Eagle Eye Application Note - AN069

Eagle Eye Viewer Application for Windows

2025-01-14   Revision 1.0

Target Audience

This Application Note is intended for Eagle Eye Cloud VMS users and administrators who wish to use a Windows Computer that is on the same network as their Eagle Eye Bridge or CMVR to stream their local cameras in a Live Display.

Introduction

The Eagle Eye Viewer application for Windows converts any monitor or TV screen into a local spot monitor instantly. Leveraging local video viewing with Eagle Eye QL Stream, the app quickly locates all available Eagle Eye Cloud VMS connected cameras on your local network and gets you up and running in minutes.

The Eagle Eye Viewer app is available from the [Microsoft App Store](#).

To use the application, a user on the account must have access to the desired cameras they wish to display and should have the ability to create or utilize layouts from the installed Eagle Eye Cloud VMS; this enables the user to display the layouts on their Windows device.

To enable the QL Stream features of the Bridge/CMVR, a user with access to Bridge Settings should first enable QL Stream (RTSP) in Bridge Settings for Local Display. If the user already has Bridge Settings permissions, the application will enable the setting in the Bridge on login. Read [AN059: Using Eagle Eye QL Stream for Enhanced Local Video Viewing Solutions](#) for more information.

A list of features enabled by this application is below. Simply launch the Eagle Eye Viewer app, sign in with your Eagle Eye Networks user credentials (first time only; the app will remember your credentials), select your layout, and you are ready to go.
- Select from your existing layouts.
- View a single camera full-screen from the layout screen.
- Switch layouts directly from the Layouts left hand menu option or bottom right menu in full screen mode.

- Layouts will display up to 16 cameras (in a 4×4 grid) or display two layouts with dual monitor support, each with up to 16 cameras for 32 camera display capability.
- Cloud Managed Video Recorder (CMVR) users with Local Video storage also have an option to locally download video directly to their Windows PC. This requires CMVR bridge firmware 3.22.1 or later. Cloud Video downloads are not yet available but should be available in future updates.
- Live View Snapshots are available to save directly from the camera view.
- Auto rotate up to four 16 camera layouts at a time.

Recommended Hardware: Intel i7 11-13th gen. 16–32 GB RAM

Getting Started

This Windows application shares the same name as our iOS and Android mobile applications but has an intended use case that is unique from the mobile platform. Specifically, this application is intended to be used to display your Eagle Eye Cloud VMS security cameras in their full video quality 24/7 for security or operation purposes, while being used on the same premises as the Eagle Eye Security Camera System.

While the application can be run on any Windows 10/11 operating system, system performance is optimized by using a PC that has the sole purpose of displaying your locally available cameras for situational awareness or security monitoring. Utilizing the application at its full capacity while simultaneously operating the PC for other daily tasks may limit the performance of both.

When using a PC for 24/7 display operations, ensure that the PC settings do not allow the device to sleep. Also, disable any screen savers or settings that turn off the screen after a set amount of hours of no interaction.

Windows Login Flow:
Download the application to your device from the [Windows App Store](#), and make sure the IP address of your PC is within the same network/subnet as the local Eagle Eye Networks Bridge/s or CMVR/s.

The first time the application is opened, it will load to the Eagle Eye Networks user authentication page. Enter the username and password for the user (must be a user in the account containing the needed cameras, with QL Stream (RTSP) enabled in the Bridge/s at Bridge Settings > Local Display).
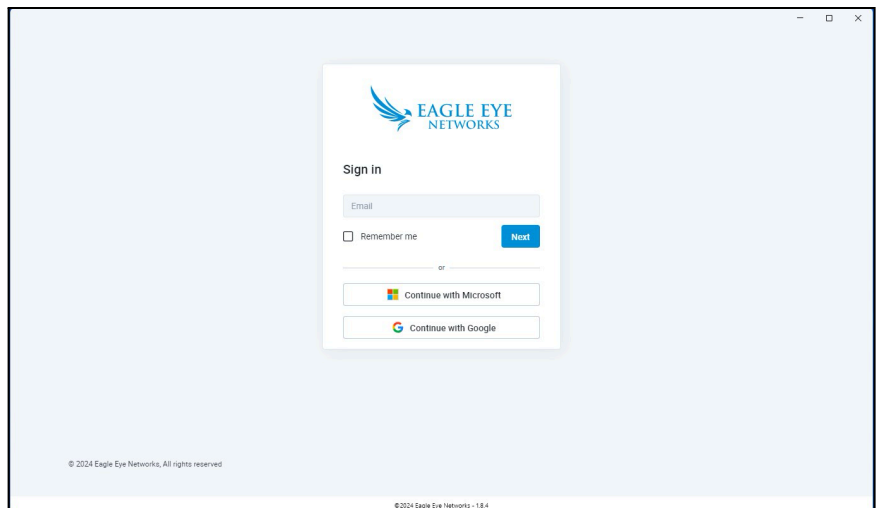
You will get confirmation that everything worked, and the application will load the user's first layout. If all expected cameras are not returned, or some have indicators that they are not local cameras (the "eyeball" icon on screen in bottom left), you may need to refresh the connection to the cloud by pressing CTRL+r or selecting "Sync with cloud VMS" from the file menu.
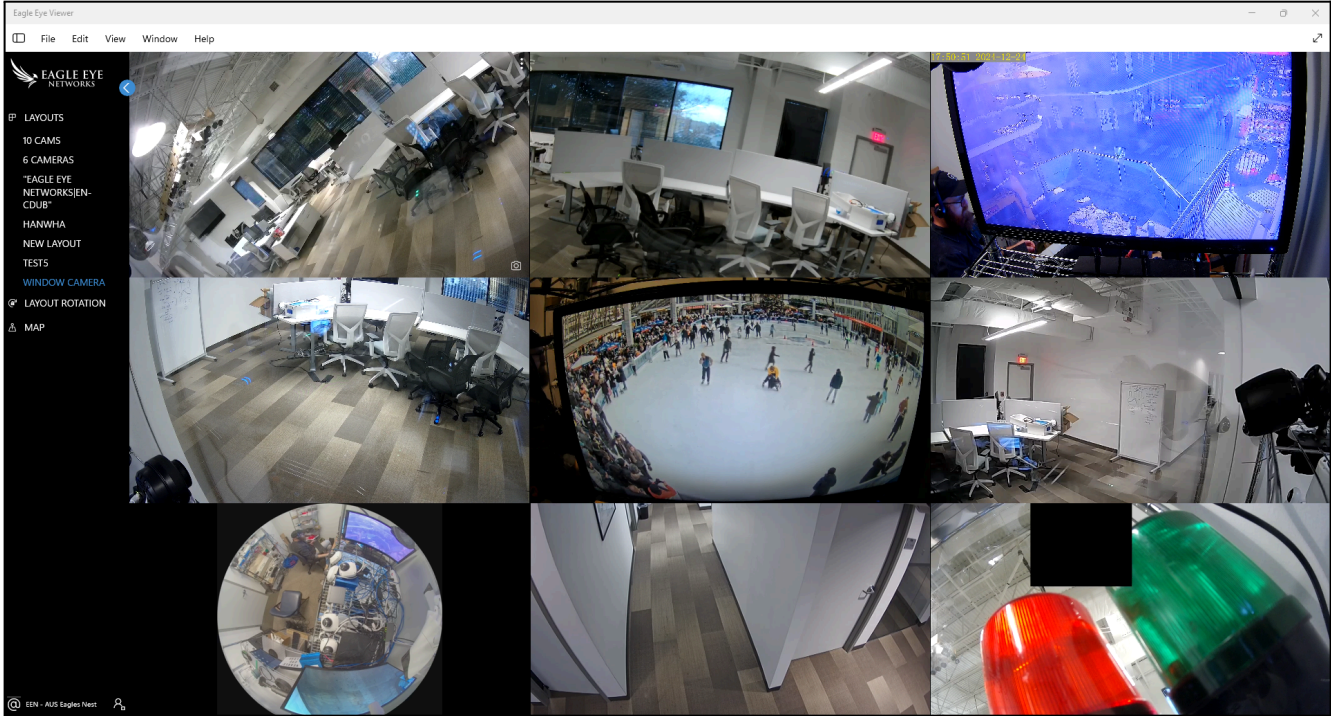

Navigating The User Interface and Settings

The Eagle Eye Viewer App for Windows has a top row menu to navigate settings, and application options. All available Layouts displayed by the application must be created in the Eagle Eye Cloud VMS browser or mobile applications, since there is not yet support for creating layouts within this Eagle Eye Viewer Application.

