CHAPTER 3

Video Analysis

3.1 Object Tracking and Zooming

Object Tracking provides you the real-time tracking and automatic magnification of a single moving object by the combination of one PTZ camera and one stationary camera. If only one PTZ camera is available, it can be applied for Object Zooming, letting you configure four critical views for real-time zooming. The Object Tracking and Object Zooming functions can be combined together by completing both settings.

3.1.1 Object Tracking

For the tracking function, you need one PTZ camera applied for tracking and one stationary camera set for a fixed view. Install the PTZ camera and the stationary camera in close proximity of each other so the focus and the camera view of both are similar. Only GV-IP Speed Dome and some third-party IP cameras support this function. To see the supported PTZ cameras, see *Certified PTZ Models for Object Tracking* in *Appendix C*.

Setting Up a PTZ Camera

Before configuring the Object Tracking function, first configure the PTZ camera.

1. Click the **Configure** button (No. 14, Figure 1-2), select **Accessories**, select **PTZ Device** and select **PTZ Setup**.
2. Select the model from the drop-down list.
3. Click the  button. A setup dialog box appears.

   - For GV-IP Speed Dome, select **Enable Object Tracking**. To configure the preset points, first select **Normal** and configure presets from the PTZ control panel on the screen.

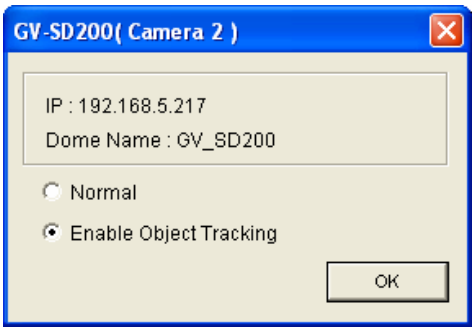


Figure 3-1

- For other cameras, select **Active** and select **Enable Object Tracking**. Specify **COM port**, **Baud Rate** and **PT Speed** of the PTZ camera. To configure the preset points, first select **Normal** and configure presets from the PTZ control panel on the screen.

4. Click **OK** to apply the settings.

Note: For analog cameras, you must first add the camera to the PTZ camera list. Click **Configure** button (No. 14, Figure 1-2), select **Accessories**, select **PTZ Device** and select **Add / Remove PTZ**. In the dialog box that appears, select the brand of your cameras and click the » button.

Setting up Object Tracking

After the above PTZ setup, go back to the main screen. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, select **Object Tracking Application**, and click **Object Tracking Setup** to display the following dialog box. The left image is the PTZ camera view and the right image is the stationary camera view.

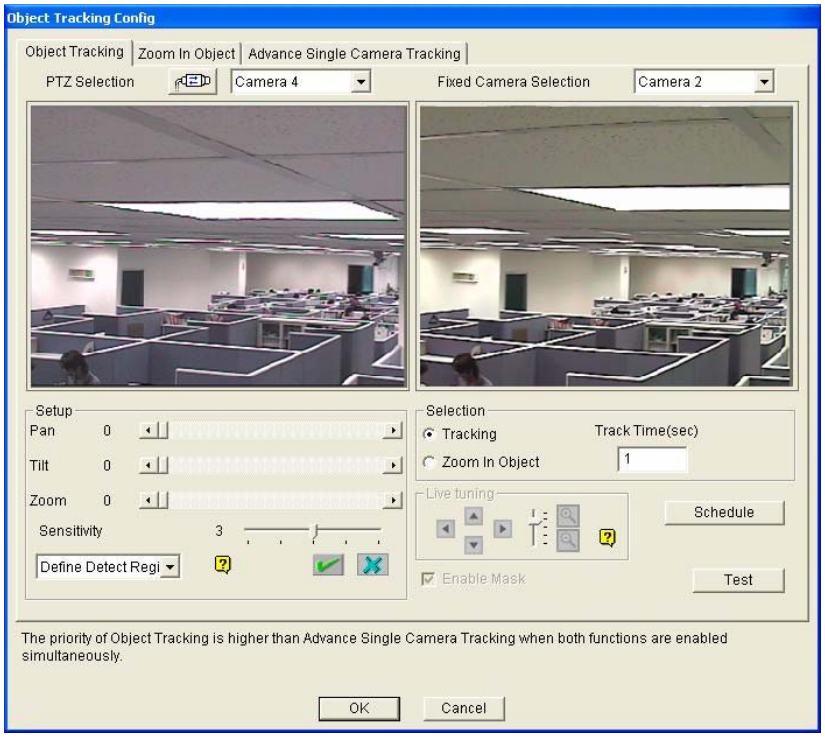


Figure 3-2

[PTZ Selection]

- **:** Click to set up the PTZ.
- **Camera:** Click the drop-down menu to choose the corresponding camera screen of the PTZ.

[Fixed Camera Selection] Click the drop-down menu to choose the corresponding camera screen of the stationary camera.

[Setup]

- **Pan, Tilt and Zoom:** Use the slide bars to adjust the PTZ camera view.
- **Sensitivity:** Use the slide bar to adjust the detection sensitivity.
- **The drop-down menu:** Click the drop-down menu to define detection region and object size.

[Selection]

- **Tracking:** Click to specify the tracking time.
- **Zoom in Object:** Click to specify the idle time.

[Live Tuning] Adjust directions and the desired level of zooming.

[Schedule] Click to set up a schedule to enable the function.

[Enable Mask] Click to display the mask on the defined detection region when you test the settings.

1. Click to display the following dialog box, select the PTZ brand and the hardware address, and click **OK** to apply the settings.

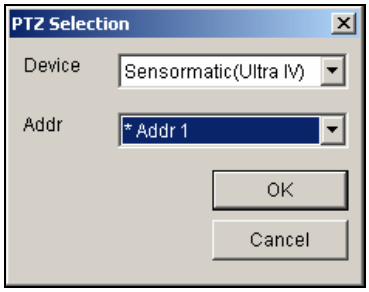


Figure 3-3

2. Choose the corresponding camera views of the PTZ and stationary cameras. In Figure 3-2, the images of the PTZ camera show in the Camera 2 view, while the images of the stationary camera show in the Camera 1 view.
3. Adjust the view of the PTZ camera with the sliders of Pan, Tilt and Zoom. Make sure the PTZ camera view is as similar as possible to the stationary camera view.
4. Click the **Save** button to save the both views as image references.
5. Adjust **Sensitivity** or keep it as default.

6. Select **Define Detect Region** from the drop-down menu. Use the mouse to outline a detection region in the right image; you will be prompted to enter **Detect Region**.

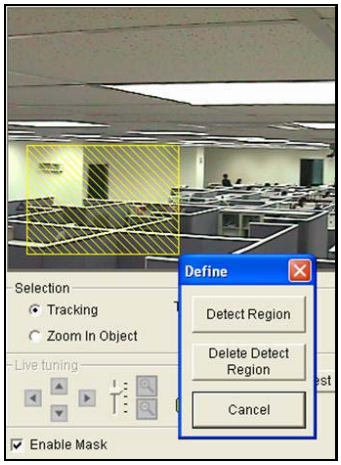


Figure 3-4

7. Select **Define Object Size** from the drop-down menu. Use the mouse to outline the max and min object sizes for tracking separately. Every time when finishing the outlining, you will be prompted to enter **Maximum Object Size** or **Minimum Object Size**.

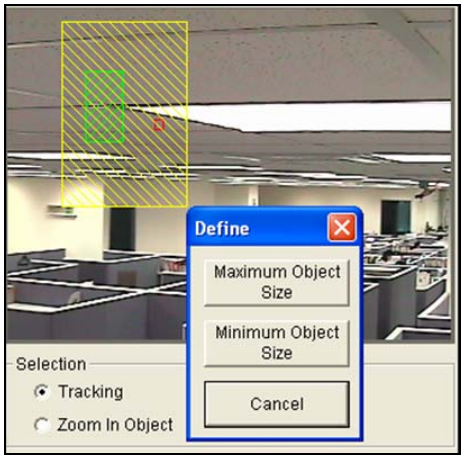


Figure 3-5

8. Click the **Tracking** item and specify **Track Time (sec)**. Track Time (sec) indicates the tracking duration in seconds.

