PLANET
Networking & Communication

User's Manual

4-/9-Channel Cam Viewer E-series for Intelligent Management

► CV7-VA

www.PLANET.com.tw

Copyright

Revision

User's Manual of PLANET 4-/9-Channel Cam Viewer E-series for Intelligent Management
Model: CV7-VA
Rev: 1.00 (August, 2015)
Part No. EM-CV7-VA

Table of Contents

Chapter 1. Product Introduction

1.1 Overview

PLANET CV7-VA is a video analytics software designed to transform your video surveillance network into a smart detection system. This software uses advanced image processing algorithms to recognize humans and objects. The algorithms are able to track the movements of objects, such as appearances, disappearances or loitering, and determine whether the movements are suspicious based on user-defined rules. Once a suspicious activity is detected, users can also play back to watch these events and use them as references or evidences if needed. In addition, this software also provides algorithms to count the number of objects or humans passing by a specific location. The CV7-VA helps you enhance your existing surveillance system while providing you with valuable information for business intelligence and management.

The CV7-VA offers robust, feature-rich video analysis functions, such as Line Crossing, Entering Area, Missing Object, Unattended Object, Tampering, Object Counting and People Counting.

PLANET CV7-VA is interesting in that those inactive video footages can sometimes be turned into valuable information. So, with the CV7-VA, the video surveillance can further enhance security. In addition, its video analysis functions are ideal for commercial use like people and vehicle counting. Thus, the application of the CV7-VA for business is limitless.

1.2 Features

- Concurrent analysis of up to 4/9 channels
- Up to 4 simultaneous algorithms per channel
- Multiple algorithms including Line Crossing, Entering Area, Missing Object, Unattended Object, Tampering, Object Counting and People Counting

- Event search and filtering based on time, algorithm and object color
- Play back captured events
- Export videos of captured events
- Analysis for live and pre-recorded videos

1.3 Product Specifications

Product	CV7- VA4	CV7- VA9
General		
Max. Channels	4	9
Max. Number of Analytical Channels	4 / 9	
Video Compression	H.264, MPEG-4, MJPEG	
Camera Resolution	Up to 10 megapixels	
Language	English, Traditional Chinese	
Video Analytic Algorithms		
Algorithm	Line Crossing, Entering Area, Missing Object, Unattended Object, Tampering, Object Counting, People Counting	

1.4 System Requirement

Hardware requirement: The Minimum system requirement	
CPU	Intel Core i5 2.4 GHz (or above recommended)
RAM	4GB(or above recommended)
Screen Resolution	800x600
Display card	Independent display card suggested Note: Make sure your display DPI setting is set to default at 96DPI To set DPI value, right-click on desktop, choose “settings” tab >> “advanced”
Ethernet interface	Ethernet 1000BASE-T recommended
Software requirement:	
OS	32-bit: Windows 7, Windows 8 or Windows Server 2008 64-bit: Windows 7, Windows 8,Windows Server 2008 R2, Windows Web Server 2008 R2 or Windows Server 2012 R2

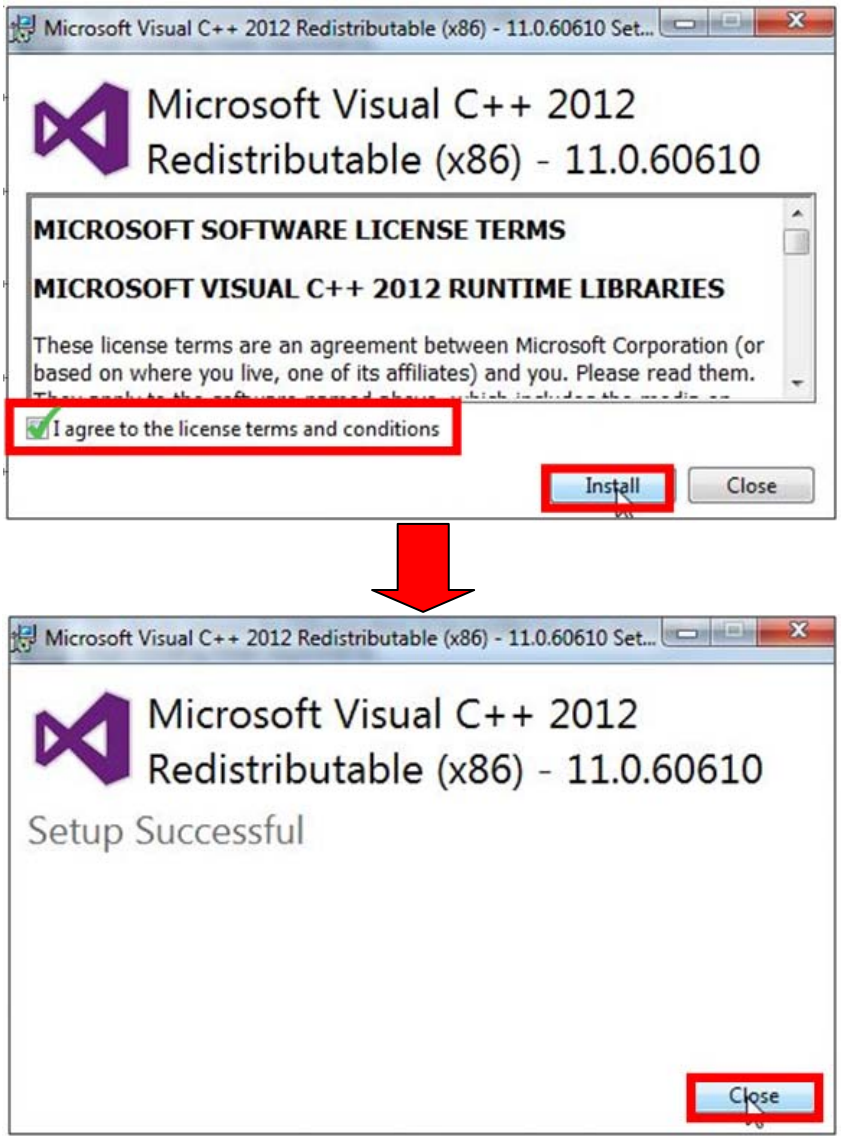
Chapter 2. Software Installation

2.1 Software Installation

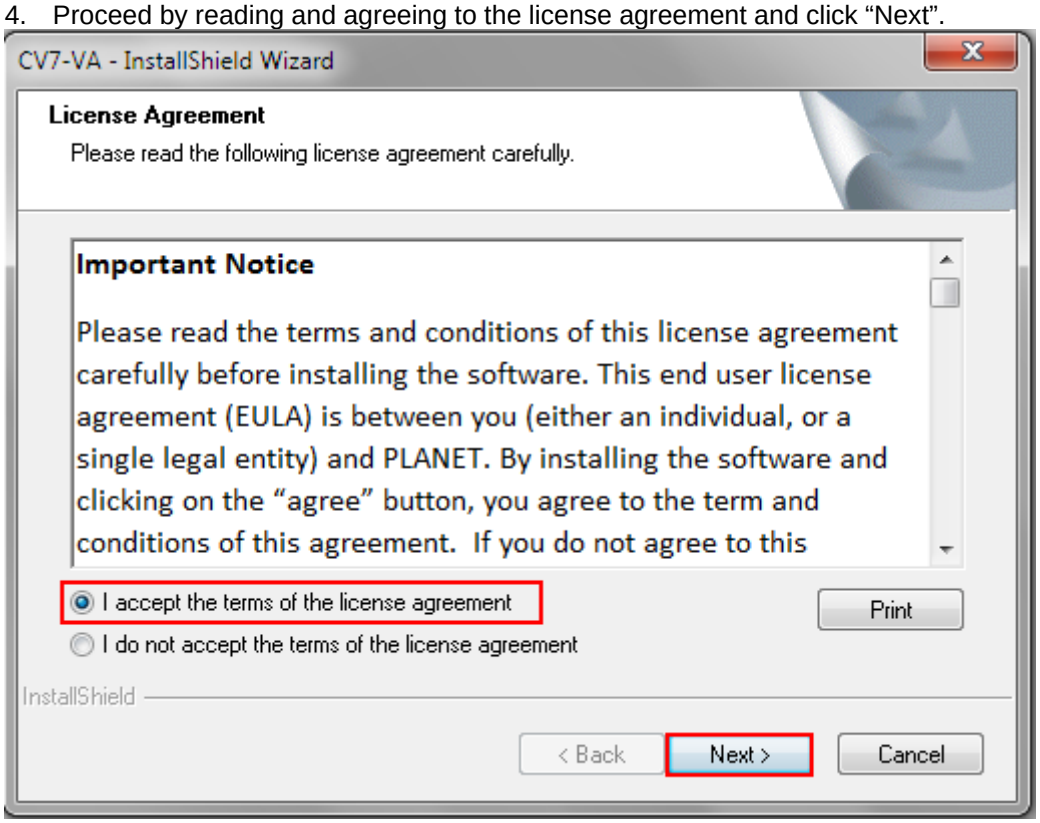
The program installation can be simple and intuitive by following the installation wizard's instructions. The program can be used right after installation is completed, without the need to restart the computer.

To install the software, follow the steps below:

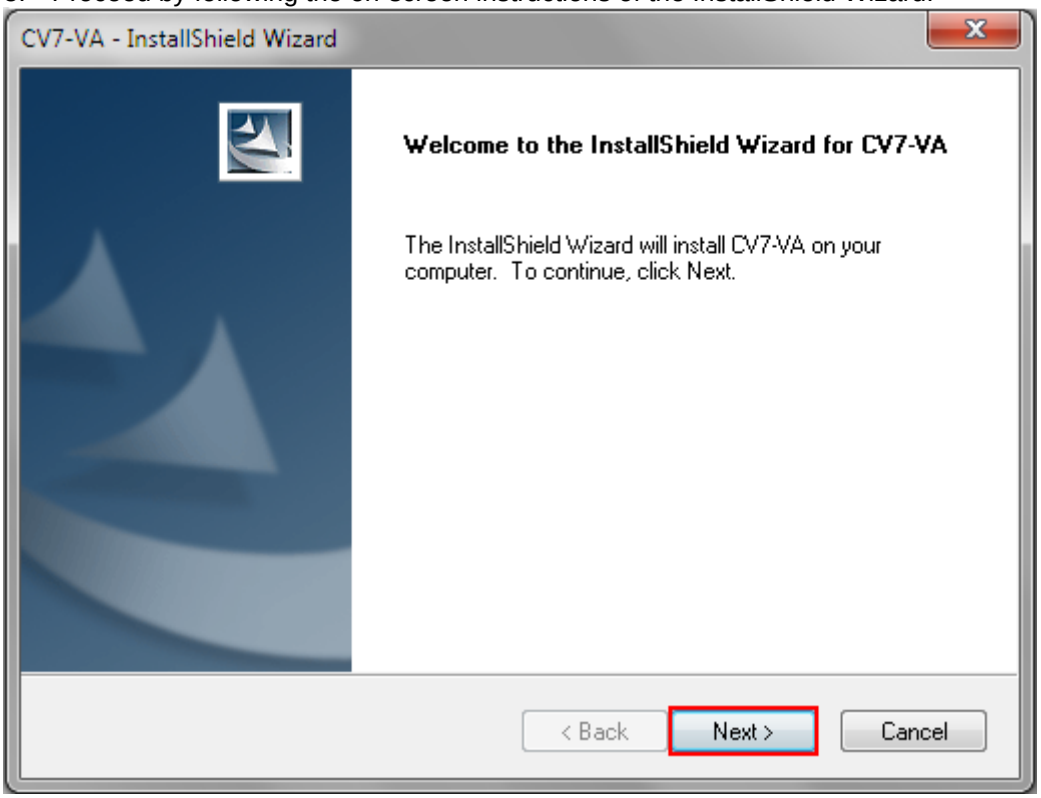
1. Find the CV7-VA compressed file that you downloaded and extract it.
2. Execute the install shield application .
3. If prompted by the InstallShield Wizard to install Microsoft Visual C++ 2012 Redistributable Package, follow the on-screen instructions to do so, as it is crucial for the proper functioning of the program.



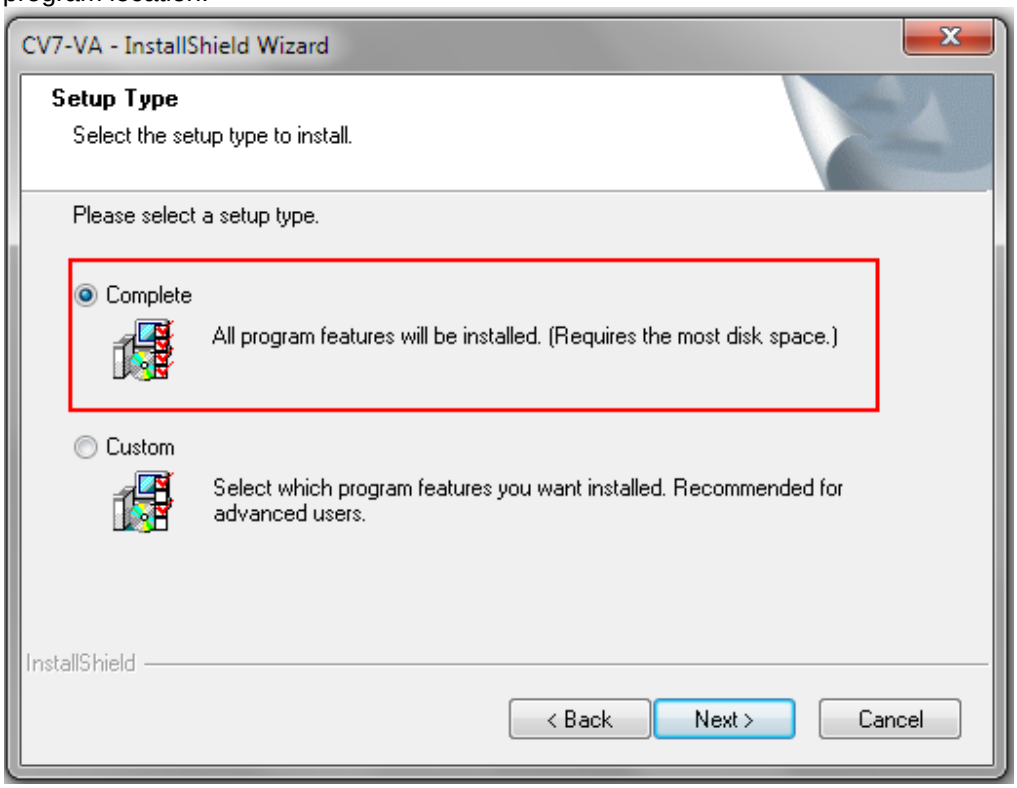
4. Proceed by reading and agreeing to the license agreement and click “Next”.



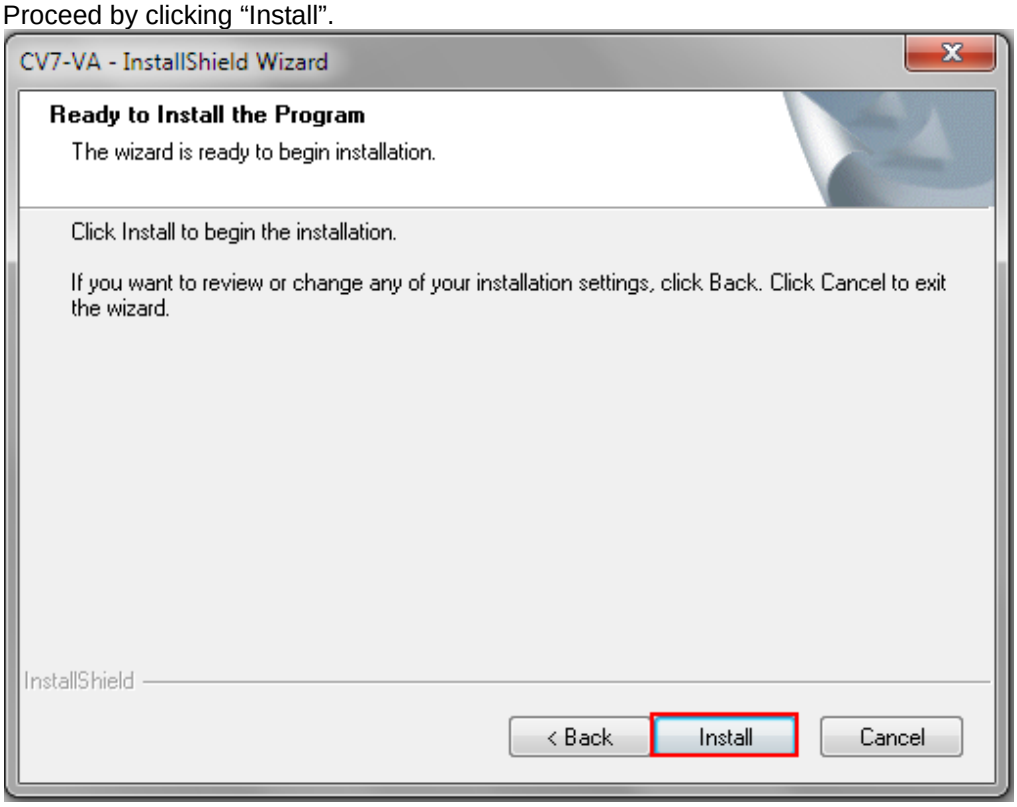
5. Proceed by following the on-screen instructions of the InstallShield Wizard.



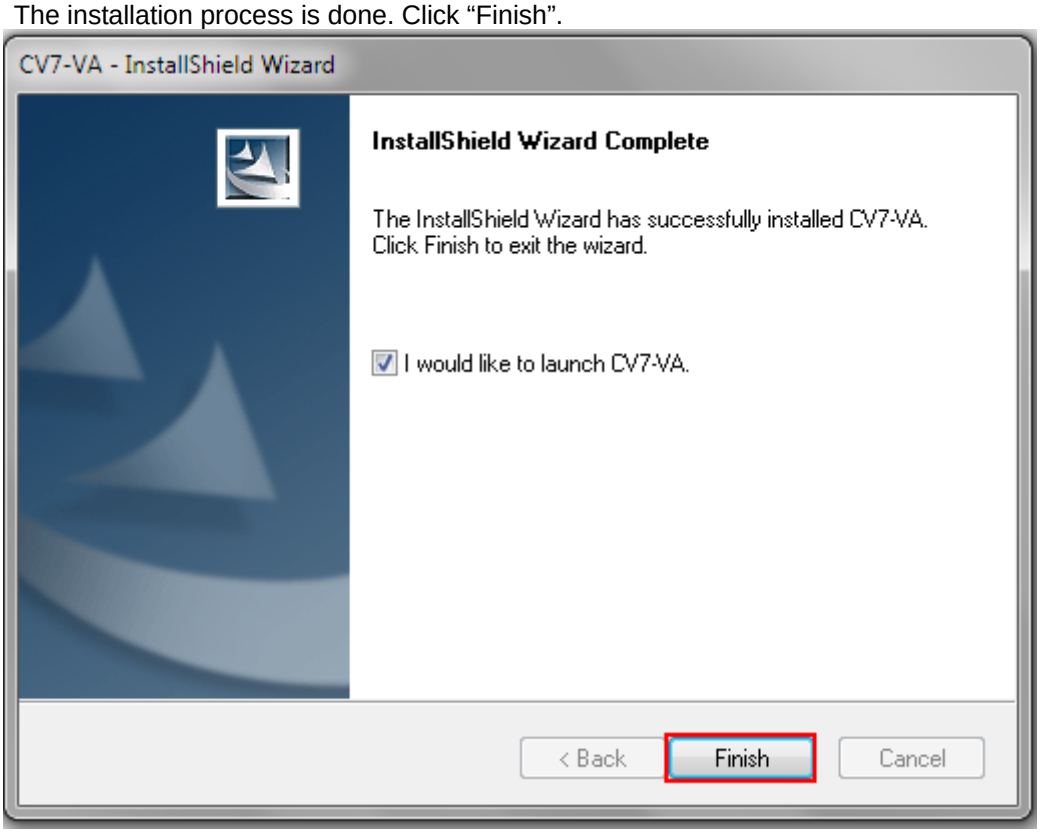
6. When selecting Setup Type, the default “Complete” option will have the program installed in the default C drive (C:\Program Files(x86)). You can select “Custom” to choose another program location.