File
Bulk download - With a Cloud Managed Video Recorder (CMVR), locally download recorded video. This option allows for mass downloading
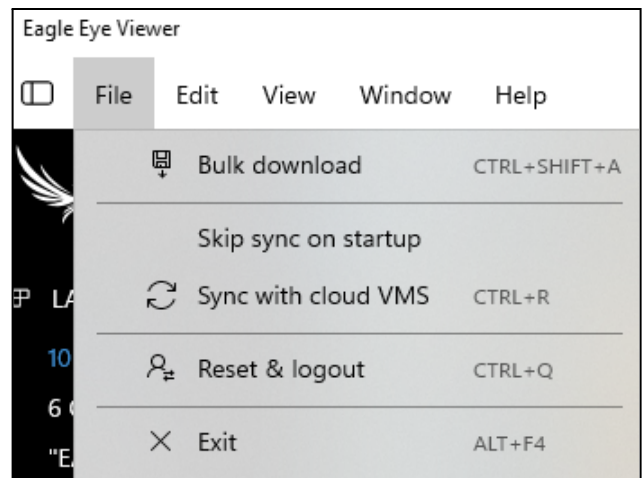
Skip sync on startup: Allows the application to be opened and closed without connecting to the cloud VMS so that it loads quickly.
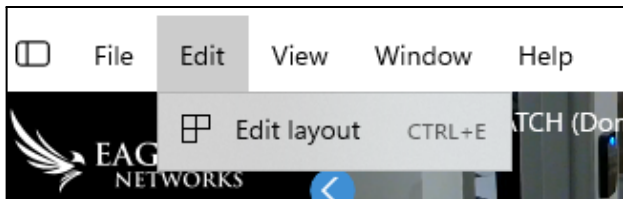
Sync with cloud VMS: Syncs the application with the cloud, which may be needed if a camera is not connecting properly, or if you have created a new layout that needs to become available to the app.

**Reset & Logout**: Resets the application and logs out.

Exit: Closes the application.

Edit:
Edit layout: Opens a right-hand window where you can edit the current layout. (See below.)

Edit layout window: Drag and drop the camera to change its position in the layout. Select or uncheck cameras from the layout to add or remove them. Click the check mark on the bottom to save, or click the X on the bottom to exit without saving.
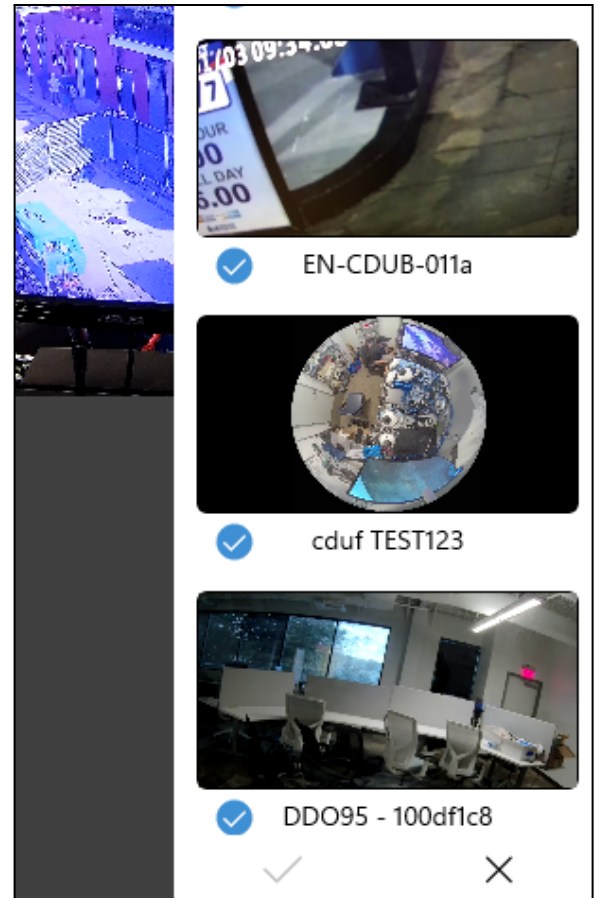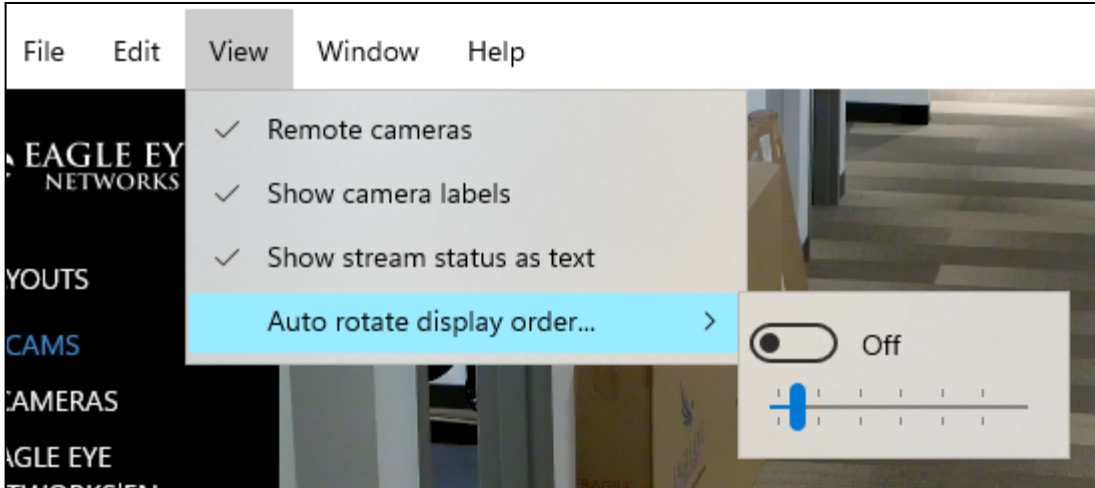

View
Remote cameras: Allows the cameras in the layout that are not on the local network or are Camera Direct (no Bridge) to display their Cloud Preview stream (low resolution and low frames per second). This setting also enables a special layout option with cameras that are not on the local network.

Show camera labels: Enables or disables camera names, clock, camera option menu, and snapshot icons from the camera pane (with the exception of the remote camera icon). The camera option menu and snapshot icon will appear for use when the computer mouse is moved on screen.

Show stream status as text: Shows text for stream status if connection is not established.

Auto rotate display order: Rotates the cameras on display to minimize screen burn-in on low motion cameras. The slider lets you select how often the cameras rotate.
Note: This setting is separate from "Layout Rotation." It enables cameras in the layout to rotate counterclockwise, and if only one layout is left on screen long term, to minimize screen burn-in.


