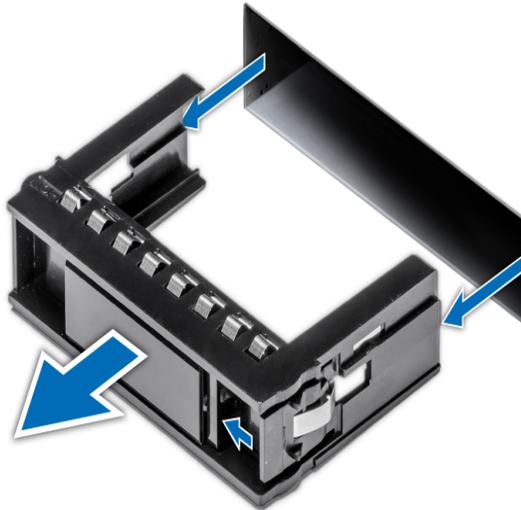
Depending on the recorder model, there may be hard drive blanks at the front of the recorder. You can replace the blanks with hard drives as required.

1. Remove the bezel.



- a. Unlock the bezel.
- b. Push the release button next to the lock.
- c. Pull the left end of the bezel then unhook the right end to remove the bezel.

2. Press the release button and slide the blank out of the hard drive slot.



3. Insert the hard drive all the way into the recorder then push the handle against the hard drive to lock it into place.
4. Open the Server Administrator application and expand the System Tree. The new hard drive should be automatically added to the Physical Disks list. The list is typically available here: **System > Storage > PERC H**** > Connector 0 (RAID) > Enclosure (Backplane) > Physical Disks**.
5. Assign a task to the new hard drive or allow it to exist as an extra storage drive. It is recommended to use the new hard drive as a hot spare. Hot spares are hard drives that are available on standby in the event of a hard drive failure in the RAID. If that occurs, you can configure the system to automatically redirect recording to the unused hard drive. To assign the new hard drive as a hot spare:
 - a. In the Task list, select **Assign and Unassign Global Hot Spare**.
 - b. Click **Execute**.

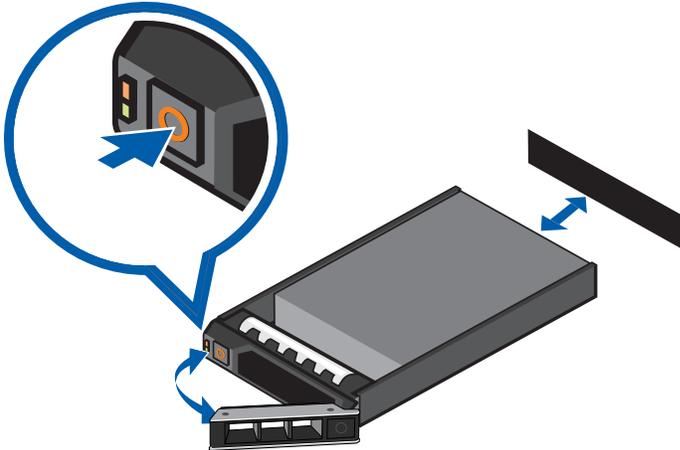
If the new hard drive is not displayed in the Server Administrator, try one of the following:

- Refresh the browser.
- Reboot the recorder.

Replacing Front Hard Drives

To replace a hard drive stored in the front of the recorder, complete the following steps:

1. Locate the failed hard drive at the front 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 the replacement hard drive into the carrier and 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. After the hard drive is inserted all the way in, push the handle against the hard drive to lock it into place.

The recorder will immediately start rebuilding the hard drive. The progress of the rebuilding is displayed in the Physical Disks panel or Server Administrator. This may take several hours.

LED Indicators

Diagnostic Indicators

The diagnostic indicators on the front panel highlight system issues during system startup.



NOTE

The diagnostic indicators only light-up when the recorder is powered.

LED Indicator	Description
<p>System health and System ID</p>	<ul style="list-style-type: none"> Steady blue – The system is powered on and healthy. System health mode is active. Blinking blue – System identification mode is active. Steady amber – The system is in fail-safe mode. <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> NOTE If the system health indicates a degraded or critical state, contact Avigilon Technical Support for assistance.</p> </div> <ul style="list-style-type: none"> Blinking amber – The system is experiencing a fault. Check the System Event Log. For more information, see System Health and Identification Modes on page 20.
<p>Hard drive</p>	<ul style="list-style-type: none"> Steady amber – The hard drive is experiencing an error. Check the System Event Log.
<p>Temperature</p>	<ul style="list-style-type: none"> Steady amber – A thermal error has occurred. Possible errors include: <ul style="list-style-type: none"> Temperature out of range Fan failure Check that the fans are functioning correctly and the air vents are not blocked.
<p>Electrical</p>	<ul style="list-style-type: none"> Steady amber – An electrical error has occurred. Possible errors include: <ul style="list-style-type: none"> Voltage out of range Failed power supply Voltage regulator Check the power status indicator to confirm if it is an issue with the power supply, and reseal the power supply unit, if the error persists.
<p>Memory</p>	<ul style="list-style-type: none"> Steady amber – A memory error has occurred. Check the System Event Log and reset the memory module, if the error persists.
<p>PCIe</p>	<ul style="list-style-type: none"> Steady amber – A PCIe card error has occurred. Restart the system, upgrade the device firmware and reinstall the card, if the error persists.

iDRAC Direct LED Indicators

The iDRAC Direct LED indicates if the iDRAC port is connected to a laptop or desktop computer.