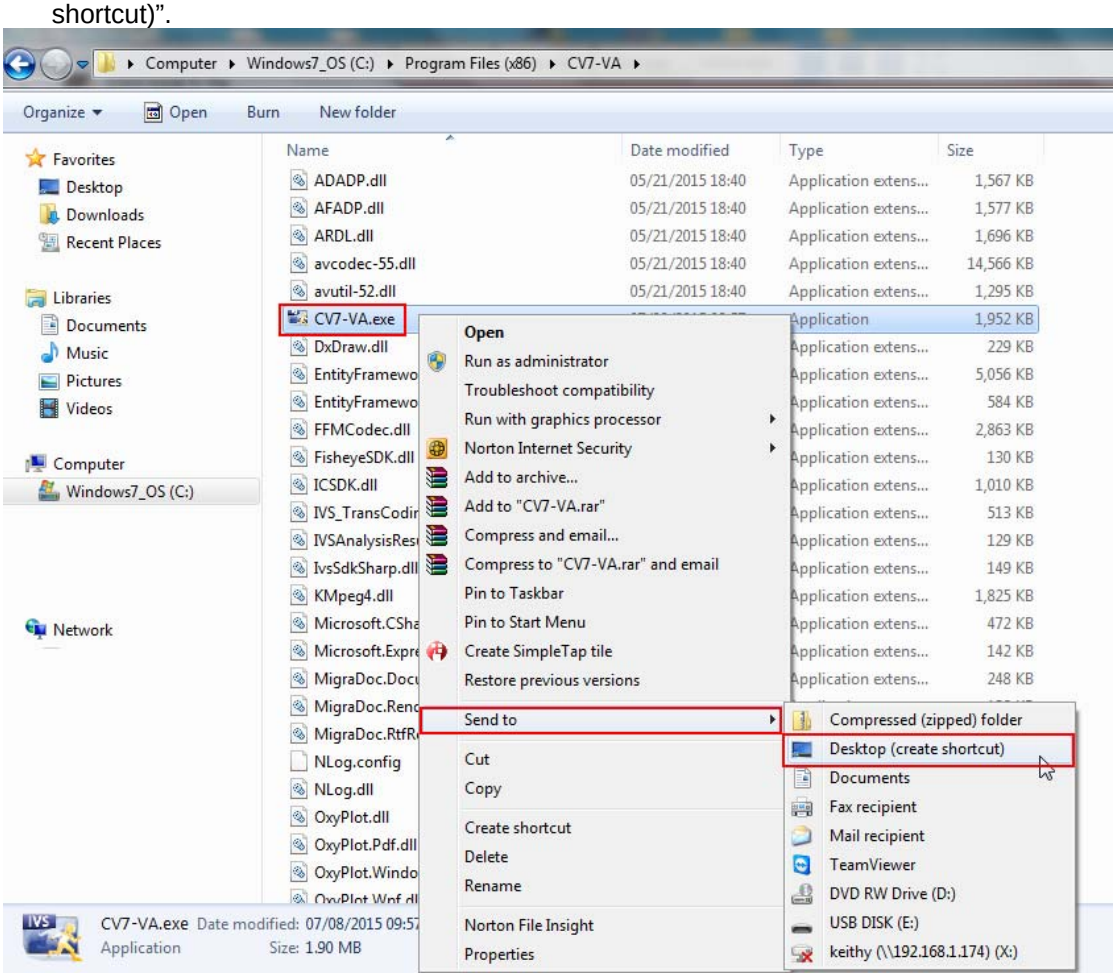
7. Proceed by clicking “Install”.



8. The installation process is done. Click “Finish”.



9. Open the file by clicking on the CV7-VA shortcut on your desktop. If you can't find a shortcut on your desktop, create your own shortcut by finding the CV7-VA file under C:\Program Files(x86)\ CV7-VA, right click, select "Send To", and select "Desktop (create shortcut)".



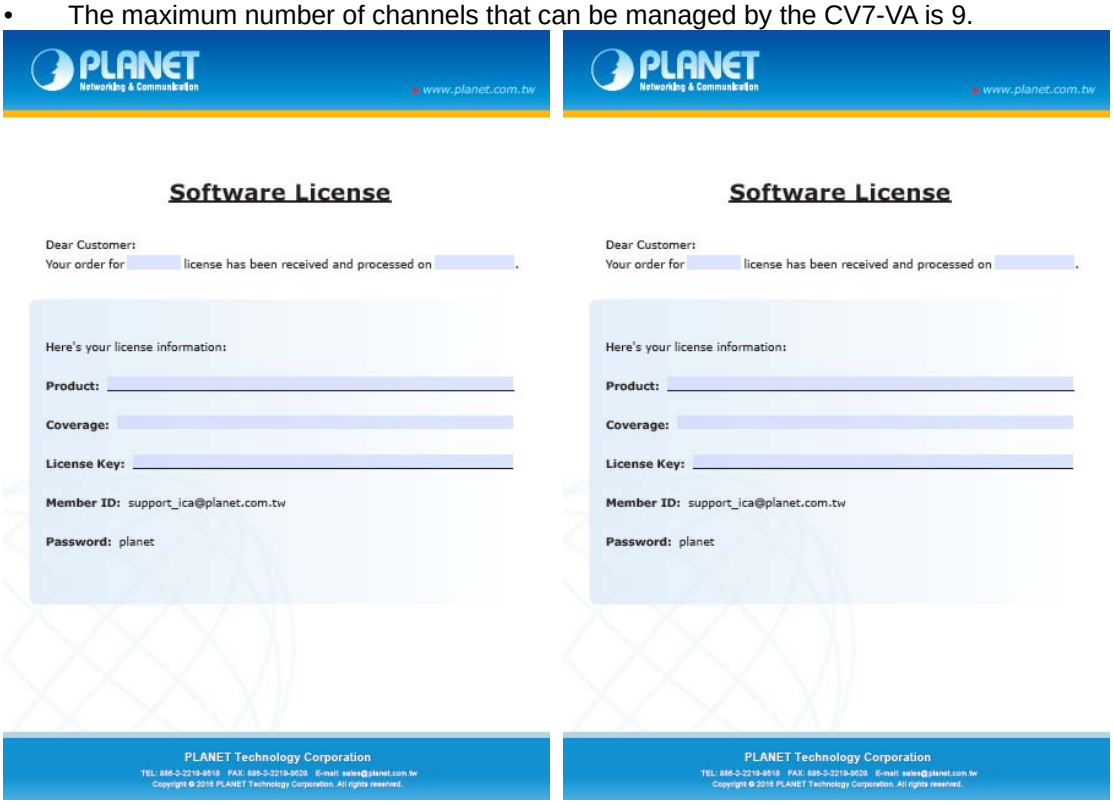
2.2 License and Activation

In the CV7-VA, your required number of channels should be licensed and activated before connecting. License activation is the process of unlocking the channels on CV7-VA with the received License Key. After the license activation, the channels on the CV7-VA will automatically become available.

During license activation, your License Key is matched against the MAC address of the Network Interface Card (NIC) on the CV7-VA computer. Once this license key is used by the computer with a given MAC, it cannot be activated with another MAC. This matching record will be stored on the PLANET license data server. If your computer has more than one network card, the CV7-VA will detect them and provide you with a drop-down list to select from.

Please note:

- The license is cumulative and perpetual.
- The license is not version-specific; upgrading software version will not influence the existing license(s) you have.
- The maximum number of channels that can be managed by the CV7-VA is 9.

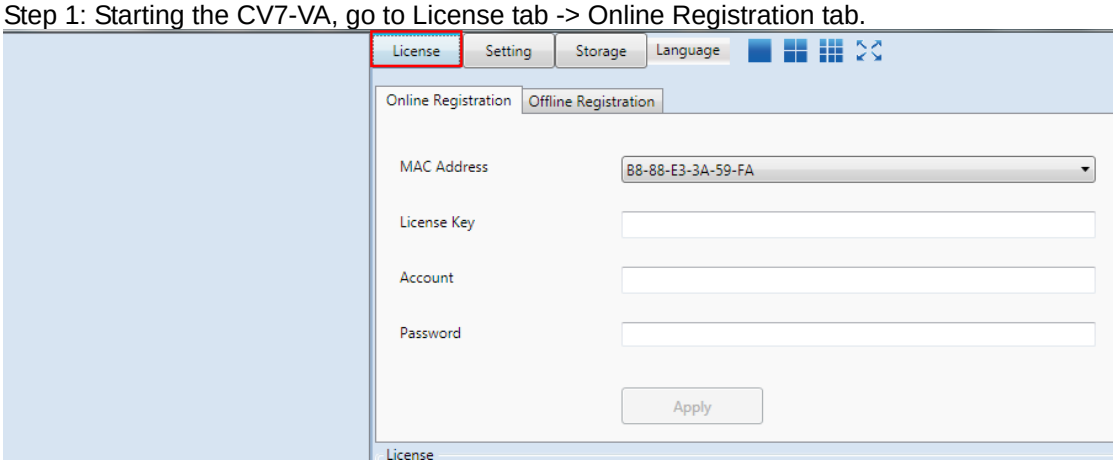


There are two ways to activate the licenses depending on your CV7-VA network condition: Online Activation and Offline Activation.

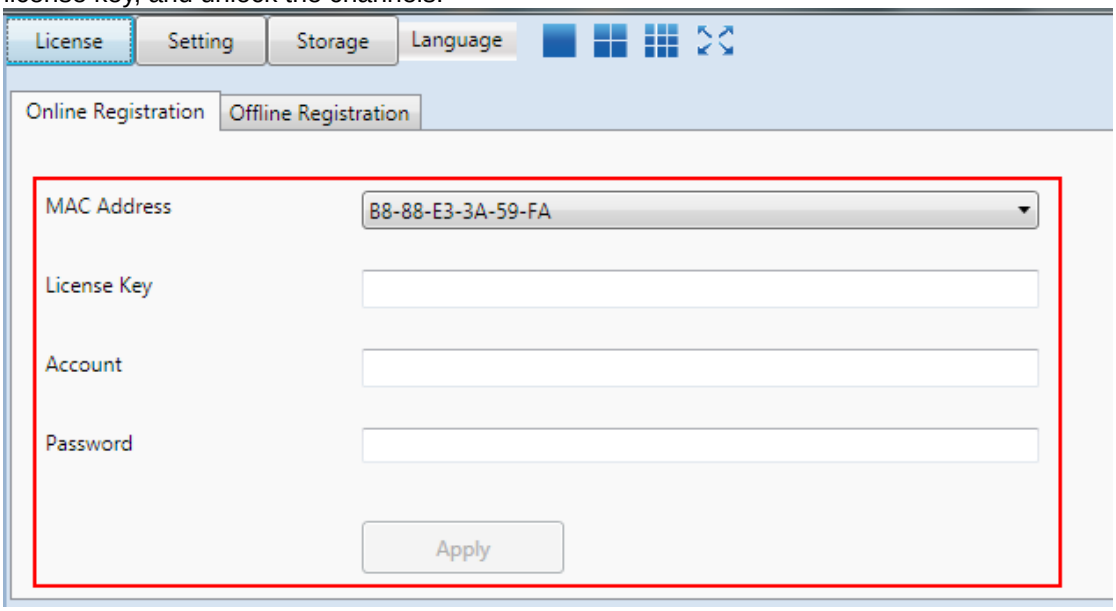
2.2.1 Online Activation

If your CV7-VA computer has available Internet access, choose online activation.

Step 1: Starting the CV7-VA, go to License tab -> Online Registration tab.



Step 2: Select the MAC Address, enter your License Key, Account and Password, and then click “Apply”. The CV7-VA will connect to the license data server via Internet to register the license key, and unlock the channels.

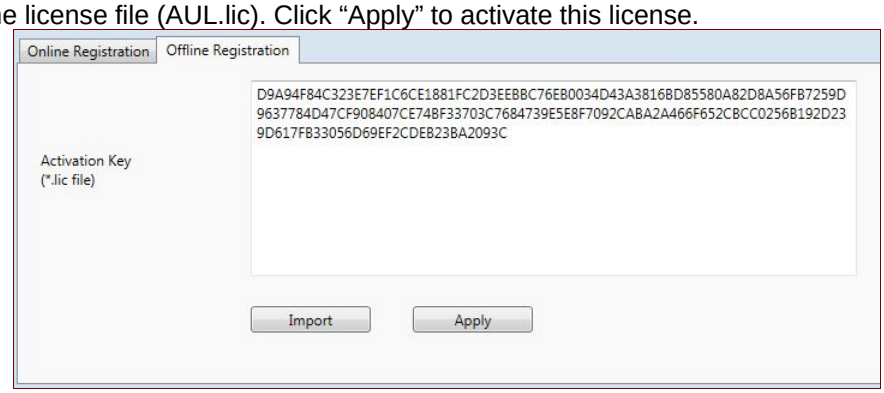


2.2.2 Offline Activation

Offline activation does not require Internet access for the CV7-VA. It is used when the CV7-VA is located in a network not connected to public Internet (e.g., in a military base). You will need to get an activation file from another computer and transfer it to the CV7-VA computer.

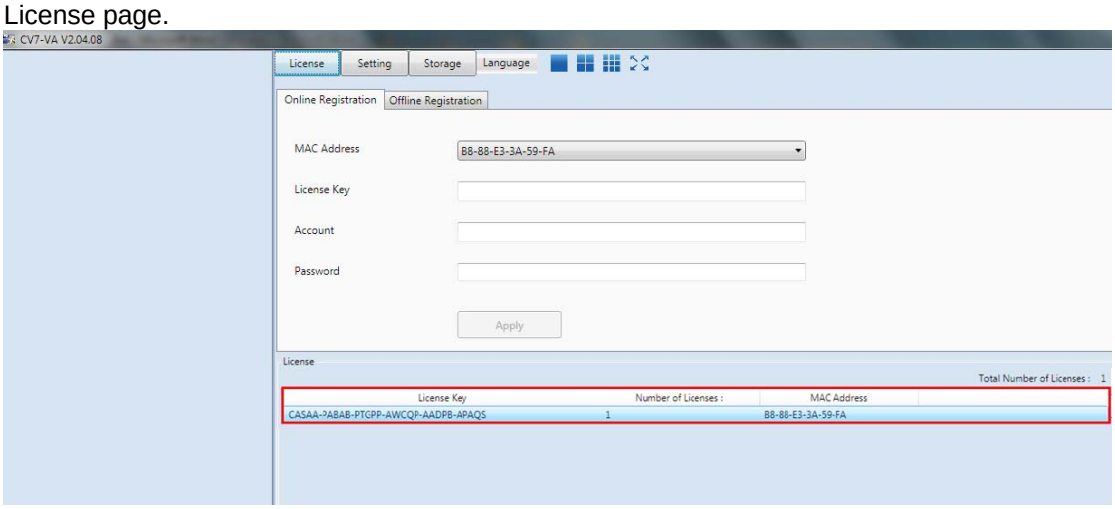
Step 1: Please contact PLANET (support_ica@planet.com.tw) and send the License Key and the MAC address of the CV7-VA computer. We will provide you with an activation code file (AUL.lic).

Step 2: Starting the CV7-VA, go to License tab -> Offline Registration tab -> click “Import” and upload the license file (AUL.lic). Click “Apply” to activate this license.



2.2.3 Verify Your License

Once your license is successfully activated, the license information will be shown on the License page.



Note

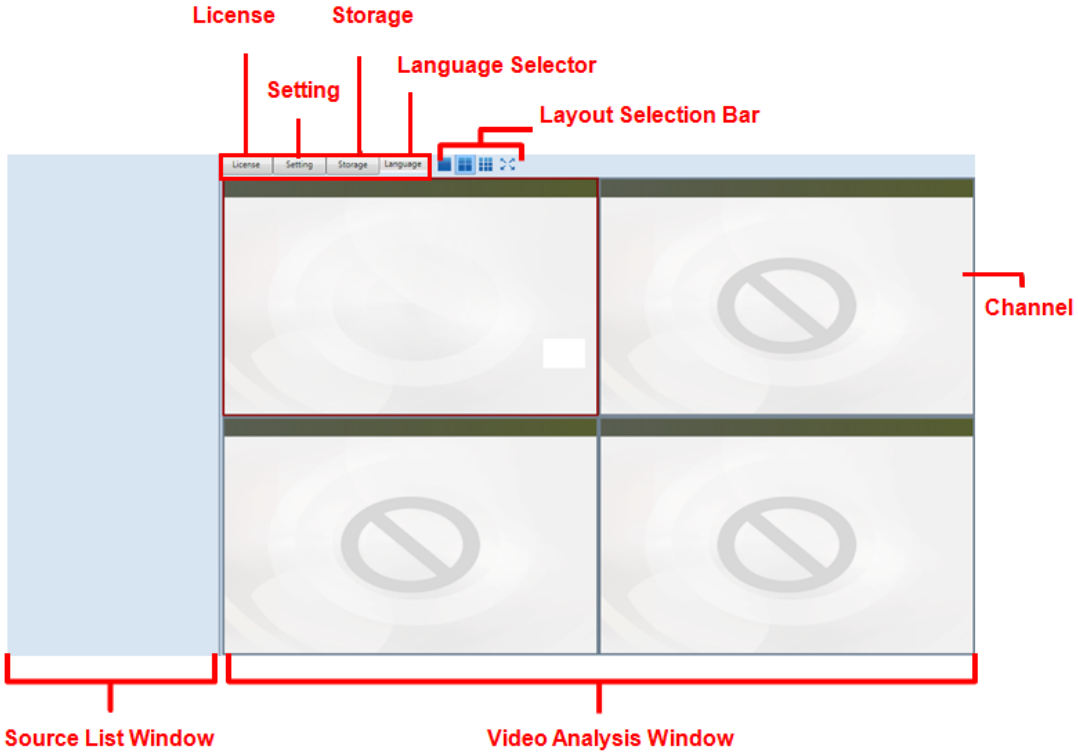
Be sure to retain your license key information in a safe place because you may need to reinstall the software. After the software is uninstalled, you should contact PLANET (support_ica@planet.com.tw) to clear the original registration data in our data server, and then you may activate the license again.

Chapter 3. Software Setup

This chapter provides setup details of the Internet Camera's Web-based interface. In order to be able to apply the CV7-VA technology to a video stream, two basic components are needed: Video Sources and Analysis Rules. This chapter will guide you through everything you need to know in order to have a video source, set up analysis rules, and apply them to your video.

3.1. Introduction

When you open your CV7-VA, you will see the following display:



License	You can activate the license here.
Setting	The Setting page includes SMTP function and login function. (The CV7-VA will support this function in the future)
Storage	You can select the storage path here. (The CV7-VA will support this function in the future)
Language Selector	Select the display language.
Layout Selection Bar	By license, choose 1, 4 or 9 layout styles, or expand to full screen.
Channel	Each channel displays a camera view.
Source List Window	All of your video sources are shown here, and can be managed from here.
Video Analysis Window	This area can display your camera views. It can be composed of 1 or more channels.

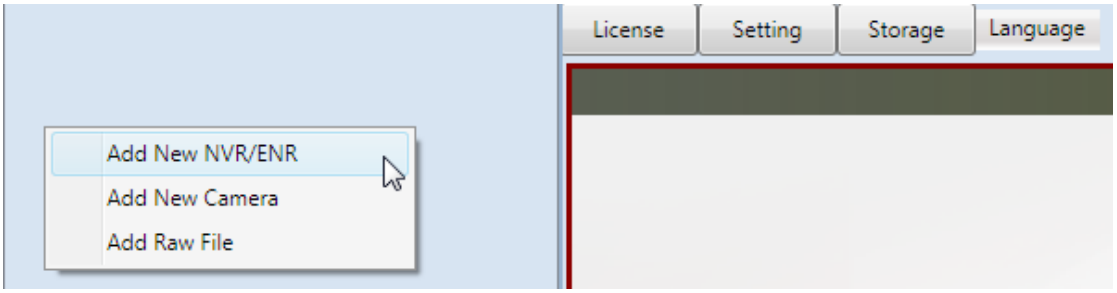
3.2. Add Video Source

Now you are ready to add some video sources so that they can be analyzed.

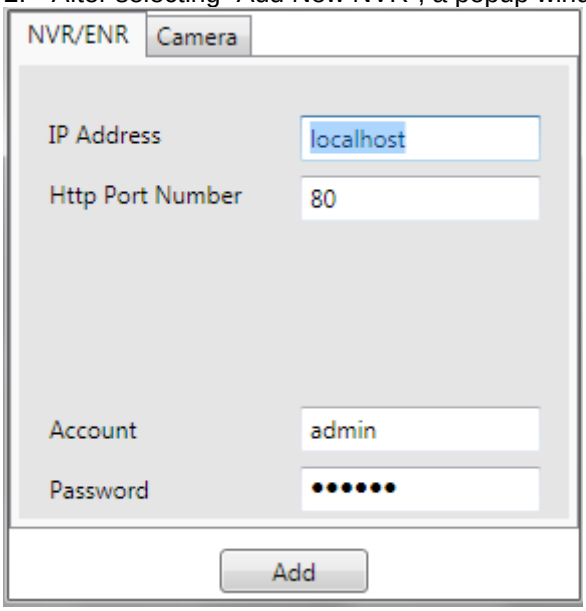
Before adding a video source, make sure you have a working NVR Server or camera and confirm its following properties: **1. IP Address**, **2. HTTP Port**, **3. Account Name** and **4. Password**.

