VAST 2.0

User Guide

Rev. 1.2

version 2.0.0 or above

Contents

Revision History

Rev. 1.0:

* Initial release.

Rev. 1.1:

* Added DI/DO devices display on E-Map.
* Added the support for GPS-enbaled vehicle on Google Map.
* VCA report now supports a cross-day format
* Added Two Way Audio on camera view cell control.

Rev. 1.2: (July, 2017)

* Added the description for the Backup related function.
* Added the description for the Redundant server (Failover) functions.
* Modified the User section for allowing Windows AD users.
* Modified the description for some screen elements, such as the removal of the Replay function, and the change of Playback tab from top tool bar to the individual camera view cell, etc.
* Added the description for the Google map and GPS implementation.

Introducing VAST

VIVOTEK VAST is the professional video / central management software designed for managing all VIVOTEK IP surveillance products with intuitive functions and numerous features. It supports hundreds of cameras and stations in a hierarchical structure of system for monitoring, recording, playback and event trigger management with ease-of-use and efficient control.

VAST integrates VIVOTEK network cameras to provide diverse solutions and applications, with the cameras for uninterrupted video recording, Smart Search, Evidence Lock, and VCA report solution. VAST performs remote management with full range of the server & client structure and constitutes a robust system for various applications, such as stores, banking and the public space.

New Features

- VAST2 has integrated live view, playback, and configuration pages into one synchronized portal interface.
- H.265 compression support
- Multiple Stream Recording
- VCA Counting Report
- HTTP Secure Connection Support
- User Management Enhancement

Key Features

- Continuous license use from previous VAST versions
- 128-channel Live Video Monitoring with multiple monitors
- 16-channel Synchronous Playback
- Auto Stream Size for Reducing Display Loading
- Smart Search to quicky find activities in recordings
- Instant Replay, Playback, and Thumbnail search
- Intelligent Alarm Management and Acknowledgement
- Overall Device Management through Intuitive, multi-layer E-map Feature
- Multiple Fisheye Dewarp modes
- Web Access via Internet Explorer
- Logical Tree Management

* The number of linked devices will depend on the license on the key dongle.

* The ability to extend devices is also subject to the network bandwidth and computer performance.

Charged Features

The following are the charged features. These features will not be available unless you purchase and enable their individual licenses:

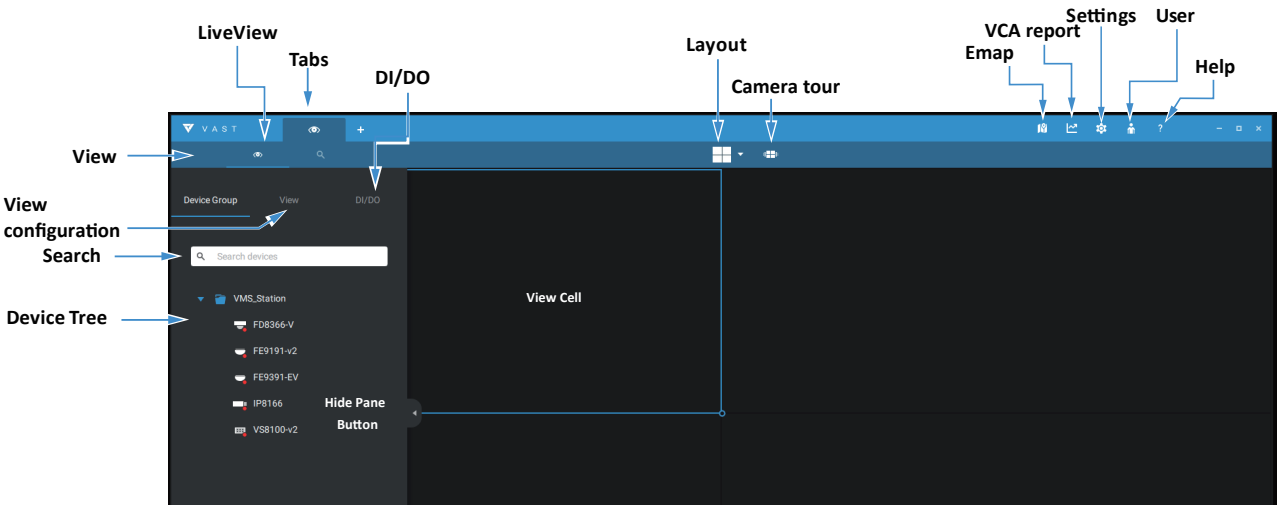
1. Google map.
2. GPS receiver.
3. VAST server Failover.
4. POS device. You can still search for POS devices because you can still search for the data generated by the POS machines managed by NVR.
5. TCP triggered events as an alarm type.

Chapter 1 Basics:

Control and Elements

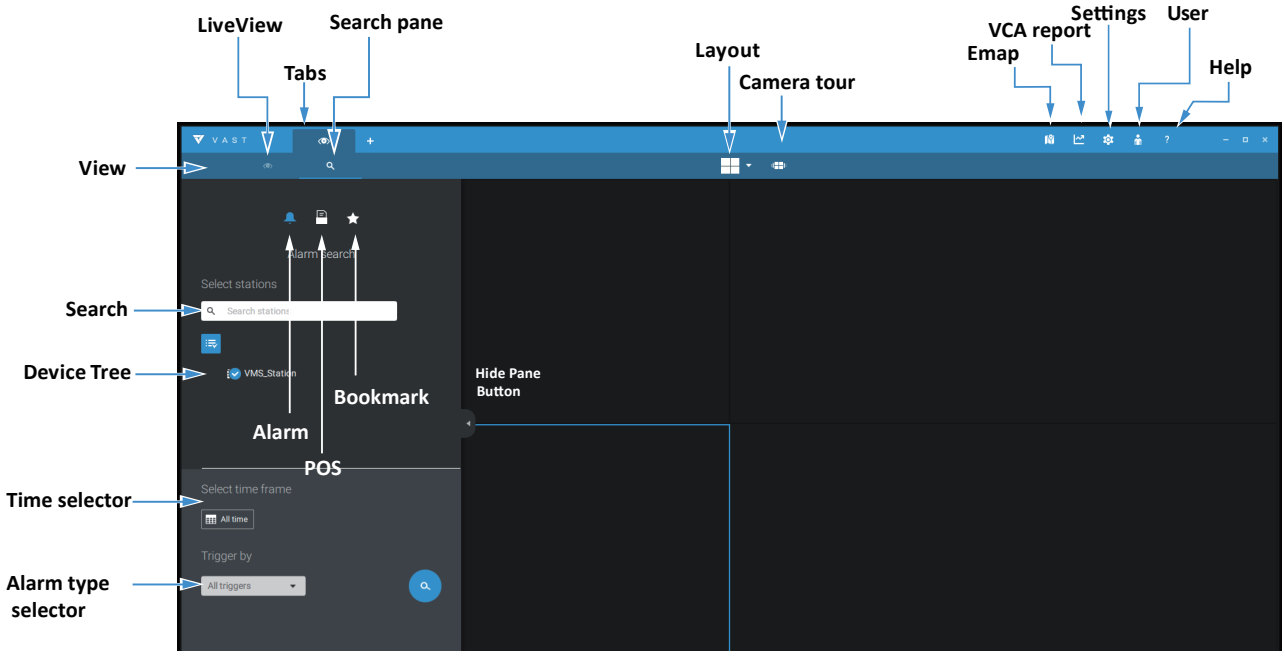
The basic screen elements of VAST live view, playback, and search pane are shown below:

Live view

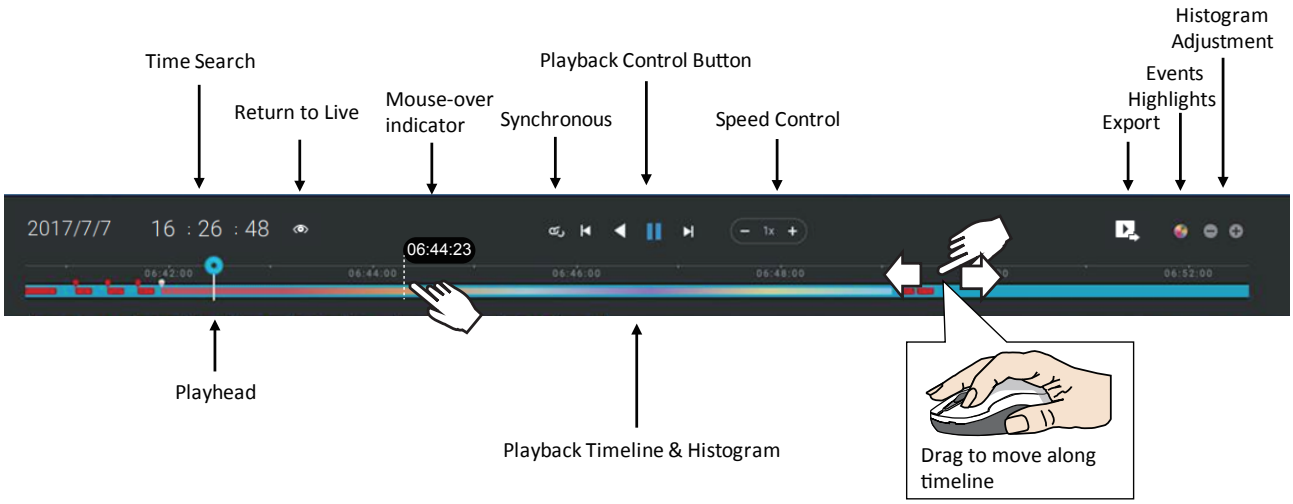


Playback is evoked when a view cell is selected, and you click the Palyback button ▶ on the upper right of the view cell.

Search Pane

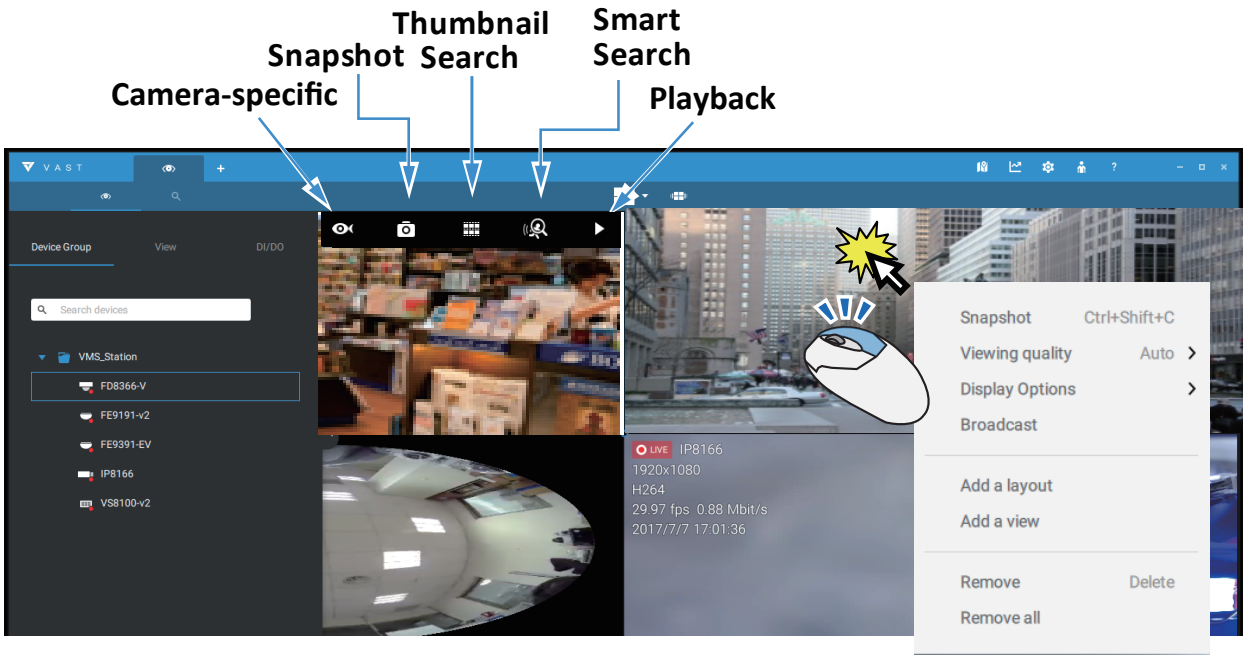


Playback Control



View cell control

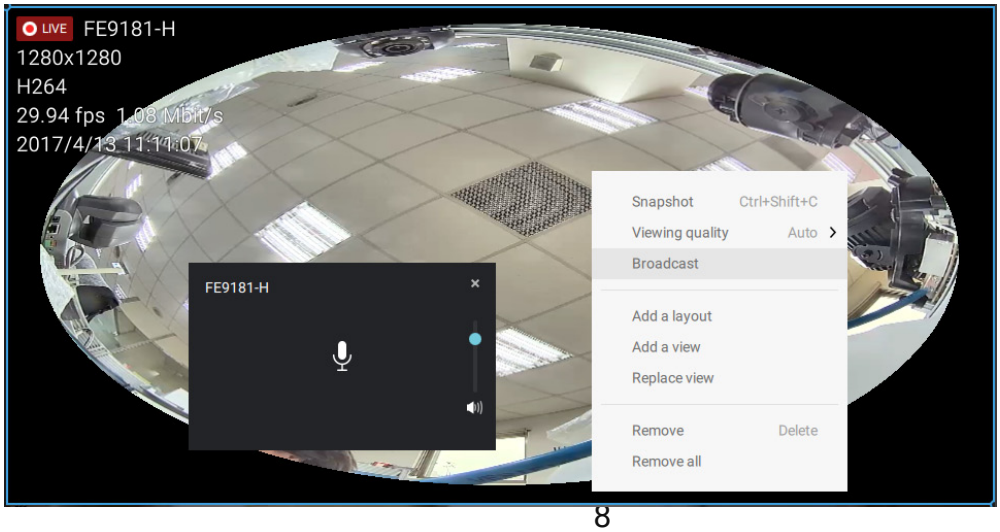
Some controls and functions are available when a view cell is selected or via the right-click menus.



Two Way Audio

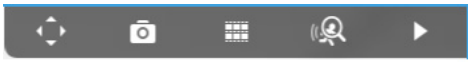
If your cameras support the Two Way Audio feature and the microphone and audio output to an amplified speakers have been connected, you can right-click on the camera to display the Broadcast function. Click on the Microphone icon in the middle to start speaking. Click again to stop the two way audio.

Note that the Broadcast option only appears when you select a camera that supports the Two Way Audio feature. Currently the VAST software supports 1 to 1 broadcast.



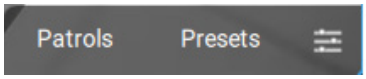
View Cell Elements

On a view cell, the control elements are different with different types of network cameras. 3 major types are listed below with applicable screen elements:

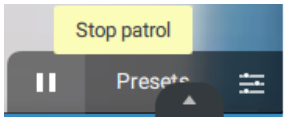
1. **Fixed** cameras:  Snapshot - Thumbnail search - Smart search - Replay.
2. **Fisheye** cameras:  Fisheye display mode - Snapshot - Thumbnail search - Smart search - Replay.
3. **PTZ** cameras:  PTZ - Snapshot - Thumbnail search - Smart search - Replay. For information about PTZ control, refer to the discussion on PTZ on page 32.

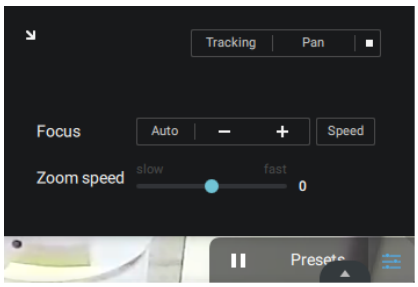
To exert PTZ control, first click on this button  to enable PTZ control.

When PTZ control is enabled, the following controls are available on screen:

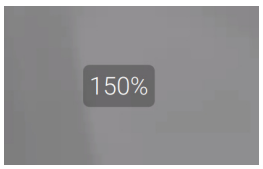


Click Patrols or Presets if these have been configured on the PTZ camera. You will need to open a web console with the camera to do so.





The PTZ settings tab allows you to enable PTZ Tracking and the Pan functions. You can also adjust the Zoom and Focus speed, or manually adjust the focus. Please refer to the camera User Manual for more information about these functions.



You can use the mouse wheel or the zoom ring on a joystick to zoom in or zoom out on the screen. The zoom ratio is shown on screen for half a second.

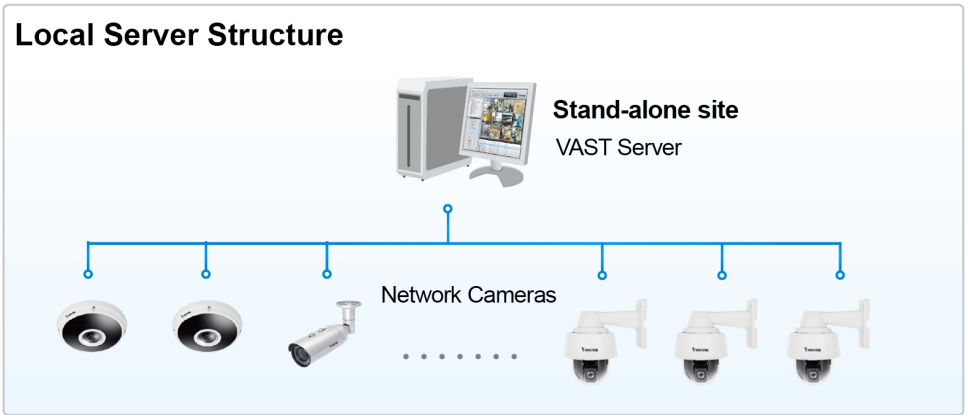
When PTZ is enabled, the zoom buttons and a home button is displayed on the right hand side of the view cell.

For more information about snapshot, Thumbnail search, and the Replay functions, please refer to their specific help pages.

VAST Server and Client Components

The VAST2 Server provides the main monitoring and video recording/viewing functions. However, client components - the **VAST LiveClient, VAST Playback** are still retained for access to some configuration options provided in previous VAST revisions.

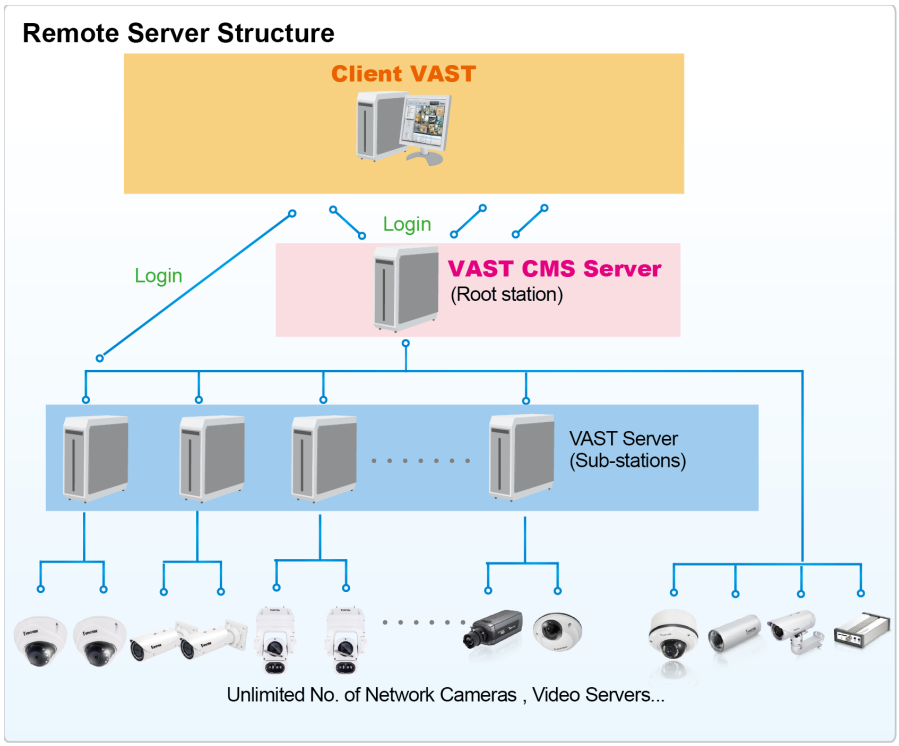
VAST2 Server provides a centralized management site for video recording. Users can login and modify the server's configuration, edit the server's recording storage, configure schedules and many other functions. You can browse the recorded video database and video clips related to specific events on the server.



For users who manage large-scale surveillance deployments, please plan the hierarchical structure first. Then you can start to add cameras to each station and connect these sub-stations to the root station. The whole hierarchical management system is thus constructed. VIVOTEK's NVR stations can also be included as sub-stations. The Logical Tree view becomes the default.

Multiple Server Applications

A host with the VAST2 installed is recognized as a stand-alone site. All the functions can be simultaneously performed on one single site.



Please refer to the Sites page for how to enlist VAST sub-stations.

Minimum System Requirements

Before installing the VAST software, please make sure your system meets the following recommended minimum system requirements.

Server Recording Channels)	Up to 64 CH	Up to 128 CH	Up to 256 CH
CPU	4th Generation Intel® Core™ i3 Processors or above		4th Generation Intel® Core™ i5 Processors or above
RAM	4 GB or above	8GB or above	8GB or above
Hard Drive (Enterprise model only), suggestion	1 Volume Group*	2 Volume Group*	4 Volume Group*
Recording throughput	1 Volume Group: Max. 200Mbps**		
Network Interface Card	Ethernet, 1Gbit recommended***		

* The size of volume group depends on the total recording server throughput.

** The maximum combined bit rate of cameras cannot exceed the total recording throughput.

*** Please consider the combined throughput of viewing, recording, and server's network bandwidth when designing your surveillance deployments.

Operating System		Windows Server 2000, 2003, 2008, 2012 / Windows XP Professional, Windows Vista, Windows 7, Windows 8		
Clients (Display Channels)	720P,2Mbps, H.264*	8 CH	16 CH	32 CH
	1080P,4Mbps, H.264**	4 CH	10 CH	18 CH
	1080P,4Mbps, H.265	3 CH	5 CH	9 CH
CPU		4th Generation Intel® Core™ i3 Processors	3rd Generation Intel® Core™ i5 Processors	4th Generation Intel® Core™ i7 Processors
RAM		4 GB or above	4GB or above	4GB or above
Network Interface Card		Ethernet, 1Gbit recommended		
Graphics Adapter		Direct3D acceleration with 1GB RAM graphics card		

* Each recording group can receive recordings for 60 channels.

* Display requirements of the 3MP fisheye camera is equal to a 720P camera.

** Display requirements of the 5MP fisheye camera is equal to a 1080P camera.

*** Please update to the lastest GPU driver.

The required hard disk space will depend on the video settings, the number of network cameras and recording group settings. Please add more hard disks if you want to extend the system.

Below are approximate numbers for a week-long recording. The actual storage space required also depends on imaging parameters, e.g., a complex retail environment that involves many moving objects requires more pixel data to be transmitted over network than a simple environment such as a parking lot. The following numbers are based on H.264 recording.

32-CH, VGA, about 1 week recording: 750 GB

64-CH, VGA, about 1 week recording: 1TB x 2

32-CH, 2-megapixel, about 1 week recording: 2TB x 2

64-CH, 2-megapixel, about 1 week recording: 2TB x 4

Chapter 2 Starting Up

Double-click the VAST2 icon 

on the desktop to start the VAST2 main page.

When started the first time, the server automaticallly polls the local network for reacheable network cameras. For cameras that come with pre-configured User name and Passwords, the server prompts for entering credentials for the access to cameras. Check out the cameras' MAC addresses to identify the cameras.

The cameras found within the network will be listed. If the need should arise, you can use the Search panel on top to locate specific cameras using their IP, MAC, Port, Model name, or brand name (ONVIF/VIVOTEK).

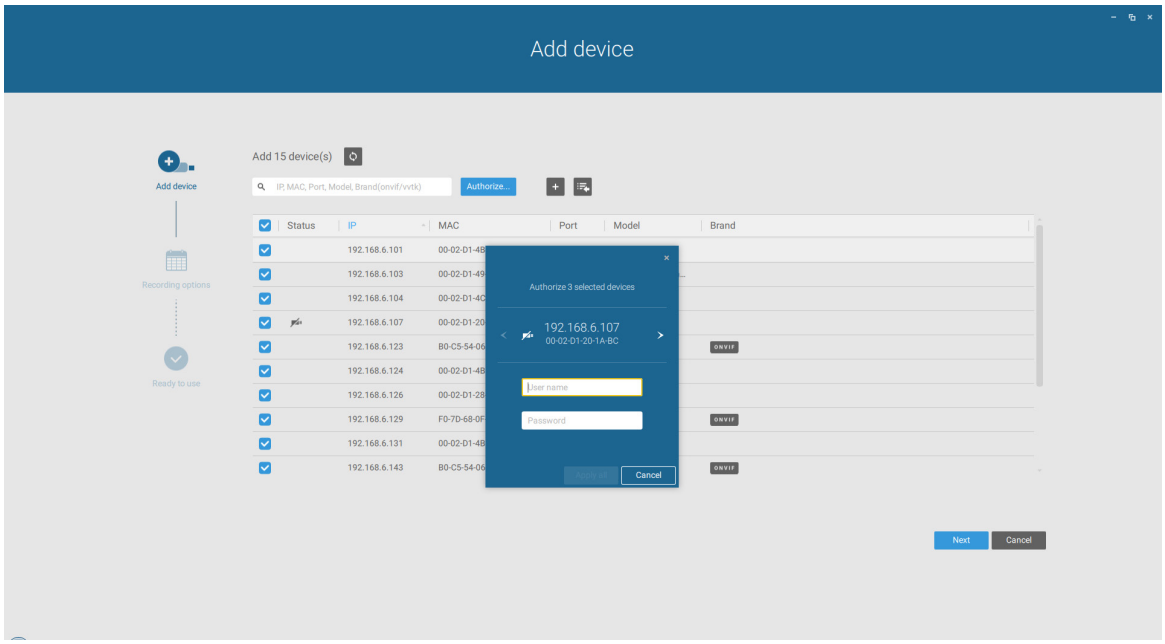
Use the  Add device button to manually add a camera with its known IP or domain name.

Use the  Import Device List button to recruit cameras in a previously-saved device list (CSV files).

Use the Authorize button if the camera found in the Search panel needs credentials.

When search is done, delete the alpha-numeric characters in the search field to return to the device list.

Use the Refresh  button to search the local network again.



2-1. Selecting Devices

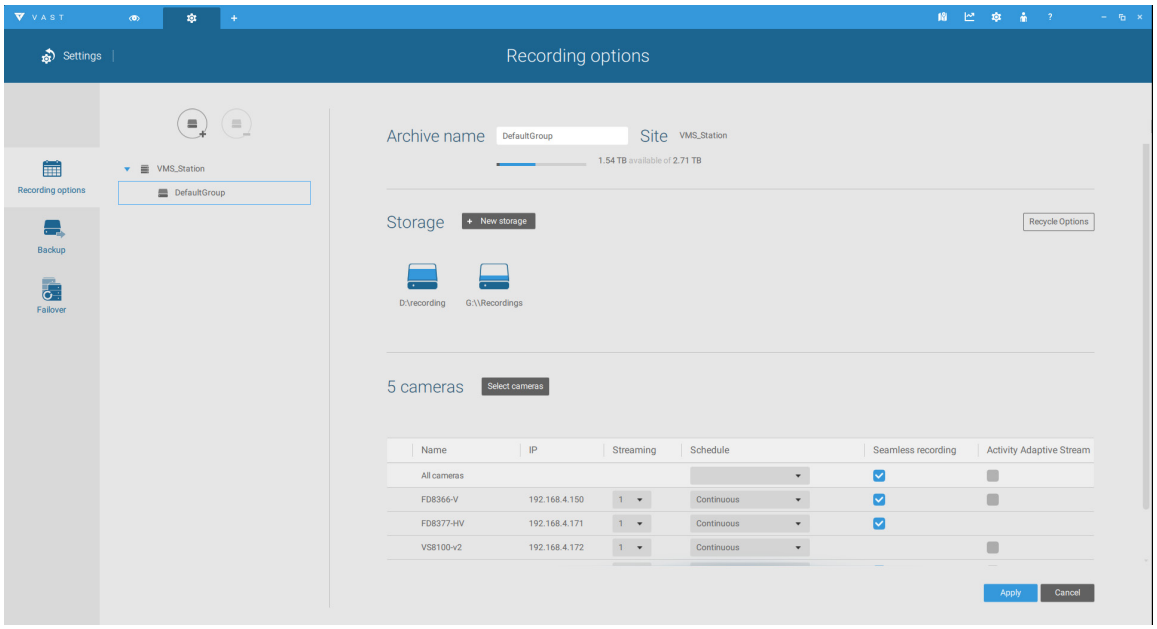
Use the checkboxes in front of the listed devices to determine which devices will be recruited to your configuration. By default, all cameras are selected. When the selection is done, click on the Next button at the lower right screen.

If any of the selected devices requires credentials, the authorization window will prompt.

2-2 Recording Options

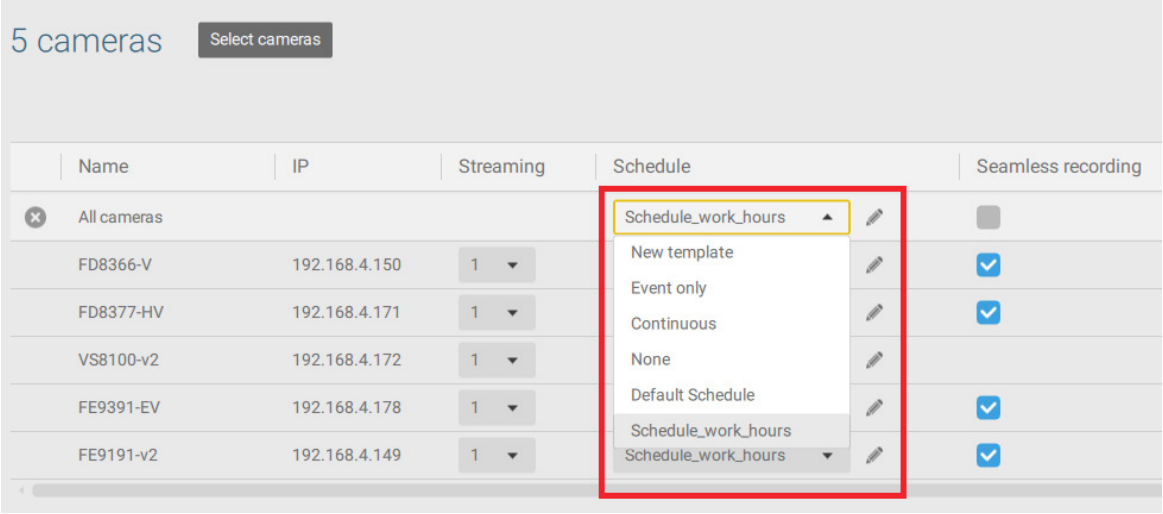
Click Settings > Recording > Recording options. The Recording options window will prompt.

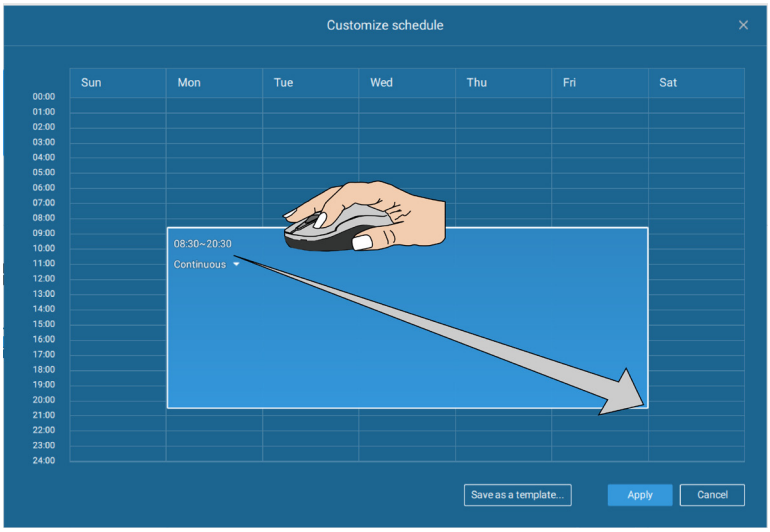
You can configure recording schedules or select the storage options, including the configuration of an external NAS storage.



Click on the Schedule column on the Camera list for a recording option: Continuous recordings, Events only, None, or Default Schedule, or New template. You can apply a schedule template for all cameras or configure individual schedules for different cameras.

You can manually create a recording template using the **New template** option. When done, each configured template will be listed below.





Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select multiple time spans on the template. Enter a name for the template, and click Add to save your template.

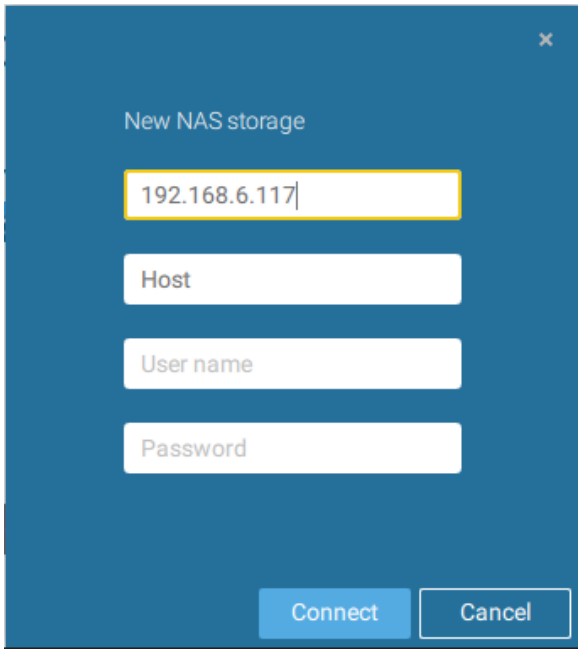
The same configuraion window apply to both the Schedule template and the customize schedule windows.

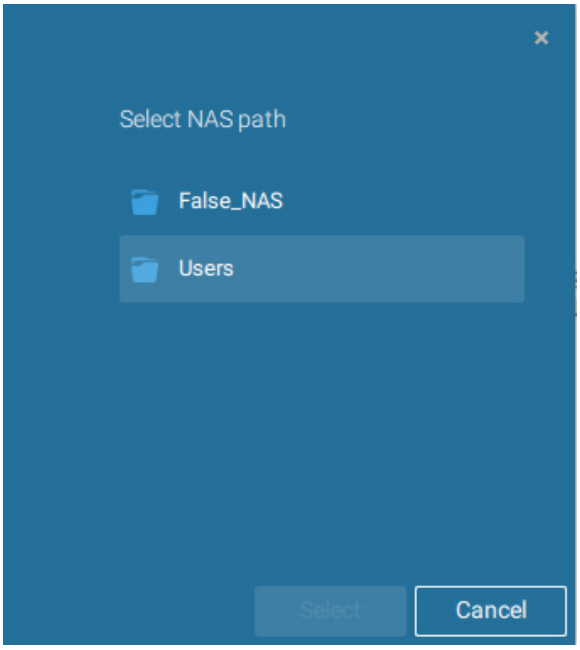
Make sure a Schedule mode selected when you leave this configuration step.

2-3. Storage

By default, the system drive C: is not defined as a storage option. Other disk drives in the system, and the default storage volume (configured in the initial setup) will be listed.

You can add a NAS storage's share volume as the additional storage option. Enter the necessary information for access to a network share. Enter and select a NAS path. The share will then be available for video recording.



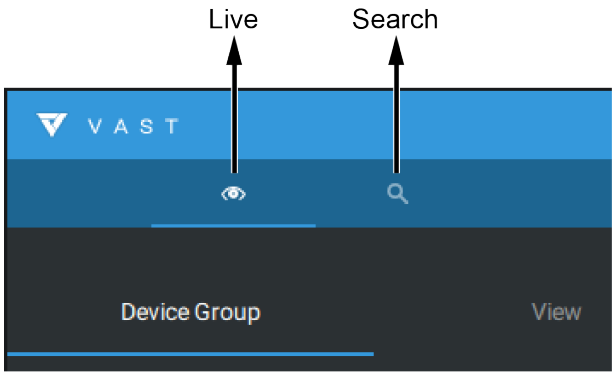


Select storage volumes each by a single click.

Click **Ready to use** to continue. The server will take several minutes synchronizing configuration between server and cameras.

2-4. Starting Up - Main Page

You will be defaulted to the Live view once the main page displays. Another tab window is the Search panel where you can search recorded events and recorded videos.



On the initial start up, the server should fill the live camera feed to the available 2x4 view cells (4). You should then select a preferred layout, e.g., 3x3 or others, using the Layout pull-down menu.

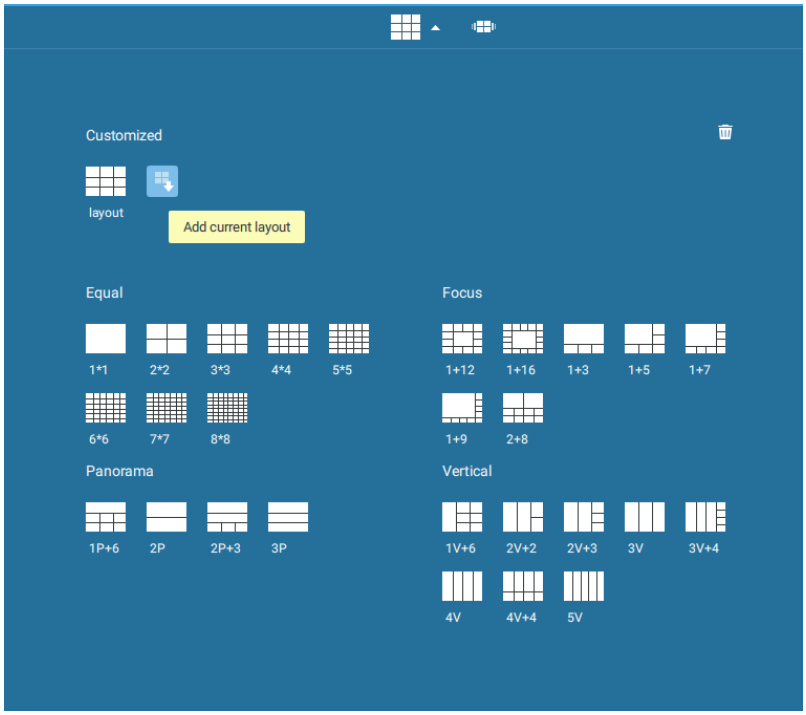
The available layouts are categorized into 4 types: Equal, Panorama, Focus, and Vertical.

Equal: 1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8.

Panorama: 1P(Panoramic)+6, 2P, 2P+3, 3P. (applies to fisheye cameras)

Focus: 1+12, 1+16, 1+3, 1+5, 1+7, 1+9, 2+8.