Figure 3-6

9. When the PTZ is tracking, you can still control it to zoom in a desired area. Click the **Zoom in Object** item and specify **Idle Time (sec)**. Idle Time (sec) indicates the zooming duration in seconds. If a target appears after the specified idle time, the PTZ will start tracking. If not, the PTZ will remain on the zoomed place.

Figure 3-7

10. Click the **Schedule** button to set a schedule to enable the function. For details, see *Video Analysis Schedule* later in this chapter.
11. Click the **Test** button to check your settings. There are two major settings you have to observe in the testing. 1) Tracking: Observe if the target showing in the defined detection region is being tracked with a highlighted mask, and magnified automatically in the left image. If not, increase the sensitivity degree. 2) Zooming: Use the mouse to outline an object in the right image, and observe if it is magnified in the left image clearly. If not, use the **Live Tuning** buttons to adjust directions and the desired level of zooming.
12. Click **OK** to save your settings of the tracking time, the idle time for zooming in objects and the testing results.

Starting Object Tracking

After the above settings, you can start the object tracking application. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, select **Object Tracking Application**, and then click **Object Tracking Start** to start the function.

Tip: You can interrupt the PTZ camera tracking and take over the camera control by using PTZ Control Panel on Main System, PC's keyboard and GV accessories such as GV-Keyboard, GV-IR Remote Control, and GV-Joystick. When the controlling device or panel is inactive for over 5 seconds, the PTZ camera will go back for tracking.

Zooming in Objects

While the PTZ is being applied for tracking, you can still control it to zoom in any desired area by launching the Zoom in Dialog window.

1. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, select **Object Tracking Application**, and then click **Object Tracking View** to launch the Zoom in Dialog window, overlapping in the main screen, as shown below.

Note: The Zoom In Dialog window is for the stationary camera view and the main screen is for the PTZ view.

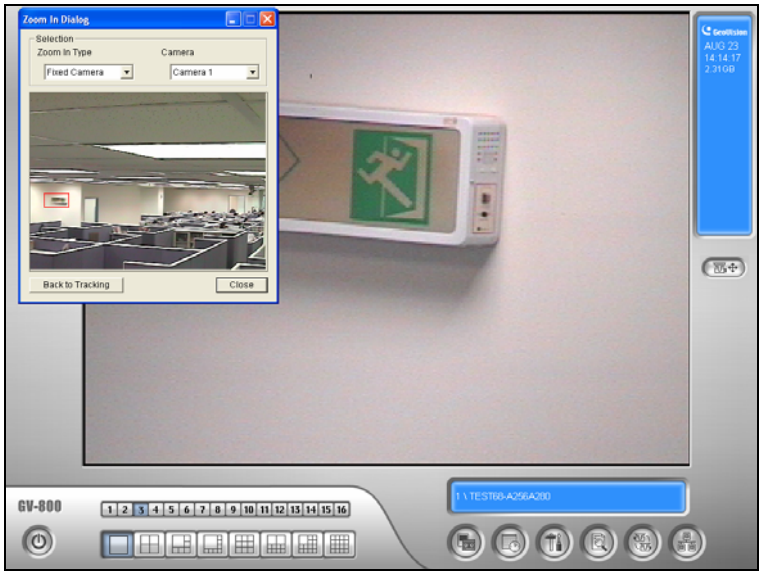


Figure 3-8 *The outlined area in the Dialog window is magnified on the main screen*

2. In the Zoom In Type field, select **Fixed Camera**.
3. In the Camera field, select the assigned camera view for the stationary camera.
4. Use the mouse to outline a desired area in the Dialog window. It will be magnified on the main screen.

When the specified idle time of zooming is up, PTZ will go back for tracking. If you want to stop the zooming function before the specified idle time, click the **Back to Tracking** button in the bottom of the Zoom In Dialog window. Then PTZ will go back to tracking instantly.

3.1.2 Object Zooming

If only one PTZ camera is available, without the stationary camera, you can simply apply it for the object zooming function. The feature allows you to configure up to 4 critical views for instant monitoring and zooming.

Setting up a PTZ Camera

Before configuring the Object Zooming function, first configure the PTZ device. Refer to *Setting up a PTZ Camera* in *Object Tracking* earlier in this chapter.

Setting up Object Zooming

After the above PTZ setup, go back to the menu bar.

1. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, select **Object Tracking Application**, and select **Object Tracking Setup** to display the Object Tracking Config dialog box. Then click the **Zoom in Object** tab in the upper part to display the following dialog box.

Note: The image on the right will not display until you complete the settings below.

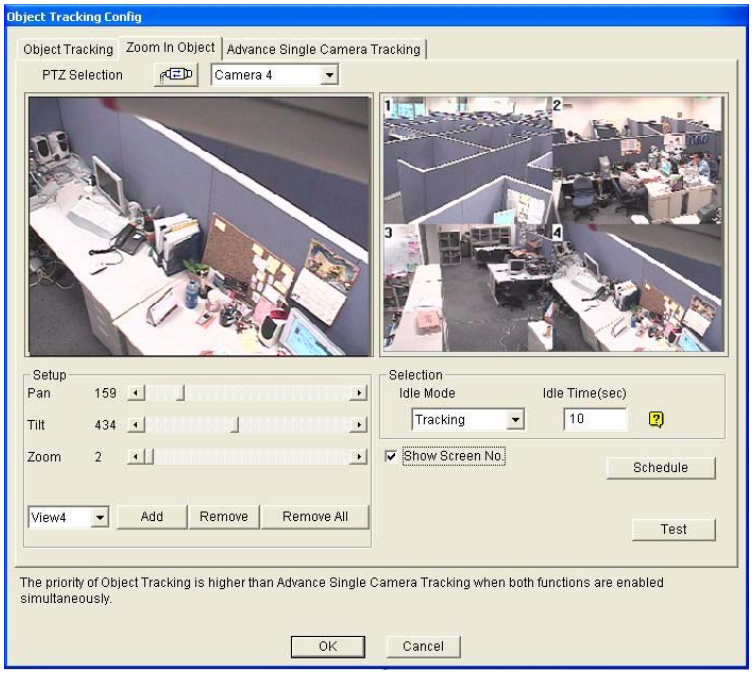


Figure 3-9

2. Click  for the PTZ setup. Refer to *Object Tracking* earlier in this chapter.
3. Choose the camera view of the PTZ. In Figure 3-9, the images of the PTZ camera show in the camera 2 view.
4. Use the sliders of Pan, Tilt and Zoom to set up the View 1 as shown below. Then click the **Add** button to apply the settings. The View 1 will show in the upper-left corner of the right image.

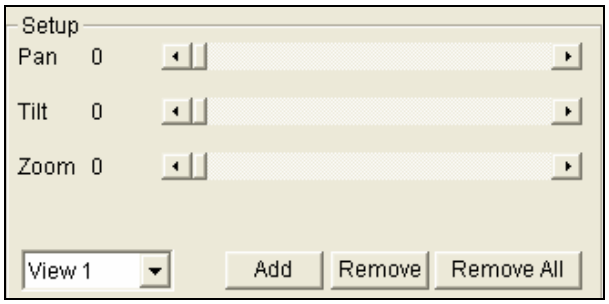


Figure 3-10

5. Click the drop-down menu to set up View 2, 3, and 4, one at a time. Refer to Step 4.
6. Specify **Idle Time (sec)**, indicating the zooming duration in seconds.