Window
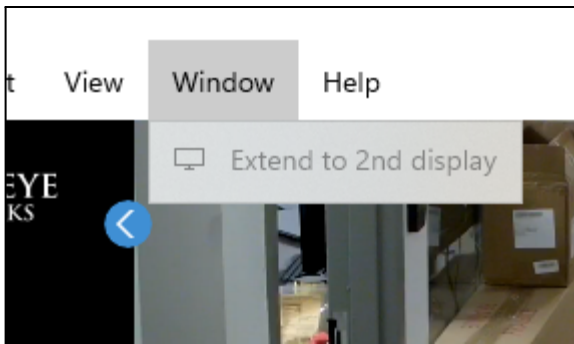
Extend to 2nd display: Enables second screen viewing if dual monitors are detected by the application. The screen must be connected before the application is launched. Close the application and re-open the application if the monitor is connected while the application is running. The secondary screen window has limited functionality from the main screen.

Help
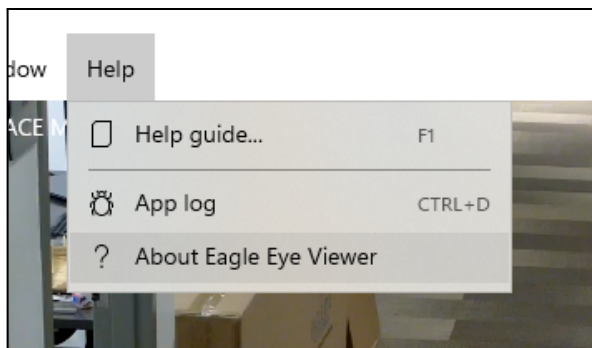
Help guide: Opens the shortcuts popup, described below.
App log: Opens a log of system operations. This log can be saved and shared with support.
About Eagle Eye Viewer: Shows the app version, bridge URL and application memory.

The Help Guide (shortcuts popup) can also be opened by pressing the F1 key:

Shortcuts: These keyboard shortcuts can accomplish some of the same settings as above.

- **CTRL+H** - Show or hide the menus.
- **CTRL+E** - Edit a layout (enable/ disable cameras from the layout on display, drag up or down camera location)
- **CTRL+F** - Go to full screen mode
- **CTRL+R** - Refresh & sync (refresh connections/resync with cloud)
- **CTRL+M** - Map view (will open map view [no video], data for location pulled from Cloud VMS settings)
- **CTRL+Q** - Reset & logout (set the application back to default settings and log out user)
- **CTRL+D** - App log (this option is for debugging, and will allow you to export and view system logs)
- **CTRL+Z** - Reset any zoom applied to camera view
- **ESC** - Close popup

Zoom & Rotate - When in camera fullscreen (click image), zoom camera field of view, or rotate image

Left Hand Menu navigation:
The left hand menu can be collapsed or expanded by clicking the expand/ collapse button:
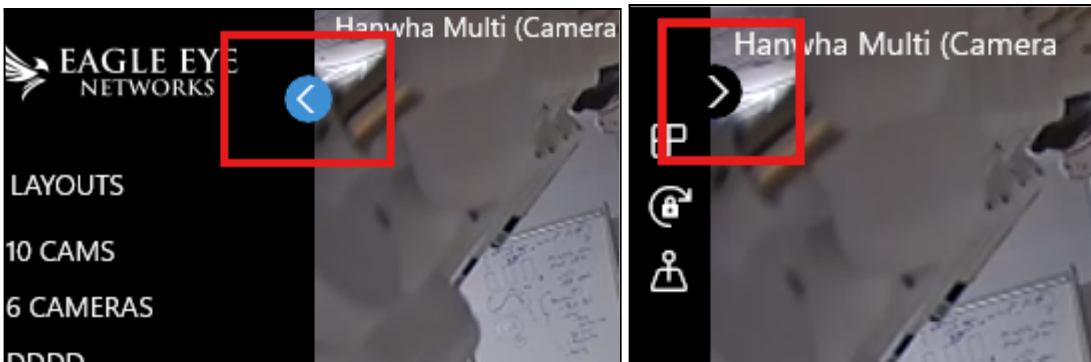
When collapsed, hover over the icons to display their function, and click the icons to switch layouts, enable layout rotation, or open the map. The left hand menu lists all available layouts. Layout support and maximum cameras on screen are described in further detail in sections below. Below the layouts section, there is the option to enable **Layout Rotation**, which opens a separate configuration window:

Layout Rotation:
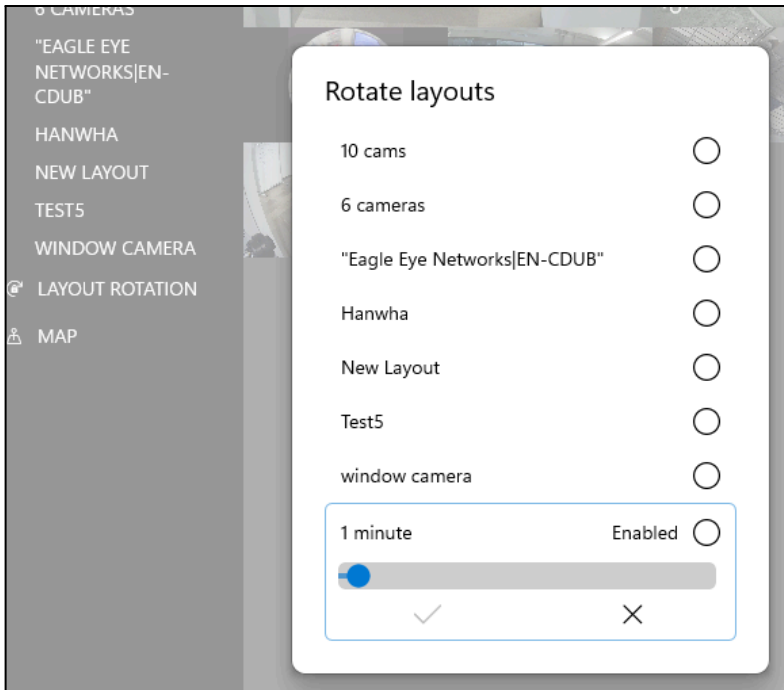
The application supports a maximum of 4 layouts at their max supported cameras, to be rotated on schedule, per screen. Rotation can be from 30 seconds to 9 minutes per rotation.
Select the layouts to rotate by checking the circle to the right of the layout name. The application will determine the amount of processing needed and may restrict additional layouts from selection.
Check the Enabled button in the bottom right corner, and select the rotation interval time.
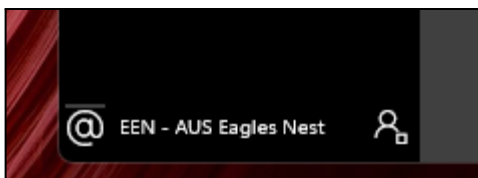**Save settings** by selecting the check mark, or cancel setup by clicking the X.

When layout rotation is enabled, the Layout Rotation option on the menu will change to green.
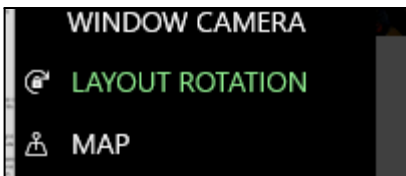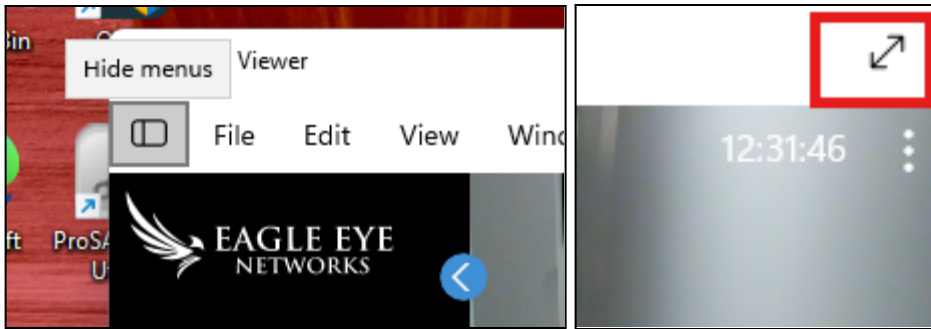

