Avigilon NVR5 Value

User Guide

NVR5-VAL-6TB, NVR5-VAL-12TB, NVR5-VAL-16TB, NVR5-VAL-24TB

MOTOROLA SOLUTIONS

Contents

What is Avigilon NVR5 Value?

The Avigilon NVR5 Value is preloaded with the Avigilon Control Center software and is configured for maximum performance and reliability. The NVR5 Value can be easily integrated into any existing Avigilon security 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
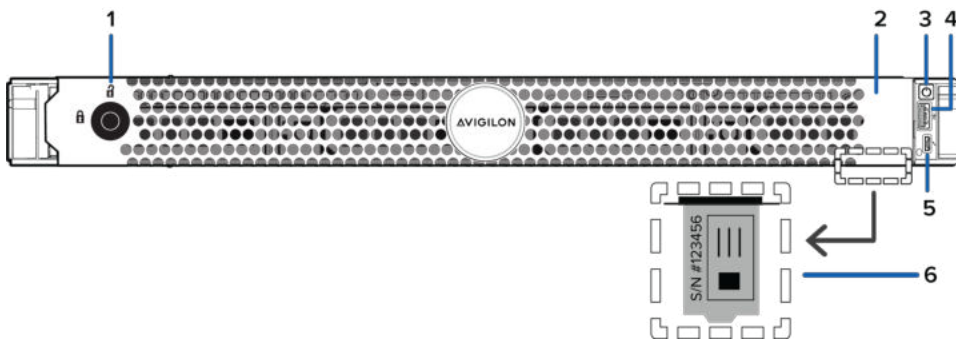
Figure 1: Front view of NVR5 Value showing information tag (accessible after removing front bezel).
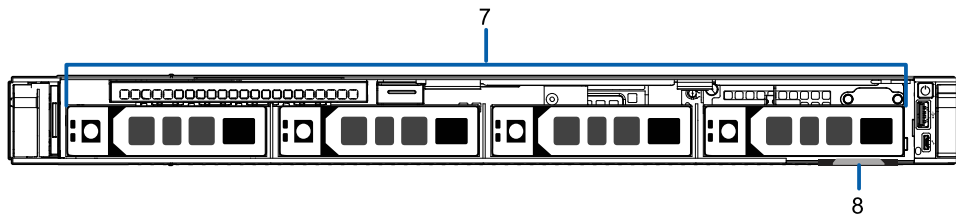
Figure 2: Front view of NVR5 Value with bezel removed.

1. **Bezel lock**

   Protects against unauthorized physical access.

2. **Bezel**

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

3. **Power button**

   Controls the power supply.

4. **USB port**

   Accepts USB connectors to external devices.

5. **Micro USB port**

   Provides access to the Out-of-band (OOB) Management Network Interface.

6. **Information tag**

   Information includes the serial number, product service details, and support information.

7. **Hard drive caddies**

   Provides access to hot-swappable hard drives. The LED indicators on each hard drive caddy indicate the status of the hard drive. The NVR5-VAL-6TB, NVR5-VAL-12TB, NVR5-VAL-24TB models are equipped with

four hard drives. The NVR5-VAL-16TB is equipped with three hard drives.

8. **Pull-out tab for the Information tag**

A removable tab that provides access to the Information tag.

Back View
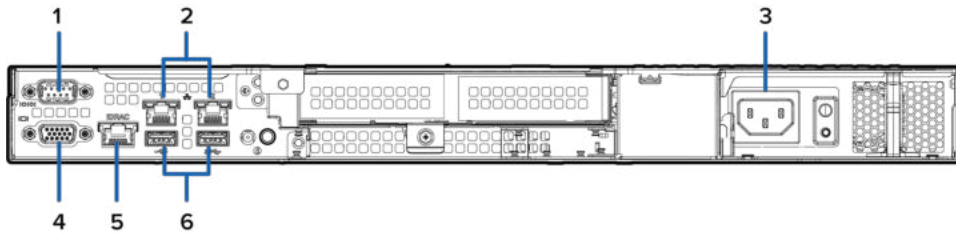
Figure 3: Back view of the NVR5 Value

1. **Serial connector**

Accepts connections to serial devices.

2. **RJ-45 1 Gbps Ethernet ports**

Use these ports to connect to the network of security cameras and ACC Client workstations.

3. **Power Supply**

Primary power supply.

4. **VGA connector**

Accepts a VGA monitor connection.

5. **Ethernet connector**

Accepts an OOBM RJ-45 Ethernet connection to the management network.

6. **Keyboard port and mouse port**

Accepts connectors to a keyboard and mouse.