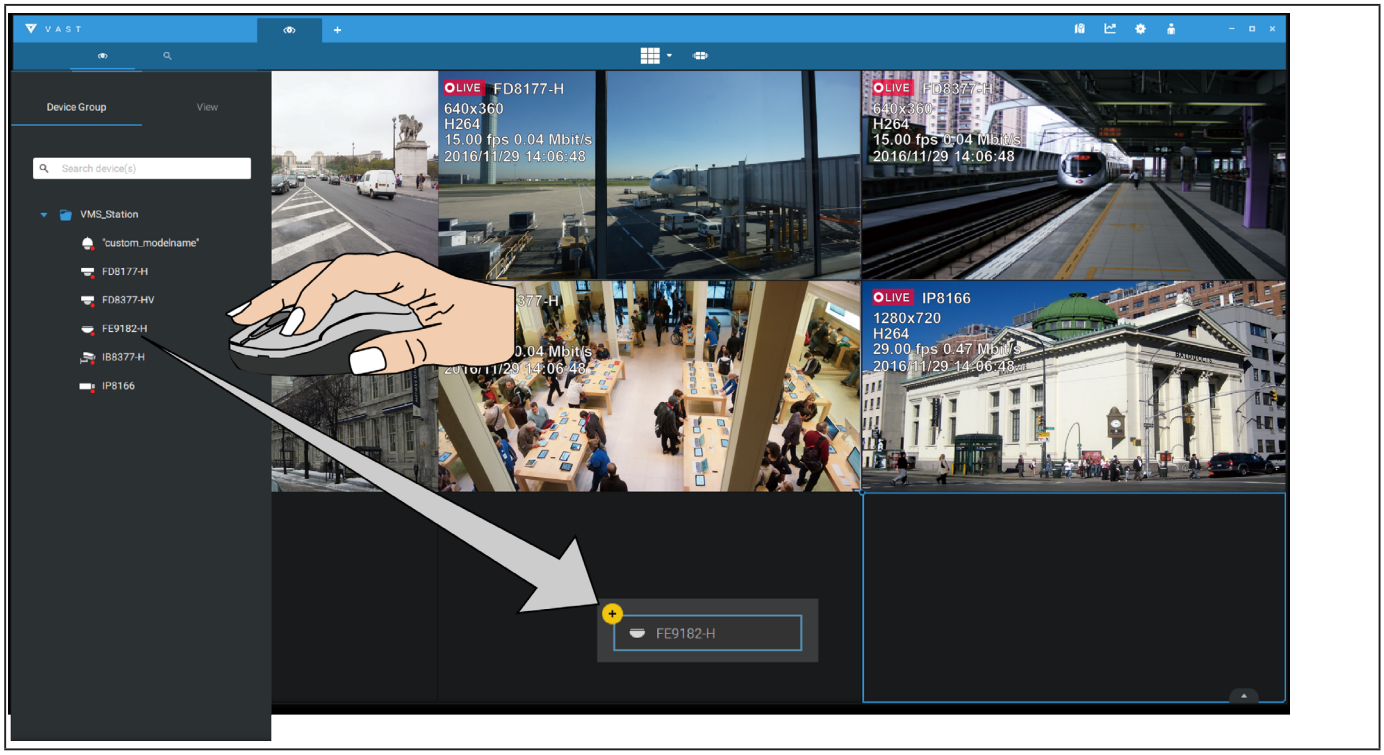
Vertical: 1V+6, 2V+2, 2V+3, 3V, 3V+4, 4V, 4V+4, 5V. (applies to corridor view)



To design and customize a layout, please refer to the Customizable Layout page.

You can then fill in the view cells by dragging and dropping cameras into the view cells. While dragging, a name tag displays. All cameras should be listed under the VMS_Station Device Group.

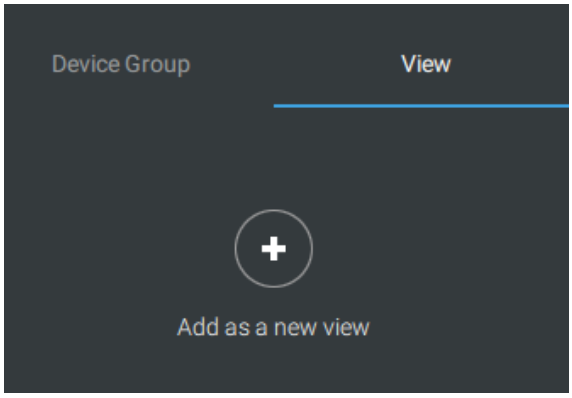
You can swap two view cells by dragging one on top of another.

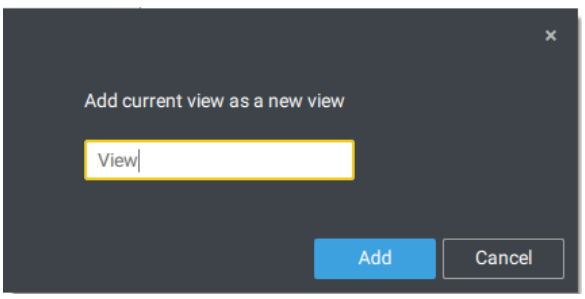


2-5. Add a New View

When done with arranging view cells, click the View tag.

Save your current layout and view cell arrangement as a new view.

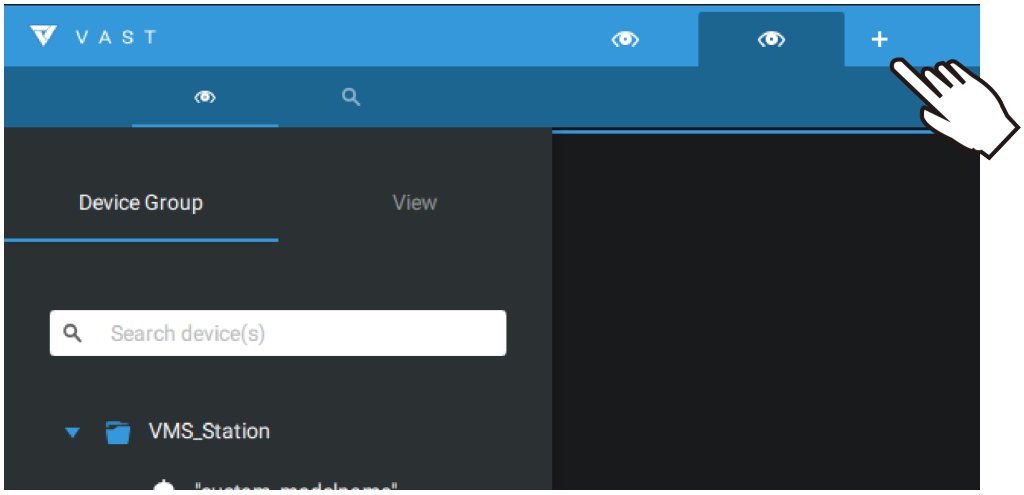




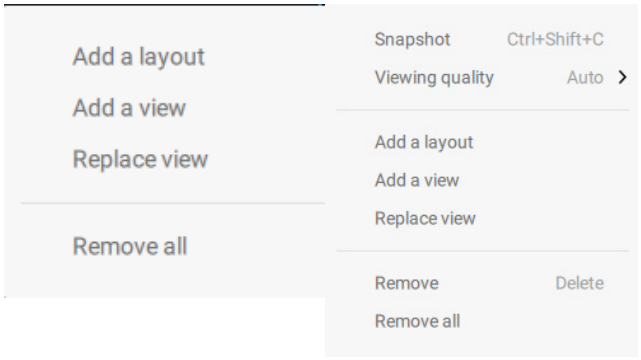
2-6. Add More Live Views

With many cameras in your deployments, you can click the New Tab button to add more Live views.

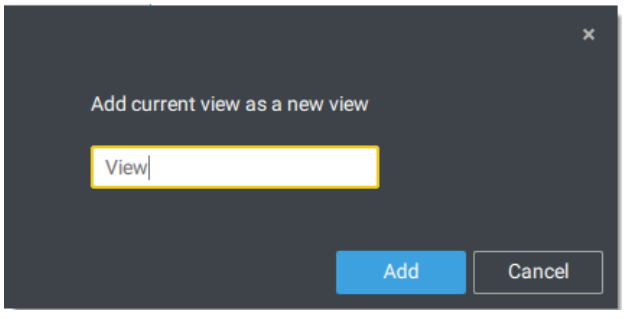
An empty live view will display, and you should repeat the above process to select a layout, and fill in the view cells. When done, save the view.



Right-click on the screen to display the right-click menu. Select **Add a view**.

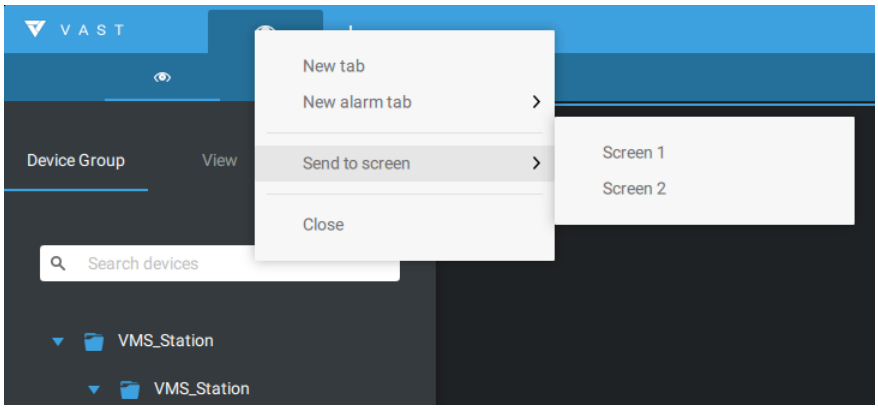


Enter a name for the new view and click **Add** to proceed. The new view will be listed in the View panel.



If you have multiple monitors attached to your server station, you can drag a live tab to a different screen. In this way, you can display live views simultaneously on multiple screens.

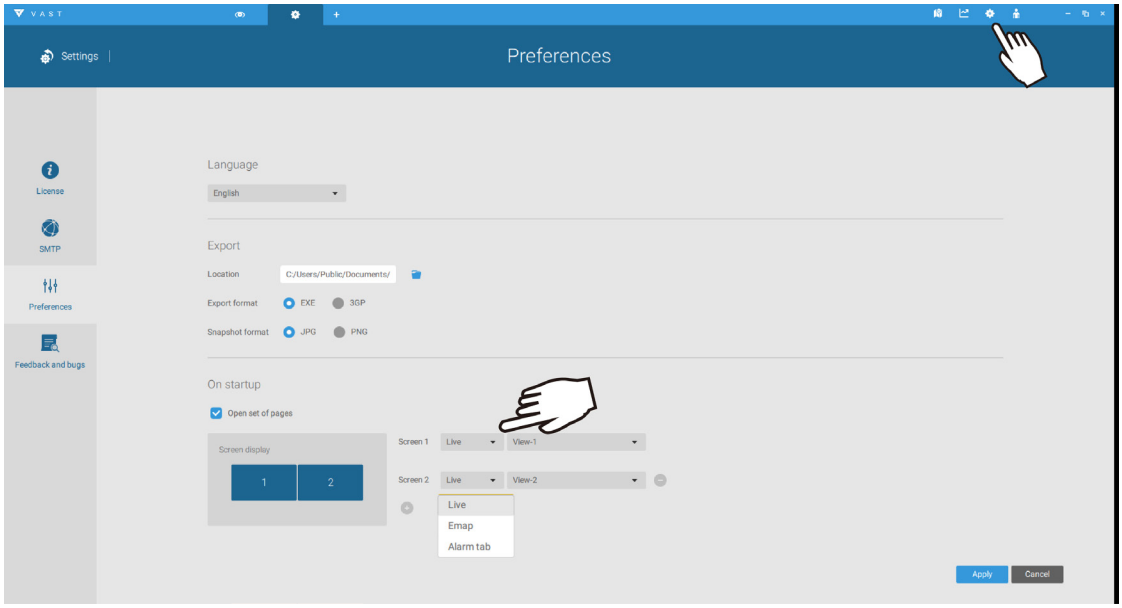
Live views can be placed on up to 8 monitors.



2-7. Save Your Preferences

Go to **Settings** > **Preferences** to save your current layout and display configurations.

Select the options in the startup choices menu to decide what to display whenever your VAST2 client starts. You can display live view, E-Map, or Alarm tab simultaneously on multiple screens.

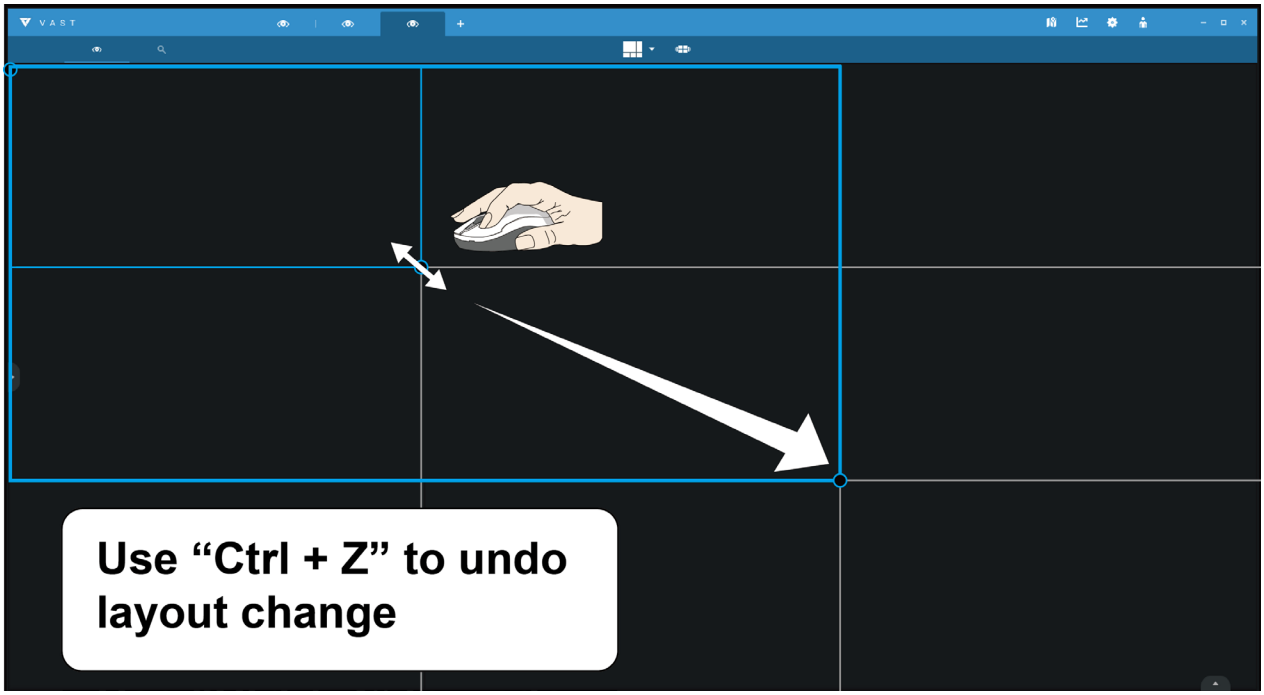


2-8. Customizable Layout

The standard layouts can be manually configured to form layouts of your choice. Depending on the complexity of your design, you should start with a multi-cell layout.

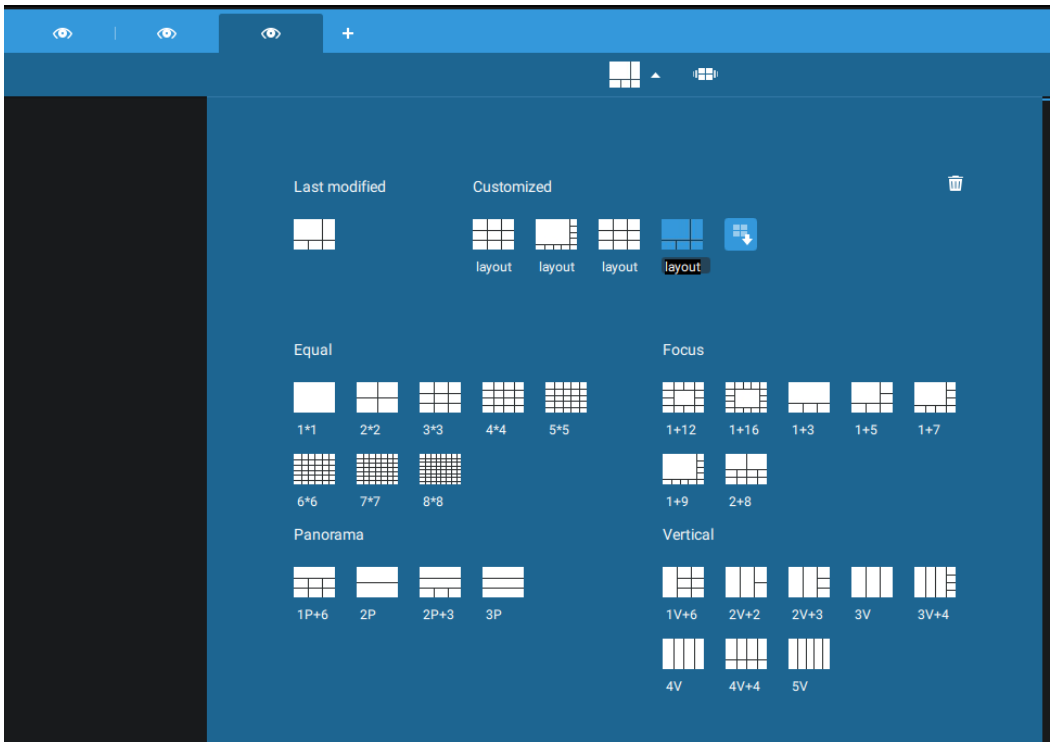
Click and drag the corner mark on a view cell. Drag across the screen and release the mouse button to enlarge the view cell. Choose a standard layout of many view cells, e.g., 7x7 or 8x8, if you want to design a complex customized layout. You can create a special layout, e.g., an especially long view cell for a multi-sensor camera, such as the panoramic MS-8392.

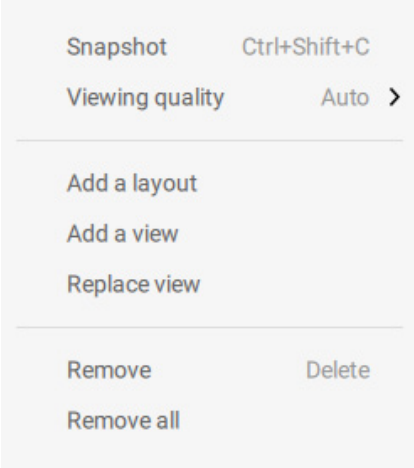
To abandon a customized layout, simply select a new layout from the layout window. You can also use the Ctrl + Z keys to undo your changes on the layout.



To preserve your customized layout, click to open the layout window. Click on the Add current layout button. You may then change the name of your layout by a double-click on its name.

To remove a layout, drag it to the garbage can icon on the upper right.



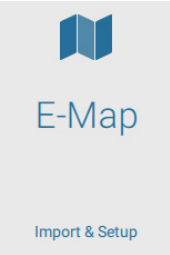


You can also right-click on the screen to display the Add layout option.

Also remember to save the current layout as a view, and save your configuration in **Settings** > **Preferences**.

2-9. E-Map

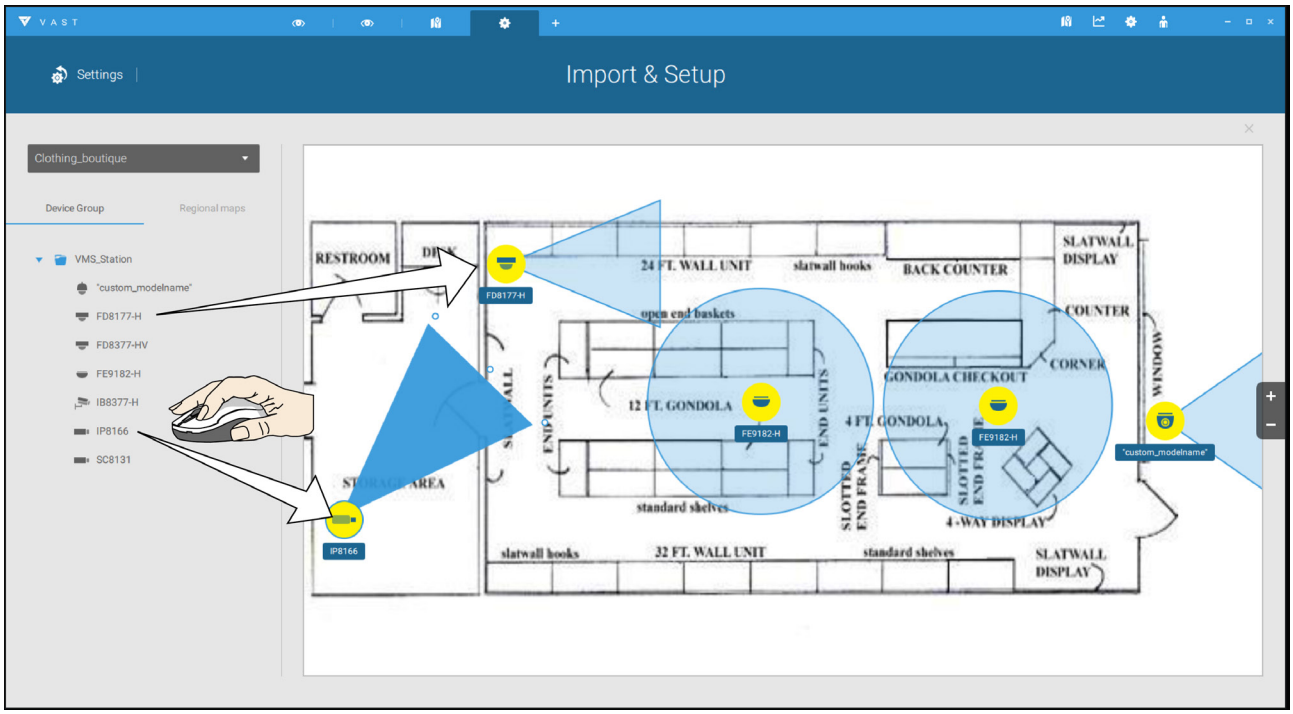
To create your E-Map, click **Settings** . Click **Import & Setup**. Click E-Map.



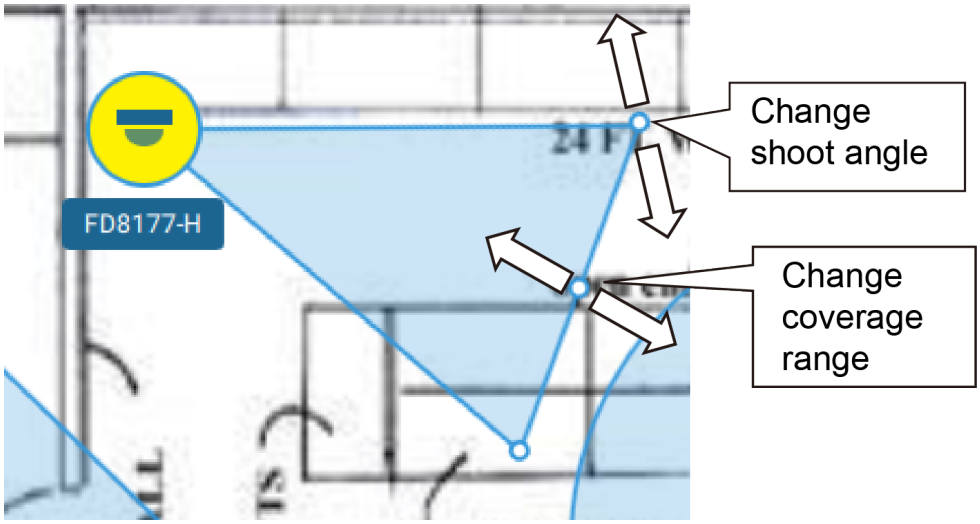
Click Import file or Import folder . An entire folder can be imported.

When done, double-click on the snaphot of E-Map image to configure the E-Map.

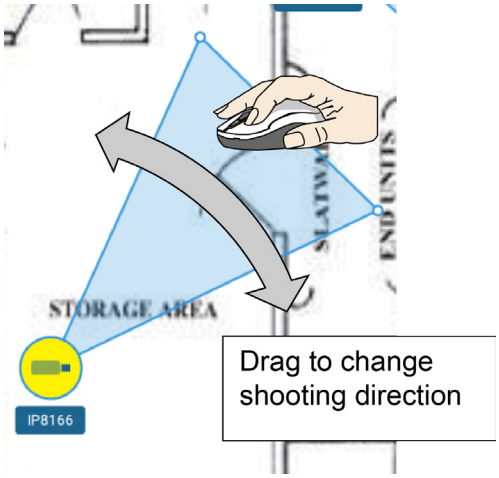
Your cameras will be listed on the left. Drag and drop the cameras to the corresponding locations on the map.



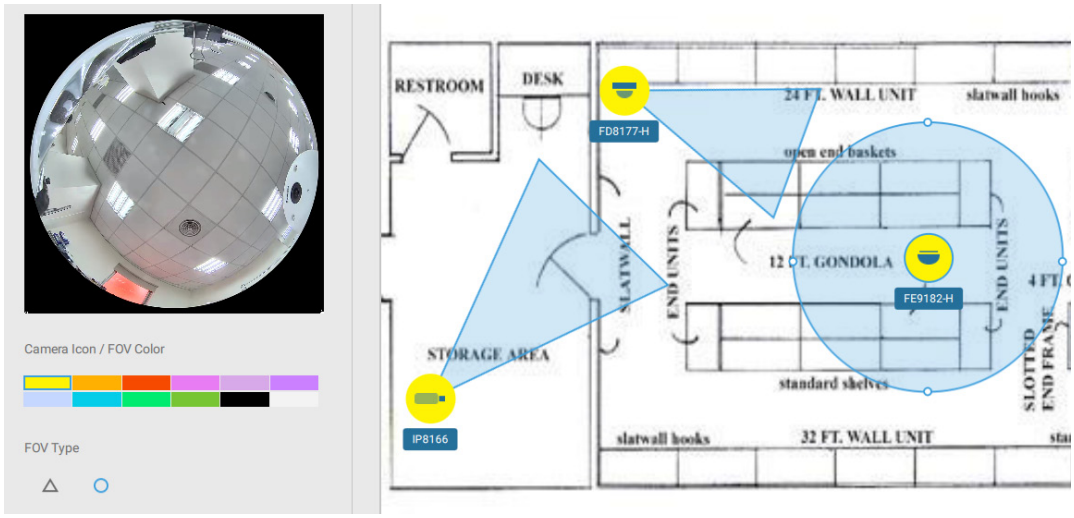
When the camera is in place, drag the FOV indicators on the edge to change the shoot angle and the coverage range.



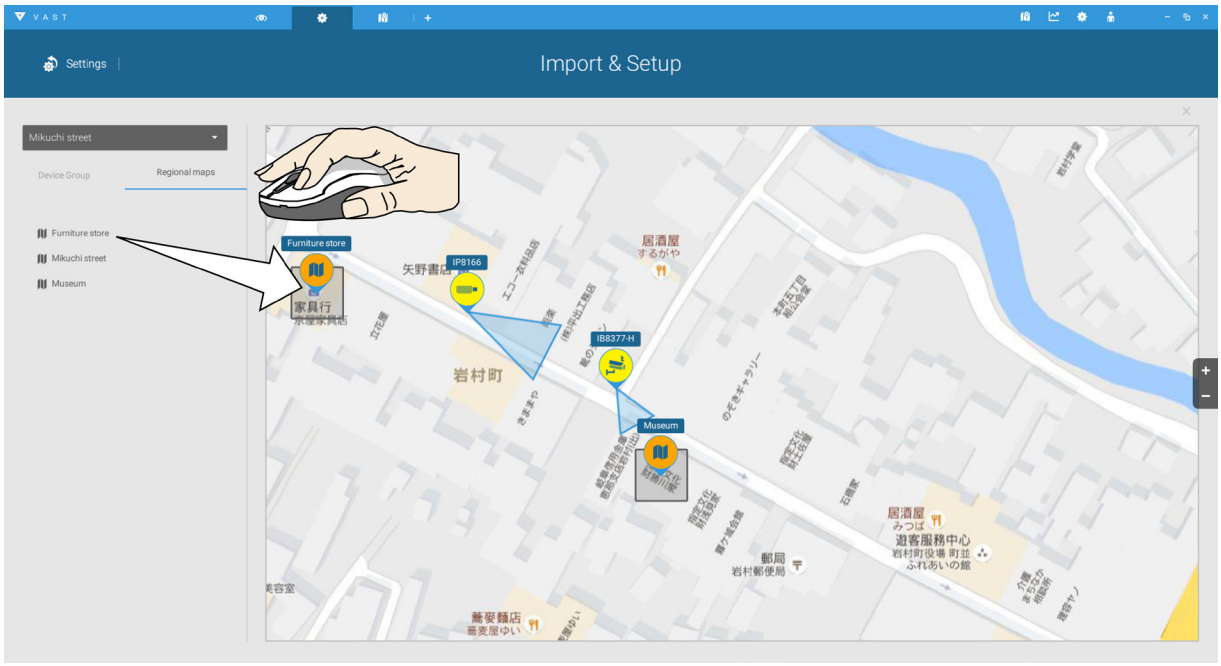
Drag the FOV to change the shooting direction to match the actual installation.



Click on the camera icon. You can also change the color of camera icon and the FOV type. Fisheye cameras, when ceiling mounted, have a round shape coverage.

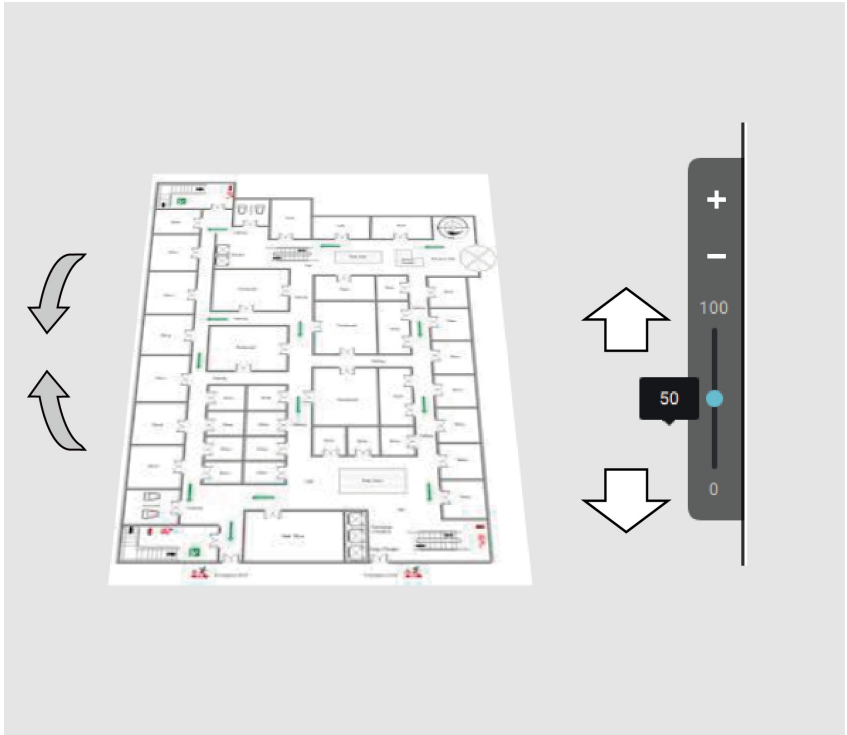


If you have a larger regional map that covers a geographical area, say, a street block, you can drag one or many E-Maps into it. For example, you can place another E-Map that is used to indicate the camera deployment inside a building that is located on the street.



To see live streams from cameras, click on the camera icons in the E-Map.

When configuring an E-Map, you can use the tilt bar on the right to tilt the E-Map image. Doing so creates a sense of distance and depth of view.



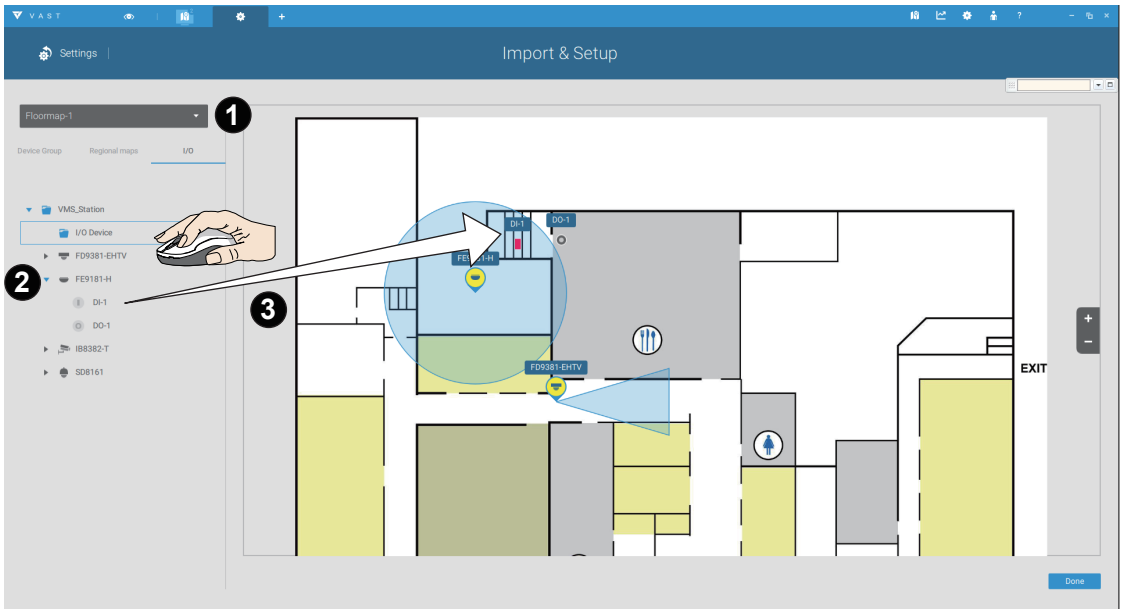
Placing DI/DO Devices

I/O devices can also be planted into an Emap, such as alarm or various kinds of detectors. The I/O boxes (such as Advantech's Adam series) or the DI/DO connections on an NVR also apply.

1. Select a floor map from the pull-down menu.

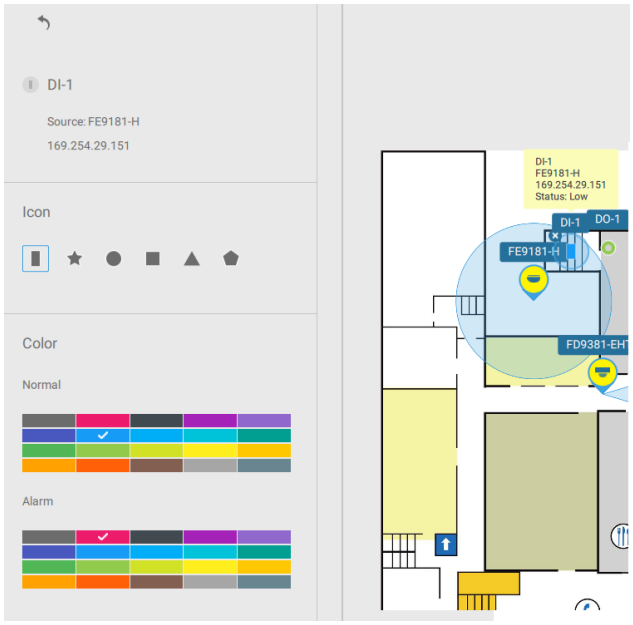
2. Unfold the sub-trees beneath the network camera, (taking camera DI/DO devices as an example).

3. Select a DI/DO device. Click and drag to a preferred location on map.



4. When a DI/DO device is selected, you can select the display colors of its icons. Configure different colors for the device status when it is normal or triggered.

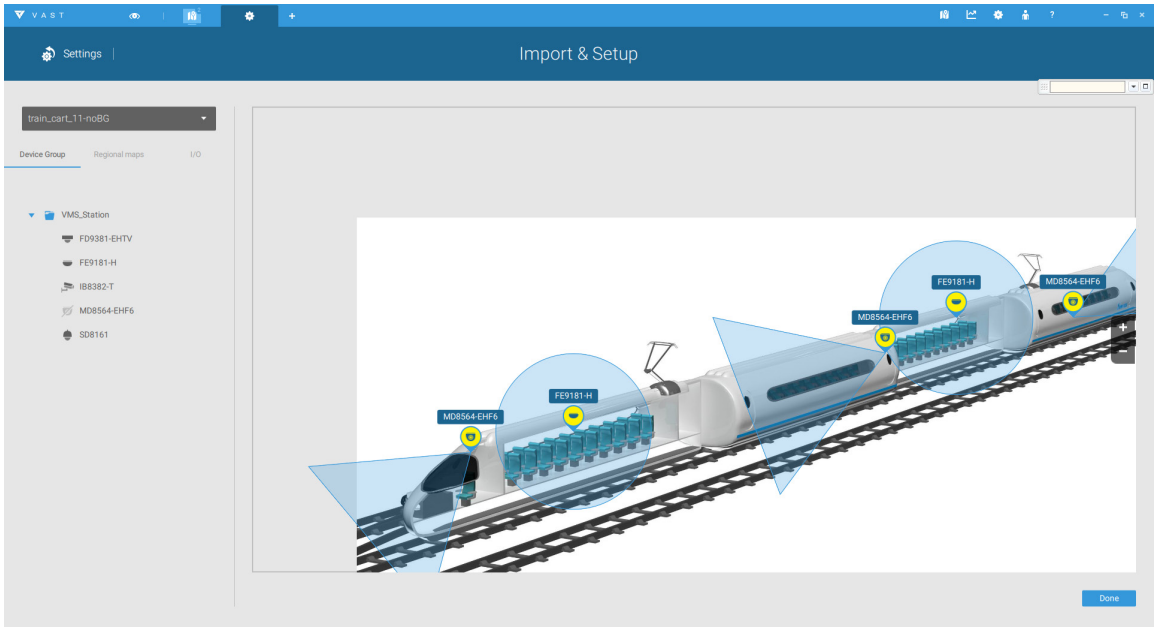
5. When done with placing all DI/DO devices, click the Done button on the lower right of the configuration screen.



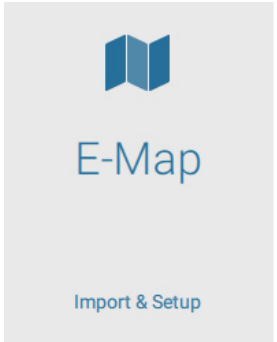
Configuring Google Map and GPS

NOTE: In this revision, (rev. 2.0.0.4275), Google Map only supports installation on a GPS-enabled vehicles. Placing cameras on a static location on Google Map is currently not supported.

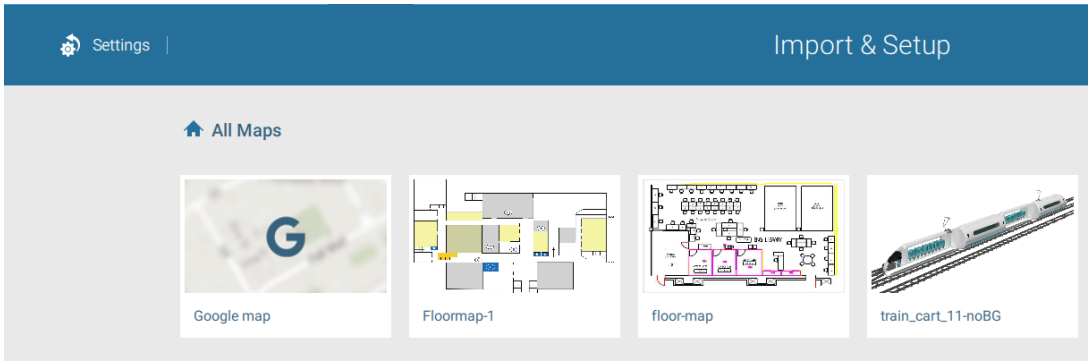
Before configuration on a Google Map, you should prepare an E-map for special installations, such as that on a vehicle. The vehicle, e.g., a train, should come with a GPS-GSM/GPRS module to collect the position information and passes this information to a web-server. As new data is constantly inserted to the database, the VAST server will update the location information containing coordinates, speed, distance, time, etc.; and when video recording is required, the location information and time tags will be available.