Account & Logout:
At the bottom of the left hand menu, you will see the account information for your Eagle Eye Cloud VMS, and you can click the user icon to log out of the application, and close the program.
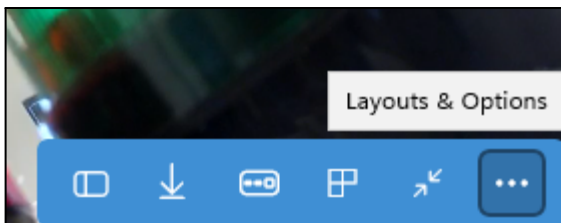

Hide menus, Full Screen Mode:
From the top left, select "Hide menus," or from the top right, click the expand icon to enable Full Screen video mode:

When in Full Screen mode camera layouts will incorporate the entirety of the display screen.
There will be a three-dot menu in the bottom right corner, which allows you to take additional actions, or you can hover in the top right corner to collapse full screen to a window using the typical Windows options for window sizing or exiting.
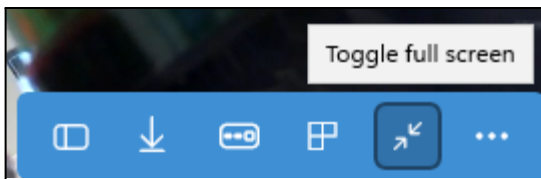
The three-dot menu: When you hover over the three-dot menu in the bottom right corner while in full screen mode, you can do the following actions.
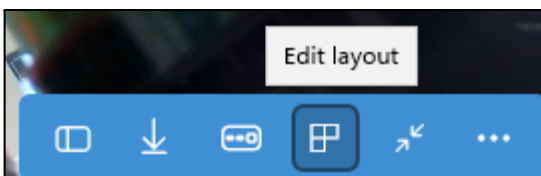
Layouts:

Click the three-dot option when the hover appears to change the current layout on display.

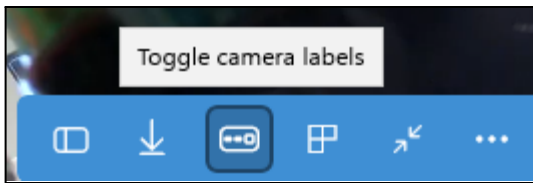**Toggle Full Screen:**

Toggle full screen mode off.

Edit layout:

Edit the current layout, this will open the same edit layout menu described previously.
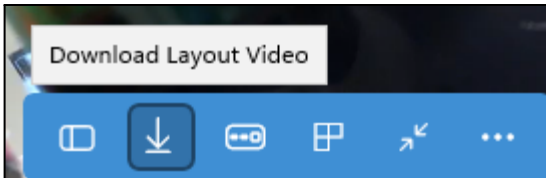
Toggle camera labels:

Enables and disables camera names, clock and option menu, and snapshot icons from camera pane (with the exception of the remote camera icon). The camera option menu and snapshot icon will appear for use when the computer mouse is moved on screen.

Download Layout Video:

Opens a page that loads 24 hours of recorded video for all the cameras in the current layout. Downloading video described in further detail in later sections.

Show menus:

Bring back the top and left hand menus.

Layout Formatting and Performance Expectations

Layout capabilities and limitations:
The application supports up to 16 cameras in a 4×4 grid. For total supported camera megapixels on display, see the descriptions below.
The application tries to accommodate the cameras that are selected in the user-created layouts in the Cloud VMS and adapts the total cameras to a display grid that best displays the cameras utilizing as much screen as possible. Based on the total megapixel (MP) count of some layouts from the Cloud VMS, the application may drop camera streams to keep performance in line with specifications. For example, for a layout of 20 camera streams, only the first 16 will be displayed in a 4×4 grid, or, if the total MP of cameras exceeds what the system can support, the layout may drop the higher MP cameras.
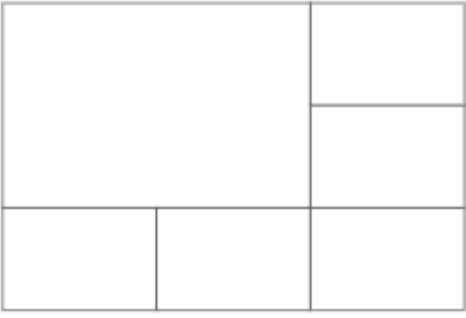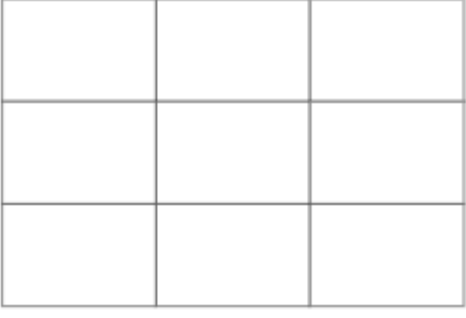The cameras display in the order specified in the Cloud VMS, with the exception of 5-across and 6-across layouts, because the application has a max of 4 across, so cameras 5 and 6 from a layout of this format move down and left to the next row.
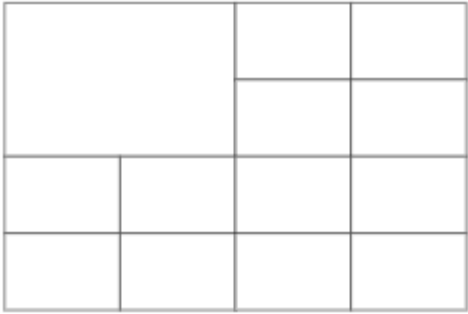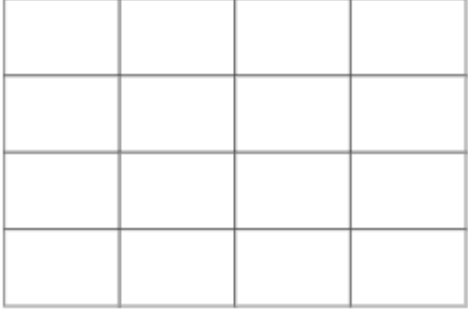
Layout grid formats:
Cameras display from top left to bottom right according to the layout settings in the Cloud VMS;

however, the number of cameras in the layout determines the display grid appearance, which might be different than expected (or if the system performance cannot allow some cameras to display). You can use the Edit Layout options to change the location of cameras or disable cameras that do not need to be shown**.**

Note: We recommend creating layouts in the Cloud VMS for the user (and if possible, create a user for the sole purpose of using this application), that follow the format and performance requirements to best enable the application to be used as a security display.

Total Cameras in Layout	Display Grid
1 Camera	Full Screen, or Full Window
2−4 Cameras will display in a 2×2 grid. Camera Rotation is counterclockwise.	
5−6 Cameras will display in 3× Expanded Grid mode, top left camera is enlarged. If 5 cameras are on display, the bottom right camera tile is blank. Camera Rotation is counterclockwise.	
7−9 Cameras will display in a 3×3 grid. If 7−8 cameras are on display, the bottom right camera tiles are blank. Camera Rotation is counterclockwise.	

10−13 Cameras will display in 4× Expanded Grid mode, top left camera is enlarged. If 10−12 cameras are on display, the bottom right camera tiles are blank. Camera Rotation is counterclockwise.	
14−16 Cameras will display in a 4×4 grid. If 14 -15 cameras are on display, bottom right camera tile/s are blank. Camera Rotation is counterclockwise.	

Recommended Hardware:
Intel i7 11-13th gen. 16−32 GB RAM

Performance Expectation:
All system performance was tested using an Intel NUC 13 PRO - i7 13th generation with 32 GB RAM. Minimum recommended system specifications are Intel i7 11th generation with 16 GB RAM; performance may vary depending on processor and RAM utilized. Recommendations based on an average 15-25 FPS & H.264 (main) profile.
The application does not support or benefit from Hardware Acceleration from a GPU.

