



User Guide

Avigilon™ HD Video Appliance Models:

VMA-AS1-8P, VMA-AS1-16P and VMA-AS1-24P

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Introduction

The Avigilon™ HD Video Appliance is the all-in-one solution for network video recording. The video appliance includes:

- A network switch to connect and power IP cameras.
- Built-in server and storage to run the Avigilon™ Control Center Server and retain recorded video content.
- Video ports to display live video and allow users to operate the Avigilon™ Control Center Client software directly from the appliance.

This guide describes how to configure the system after the appliance has been powered and is connected with keyboard, mouse and monitor. It is recommended that cameras not be connected to the appliance until after the appropriate network configuration has been set up.

Configuring Windows

When you start the HD Video Appliance for the first time, you will need to configure the Windows operating system that is installed on the appliance.

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 applies your settings at the end of this procedure.

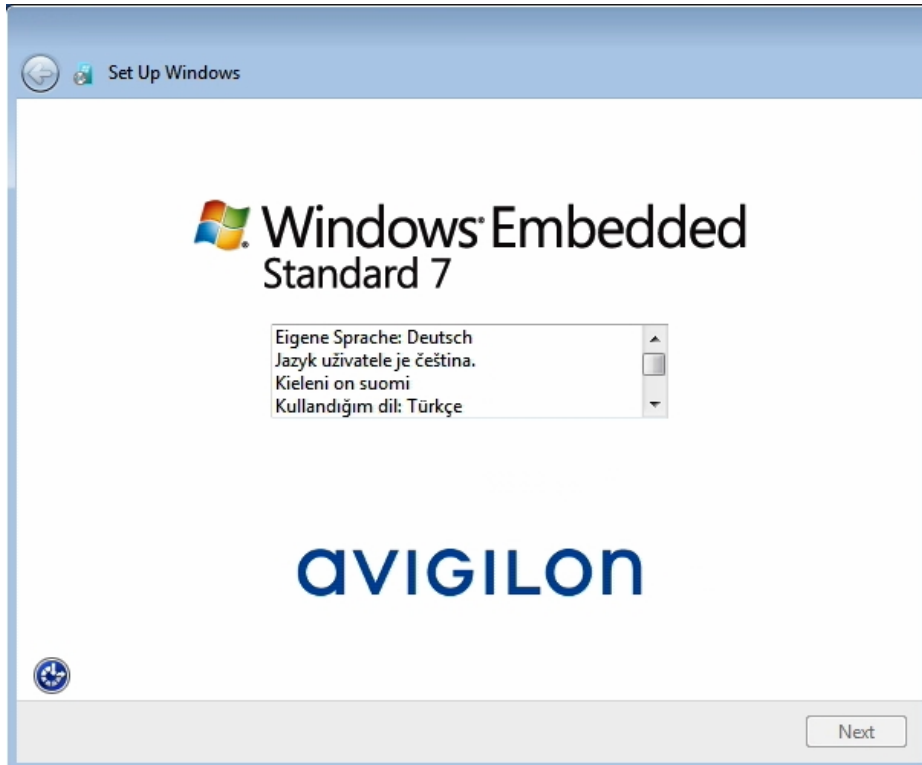


Figure 1: The language selection screen during initial Windows set up.

2. Click **Next**.
3. Select your locale preferences then click **Next**.
4. Enter a user name for accessing the appliance. You can also enter a unique computer name or use the default. When you are ready, click **Next**.
5. Set a password for the user name you entered on the previous screen. When you are ready, click **Next**.
6. 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**.
7. Select the correct date and time for the system then click **Next**.
8. Select the network mode for the appliance. The recommended option is **Work Network**.

Next, Windows applies all your settings and restarts the appliance. After the appliance restarts, you will need to license your Avigilon™ Control Center system.

Licensing the Avigilon™ Control Center System

Before you can configure cameras and monitor live or recorded video, you will need to activate your Avigilon Control Center license. The license is provided with the appliance.

After the appliance reboots, the first screen you see is the Avigilon Control Center license wizard.



Figure 2: The Avigilon Control Center license activation wizard.

Other parts of the Avigilon Control Center 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 appliance has an internet connection, select this option to quickly license the Avigilon Control Center software.
 - **Manual Activation** – If the appliance 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 Enter Product Key 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 appears, click **Finish**.

Manual Activation

1. Click **Step 1: Generate Activation 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 appliance.
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 appears, click **Finish**.