Package Contents

Ensure the package contains the following hardware:

- Avigilon NVR5 Value
- ReadyRails 1U/2U Static Rails For 2/4-Post Racks
- Bezel and key
- Power cables
    - C13 / C14
    - Region specific

        NA: NEMA 5-15P / C13
        UK: BS 1363 / C13
        EU: SCHUKO / C13
        AU: AS3112 / C13

NVR5-VAL-nnTB-NA   NVR5-VAL-nnTB-UK   NVR5-VAL-nnTB-EU   NVR5-VAL-nnTB-AU

Installation

Connect the Cables and Power On

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. Connect a power cable to the power supply at the back of the recorder.

Install the Bezel

The bezel can be installed on the front of the 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 Window 10 or Windows Server 2019 operating system.

Logging into Windows 10 for the First Time

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

1. The MICROSOFT SOFTWARE LICENSE TERMS and AVIGILON CONTROL CENTER™ SOFTWARE END USER LICENSE AGREEMENT are displayed. Review the terms and click **Accept**.

2. Select **Join a local Active Directory domain**.

   > **NOTE**
   >
   > This prompt appears only if an Active Directory is present on the network. See the *Windows Help and Support* files for more information.

3. Enter a user name for the Windows administrator account.

4. Enter a password and password hint for the Windows administrator account and click **Next**.

   > **NOTE**
   >
   > Remember the Windows Administrator password. If the Windows Administrator credentials are lost, you may need to reinstall the operating system again. It is highly recommended to create a second Administrator user as a backup.

5. You are logged in to the Windows environment. The Avigilon Control Center Admin Tool and the ACC Client automatically start up.

   > **NOTE**
   >
   > If you are performing operating system recovery, the ACC Client does not automatically start up. For more information about running the local ACC installer, see *Operating System Recovery By Avigilon Recovery Partition* on page 10.

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 NVR5 Value 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.

> **ℹ️ 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_ on page 9.

- Initial ACC™ System Setup and Workflow Guide
- ACC 7 Help Center

Printable versions of these guides are available on the Avigilon website: avigilon.com/support/software/.

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/cloud.

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

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_.

Activating a License

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

> **💡 TIP**
>
> Finish organizing your multi-server site before activating a new license to avoid reactivating the site license each time a new server is added.

Online Activation

If you have internet access, use online activation. However, if your site is large and contains hundreds of licenses, the server may time out. See _Offline Activation_ on the next page instead.

1. In the New Task menu ☰, click **Site Setup**.

2. Select your new site, then click 👖 .

3. Click **Add License...**.

4. Enter your product keys.

    If you copy and paste more than one comma-separated product key, the system will format it automatically.

    - To remove the last product key, click **Remove Last Key**.

    - To clear all the product keys, click **Clear**.

5. Click **Activate Now**.

6. Click **OK**.

Offline Activation

Offline licensing involves transferring files between a computer running the ACC Client software and a computer with internet access.

In the ACC Client:

1. In the New Task menu ☰, click **Site Setup**.

2. Select your new site, then click 👖 .

3. Click **Add License...**.

4. Select the **Manual** tab.

5. Enter your product keys.

    If you copy and paste more than one comma-separated product key, the system will format it automatically.

    - To remove the last product key, click **Remove Last Key**.

    - To clear all the product keys, click **Clear**.

6. Click **Save File...** and choose where you want to save the `.key` file. You can rename the file as required.

7. Copy the `.key` file to a computer with internet access.

In a browser:

1. Go to activate.avigilon.com.

2. Click **Choose File** and select the `.key` file.

3. Click **Upload**. A `capabilityResponse.bin` file should download automatically.

    If not, allow the download to occur when you are prompted.

4. Complete the product registration page to receive product updates from Avigilon.

5. Copy the `.bin` file to a computer running the ACC Client software.

In the ACC Client:

1. In the License Management dialog box, click **Apply...**.

2. Select the `.bin` file and click **Open**.

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

Reactivating a License

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.

Troubleshooting

Network Configuration

By default, the 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.

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 ACS 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 NVR5 Value includes an onboard Avigilon 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. For more information about ACC software backups, see avigilon.com/recovery.

> **NOTE**
>
> After operating system recovery, you need to reinstall the previously installed ACC software. Depending on when your NVR5 Value 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**.
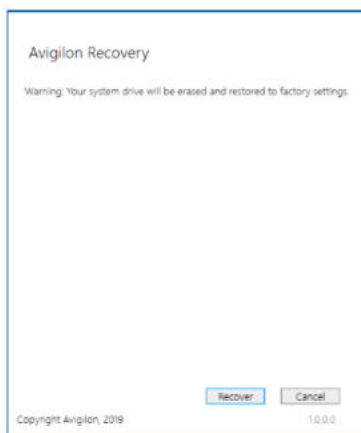
   Allow up to half an hour for the recovery to complete.
5. After system reboot, complete the Windows setup process.