Single Monitor: Layout on display, max supported resolutions are as follows:

Resolution	2×2	3×3	4×4	MAX
720p	✔	✔	✔	16
1080p	✔	✔	✔	16
3MP	✔	✔	✔	16
4MP	✔	✔	✔	16
8MP	✔	✔	-	9

Dual Monitor: Layout on display, max supported resolution per monitor are as follows:

Resolution	2×2	3×3	4×4	MAX
720p	✔	✔	✔	16
1080p	✔	✔	✔	16
3MP	✔	✔	-	9
4MP	✔	✔	-	9
8MP	✔	-	-	4

Use this calculator https://incax.com/xdownload/mcv-calc.html to help verify support for your layout.

Dual Screen mode (Extend to 2nd monitor)
If your Windows computer supports and has two monitors attached, the application will automatically enable support for a window to be opened in a second monitor. To do this, select Window from the top menu, and click on "Connect to 2nd display."

The second display window supports layout selection, and layout rotation, full screen mode, as well as live view snapshots, and camera zoom and rotate options.

The secondary display does not support downloading video, or full menu options and settings. These must be done in the primary window.

To close the second window, either click the Windows "X" from the window titlebar, or select the "Disconnect from second display" from the same Window menu in the primary screen.

Camera Settings and Options

Single Camera Viewing and options:
To view a camera in Full Screen, simply select the camera from the layout with your mouse. It enlarges to the size of the current display grid. Click the image again or press ESC to return to the layout grid.

Camera Snapshots:
In the bottom right corner of the camera view, there is a camera icon that lets you take screenshots of the live view image.
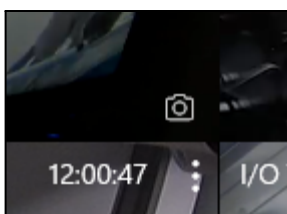
When clicked, the Windows File Explorer opens. Choose a storage location for the image. The image is stored as a .png file and has a default file name that includes the camera name, it's VMS ESN#, and the date and time in the user's current time zone.

The option to take snapshots is also available from the camera three-dot menu in the top right of the image. If camera labels are hidden, the snapshot icon and camera three-dot menu appears when mousing over the camera live view.

Zoom & Rotate:

Use this option to highlight an important area of interest from the camera field of view, and save it to the layout.

When a camera is clicked to enlarge it, scroll your mouse wheel down or select CTRL/+(plus) to zoom in the field of view, and scroll your mouse wheel up or select CTRL/-(minus) to zoom out.

When zoomed in you can hold left-click on the mouse to drag the image or press the arrow keys to position the camera field of view.

Rotate the image by right clicking the image and scrolling the mouse wheel (right click again to set the rotation/ return to zoom).

Use the F2 function key to rotate a camera vertically 180°.

Select CTRL+z on the keyboard to reset the camera to default.

Remote Cameras:

Remote cameras are cameras that are available to the user, but not currently in the same location as the computer requesting video through the Eagle Eye Viewer application. This could be a camera layout from another location, or a camera from another location in the current local video layout.

Eagle Eye Networks also sells a camera line called **Eagle Eye Camera Direct**, and these cameras do not require a Bridge or CMVR to connect to the cloud. Eagle Eye Camera Direct cameras may be on the same network as the Eagle Eye Viewer PC, but because they do not have a bridge they are considered Remote Cameras.

Remote Cameras are limited to displaying video in low resolution, low frame rate from the Cloud. This video feed is what you typically see in the browser application while looking at layouts remotely, we call this our Cloud Preview stream. The cloud preview stream has inherent latency due to the internet traversal, and will not be as close to live as cameras on the local network.

In your layout, you will see remote cameras with an eyeball indicator at the bottom left, letting you know it is not a local camera.
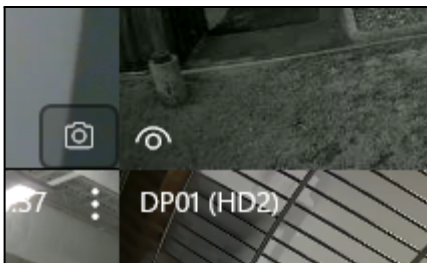
Remote cameras can show their full video stream resolution when they are clicked on and brought to the enlarged view. This view makes a call to the device, and requests the High Quality stream. When this stream is requested to the remote Bridge or CMVR or Camera Direct, the view will be recorded, so it is important to not leave a remote camera on full screen display to limit bandwidth and unnecessary

recording. We do not guarantee support for long-term connections to remote devices.
Remote Camera layouts are also subject to the capabilities of the internet, and the internet service provider, so we cannot guarantee that remote cameras on display will be free from issues with long-term streaming.
Remote cameras can be turned off without making layout changes by deselecting Remote Cameras from the View menu.
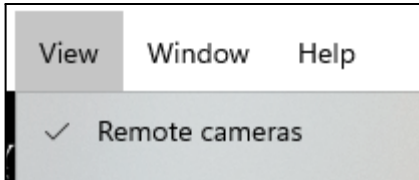

Fisheye cameras (360 degree view cameras):
The application supports Fisheye Camera Dewarping, but does not support the Cloud Fisheye Dewarping feature from the Eagle Eye Cloud VMS. This means any extra camera views created from Fisheye Camera Dewarping in the layout will only load the underlying camera in its warped format. This is because our browser-enabled feature for Fisheye Dewarping happens in the Cloud, not on the local devices.
It is recommended to not utilize camera layouts that include a view created from this feature, as they may fail to load the parent camera view. Only include the default warped camera view in your layout settings.

The parent fisheye camera view can be dewarped in the application but is limited to one dewarped image per fisheye camera and can currently only dewarp the camera into a single view.
Dewarping a fisheye camera requires PC processing and may affect the latency of the camera image from real time.

Select a fisheye view by clicking on the camera in the layout to bring it to full screen, then right click on the image and select the 360 button:
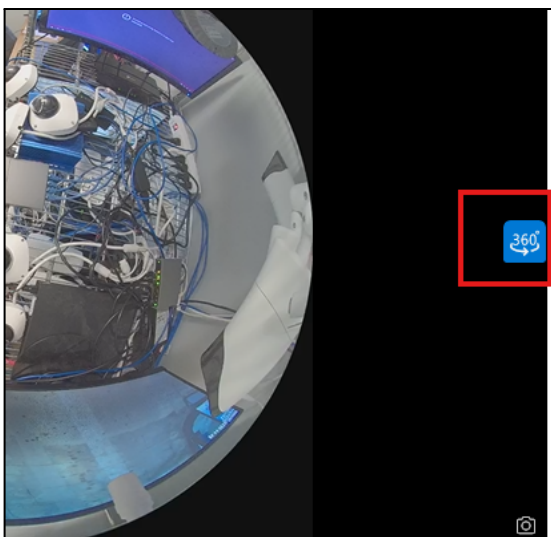
This opens the camera in a dewarped view, based on the parameters set by the default dewarp