- To add an NVR server as a video source, follow these steps:

  1. Right-click on the Source List Window and select “Add New NVR/ENR”.



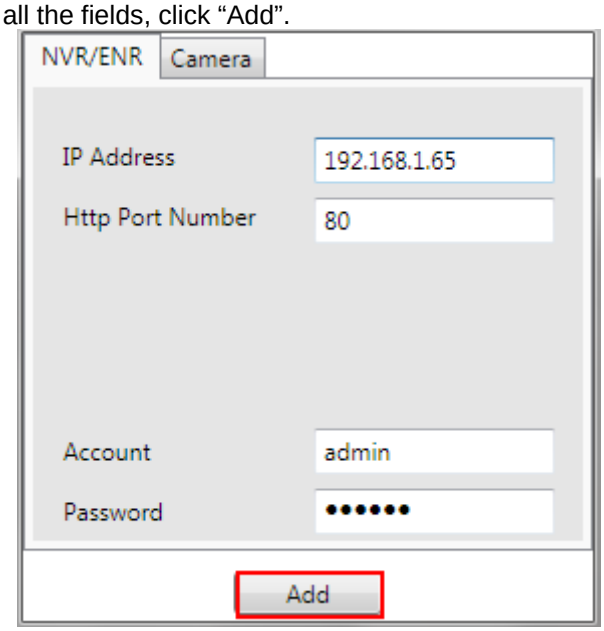
  2. After selecting “Add New NVR”, a popup window will appear as shown below.



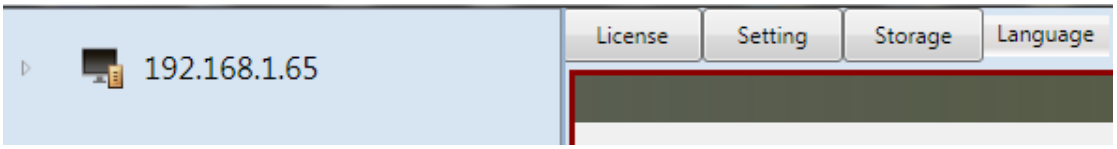
     Fill in the 4 marked fields that are required to communicate with the NVR Server: IP Address, HTTP Port, Account Name, and Password.

Note	The default account and password of the CV7L are **admin** and **123456**.

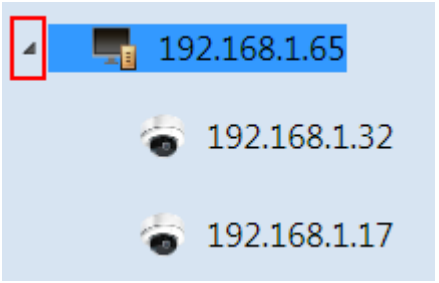
3. After filling out all the fields, click “Add”.



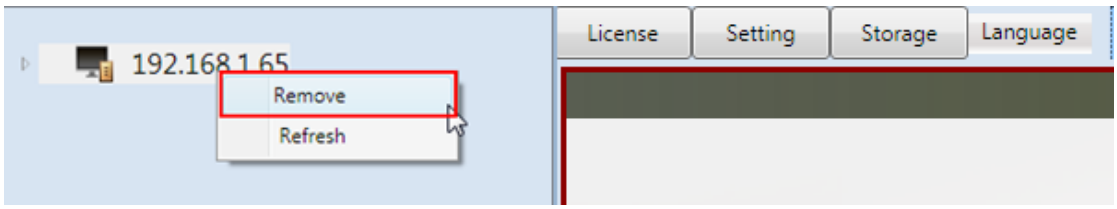
4. You will see the NVR server at the Source List Window.



You can click the triangle icon showing the camera's IP address that connects to the NVR server.



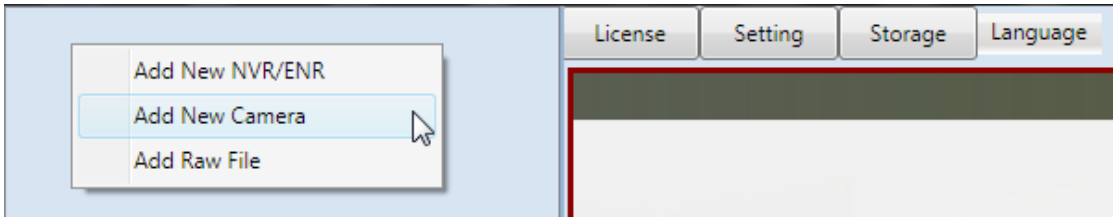
5. To Remove an NVR server from the Video Source List, right-click on the server’s IP and select “Remove”.



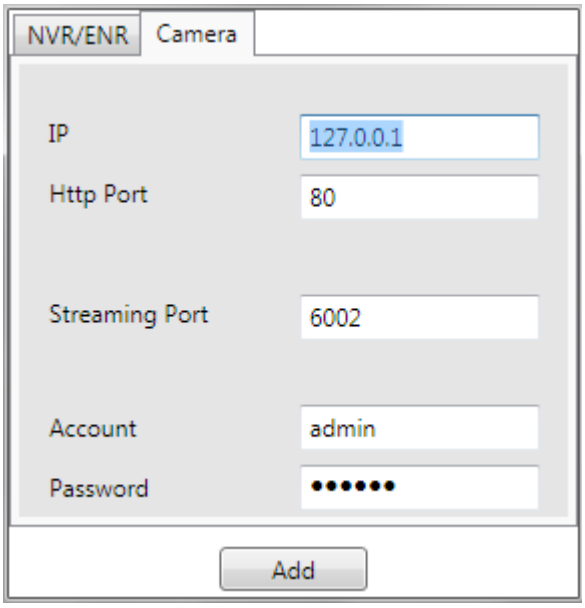
Note	Once an NVR Server is added to the Video Source List, all devices that are on the NVR Server will be added to the Video Source List. Please make sure the camera view you want to analyze has already been added to the NVR Server.

- To add camera as a video source, follow these steps:

1. Right-click on the Source List Window and select “Add New Camera”.



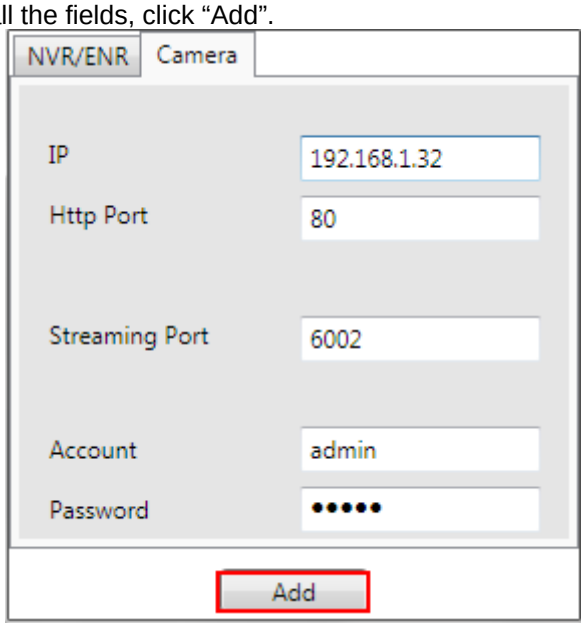
2. After selecting “Add New Camera”, a popup window will appear as shown below.



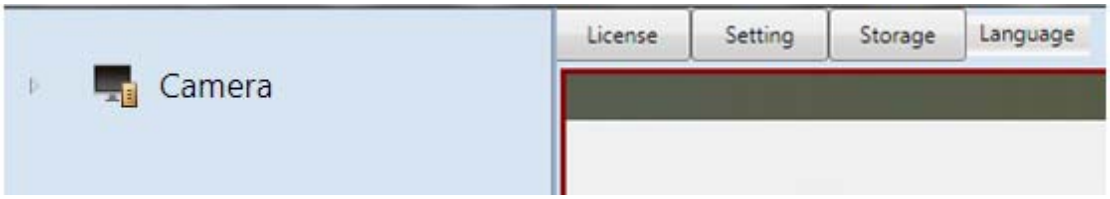
Fill in the 5 marked fields that are required to communicate with the camera: IP Address, HTTP Port, Streaming Port, Account Name, and Password. You can keep the default “**6002**” that has been filled in for the Streaming Port field, or select any port that is not being used.

Note	The default account and password of ICA-E series camera are both “**admin**”.

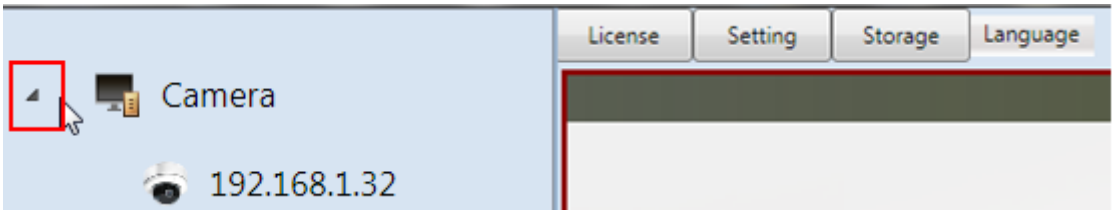
3. After filling out all the fields, click “Add”.



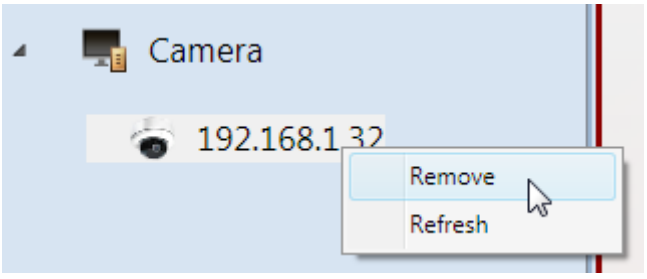
4. You will see the camera at the Source List Window.



You can click the triangle icon showing the camera's IP address.

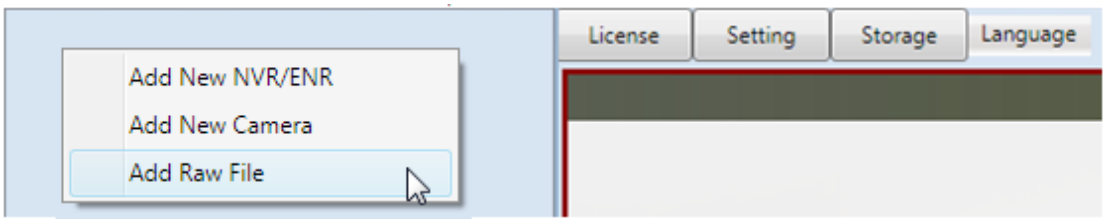


5. To remove a camera from the Video Source List, right-click on the camera’s IP and select “Remove”.

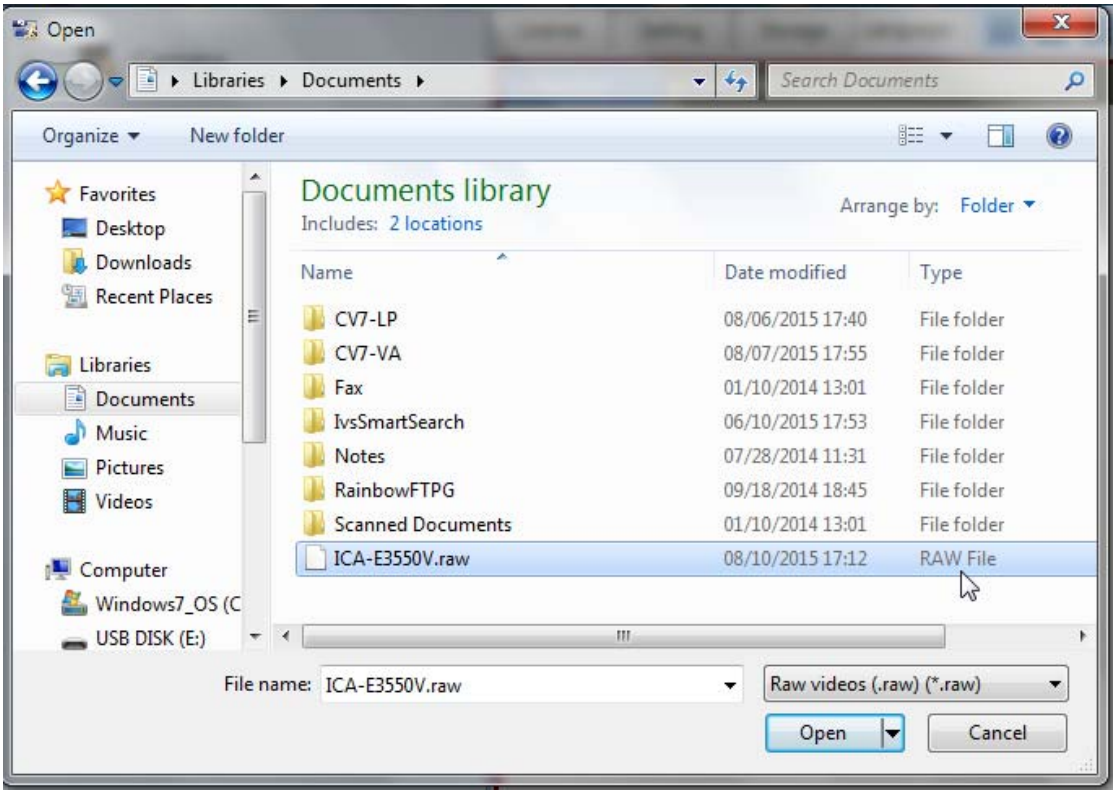


- To add raw file as a video source, follow these steps:

1. Right-click on the Source List Window and select “Add Raw File”.



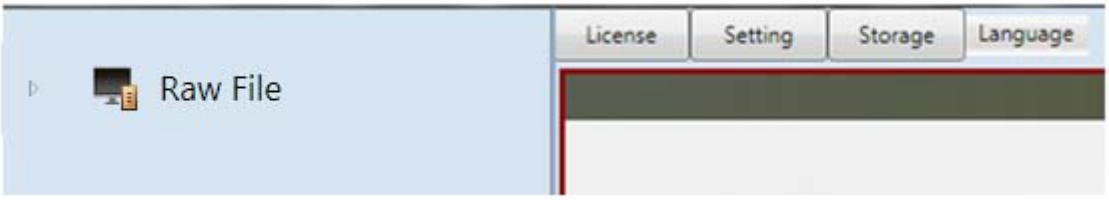
2. Please select a raw file and click "Open".



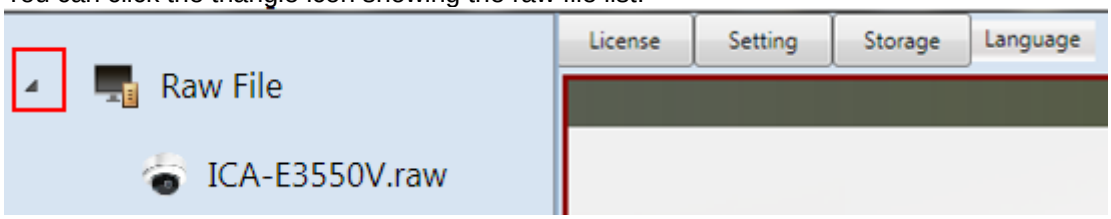
Note

Raw file is a video file which was recorded by the CV7L; user can export it from the CV7L.

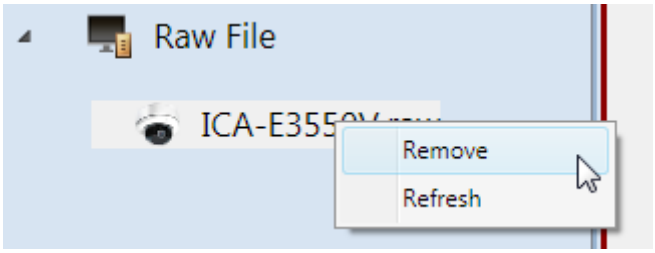
3. You will see the raw file at the Source List Window.



You can click the triangle icon showing the raw file list.



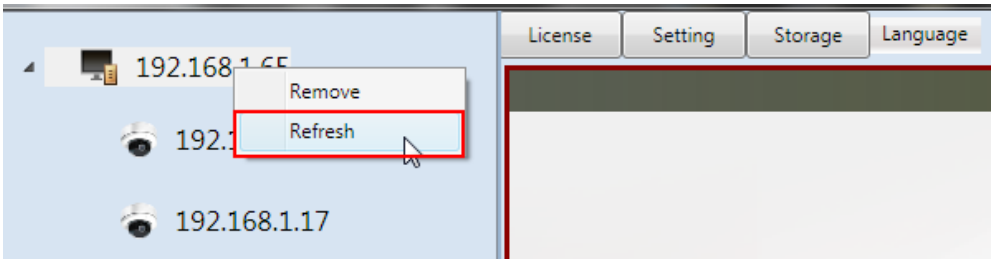
4. To remove a raw file from the list, right-click on the raw file's name and select “Remove”.



3.3 Add Channels

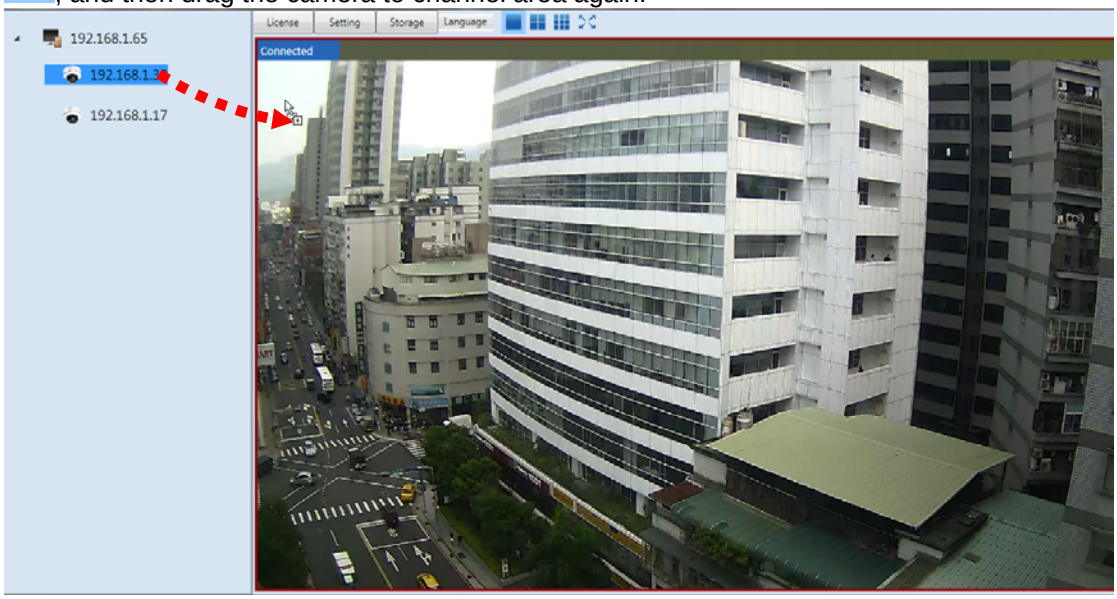
In order to see the camera views from the video sources you have added, you need to add them to one of the channels in the Video Analysis Window.
To add channels, follow these steps:

1. On the Source List Window, find the device for which you would like to see the camera view.
   If you have devices added in your NVR server but cannot see them in your CV7-VA Source List Window, click on the collapse icon shown next to your NVR server in the Source List Window to expand the device list, or right-click on Source List Window and select “Refresh”.

