

# ***OpenEye***<sup>®</sup>

The Cloud Video Platform

## **MH – SERIES GEN 1 CLOUD MANAGED NETWORK SERVER**

**HARDWARE MANUAL**



MH-Series Gen 1 Cloud-Managed Network Servers  
Hardware Manual

Manual Edition 37391AB – February 2022

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The following words and symbols mark special messages throughout this guide:



**Note** Text set off in this manner indicates information that is necessary for proper operation of the product.

## IMPORTANT SAFEGUARDS

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1. **Read Owner's Manual** – After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.
2. **Power Sources** – This product should be operated only from the type of power source indicated on the label. If not sure of the type of power supply to your home or business, consult product dealer or local power company.
3. **Ventilation** – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or OpenEye's instructions have been adhered to.
4. **Heat** – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products that produce heat.
5. **Water and Moisture** – Do not use this product near water. Do not exceed the humidity specifications for the product as detailed in the Appendix section in this manual.
6. **Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
7. **Power Cord Protection** – Power-supply cords should not be routed so that they are likely to be walked on or pinched by items placed against them, paying particular attention to cords at plugs, receptacles, and the point where they exit the product.
8. **Overloading** – Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electrical shock.
9. **Object and Liquid Entry Points** – Never insert foreign objects into the recorder, other than the media types approved by OpenEye, as they may touch dangerous voltage points or short-out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the product.
10. **Accessories** – Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious personal injury and serious damage to the product.
11. **Disc Tray** – Keep fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.
12. **Burden** – Do not place a heavy object on or step on the product. The object may fall, causing serious personal injury and serious damage to the product.
13. **Disc** – Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.
14. **Replaceable Batteries** – CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.
15. **Grounded Outlet** – This equipment shall be connected to a properly grounded outlet.
16. **Outlet Location** – This equipment must be installed within six feet of an easily accessible outlet.

17. **Damage Requiring Service** – Unplug the unit from the outlet and refer servicing to qualified service personnel under the following conditions:
  - When the power-supply cord or plug is damaged.
  - If liquid has been spilled, or objects have fallen into the unit.
  - If the unit has been exposed to rain or water.
  - If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation
  - If the unit has been dropped or the enclosure has been damaged.
  - When the unit exhibits a distinct change in performance - this indicates a need for service.
18. **Servicing** – Do not attempt to service this product unless instructed to by an OpenEye engineer. Opening or removing covers may expose the user to dangerous voltage or other hazards. Refer all servicing to qualified personnel.
19. **Replacement Parts** – When replacement parts are required, be sure the service technician has used replacement parts specified by OpenEye or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
20. **Safety Check** – Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

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## NOTES ON HANDLING

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Please retain the original shipping carton and/or packing materials supplied with this product. To ensure the integrity of this product when shipping or moving, repackage the unit as it was originally received from OpenEye.

Do not use volatile liquids, such as aerosol spray, near this product. Do not leave rubber or plastic objects in contact with this product for long periods of time. They will leave marks on the finish.

The top and rear panels of the unit may become warm after long periods of use. This is not a malfunction.

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## NOTES ON LOCATING

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Place the unit on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand.

If this unit is placed next to a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. If this happens, place the recorder away from the TV, radio, or VCR.

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## NOTES ON CLEANING

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Use a soft dry cloth for cleaning.

For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry. Do not use any type of solvent, such as thinner and benzene, as they may damage the surface of the recorder.

If using a chemical saturated cloth to clean the unit, follow that product's instructions.

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## NOTES ON MAINTENANCE

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This recorder is designed to last for long periods of time. To keep the recorder always operational we recommend regular inspection maintenance (cleaning parts or replacement). For details contact the nearest dealer.

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## NOTES ON MOISTURE CONDENSATION

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Moisture condensation could damage the recorder. Read the following information carefully. Moisture condensation might occur under the following circumstances:

- When this product is brought directly from a cool location to a warm location.
- When this product is moved to a hot and humid location from a cool location.
- When this product is moved to a cool and humid location from a warm location.
- When this product is used in a room where the temperature fluctuates.
- When this product is used near an air-conditioning unit vent.
- When this product is used in a humid place.

### **Do not use the recorder when moisture condensation may occur.**

If the recorder is used in such a situation, it may damage discs and internal parts. Remove any CD discs, connect the power cord of the recorder to the wall outlet, turn on the recorder, and leave it for two to three hours. After two to three hours, the recorder will warm up and evaporate any moisture. Keep the recorder connected to the wall outlet and moisture will seldom occur.