settings applied, which essentially cut a 180° rectangle from the center of the camera view and display it as a 16×9 image.
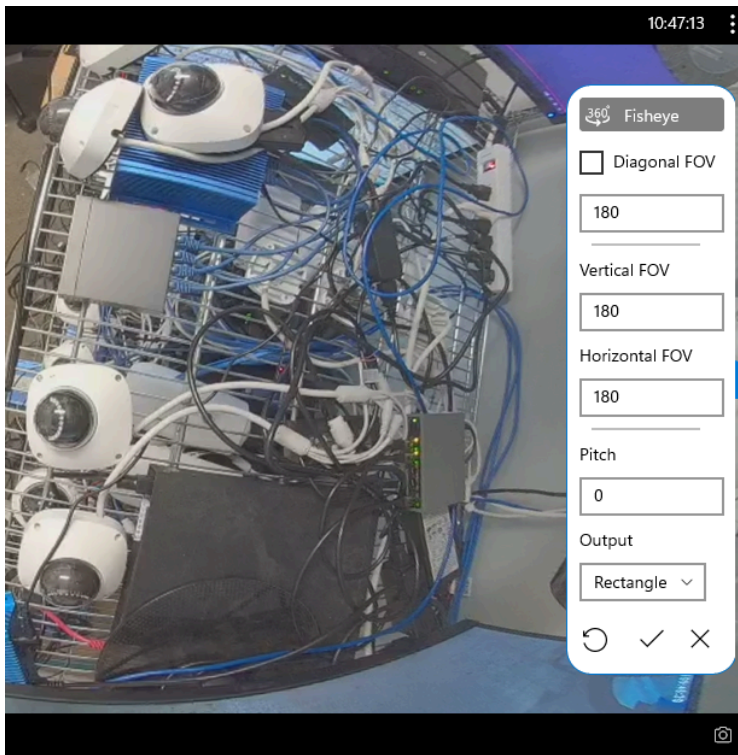
The Pitch setting can tilt the view from center up vertically by applying logical degree angles from 0, so if you want to see the "top" of the fisheye image, apply positive angles (e.g., 15, 30, 45, 60, 90), and for the "bottom" use negative angles (e.g. -15, -30, -45, -60, -90). To flip the image vertically, press F2. You can also zoom and rotate the image in the same way as a regular camera, if you want the left or right of the image to be in view vertically.
Select the Check button to save or the X button to close without saving. Choose the refresh circle to unset the dewarp, or CTRL+z.

This feature needs further development at the time of this writing, and we do not have recommended settings to do more than this limited capability, or have proper functionality with some of the built-in settings not mentioned. Look for future improvements in later application updates.

Map:
The Map function can take location data from the camera settings in your VMS account, and place the camera where it is physically located in the integrated world map. Currently, there is no ability to click the camera icon and see a live view, but we are hoping to improve this feature in future updates.

Video Downloads

At the time of publication, the capability to locally download video from your Eagle Eye Security Camera System is limited to users operating a Cloud Managed Video Recorder (CMVR), with settings

enabled for the camera to have On Premise Retention. The CMVR needs to be updated to the current firmware version 3.22.1 for the application to retrieve local files from the device. Future updates to the application are planned to allow the user to retrieve video from cloud storage for our Bridge devices which send all video recording to the cloud for off site storage, or for any video that is within the retention settings, but no longer locally stored. This application note will be updated when this feature is released.

The default file name for downloads if not edited is:
Camera_Name_ESN#{typically 100#####}_yyyymmddhhmmss.mss
This date format utilizes Universal Time Coordinated (UTC). This is how all video is formatted for recording in our CMVRs, as UTC is commonly used to regulate time in electronics.
To find your local time from the recording, find your time zone's UTC Offset—e.g., US Central Time, is UTC-06:00 or, six hours behind UTC+00:00.

At the time of this publication, there is not yet the option to include **camera timestamps** on the video playback. The time of the event is only available in the file name. To download a video with a timestamp overlay requires the video to be exported using the Download options from the Eagle Eye Cloud VMS web portal, where there is an option to include event timestamps. There are three options to access locally stored video from a CMVR, each with slightly different features.
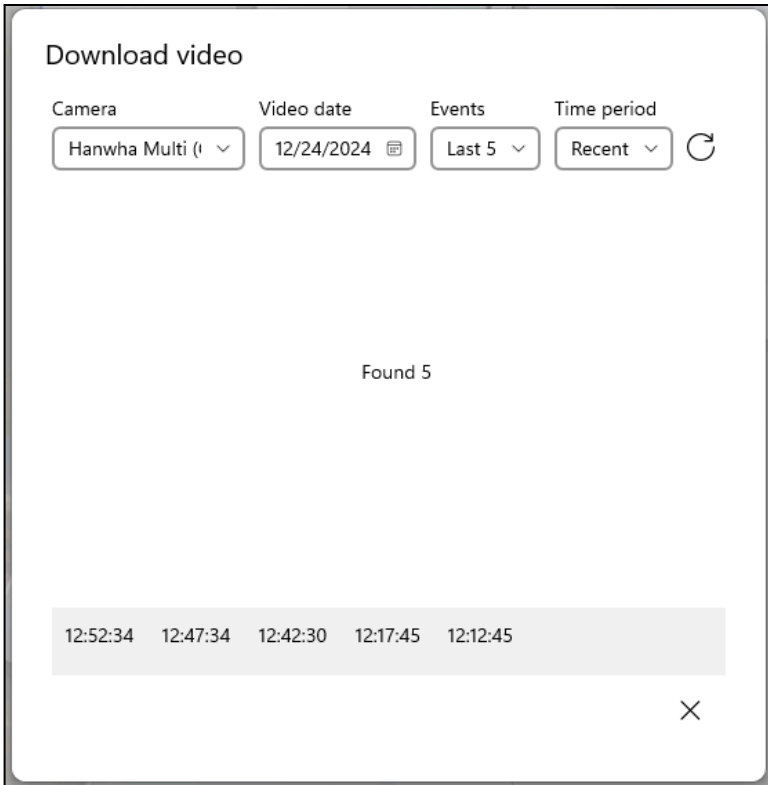
Download from camera:
In the camera tile, at the top right corner is a three-dot menu with a Download option.

When you select this option from a camera that is currently attached to a CMVR with local storage enabled, it will load the download menu, showing the most recent 5 events recorded.
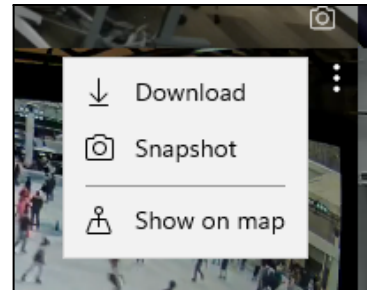
Select one of the events from the timeline along the bottom to play back this video file. The file will play back, and the length of the file is shown below the video. Click the arrow icon on the video image to play the previous or next file, or scroll the timeline with the mouse. To save, select the video format for the file and hit the save icon to select the file folder for storage. Select X to close the video download window.

There are three file format options for this download feature:

**MP4** is a universal video format, playable with most media players.

WMV is a native windows media format, for Windows Media Player.

FLV is the format that video is recorded in by the CMVR. FLV files are the fastest to download, as they do not need to be converted, however, they have limited supported video players. Our recommendation for this file type is **VLC media player** (Go to videolan.org to download for Windows. This program can play and convert the files to other formats).
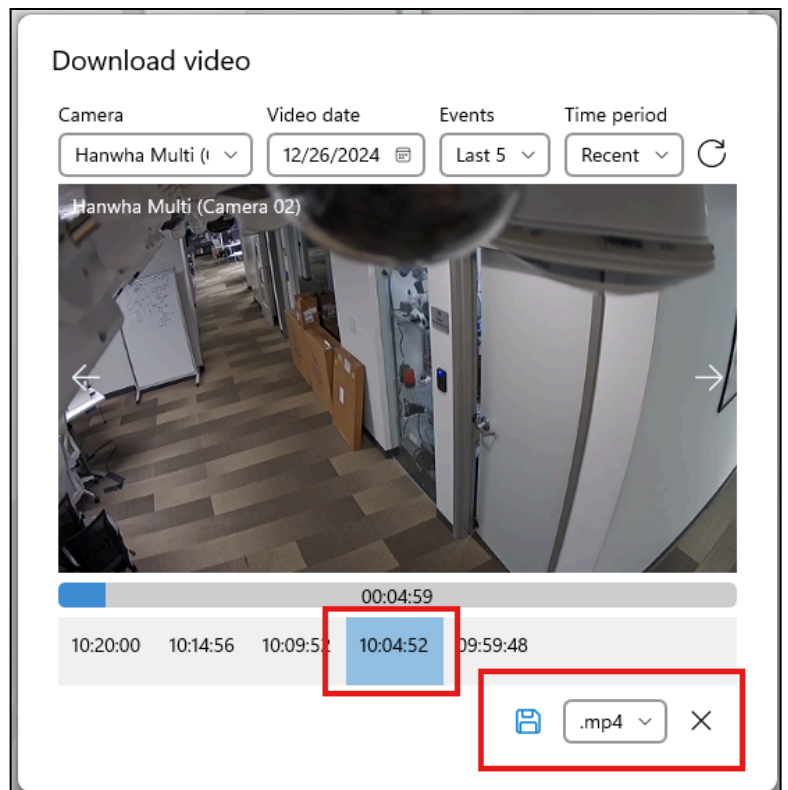
Note: If your video file fails to save as an MP4 or WMV, it is possible that the stream codec is not able to properly decode with the application. There are many causes for this error: since there are many supported camera vendors and models for Eagle Eye Networks, it is impossible to know which ones at the moment are compatible with this application's file conversion. The raw FLV format should always work, and once downloaded from the device, should be capable of conversion using the VLC media player.