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.

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 15.

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. 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.
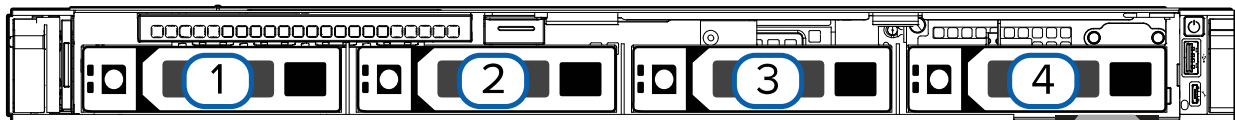
Replacing Hard Drives

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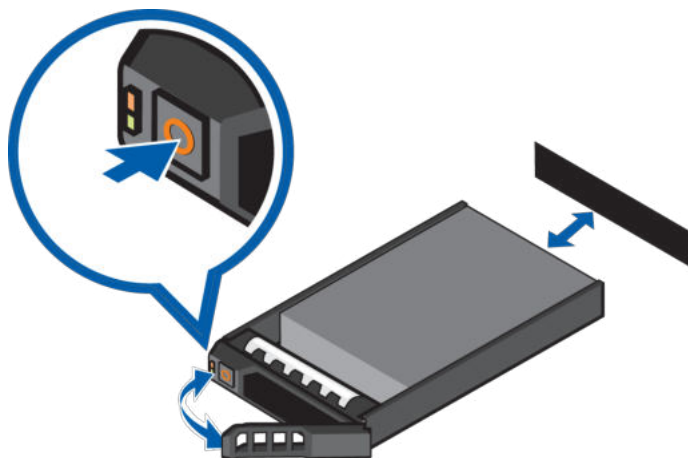
> ⚠ **CAUTION**
>
> To ensure proper operation and cooling, all bays in the system and system fans must be always populated with a component or a blank.

Replacing Front Hard Drives

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 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 of the rebuilding is displayed in the Physical Disks panel or Server Administrator. This may take several hours.

LED Indicators

The following tables describe what the LEDs on the Network Video Recorder indicate.

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
System health and System ID	• 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. > **NOTE** > If the system health indicates a degraded or critical state, contact Avigilon Technical Support for assistance. • Blinking amber — The system is experiencing a fault. Check the System Event Log. • For more information, see *System Health and Identification Modes* on page 18.
Hard drive	• Steady amber — The hard drive is experiencing an error. Check the System Event Log.

Temperature	• Steady amber — A thermal error has occurred.
	
	Possible errors include:
	  ◦ Temperature out of range
	  ◦ Fan failure
	
	Check that the fans are functioning correctly and the air vents are not blocked.

Electrical	• Steady amber — An electrical error has occurred.
	
	Possible errors include:
	  ◦ 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 reset the power supply unit, if the error persists.

LED Indicator	Description
✦ Memory	• Steady amber — A memory error has occurred. Check the System Event Log and reset the memory module, if the error persists.
▭ PCIe	• 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

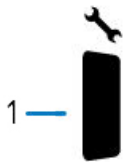The iDRAC Direct LED indicates if the iDRAC port is connected to a laptop or desktop computer.

Figure 4: (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:
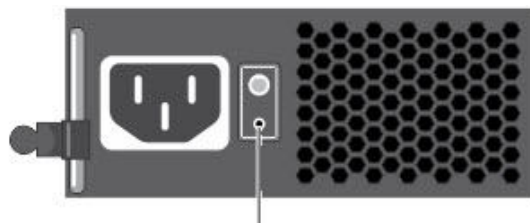

Figure 5: (1) The power status indicator.

LED Indicator	Description
Off	Power is not connected.
Green	Power is supplied.

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 6: (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.
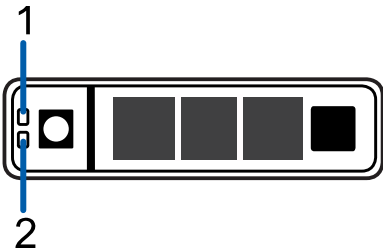

Figure 7: (1) Status LED. (2) Activity LED.

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.

LED Indicator	Description
	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.
Two short green flashes every second	The system is identifying a new hard drive, or preparing a hard drive for removal.
Flashes green, amber, 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.

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 15

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 *i* 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.

More Information & Support

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

For product user guides, visit the Downloads page: help.avigilon.com

NVR: https://www.avigilon.com/support/infrastructure/nvr-downloads

Technical Support

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

Limited Warranty

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