Adding Licenses

If you ever choose to upgrade your existing license to a different edition, you would need to perform the licensing procedure again. However, you would access the Add License wizard from the Avigilon Control Center Server Admin Tool.

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 appliance 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.

Configuring the Network

Depending on how you intend to use the HD Video Appliance, you may choose to configure the network switch component of the appliance differently.

The three most typical network configurations are:

1. No DHCP server — the HD Video Appliance and the connected cameras will run as a self contained system without a DHCP server.

This configuration is most likely used by a small business that may not have a network infrastructure, and prefers to use the HD Video Appliance like a traditional closed circuit surveillance system.

2. External DHCP server — the HD Video Appliance and the connected cameras will work with an existing DHCP server on the network.

This configuration is most likely used by a small office that already has some network infrastructure that will be used with the appliance, like a router that gives the office computers internet access.

3. Internal DHCP server — the HD Video Appliance will act as the local DHCP server for the connected cameras and any other devices that may also be connected to the appliance.

NOTE: The HD Video Appliance is intended to be used for connecting and powering IP cameras, not for general computer networking. However, if you prefer, the appliance can be configured to do so.

This configuration is most likely used by a small business that prefers to use the appliance switch component instead of a router for connecting all network devices together. Other network devices can include voice over ip (VoIP) phones or external network drives.

Complete the procedure that will configure your preferred network:

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<i>Configuring an Internal DHCP Network</i>	8

Configuring a No DHCP Network

If you plan to connect cameras directly to the HD Video Appliance and run a self contained system, all you need to do is connect cameras directly to the numbered ports.

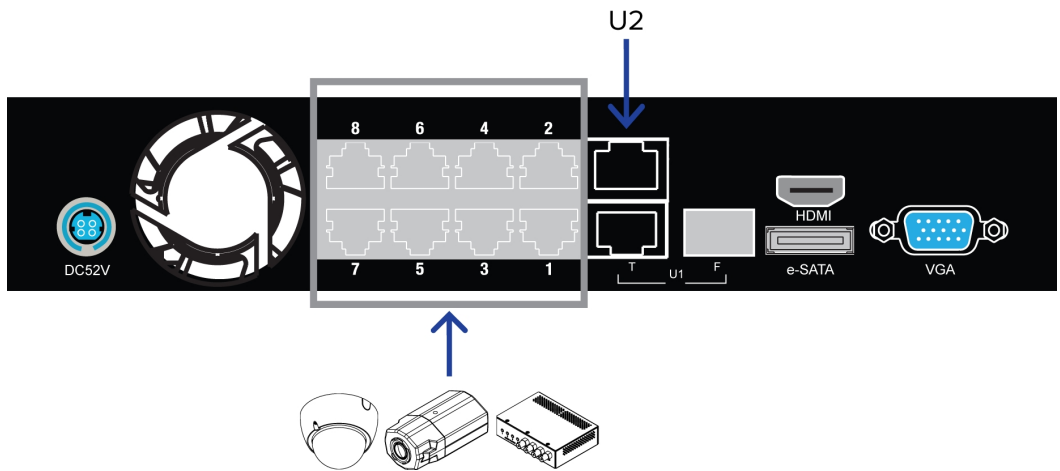


Figure 3: Example of no DHCP network connections on an 8 port HD Video Appliance.

Avigilon cameras are able to assign IP addresses to themselves when a DHCP server is not available through Zero Configuration Networking (Zeroconf). The Avigilon Control Center software should automatically detect all connected cameras through the 169.254.1.0/16 subnet.

If you would like to access the internet through the HD Video Appliance, you can add an internet connection to the **U2** port. The U2 port is separate from the numbered camera ports, so it will not interfere with video recording.

After you connect cameras to the numbered ports, you can configure the Avigilon Control Center system. See *Configuring the Avigilon Control Center* on page 13.

Configuring an External DHCP Network

If you already have a router, or switch, to connect your other network devices, you can connect the HD Video Appliance directly to the router so that cameras can be addressed using the router's built-in DHCP service.