Figure 3-11

7. Click the **Idle Mode** drop-down menu. The seven options included inside are: **None**, **View 1**, **View 2**, **View 3**, **View 4**, **Tracking** and **Refresh View**.
   - **None:** After zooming, the PTZ camera will remain on the same view until the next zooming command.
   - **Tracking:** After the idle time, the PTZ camera will start tracking if it is also being applied for the tracking function.
   - **View 1, 2, 3, 4:** After the idle time, the PTZ camera will go back to the preset View 1, 2, 3, or 4.
   - **Refresh View:** After the idle time, the 4 views will be refreshed.

8. Click **Schedule** to set a schedule to enable the function. For details, see *Video Analysis Schedule* later in this chapter.
9. Click **Test** to check your settings. Use the mouse to outline a desired area in one of the four views. The area will be magnified in the left view.
10. Click **OK** to apply the displayed selections and close the dialog box.

Starting Object Zooming

After the above settings, you can start the object zooming application.

1. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, select **Object Tracking Application**, and click **Object Tracking View** to open the Zoom in Dialog window, overlapping on the main screen (Figure 3-8).
2. In the Zoom In Type field, select **Quad View**.
3. In the Camera field, select the assigned PTZ camera. Then the four views you set up before shows in the Zoom in Dialog window.

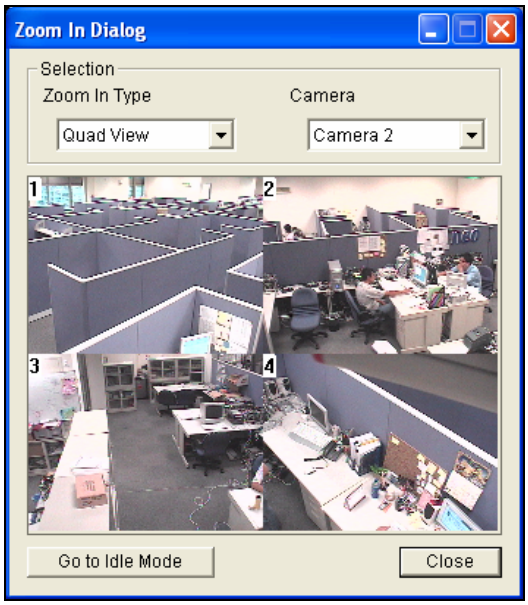


Figure 3-12

4. Use the mouse to outline a desired area in one of the four views. The area will be magnified on the main screen.
5. When you click the **Go to Idle Mode** button in the lower part, your setting in Step 7 of Object Zooming Setup will be applied. For example, if you choose View 3, the PTZ camera will go to the preset View 3 when you click the button.

3.2 Advanced Single Camera Tracking

The Advanced Single Camera Tracking can track a moving object using only one PTZ camera. When an object moves within the view of camera, the PTZ camera will follow its movement. When the object is out of view, the PTZ camera can be set to return to a designated position. For supported PTZ models, see *Certified PTZ Models for Object Tracking* in *Appendix C*.

Note: The Advanced Single Camera Tracking with color-based object tracking introduced in V8.3.2 has been removed. The Advanced Single Camera Tracking in V8.4 or later uses motion-based object tracking.

Setting up a PTZ Camera

Before setting up the Advanced Single Camera Tracking function, you need to first configure the PTZ device to enable Object Tracking. Refer to *Setting up a PTZ Camera* in *Object Tracking* earlier in this chapter.

Setting up Advanced Single Camera Tracking

1. Click the **Configure** button (No. 14, Figure 1-2), select **Video Analysis**, select **Object Tracking Application**, select **Object Tracking Setup** and click the **Advance Single Camera Tracking** tab. This dialog box appears.

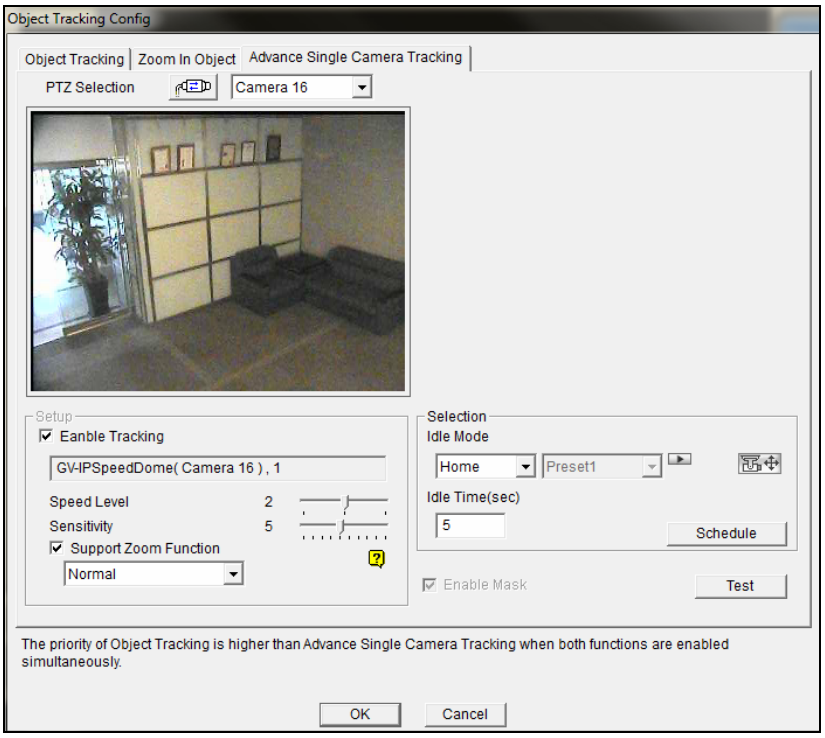


Figure 3-13

2. Select the camera from the **PTZ Selection** drop-down list.

3. Select **Enable Tracking**. This dialog box appears.

Figure 3-14

4. Specify the camera brand and its hardware address, and click **OK**.

5. Move the **Speed Level** slider to adjust the speed of PTZ movement. The higher the value, the faster the PTZ moving speed.

6. Select **Support Zoom Function** to be able to zoom in and out. Select **Normal** and the camera will zoom in once on the moving object. Select **Deep Zooming** and the camera will zoom in three times on the moving object.
7. Click the button to adjust the direction and zoom level of the camera.
8. To set the camera to return to its home position or a preset position when no motion is detected for a certain time period, specify **Idle Mode** and **Idle Time** in seconds. Click on the button to preview the designated position. Note that your camera will need to support home position and preset position.
9. To activate the function at certain times only, click the **Schedule** button and select **Active Schedule**. For details, see *Video Analysis Schedule* later in this chapter.
10. To outline a mask area where motion will be ignored, draw an area on the camera view and click **Set Mask** on the dialog box that pops up. To remove the mask, draw an area bigger than the mask, and click **Remove Mask**.
11. Click **Test**. Move an object through the view of camera and its movement should be tracked. If not, increase **Sensitivity** value to increase system sensitivity to motion in the camera view. If you have set a mask, you can select **Enable Mask** to display masked area during the test.
12. Click **OK** to apply the settings.
13. To begin single camera tracking, click the **Configure** button, select **Video Analysis**, select **Object Tracking Application**, and select **Object Tracking Start**.

Note: When multiple objects are moving at the same time, the camera will track the object with the largest area.

3.3 Digital Object Tracking

Without the need of a PTZ camera, the Digital Object Tracking provides you real-time tracking of up to 7 moving objects and automatic magnification of the targeted objects. The digital tracking function which combines with PIP View or PAP View can be an aid to spot any suspicious activities under the surveillance area.

3.3.1 Setting Digital Object Tracking

1. Click the **Configure** button (No. 14, Figure 1-2), click **Advanced Video Analysis**, and select **Digital Object Tracking Setting**.
2. Select the camera to be configured and click the **Configure** button. This dialog box appears.