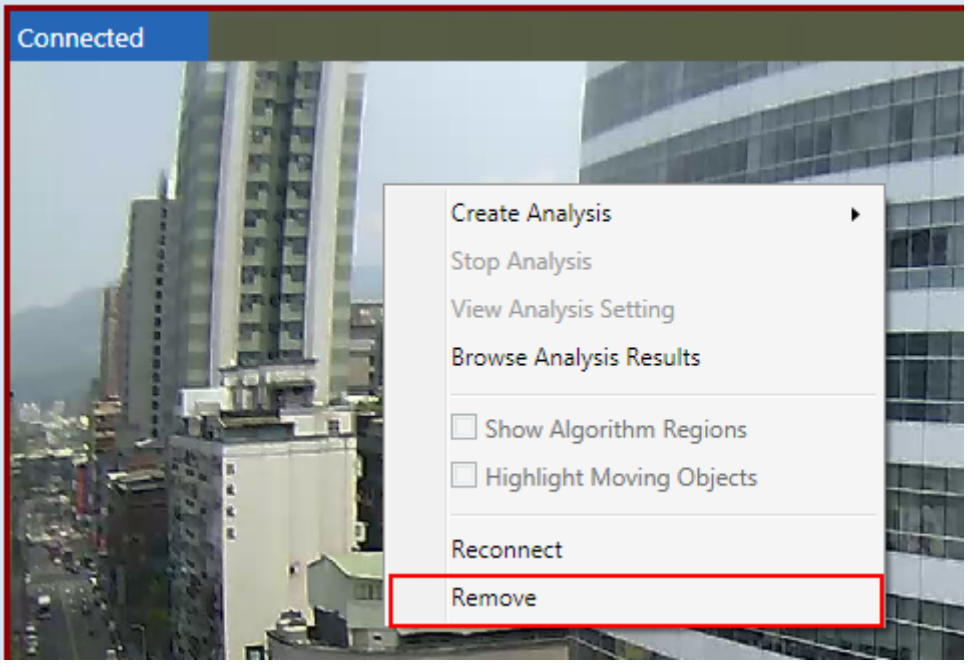


2. After finding your device, you can see the camera views from the device by dragging it to the channel area in the Video Analysis Window. If a new device is dragged to a channel with an existing camera view, the existing camera view will be replaced.

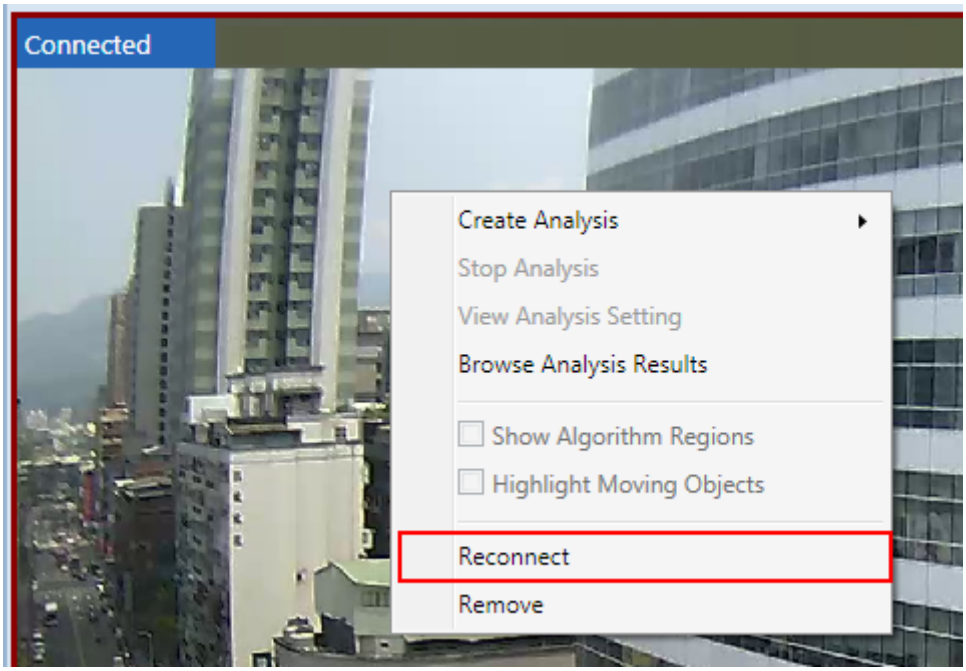
   If you can't drag the camera to channel area, please click the Layout Select button , and then drag the camera to channel area again.



3. To remove a camera view, right-click on the channel and select “Remove”. Note that the analysis will stop running if you perform this action.



4. To renew the connection to a device, right-click on the channel and select “Reconnect”. Note that if you have an analysis running, you must stop the analysis from performing this action.



3.4 Create an Analysis Rule

Now that you are able to see your camera’s video feeds, you are ready to create your analysis rules for your camera views. Note that analyses can only be performed when the device has been dragged into a channel window.

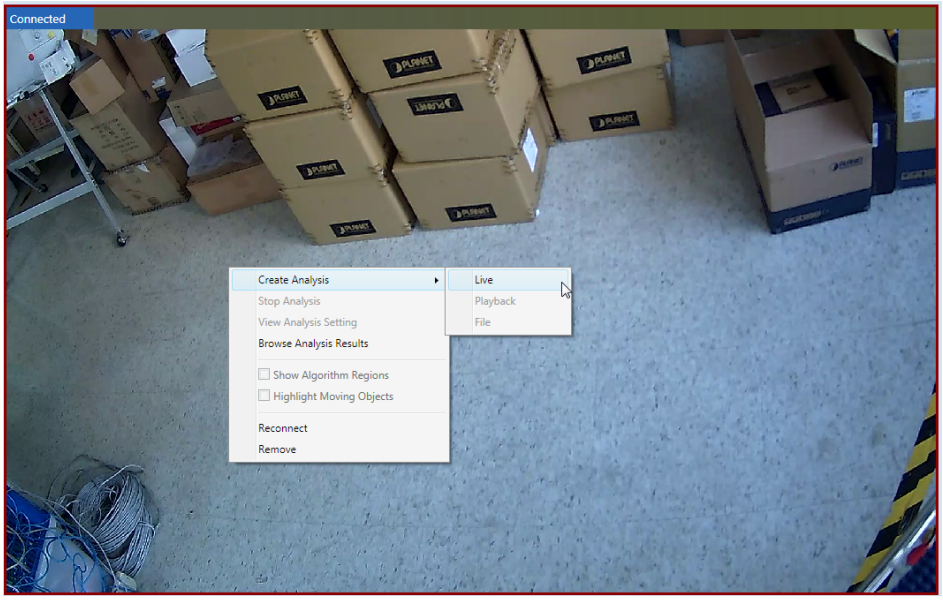
The maximum amount of analysis rules that can be simultaneously performed on a channel is 4, while the maximum number of channels that can perform analysis simultaneously is 9.

Please note the smoothness of performance may depend on your computer's hardware capacity.

3.4.1 Live View Analysis

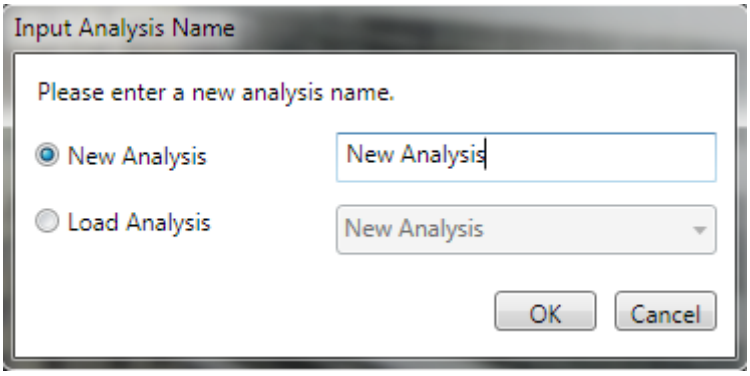
To access the function to create a new analysis rule for a live view, follow the steps below:

1. Right-click on the channel window of your video, click on "Create Analysis" and select "Live".



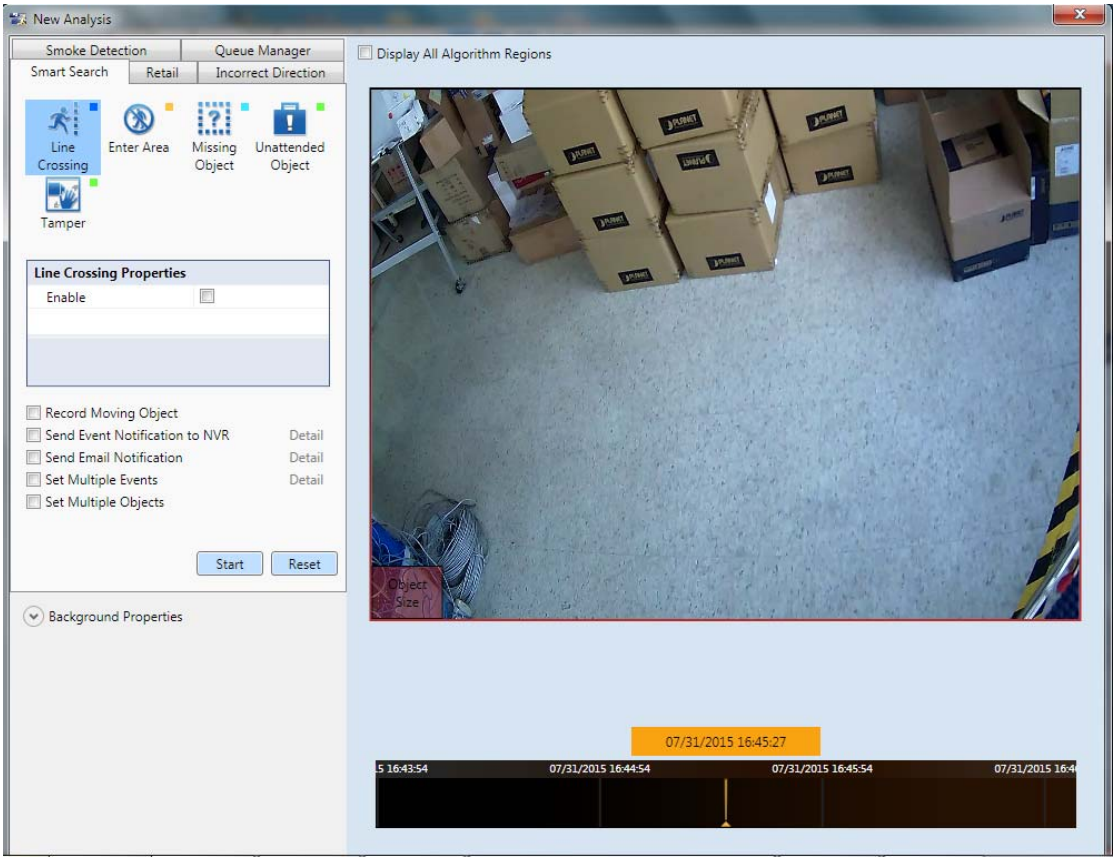
Note	Only when the video source is NVR or camera, user can create a new analysis rule for a live view.

2. In the new pop-up window that appears, input a name for your analysis rule and click "OK".



New Analysis	Create a new analysis and input its name.
Load Analysis	If you have created an analysis before, you can reload it from the analysis list. (The CV7-VA will support this function in the future)

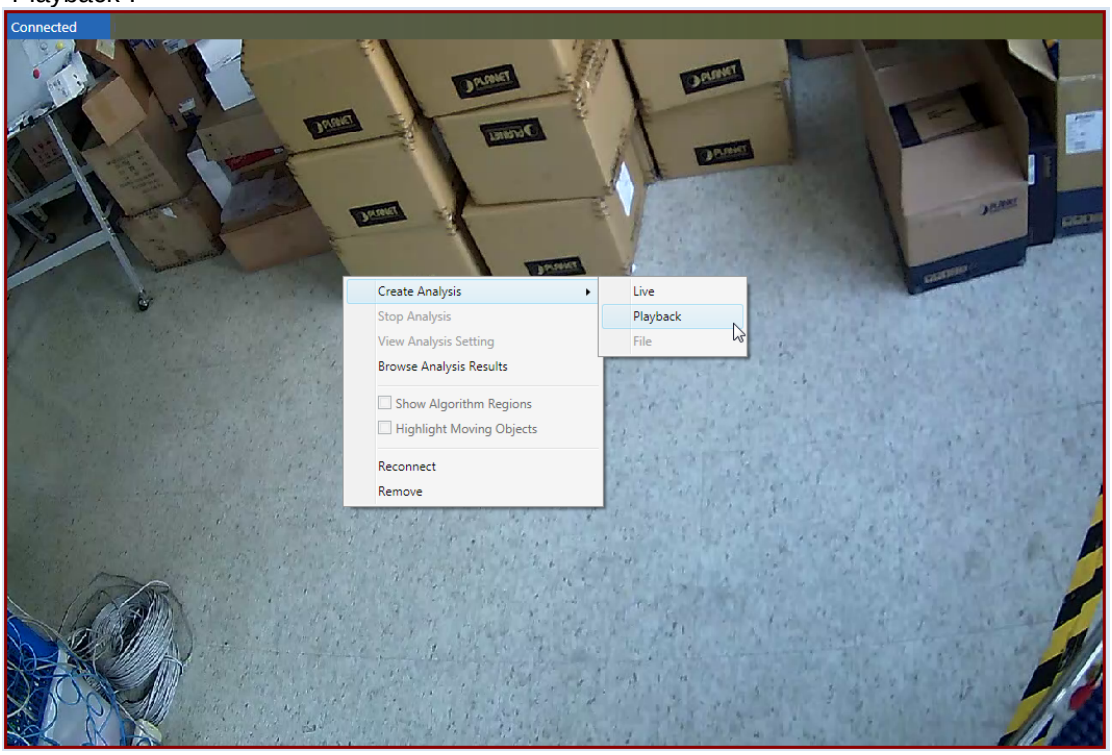
3. A New Analysis Window will appear, and you are now ready to set up your analysis rules.



3.4.2 Playback Analysis

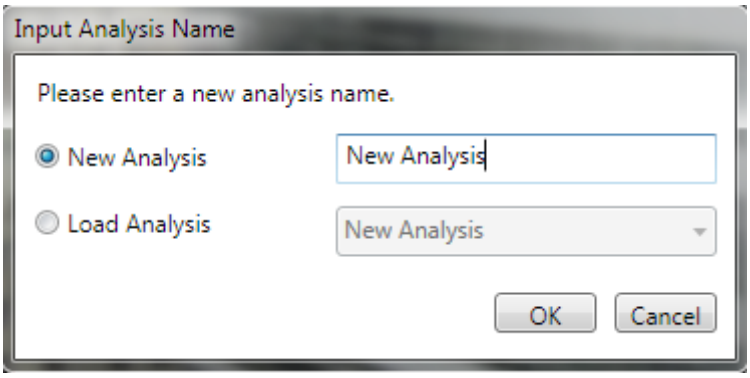
To access the function to create a new analysis rule for non-live video footage that already exists for the selected channel, follow the steps below:

1. Right-click on the channel window of your video, click on “Create Analysis”, and select “Playback”.



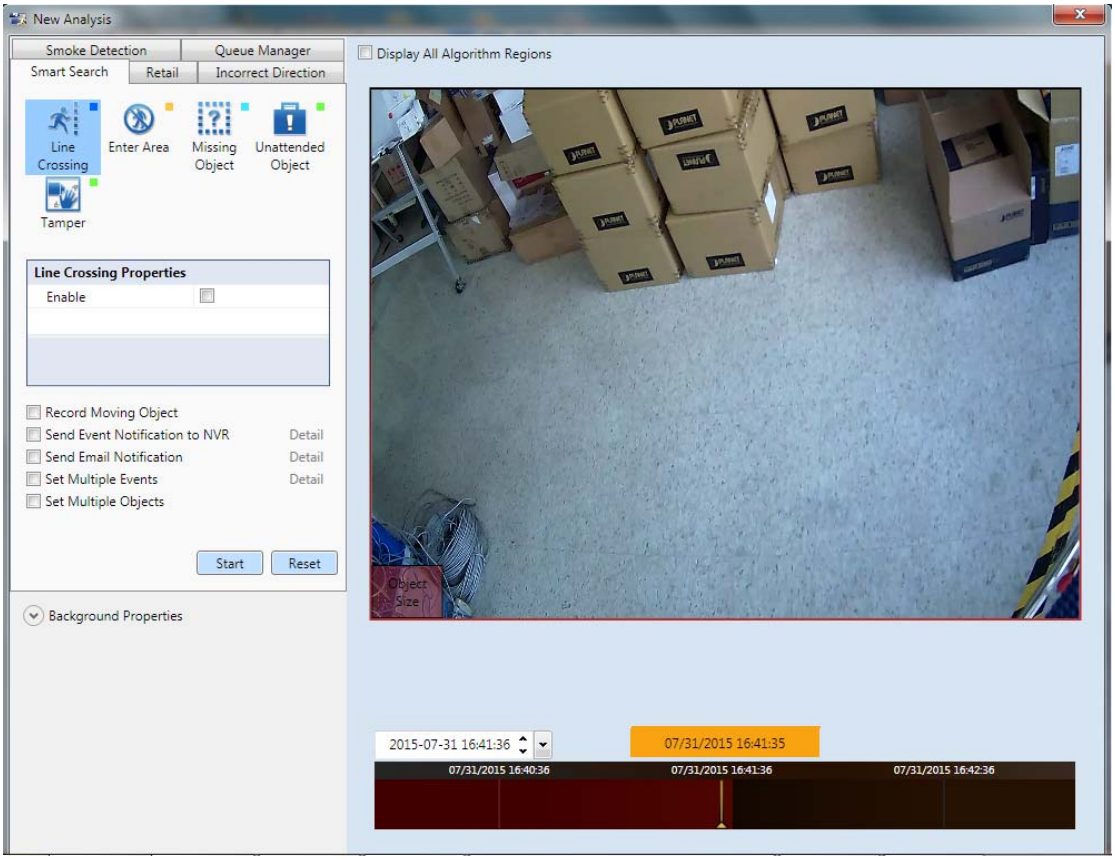
Note	Only when the video source is NVR, user can create a new analysis rule for a playback.

2. In the new pop-up window that appears, input a name for your analysis rule and click "OK".



New Analysis	Create a new analysis and input its name.
Load Analysis	If you have created an analysis before, you can reload it from the analysis list. (The CV7-VA will support this function in the future.)

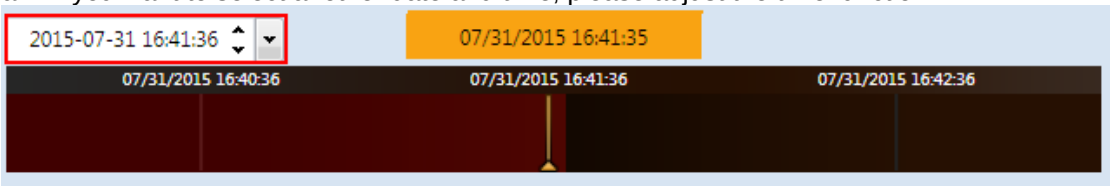
3. A New Analysis Window will appear, and you are now ready to set up your analysis rules.



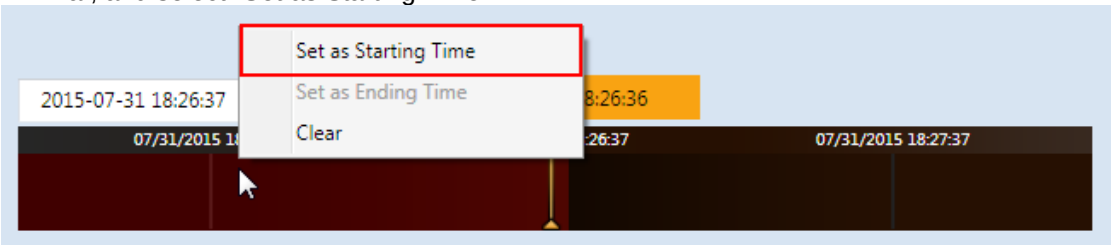
4. You can select the time interval you wish to analyze. To set your time interval, follow

the steps below:

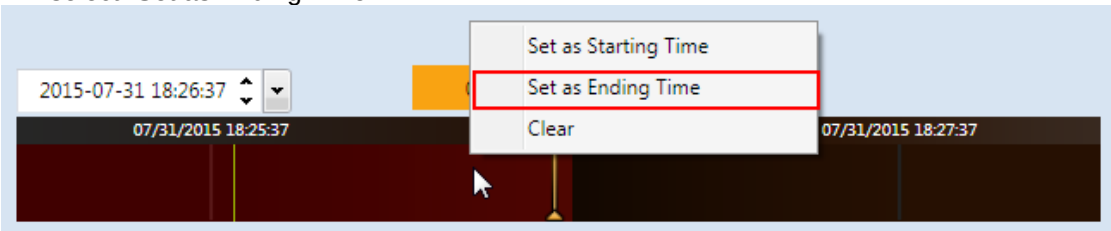
a. If you want to select another date and time, please adjust the time function.