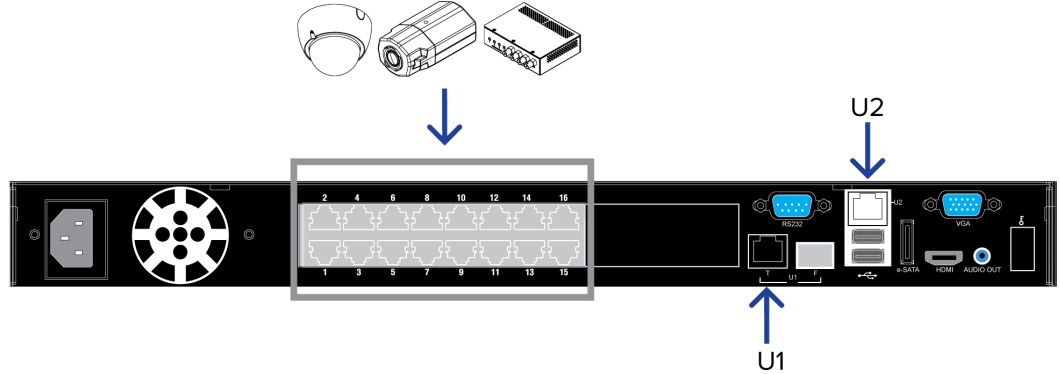


Figure 4: Example of external DHCP network connections on a 16 port HD Video Appliance

1. Connect a network cable from the router or switch to the appliance's **U1** port.
2. Connect Avigilon cameras to the numbered ports.

3. If you would like to access the internet through the HD Video Appliance, you can add an internet connection to the **U2** port. The U2 port is separate from the numbered camera ports, so it will not interfere with video recording.

After you've made the required network and camera connections, you can configure the Avigilon Control Center system. See *Configuring the Avigilon Control Center* on page 13.

Configuring an Internal DHCP Network

If you plan to connect other network devices to the HD Video Appliance, you may need to set up the appliance to be a DHCP server. Some network devices rely on a DHCP server to receive an IP address before it can work.

NOTE: After you setup the internal DHCP server, do not connect any external DHCP servers to the appliance or there may be address conflicts and cause connection issues.

Tip: If you are only going to connect Avigilon cameras to the appliance, you do not need to set up a DHCP server. For more information, see *Configuring a No DHCP Network* on page 6.

1. From the appliance, access the Windows Network Connections window.
 - Select **Start > Control Panel > Network and Sharing Center > Change adapter settings**.
 - From the Start menu, search for `ncpa.cpl`.
2. In the Network Connections window, right-click the Local Area Connection for the Intel Gigabit Network Interface and select **Properties**.

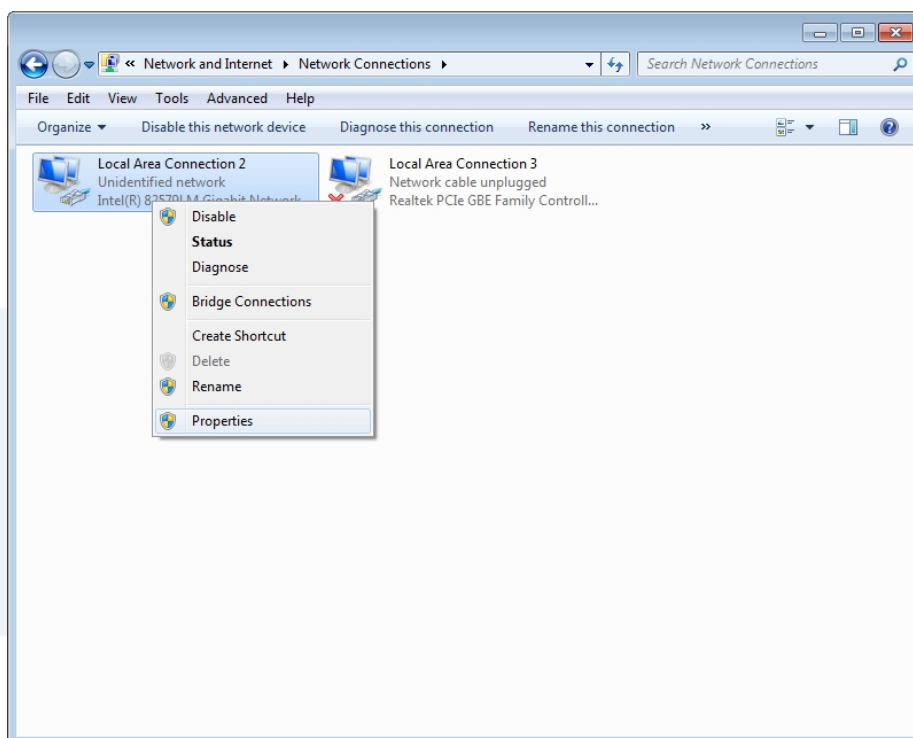


Figure 5: The Network Connections dialog box

3. In the following dialog box, double-click **Internet Protocol Version 4(TCP/IPv4)**.

4. Assign a static IP address for the appliance so that it can connect to the switch component.

By default, the appliance is not connected to the switch component. The appliance must be connected to the switch component before you can configure the system to be a DHCP server.