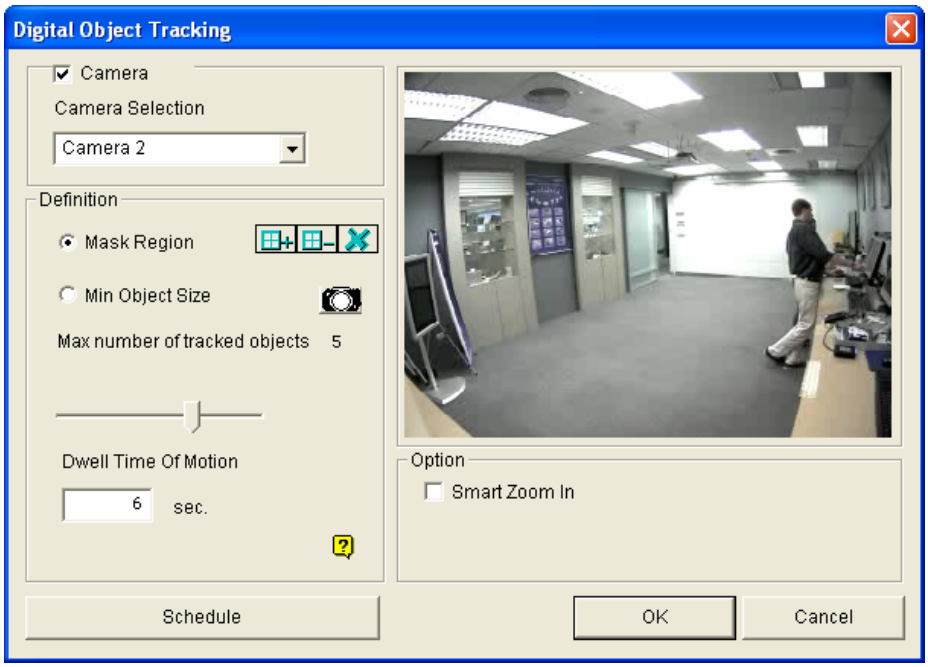


Figure 3-15

3. Select a camera from the Camera Selection drop-down list.

4. In the Definition section, there are three options:
   - **Mask Region:** Use the mouse to outline a mask area where motion will be ignored.
   - **Min Object Size:** First click the button to pause live images and then use the mouse to outline the minimum object size for tracking on the image.
   - **Max Number of Tracked Objects:** Use the slider to choose the maximum number of objects to be tracked. The maximum value is 7. This number also determines how many navigation boxes would be left free for selecting focus areas of interest in PAP View. See *Object Tracking in PAP View* later in this chapter.
   - **Dwell Time of Motion:** After a targeted object stops moving, the image will remain magnified for the number of seconds specified.
5. In the Option section, selecting **Smart Zoom In** can focus the upper part of the targeted object during tracking.
6. To activate the function at certain times only, click the **Schedule** button and select **Active Schedule**. For details, see *Video Analysis Schedule* later in this chapter.
7. Click **OK** to apply the settings.

Note:

1. The function will stop tracking an object when it remains stationary in the camera view for 3 seconds.
2. It takes about 3 to 5 seconds to start tracking after you switch to another channel for object tracking.

3.3.2 Tracking in PIP View

The PIP (Picture-in-Picture) View with Digital Object Tracking can track up to 7 moving objects and zoom in the first targeted object.

1. On the main screen, click the desired camera name label and select **PIP View**.
2. The screen automatically switches to one division, and an inset window of the camera view appears in the bottom right corner. Navigation boxes also appear inside the inset window to focus the moving objects.

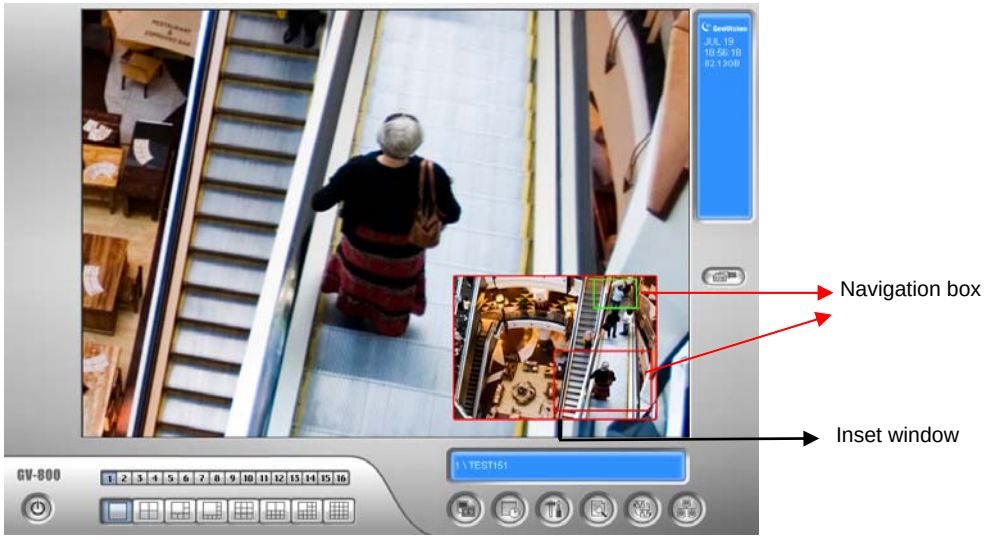


Figure 3-16

3. The first object entering the camera view will be highlighted and zoomed in the live view screen. You can switch the highlight to another tracked object by clicking on its navigation box.

Note: Manually moving or adjusting the navigation box size is disabled in PIP View when Digital Object Tracking is enabled.

3.3.3 Tracking in PAP View

The PAP (Picture-and-Picture) View with Digital Object Tracking can create split video effects with up to 7 close-up views on moving objects.

1. On the main screen, click the desired camera name label and select **PAP View**.
2. The screen automatically switches to one division, and a row of inset windows appears around the live view screen. The number of inset windows is based on the number set for **Max Number of Tracked Objects**.

Figure 3-17

3. When a moving object enters the camera view, it will be highlighted with a navigation box to help you track the object. An inset window will also display the magnified image of the tracked object.
4. You could also draw the box to select a focus area, and this selected area is immediately reflected in one inset window. Up to (7 - **Max Number of Tracked Objects)** boxes can be drawn for focus areas. For instance, you can draw 5 boxes to be focus areas if you select 2 for the Max Number of Tracked Objects. See *Setting Digital Object Tracking* earlier in this chapter.
   - To delete a focus area, right-click a drawn box, select **Focus Area of PAP Mode** and select **Delete**.
   - To add another focus area when less than seven boxes are drawn, right-click the image, select **Mega Pixel Setting**, and select **Enable Add-Focus-Area-Mode**. Then draw a box on the image.

3.4 Object Counting and Intrusion Alarm

The Object Counting provides bi-directional counting of objects under the surveillance area. When defined, it could count any objects, such as people, vehicles, animals, etc.

The counter and intrusion alarm can be established with or without an AVP dongle. With an AVP dongle, you can set up the counter and intrusion alarm using lines to mark the boundary of detection zones. Without an AVP dongle, boxes are used for outlining the detection zones.

Note:

1. The counter function is not suggested to be applied in Fisheye cameras.
2. You can select a maximum of 32 camera channels for object counting and intrusion alarm.

1. Click the **Configure** button (No.14, Figure 1-2), point to **Video Analysis**, and then select **Counter/Intrusion Alarm Setting**. This dialog box appears.

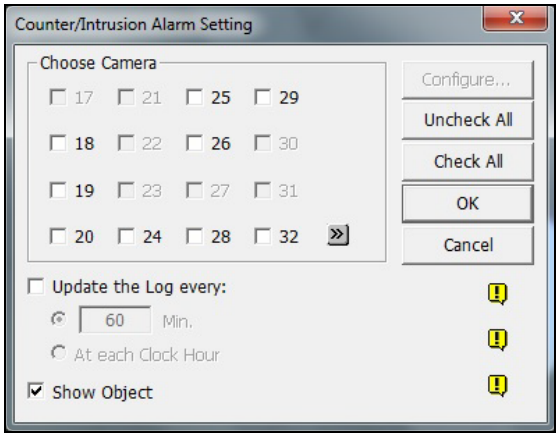


Figure 3-18

2. Select the desired cameras for the counter application.
3. Select **Update the Log** and specify the time interval in minutes to store the counting results to the System Log.
4. Select **Show Object** to put a rectangle around the object being tracked.
5. Click the **Configure** tab to open the Setup dialog box.