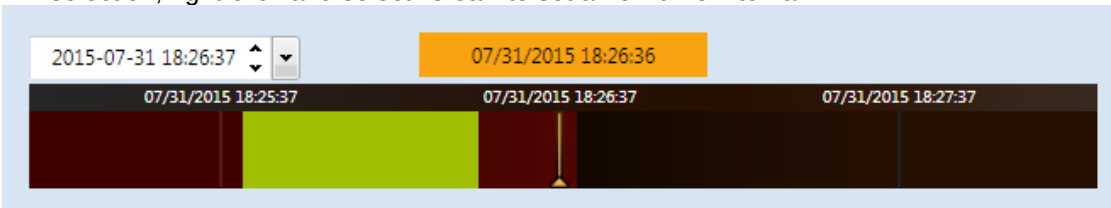
b. Set the beginning of the interval by right-clicking on any location on the Time Bar, and select “Set as Starting Time”.



c. Set the end of the interval by right-clicking on any location on the time bar, and select “Set as Ending Time”.



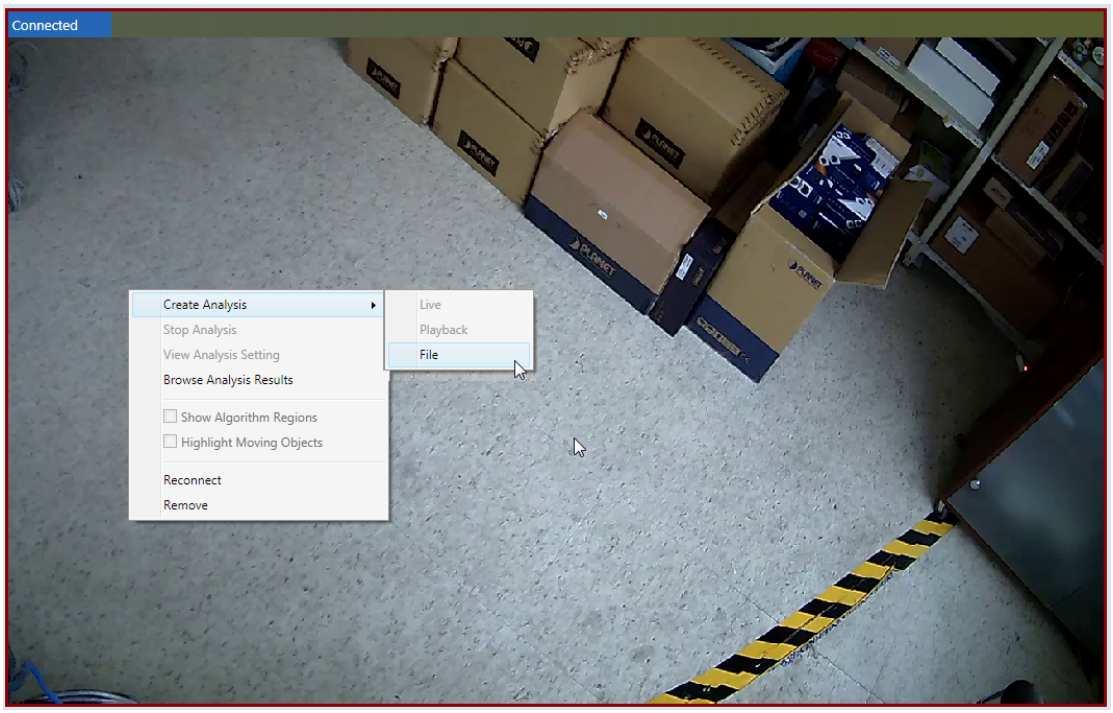
d. The selected area should appear highlighted in green. To clear or edit your selection, right-click and select “Clear” to set a new time interval.



3.4.3 Raw File Analysis

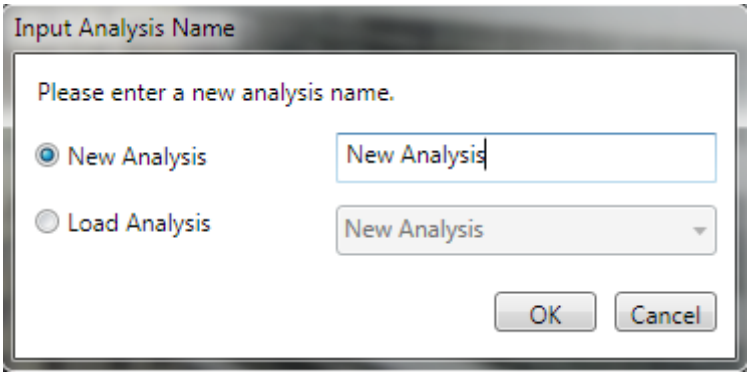
To access the function to create a new analysis rule for raw file that already recorded for the selected channel, follow the steps below:

1. Right-click on the channel window of your video, click on “Create Analysis”, and select “File”.



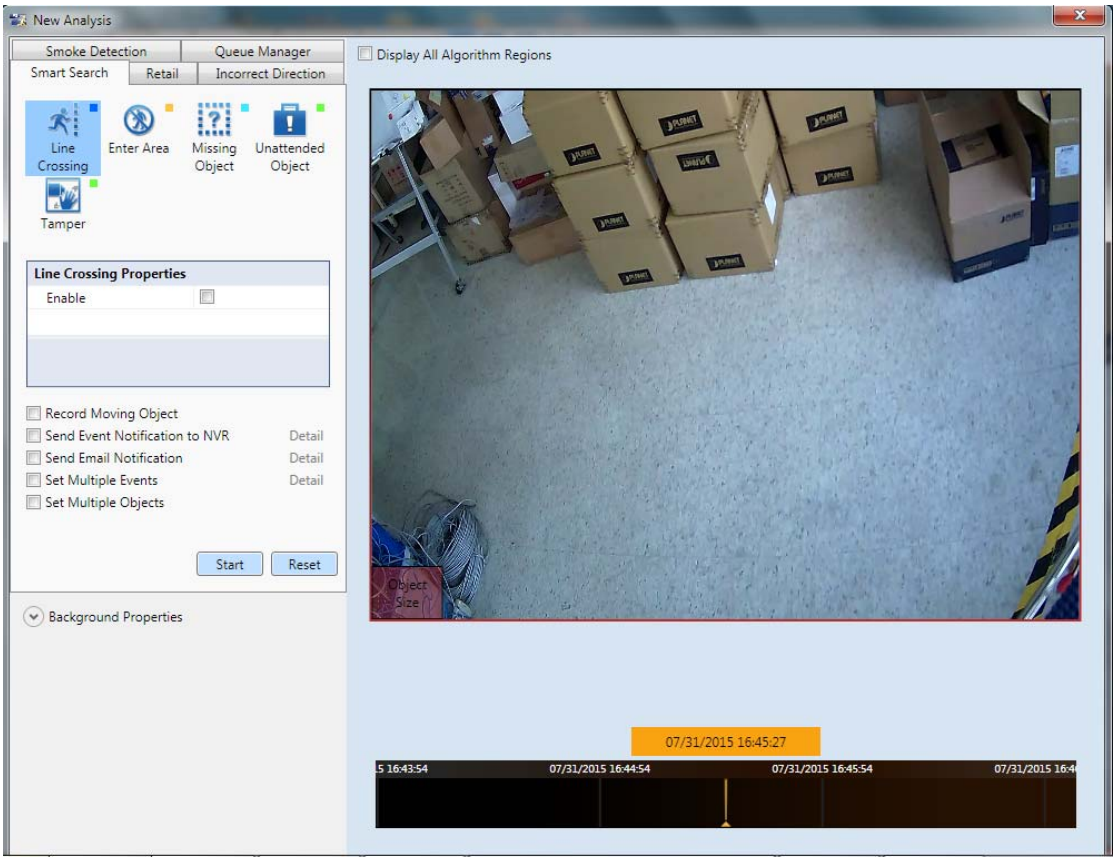
Note	Only when the video source is raw file, user can create a new analysis rule for a file.

2. In the new pop-up window that appears, input a name for your analysis rule and click “OK”.

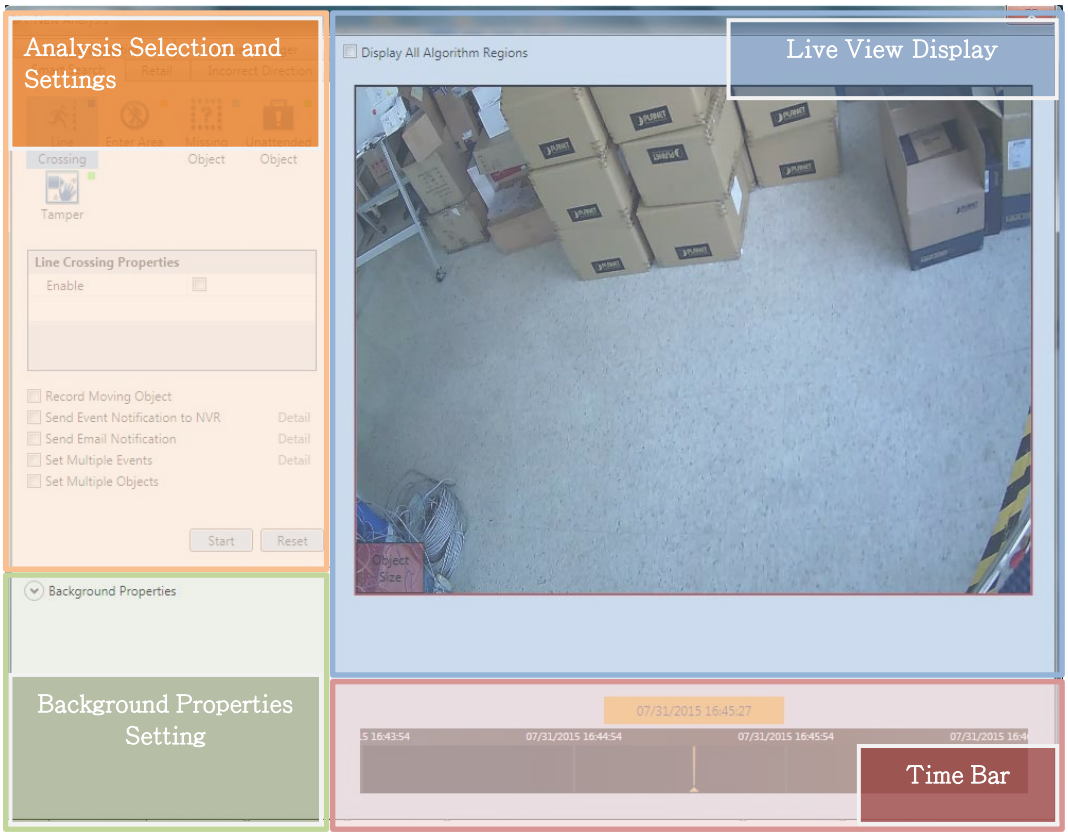


New Analysis	Create a new analysis and input its name.
Load Analysis	If you have created an analysis before, you can reload it from the analysis list. (The CV7-VA will support this function in the future.)

3. A New Analysis Window will appear and you are now ready to set up your analysis rules.



3.5 New Analysis Window UI Introduction



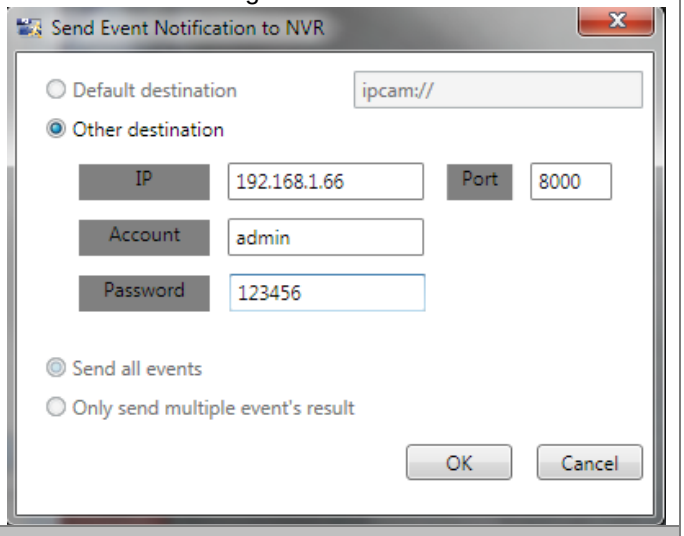
Analysis Selection and Settings

Algorithm:

Provides the selection of algorithm and adjustment for each algorithm's unique properties. New algorithms may be added, so please refer to the algorithm list shown below:

	Functions available now	Functions available in the future
Algorithm	Line Crossing Entering Area Missing Object Unattended Object Tampering Object Counting People Counting	Incorrect Direction Smoke Detection Queue Manager Other Algorithms

Settings:

Enable	Enables this algorithm.
Record Moving Object	If you would like to record all moving objects on your camera view while running the analysis, mark the box for "Record Moving Object".
Send Event Notification to NVR	The CV7-VA will send notification to NVR when it is triggered. Click "Detail" to configure it. An example of how to set the settings is shown: 
Send Email Notification	The CV7-VA will send an alarm email when it is triggered. Click "Detail" to configure it. (The CV7-VA will support this function in the future)
Set Multiple Events	The CV7-VA will support this function in the future.
Set Multiple Objects	You can set three kinds of object size in the algorithm. (The CV7-VA will support this function in the future)

Background Properties	**Minimum Height:** Depending on the distance between your camera device and the ground, the

Setting	perceived size of objects will change For example, the farther the device is, the smaller the object will appear. MinHeight allows the user to determine the minimum height (1-240 pixels) of the Object Size Reference Frame (found in the bottom left corner of the Live View Display) used for the calculation of an object. Any moving object whose height is smaller than this value will be treated as non-relevant. **Minimum Width:** Depending on the distance between your camera device and the ground, the perceived size of objects will change For example, the farther the device is, the smaller the object will appear. MinWidth allows the user to determine the minimum width (1-320 pixels) of the Object Size Reference Frame (found in the bottom left corner of the Live View Display) used for the calculation of an object. Any moving object whose width is smaller than this value will be treated as non-relevant.
Live View Display	Provides live camera view of the selected video source.
Time Bar	Shows the time at which the video in Live View Display is taking place (as determined by user's PC).

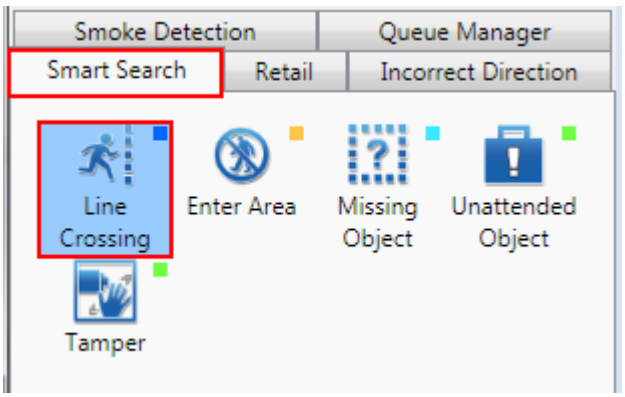
3.6 Analysis Introduction

3.6.1 Line Crossing

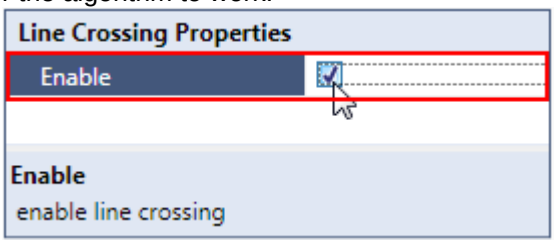
In certain scenarios, you might want to know when people enter a certain restricted area, or when people pass beyond a certain point that you may deem them suspicious. To take care of this, the CV7-VA provides a Line Crossing algorithm, which can provide you with the ability to draw a virtual line on any part of your camera view, and keep an eye on anyone in your camera view that crosses or touches that line. Note that the lines marked for Line Crossing algorithm will be shown in blue.

To set up your Line Crossing algorithm, follow the steps below:

1. On the Smart Search tab of your New Analysis Window, select the "Line Crossing" button.



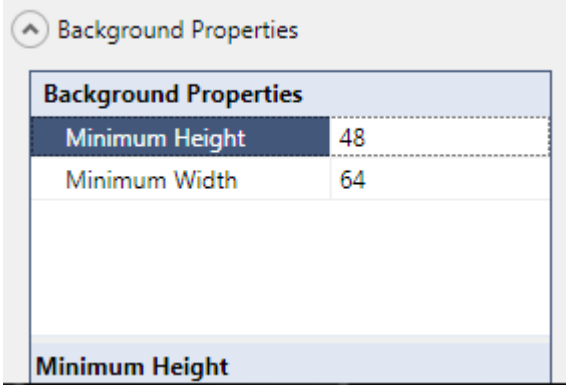
2. Under the Line Crossing Properties that appears on your screen, check the box for "Enable" to allow for the algorithm to work.



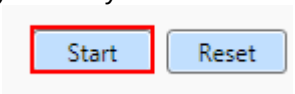
3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. Draw the blue line that will be used to detect suspicious activity by dragging your cursor from a starting point to an end point.

4. If you need to re-draw the line, right-click on the line and select “remove” to remove the existing line, and re-draw.

5. You can adjust the object size in Background Properties.



6. Click “Start” to start running your analysis.



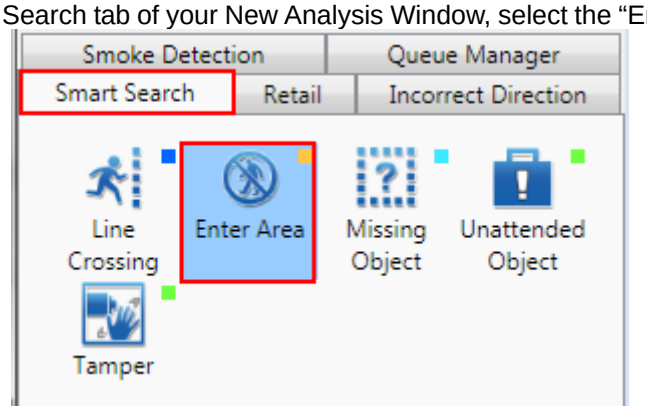
Note	If you have set up more than 1 algorithm in the same analysis, check the “Display All Algorithm Regions” box on the upper left hand corner of the Live View Display to see all marked regions at once.

3.6.2 Enter Area

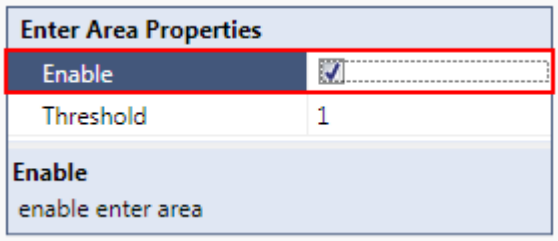
As important as it is for a surveillance system to record the details of an event, it is equally important to detect suspicious activities and prevent the possibility of an unwanted event. The CV7-VA provides an “Enter Area” algorithm to keep track of people that are acting suspiciously by loitering in a designated area for too long. Note that the areas marked for Enter Area algorithm will be highlighted in yellow.

To set up your Enter Area algorithm, follow the steps below:

1. On the Smart Search tab of your New Analysis Window, select the “Enter Area” button.



2. Under the Enter Area Properties that appears on your screen, adjust the property settings to configure your algorithm. Check the box for “Enable” to allow for the algorithm to work.

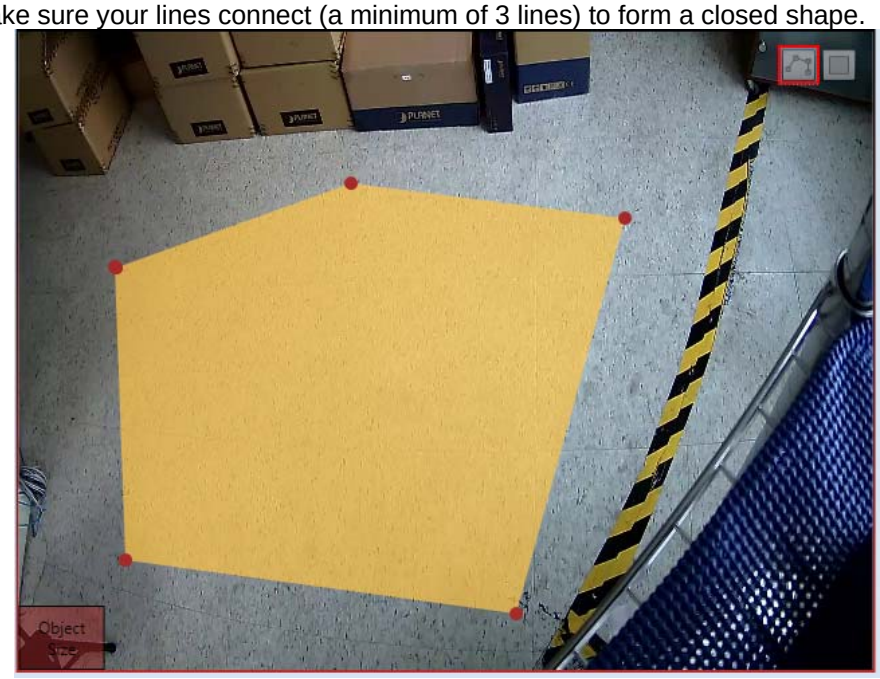


Enable	Enables Enter Area algorithm.
Threshold	Determines the maximum amount of time (in seconds) that a person can remain in an area without triggering an event.