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## WARNING

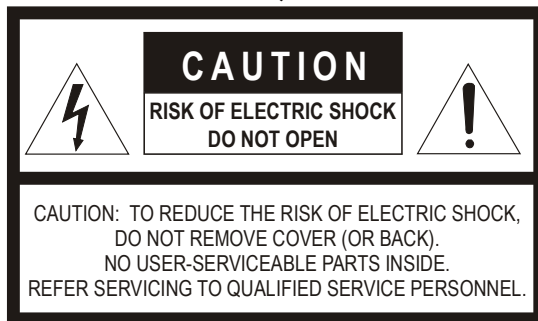
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TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.

DO NOT OPEN THE CABINET.

REFER SERVICING TO QUALIFIED PERSONNEL ONLY.



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## EXPLANATION OF GRAPHICAL SYMBOLS

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The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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## FCC STATEMENT

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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## EN 55022 Class A Notice

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### WARNING

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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## Standard Warranty

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OpenEye warrants all new products, purchased through authorized OpenEye resellers & Distributors, to be free from defects in workmanship and material under normal use for a **period of two years** after the date of purchase. Any defective product that falls under this warranty will, at OpenEye's discretion, be repaired or replaced at no additional charge. OpenEye may elect to replace defective products with new or factory reconditioned products of equal or greater value. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Exceptions to this are listed below:

- Three Years on all Digital Recorders
- Three years on all analog and IP fixed cameras

All products shall be covered by a one-year advance replacement warranty\*.

OpenEye will warrant all otherwise out of warranty replacement parts and repairs for 90 days from the date of OpenEye shipment.

The above warranty is the sole warranty made by OpenEye and is in lieu of all other warranties by OpenEye express and implied, including without limitation the warranties of merchantability and fitness for a particular purpose. Under no circumstances will OpenEye be liable for any consequential, incidental, special or exemplary damages arising out of or connected with the sale, delivery, use or performance of the product, even if OpenEye is apprised of the likelihood of such damages occurring. In no event shall OpenEye liability exceed the purchase price of the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state or country to country.

**This warranty does not apply to products purchased through unauthorized sales channels.**

*\*Requires corresponding security deposit. Advanced Replacement limited to components only outside of the USA and Canada.*

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For the most up to date information visit [openeye.net](http://openeye.net).

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# INTRODUCTION

## PRODUCT DESCRIPTION

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The OpenEye MH-Series recorder is designed to offer maximum performance and reliability, paired with full integration with OpenEye Web Services (OWS). Complete network setup is fast and easy using Web Connect and eliminates the need for port forwarding using OWS. There is no need to write, remember, or type IP addresses and other network information for remote connections. Simply enable OWS on your recorder, and then connect using the OWS Web Client to manage recorder configurations and user access. These recorders have RAID storage and redundant OS drive options to ensure you get as much operational up-time possible. With on-board storage and removable front drive bays, you have convenient and expandable storage capabilities.

OpenEye Web Services allows you to centralize user management, monitor the health of your recording system, and take advantage of the security of online export and video or clip file sharing.

To learn more about the MH-Series recorder or the rest of OpenEye's M-Series recorder lineup visit [openeye.net](http://openeye.net).

## FEATURES

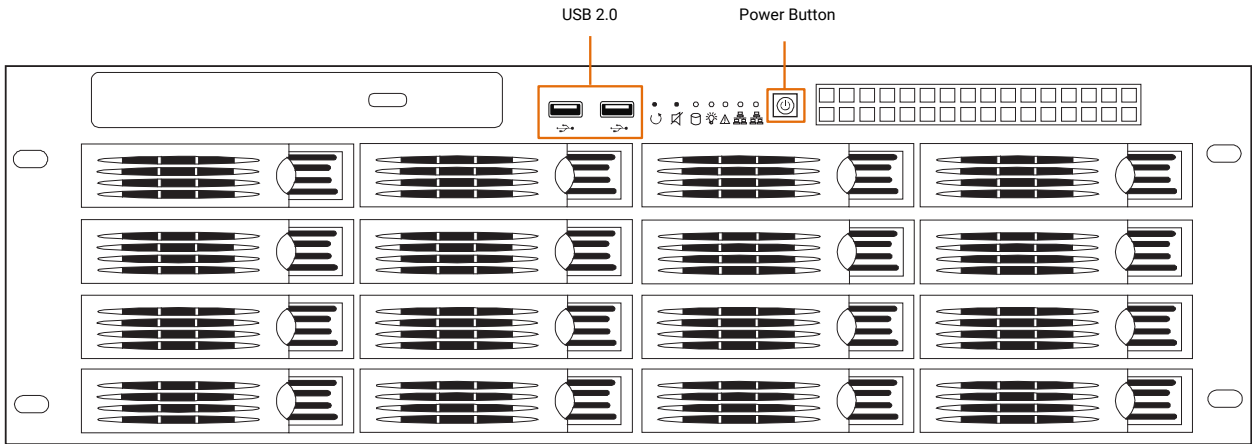
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OpenEye MH-Series recorders include the following features:

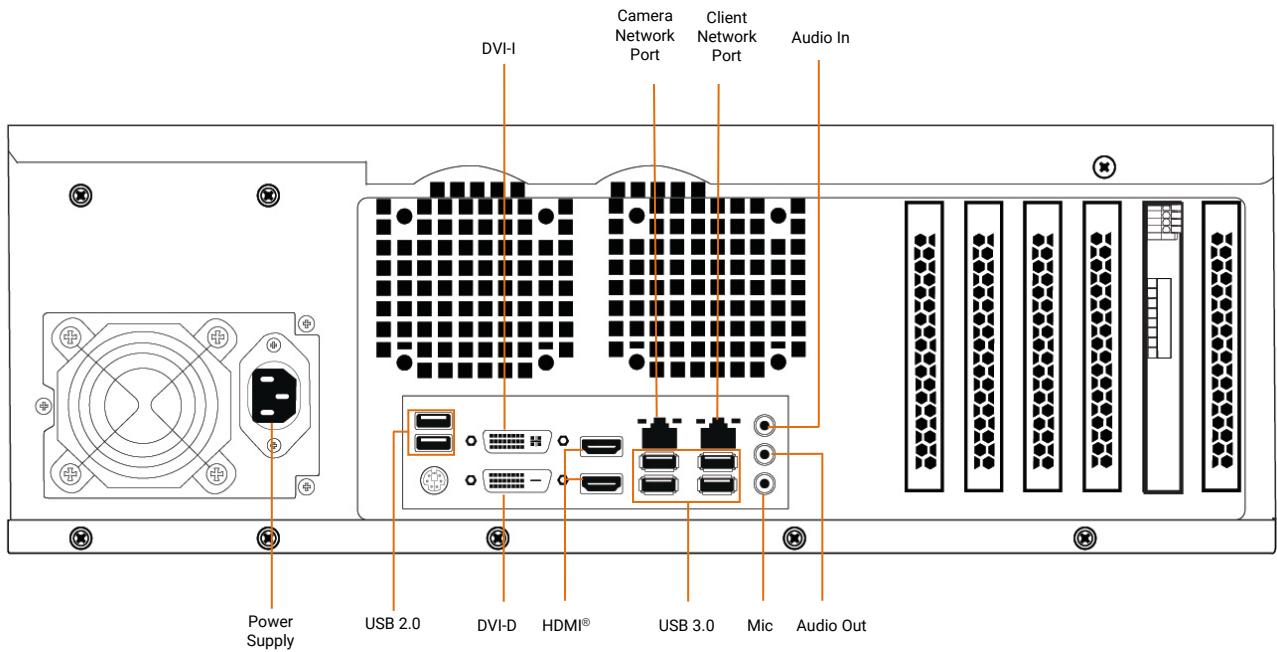
- Fully integrated with OpenEye Web Services (OWS)
- Complete remote operation and administration
- Up to 256TB on-board storage
- Rack mountable with included sliding rail kit
- 16 removable front drive bays for easy expansion
- Solid state OS drives for improved reliability and fast boot times
- RAID storage and redundant OS drive options ensure maximum up time
- Increased storage capacity for maximum data retention
- Optional Sensor/Relay card upgrade
- Dual GbE for Dedicated Client and Camera Networks
- Locking front bezel for added security