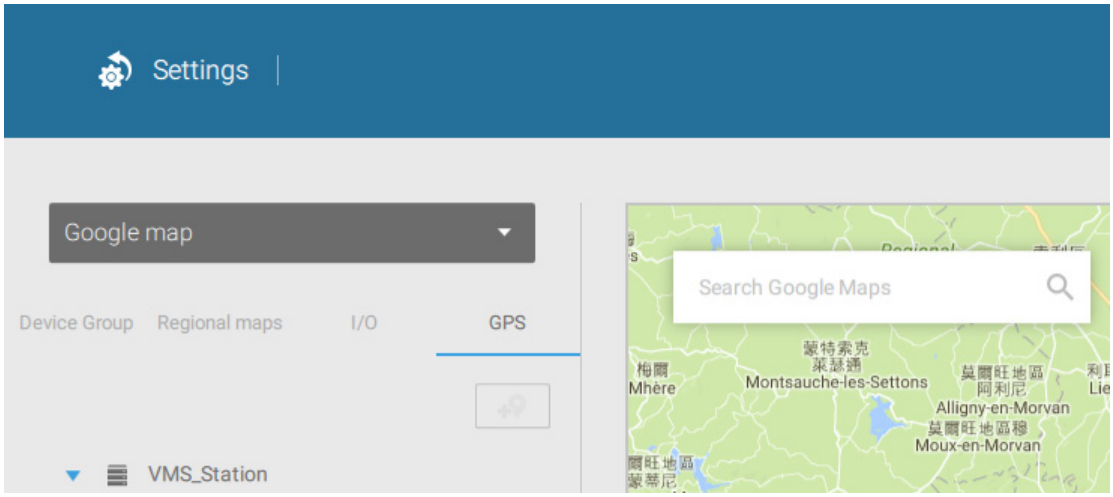
Open the E-Map Import & Setup window.



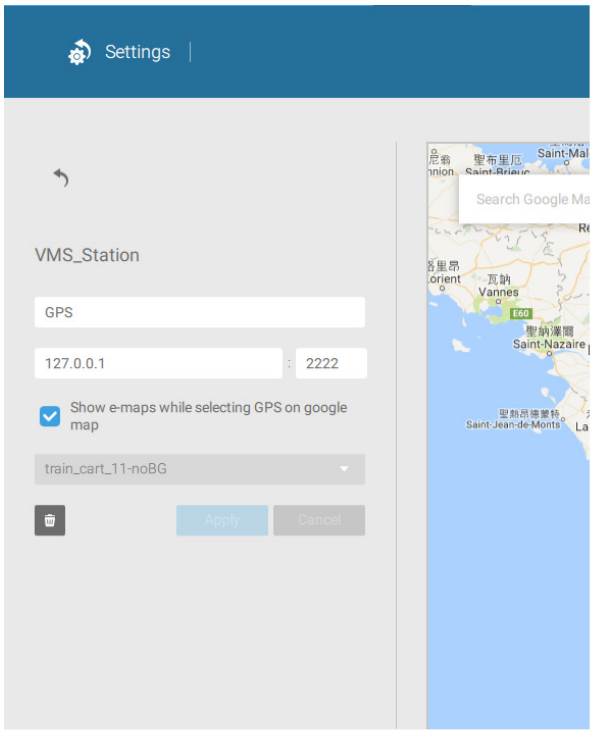
Click to enter the Google Map window.



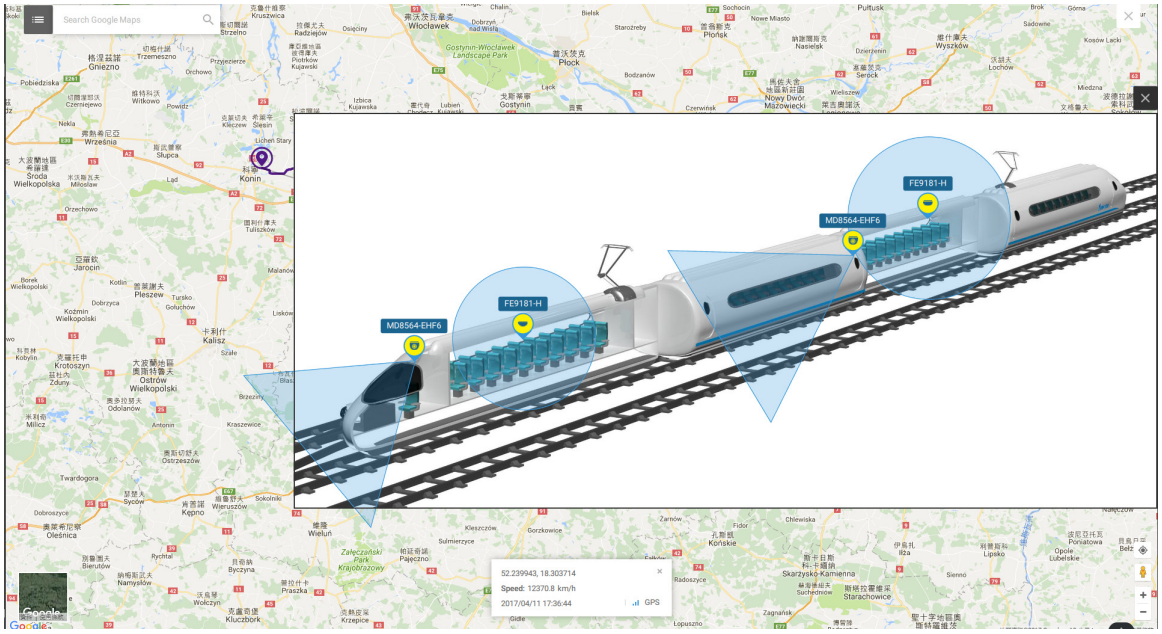
Click on the GPS tab. Select a VMS station to apply the configuration, and then select the GPS Add button .



Enter a name for the GPS/GNSS server on the vehicle, its IP address, and server port number. You can select an E-map that will display when you click on the GPS location icon. Select the checkbox and an E-Map that corresponds to the deployment on the vehicle. When done, click the Apply button.



You can click on the location icon to bring up the E-Map. The coordinates, speed, and time information also display on the map.



You can click on any cameras on the E-map to search in past recordings. One click displays the live view. A live stream window will display.

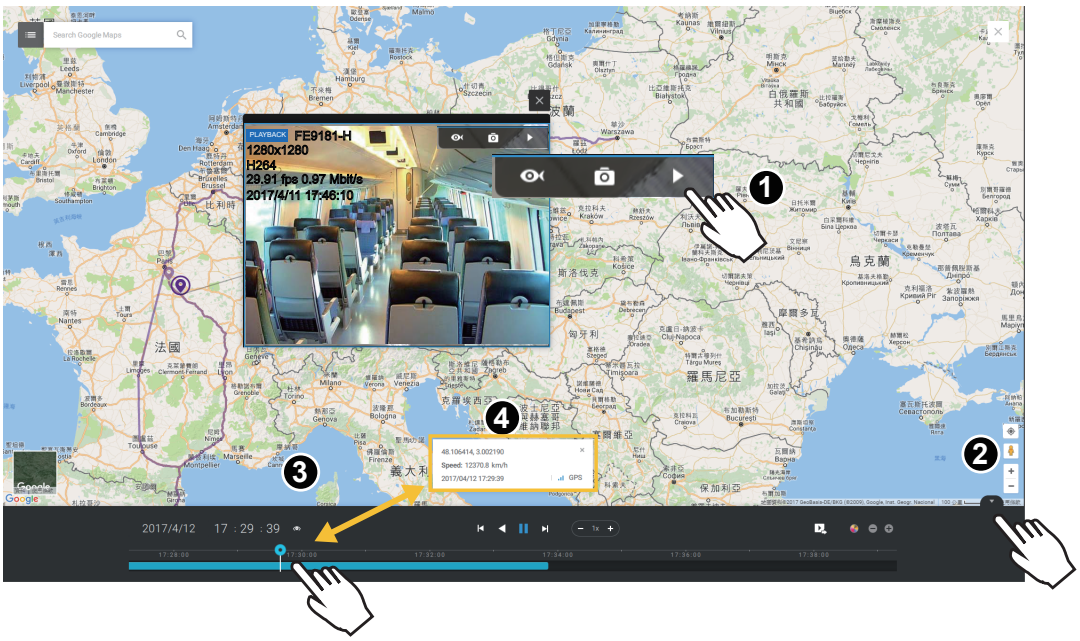
To search and review recordings when an event occurs,

1. Click on the Playback button.

2. Click the Pane button to display the Playback control panel.

3. To search for the video of past events, pull the Playhead to a point in time on the timeline.

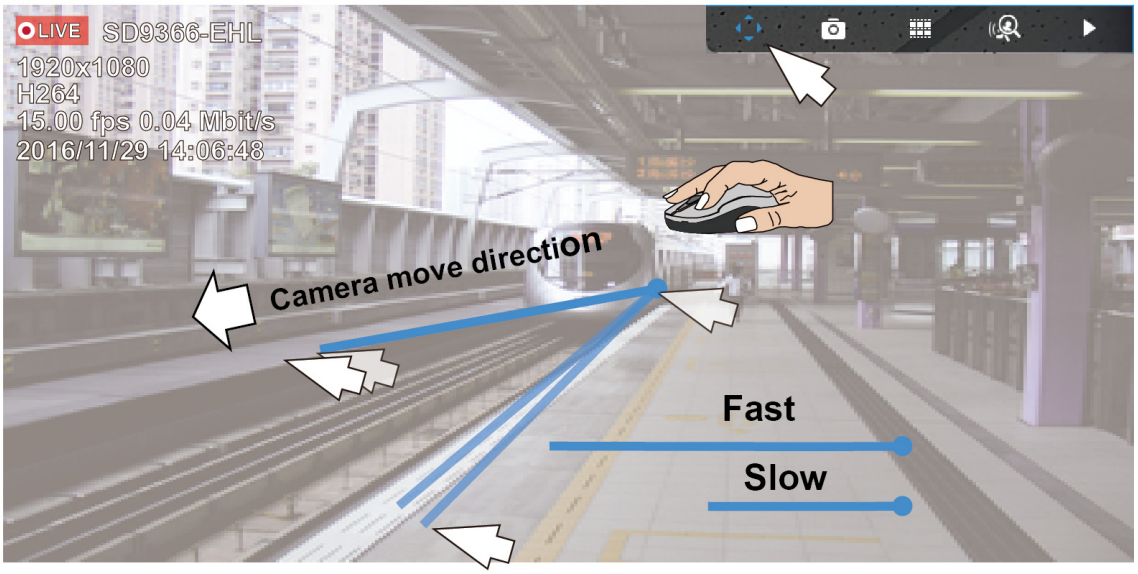
4. The GPS coordinates and time will change to those corresponding to the time you selected. You can then acquire the corresponding location information while tracing the occurrence of an event.



2-10. PTZ Control

PTZ on this page refers to the mechanical PTZ. The discussion on this page applies to cameras that come with PTZ mechanisms that are capable of directional and zoom control.

To begin the PTZ control, click on the PTZ button.
Click and drag your left mouse button across the screen, towards the direction you wish to move. A light blue trace will appear. The longer the trace, the faster the move.

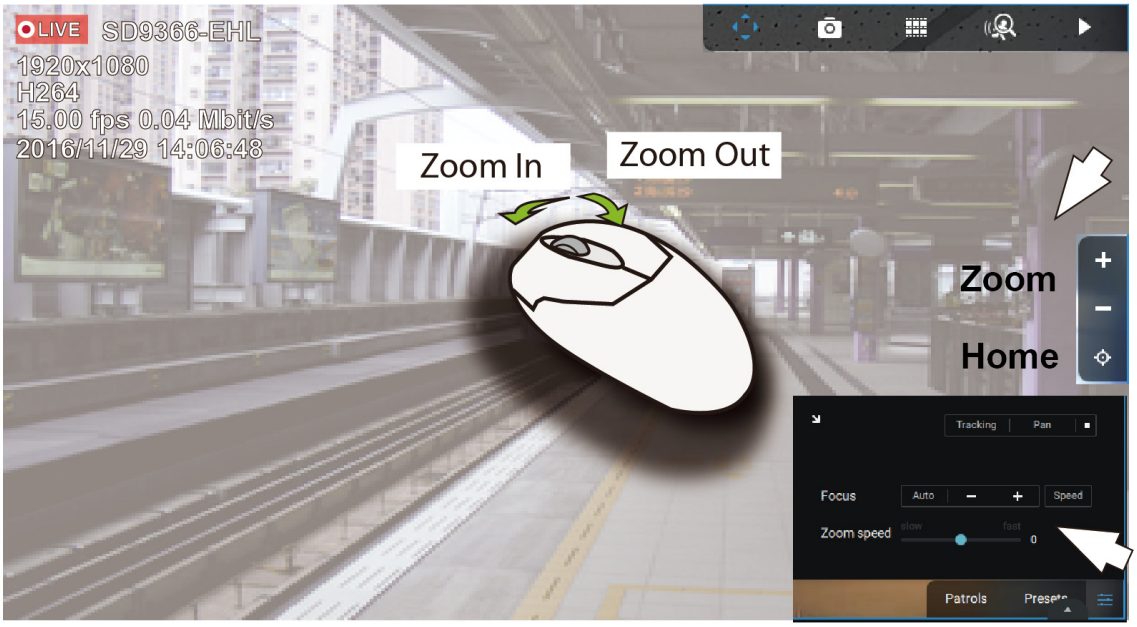


Note that while the camera is moving, you can change the move direction keeping the mouse button hold down. Release the button to stop moving.

You can also use the mouse wheel to zoom in or zoom out. You can also mouse over the right side of the screen to display the zoom button. A home button is also provided.

The Patrol, Presets, and PTZ control panel is located at the lower right of the screen. You can click to begin a pre-configured patrol, preset points, or enable an Auto tracking, or Pan action.

You can also adjust the Zoom speed, and/or manually adjust the Focus and the Focus speed.



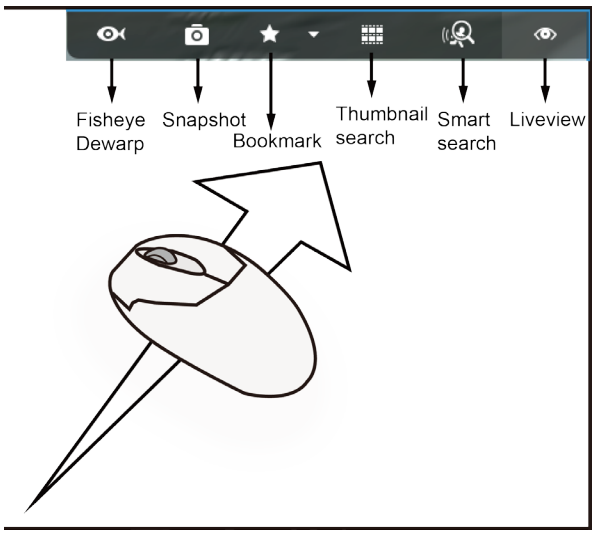
2-11. Playback

To start the playback function, select a camera's view cell (whether in full view or ordinary cell size), then click the playback initiative  button. The button is always located at the lower right corner of the VAST2 console.

Default Time: When started, system normally rolls back to the start of the hour, e.g., your current time is 10:30:00, and the default playback position on the timeline is 10:00:00.

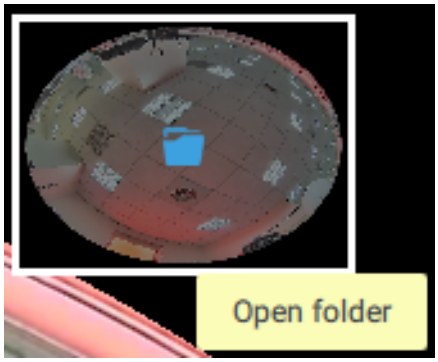
Playback control can be found in 3 places:

1. Float Panel: When Playback is started, swipe your mouse to the upper-right of the view cell to display the Playback float panel.



Fisheye Dewarp: For a fisheye camera, you can select different dewarped views during a playback. Click to select an option.

Snapshot: Click to take a snapshot. A small floating window will stay for 2 seconds. You can click the folder icon to access the snapshot files.

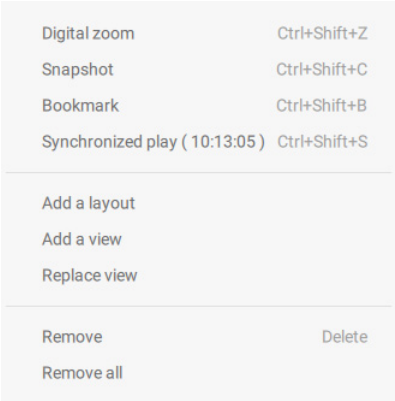


Bookmark: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos.

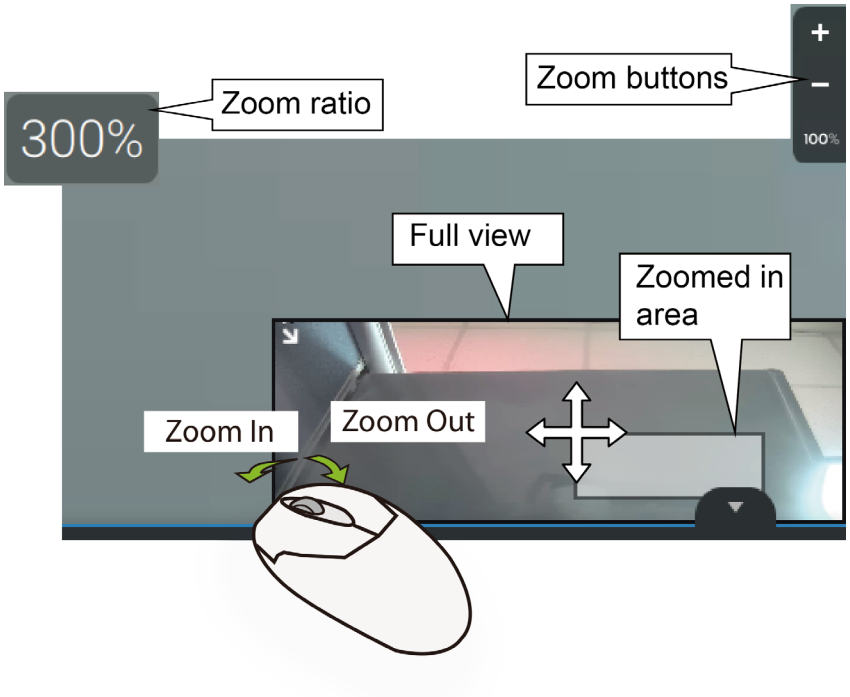
Smart search: Smart search is an independent function. Click here for details.

Liveview: Click to return to Live view.

2. Right-click Menu: Right-click on the Playback screen to display this menu.



Digital zoom: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos.



Snapshot: Click to take a snapshot. A small floating window will stay for 2 seconds. You can click the folder icon to access the snapshot files.

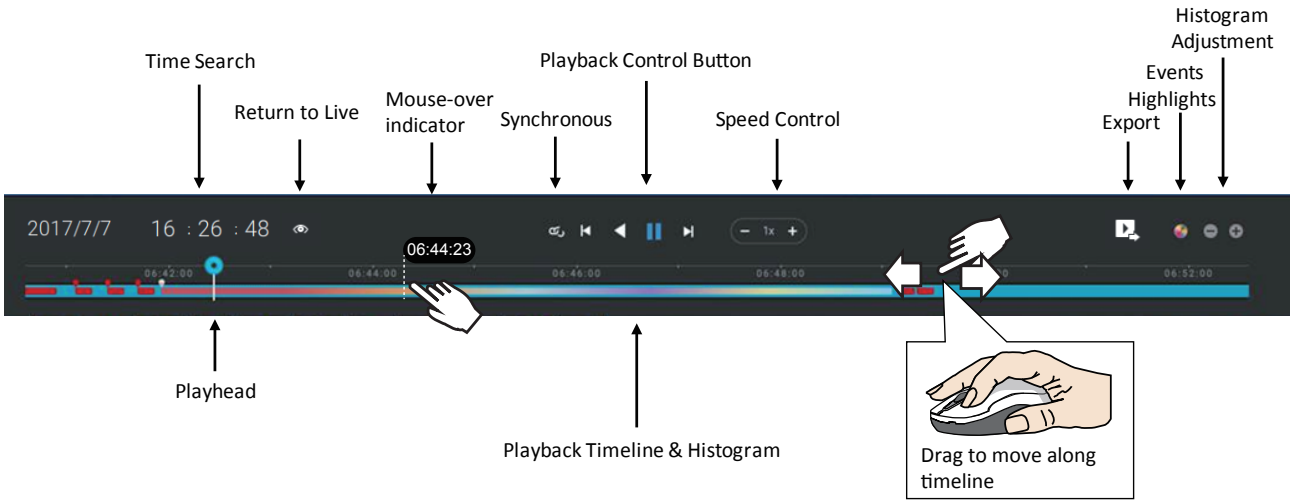
Bookmark: If you find anything of your interest when viewing the playback, click this button to create a bookmark. It helps when you need to return to the point in time after you review all through the recorded videos.

Synchronized play: When enabled, all cameras in the same view will be playing the video of the same point in time.

The following commands are general purpose commands.

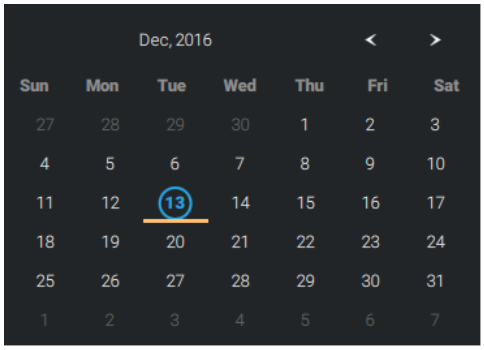
3. Timeline Panel: This panel appears when Playback is initiated.

Timescale is adjustable (minutes to hours) so you can easily find the required time period and begin playback from that point.



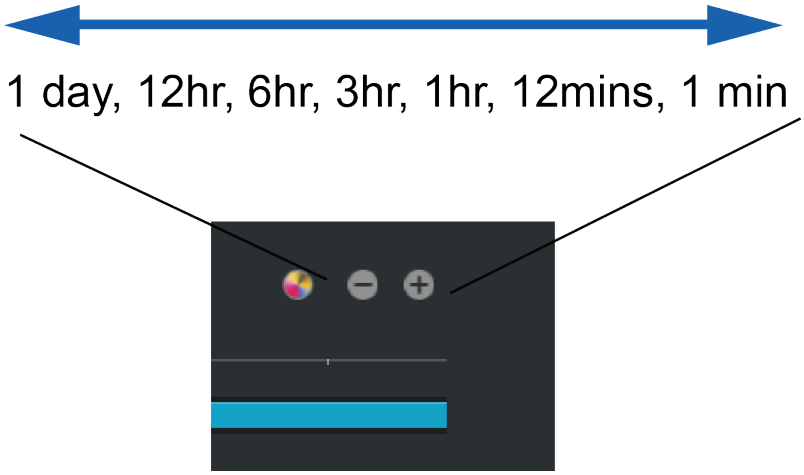
Starting from left to right, timeline control functions will be described as follolws:

1. Time Search: Click on the current date to open a calendar. If you want to review videos recorded in another day, select it from the calendar.



Click on the current time. You can use the arrow buttons to change the time you wish to playback, or simply enter a preferred number. You can also pull the playhead along the timeline.

Timeline magnification levels: The default time span is 6 hours. You can change the magnification level for easier browsing. Click the Zoom in and Zoom out buttons to change the timeline time span. The configurable time spans are shown below:

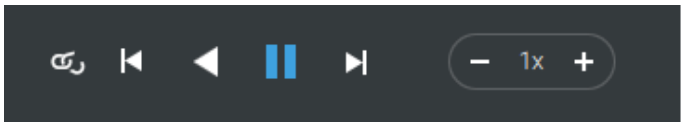


2. Playback control:

From left to right,

2-1. Synchronous play: This lets all cameras in the same view to playback video of the same point in time. If you perform synchronous playback on a multi-cell view, your computer can be stressed. It is recommended you create a new view with a 2x2 layout, select and insert camera views into it, and begin the Synchronous playback.

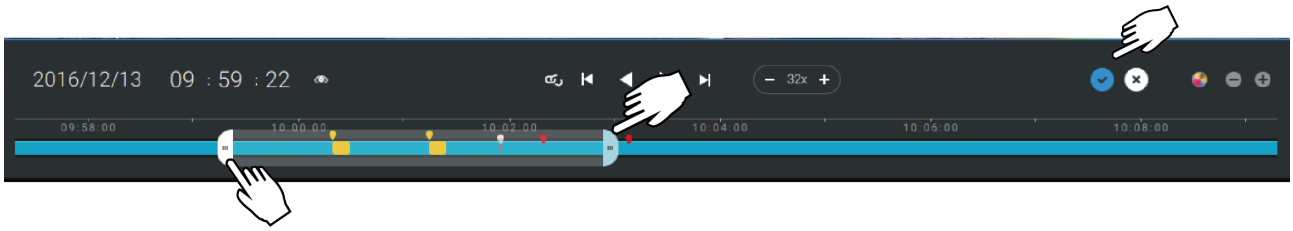
2-2. Frame by frame buttons: Click to move forward or backward to flick through the video frames. This may only display the I-frames.



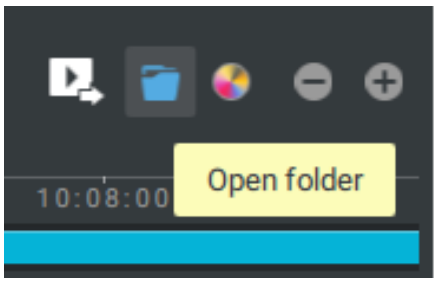
2-3. Forward playback and reverse playback: Click to view the video in the forward or reverse playback manner.

2-4. Speed selector: The selectable speed ranges from 1/64x to 64x.

3. Export Clips: Click the Export Clips button  . A range selector will appear. Pull the ends to include the time span you want to export. Note that each end of the selector, when clicked and selected, will turn white, and its location on the timescale is shown on the time line. When done, click the Start to export  button.

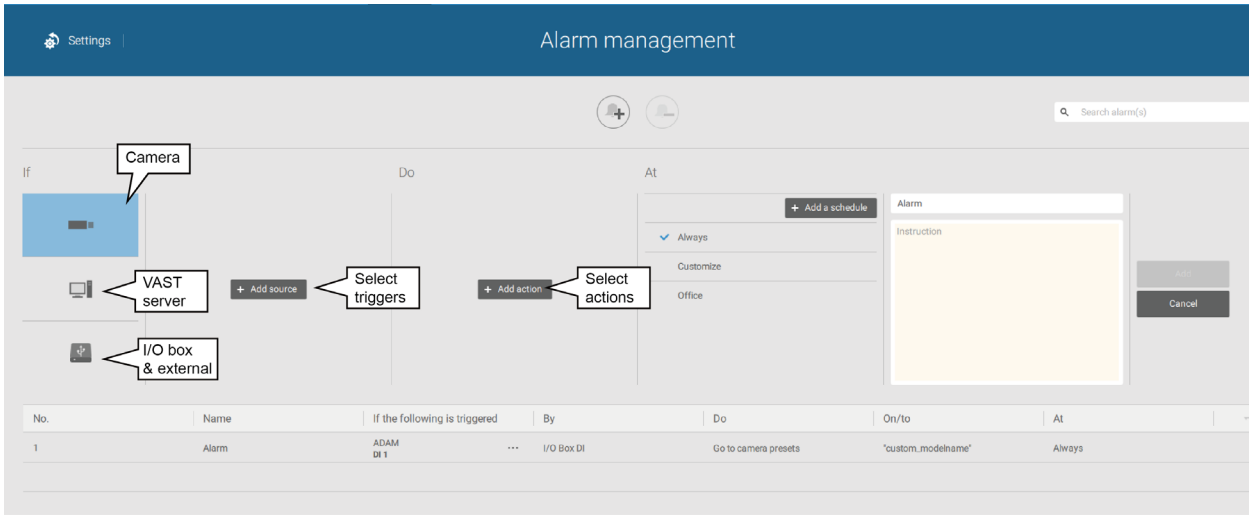


Depending on the length of video clips to export, it may take minutes to export. When the export is completed, a shortcut to the exported clips is shown. You may then open the folder where the clips are located.



2-12. Alarm

The Alarms can be configured to perform a series of actions when different events occur. Alarms can be used to automatically react to possible threats. For example, the VAST server can start a recording or send an Email notification when Motion detection is triggered.



A wide variety of triggering conditions can be applied, including:

1. Camera triggers 

●	Motion detection	●	Field detection (VCA)
●	Camera DI	●	Loitering (VCA)
●	Camera DO	●	Camera disconnected
●	Tampering detection	●	Recording error
●	Temperature	●	Stop recording
●	IR(Infrared)	●	Video loss (Video server only)
●	PIR (Passive infrared)		
●	Line crossing (VCA)		

Note that some of the triggers require that you open a web console with individual cameras. For example, Motion detection windows have to be manually configured on each camera before they can be configured in the Alarm settings.

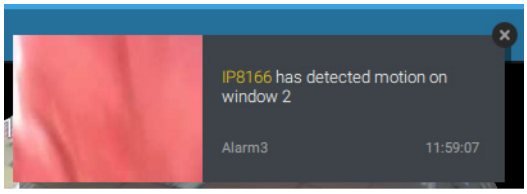
2. VAST server triggers 

●	Network disconnection	These can be used to send maintenance notifications.
●	Storage failure	
●	Storage full	

For I/O box configuration, please refer to the I/O Box page.

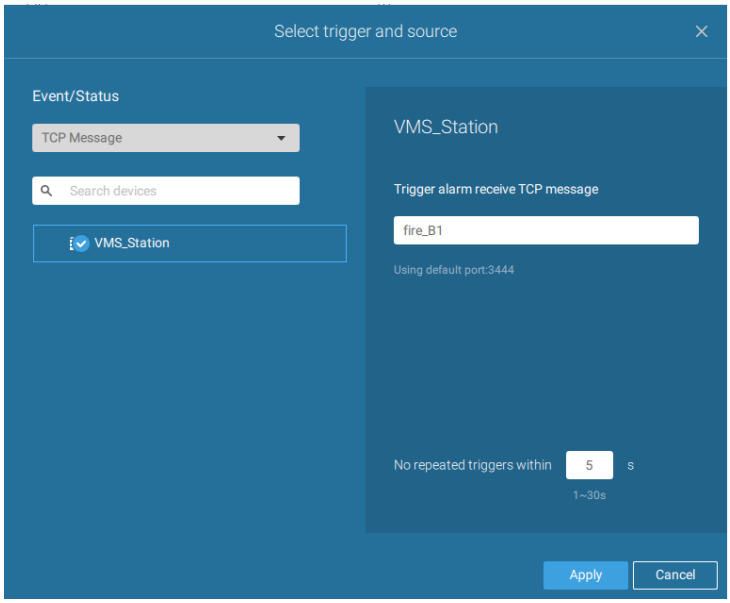
3. I/O box and TCP triggers 

●	I/O Box DI	This applies when an external I/O box is applied, e.g., Advantech's ADAM I/O box. TCP message comes from the peer VAST servers or external sources (such as an access control system) via the analysis of received TCP message over the 3444 port. This is a paid feature.
●	I/O Box DO	
●	TCP Message	

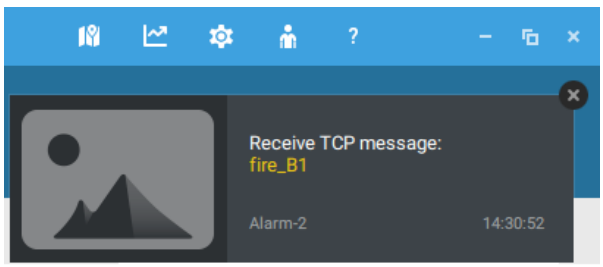


To configure a TCP message trigger,

Select TCP message as a trigger type, and enter a description, such as a short term, for VAST to listen and analyze data packages.



You can use Telnet to send a small amount of data matching the term you entered in the TCP message configuration window. A TCP message event will be triggered, and you should see the event prompt as follows.



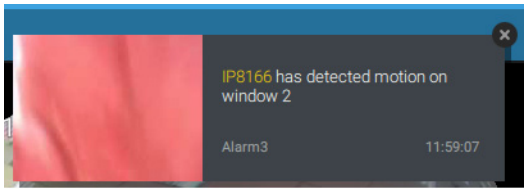
The available actions include:

●	Start to record video	●	Send HTTP requests
●	Set DO status	●	Send live streaming
●	Go to camera presets	●	Send email

The Start to record video will record a video clip of the length of 10 seconds on the occurrence of an event.

The Set DO status will activate a DO connection. For example, to light an illuminator or sound an alarm.

The Send live streaming action will bring up a video prompt on the live view, showing the realtime video feed from a specific camera.

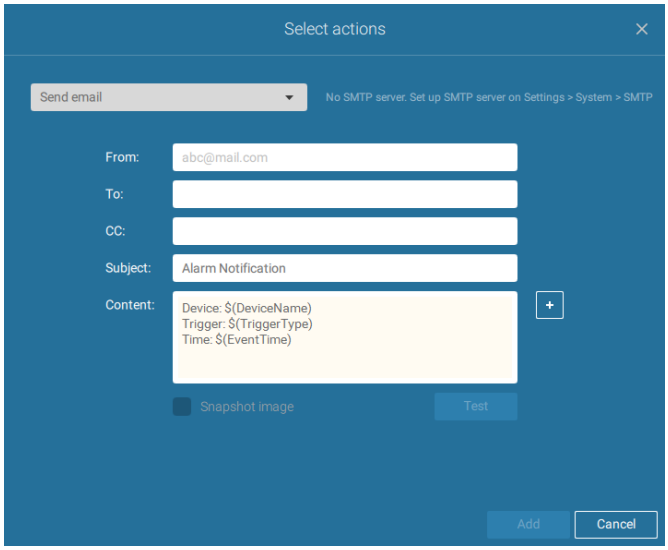


The Go to camera presets requires you to configure preset points on a PTZ camera before the Alarm configuration, such as a speed dome. Once triggered, the PTZ camera lens will move to a preset.

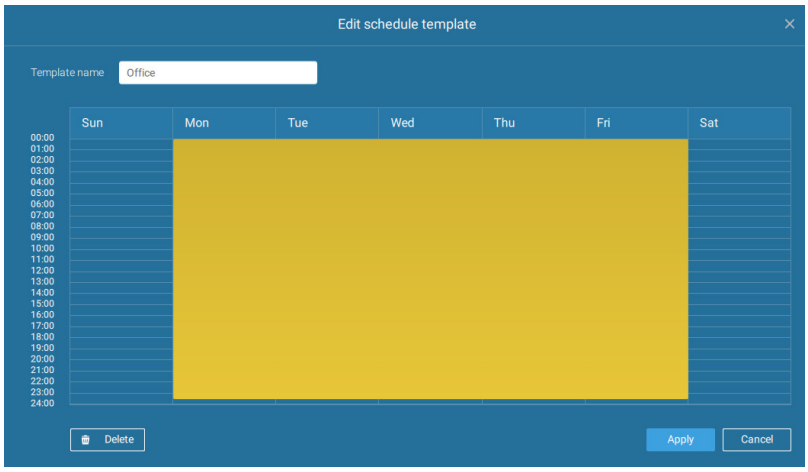
The VAST server automatically disables unavailable options. For example, when the DO option is selected, the cameras that do not support DO connections will be hidden.

The Send email opens a configuration page where you should enter valid email addresses as sender and recipients. It is required that you configure an SMTP server for mail delivery in Settings > SMTP. Enter Subject and contents. Select the checkbox for including a snapshot of the event. When done, click Add to enable the action.

A reachable Mail server and Email accounts must be provided before you can apply the settings.



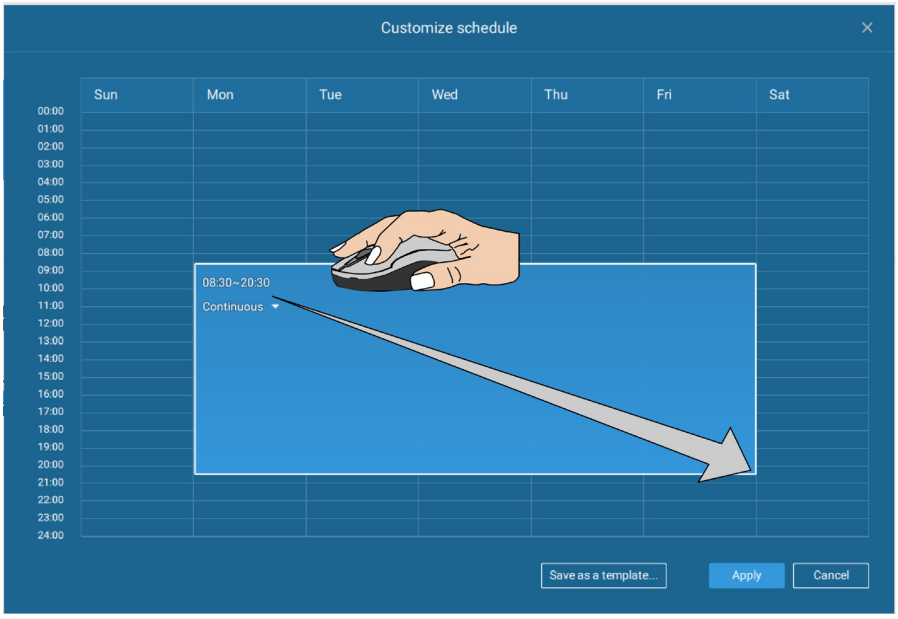
On the **Schedule** page, you can select to activate or de-activate alarm triggers throughout a specific timeline. For example, in some situations you can disable the alarm triggers during the office hours, and choose to enable the triggers only during the off-office hours.



Click on any of the options on the Schedule panel for the alarm to take effet: Customize, Always, or Add a schedule.

You can manually create a effective time template using the New template 

button.



Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select multiple time spans on the template. Enter a name for the template, and click Add to save your template.

The same configuraion window apply to both the Schedule template and the customize schedule windows.

Make sure a Schedule mode is selected when you leave this configuration step.

Enter a name and instructions for users to follow, and then click Add to complete the Alarm setting.

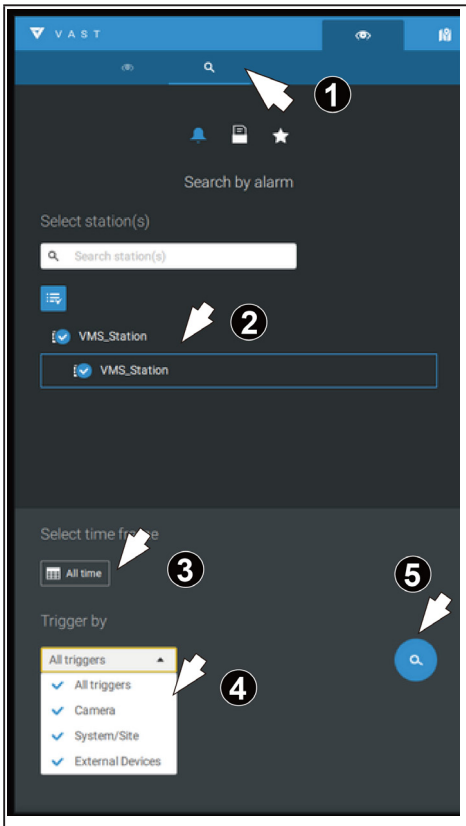
All configured alarms will be listed on the Alarm settings page.

2-13. Search Panel

The Search panel is accessed via the Search button. 3 key functions are provided: Search by Alarm, Search by POS transaction, and Search by Bookmark.

1. **Search by Alarm:** This function provides easy access to the video clips related to pre-configured alarms, such as Motion detection, external inputs to DI, etc. For more information about the alarm settings, please refer to the Alarm page.