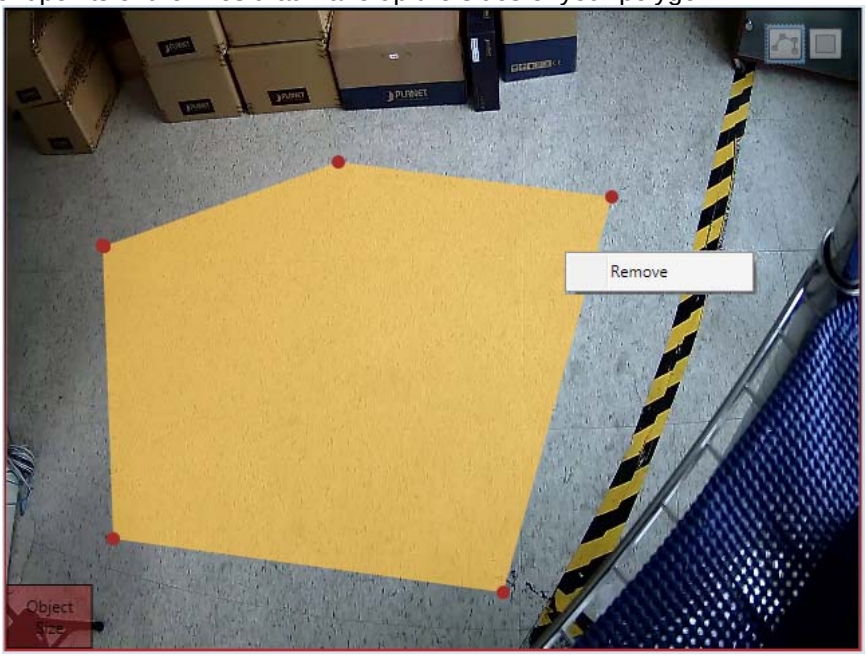
3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. To draw the rectangle that will mark your forbidden area, click and drag your cursor to draw a yellow rectangle.

4. If the area you want to mark does not fit to the form of a rectangle, you may also choose to draw a polygon by selecting the  icon on the upper right corner of your

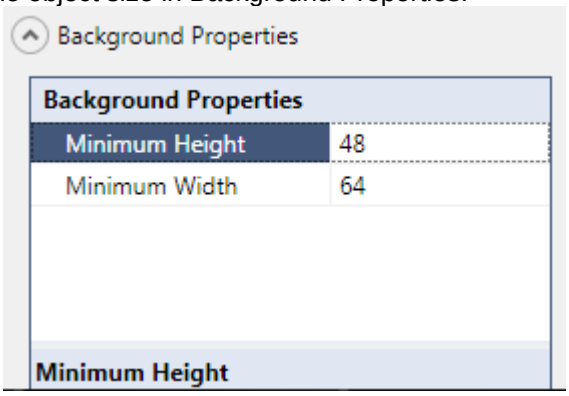
Live View Display area. To draw the lines for the sides of your polygon, click your cursor to mark the endpoints of each line. Double-click on the final endpoint of the final line to confirm and highlight the polygon in yellow, as shown in the illustration below. Make sure your lines connect (a minimum of 3 lines) to form a closed shape.



5. To adjust the marked area, you can drag the highlighted area to keep its original shape or right-click on the area, select “remove”, and re-draw. For polygons, you may toggle the endpoints of the lines that make up the sides of your polygon.



6. You can adjust the object size in Background Properties.



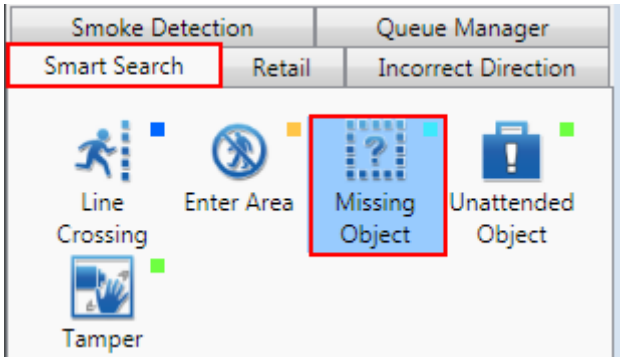
7. Click “Start” to start running your analysis.

3.6.3 Missing Object

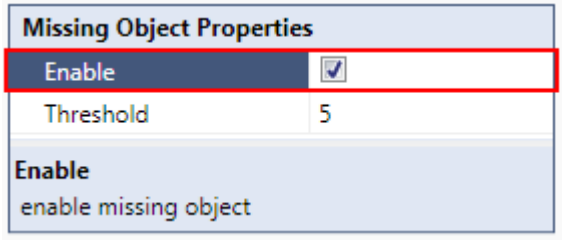
When you are providing security for a valuable object, it can be helpful to have a pair of digital eyes that can know when your object goes missing. The CV7-VA provides an algorithm called “Missing Object” that can detect when an object goes missing in a designated area. Note that the areas marked for Missing Object algorithm will be highlighted in light blue.

To set up your Missing Object algorithm, follow the steps below:

1. On the Smart Search tab of your New Analysis Window, select the “Missing Object” button.



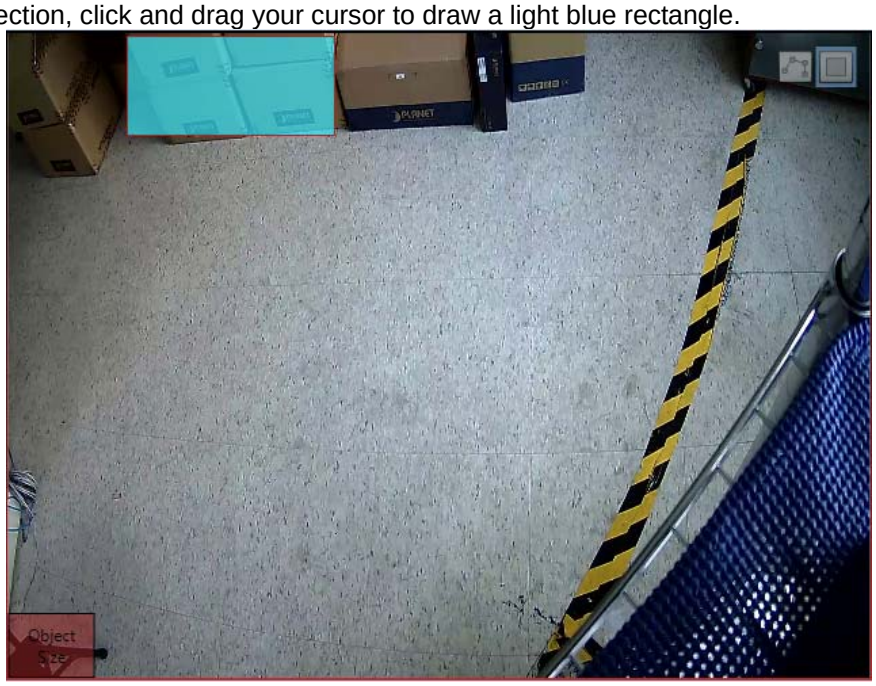
2. Under the Missing Object Properties that appears on your screen, adjust the property settings to configure your algorithm. Check the box for “Enable” to allow for the algorithm to work.



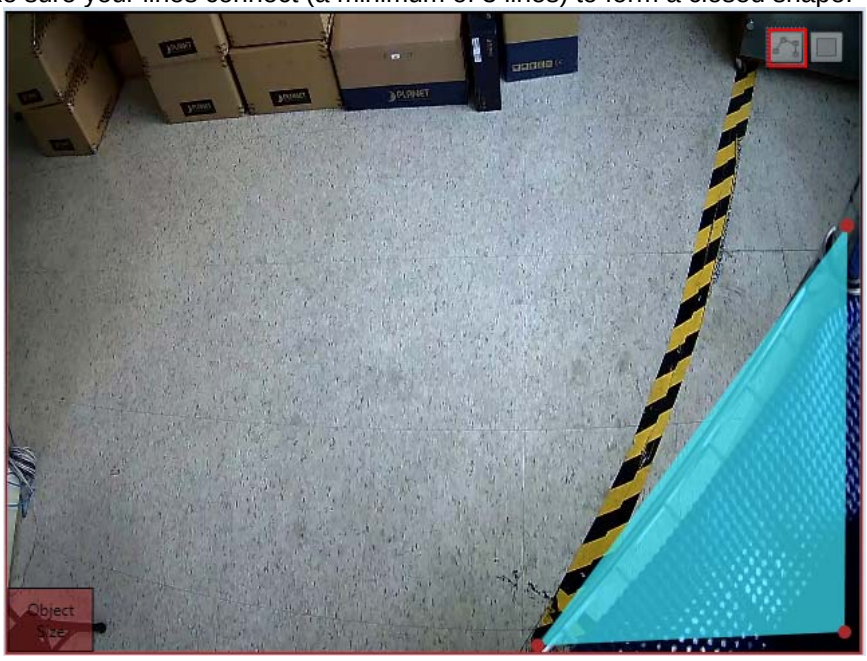
Enable	Enables Missing Object algorithm.
Threshold	Determines the maximum amount of time (in seconds) that an object can be missing without triggering an event.

3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. To draw the rectangle that will mark the area for

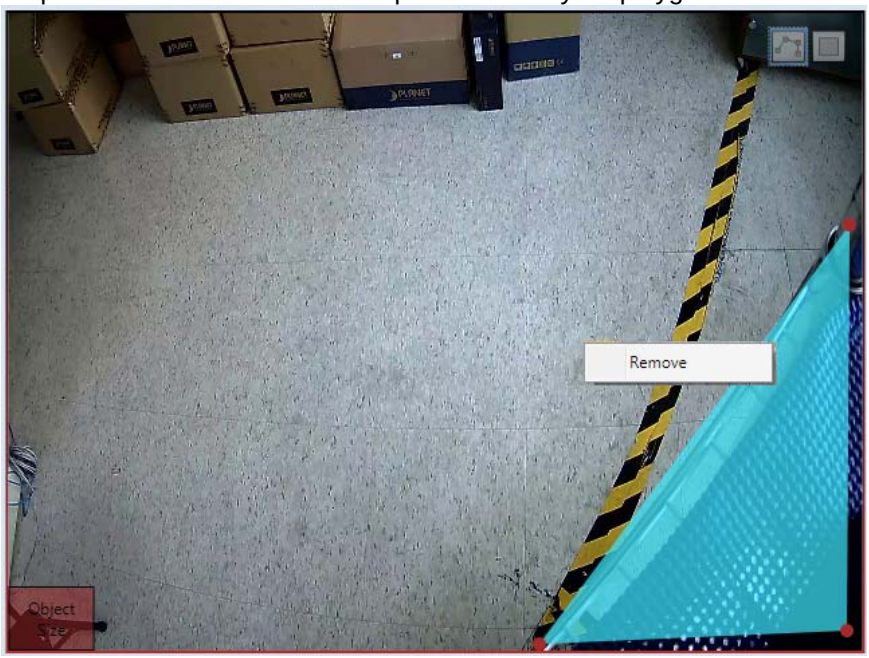
detection, click and drag your cursor to draw a light blue rectangle.



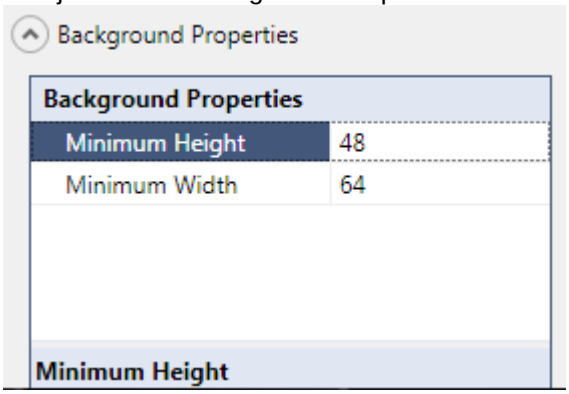
4. If the area you want to mark does not fit to the form of a rectangle, you may also choose to draw a polygon by selecting the  icon on the upper right corner of your Live View Display area. To draw the lines for the sides of your polygon, click your cursor to mark the endpoints of each line. Double-click on the final endpoint of the final line to confirm and highlight the polygon in yellow, as shown in the illustration below. Make sure your lines connect (a minimum of 3 lines) to form a closed shape.



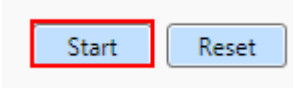
5. To adjust the marked area, you can drag the highlighted area to keep its original shape or right-click on the area, select “remove”, and re-draw. For polygons, you may toggle the endpoints of the lines that make up the sides of your polygon.



6. You can adjust the object size in Background Properties.



7. Click “Start” to start running your analysis.

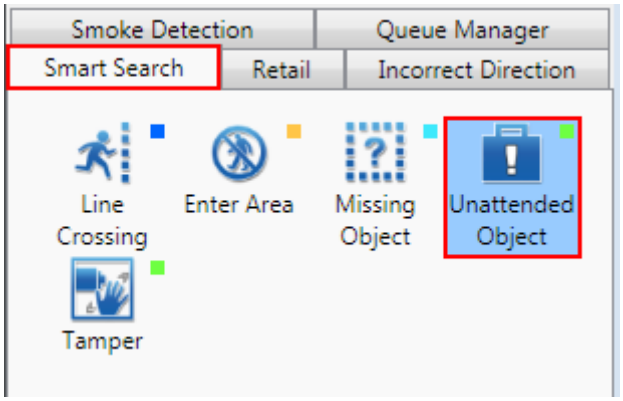


3.6.4 Unattended Object

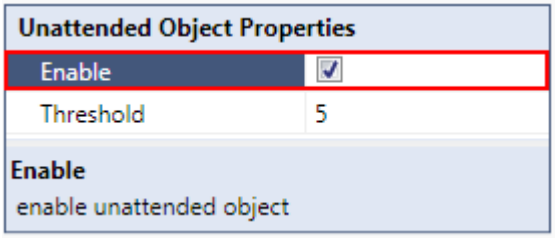
As important as it is to make sure that no object goes missing, it is also important to make sure that no uninvited object appears, for it could cause unwanted surprises. To tackle these surprises, the CV7-VA provides an “Unattended Object” algorithm to keep track of new objects that appear in a designated area. Note that the areas marked for Unattended Object algorithm will be highlighted in green.

To set up your Unattended Object algorithm, follow the steps below:

1. On the Smart Search tab of your New Analysis Window, select the “Unattended Object” button.



2. Under the Unattended Object Properties that appears on your screen, adjust the property settings to configure your algorithm. Check the box for “Enable” to allow for the algorithm to work.

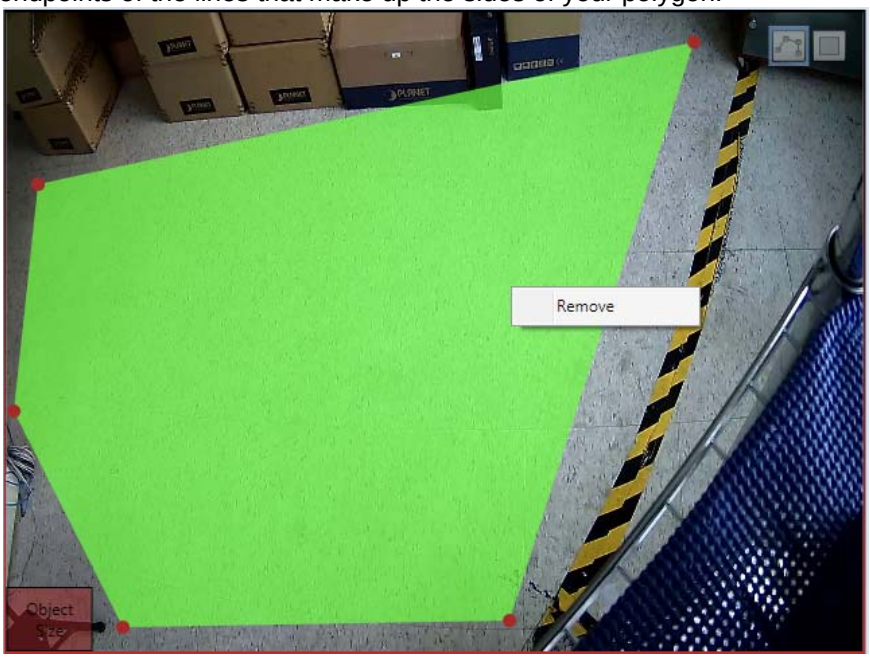


Enable	Enables Unattended Object algorithm.
Threshold	Determines the maximum amount of time (in seconds) that an object can be unattended without triggering an event.

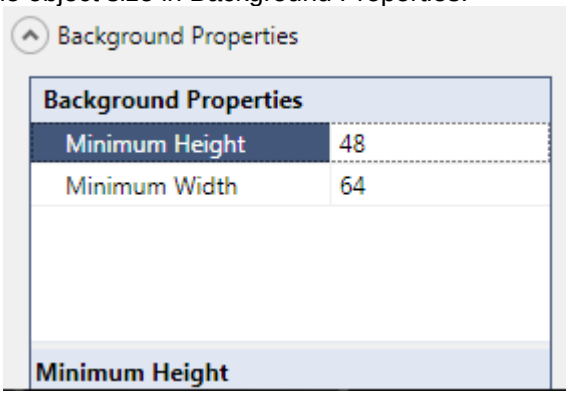
3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. To draw the rectangle that will mark the area for detection, click and drag your cursor to draw a green rectangle.

4. If the area you want to mark does not fit to the form of a rectangle, you may also choose to draw a polygon by selecting the  icon on the upper right corner of your Live View Display area. To draw the lines for the sides of your polygon, click your cursor to mark the endpoints of each line. Double-click on the final endpoint of the final line to confirm and highlight the polygon in yellow, as shown in the illustration below. Make sure your lines connect (a minimum of 3 lines) to form a closed shape.

5. To adjust the marked area, you can drag the highlighted area to keep its original shape or right-click on the area, select “remove”, and re-draw. For polygons, you may toggle the endpoints of the lines that make up the sides of your polygon.



6. You can adjust the object size in Background Properties.



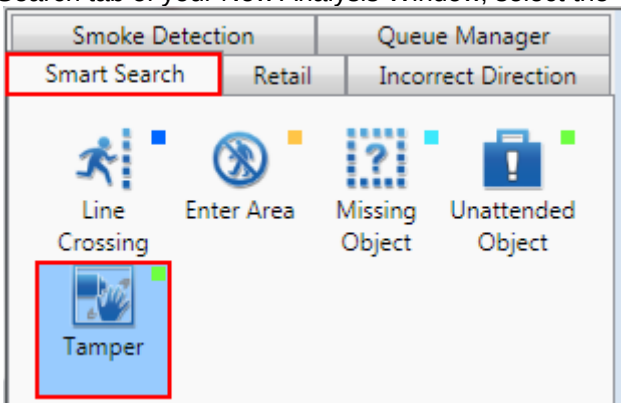
7. Click “Start” to start running your analysis.

3.6.5 Tamper

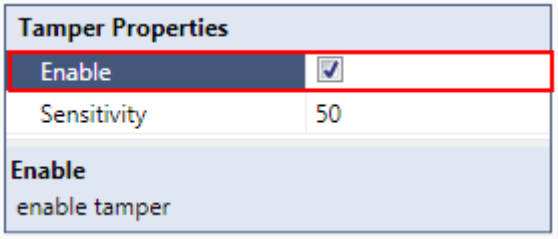
A camera that has been tampered with is not able to serve its purpose. To avoid this, the CV7-VA offers an algorithm to detect whether any form of tampering has been done to a camera device, whether it be in the form of redirecting the angle of the device, de-focusing the device, or covering or spray-painting the device.

To set up your Tamper algorithm, follow the steps below:

1. On the Smart Search tab of your New Analysis Window, select the “Tamper” button.

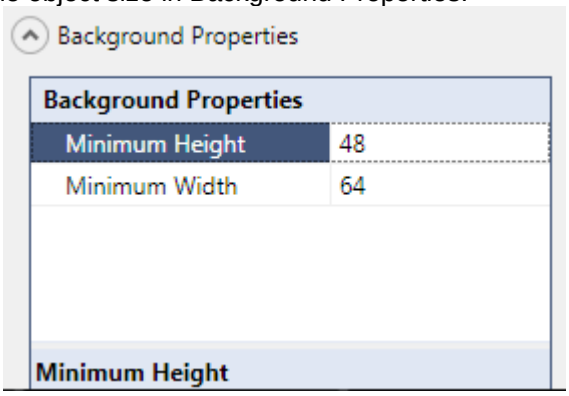


2. Under the Tamper Properties that appears on your screen, adjust the property settings to configure your algorithm. Check the box for “Enable” to allow for the algorithm to work.