3.4.1 Object Counting

To define the counter to count target objects, click the **Counter** tab.

With an AVP Dongle

Set up the counter by using lines to mark the boundary of detection zones.

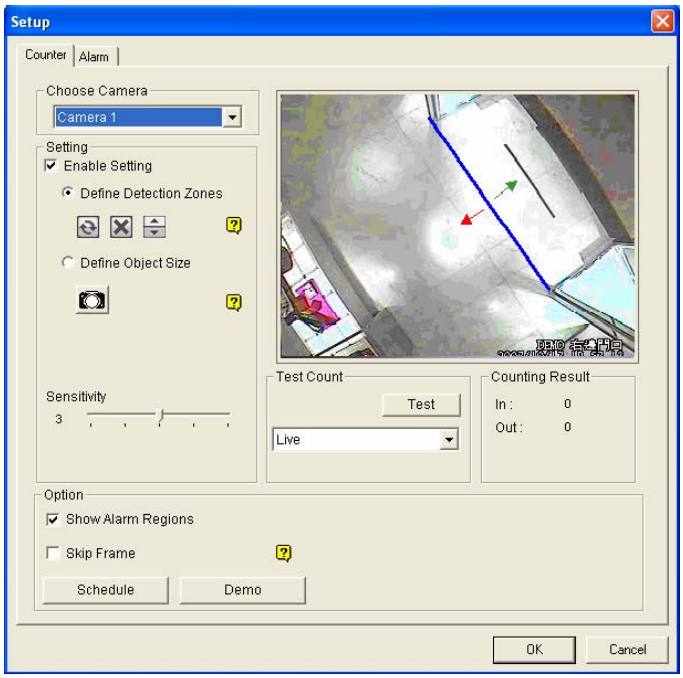


Figure 3-19

1. In the Choose Camera section, select a camera from the drop-down list for setup.
2. Select **Enable Setting** and set up the counter using the options below.
   - **Define Detection Zones:** Select this option and use the mouse to draw lines on the camera image to mark the boundaries of detection zones.

	This button is used to switch the direction and scheme of counting. Click this button to add green or red arrows or both. The **red arrow** indicates an in direction. When an object appears in the camera view and moves along the direction of the red arrow, it will be counted as 1 in. The **green arrow** indicates an out direction. When an object appears in the camera view and moves along the direction of the green arrow, it will be counted as 1 out.
	Click this button to switch to another detection zone and then use button to delete or the button to edit.
	Click this button to delete the detection zone.

- **Define Object Size:** Select this option and click the  button to pause live images. Use the mouse to outline a region matching the normal size of the targeted object.

3. To test your counting settings, select **Live** from the Test Count drop-down list and click the **Test** button to start testing. Notice how the number changes in the Counting Result section when objects move through the detection zone. Use the **Sensitivity** slider to increase or decrease detection sensitivity if the passing objects are not counted correctly.
4. To activate the function at certain times only, click the **Schedule** button and select **Active Schedule**. For details, see *Video Analysis Schedule* later in this chapter.
5. Click **OK** to apply the settings.
6. Start monitoring to begin counting.

More options in the Counter dialog box:

- **Show Alarm Regions:** Displays the detection zones on the preview image.
- **Skip Frame:** Skips frames when counting objects to lower the CPU loading. The system will count objects in every other three frames approximately. Note this option may reduce the accuracy of counting result.
- **Embed Counting Results into Recorded Video:** Includes counting result in the recorded file.

Without an AVP Dongle

Set up the counter by drawing boxes to mark the detection zones.

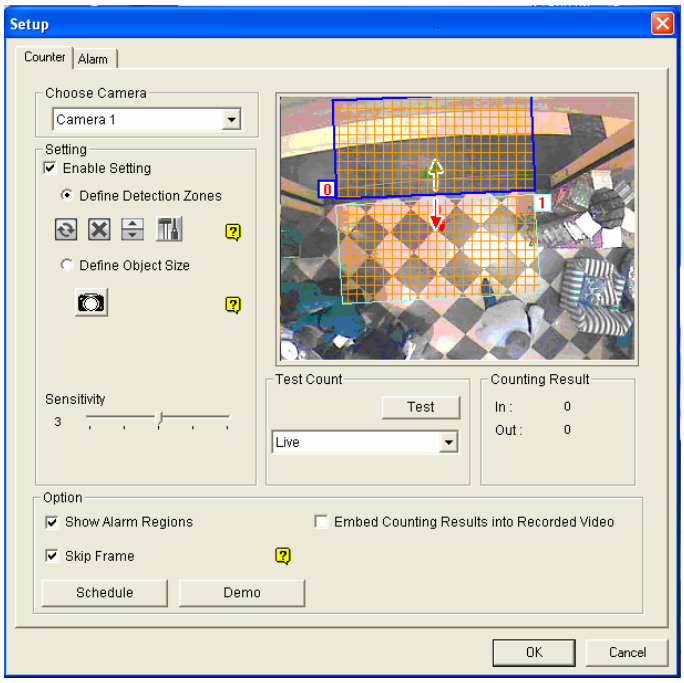


Figure 3-20

1. In the Choose Camera section, select a camera from the drop-down list for setup.
2. Select **Enable Setting** and set up the counter using the options below.
   - **Define Detection Zones:** Select this option to define the counter.
     a. On the live view, draw at least two boxes to mark the in and out detection zones. Each detection zone is numbered. You can use and to reverse or delete the detection zone. To switch to another detection zone, click the button.
     b. Click the button to define the in and out criteria. This dialog box appears.

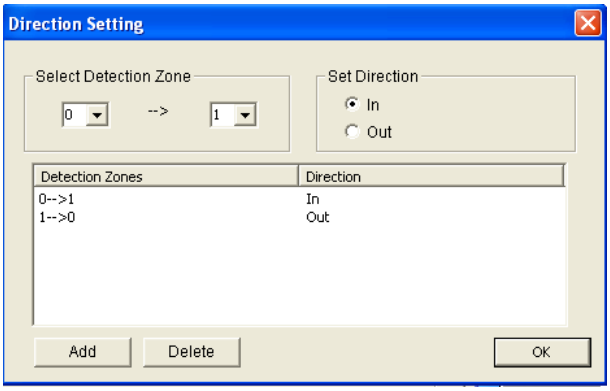


Figure 3-21

c. In the Set Direction section, select **In** and define the direction using the drop-down lists in the Select Detection Zone section.

d. Click the **Add** button. This setting appears under Detection Zones and Direction table.

e. Select **Out** in the Set Direction section, define the direction using the drop-down lists in the Select Detection Zone section, and click the **Add** button.

f. Click OK. The directions are indicated by arrows on the live view.

You have now set up the object counter with the in and out criteria defined. In the illustrated example (*Figure 3-20*), a target object is counted as in when it moves along the direction of the **red arrow** through detection zone 0 and 1, and the object is counted as out when it moves along the direction of the **green arrow** through detection zone 1 and 0.

- **Define Object Size:** Select this option and click the  button to pause live images. Use the mouse to outline a region matching the normal size of the targeted object.

3. To complete the counting setting, follow Steps 3 to 6 in *With an AVP Dongle* above.

Note: Draw the detection zones as closely as possible to avoid omission of counting when target objects show up from the unmarked area and move only through one of the two boundaries.

3.4.2 Intrusion Alarm

When any object crosses or is inside the defined region, the alarm can be activated for warning. To set the intrusion alarm, click the **Alarm** tab.

With an AVP Dongle

Set up the intrusion alarm by using lines to mark the boundary of detection zones.