The date, recent events, or specific hour-by-hour time, and camera can be changed in the popup. The available cameras here will be related to if they are in the current layout.
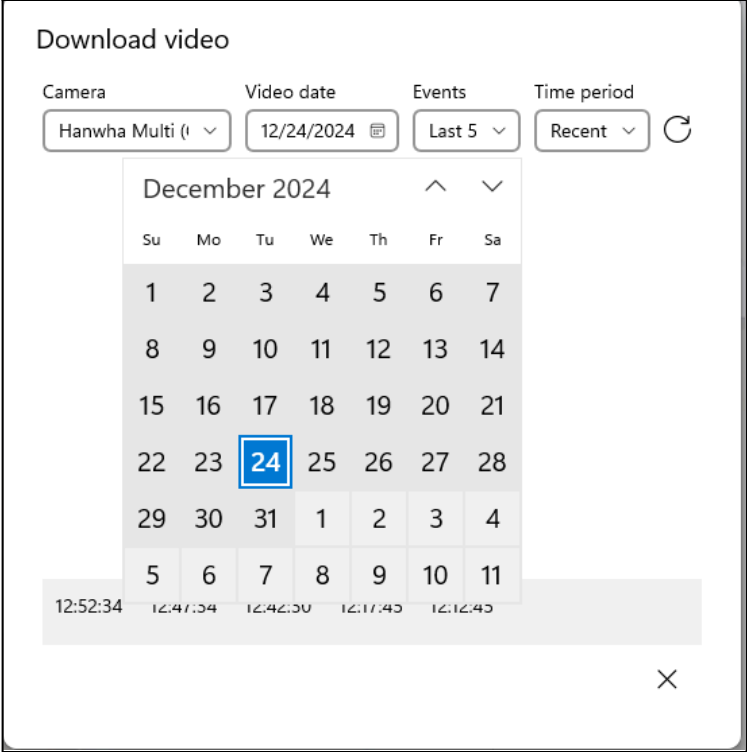
You can also expand the playback window to a larger size by clicking on the video window. From the expanded view you still have access to the previous or next clips by clicking the arrows in the video window.
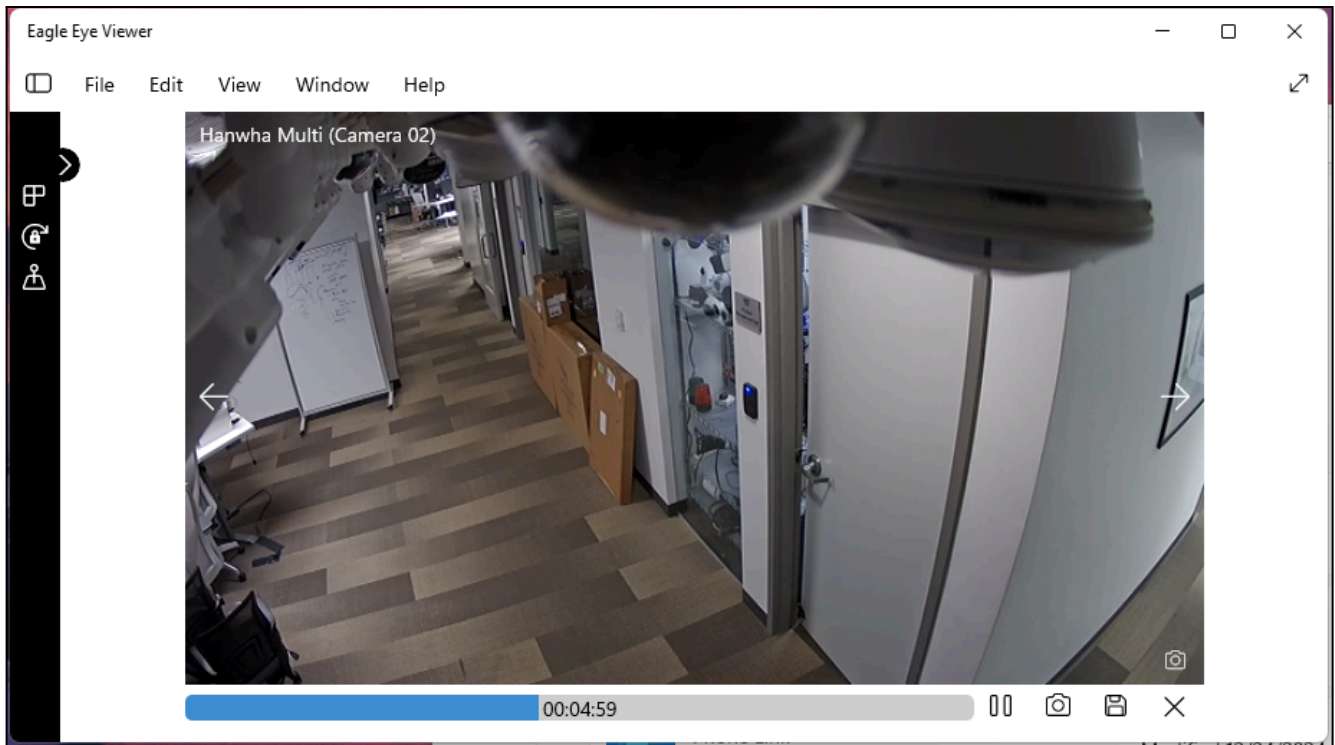
While in expanded viewing, you have the option to pause the video, and you can click and drag the blue playback bar to scan forward or back on the video file. You can also take a snapshot of the video to save independently, or save the video from the save icon (the file format selected in the Download Video screen will be the format saved from here). Select X to close the expanded view.
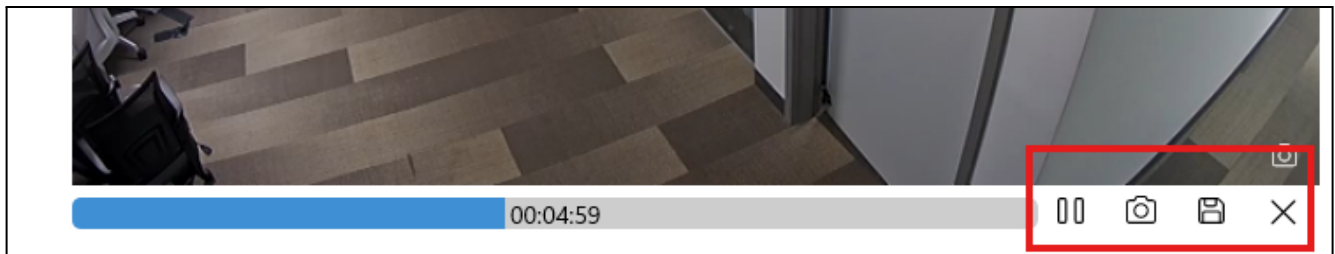