   In the Alarm search panel,

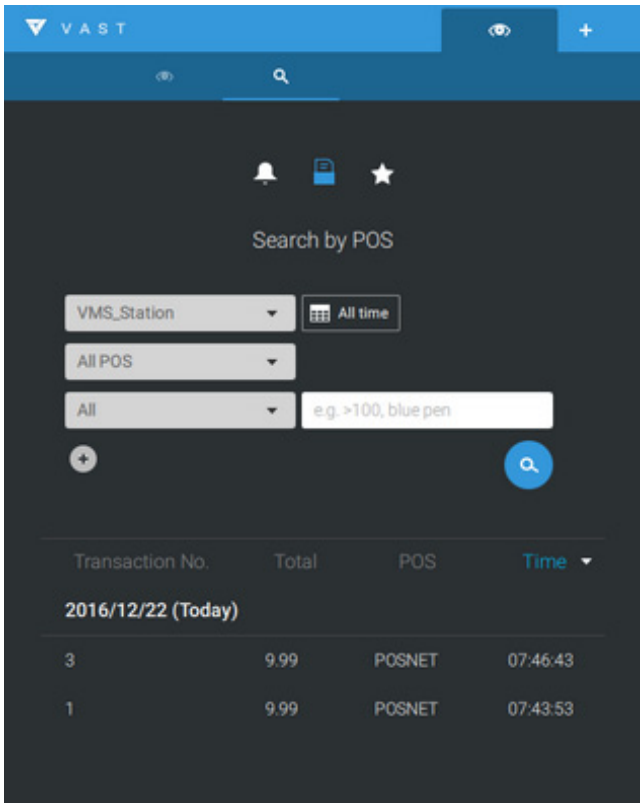


1. Click the Search button. The default for the Search panel is the Alarm search pane.
2. Select the VAST stations which have received the alarms. If you select a CMS station, the sub-stations will also be included.
3. Click the calendar to specify a time range during which the alarms have occurred. If not selected, the search will proceed with all recorded events in all time.
4. Select the Alarm type. Alarms may be generated through the camera, the VAST station, or external devices such as an I/O box.
5. Click the search button. Search results will be listed below. You can click on any of the entry to playback the related video clips.

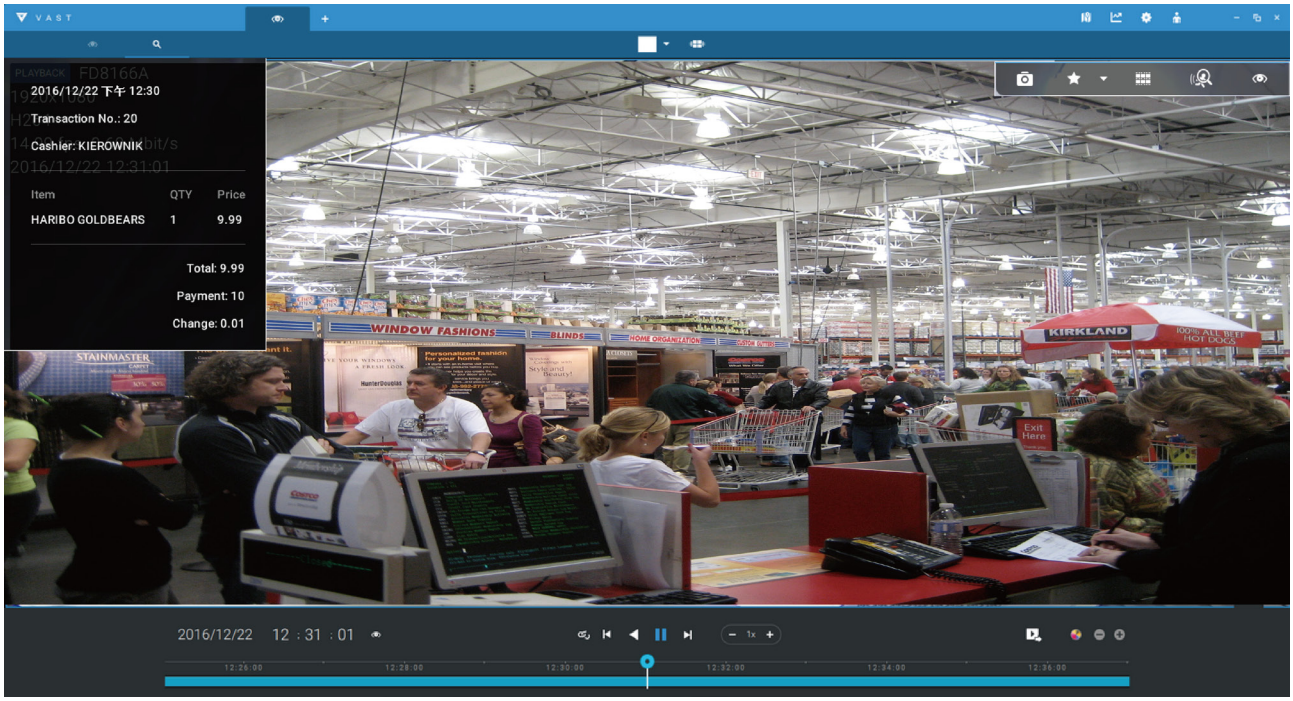
2. **Search by POS transaction:** The VAST station can collect coordinated database information from a POS machine. This function provides access to the video clips associated with the sales record on the POS machine. Details of transaction can be listed on screen so that a manager can see the live view when controversial events occur.

To search the POS-related recordings,

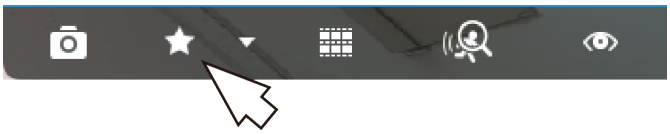
2-1. Select the VAST station which the POS machine is connected to (via the Settings > POS configuration).
2-2. If you know the approximate time of occurrence (bill void, content adjusted, shortage of products, and other frauds), use the calendar to select a time span.
2-3. Select a POS machine, if there are many.
2-4. Select a search confition, such as item name, subtotal, or the transaction number. You can use the **>**, **<**, or **=** signs to specify the amount you are searching for. For example, key in >100 for amounts larger than $100.
2-5. You can click the add button below to append more search conditions.
2-6. When done, click the search button.



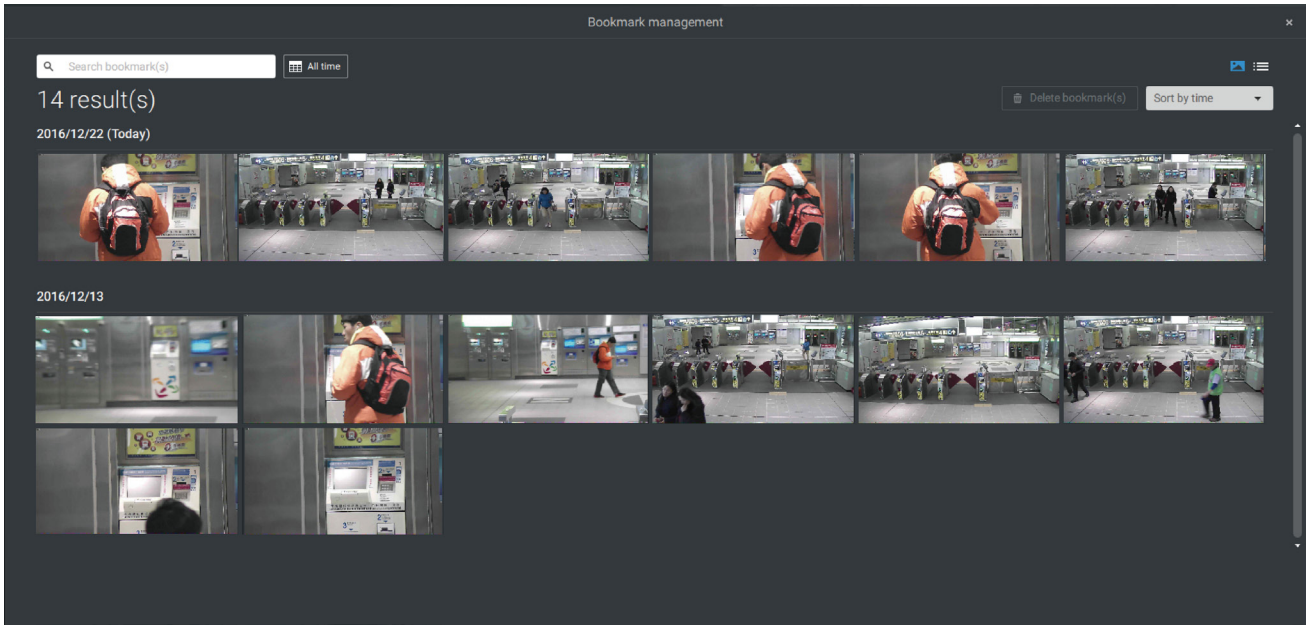
2-7. Click on any of the search results. Details of the transaction will display along with the recording of the time of occurrence.



3. Search by Bookmark: Bookmarks are manually created when users review recorded videos in the Playback mode. Each bookmark comes as a 10-second video clip.



In the Bookmark search panel,



Click the Bookmark search button. The Bookmark Management window will prompt. All existing bookmarks will be listed with thumbnails.

a. On this window, you can specify a range of time during which the video streams were recorded and its points in time were bookmarked.

b. You can then click on a bookmark to display the short video clip extracted from within the recorded video. The default is 10 seconds.

c. To remove an existing bookmark, left-click to select an entry, and then click the Delete bookmark(s) button. Bookmarks will be indicated as "Invalid" if the videos where the bookmarks were appended were erased, e.g., when the original recording was erased by cyclic recording.

d. Currently you can search for bookmarks using the name of the camera.

e. You can also select the display types for the bookmark search in either the thumbnails or list mode.

2-14. Smart search

The Smart search function enables a quick glimpse of activities occurred within a user-configurable detection area from the recorded videos. Smart search is available in the Playback mode.

Click to select a view cell. Click on the Smart serach button  to enter the Smart search window.

To use Smart search,

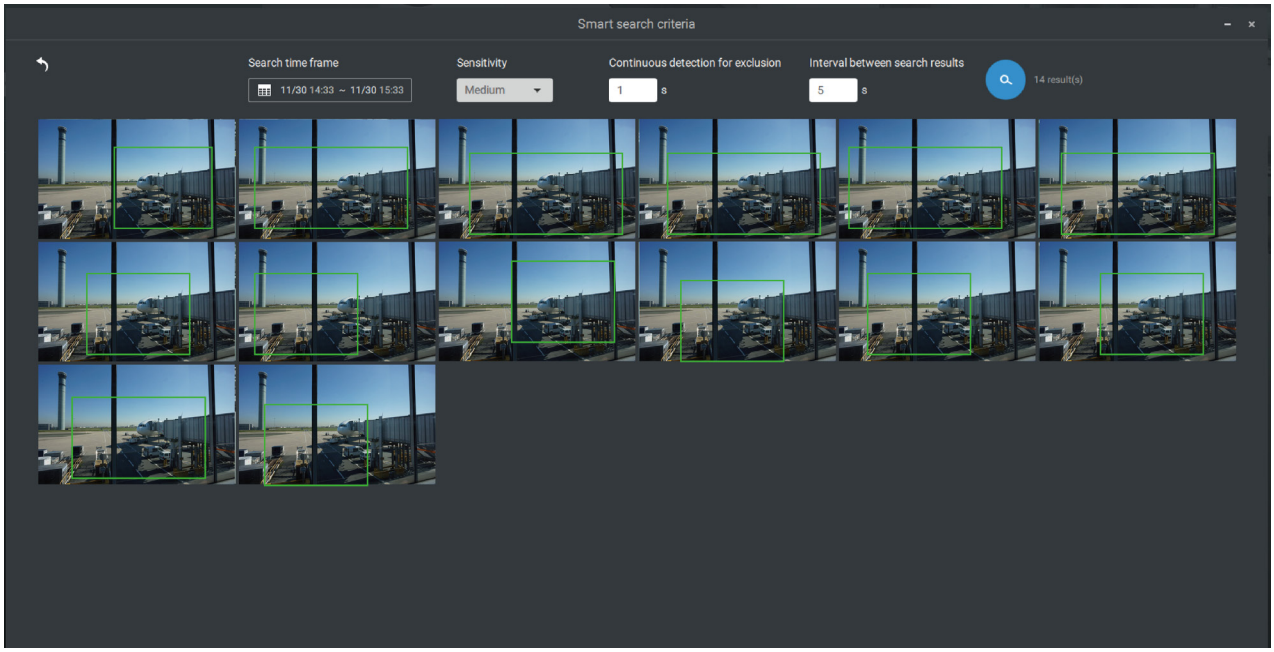
1. Use the date and time selectors to specify a time span on which to perform the Smart search. If preferred, you can tune the Sensitivity, Continuous detection for exclusion, and the Interval between search results. The Continuous detection option specifies the length of occurences that an event must last longer than the configured threshold to be considered as an effective occurrence.
2. Draw one or more polygons with multiple mouse clicks to include areas where activities of your interest occurred. Up to 60 clicks are allowed. Double-click to close a polygon.

You can create up to 5 polygons as the detection areas.

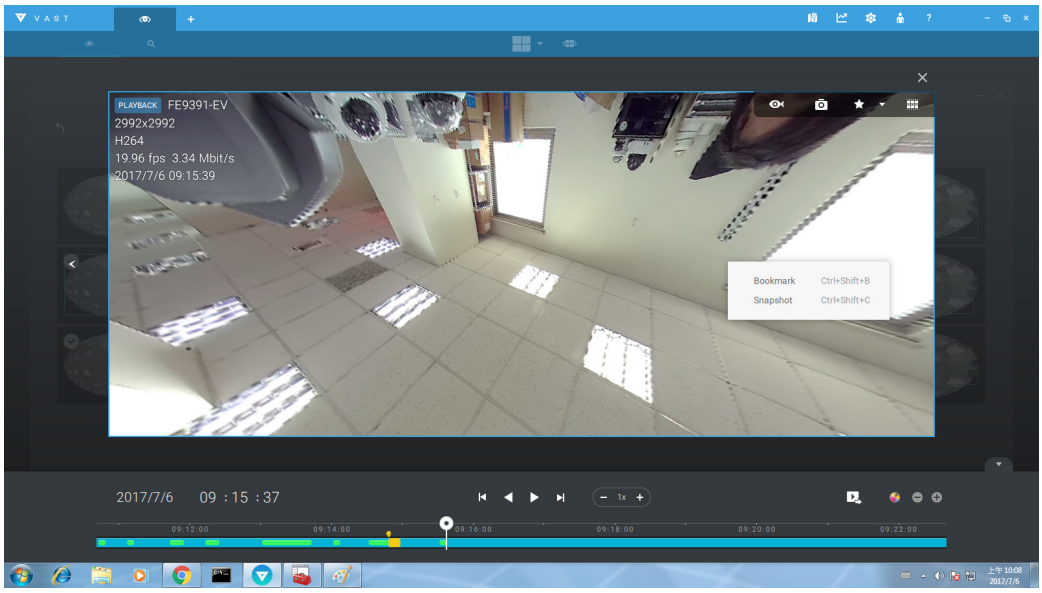
3. Click the Search button.

4. The search results display as the snapshots of the associated video clips. Click to playback the video clips with activities in the detection zones.

Note that unless interrupted, the playback continues with all detection zone clips, by jumping from one to the successive clips.

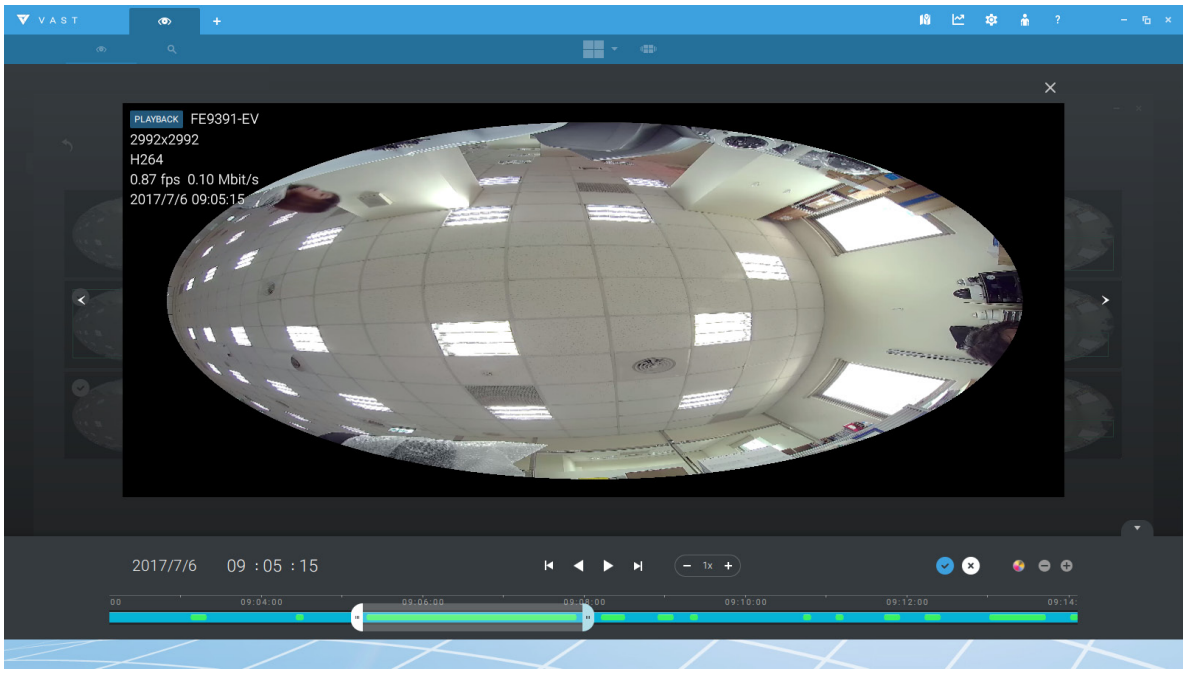


5. You can then click to open any clip of your interest. Each marked event clip will be indicated by a lighter color on the time line. You may then right-click to add a Bookmark or take a snapshot.



6. If you find important events, use the Export function to mark the start and end points on the timeline to export a video clip.

   The playback control in the Smart search window is identical to that on the Playback window.

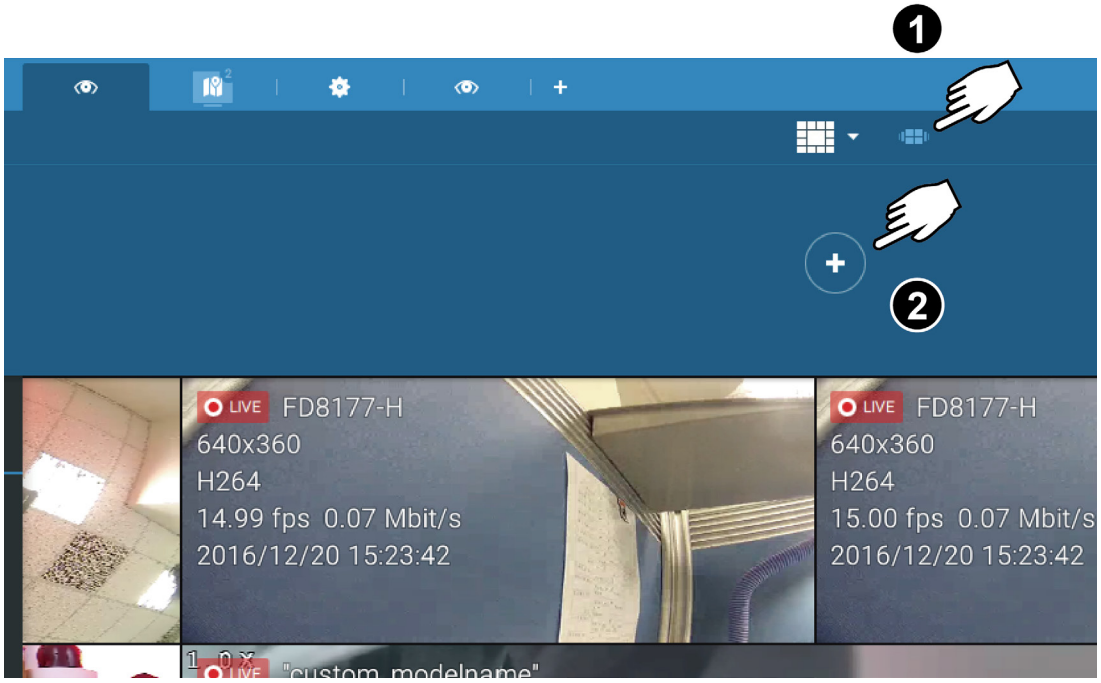


2-15. Tour

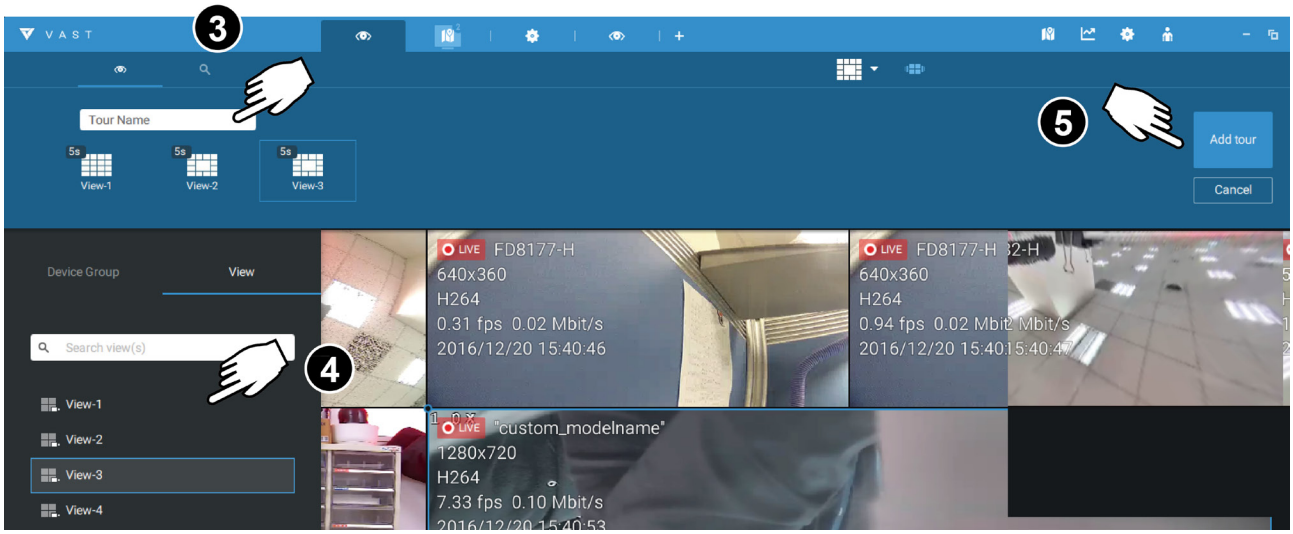
A tour can be configured to consecutively display multiple views. A tour allows users to quickly glimpse through many view cells in a timed pattern. As a tour can contain multiple views, you should design and configure camera views before configuring a tour.

To configure a tour,

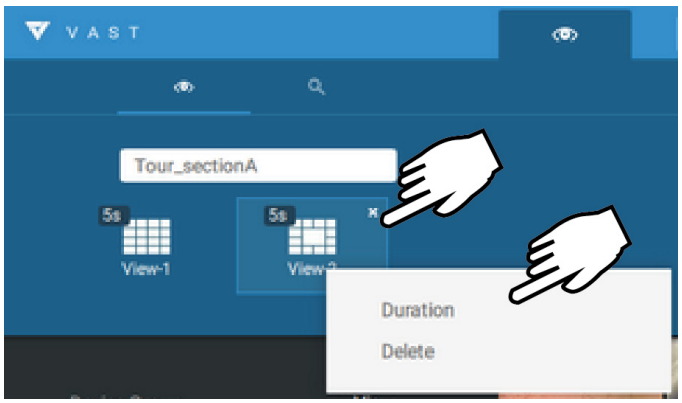
1. Click on the Add a camera tour button.
2. Click the Add button.



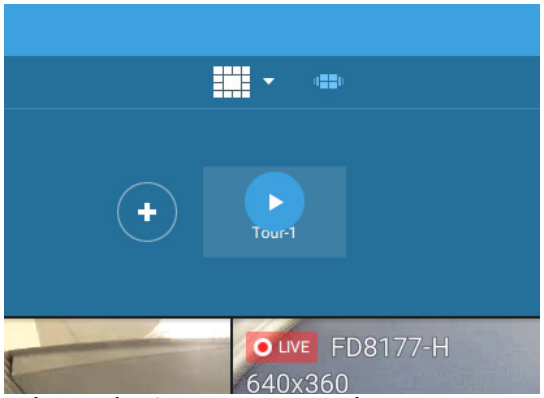
3. Enter a name for the tour.
4. Single-click to select a view. Select multiple views each by a single click.
5. Click the Add Tour button.



The default for the duration of the disaplay of each view is 5 seconds. You can right-click on each view to display the Duration of each view. You can apply the same duraction of all views, or allow each view to display on screen for a different span of time.



Mouse over a configured tour, and then click to start a tour.



When playing a tour, and you want to stop the tour, you can left-click or right-click on the screen.

Click the Tour icon  again to return to the singular live view.

2-16. Thumbnail search

The Thumbnail search function is like doing a post-production editing in film making. Screens from across different time spans are shown to facilitate the search for evidence.

Click on the Thumbnail serach button  to enter the Thumbnail search window.
The default time span is 100 minutes, starting an hour earlier of the current system time.

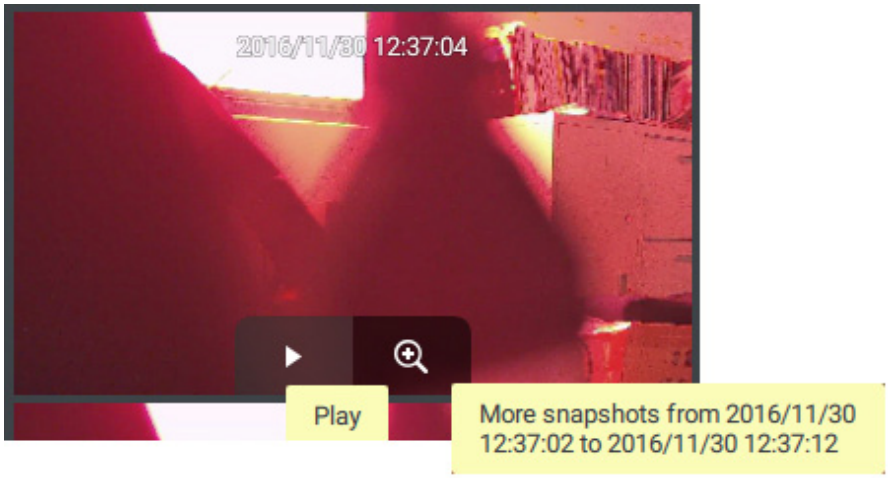
To use Thumbnail search,

1. Use the date and time selectors to specify a time span during which you suspect the event of your interest has occurred.
2. If preferred, tune the interval and clip size. The default length for each clip is 10 seconds.
3. If you find a clip might contain an event of your interest, you can click to select, and then slide left and right to watch the activities within.

4. Hover your cursor to the lower center of a clip to display the Play and the More snapshots options. If you click More snapshots, another window willl prompt to display all frames within the clip.

When you select to display the clip details (specific time span), the time span and the interval information will change accordingly.

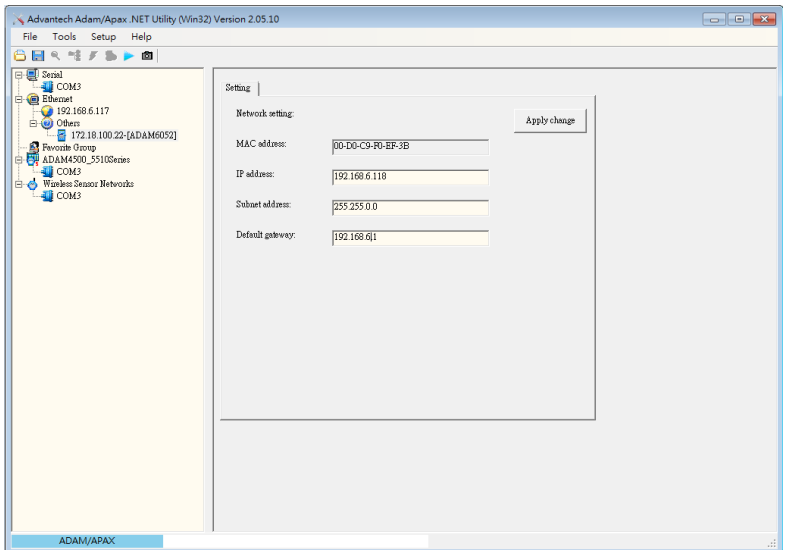
When you find an event of your interest, you can play that video clip and use the export function on screen to output the evidence. You may also place a bookmark on the timeline.



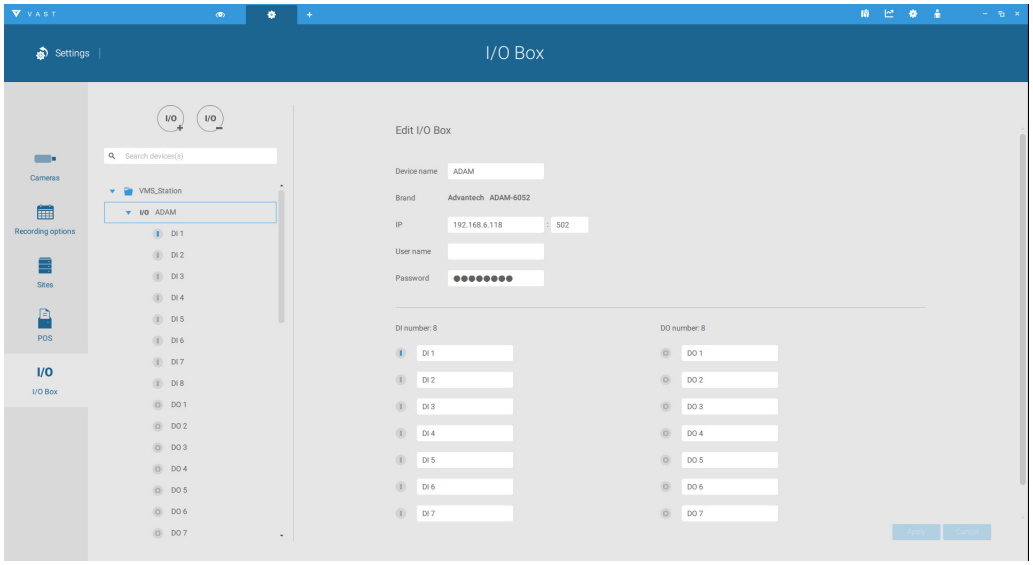
Chapter 3 Applications:

3-1. IO Box and Related Configuration

Use the software utility that comes with the IO box, e.g., Advantech's Adam/Apax.NET utility, to configure IP address, and test the DI/DO connectivity. The connections to external devices should be completed before configuration on the software.



Enter Settings  > Device > DI/DO Device. Click the add I/O button on top.

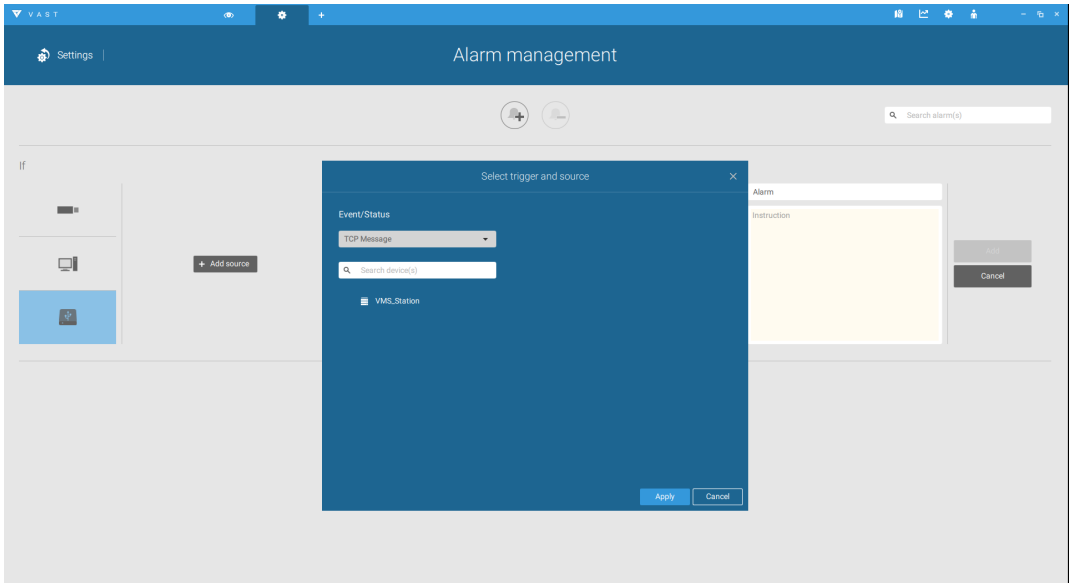


Enter the I/O box's IP addess and credentials, and select the correct model name from the pull-down list on the right. Click the **Apply** button to proceed. The current I/O connections are also displayed on screen, such that the status is displayed when DI pins are connected to detection devices.

Configuring I/O Box DI/DO as a Trigger or Action in Alarm

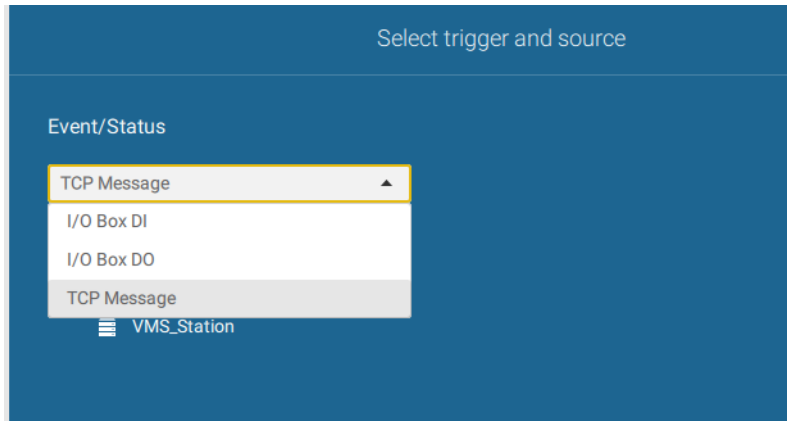
Enter the Settings > Alarm window. Click the Add alarm button on top.

Select the External Device event, and then click the Add source + Add source button.

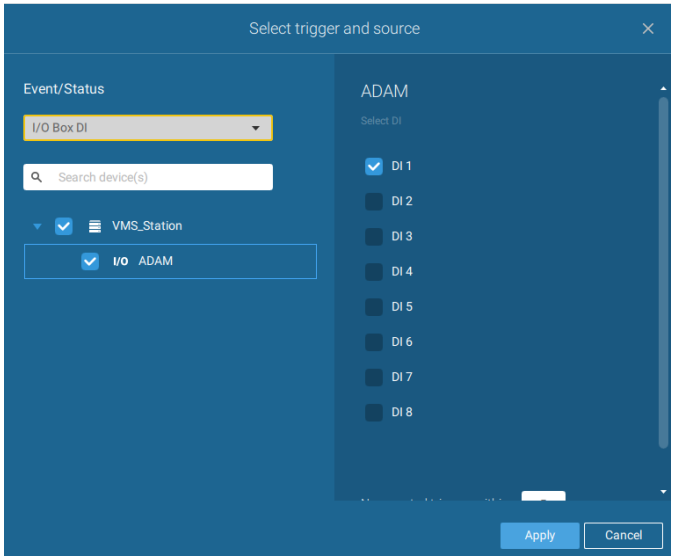


The **Select trigger and source** window will prompt.

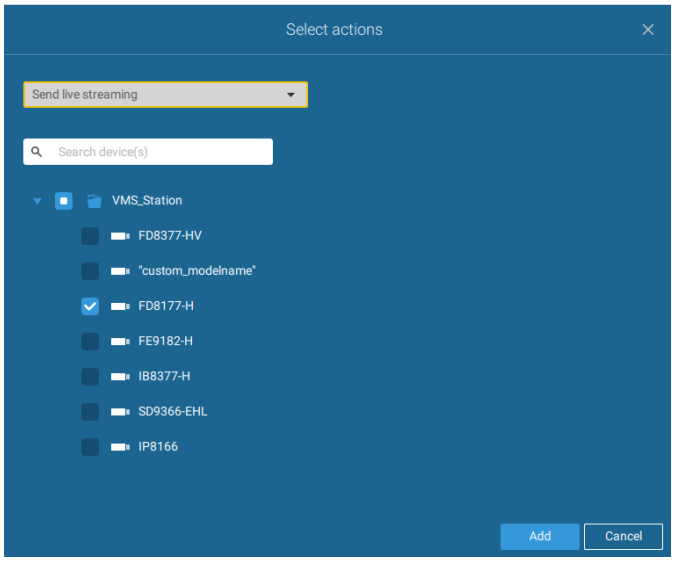
Select either the I/O Box DI or DO as the triggering source.



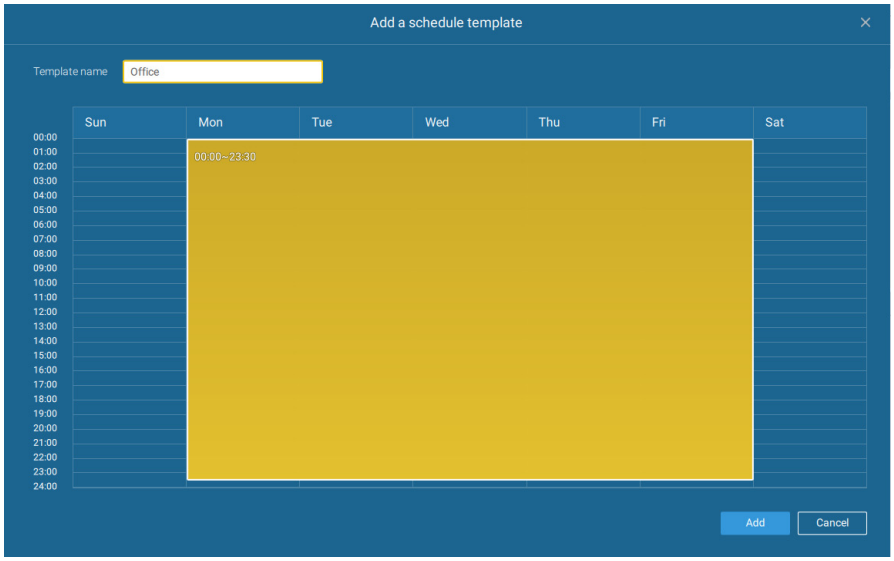
Select one or multiple DIs as the triggering source and click the **Apply** button.