# CONTROLS AND CONNECTIONS

## MH-SERIES FRONT PANEL

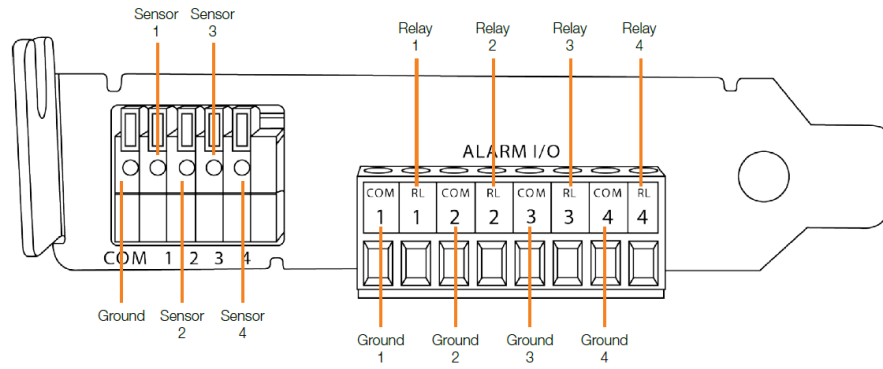


## MH-SERIES REAR PANEL



## SENSOR / RELAY CARD (OPTIONAL ADD-ON CARD)

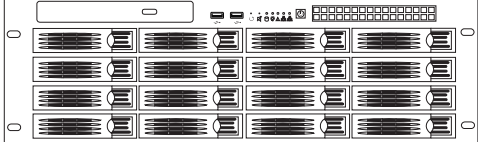
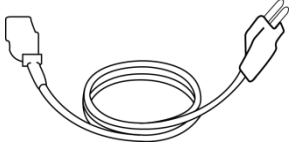

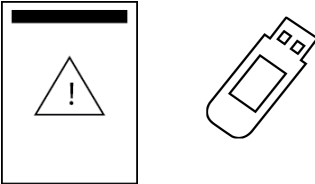
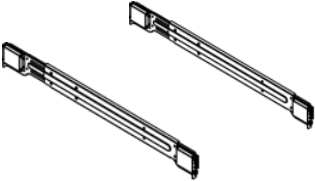
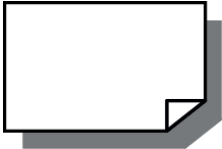

The sensor / relay card is an optional add-on card that can be installed on the M-Series recorder in an available card slot. Apex Server version 1.2 or higher is required for use of the sensor / relay card. See the Apex Server Software manual for instructions on setting up the sensor / relay card on the software.



# GETTING STARTED

## BOX CONTENTS

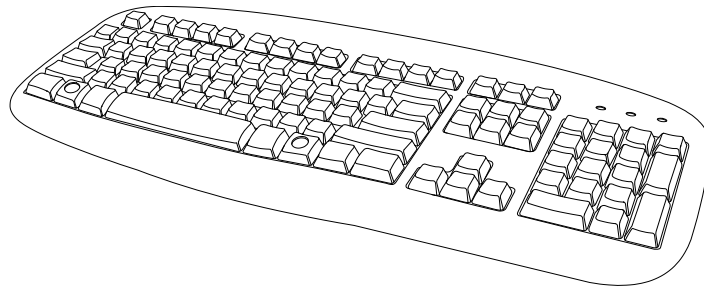
OpenEye MH-Series recorders come with a power cord, keyboard, mouse, rack mount installation kit, and a recovery USB. A Quick Start Guide and other necessary documentation are also included. Identify the following components to make sure everything has been properly included with your new recorder. If any of the following items are missing, contact the dealer to arrange a replacement.

 <p><b>OE-MH Series Recorder</b></p>	 <p><b>Power Cord</b></p>
 <p><b>Keyboard and Mouse</b></p>	 <p><b>Recovery USB with Instructions</b></p>
 <p><b>Rack Mount Installation Kit</b></p>	 <p><b>Quick Start Guide</b></p>
 <p><b>Locking Front Bezel</b></p>	

## KEYBOARD SETUP

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To attach the keyboard, connect the keyboard to a USB port located on the back of the recorder.



## MOUSE SETUP

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To attach the mouse to your recorder, connect the mouse to a USB port located on the back of the machine.

In this manual:

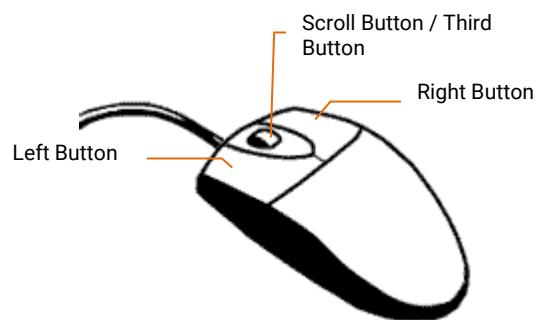
**Click** means to position the mouse cursor over an item and to single click the left button.

**Right click** means to position the mouse cursor over an item and to single click the right button.

**Double-click** means to position the mouse cursor over an item and to click the left button twice.

**Select** means to position the mouse cursor over a radio button, checkbox, or list item and click on it.




The scroll wheel in between the two buttons is used for added navigation functionality. By moving the wheel with index finger (scrolling), quickly move through multiple pages, lines, or windows. The wheel may also function as a third button allowing the user to quickly click or double-click an icon or a selected item.