The default IP address of the switch component is 192.168.50.1. *Do not* assign this address for the appliance. You can use 192.168.50.2 or higher. It is recommended that you only change the last digit.

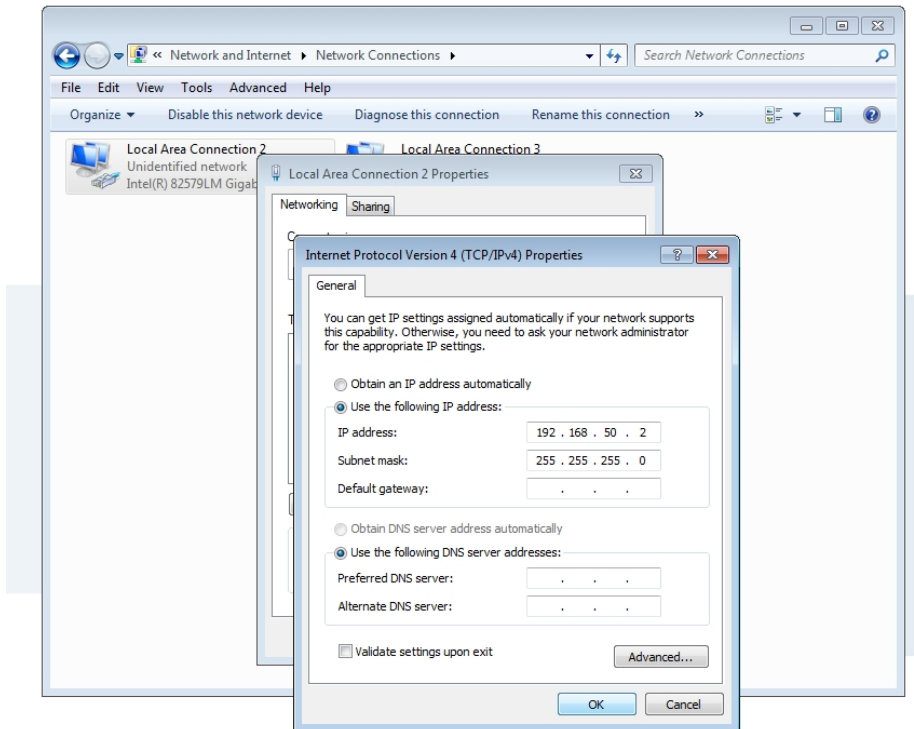


Figure 6: The Internet Protocol Properties dialog box

- a. In the **Use the following IP address** field, enter 192 . 168 . 50 . 2 or the IP address you prefer.
- b. In the **Subnet mask** field, enter 255 . 255 . 255 . 0 if it is not automatically entered.
- c. Click **OK** to save your changes.

5. Open the Switch Management Console.
 - a. In a web browser, enter 192.168.50.1 into the address bar.

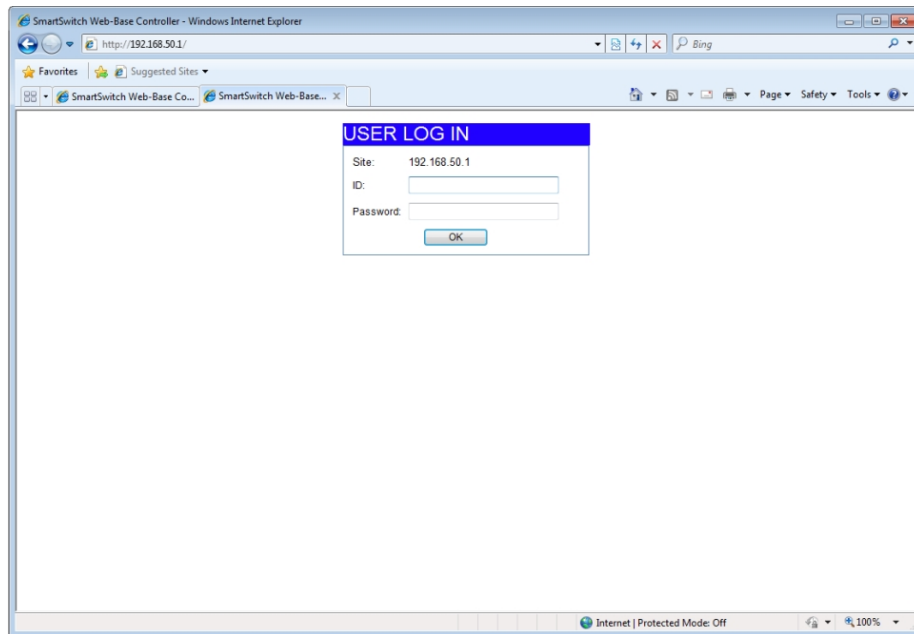


Figure 7: The Switch Management Console Log In screen

- b. When the log in screen appears, enter the default ID and password:
 - **ID:** admin
 - **Password:** system
 - c. Click **OK**.
6. Once you are logged in, click **DHCP Server Settings** from the left menu pane.