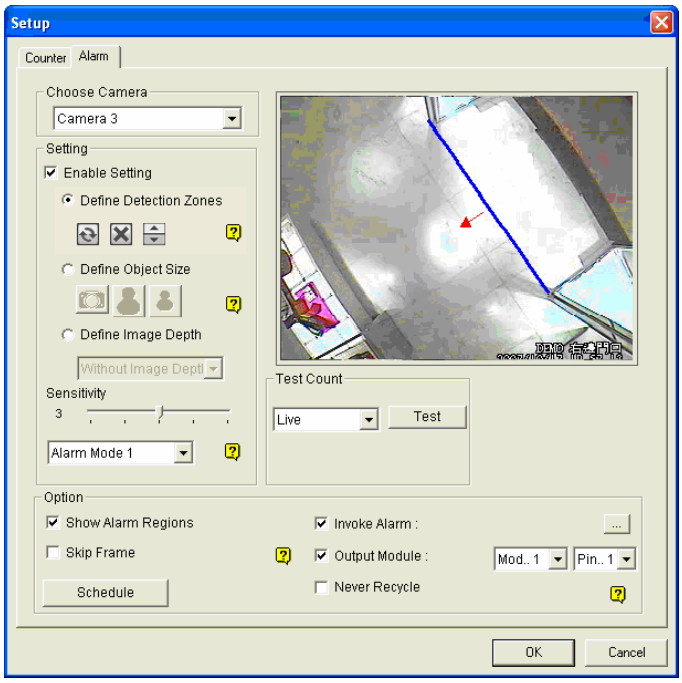


Figure 3-22

1. In the Choose Camera section, select a camera from the drop-down list for setup.
2. Select **Enable Setting** and define the targeted objects using the options below.
   - **Define Detection Zones:** See Step 2 in *With an AVP Dongle* in *Object Counting* earlier in this chapter.
   - **Define Object Size:** See Step 2 in *With an AVP Dongle* in *Object Counting* earlier in this chapter.

- **Define Image Depth:** If the objects move toward or away from the camera along a path, a hallway for example, they will appear larger when getting closer to the camera and vice versa. You can select **With Image Depth** to define different object size according to the object's proximity to the camera. A line appears.

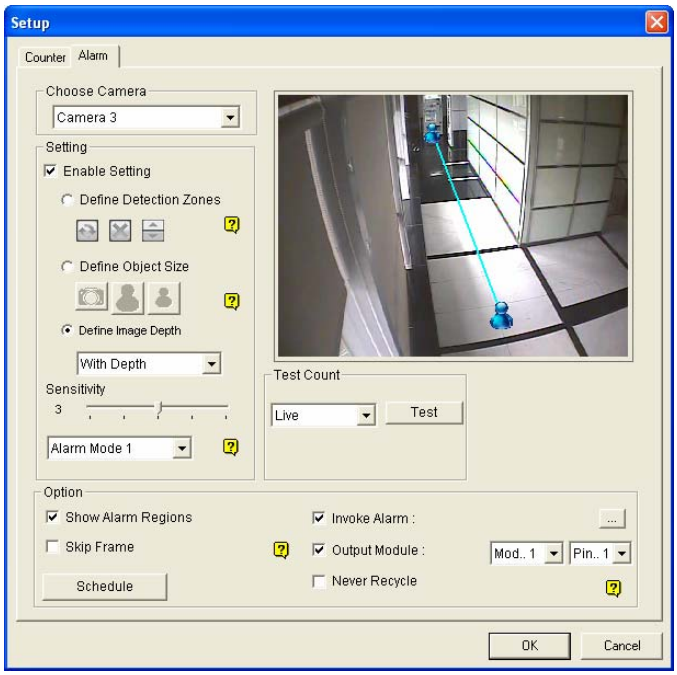


Figure 3-23

a. Place the line along the path where the objects will be moving by dragging the line. The larger icon indicates the point closer to the camera and the smaller icon indicates the point farther away from the camera.

b. Select **Define Object Size**. Click the larger icon and click the button to pause live images. Use the mouse to outline the maximum and minimum size of objects when they are close to the camera.

c. Click the smaller icon and repeat the step above to define the size of objects when they are far from the camera.

You have now defined two sets of object sizes at the two ends of the line.

3. In the Setting section, there are two kinds of alarm modes:
   - **Alarm Mode 1:** The alarm sets off when the target object moves through the first detection zone and touches the second detection zone in the defined direction.
   - **Alarm Mode 2:** The alarm sets off when the target object moves through the first detection zone and its center moves through the second detection zone in the defined direction.
4. To set up alarm devices, configure any or both of the following options.
   - **Invoke Alarm:** Enable the computer alarm when an object enters the defined region. Click the button next to the option to assign a .wav sound file.

- **Output Module:** Enable an installed output device when an object enters the defined region. Assign the output module and pin number.

5. To test your alarm settings, select **Live** from the Test Count drop-down list and click the **Test** button to start testing. When the intrusion object is detected, the configured computer alarm or output device will be activated. Use the **Sensitivity** slider to increase or decrease detection sensitivity if the intrusion is not detected correctly.
6. To activate the function at certain times only, click the **Schedule** button and select **Active Schedule**. For details, see *Video Analysis Schedule* later in this chapter.
7. Click **OK** to apply the setting.
8. Enable monitoring to start intrusion detection.

When the intrusion event is detected, the configured computer alarm or output device will be activated, and the event will be recorded as **Intruder** in System Log for later retrieval.

More options in the Alarm dialog box:

- **Show Alarm Regions:** Displays the detection zones on the preview image.
- **Skip Frame:** Skips frames when detecting intrusion events to lower the CPU loading. The system will detect intrusion events in every other three frames approximately. Note this option may reduce the accuracy of detection.
- **Never Recycle:** When the option is selected, the alarm-triggered events will not be recycled when recycle threshold is reached.

Without an AVP Dongle

Set up the intrusion alarm by drawing boxes to mark the detection zones.

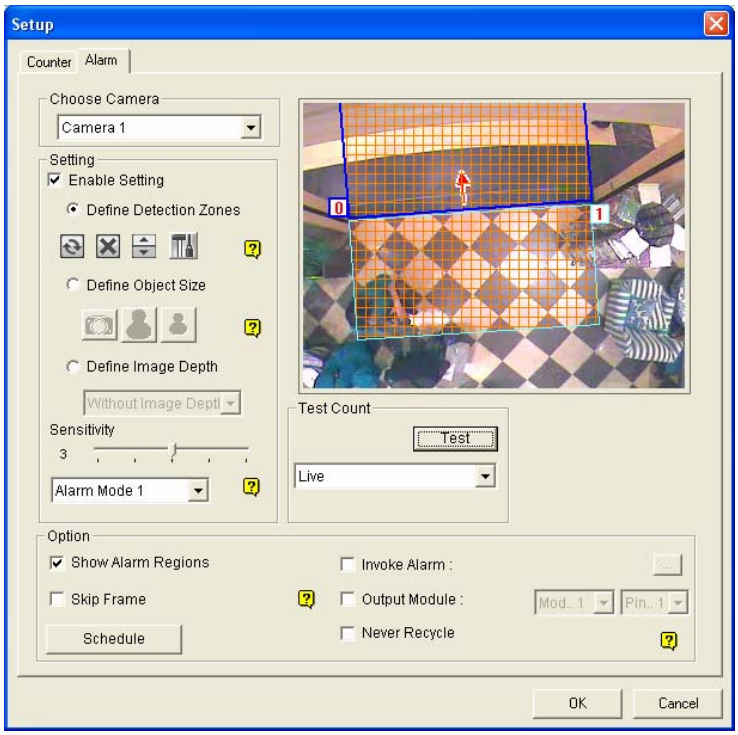


Figure 3-24

1. In the Choose Camera section, select a camera from the drop-down list for setup.
2. Select **Enable Setting** and define the targeted objects using the options below.
   - **Define Detection Zones:** Select this option to set up the counter.
     a. On the live view, draw at least two boxes to mark the in and out detection zones. Each detection zone is numbered. You can use and to reverse or delete the detection zone. To switch to another detection zone, click the button.
     b. Click the button to define the alarm criteria. This dialog box appears.