Layout Downloads:
From the Full Screen bottom-right three-dot menu icon, there is an option to request the last 24 hours of video from each camera in the current layout.
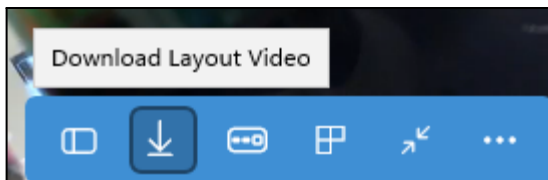
This may take a moment to load depending on the amount of video recorded. Along the right side will be a descending list of recording times from the past 24 hours, as well as the camera name that generated the video. You can select a single camera from the layout in the top right drop-down menu.
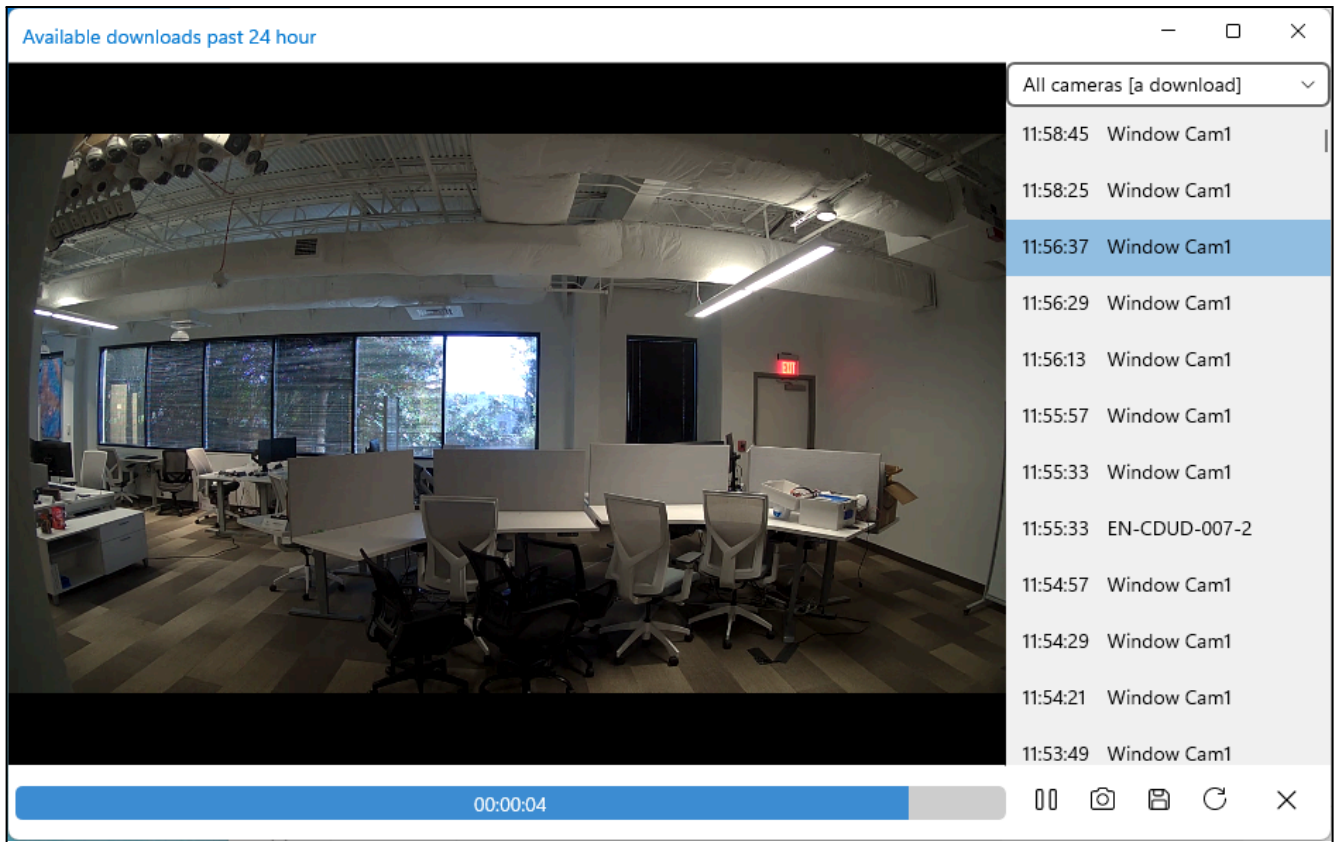
Playback, pause, snapshot, and download work the same as camera downloads, and the previously selected video format from camera downloads will be used when saving files.
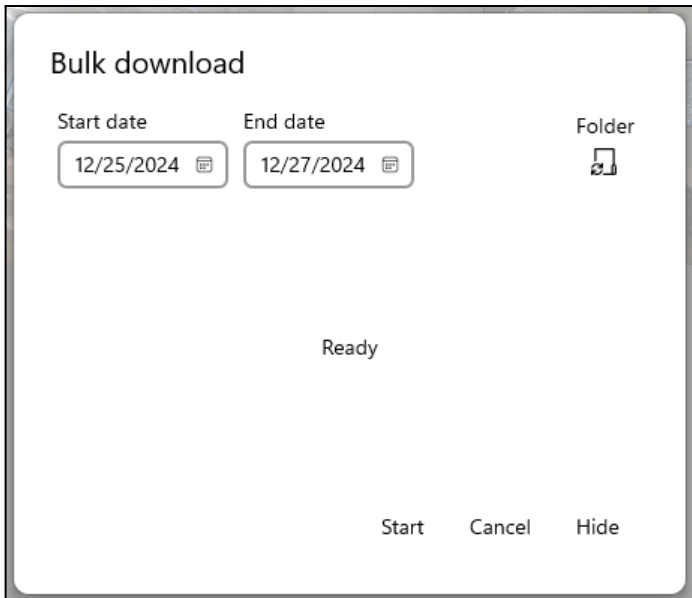
Bulk Downloads:
Bulk downloading allows you to offload many days of video from the CMVR to your Windows computer. At the time of this publication, the exact size of the download request is unknown until the download completes. Video files are large, and over just a few days of normal activity a CMVR can have many gigabytes worth of recorded video. For example, a CMVR with 12, 3MP cameras, recording ~12 hours per day, at 12 frames per second would store ~116GB of h.264 video per day, so downloading nine days of Bulk Downloads could completely fill a 1TB hard drive (a common PC hard drive size).

The Bulk Download feature is located in the File menu, or by selecting CRTL+Shift+A.
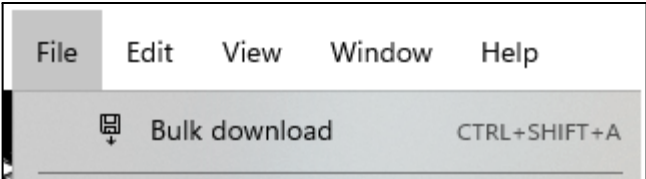
This will give you a popup with a Date and Folder selection. A folder must be selected to start the download process. For the date range selected the application will download all 24 hours of video for every camera that has local storage on the CMVR. If the amount of files that get returned seems

unmanageable, you can cancel the process with Cancel. While the video is being downloaded, you can hide the download popup with the Hide option.

Bulk downloads will only be available in the FLV format until future updates include file conversion. The VLC media player for Windows (videolan.org), can bulk convert the FLV files to MP4 for viewing by other media players. The FLV File name will be the default format mentioned at the beginning of this section.

Note: As an example of download performance using the Bulk download option, a request for a day's recording of 4000 files took ~20 minutes to completely offload and contained 11GB worth of video. Using VLC to convert all the files to MP4 took ~2.5 hours.