- In the Server State setting area, select **Enable** then click **Update**.

AVIGILON

- Administrator
- PoE
- Port Management
- VLAN Setting
- Per Port Counter
- QoS Setting
- Security
- Spanning Tree
- Trunking
- DHCP Relay Agent
- DHCP Server Setting
- Backup/Recovery
- Miscellaneous
- SNMP Settings
- Logout

DHCP Server Setting

Server State: Disable Enable

DHCP IP: 192.168.50.11

Update

Port	DHCP IP	Port	DHCP IP
01	192.168.50.11	06	192.168.50.16
02	192.168.50.12	07	192.168.50.17
03	192.168.50.13	08	192.168.50.18
04	192.168.50.14	U1	----
05	192.168.50.15	CPU	192.168.50.19

Figure 8: The DHCP Server Settings page

The appliance is now set to act as a DHCP server.

As you add cameras and network devices, the IP address for each item will be listed beside the connected port number.

- Connect Avigilon cameras and other network devices to the numbered ports. Each connected device is automatically assigned an IP address by the appliance.

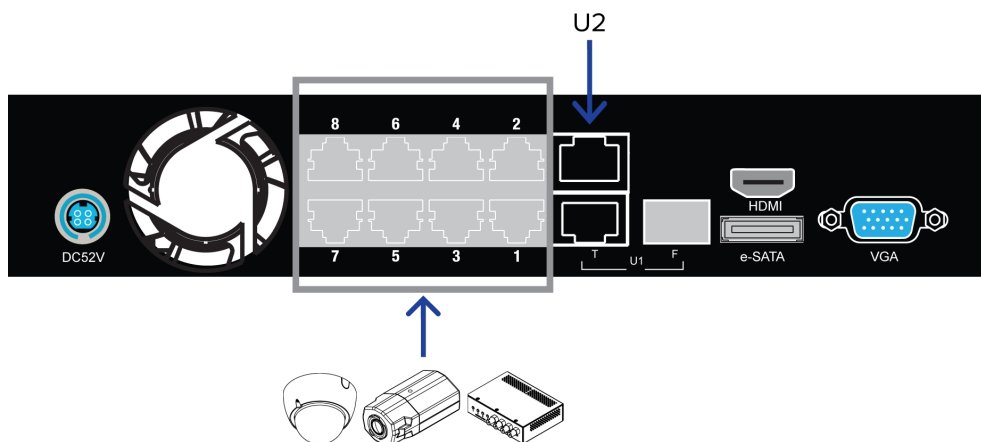


Figure 9: Example cable connections on an 8 port HD Video Appliance.

- If you would like to access the internet through the HD Video Appliance, you can add an internet connection to the **U2** port. The U2 port is separate from the numbered camera ports, so it will not interfere with video recording.

After you've made the required network and camera connections, you can configure the Avigilon Control Center system. See *Configuring the Avigilon Control Center* on page 13.



Configuring the Avigilon Control Center

After you set up and license the HD Video Appliance, it is recommended that you complete the following steps to configure the Avigilon Control Center system.

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

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Starting Up and Shutting Down the Control Center Client


The Avigilon Control Center Client software is the application that you would use on a daily basis. It is also where you would configure most of your Avigilon Control Center system settings.

Starting Up the Client Software


Perform one of the following:

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



- Double-click the  shortcut icon on the desktop.
- From the Avigilon Control Center Admin Tool, click **Launch Control Center Client**. See the *Avigilon Control Center Server User Guide* for more information.

Shutting Down the Client Software

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

Logging In to and Out of a Site


After you start the Client software, you will immediately be asked to log in to a Site. By default, the appliance is automatically added to the system as a server within a Site of the same name.

The default user name is *administrator* and there is no password.

Logging In


If you have more than one appliance in your system, you will have the option to choose a different Site from the **Log in to:** drop down list. Or you can choose to use the default All Sites option.