Figure 5: (1) The iDRAC Direct LED indicator

LED Indicator	Description
Off	The device is unplugged from the port.
Green for 2 seconds	The device is connected to the port.
Flashing green – on for 2 seconds and off for 2 seconds	The device is recognized by the port.

Power Status Indicators

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

Additional information about the power supply is provided by the power status indicator on the power supplies at the back. The following table describes what the LEDs indicate:

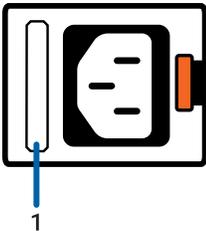


Figure 6: (1) The power status indicator for 96TB-200TB recorders

LED Indicator	Description
Off	Power is not connected.
Green	Power is supplied.
Blinking amber	There is a problem with the power supply.
Blinking green	A firmware update is being applied to the power supply unit. <div style="border: 1px solid gray; padding: 10px; margin-top: 10px;">  <p>CAUTION To prevent malfunction of the power supply unit, do not disconnect the power cord or unplug the power supply unit when updating firmware.</p> </div>
Blinking green and turns off	The redundant power supply is mismatched. This only occurs if you have a secondary redundant power supply installed.

LED Indicator	Description
	<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;">  <p>CAUTION</p> <p>To prevent power supply mismatches, do any of the following:</p> <ul style="list-style-type: none"> Avoid mixing power supply units from previous generations of servers even if the units have the same power rating. Replace only the power supply unit with the blinking indicator. Identical power supply units must receive the same input voltages, be of the same type and support the same maximum power output. Combining AC and DC power supply units is not supported. </div>

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:

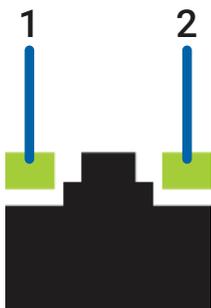


Figure 7: (1) Link LED. (2) Connection activity LED.

LED Indicator	Description
Off	The recorder is not connected to a network.
Link LED – green Connection Activity LED – blinking green	The recorder is connected to a network at the maximum port speed.
Link LED – amber Connection Activity LED – blinking green	The recorder is connected to a network at less than the maximum port speed.
Link LED – green Connection Activity LED – off	The recorder is connected to a network at the maximum port speed and data is not being sent or received.
Link LED – amber Connection Activity LED – off	The recorder is connected to a network at less than the maximum port speed and data is not being sent or received.

Hard Drive RAID Status Indicators

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

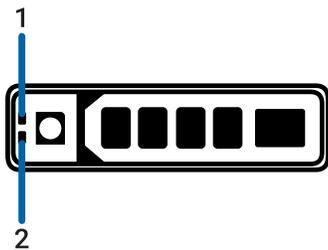


Figure 8: (1) Status LED. (2) Activity LED.

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 ready for removal from the recorder.
<div style="border: 1px solid #ccc; padding: 10px;"><p> NOTE The indicator remains off until all drives are initialized after the system is turned on. Drives are not ready for removal during this time.</p></div>	
Two short green flashes every second	The system is identifying a new hard drive, or preparing a hard drive for removal.
	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.

System Health and Identification Modes

In the front left panel of the recorder, you can switch between system health and system identification modes:

- Press the **i** button to enable the system identification mode, which is used to identify a recorder deployed in a rack with other equipment.
The blue indicator starts blinking.
- Press the **i** button again to switch back to system health mode.
The blue indicator stops blinking.

For more information about the LED indicators, see [LED Indicators on page 17](#).

Resetting the iDRAC System

To reboot the iDRAC web interface without rebooting the operating system:

1. Go to the front left panel of the recorder.
2. Press and hold the  system health and system identification button for 16 seconds until the cooling fans start spinning at full speed.
The iDRAC system restarts without changing any saved settings. It may take a minute or longer until the remote controller restarts.

For information about using the iDRAC web interface to perform the reset, see the [Enabling iDRAC Enterprise Features Setup Guide](#).

For More Information

For additional product documentation and software and firmware upgrades, visit support.avigilon.com.

Technical Support

Contact Avigilon Technical Support at support.avigilon.com/s/contactsupport.

Additional Documentation

- [Windows Upgrade and Recovery Guide for Avigilon](#)
- [Enabling iDRAC Enterprise Features Setup Guide](#)