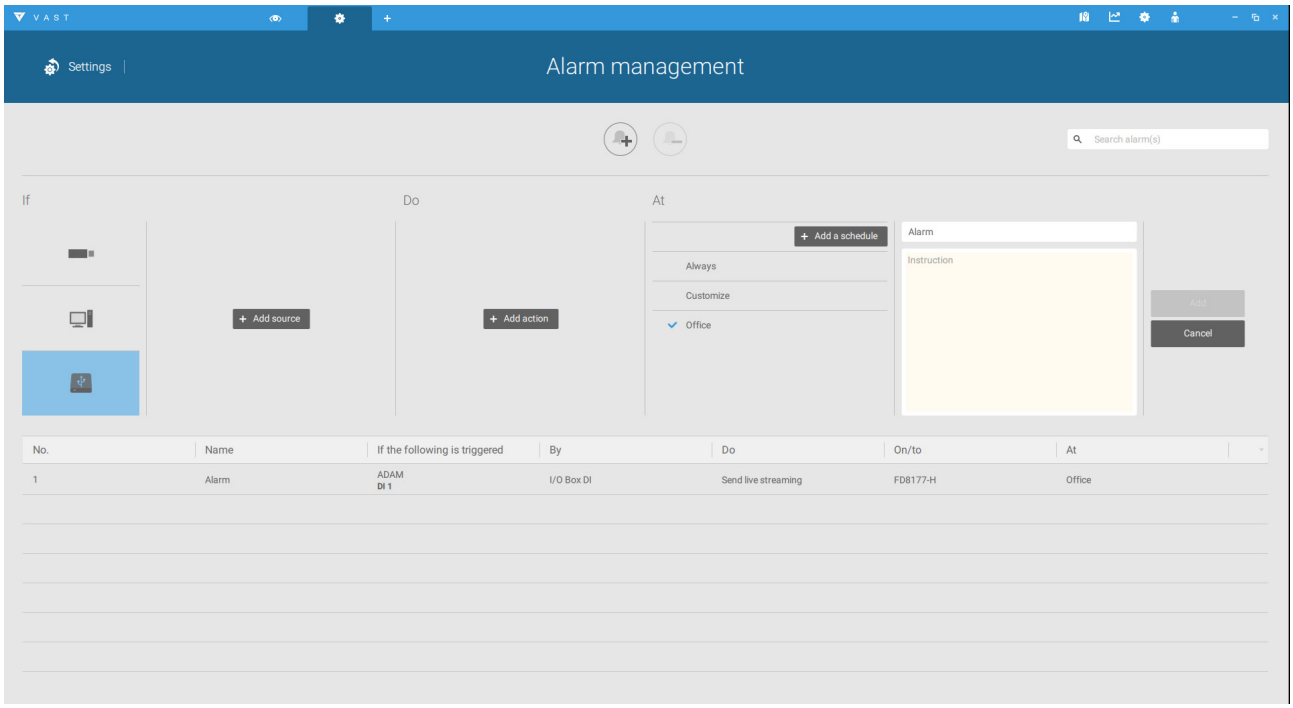
Click Add action + Add action, and select a corresponding action, such as sending live streaming, record videos, trigger a DO, sending an HTTP request, or sending an Email. When done, click the Add button.



Configure a schedule during which the Alarm configuration takes effect. If no special time span is needed, you can simply select Always.

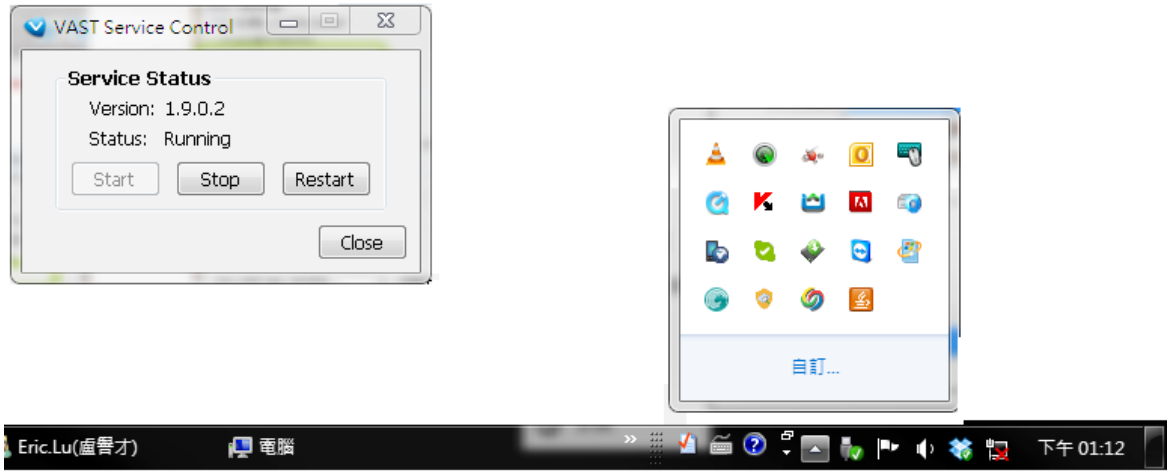


Enter a name for your Alarm, and add description for your configuration, e.g., "intrusion detected on the front door." When done, click the Add button. The Alarm configuration takes effect immediately.



NOTE:

If an I/O module is started later than the VAST server, you may not be able to access the I/O module. You should then re-start the VAST service.



3-2. Configuring Redundant Servers - Failover

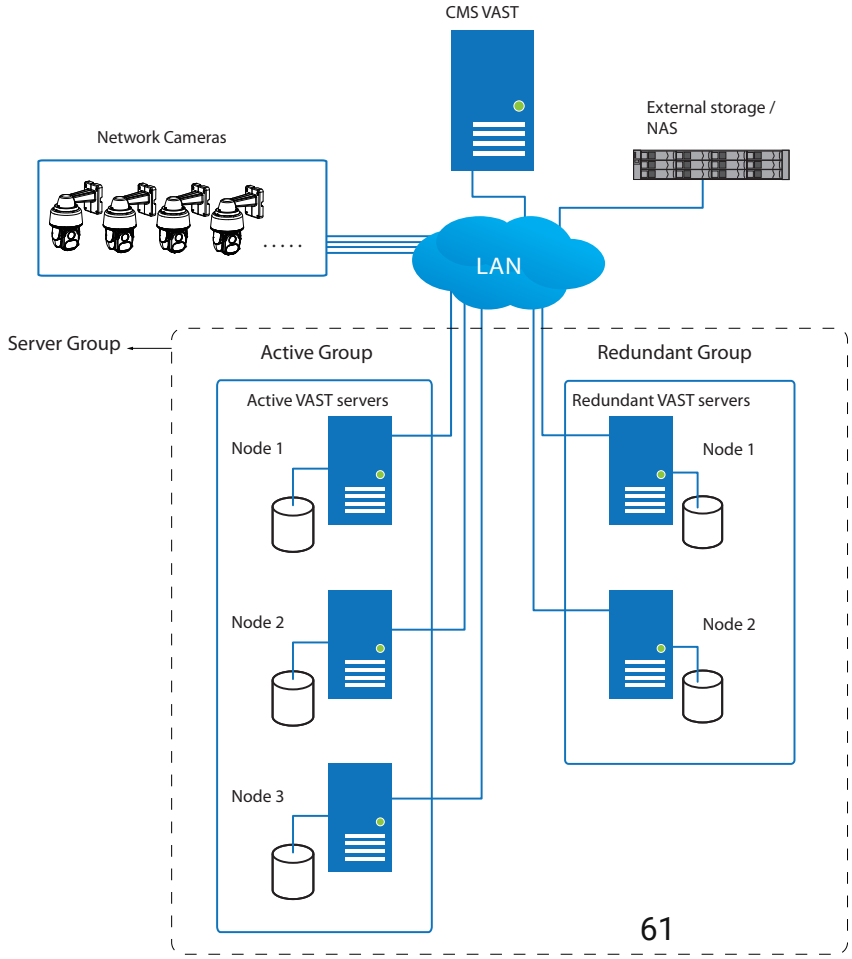
VAST2 servers can be configured into two groups: Active and Redundant. The Active group performs daily recording and monitoring tasks, while the Redundant group acts as the standby servers. In the event of server failures, the Redundant group becomes active, and takes over the recording task.

The Redundant server group configuration consists of the following:

1. One VAST2 server designated as the **CMS** (Central Management server) VAST central management server.
2. At least one VAST2 server in the **Active** group.
3. At least one VAST2 server in the **Redundant** group.
4. Gb/s network or higher-speed connection among the servers. All Active and Redundant groups can reside in different subnets, provided that static IPs are configured for these servers.

IMPORTANT:

For a Redundant server configuration, you must first enlist VAST servers in the **Sites** configuration page before configuring the Redundant server groups. See the **Sites** configuration page.



Below are the definitions of server roles:

1. **CMS** VAST server: The main access portal for the configuration.

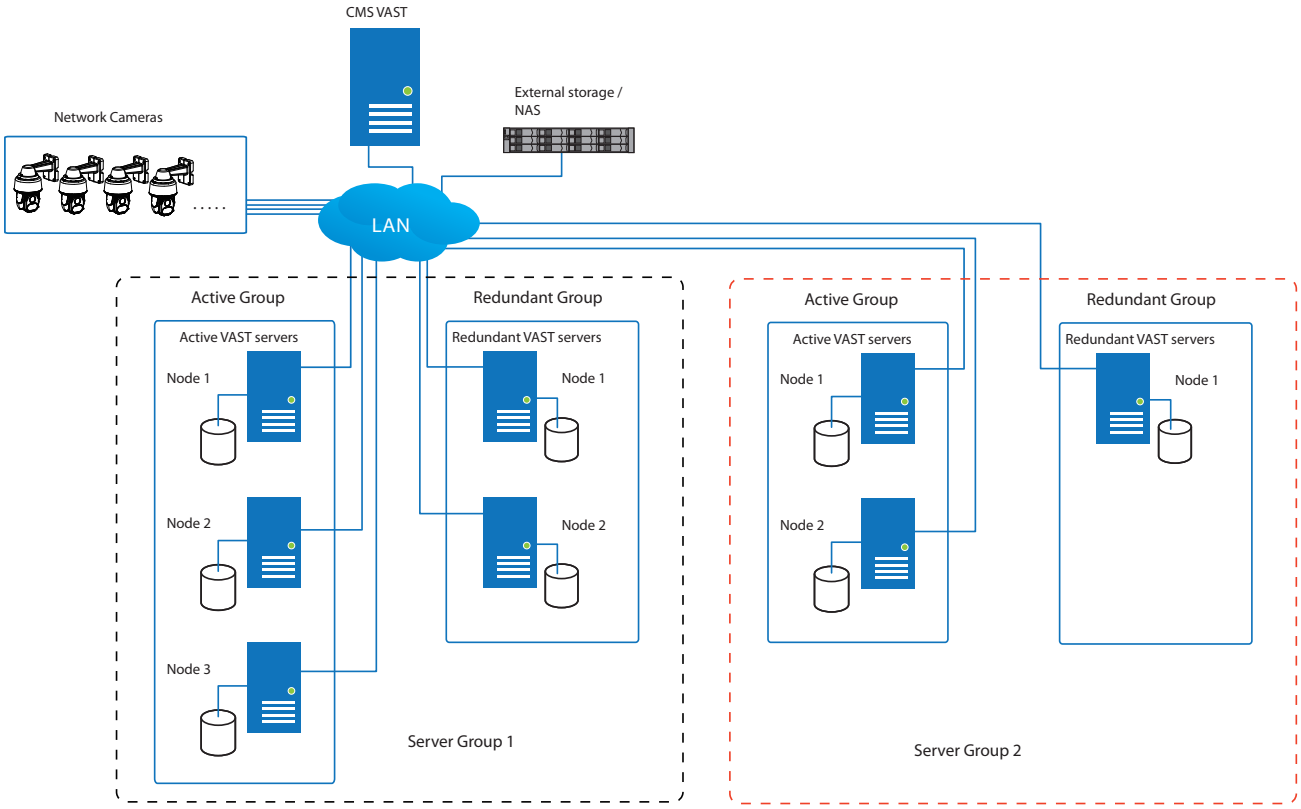
1-1.	CMS server is where the **Failover** configuration takes place.
1-2.	CMS continuously polls to check the hearbeats to monitor the statuses of all Active and Redundant servers.
1-3.	CMS regularly backs up the configurations on Active servers.
1-4.	CMS assigns redundant server(s) to the takeover of a failed Active server.
1-5.	In a Redundant server configuration, the CMS is supposed to be up and running at all time. If the CMS server fails, the server failover and failback operation will not take place. It is therefore preferrable to install the CMS server at a high up-time environment, such as on a VMWare configuration.

2. **Active** servers: Active VAST servers are the work horses that perform recording and monitoring tasks.
3. **Redundant** servers: The Redundant servers are actually active-standbys. They participate to continue video recording in the event of active server failures. It is recommended for the Redundant server to have an equivalent or higher processing power than the Active servers. The same applies for the storage volume and write performance.

   Note that you cannot configure a Redundant server by opening a local console.

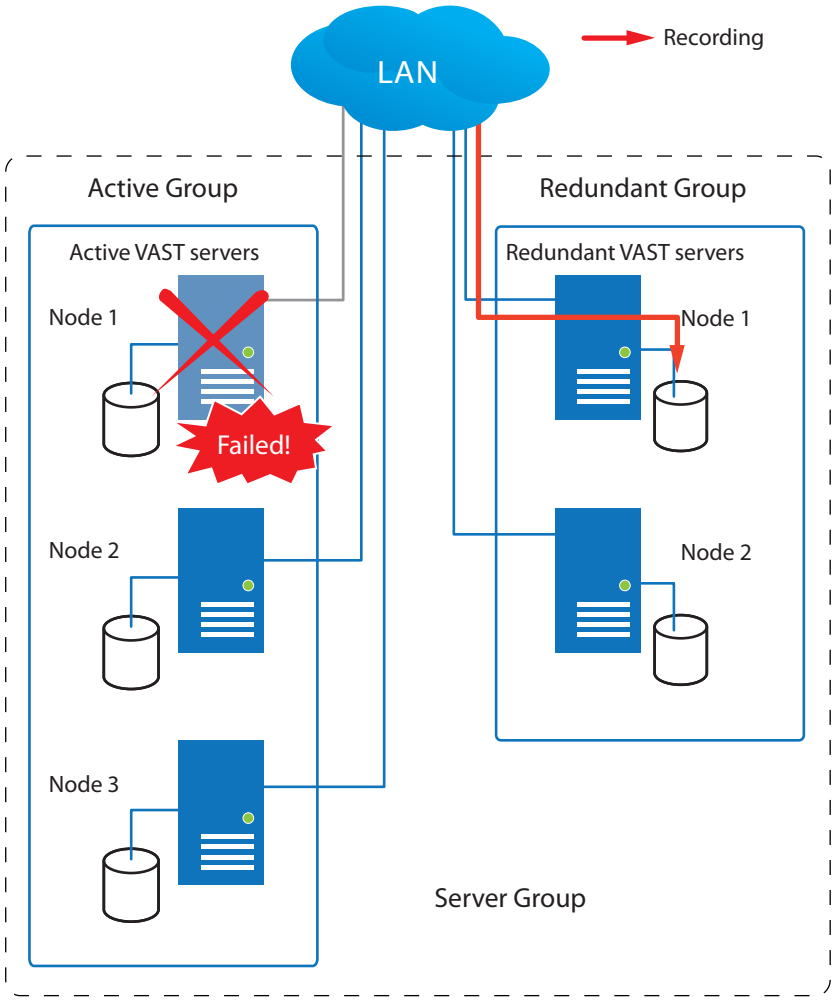
The conditions during the failover are illustrated below:

Multiple Active and Redundant groups can be created.

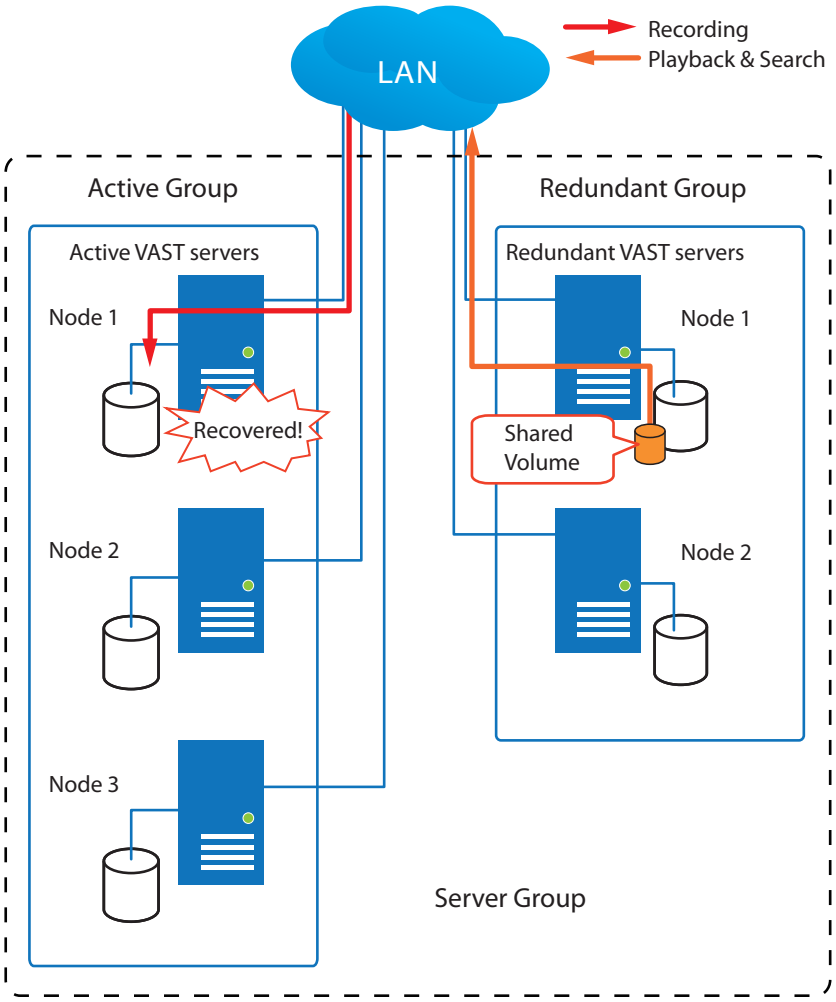


Each Redundant server can serve as the backup for ONE Active server. Depending on the number of the Active and Redundant servers, if the number of failed servers exceeds the number of Redundant servers, the failover will be abandoned. For example, if 2 Active servers failed, and there is only 1 Redundant server available, the second Active server that failed will be abandoned.

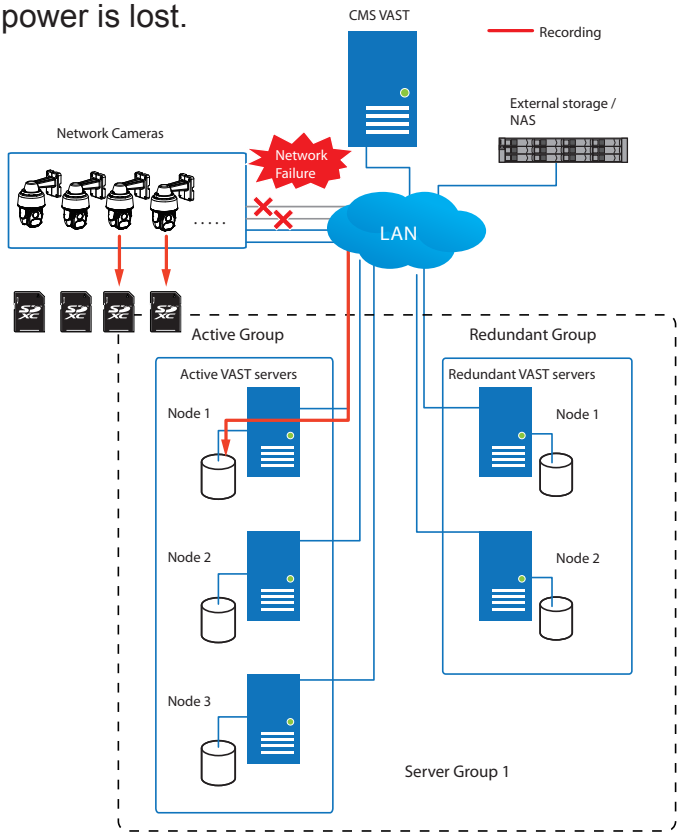
In the event of a server failover, a VAST2 server in the Redundant group takes over the recording task. Note that depending on the network environment, the takeover can take up to 5 minutes.



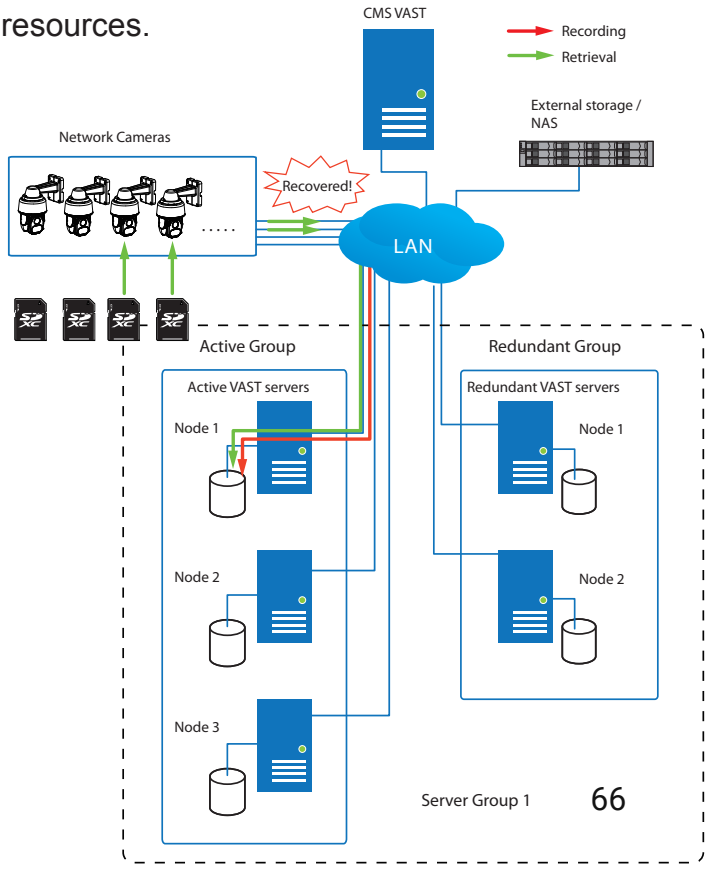
Once the server in the Active group is restored to normal operation, and a CMS server requests for the recordings and data occurred during the time the active server failed, the requests will be fulfilled by a shared volume on the redundant server. Due to the concerns with network bandwidth and processing power, the restored active server does not synchronize its recording pool with that on the redundant server.



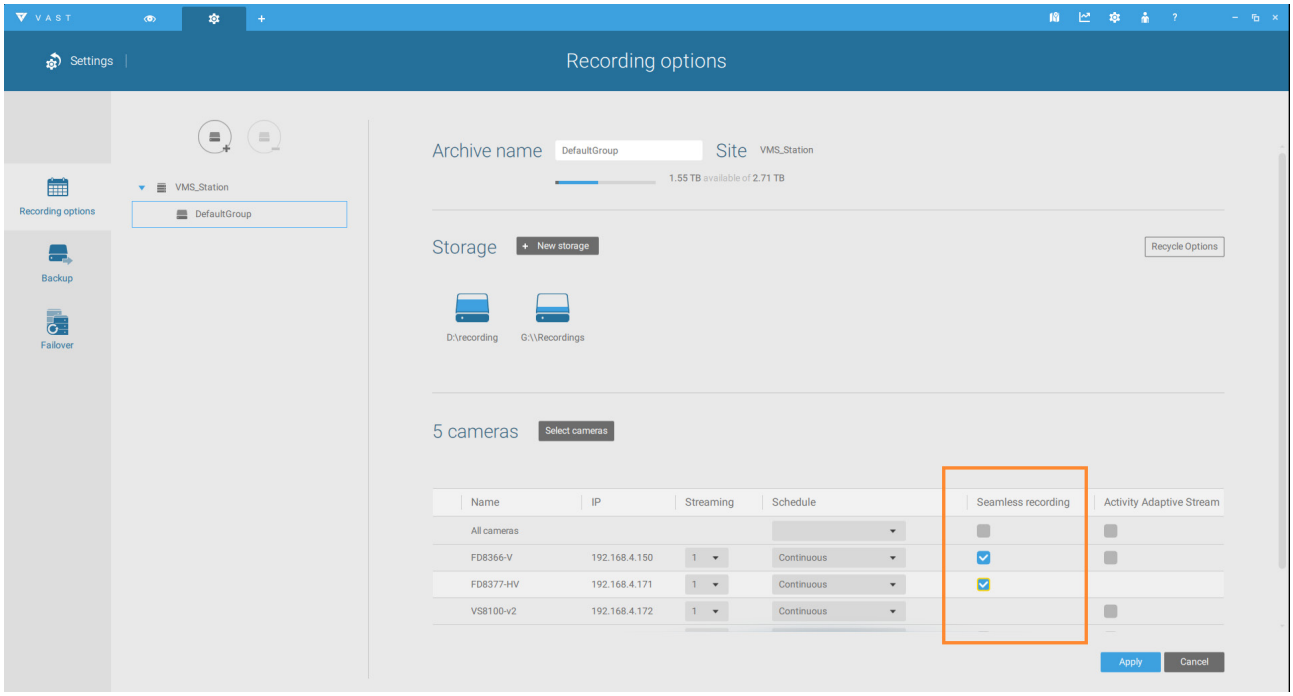
In terms of network failure, the VAST2 configuration supports Seamless Recording. For cameras equipped with an SD card, video is recorded to the SD cards in the event of network failure. Of course, the camera must be powered by a secondary power source, such as a DC 12V input. In cases such as the only PoE switch or PoE mid-span fails, power is lost.



Once the network connection is restored, the VAST2 servers resume the recording task and also retreive video segments from the SD cards. The video segments recorded during the network failure will be stitched up with those occurred before and after the network failure. The retrieval speed varies depending on the available network bandwidth and CPU resources.



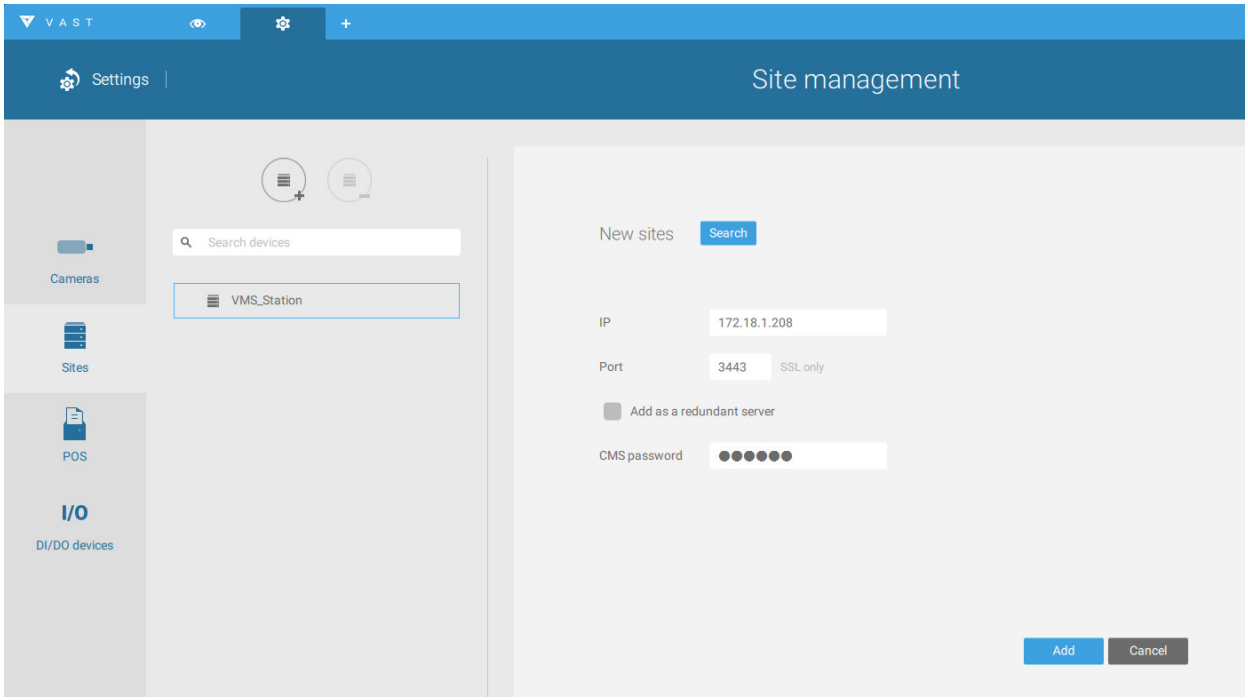
To enable Seamless recording, find the associated option in Settings > Recording options, and select the Seamless recording checkboxes. Camera models that support the Seamless recording option will have it listed.



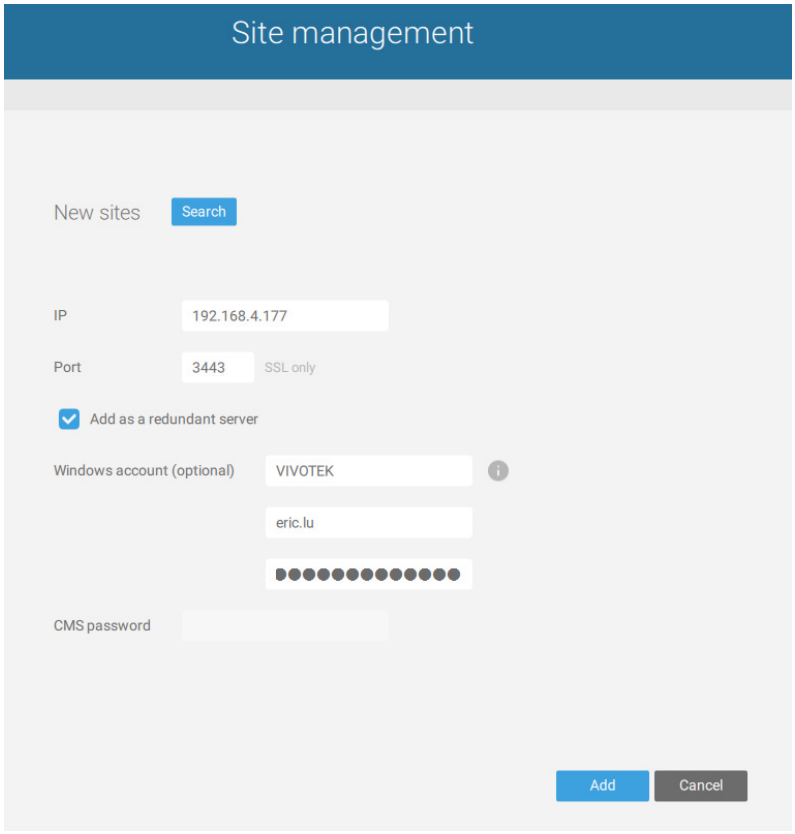
Failover Configuration Process

Before Failover configuration, you need to add other servers to your Failover configuration. Below is a screen from the Sites management window.

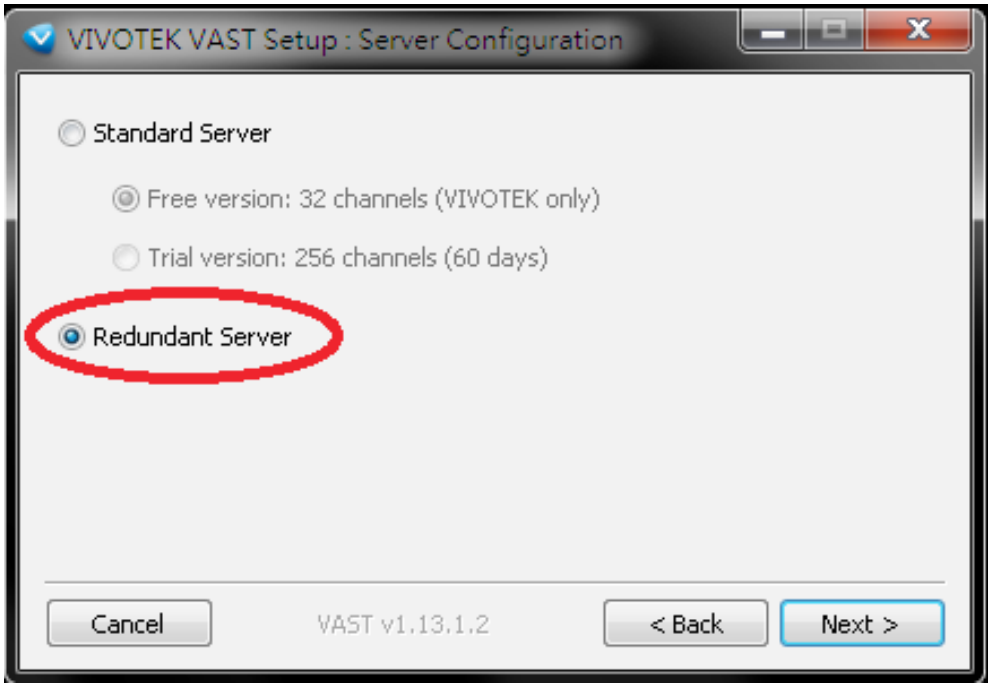
- If you are adding a Redundant server, select the "**Add as a redundant server**" checkbox.
- If you are adding a server without selecting this checkbox, it will be considered as an Active server.
- When adding a Redundant server, you will need to provide a Windows account 802.1x domain user name and password. A Redundant server requires this because a full access to the recorded data is required during the failover and failback process.



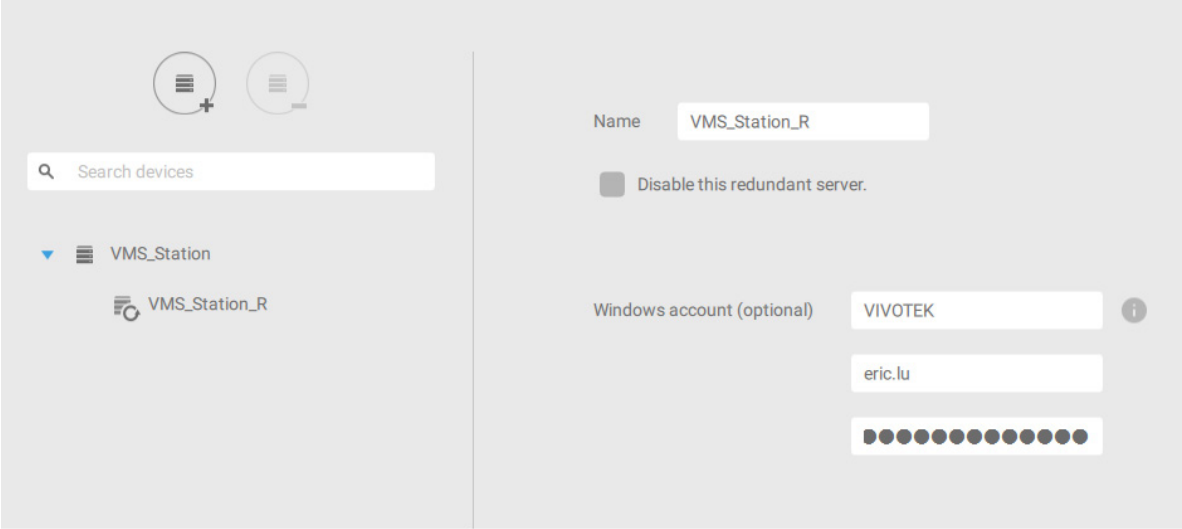
When the "**Add as a redundant server**" checkbox is selected, enter the name of your Windows domain and the user credentials for a full access to the Redundant server.



Note that it is a must for the Redundant server to be installed differently by selecting a "**Redundant server**" checkbox during the installation process.



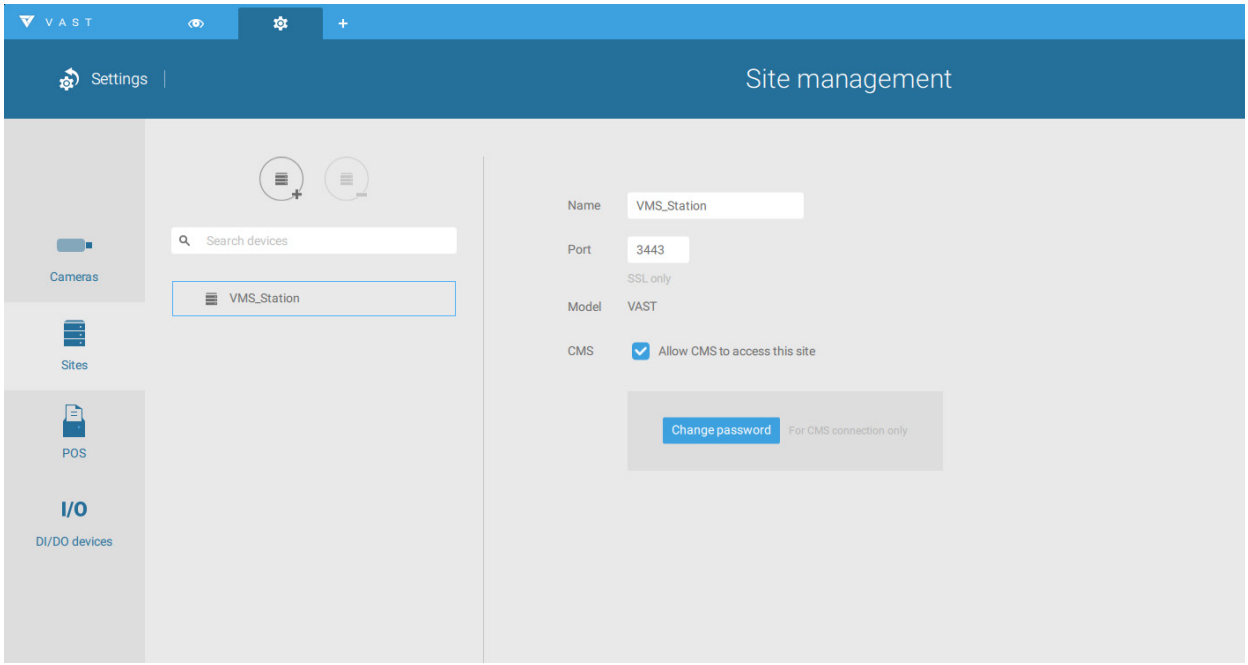
When a Redundant server is successfully added, the server will be listed under your VMS station.



A Redundant server comes with an associated icon, .

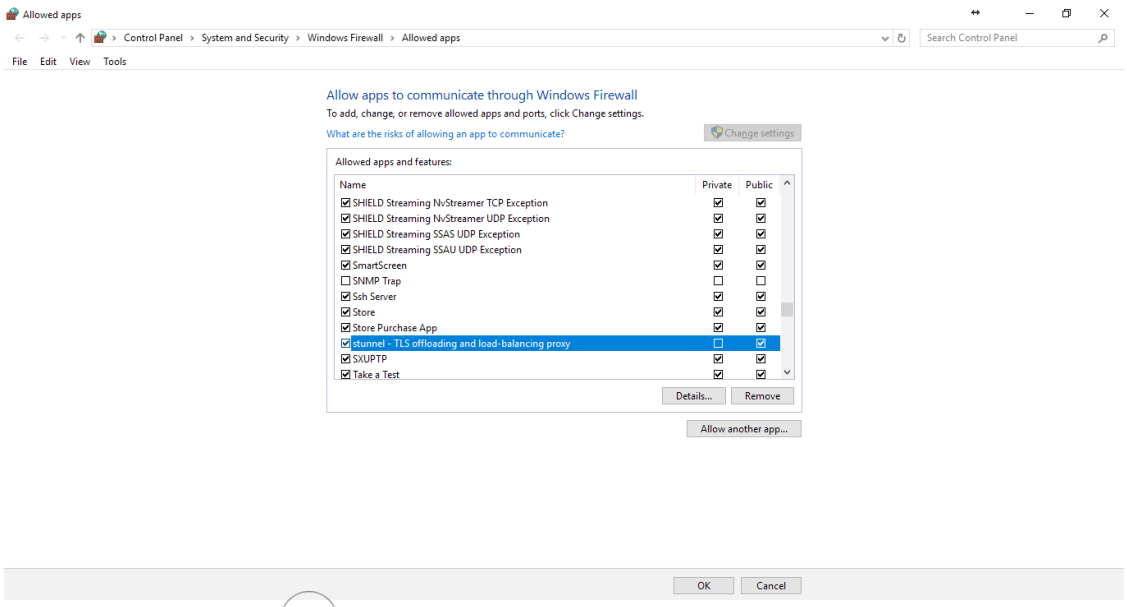
An Active server must have a CMS password configured for the hierarchical configuration.