To manually open the Log In dialog box, perform one of the following:

- In the top-right corner of the Client, select  > **Log In...** to log in to all available Sites.
- In the System Explorer, right-click a Site and select **Log In...** to log in to the selected Site.

Logging Out

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



To...	Do this...
Log out of one Site	1. In the System Explorer, right-click the Site 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 for the first time with the default user name and password (*administrator* and no password), 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,



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 then confirm the new password.
6. Click **OK**.


Tip: If you forget the default administrator password, it is very difficult to reset. 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 Control Center System

After all the cameras in your system have been physically connected to the HD Video Appliance, you need to connect the cameras to the Control Center system so that video can be recorded and indexed for search.

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

appears, click .

2. In the Setup tab, click .

3. Drag a camera from the Discovered Cameras list to the server in the Connected Cameras list.

All the cameras that are connected to the HD Video Appliance are automatically discovered and should appear in the Discovered Cameras list.

4. In the following Connect Camera dialog box, click **OK**.
5. If the camera is password protected, the Camera Authentication dialog box appears. Enter the camera's user name and password, then click **OK**.

The default user name and password for Avigilon H.264 HD cameras is *admin* and *admin*.



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.

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

appears, click .

2. In the Setup tab, select the appliance server () then click .

3. In the Recording Schedule dialog box, click **Add Template** below the Templates: pane.

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

5. 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 will be colored if they have been selected.

6. 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.

7. 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.
8. Apply the new template to cameras:
 - a. Select the template from the Templates: pane.
 - b. In the Default Week area, click the days of the week this template applies to for each camera.
 9. Repeat this procedure to add all the different recording schedules you may need.
 10. Click **OK** to save your settings.

Setting Data Aging

Data aging defines how long recorded video is stored in the HD Video Appliance and the quality of the video as it ages over time. In the Control Center 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. 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:
 - **Full Image Rate and Resolution** 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:
 - **Full Image Rate and Resolution** keeps the original high quality video and the secondary stream of low resolution video.
 - **Low Resolution** only keeps the secondary stream of low resolution video.


NOTE: Data Aging can only occur when the secondary stream is enabled.



- For H.264 cameras that *do not* support Data Aging, only the **Full Image Rate and Resolution** video is kept.

By default, the system is set to keep recorded video for the maximum amount of time based on the available storage. You can adjust how long the full image rate video is kept, so that you have the best quality video when you need it.


NOTE: The listed Total Record Time is an estimate only.

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

appears, click .

2. In the Setup tab, select the appliance server () then click .

3. In the Data Aging column, move the sliders to adjust the amount of time video is stored at each image rate.
 - To change the data aging settings for all linked cameras, move the slider for one linked camera and all linked cameras will be updated.

- To change the data aging setting for one camera, break the camera's link to other cameras by clicking the  icon to the left of its name, then make your changes.
4. In the **Max. Record Time**, 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 shorter than what is set in the Max. Record Time column, the camera's actual recording time will be shorter than the Max. Record Time .
 5. Click **OK** to save your settings.


Adding Users

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.

It is highly recommended that you add at least one other user to the Administrators group. In the event you forget 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.

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



2. In the Setup tab, click .
3. Select the Groups tab.


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.

You can edit the Power Users, Restricted Users and Standard Users groups to fit what you need, or you can add a new group.

- a. In the Groups tab, click either **Add Group...** or **Edit Group...**
- b. When you see the Edit Group dialog box, select the check box beside all the permissions you want users to have and clear the check box of any permissions users should not have access to.
- c. Click **OK** to save the group.

Once all the required groups have been added, you can add users to the system.

4. Select the Users tab then click .
5. In the following dialog box, enter the user details.

6. In the Password area, give the user a temporary password then select the **Require password change on next login** check box.
7. Select the Member Of tab then select the check box beside the group this user should belong to.
Users can be part of more than one group, and each group can hold as many users as you need.
8. Click **OK** to save the new user.
9. Repeat this procedure until all the required users have been added.

Advanced Settings




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

In the following list are 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.
- Add a joystick
 - If you prefer to control PTZ cameras with a standard USB joystick, you can install and set up a joystick from the Client Settings... dialog box.
 - If you prefer use the Avigilon Professional Joystick Keyboard with the Control Center Client software, you can install and setup the joystick keyboard from the Client Settings... dialog box.
- Email notifications
 - You can set up an SMTP email server to send you messages when system events occur.
 - If you have a Standard Edition system, you can set up detailed rules to notify you when specific events occur.
- Setup the Gateway
 - The Avigilon Control Center 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 Avigilon Control Center Mobile app on your mobile device so that you can monitor live and recorded video anywhere.