## MONITOR SETUP

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These connections are available to connect a monitor:

	<b>HDMI® Output</b>	To TV / Digital Display
	<b>DVI-I Output</b>	To TV / Digital Display
	<b>DVI-D Output</b>	To TV / Digital Display

Refer to the monitor manual for detailed information on how to setup and use it.



**Note** The monitor must be capable of a minimum screen resolution of 1024x768 and support 32-bit color.

## CONNECTING CAMERAS THROUGH THE CAMERA NETWORK

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**Apex automatically detects ONVIF Profile S compliant IP cameras if:**

**The cameras are set to a discoverable IP address - 192.168.51.2 – 254**

This is easily accomplished using Network Camera Manager:

1. Download NCM from OpenEye.net
2. Connect your PC to the switch with your cameras
3. Enable ONVIF detection for 3rd party cameras
4. Input login credentials in Camera Credentials section

**Camera(s) and Camera Network Port are connected to a DHCP network:**

If the camera is a 3rd party device, it needs to be set to DHCP. If using a DHCP server, the IP address of the Camera Network Port needs to be set to a static IP address within that range.



**Note** Setting a static IP address on a DHCP network should only be done by a network administrator.



**Note** If using both networks, Client and Camera, only the Client network should have a gateway.



## SETTING UP THE RECORDER FOR THE FIRST TIME

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1. Connect the network cable intended for remote connection to the **Client Network Port**.



**Note** The Camera Network Port is intended for use with a dedicated camera network.

2. Connect the supplied **keyboard** and **mouse** using the USB ports.
3. Connect a **monitor** using the HDMI® or DVI ports.



**Note** The upper HDMI port shares bandwidth with the DVI-I port, the DVI-I port will become unavailable if the upper HDMI port is in use. The DVI-I port and the upper HDMI port can output simultaneously only if the DVI-I port is used to connect a D-Sub monitor by adapter.

4. Plug the supplied **power cord** into the recorder and connect it to a power source.

## DEFAULT USERNAME & PASSWORD

---

### WINDOWS USERS:

NVRAdmin

NVRUser

### WINDOWS PASSWORD:

The server serial number is used as the default password for both accounts.



**Note** The serial number can be found on the product label located on the side of the server.



**Note** It is strongly recommended the password is changed during initial setup.

### APEX LOGIN:

Log in to the Apex Server recorder using the default credentials:

**Username:** admin

**Password:** 1234

Complete the **First Time Wizard** for basic system setup.

## CHANGING A WINDOWS USER PASSWORD

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1. Press **Ctrl + Alt + Del**
2. Select **Change a password**
3. Enter **Username** for which you want to change the password
4. Enter **Old Password**
5. Enter **New Password**
6. **Confirm** password
7. Click the **Submit arrow**

# WINDOWS SECURITY UPDATES

Windows Server Update Services (WSUS) are available on all OpenEye Apex recorders running Windows 10. An OpenEye WSUS utility is included on the desktop of every MH-Series recorder that will allow a user to enable the auto-update service if desired.



**Note** The OpenEye WSUS service provides security updates only. Updates are thoroughly tested and reviewed by OpenEye prior to release.

## ENABLING AUTO-UPDATES

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1. Launch the **Windows Update Utility** from the icon on the desktop.
2. Click **Enable**



**Note** A reboot is required after changing this setting.

**Note** Updates will be automatically downloaded but require user interaction to install them.

**Warning** System restarts are frequently required to complete the update process.

## UPDATE ACTIVE HOURS

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Use the active hours feature to provide up to a 6-hour window to schedule updates and restarts.

1. Select the **Windows** button
2. Select **Settings**
3. Select **Update & security**
4. Select **Windows Update**
5. Select **Change active hours**
6. Choose the **start time** and **end time** for active hours
7. Select **Save**

# OPERATING YOUR RECORDER

## TURNING ON THE RECORDER

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1. Turn on the monitor connected to your recorder.
2. Use the power button on the front panel to turn the recorder **On**.
3. The recorder will run a series of self-tests. If asked to respond to any messages, follow the instructions carefully.

## TURNING OFF THE RECORDER

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1. Click **Start**, and then click **Power**.
2. Click **Shut Down**.

## SYSTEM RECOVERY

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<https://www.openeye.net/support/faqs/apex-system-recovery-instructions>



**Note** Call OpenEye Support at 888-542-1103, option #2, for more information regarding the recovery process.

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