Note that on the Active servers, you should configure them as the subordinates to your CMS VAST server. On a web console with these servers, open the Site management page, and select "**Allow CMS to access this site**." Create a common password for the CMS hierarchy.



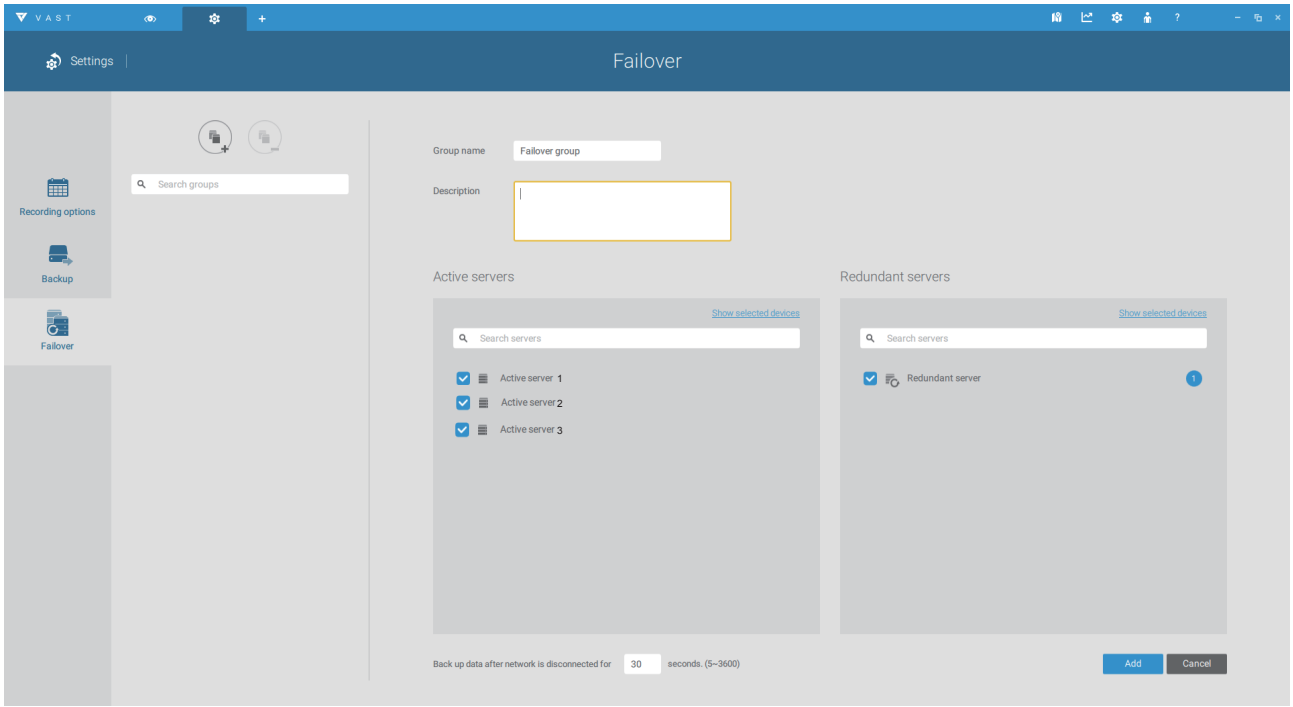
Two agents will be running on the Active and Redundant servers, "stunnel" and "VMSWebServer." Make sure they are not blocked out by your firewall. These agents can be found in the default folders below:

C:\Program Files (x86)\VIVOTEK Inc\sTunnel\stunnel.exe
C:\Program Files (x86)\VIVOTEK Inc\VAST\Server\VMSWebServer.exe



Click on the Add button to create a Redundant server group. The Active and Redundant servers you enlisted on the Sites page should all be listed below. Select the members of the Redundant group, and click Add to complete.

The default for the network disconnection timeout is 30 seconds. It is not recommended to configure a very short timeout, e.g., 5 seconds, because if doing so, a temporary network disorder can make servers consider the Active server(s) have failed.



3-3. VCA (Video Content Analysis)

The VCA Report utility is started from the tool bar on top,  . The VCA Report utility provides comprehensive graphs and line charts for quick access to the data collected through VIVOTEK's People Counting modules, such as the SC8131 stereo camera. Statistical results is refreshed by hour or minutes, and you can compare the results acquired through different time periods or among different surveillance areas. These data help figuring the customer flow in retails so that shop owners can optimize the arrangement of store layout, or mange queues more efficiently.

Note that the configuration of detection methods in People Counting still occur on a web console with individual cameras. It is not configurable through the VAST LiveClient.

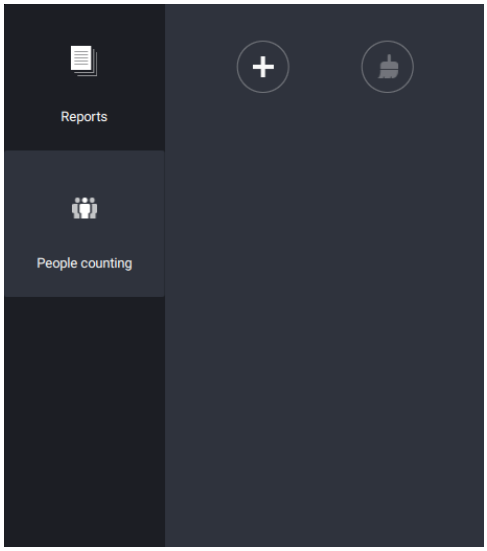
Prerequisites:

The prerequisites for using the VCA Report are:

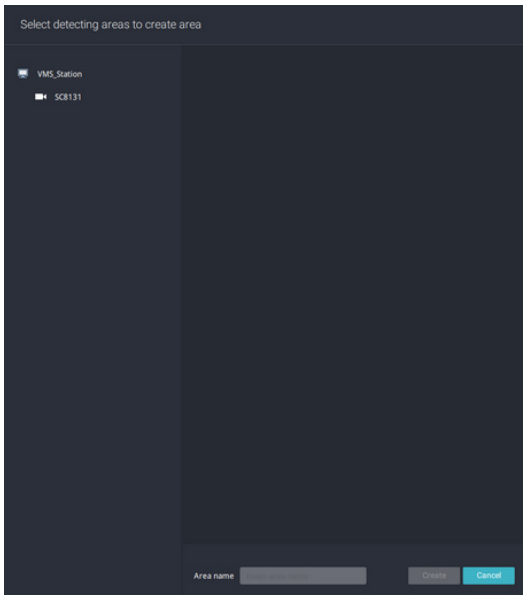
1. Cameras running the VCA utilities have been configured and added into the VAST deployment. The instances of available VCA rules will be listed in the **Area** panel.
2. The life expectancy of VCA records is 5 years.
3. Currently the utility supports Windows XP, 7, 8, and 10.
4. The latest revision VAST rev.1.12 and above supports Seamless Recording, in order to retrieve collected data and recording during Ethernet disconnection. Provided that an SD card is installed on the VCA-enabled cameras, the VAST station gradually retrieves data from the SD card after the connection is restored.

To start VCA report:

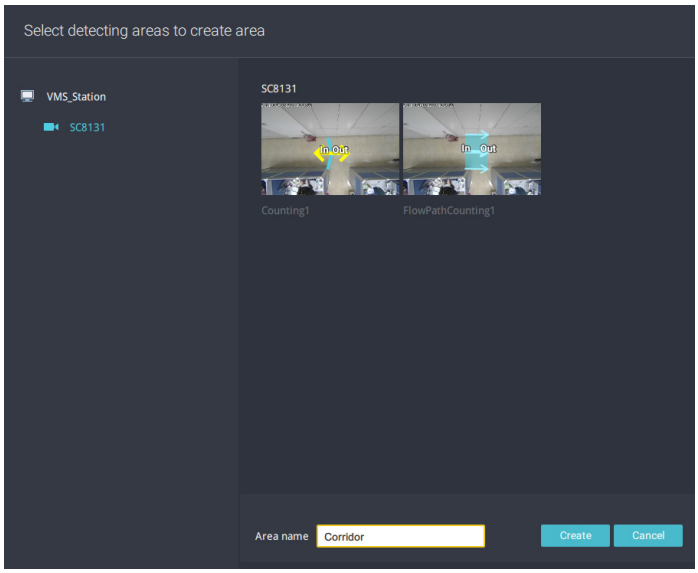
1. Click on VCA report button on the tool bar.
2. Select People Counting.
3. Click on the Add area button.



4. Select a camera that is VCA-enabled, and then click the Create button.

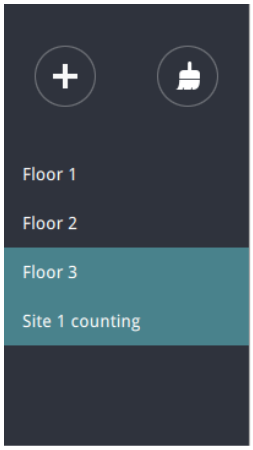


5. The pre-configured counting rules (areas) will automatically display. Select a counting rule and enter a name for the area. When done, click the Create button.



If only one camera is selected, its name will apply as the Area name. If not, enter a name for the area.

6. Click to select one or multiple areas. Those selected will be highlighted in a different color.



7. Select Date & Time

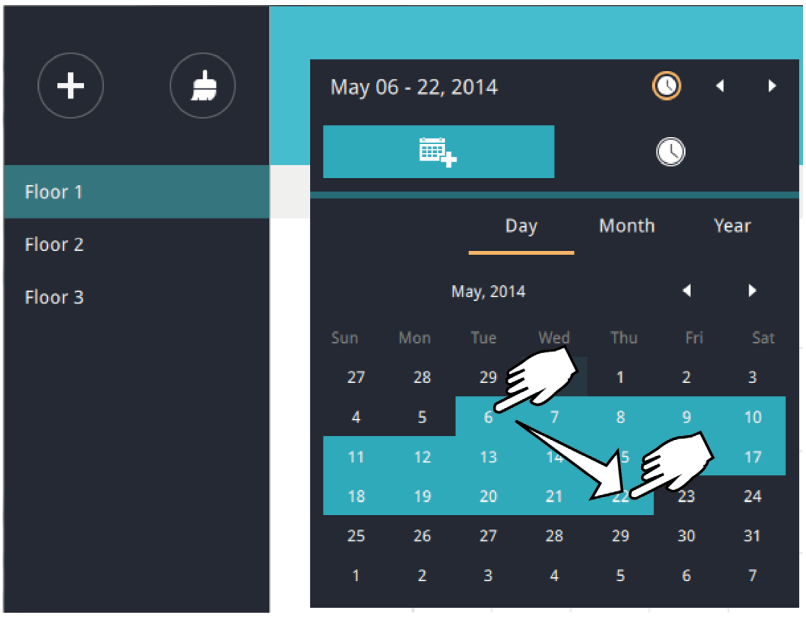
7-1. By default, the time displayed on the calendar is the current system time on the client computer running the utility. Select from the **Date** selector on top.

7-2. Select a date or span of time from the calendar or use the and **Time** selector to select a span of time.

> Single-click to select a date or click and drag to select multiple dates.

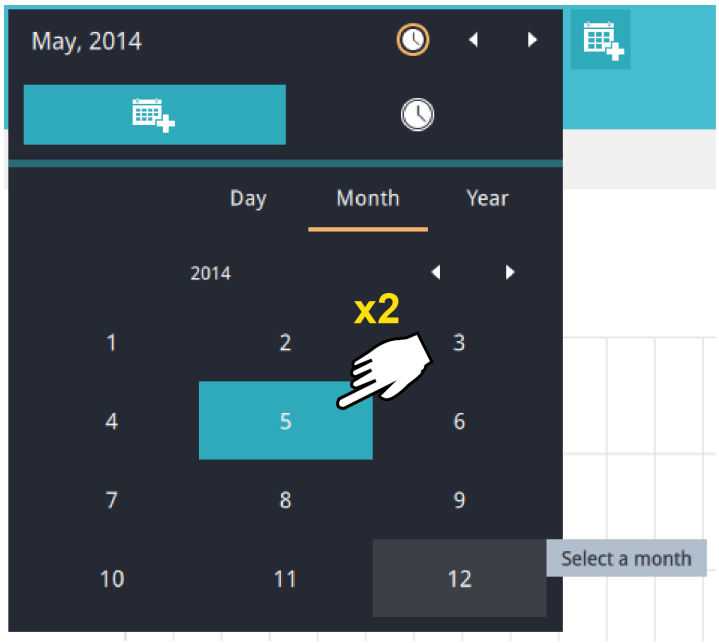
> You can select a month or a year using a single click. If you select a month, the timeline unit will be days within the month. If you select a year, the timeline units will be the months in a year.

> In the **Month** or **Year** panel, single click to select the entire month or an entire year. Double-click to select sub-units, e.g., days within a month. If you double-click on a Month panel, you will enter the Day panel.



You can select a different month in the **Month** or **Year** panels. The **Calendar** panel disappears if left unattended for 2 seconds.

On a **Month** panel, double-click to select a month, and the **Day** panel for that particular month will display.

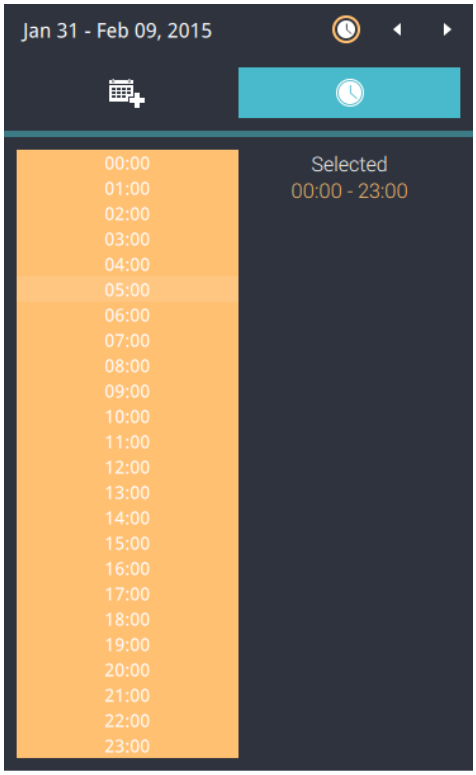


Note that following when making the configuration:

- When a date is selected, the Date and Time panel will not automatically close, and the configuration changes will not take effect until it is closed. You can click on the outside of the panel to leave the panel.
- You can select multiple days to form a span of time. Select one date with a single click and select multiple dates by draging your cursor across the screen to a preferred end date.
- To select a year, click to open the **Year** panel. Single click to select a year. Multiple years can be selected using the click and drag method.

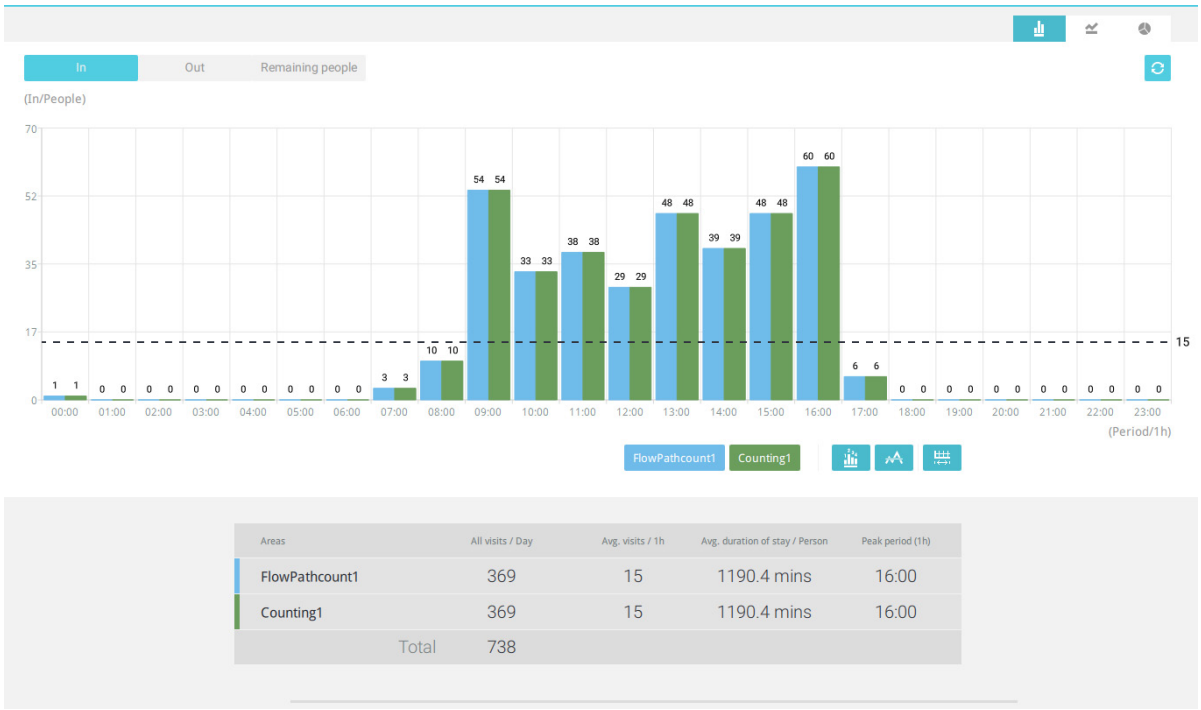
7-3. Select the hours to be included in the statistical poll using multiple clicks on the chart.

Single-click to select an hour or click and drag to select multiple hours.



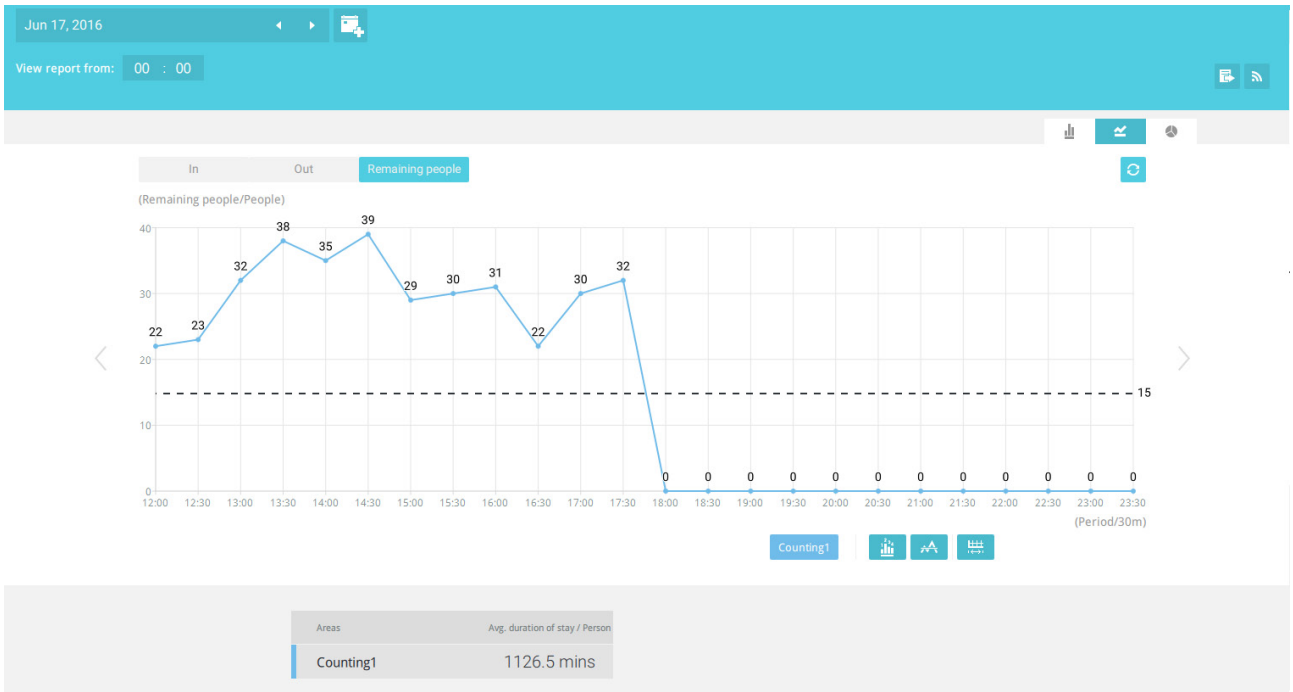
Note that you can only compare the counting results from two spans of time if you select only one Area. If you selected multiple Areas, you can not compare the results from multiple time spans.

7-4. Click outside the Calendar panel. The statistical results will display. The default display is the bar chart. Below is a sample screen showing the results polled from 3 areas. Up to 8 areas can be selected in one view.



Areas	All visits / Day	Avg. visits / 1h	Avg. duration of stay / Person	Peak period (1h)
FlowPathcount1	369	15	1190.4 mins	16:00
Counting1	369	15	1190.4 mins	16:00
Total	738			

Select different display modes using the **Bar** , **Line** , or **Pie** chart buttons.



Areas	Avg. duration of stay / Person
Counting1	1126.5 mins

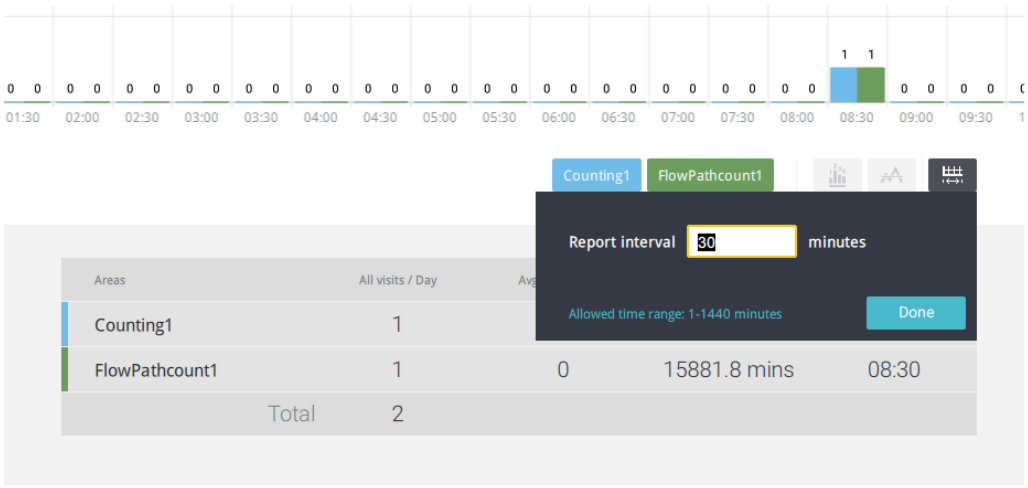
Note that the timeline units can vary depending on the span of time you selected on the Calendar panel. If a date was selected, hourly data will display in chart. If a year was selected, monthly data will display in chart.

Use the following functional buttons to change the display parameters

Show data on chart  : Displays the collected numbers on chart.

Average  : Displays the average number per time span unit (e.g., per hour). If the interval is changed to 30 mins, the average number will be halved comparing to the number acquired by every hour.

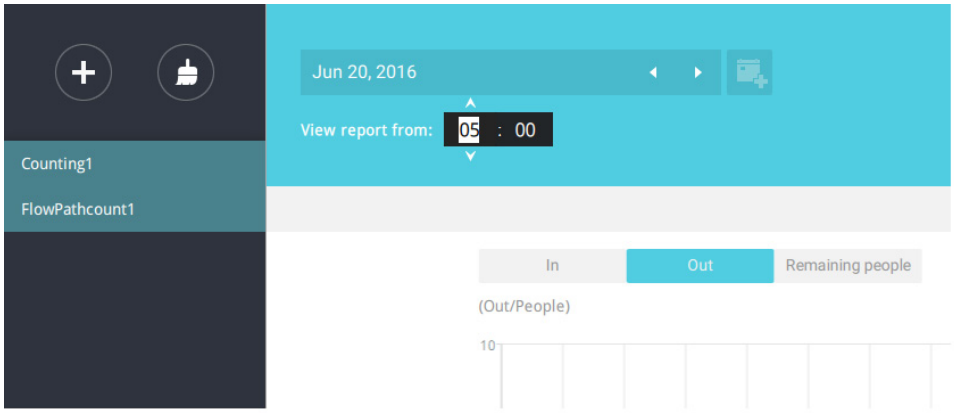
Report Interval  : Configure the intervals for polling data from the camera. The default for displaying results is by every hour. If you enter 30 minutes as the display interval, all data will be listed on the basis of the 30 minutes time span. The configurable range is 1 to 1440 mins.



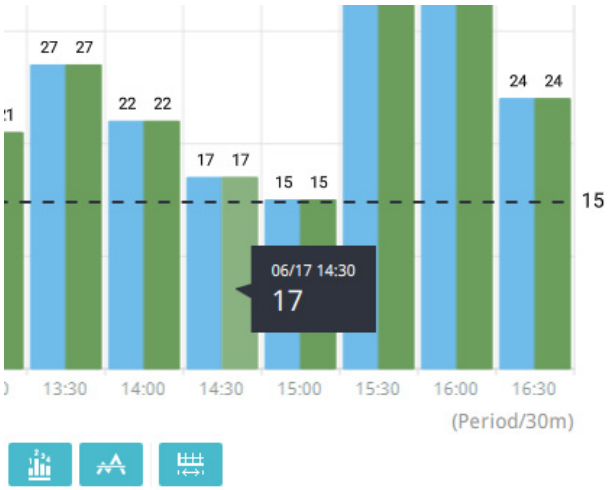
If you selected only one area, you can use the Shift key to select multiple areas (or two spans of time). You can select multiple dates in the Calendar panel.

Use the **Refresh** button  to poll the latest data from camera.

Use the time selector on the **View Report from** pane to select the start time of your statistics view window. Data collected before that time will not be displayed.

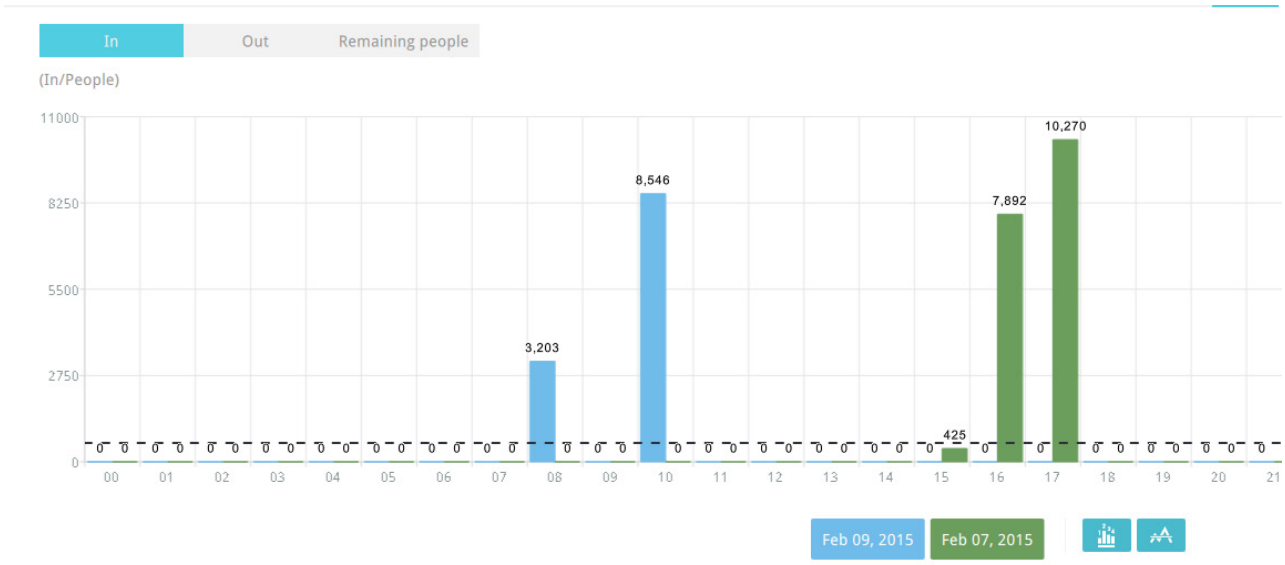


A number is displayed when you mouse over an area on the chart. Move your cursor to an area on chart, and the number is displayed.

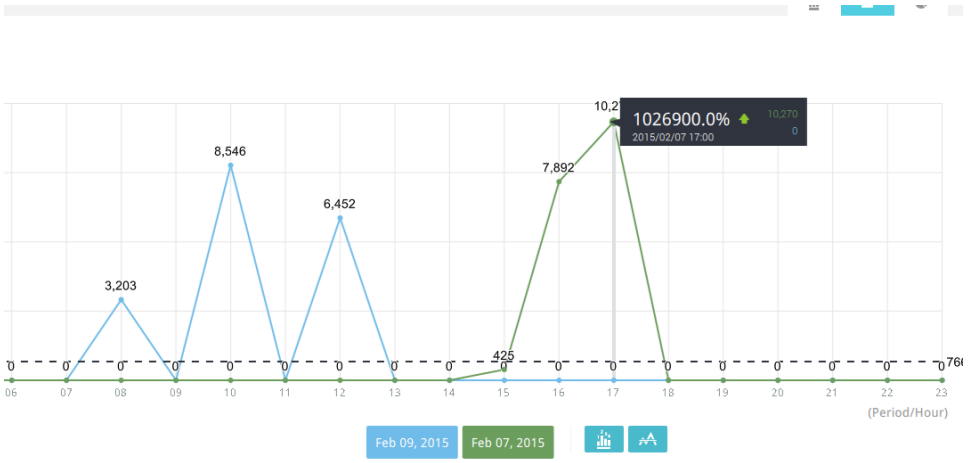


Data on a time line will be generated. To close the window, use the close button on the second date information. Equivalent spans of time can also be used for comparison. For example, you can compare the data in a span of 4 days against another span of 4 days.

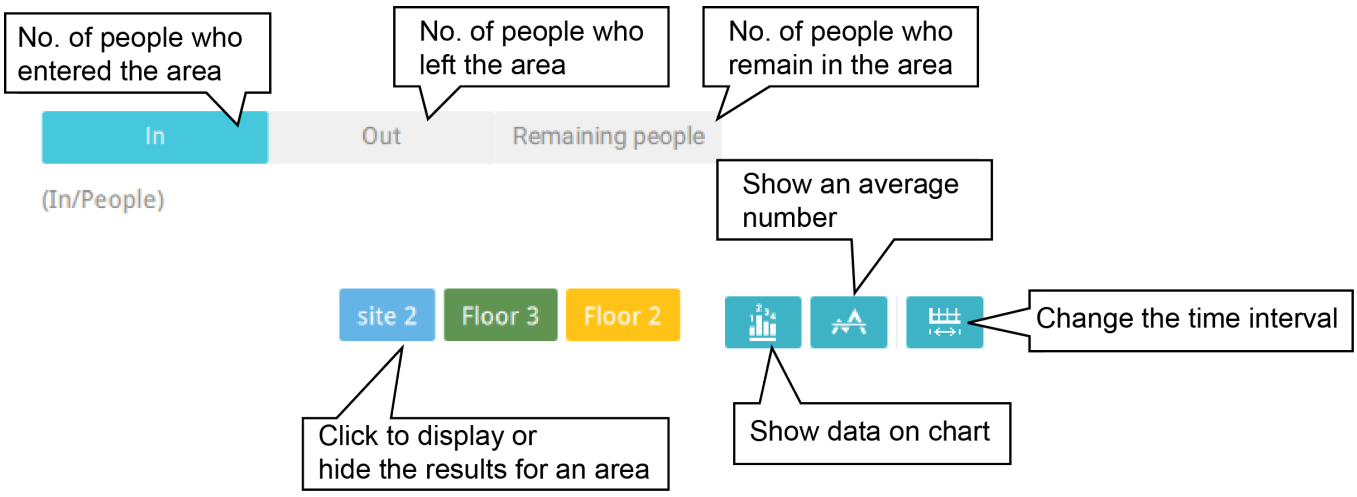
Note that the Compare function only applies when you select to display only one area on screen.



In a comparison result displayed in a line chart, mouse over to the peak value to display the percentage of an increase or decrease rate.



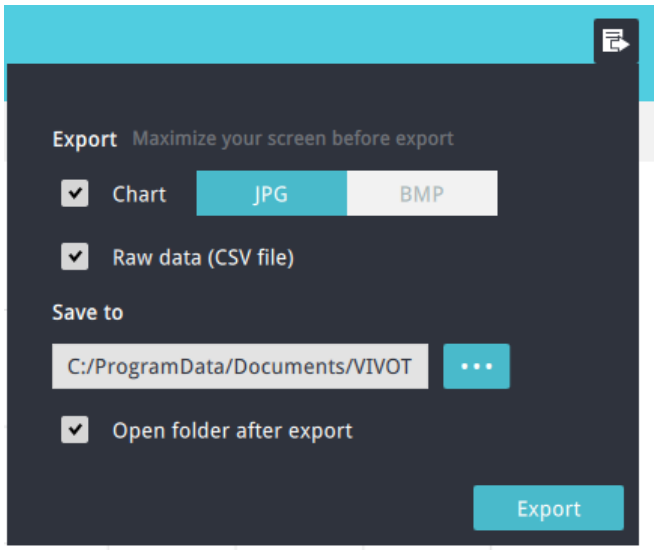
See below for the functions of buttons on screen.



In addition to the charts, a summary of displayed data will be listed below showing the areas involved, visits/Day or Month, Average visits / Hours / Days, Average duration of stay / person, and the Peak hour.

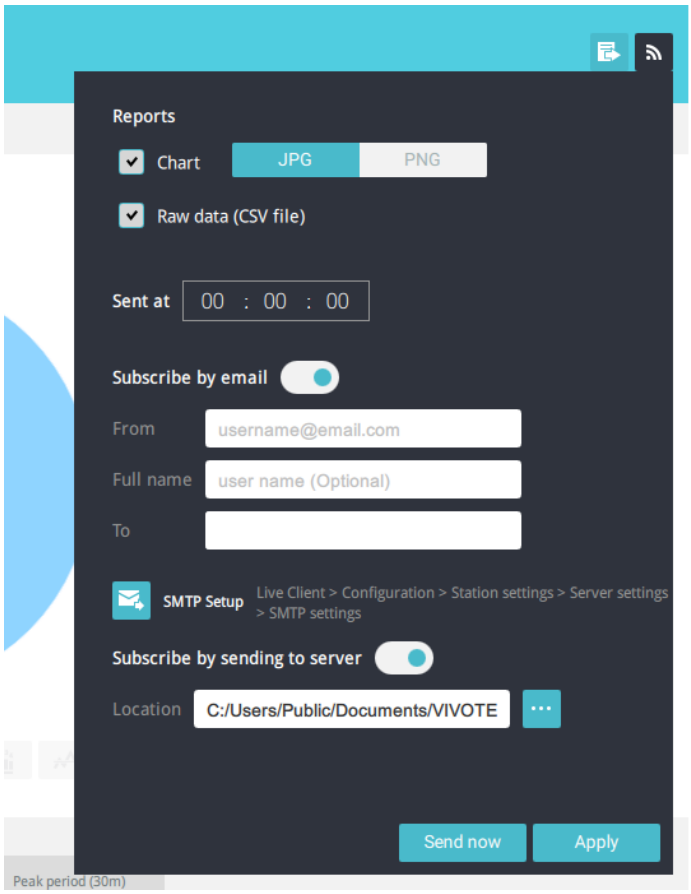
Areas	All visits / 4 days	Avg. visits / Day	Avg. duration of stay / Person	Peak day
Floor 3	490,870	122,718	106.3 mins	12/04
Floor 2	959,482	239,870	105.9 mins	12/02
site 2	3,873,510	968,378	108.0 mins	12/01
Total	5,323,862			

8. When done with displaying the results, you can use the **Export** button to produce an image file to preserve the current results. Both a spreadsheet and a graphic chart will be produced.



9. Click the Reports Subscription button to configure the regular report sent to your Email account or a specific location on the server itself. Select the report chart image in JPEG or PNG, and CSV data files. Slide the email button to enable the Email notification.

   Select the time to deliver your mail notification. Enter valid Email addresses as the sender and receiver addresses and make sure the SMTP mail server configuration has been properly configured on your VAST server. This VCA mail notification utilizes the mail service on VAST for regular notification. You can then receive Email notification every day on your Email account. You can enter up to 5 recipient addresses.

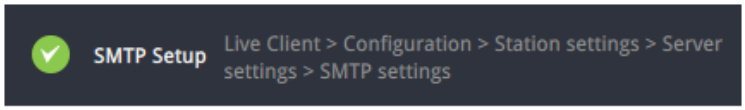


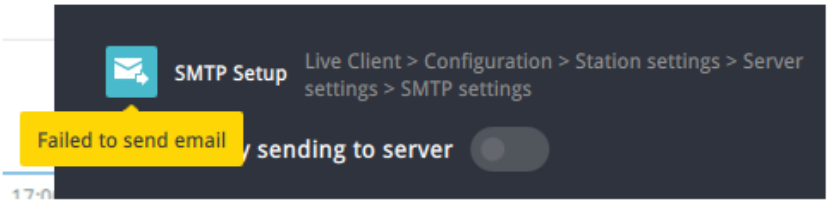
Note that the notification contents is your current field of view, including a Bar, Line, and Pie chart combined into one image file. The In/Out/Remaining results will be generated into 3 charts. Each Area will generate one CSV file, and each CSV data file will contain In/Out/Remaining/Summary information.

The generated file names will look like this: 20160226_test02_Remain.jpg for charts and 20160226_Summary.csv for CSV files. The Email subject will be "VCA Daily Report - 2016/02/26."

Note that if you manually export a report, the default is sending the data collected until one hour before the manual export. For example, if you generate the report at 14:07, the report will only cover the data collected until 13:59. You may use the Refresh button to manually generate immediate data inputs (those occurred between 14:00 and 14:07).

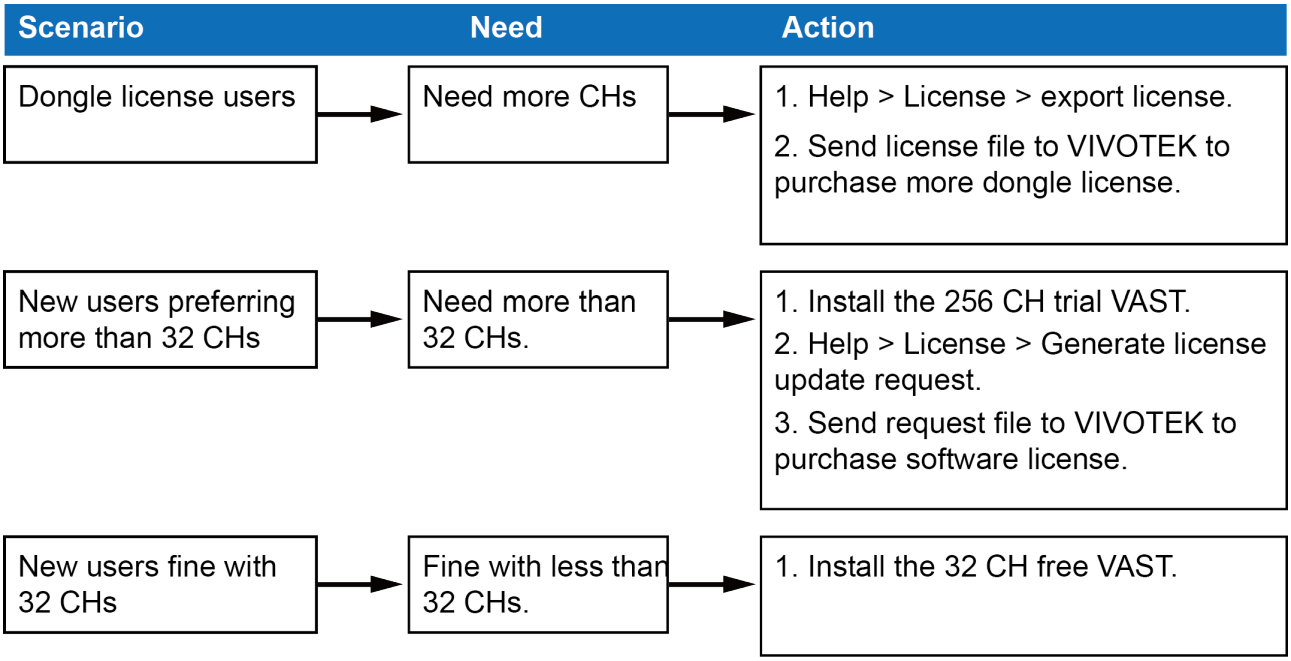
Below are the messages with the Email test function.