LED Indicators

The following list describes what the LEDs on the front of each HD Video Appliance indicate.



-  **Appliance Status** — The LED is on if the appliance is powered and running.
- **1 to 8/16/24** — The connection status of each camera that is connected to the appliance.
 - Orange — The LED is orange if the camera is only using the switch for a network connection.
 - Green — The LED is green if the camera is using the switch for PoE power and as a network connection.
-  **PoE Status** — The LED will start to blink if the appliance starts to reach its PoE output capability.
-  **Hard Drive Status** — The LED will blink if the hard drives are in use. If the LED is off, the hard drives are not being detected.
- **U1/U2 Network Status** — The network connection speed at the U1 or U2 ports.
 - Orange — The LED is orange if the network speed is 1000 Mbps.
 - Green — The LED is green if the network speed is 1/100 Mbps.

Restarting the Operating System

If the operating system ever freezes or displays a fatal system error, you can restart the operating system by using the reset switch on the front of the appliance.

NOTE: When you use the reset switch, the appliance must be powered.

The operating system reset will not affect the switch component or the connected cameras.


- On the 8 port model, the reset switch is located at the front of the appliance and is the small unlabeled hole between the USB ports and the status LEDs.
- On the 16 and 24 port model, the reset switch is located at the front of the appliance and is the small unlabeled hole between the  and  status LEDs.

Once you've found the reset switch on the appliance, complete the following steps:

1. Using a straightened paperclip or similar tool, gently press and hold the reset switch.



CAUTION — Do not apply excessive force. Inserting the tool too far will damage the appliance.

2. Do not release the reset switch until the monitor connected to the appliance turns off, or the  **Hard Drive Status** LED stops blinking.

Once you release the reset switch, the operating system should automatically restart.

Replacing a Hard Drive

NOTE: 16 and 24 port models only. This procedure is for replacing the storage drives. If you experience an operating drive failure or any drive issue with the 8 port model, contact Avigilon Technical Support immediately for assistance.

If the Avigilon Control Center software starts to perform excessively slow or becomes prone to freezing, these may be signs of a potential hard drive failure. Another possible indicator is a noise that suddenly starts but does not stop.

To confirm which hard drive the issue may be with, open the JMicron RAID Manager application.

1. From the Windows Start menu, select **All Programs > JMicron HW RAID Manager > JMicron HW Raid Manager**. The JMicron application may be slow to start.
2. In the Basic Mode tab, select **RAID and Disk Information** if it is not automatically displayed.

You need to replace the hard drive if:

- The RAID status is *Degraded*.
- The failed Disk is highlighted in red.

In the JMicron HW RAID Manager, the hard drives are listed as Disk 1 to 4. From the front of the appliance, Disk 1 is the hard drive installed on the far left and Disk 2 - 4 are installed beside each other from left to right.

If more than one drive has failed, immediately shut down your system and contact Avigilon Technical Support for possible recovery instructions.

Important: Always replace a hard drive with one of the same size, make and model, or the appliance will continue to fail.

To replace a failed hard drive, complete the following steps.

1. Shut down the HD Video Appliance and disconnect all cable connections from the appliance.
2. Remove the screws from the top, left and right sides of the appliance.

Be aware that the top two screws are different from the side screws.