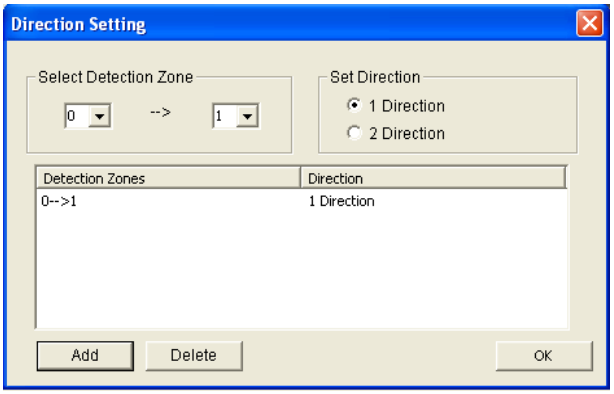


Figure 3-25

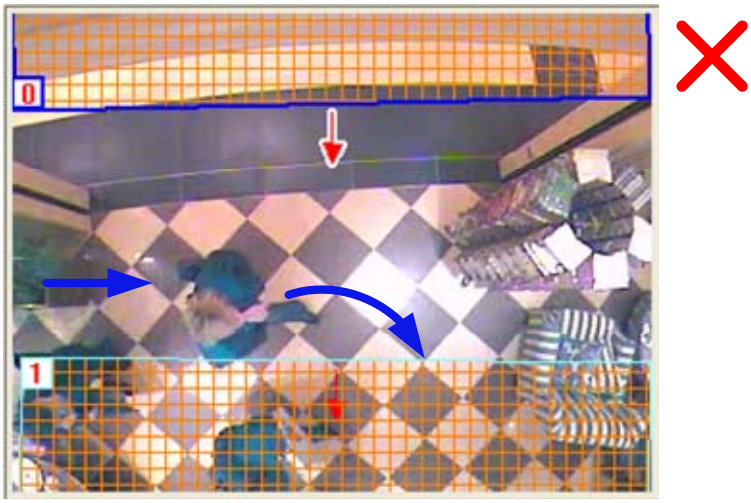
c. In the Set Direction section, select **1 Direction** for uni-direction or **2 Direction** for dual-direction criteria, and use the drop-down lists in Select Detection Zone section to define the direction.

d. Click the **Add** button. This setting appears in the Detection Zones and Direction table.

e. Click OK. The directions are indicated by arrows on the live view.

You have now set up the counter with the intrusion alarm criteria defined. In the illustrated example (*Figure 3-24*), when an object moves along the direction of the **red arrow** through detection zone 0 and 1, the alarm will be activated.

Note: Draw the detection zones as closely as possible to avoid omission of intrusion events when target objects show up from the unmarked area and only move through one of the two boundaries. In this case, the alarm will not set off.



- **Define Object Size:** See Step 2 in *Without an AVP Dongle* in *Object Counting* earlier in this chapter.

3. To complete the intrusion alarm setting, follow Steps 3 to 8 in *With an AVP Dongle* in *Intrusion Alarm* earlier in this chapter.

3.5 Object Index

The Object Index feature allows you to view the very first frame of a *continuous* movement in a video stream. With Live Object Index, you may view the most recent 50 frames captured. With Object Index Search, you may easily locate a desired event and instantly play it back by double-clicking on the image frame.

3.5.1 Setting Object Index

You can select up to 16 cameras to view live video frames.

1. Click the **Configure** button (No. 14, Figure 1-2), point to **Video Analysis**, and then select **Object Index/Monitor Setup**. The Camera Applied Object Index/Monitor dialog box appears.
2. Select the desired cameras for the application.
3. Click the **Configure** button. The Object Index window appears.

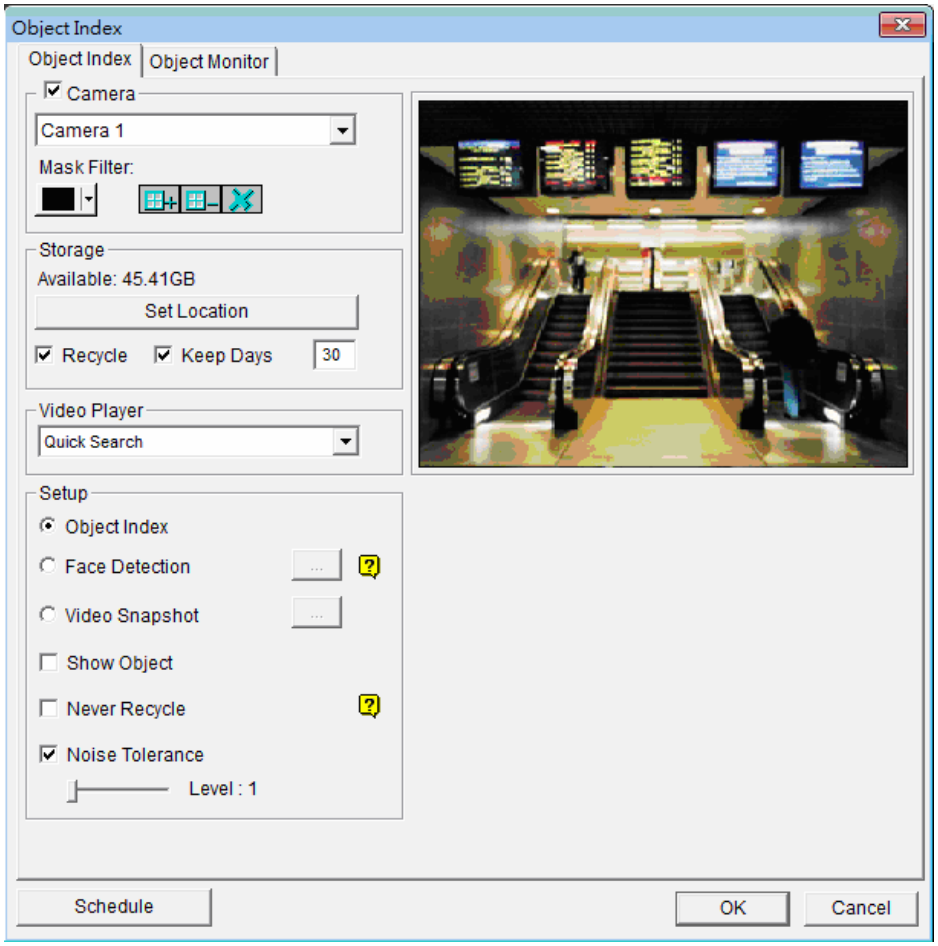


Figure 3-26 *Object Index*

4. Select one camera from the drop-down list and enable **Camera** for the following setup.
   - **Mask Filter:** Use the mouse to outline a mask area where motion will be ignored.
   - **Set Location:** Click the button to assign a path to save the file.
   - **Keep Days:** Check the item and specify the days to store the files, from 1 day to 999 days.
   - **Recycle:** When both Keep Days and Recycle are selected, the system applies whichever condition comes first. For example, if storage space is lower than that is required to hold the days of data specified in Keep Days, recycle comes first.
   - **Video Player:** Select one of these players for playback function: ViewLog or Quick Search.
   - **Show Object:** When motion is detected, it will be outlined with a blue frame.
   - **Never Recycle:** With the option selected, the event files of object index and face detection will not be recycled when the recycle threshold is reached.
   - **Noise Tolerance:** Use the slider to adjust the level. The higher the level, the more tolerant the system is to video noise.
5. In the Setup section, select **Object Index.**
6. Click **Schedule** to set a schedule to enable the function. For details, see *Video Analysis Schedule* later in this chapter.
7. Click **OK** to apply the settings.