3-4. VAST Software License

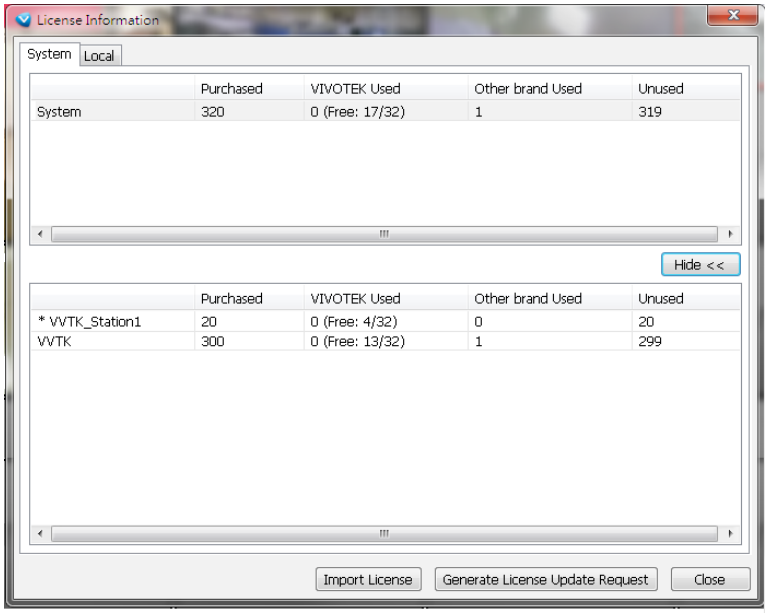
To activate the software, refer to the flow chart below:



The VAST software provides 32 free channels. Since revision 1.11, the VAST software is activated using a software license instead of the original hardware dongle.

For users running the previous dongle version, there is no need to upgrade their original license. If they need the license for more channels, They can export their license file, and purchase more dongle licenses.

For users who require more than 32 channels, they can install the 256 channel trial version first, and go to **Help** > **License** page, and click on **Generate License Update Request.** Send the request back to VIVOTEK to purchase more channel licenses.



When you purchased and received the official software license, use the **Import License** function to activate the official license.

When importing purchased licenses, you can manally select which station/license file to update, or click the **Auto Dispatch** button and let system decide the distribution of license updates especially when there are substations under a managing VAST server.

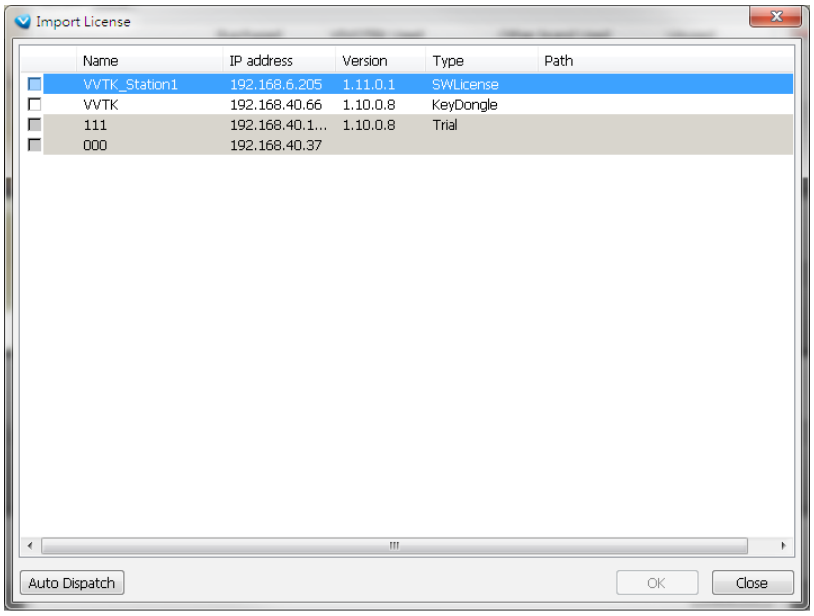
Before the Auto Dispatch function is available, license has to be individually updated on every substations.

Reminders for VAST Software License

Limitations:

1. The Batch import/export function applies when a managing VAST server needs to collect and update the licensing information from subordinate VAST substations and itself. An enterprise may have a central management server and several VAST instances running in branch offices. In that case, the substations will be listed on the device list, and may not be displayed on a hierarchical structure.

   The Batch import/export function is accessed through the **Help** > **License** menu on LiveClient.



2. The batch download/import function only takes effect on a VAST instance running on server, not on the Linux-based NVR.
3. The trial channels on VAST substations will not be available for use on a managing VAST server (one that manages multiple substations).
4. If you access a VAST deployment via a web console, the license related information will not be available.
5. In this revision, an identical software license applies to both VIVOTEK and other-brand cameras (ONVIF). You do not need to activate two different kinds of software licenses.
6. The Batch export update of the current license profile is supported.

7. The licensing mechanism does not apply to machines running Virtualized OSes (**VMWare**, **VirtualBox**, **Hyper-V**, **Parallels**), either through an upgrade or generating software license on a new installation.

8. If the VAST server is removed and then re-installed, the number of licensed channels remains intact.
9. If users plan to integrate the software licenses from previous dongle licenses, problems may occur if users changed the exported license file name.

Chapter 4 Settings:

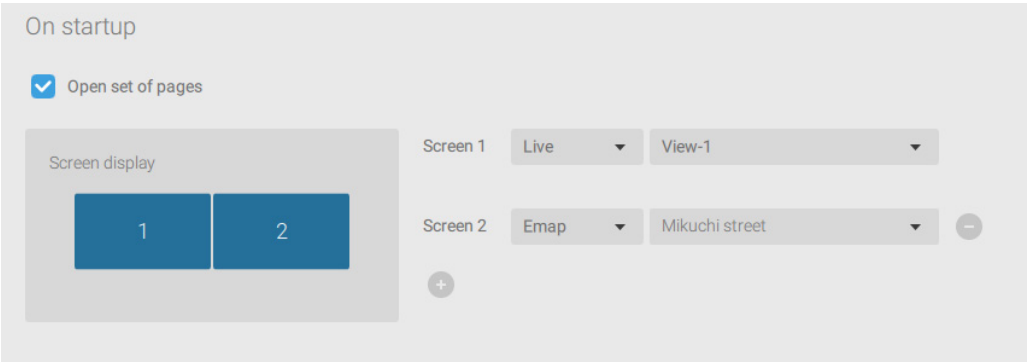
4-1. Settings > System > Preferences

The Preferences page allows you to configure the following:

1. Select the UI text language.
2. Configure a default destination for exporting video, snapshots, or configuration backups. The default is "C:\Users\Public\Documents\VIVOTEK Inc\VAST\Downloads". You can change the media format via the checkboxes.
3. The default Live view, which may span across multiple monitor screens and display Live view, E-Map, or Alarm prompts. The precondition is that you should configure one or many views before making the Startup configuration.

   Below a server with dual monitors, you can select one view to be displayed on one monitor, or place an E-Map on another. Up to 8 monitors can be configured.

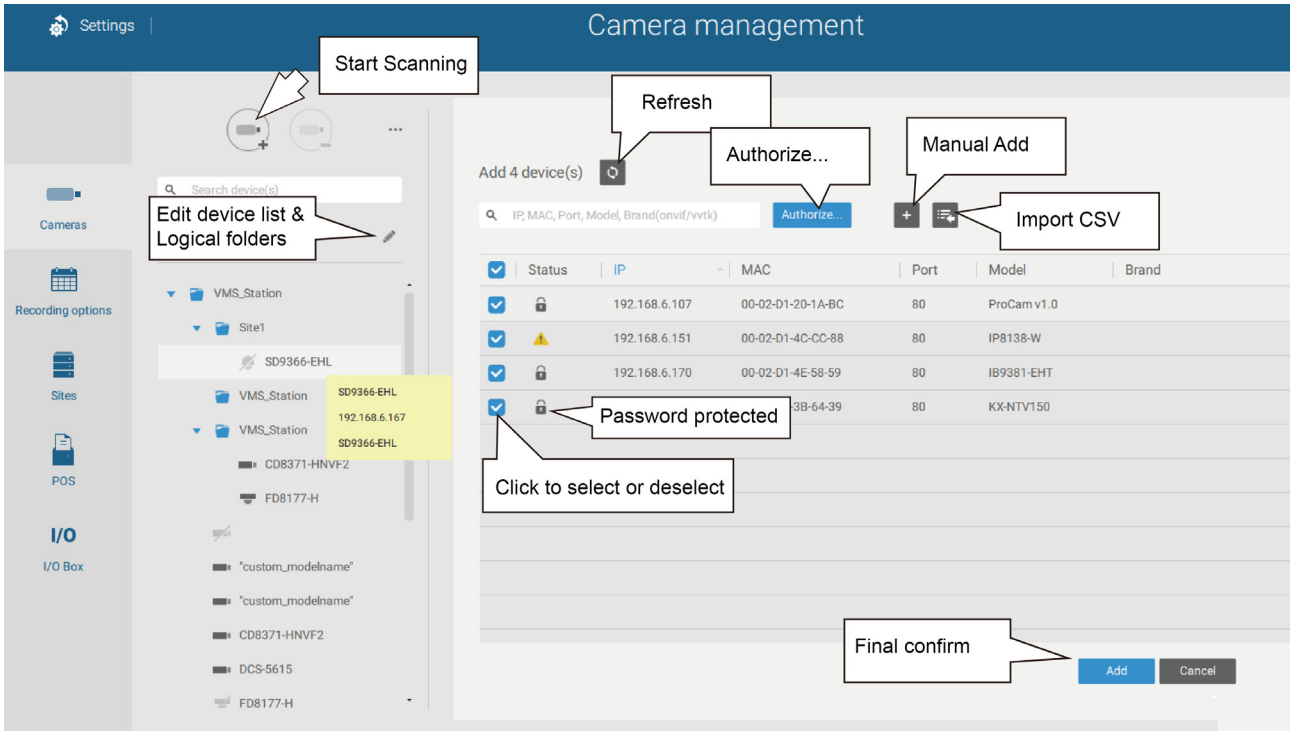
   Click the Apply button for the configuration to take effect.



4-2. Settings > Device > Cameras

In addition to the add device process during the initial setup, you can add more cameras or arrange the device list in Settings > Cameras.

Below are the locations of the functions for adding devices to the VAST server.



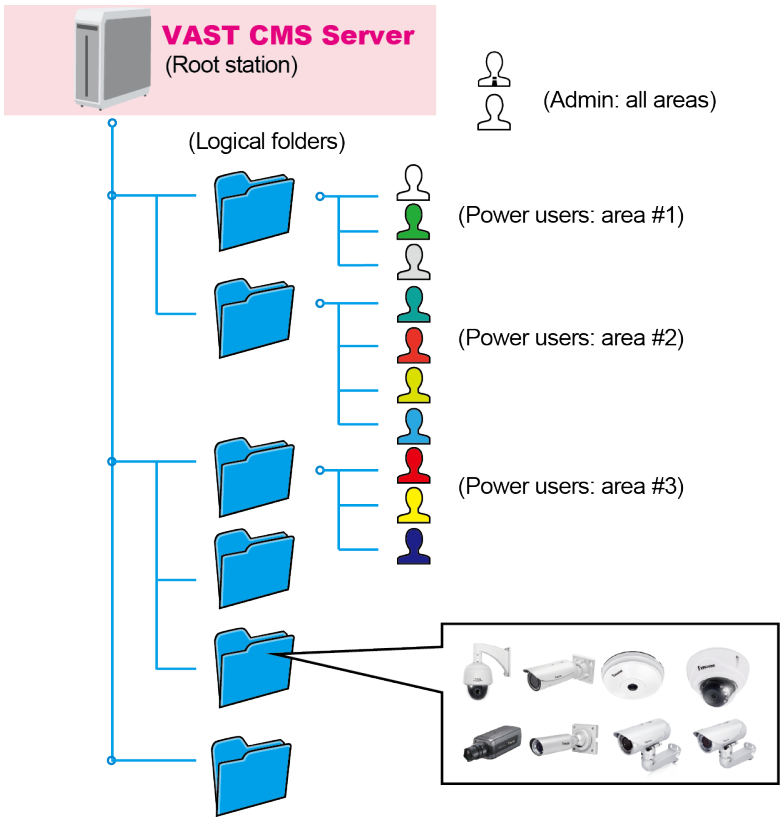
Note that you must know the credentials for password-protected cameras. You will not be allowed to enlist cameras that come with unknown credentials.

For cameras outside the local network, you can manually enter its IP address, or use a pre-configured device list to automatically introduce new devices.

If all devices come with the same credentials, you can select these devices and click Authorize to enter the credentials.

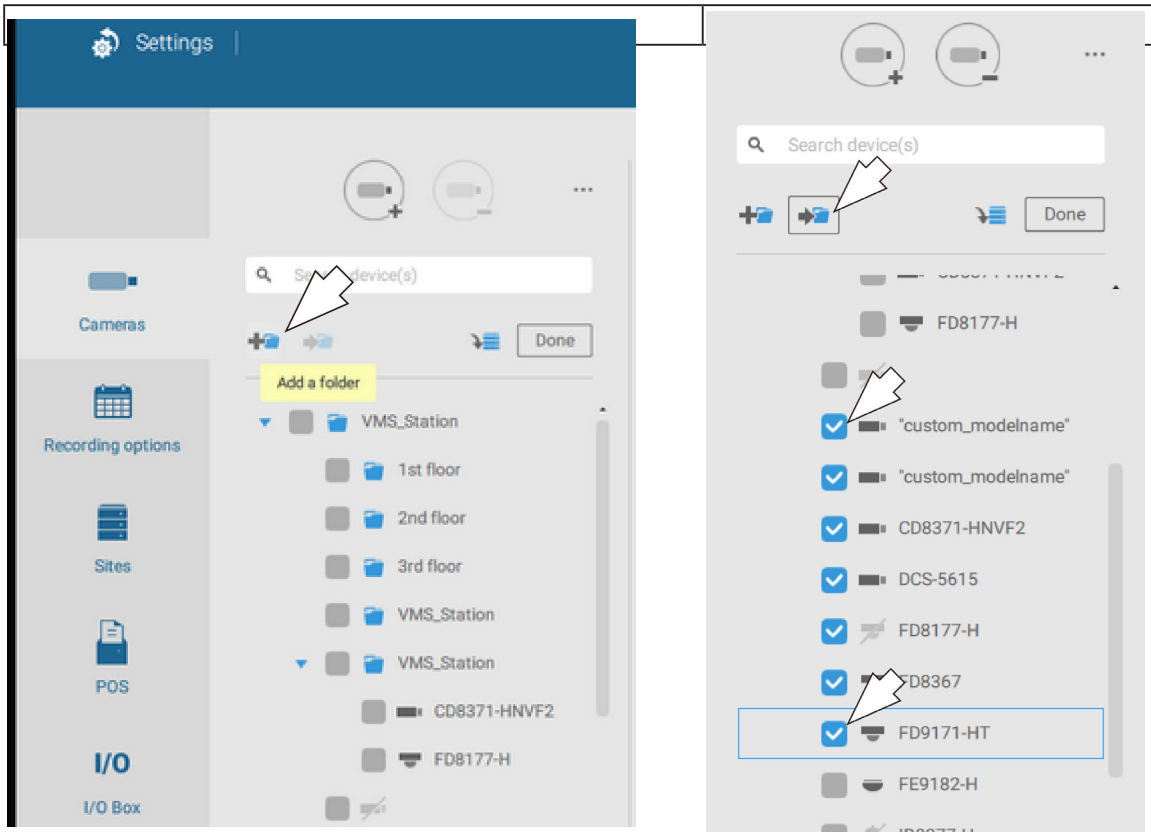
4-3. Logical Folders

The Logical Folders allow you to re-define the logical relationships between the real-world deployment and the physical devices (cameras). For example, according to your deployments, you can designate several cameras to be listed under a logical sub-directory named as "Building A," and the other cameras into "Building B." In this way, you can re-arrange your cameras and devices on a tree view that is geographically accurate.

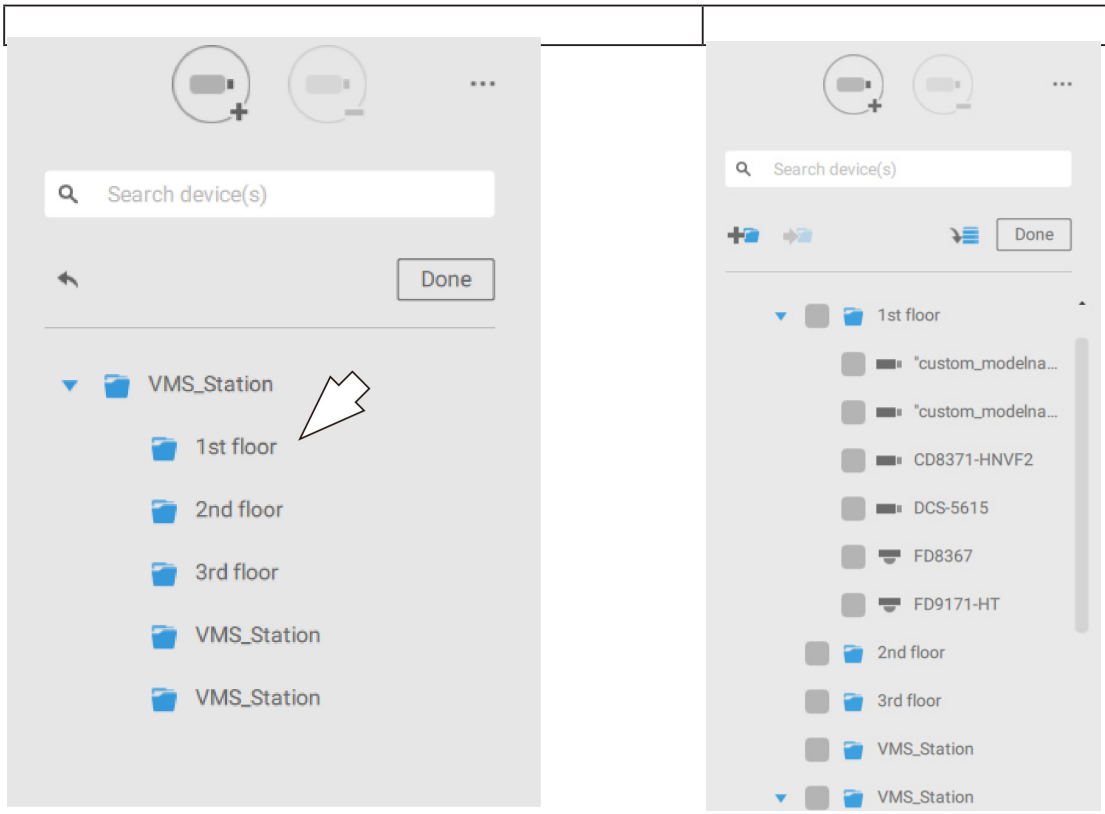


To create logical folders,

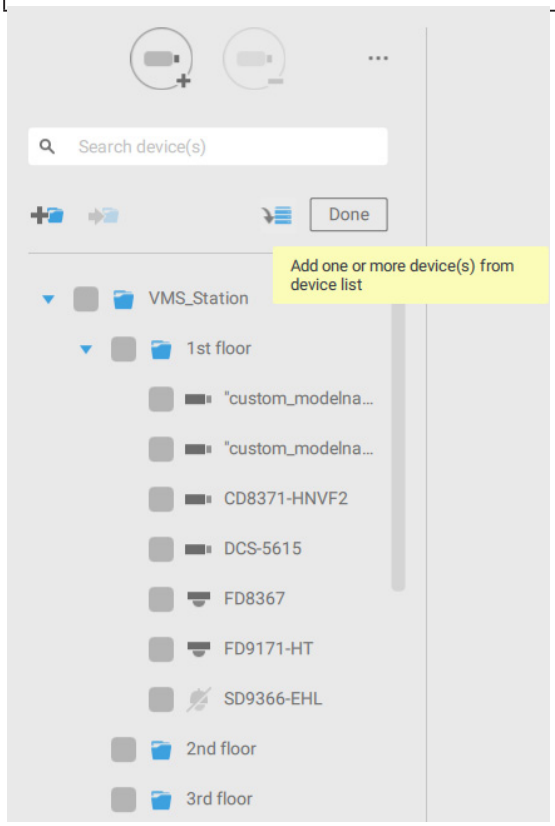
1. On the Settings > Cameras page, click the Edit button.
2. Click on the Add a folder button.
3. Enter a name for the folder, e.g., 1st floor, 2nd floor,... according to your needs as shown below.
4. Repeat the process to create more folders.
5. Make sure you enlisted all cameras in your deployment. You can start moving cameras to specific folders. Click on the Move Selected Items button.



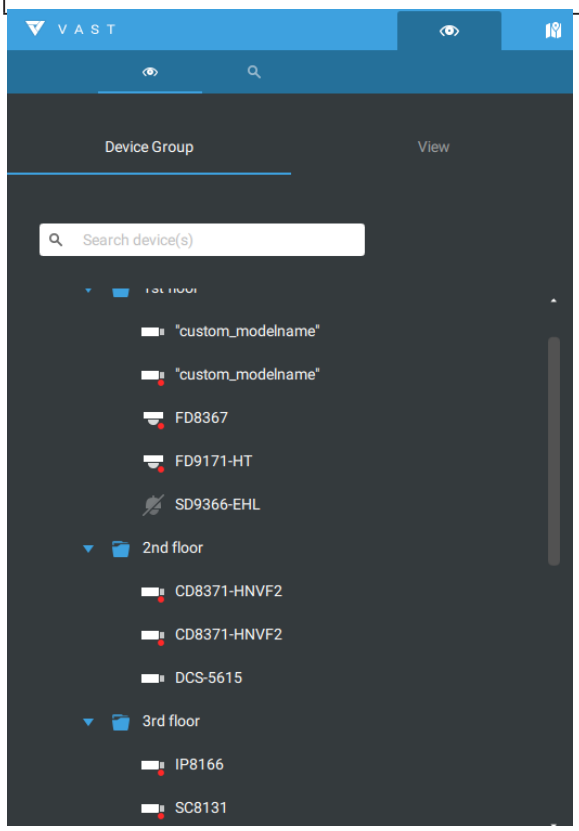
6. Select a logical folder to move the devices to. The selected devices will be listed under the logical folder you selected. Repeat the process to move cameras to each logical folder.



You can also use the add device button to select devices from the list and move them to a specific folder.



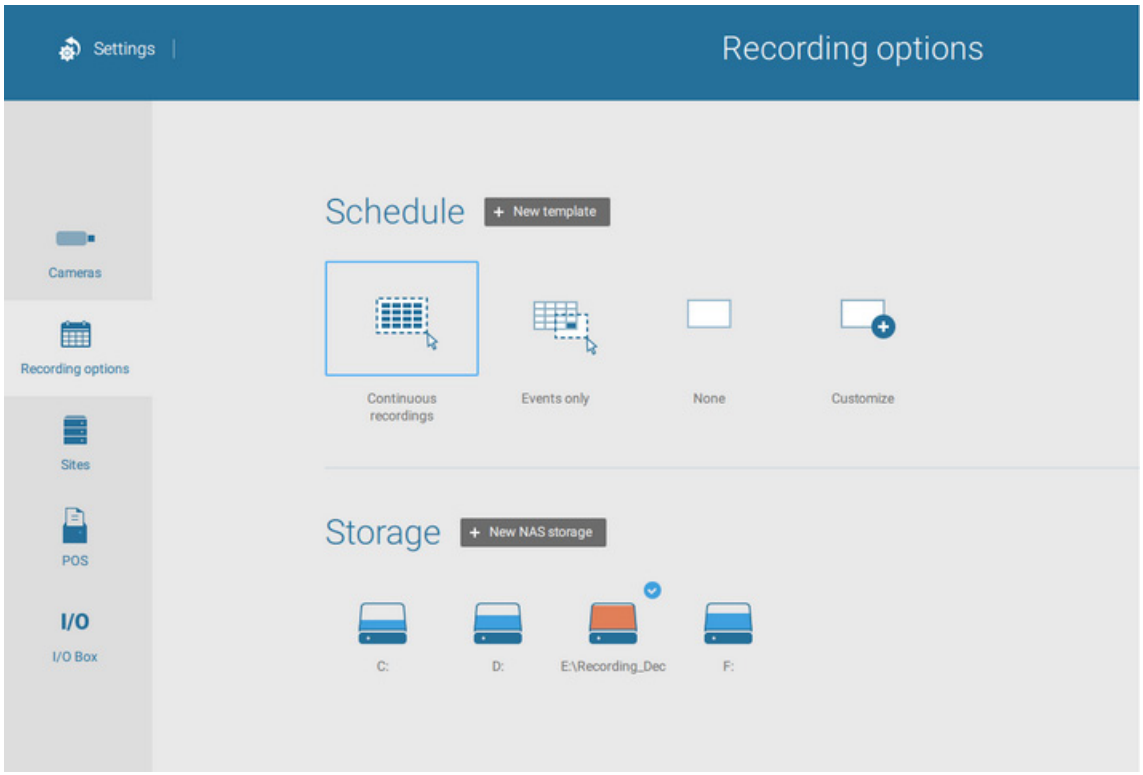
Return to live view, and you can see the configuration change takes effect.



4-4. Settings > Recording > Recording Options

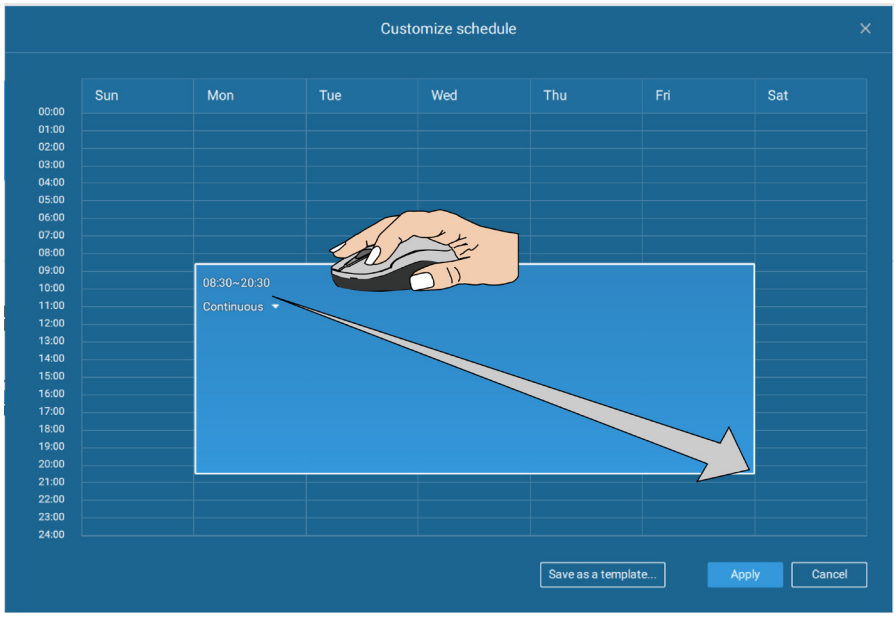
Click Settings > Recording options. The Recording options window will prompt.

You can configure recording schedules or select the storage options, including the configuration of an external NAS storage.



Click on any of the options on the Schedule panel for a recording option: Continuous recordings, Events only, None, or Customize.

You can manually create a recording template using the New template button.



Click and hold down on the time cells, and drag the mouse to include the time span of your preferrence. The minimum selectable unit is half an hour. You can select multiple time spans on the template. Enter a name for the template, and click Add to save your template.

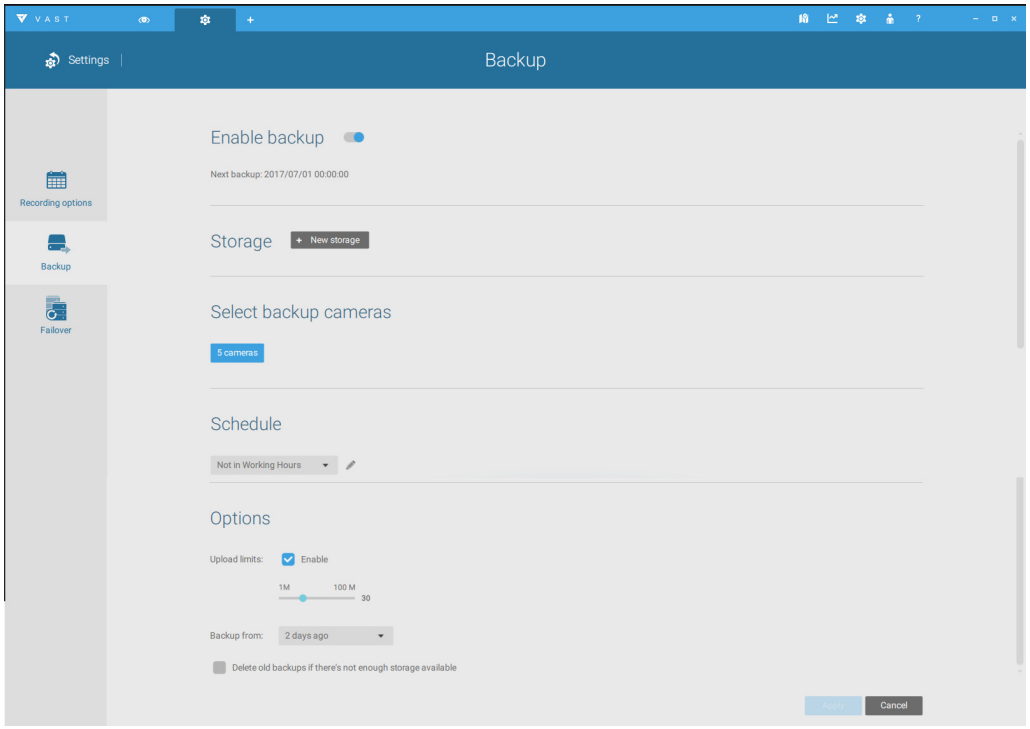
The same configuraion window apply to both the Schedule template and the customize schedule windows.

Make sure a Schedule mode selected when you leave this configuration step.

4-5. Settings > Recording > Backup

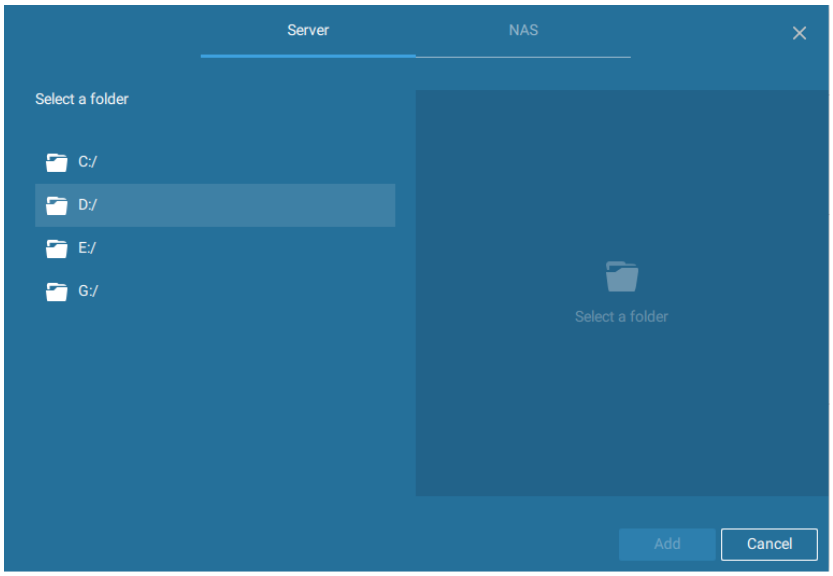
The Backup function allows you to regularly back up the video recordings of one or multiple cameras to local hard disks or a Network Attached Storage device. Currently, the VAST2 server does not support backup to external storage devices such as a storage devices connected via Fibre Channel. VAST supports backup to an external storage attached through a USB 3.0 connection.

Note that the alarms associated with individual cameras will not be backed up.

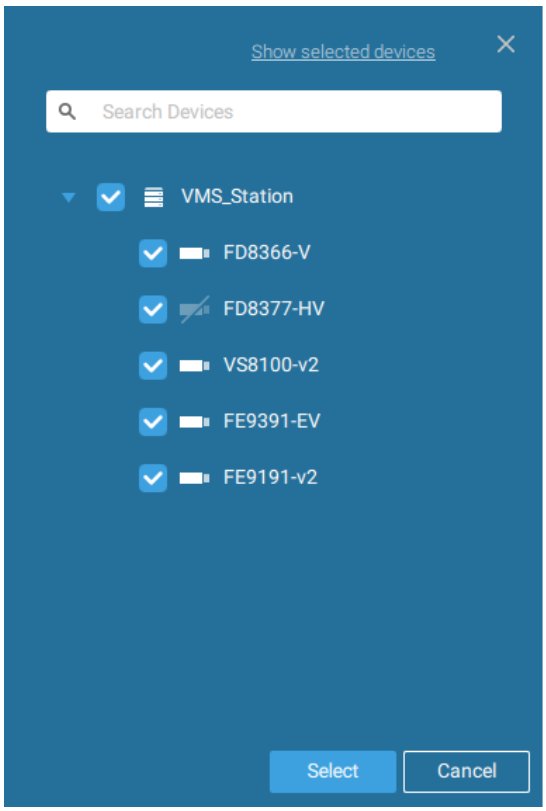


To enable a backup schedule,

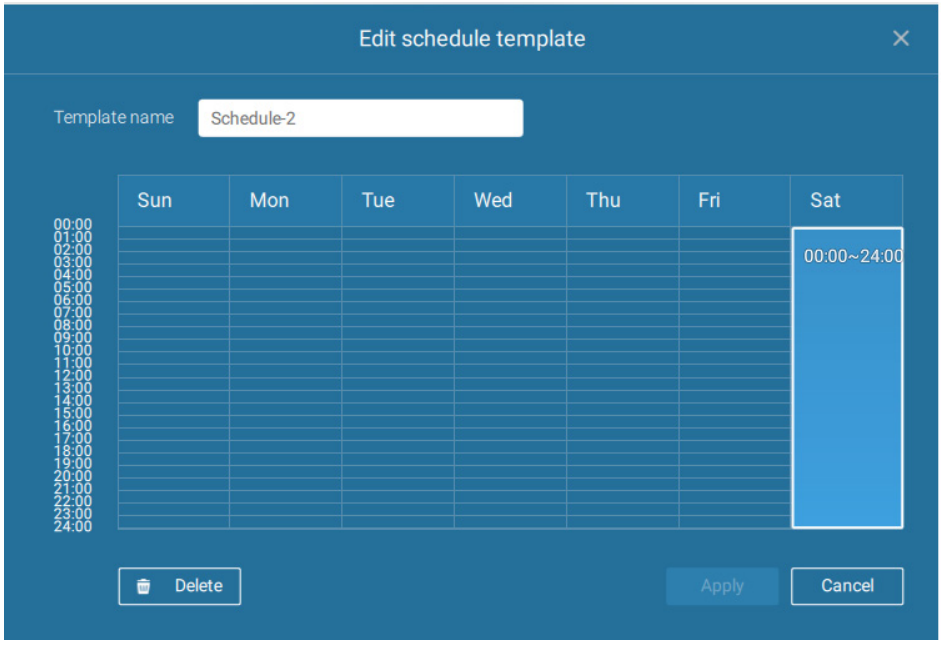
1. Enable the backup by selecting the "Enable backup" slide switch.
2. Click to add New storage. A configuration window will prompt showing all accessible storage. Click the NAS tab to enable access to a network share.



3. Select the cameras whose videos will be backed up.

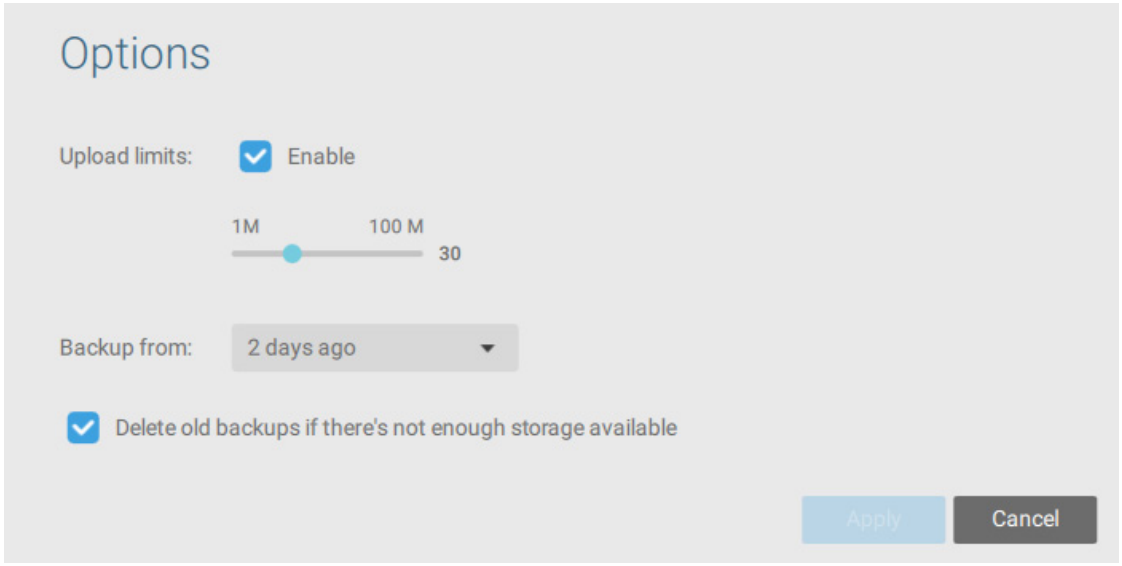


4. Select or configure a new schedule template for the backup process to take place. You can select a time when the network load is low, such as the off-office hours, to avoid network congestions.



5. On the Options pane, you can configure an upper bandwidth threshold (in Megabytes) for the backup operation (for all selected cameras/channels).

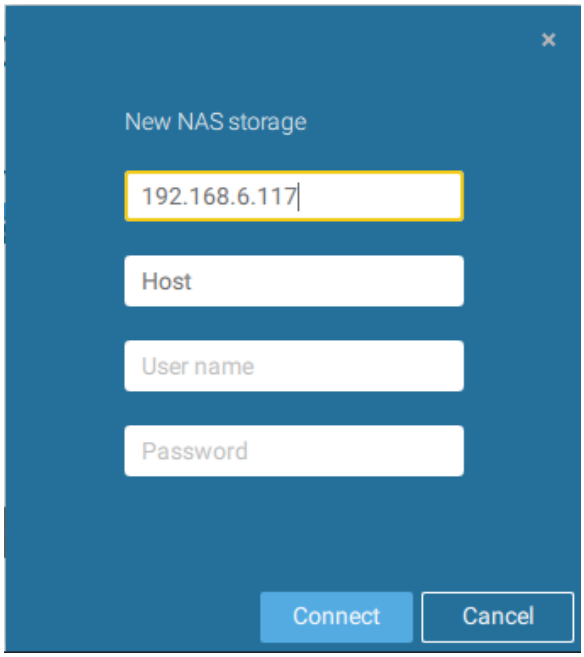
   You can select the extension of time, such as starting from how days ago, of your backup task. You can select to remove old backups when you run short of storage volume.