Enable	Enables Tamper algorithm.
Sensitivity	Determines how sensitive the camera reacts to the tampering. The higher the sensitivity level is, the less tampering will trigger the algorithm, but may give false alarms.

3. You can adjust the object size in Background Properties.



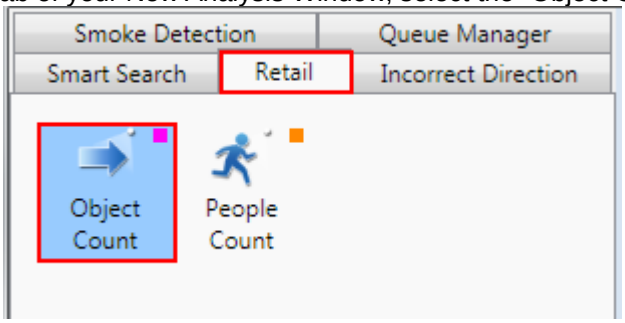
4. Click “Start” to start running your analysis.

3.6.6 Object Count

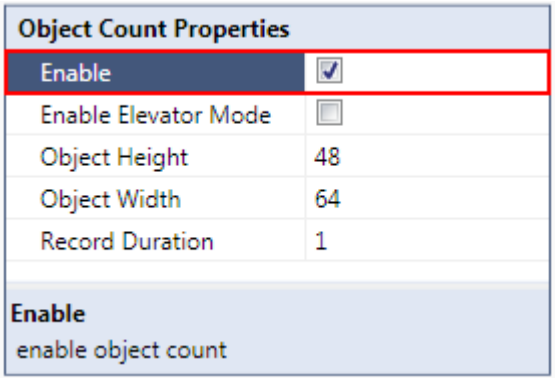
In certain locations and scenarios, you may want to know how many, or if any, objects have entered or exited an area. The CV7-VA offers an algorithm for these scenarios, called “Object Count”. Note that if an Analysis Rule uses the Object Count algorithm, it cannot contain other algorithms. Note that the line drawn for Object Count algorithm will be pink.

To set up Object Count algorithm, follow the steps below:

1. On the Retail tab of your New Analysis Window, select the “Object Count” button.



2. Under the Object Count Properties that appears on your screen, adjust the property settings to configure your algorithm. Make sure the “Enable” property is checked to draw the user-defined reference line.

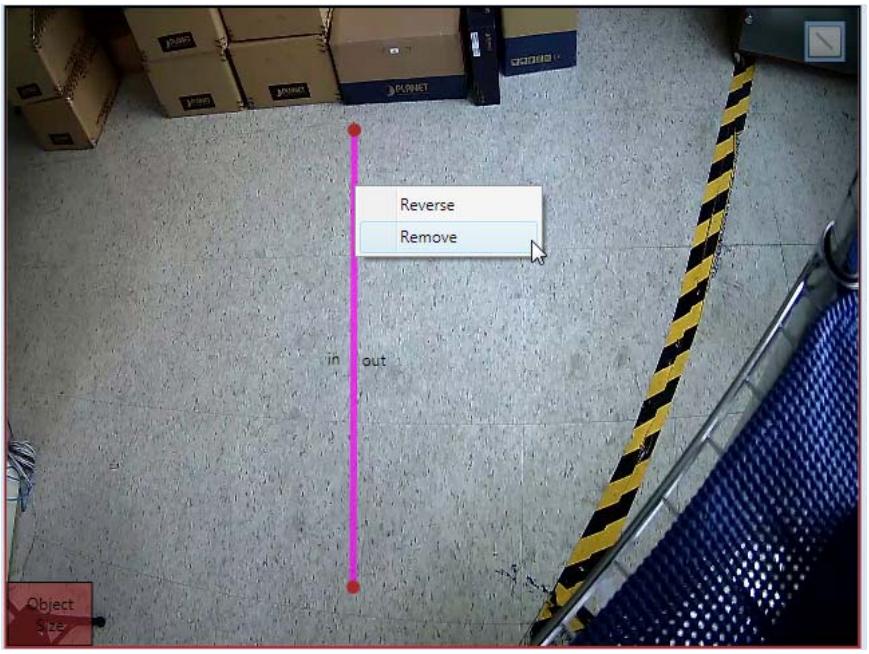


Enable	Enables Object Count algorithm.
Enable Elevator Mode	The CV7-VA will support this function in the future

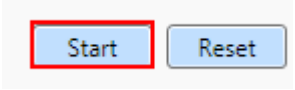
Object Height	Depending on the distance between your camera device and the ground, the perceived size of objects passing by will change. For example, the farther the device is, the smaller objects will appear. Object Height allows the user to determine the height (1-240 pixels) of the Object Size Reference Frame (found in the bottom left corner of the Live View Display) used for the calculation of 1 object. The smaller the object appears on the video stream (the farther away the device is), the smaller the value should be.
Object Width	Depending on the distance between your camera device and the ground, the perceived size of objects passing by will change. For example, the farther the device is, the smaller objects will appear. Object Width allows the user to determine the width (1-320 pixels) of the Object Size Reference Frame (found in the bottom left corner of the Live View Display) used for the calculation of 1 object. The smaller the object appears on the video stream (the farther away the device is), the smaller the value should be.
Record Duration (in minutes)	Set the interval at which the values for the objects counted going in and out will be updated on the Counting Report. An interval of 1 minute will be updated more regularly than an interval of 10 minutes.

3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. Draw the pink reference line that will be used to count the objects that cross over this line by dragging your cursor from a starting point to an end point.

4. Once completed, you will see the line and the labels that will be used to show the number of objects entering (In) and exiting (Out) the scene. To re-draw the line or reverse the locations for In and Out, simply right-click the line and select “remove” or “reverse”.



5. Click “Start” to start running your analysis.



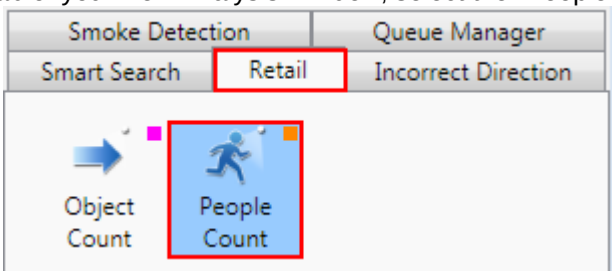
Note	For the Object Count algorithm to work properly, make sure the camera from which you are obtaining the video is located above the scene of interest.

3.6.7 People Count

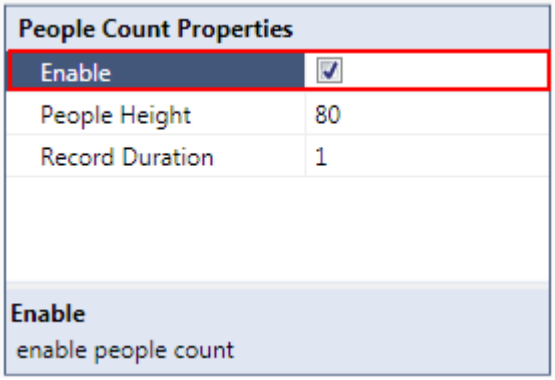
In certain locations and scenarios, like at the entrance of a shop or a restricted area, it can be helpful to know how many people have entered or exited the area. The CV7-VA offers “People Count” algorithm for these scenarios. Note that if an Analysis Rule uses the People Count algorithm, it cannot contain other algorithms. Note that the line drawn for People Count algorithm is in orange.

To set up People Count algorithm, follow the steps below:

1. On the Retail tab of your New Analysis Window, select the “People Count” button.

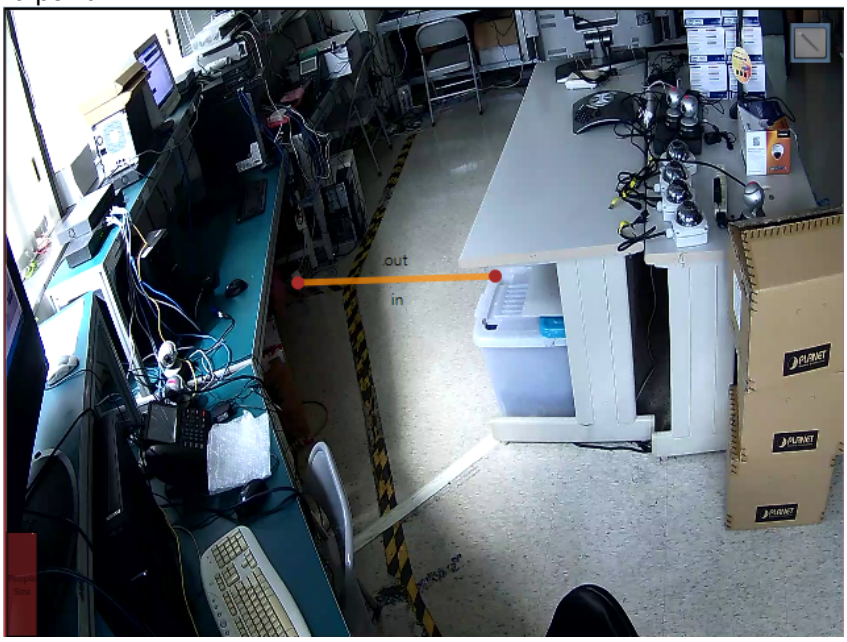


2. Under the People Count Properties that appears on your screen, adjust the property settings to configure your People Counting algorithm. Make sure the “Enable” property is checked to draw the user-defined reference line.

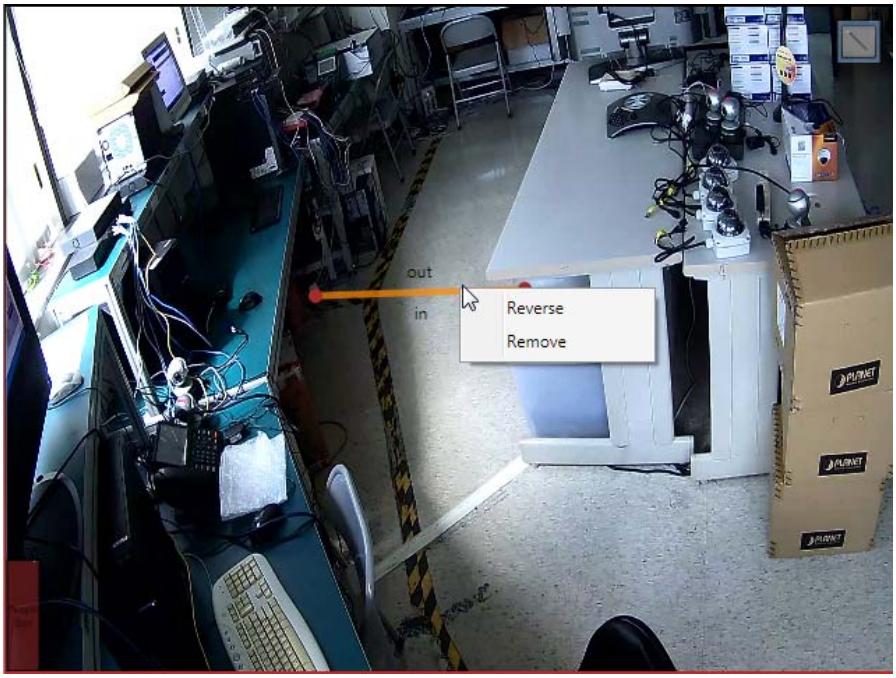


Enable	Enables People Count algorithm.
People Height	Depending on the distance between your camera device and the ground, the perceived size of people passing by will change. For example, the farther the device is, the smaller people will appear. People Height allows the user to determine the height (1-240 pixels) of the People Size Reference Frame (found in the bottom left corner of the Live View Display) used for the calculation of 1 person. The smaller the people appear on the video stream (the farther away the device is), the smaller the value should be.
Record Duration (in minutes)	Set the interval at which the values for the people counted going in and out will be updated on the Counting Report. An interval of 1 minute will be updated more regularly than an interval of 10 minutes.

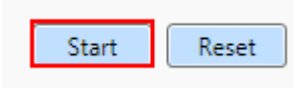
3. Move your cursor over to the area showing video stream. Once over the area, your cursor will appear as a drawing pen. Draw the pink reference line that will be used to count the objects that cross over this line by dragging your cursor from a starting point to an end point.



4. Once completed, you will see the line and the labels that will be used to show the number of objects entering (In) and exiting (Out) the scene. To re-draw the line or reverse the locations for In and Out, simply right-click the line and select “reverse” or “remove”.



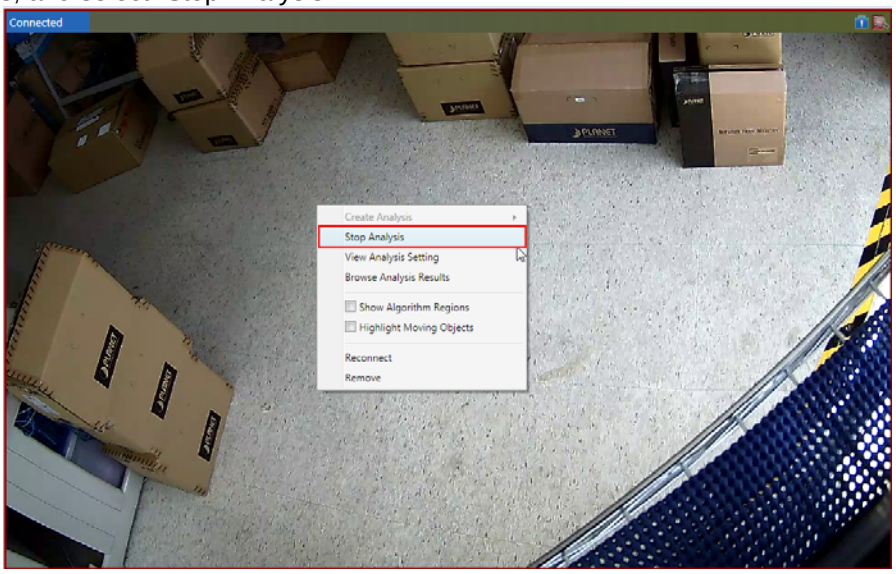
5. Click “Start” to start running your analysis.



Note	1. For the People Count algorithm to work properly, make sure the camera from which you are obtaining the video has a frontal view of the scene of interest. 2. The precision of your video analysis depends on the video quality and may be affected by the characteristics of objects in the video stream. To obtain the best results, test your analysis rules and optimize your settings.

3.7 Stop an Analysis Rule

If you are only running your Analysis Rule(s) for a specific time period or you wish to stop running the Analysis Rule(s) at any point, you can do so by using the “Stop Analysis” function. To access this function, simply right-click on the channel that you wish to stop the analysis, and select “Stop Analysis”.



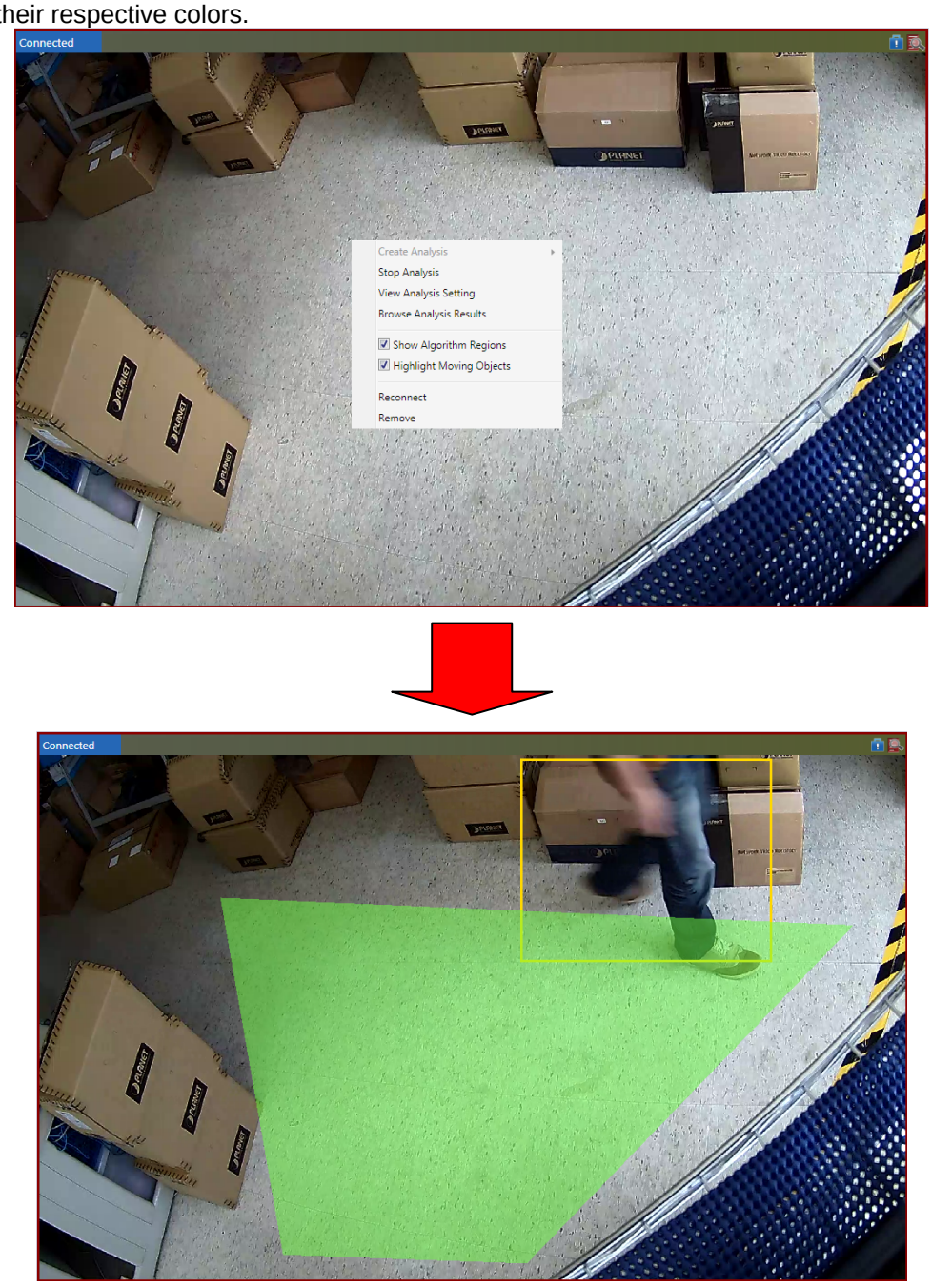
Note

All analyses will stop running if the CV7-VA window is closed. To continue running an analysis, the settings will have to be re-configured in a new Analysis Rule.

3.8 Display Detection Indicators

To enhance awareness when monitoring your live video feed, it may be helpful to have visual cues about the analyses that you are running or objects that are moving on your screen. In order to achieve this, CV7-VA provides the option to display detection indicators or show the moving objects on the screen.

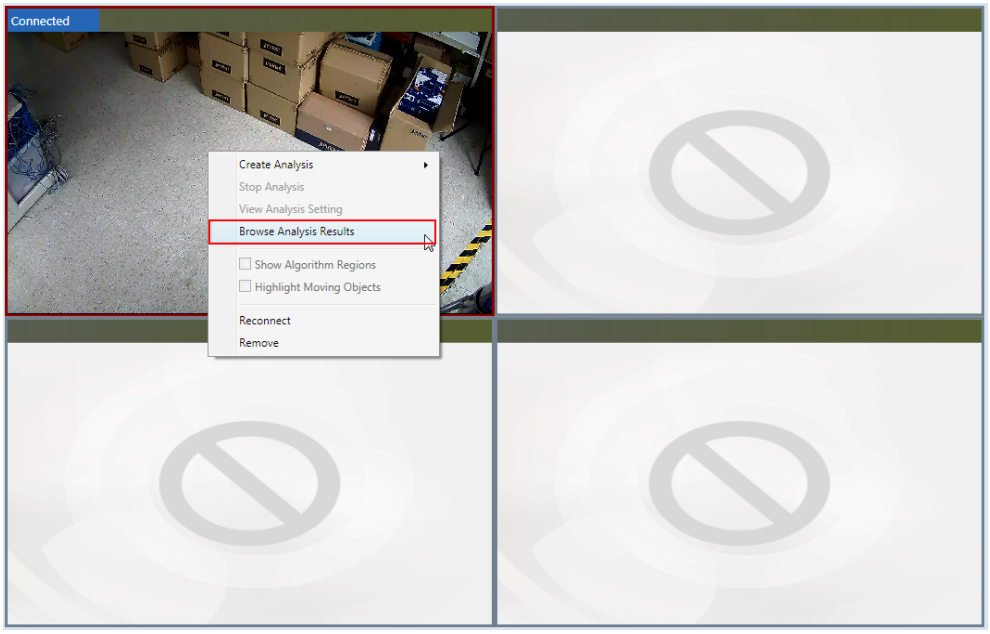
To access this function, simply right-click on a channel and select “Show Algorithm Regions” to display detection indicators and/or select “Show Moving Objects” to show the moving objects on the camera feed. Note that all algorithm regions are marked according to their respective colors.