Note: The minimum storage space required for Object Index is 500 MB.

3.5.2 Viewing Object Index

After configuring Object Index, you can start to view the most recent frames captured, with 50 frames at most.

1. Start camera monitoring.
2. Click the **ViewLog** button (No. 13, Figure 1-2), and then select **Live Object Index** to display the Live Viewer window.

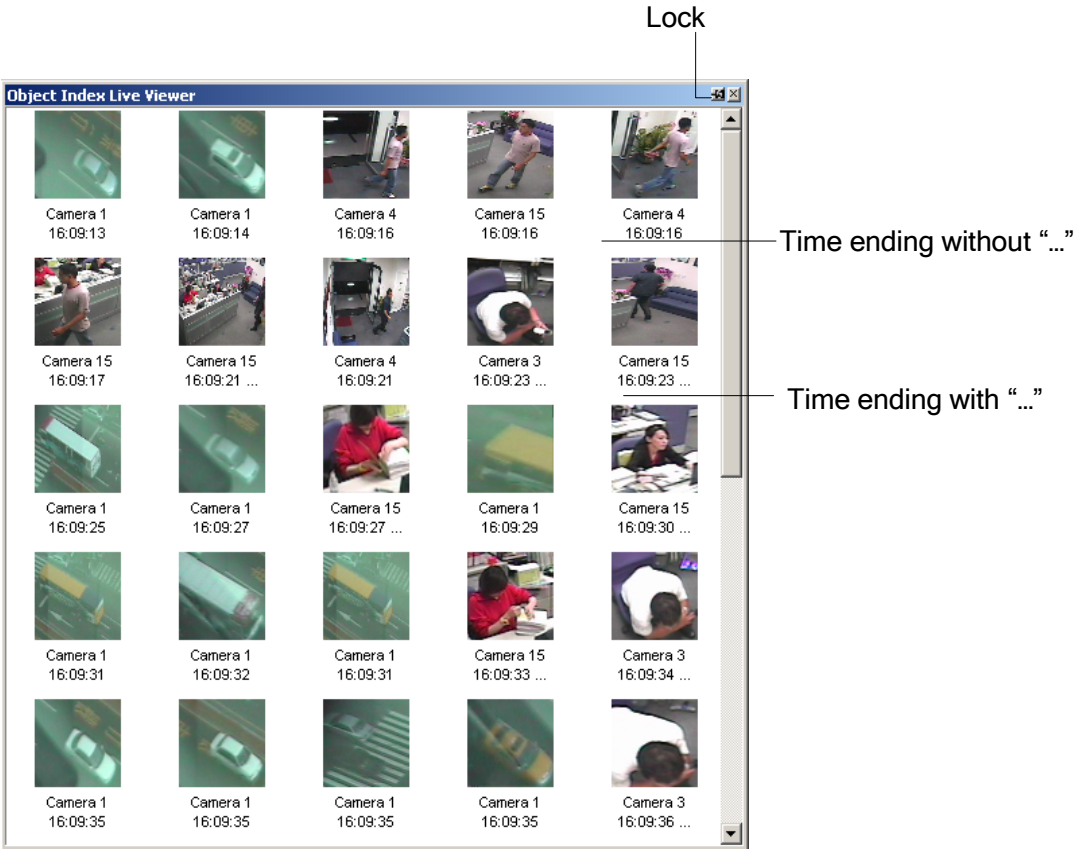


Figure 3-27

The controls in the Live Viewer window:

- **The Lock button:** Click to pause the updating process.
- **Time ending without "…":** This means the file is a complete one and can be played back with the ViewLog or Quick Search player. Double-click the frame to play back its related video.
- **Time ending with "…":** This means the video can't be played back since the system is still recording.

3.5.3 Searching Object Index

You can locate frames within selected cameras and a specific time frame.

1. Click the **ViewLog** button (No. 13, Figure 1-2), and then select **Search Object Index** to display the following search window.

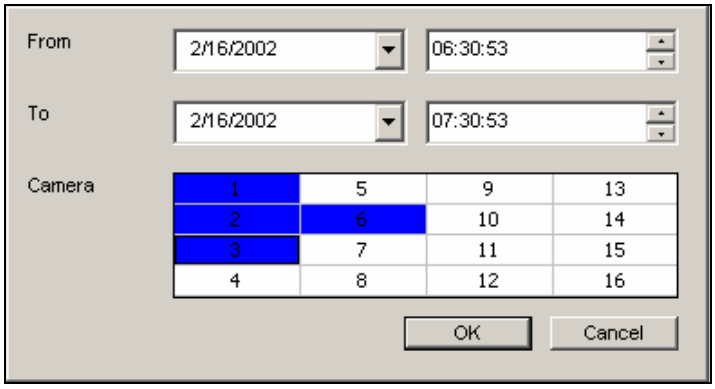


Figure 3-28 *The Search Window*

2. Specify a time frame and cameras, and then click **OK** to start searching. The following window will be called up.

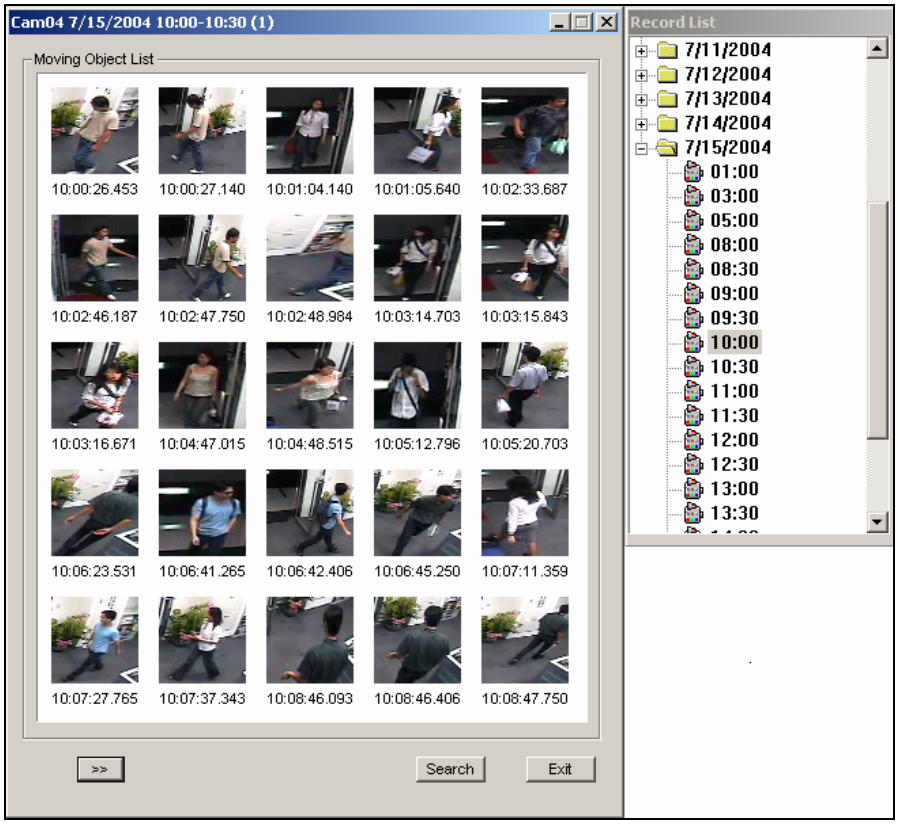


Figure 3-29 *The Moving Object List Window (left) and the Record List (right)*

[The Record List] The list contains the search results. Double-click a camera folder to display all found files. Click one time-segment file (e.g. 10:00) to open its included frames in the Moving Object List window.

[The Moving Object List window]

- **Frames:** Double-click any frame in the window to play back its video file with the ViewLog or Quick Search player.
- **:** Click the **Next Page** button for the next page.
- **Search:** Click the button to launch the search window.
- **Exit:** Click the button to close the window.

Note: Every time segment is a 30-minute interval, as shown in Record list in Figure 3-29.