3. Standing before the front of the appliance, pull the appliance cover towards you until it slides off.

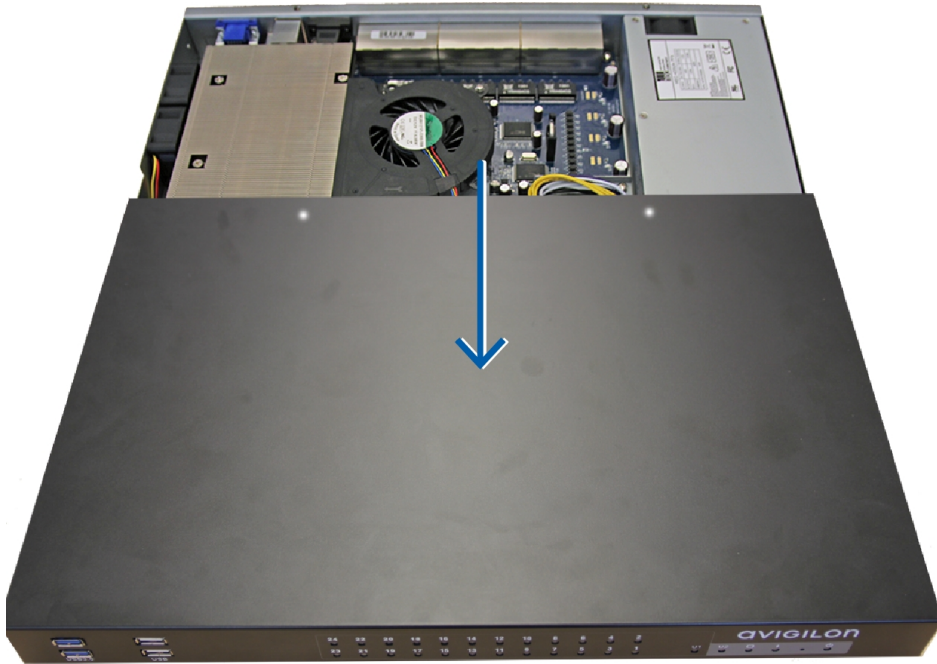


Figure 10: Pull the cover off the HD Video Appliance from the front.

Once the cover has been removed, you will see the four hard drives at the front. The hard drives are numbered Disk 1 to 4 from left to right.

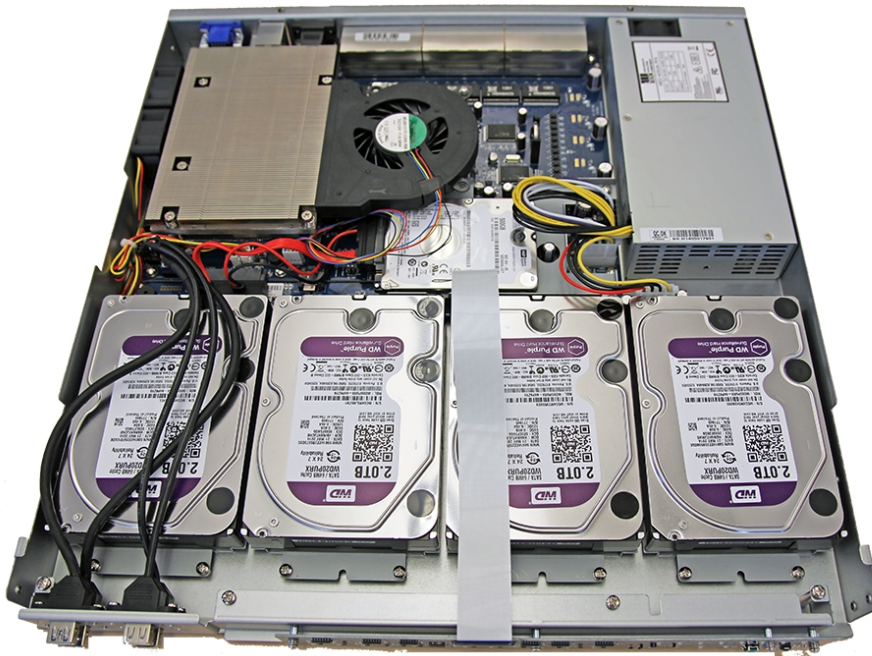


Figure 11: HD Video Appliance with the cover removed.

4. Remove the two silver screws attached to the hard drive base plate at the front of the appliance.
5. From the back of the hard drive, push the hard drive towards you until it is released from the appliance.

- Lift the hard drive out of the appliance.
- Turn the hard drive upside down, and remove the four screws holding the hard drive to the base plate.



Figure 12: Hard drive removed from the base plate.

- Remove the failed hard drive.
- Attach the new hard drive to the base plate.
- Place the new hard drive into the appliance, then push it into the appliance connector before you screw the hard drive base plate into place.
- Reinstall the appliance cover.
- Connect your mouse, keyboard and monitor back to the appliance.
- Connect power to the appliance and allow the system to restart.
- When prompted, allow Windows to start normally.
- Once Windows has loaded, select **Start > All Programs > JMicron HW RAID Manager > JMicron HW Raid Manager**.
- In Basic Mode, select the **RAID and Disk Information** tab and confirm that the RAID status is *Rebuilding %*.
The RAID may take several hours to rebuild depending on the total storage size. When the rebuilding process is complete, the RAID status changes to *Normal*.
- Once the system has finished rebuilding, reconnect all your cameras and resume normal operations.

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Avigilon warrants to the original consumer purchaser, that this product will be free of defects in material and workmanship for a period of 3 years from date of purchase.

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