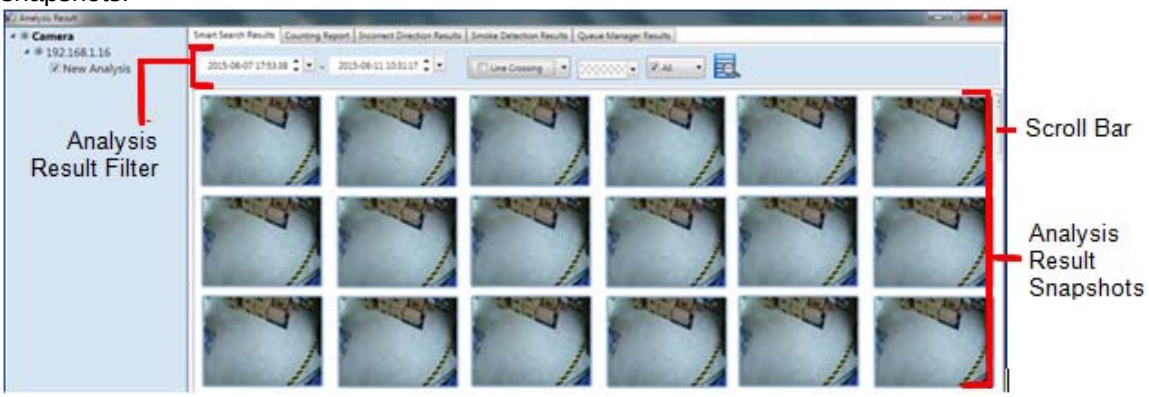
3.9 Analysis Results

After setting up your analysis rules and allowing the software to detect these events, the next logical step would be to look at what events have been captured. To browse the events that have been captured based on the rules defined by the user, you can use the Results and Report function of the CV7-VA.

To access this function, right-click on the area of the Video Analysis Window that is running the analysis rule for which you would like to see the results and select “Browse Analysis Results”.

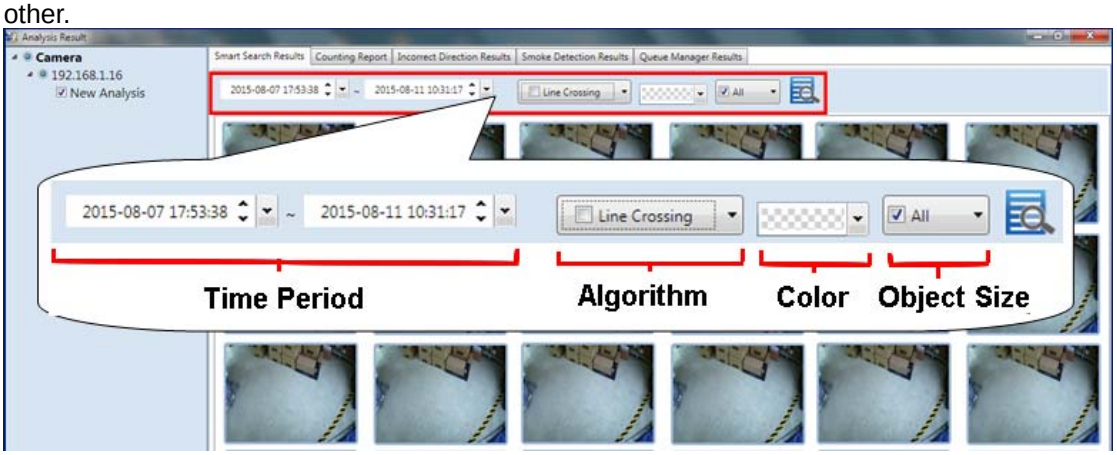


A new Analysis Results Window that contains the events captured as a result of the analysis rules will open. Note that the Analysis Result Snapshots that are shown are the 1st frame of the event that has been captured. If you do not find an event that you are looking for or if you wish to see more events, use the Scroll Bar on the right to navigate the list of snapshots.



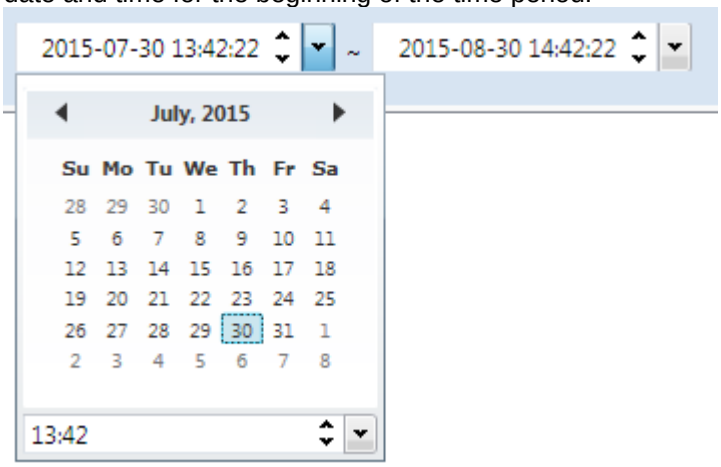
3.9.1 Search Results by Filters

To narrow down the search results that are shown in the Analysis Result Snapshots area, you can use the options presented in the Analysis Result Filter area to filter by Time Period, Algorithm, Color and Object Size. Note that these filters are used in conjunction with each other.

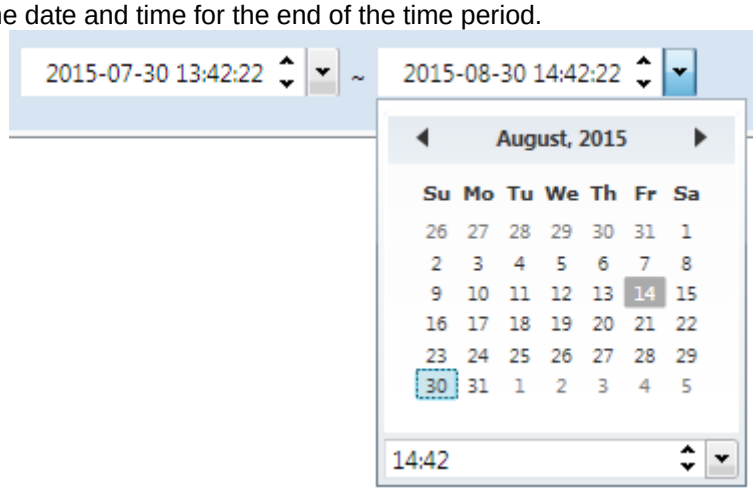


Please refer to the steps to search results:

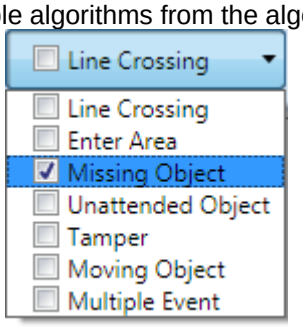
1. Select the date and time for the beginning of the time period.



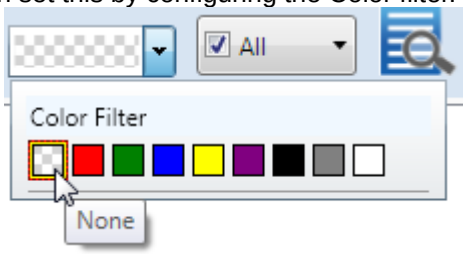
2. Select the date and time for the end of the time period.



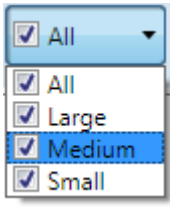
3. Select an algorithm or multiple algorithms from the algorithm list.



4. (Optional) If the results you wish to see or find include a moving object that is in a specific color, you can set this by configuring the Color filter.



5. (Optional) If you wish to see or find the result by object size, you can select the size here. For now, the CV7-VA supports "All". It will support a specific size of your own choosing in the future.



6. Click the search button  .

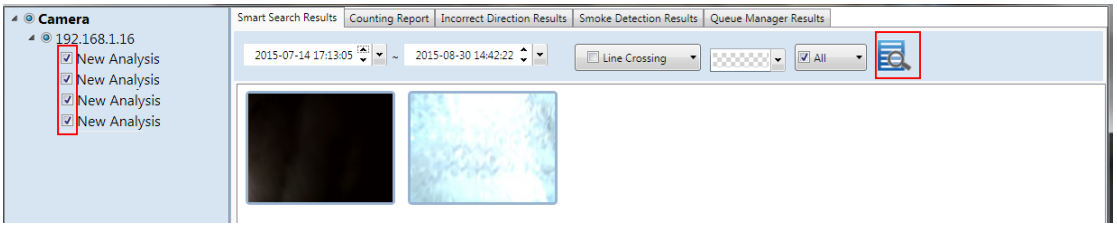
3.9.2 View Multiple Analysis Rule Results

Once in the Analysis Results Window, you can select to view results for other analysis rules that you may have previously created for the same device.

In order to view the results of multiple analysis rules in the same device, follow these steps:

1. On the left hand side of your Analysis Results Window, under your selected device, check the boxes for the analysis rules that you wish to see.

2. Click the search button  .



Note	Analysis Result Filters by Time Period, Algorithm, and Color are not applicable to Object/People Count algorithms. To see the report for your Object/People Count algorithm, select the Counting Report tab.

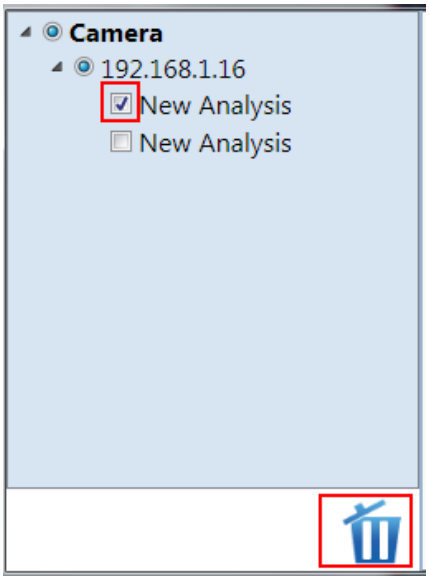
3.9.3 Delete Analysis Rule Result

There may be a time when you wish to delete some of the Analysis Rules that you have created whether to increase storage space or for aesthetic purposes.

In order to permanently delete analyses, follow these steps:

1. On the left hand side of your Analysis Results Window, under your selected device, check the boxes for the analysis rules that you wish to delete.

2. Click  to delete it.

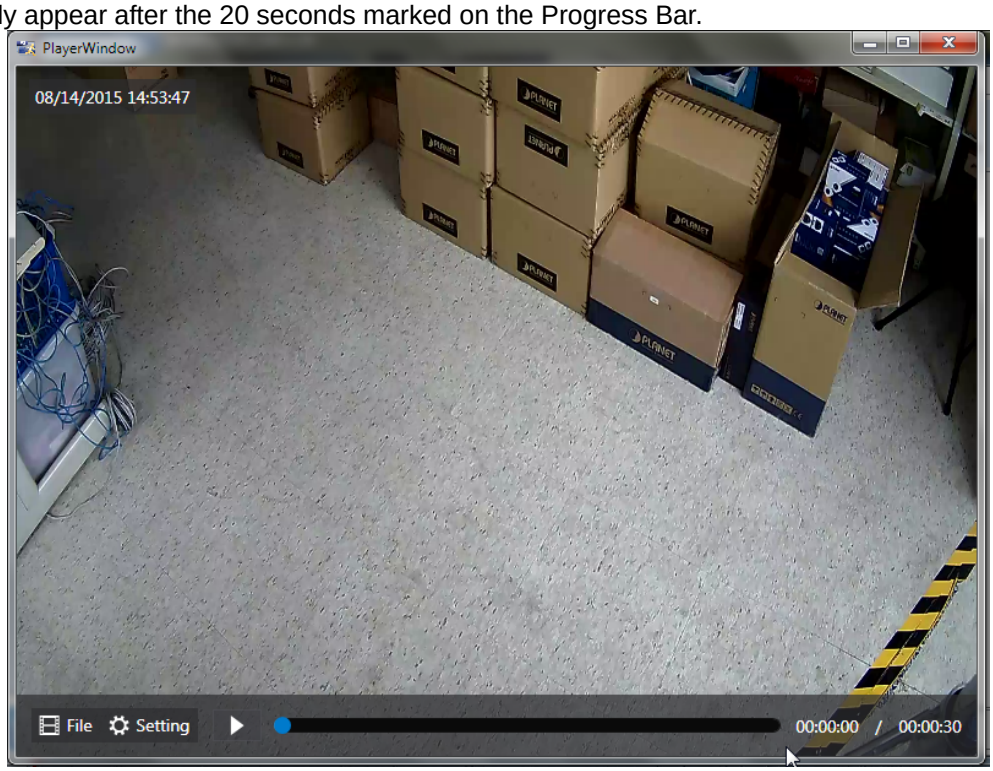


Note	Once an analysis rule is deleted, everything related to it (including events and videos captured using the analysis rule) will also be deleted.

3.10 Watch Event Playback

Now that you have found the events that fit your analysis rule, you can watch the playback of these events.

To watch these events, double-click on the single Analysis Result Snapshot that you would like to review. A new Player Window will open, ready to play your event. Please note that for each captured event, the CV7-VA will also provide video footage of moments leading up to the event (approximately 20 seconds) as well as moments after the event (approximately 5 seconds). This means that the event that triggered the recording may only appear after the 20 seconds marked on the Progress Bar.



If you cannot see the control buttons located at the bottom of the Player Window, hover your cursor over the area it should be located, and it will appear.

File	**Open**: Allows you to open other files (in RAW format). **Close**: Closes the current file that is open.
Setting	**Timestamp**: After the Setting button is clicked, the Timestamp checkbox will allow you to decide whether or not to show the time and date of the video. If selected, it will appear on the upper left corner of the Player Window. **SmartSearch Properties**: After the Setting button is clicked and XML Analysis checkbox is marked, you have the option to configure the Smartsearch Properties. If selected, you can decide whether or not to display the detection indicators for the algorithms that were used. **Object Filter**: After the Setting button is clicked and XML Analysis checkbox is marked, you have the option to configure the Object Filter properties. If selected, you can decide whether or not to display detection indicators for the events that were captured.
Play/Pause	Allows you to control the playback of the file.

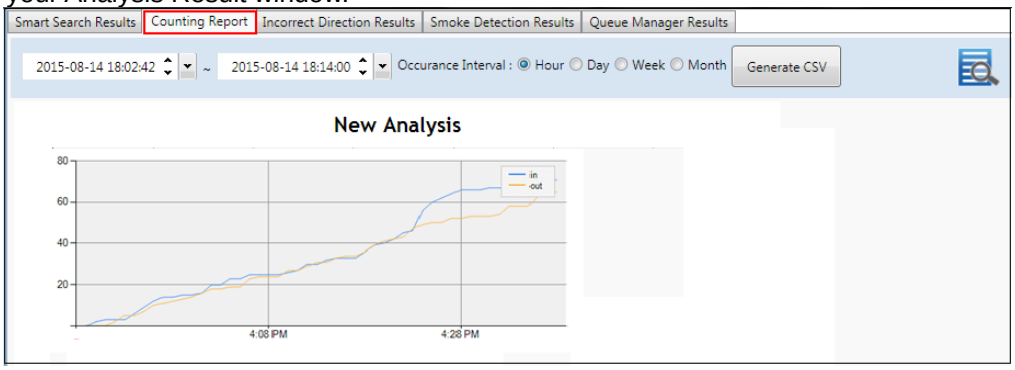
Progress Bar	Shows the progress of the video playback. You can toggle the blue circle on the progress bar to jump to different parts of the video.

Note

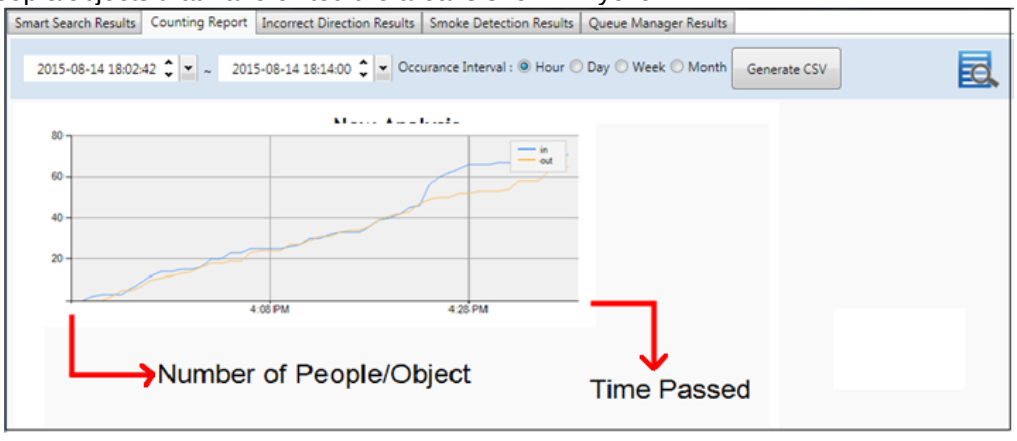
The options that will be shown when selecting Smart Search Properties and Object Filter are dynamic. This means that only algorithms that were used when creating the Analysis Rule of the video will be available.

3.11 Counting Report

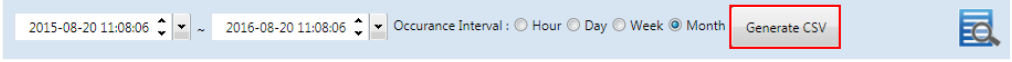
If your analysis rule uses a counting algorithm, you can gain more insights using the Counting Report. To access this report, you can select the “Counting Report” tab at the top of your Analysis Result window.



Your Counting Report will appear, showing a graph with the number of people or objects that have entered or exited a certain area based on the previously drawn reference line. Note that the title of the graph is the name of the analysis rule previously created. The x- and y-axis are for time passed and number of people or objects, respectively. The value for people/objects that have entered the area is shown in blue, while the value for people/objects that have exited the area is shown in yellow.

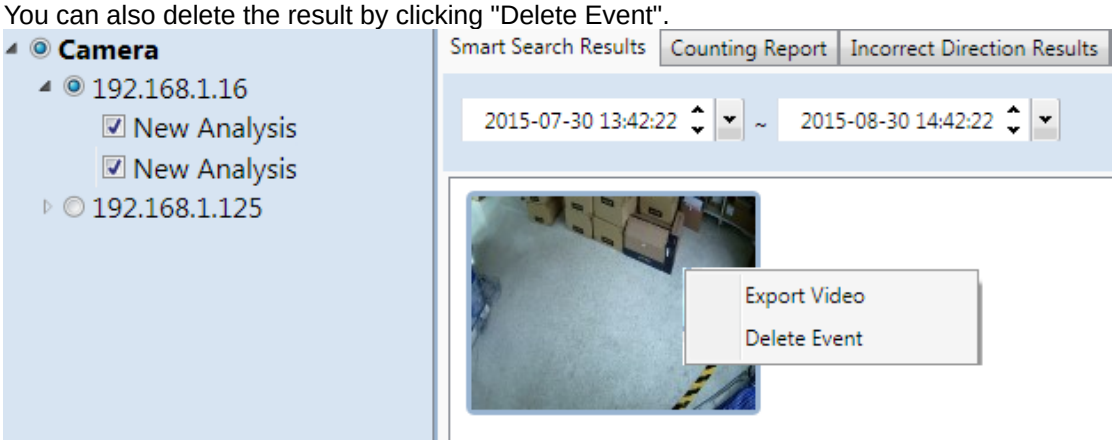


If you need to export the result, please click the "Generate CSV" and then select the save path to export result as an excel file (.csv).



3.12 Export Search Result

To export the video results of your analysis, right-click on the snapshot of the event in your Analysis Results Window, click “Export Video”, and then select the save path to export video.
You can also delete the result by clicking "Delete Event".



Note

The exported files include a raw file and an xml file.