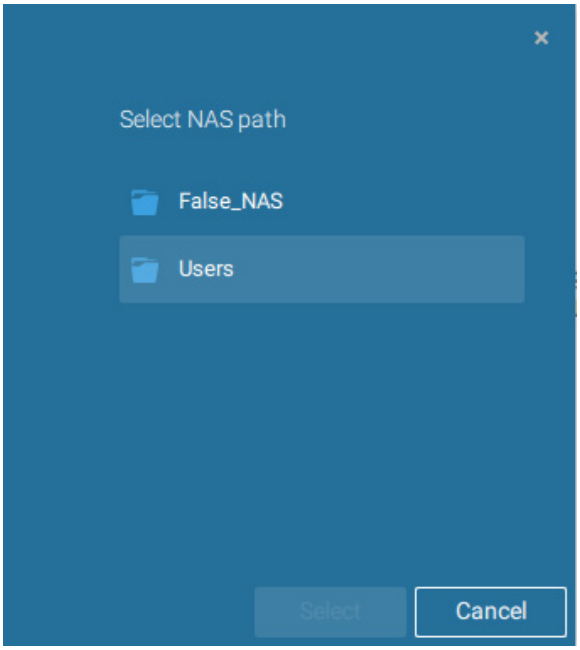


Storage

By default, the system drive C: is not defined as a storage option. Other disk drives in the system, and the default storage volume (configured in the initial setup) will be listed.

You can add a NAS storage's share volume as the additional storage option. Enter the necessary information for access to a network share. Enter and select a NAS path. The share will then be available for video recording.





Select storage volumes each by a single click.

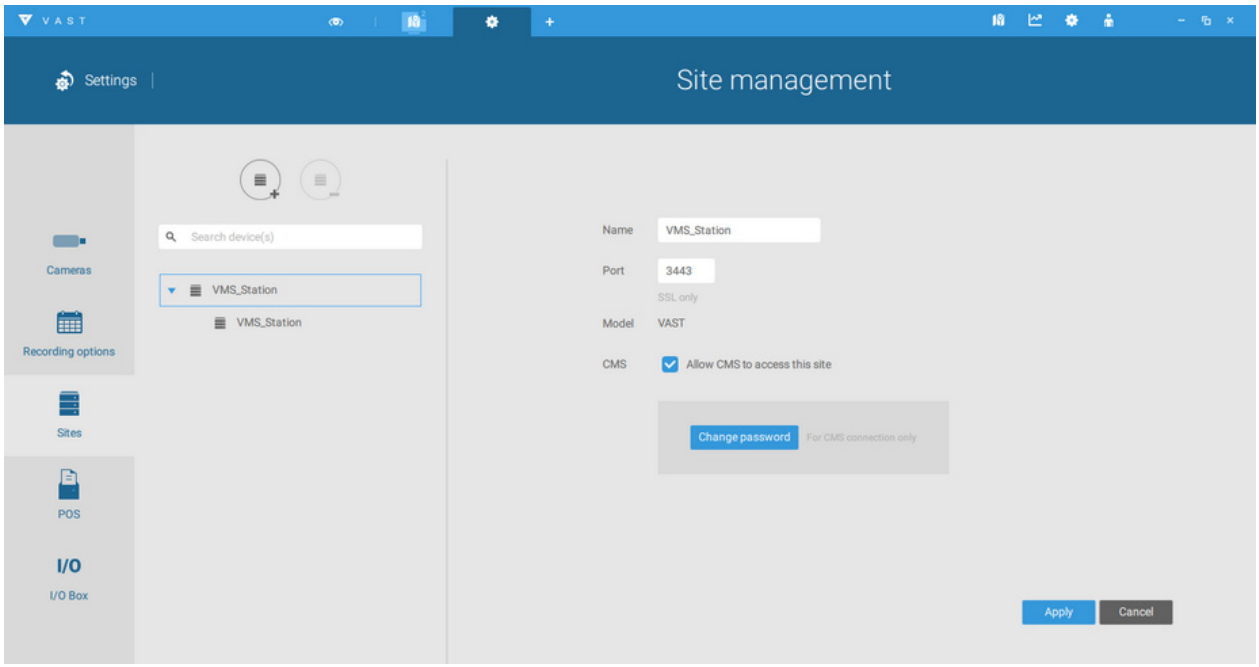
Click **Ready to use** to continue.

4-6. Settings > Device >Sites

The VAST2 allows a deployment consisting of multiple VAST instances at different sites. A VAST server can be selected as the CMS (Central Management Server) to manage sub-stations in a hierarchical structure.

Each individual VAST station manages its own surveillance deployments. To build a hierarchy, proceed with the following:

1. Open the VAST 2 client on a sub-station.
2. Enter Settings > Sites.
3. Select Allow CMS to access this site.
4. Click Change password. This password will be used to authenticate the connection between a CMS VAST server and sub-stations.

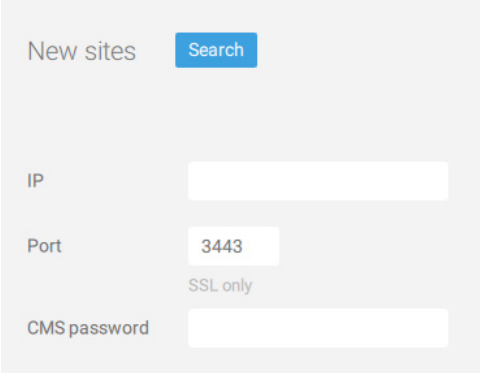


5. Click the Apply button.

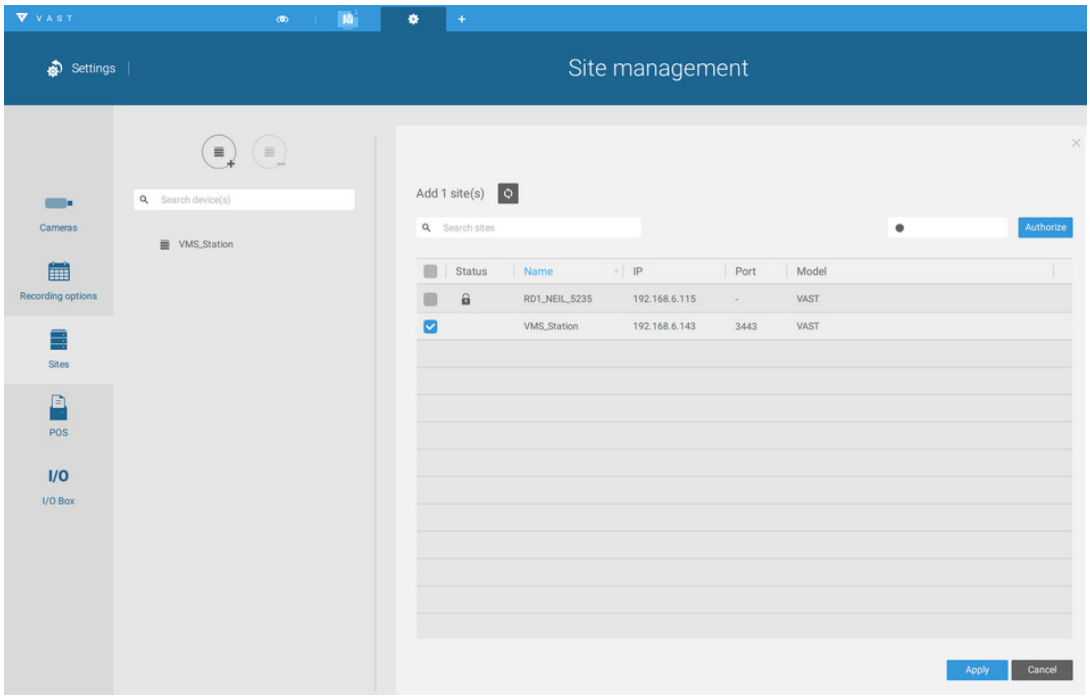
6. Open the VAST 2 client on the server chosen as the CMS.

7. Click the Add sites button.

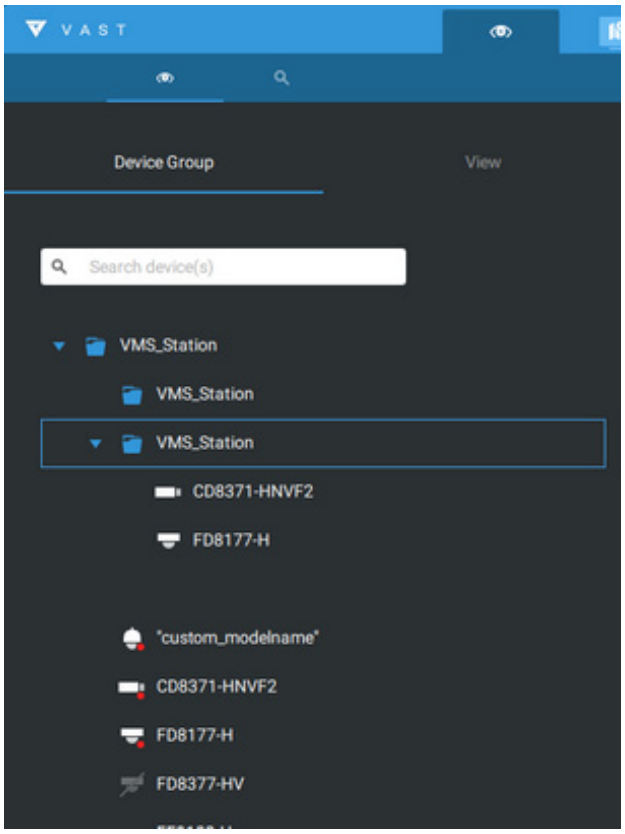
8. You can click the Search button if the sub-station is reacheable in a local network, or manually enter the IP address, and password for making the connection.



9. Enter the password you configured for the Sites configuration, and then click the Authorize button.
   Click the Apply button for the configuration to take effect.



The sub-stations and its subordinate devices should be immediately listed under the CMS station. You can create separate views to place the sub-stations' cameras.

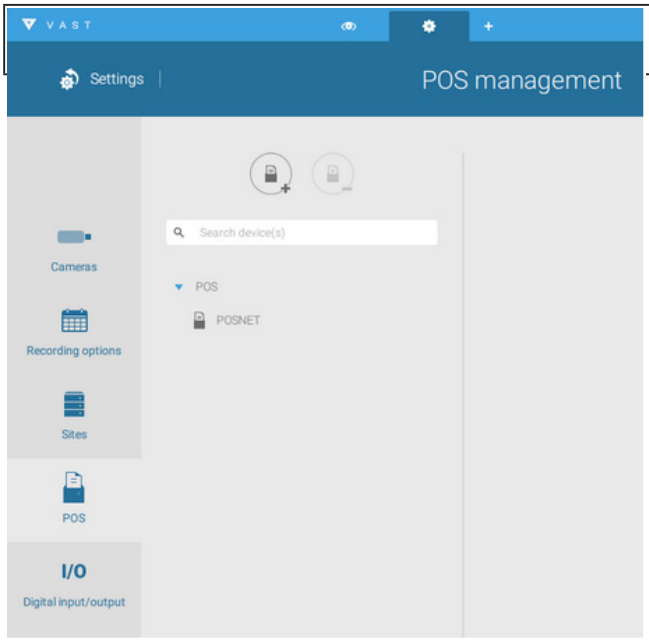


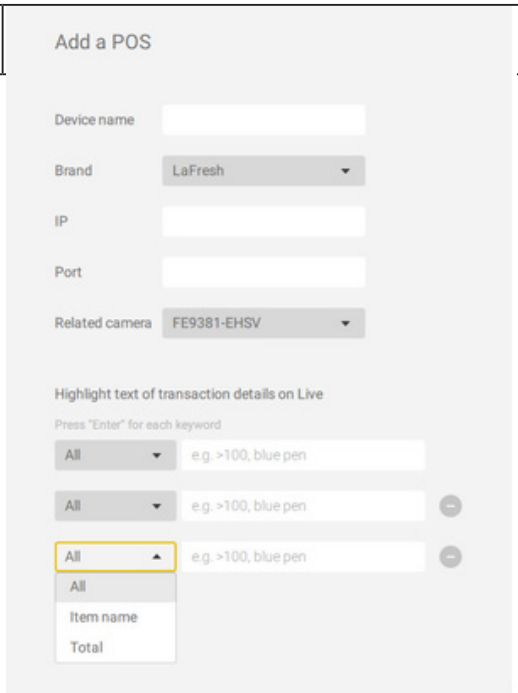
4-7. Settings > Device > POS

To connect a POS machine, make sure the POS machine is connected to the local network.

Click on the Add POS button.

1. Enter a device name, such as POS on the 1st floor counter.
2. Select the POS brand name. Currently VAST2 supports Lafresh, POSNET, Gulfcoast(POS Gateway).
3. Enter the IP address assigned to the machine.
4. Enter the TCP port number utilized by the POS machine for network connection
5. Select a related camera whose video feed will be used to display POS transaction data. This is the camera which covers the customers and cashier.
6. Enter specific item name or a total amount exceeding a high threshold, such as using >100 as a threshold. You can enter multiple highlight conditions using the add button below. The highlighted entries will be displayed in bright font colors on screen.





4-8. Settings > System > SMTP

Configure a mail server via which the system alarms or notifications can be delivered to a receiver.

Enter the Settings page, select 

. Click on the Add SMTP button.
Enter your mail server's domain name or IP address. Enter credentials for access to the mail service.
If SSL encrypted transmission is preferred, select its checkbox.

Click Add to complete the configuration.

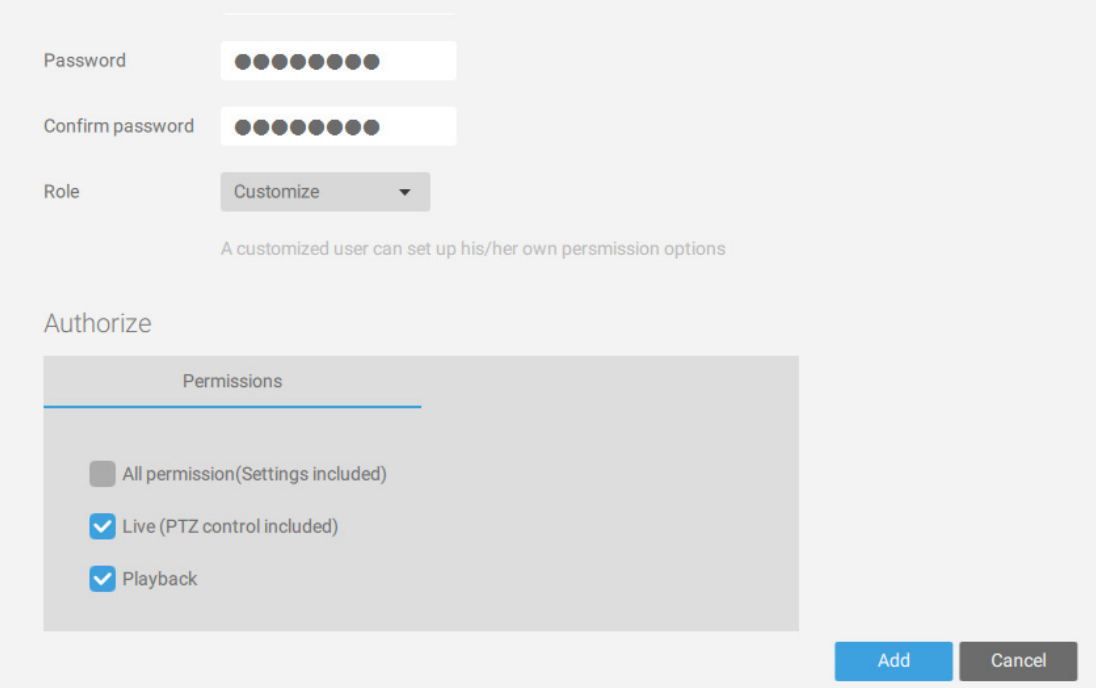
Settings > IO Box and Related Configuration

Please refer to page 55 for information.

4-9. Settings > User Management

The User Add & Delete page allows you to create users with the permissions for different operational capabilities.

To specify the authorized privileges, select Customize in the Role menu, then select the Live or Playback checkboxes.



Click Add to create a new user.

The new users will be listed under the Administrator's icon. Repeat the process to create more users.

For enabling a user list by Windows AD, please open the LiveClient utility. The AD related configuration is available through the previous-generation utility.

Add a New User Account - Windows AD Account

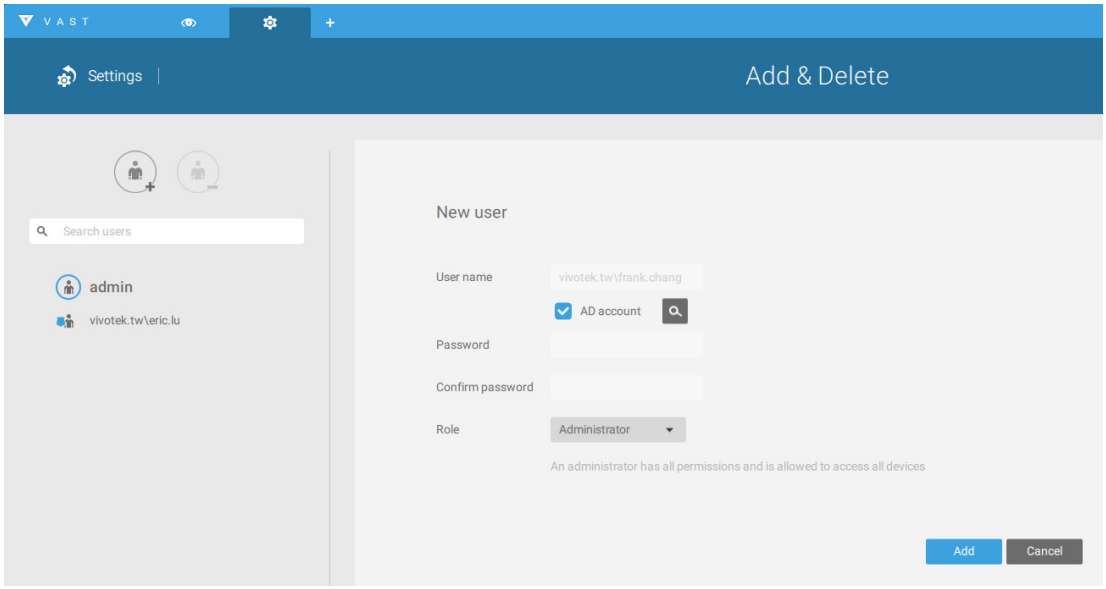
In an established, enterprise network environment, the support for Windows AD (Active Directory) infrastructure enables ease of integration using the credentials of existing users. Using the same AD authentication methodologies, you can configure the clients or users in an established network to access the VAST server configuration.

Note the following with Windows AD support:

1. If you install VAST server on a Windows XP machine with Postqre SQL server, the login using a Windows AD account will not work.
2. The VAST server must reside in a domain managed by the AD server.
3. This function does not support the environment that spans across multiple AD domains.
4. A user account hosted by an AD server cannot be modified in VAST.
5. A User Group and its members configured in AD cannot be managed in VAST.
6. You cannot add an account having the same name as one you used to log in VAST.
7. There are 3 types of account for VAST: VIVOTEK account, AD single user, AD group.

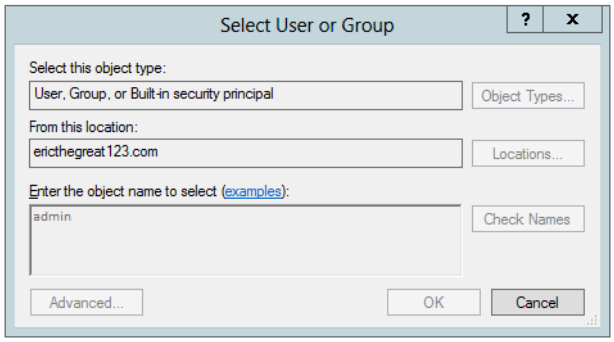
To add an existing AD user,

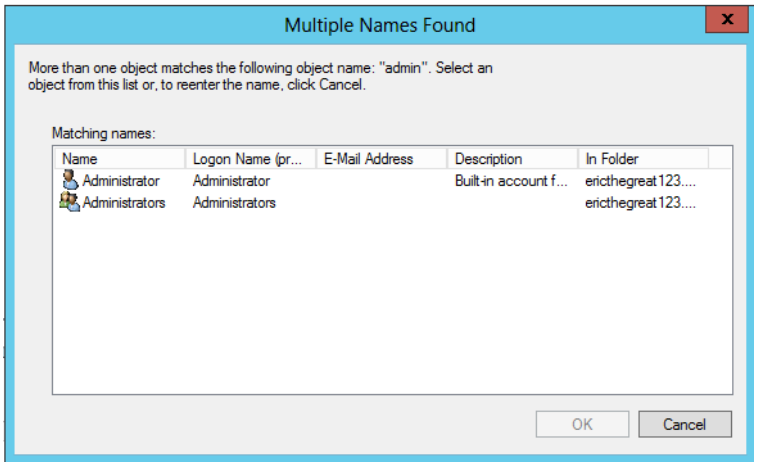
1. Select the AD account checkbox.



2. Click the Search button.

3. Enter a user name or group name to search, e.g., Frank. Click OK when done.



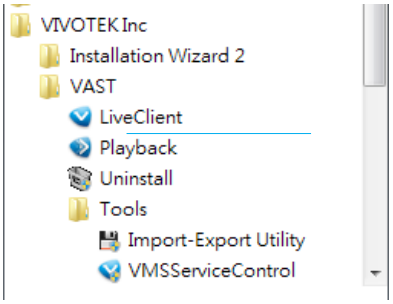


4. Enter the password twice for the AD user.

5. Select the privilege role for the user, and then click Add.

Appendix A: VAST Service Control Tool

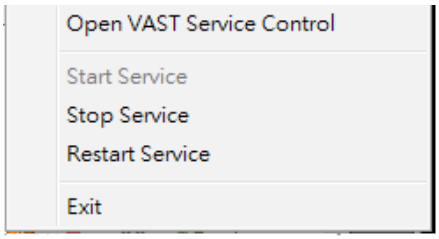
VAST service control tool is a tool for server control and for user to be aware of the VAST Server status. It starts up as Windows OS startup.
Under Microsoft Windows, choose "**Start > All Programs > VIVOTEK Inc > VAST > Tools > VMServiceControl.**"

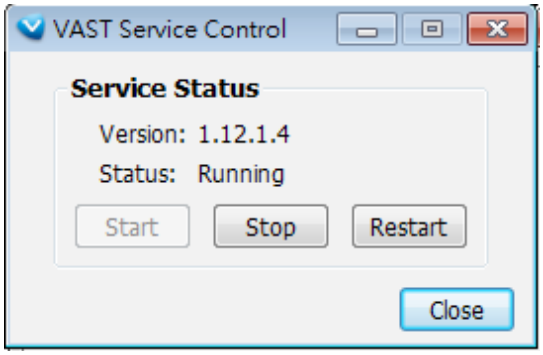


You may also find it in the system tray icon of the tool bar, which indicates that the service is running: 

It shows a disconnection icon when the service is stopped: 

A menu for the service control tool will pop up when you **right-click** on the icon:

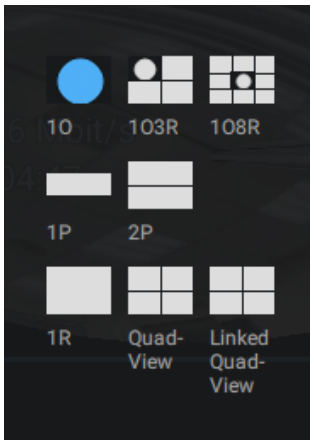




Here you can manually start, stop and restart the service.

Appendix B: Fisheye Camera Dewarp Modes

By default, a circular view is displayed when a fisheye camera is successfully connected. To display Regional, Panoramic, or the combination of different views,
1. Mouse over the view cell of a fisheye camera.
2. The onscreen control panel will appear. Click on the Fisheye button.
3. The Dewarp mode pane will prompt. Select a dewarp mode.

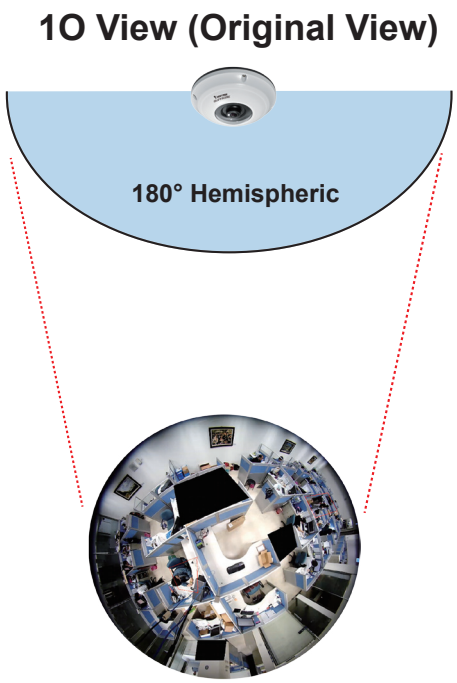


The display modes available are: 1O (Original), 1P (Panoramic), 1R (Regional), 2P (2 Panoramic), 1O3R (1 Original & 3 Regional), 4R (Quad Regional), 1O8R (1 Original & 8 Regional), and 4R Pro (4 Proactive) modes.

Fisheye Display Modes: below are conceptual drawings for different display modes.

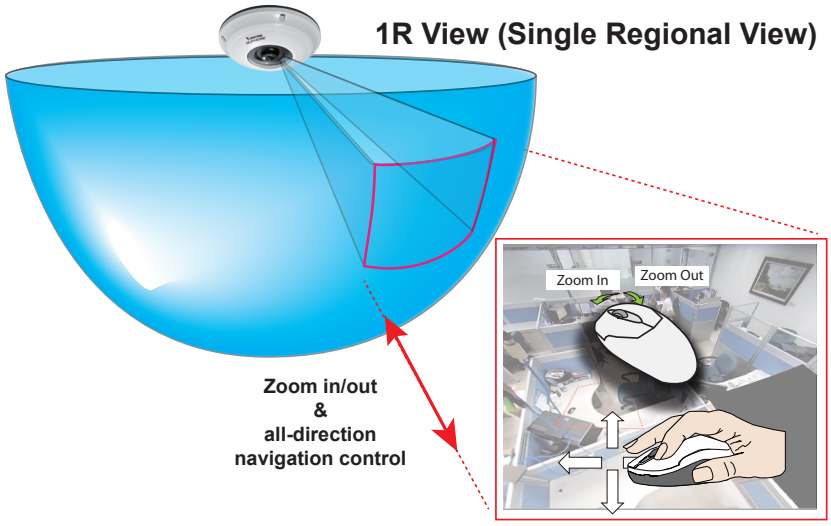
1O (Single Original) Display mode:

An **Original** oval view covers the hemisphere taken by the fisheye lens.



1R (Single Regional) Display mode:

A **Regional** view crops a portion of the hemisphere as a region of interest. You can zoom in or out or move the view area elsewhere from on the regional view.



A Regional view is dewarped, by correcting images from the distorted oval view to a rectangular and visually proportional image.

1P (Single **Panoramic**) Display mode:

With image correction algorithms in firmware, the hemispheric image is transformed into a rectilinear stripe in the 1P display mode. Viewers can use the PTZ panel or simply use mouse control to quickly move through the 360° panoramic view.

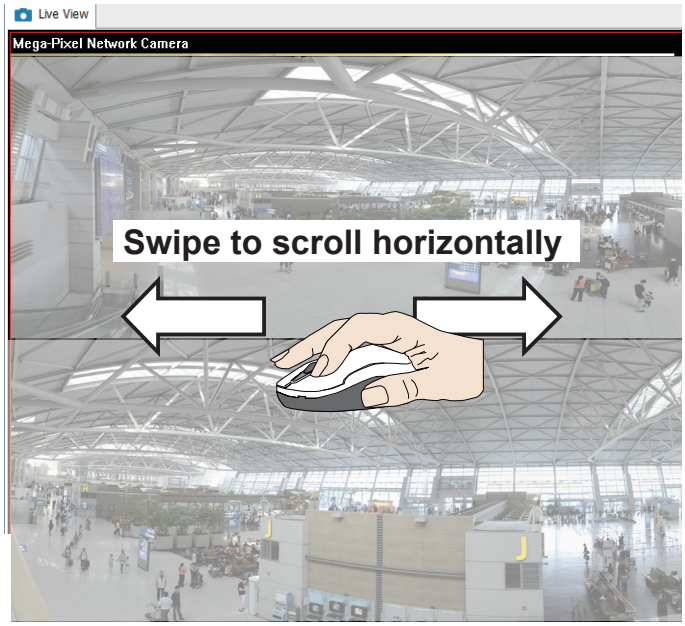
Note that the 1P view is apt for an overview, the Zoom in/out function does not apply in this mode.

1P (Panoramic) Mode Screen Control

2P (2 Panoramic) Display mode:

Two dewarped rectangular views are placed one on top of another each showing 180 degree of panoramic view. The 2P view looks like the upper view shows the front of hemisphere, and the lower view the rear half of the hemisphere.

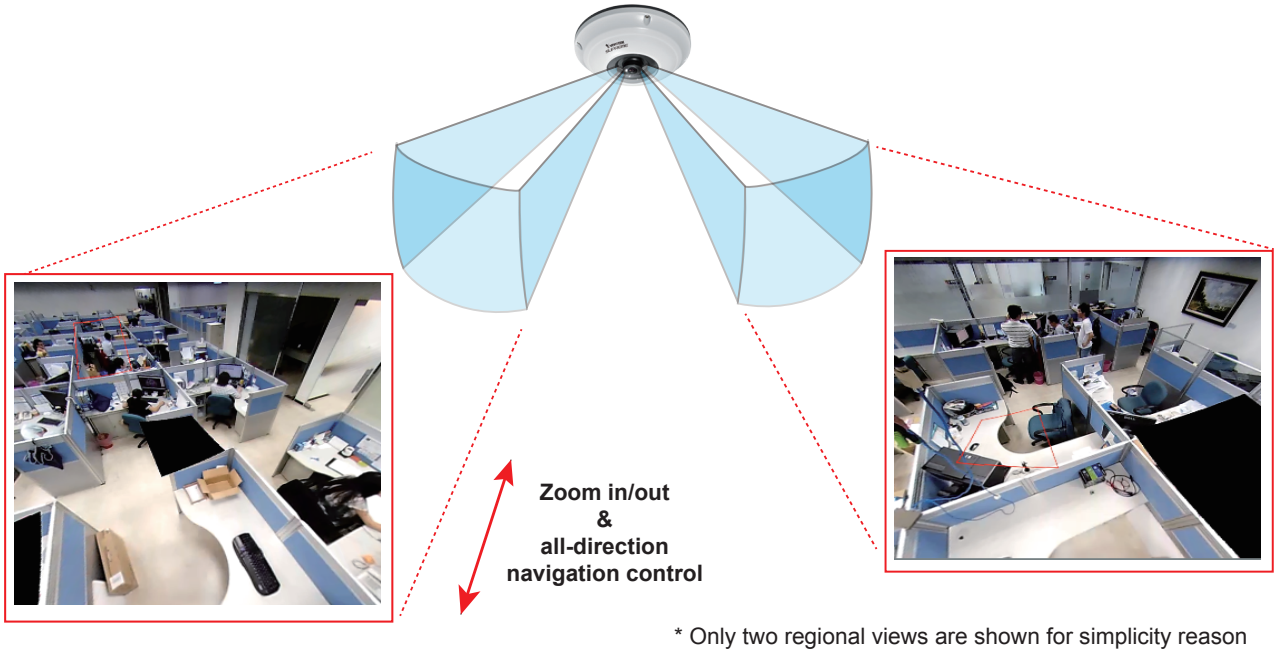
2P (Panoramic) Mode Screen Control



1O3R (One Original & 3 Regional) Display mode:

Fisheye cameras also support the display of multiple regional views taken from within the same hemisphere, and they can be displayed with or without an Original view in its view cell.

3R View (Regional View)



* Only two regional views are shown for simplicity reason

NOTE:
The various display modes require the support of D3D technologies by your display card on the LiveClient or Playback station. Most off-the-shelf display cards today support this feature.

The onscreen mouse control is very agile. Therefore, use the PTZ panel for more delicate moves in a field of view. **Pan** and **Patrol** moves are also supported if you have configured preset PTZ positions in the camera's firmware. Note that the Pan move takes place in the Panoramic and Regional views, while the Patrol function through preset positions applies only in the Regional views.

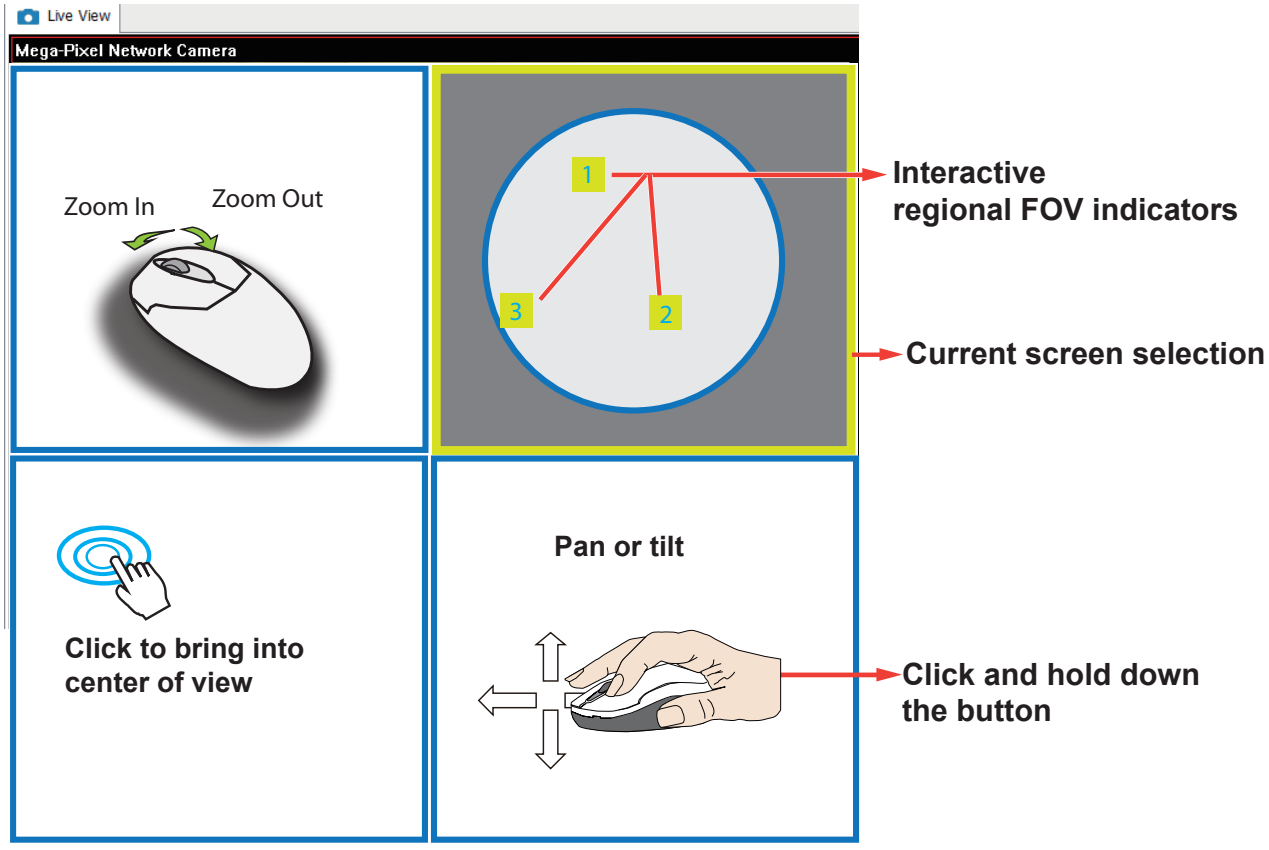
PTZ Mouse Control

The "Mount type" setting also determines the display modes available to your display modes. Please refer to fisheye camera's User Manual for more information.

A highly versatile mouse control is implemented with fisheye cameras. The same control takes effect on a browser management session, on the LiveClient utility, and even on a video playback screen. See the drawing below for how it works.

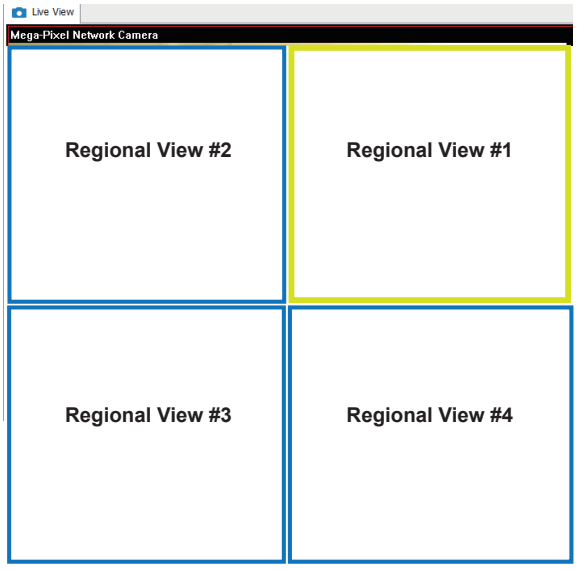
You can click and hold down the left mouse button to quickly swipe through the field of view, change the view angle, or use the mouse wheel to zoom in/out on a region of interest. However, the PTZ mouse control is only available in the **"R" (Regional) mode**. In the **Panoramic mode**, you can only scroll horizontally across the 180° or 360° panoramic view.

1O3R (Original & Regional) Mode Screen Control

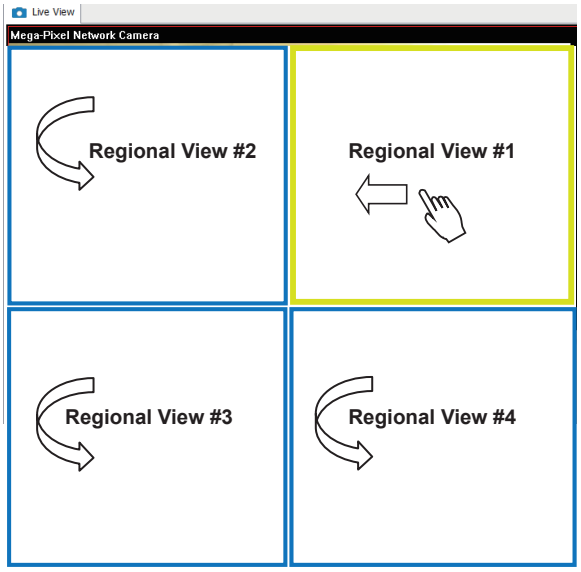


Below are the conceptual drawings for other display modes. The available display modes can different with different mount types:
Regular: 1O, 1P, 1R, 1O3R, 4R.
Wall mount: 1P2R, 1P3R.
For more information, you can refer to fisheye camera's user documents.

4R (Quad Regional) Display mode:



4RPro (4 Regional Proactive) Display mode:



1O8R (One Original & 8 Regional) Display mode: