GeoVision inc
The Vision of Security

GV-Control Center

User's Manual

CCV38-B-EN

Every effort has been made to ensure that the information in this manual is accurate. GeoVision, Inc. makes no expressed or implied warranty of any kind and assumes no responsibility for errors or omissions. No liability is assumed for incidental or consequential damages arising from the use of the information or products contained herein. Features and specifications are subject to change without notice.

GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: +886-2-8797-8377
Fax: +886-2-8797-8335
http://www.geovision.com.tw

July 2022

Scan the following QR codes for product warranty and technical support policy:

[Warranty]

[Technical Support Policy]

Contents

Naming and Definition v
GDPR Practice v
GPU Decoding Specifications vi
Note for Upgrading GV-Control Center vii
Chapter 1 Introduction 1
1.1 Minimum System Requirements 2
1.1.1 Software License 3
1.1.2 Supported GeoVision IP Devices and Software 3
1.2 Options 4
1.3 Overview 5
1.3.1 The Control Center Main Window 5
1.3.2 The Toolbar 6
1.3.3 The Host List 8
1.3.4 The Group List 9
Chapter 2 Getting Started 10
2.1 Installation 10
2.2 Hosts and Groups 11
2.2.1 Creating a Host 12
2.2.2 Creating a Group 13
2.3 Connecting to Control Center 14
2.3.1 The Control Center Server Window 15
2.3.2 Advanced Settings 16
Chapter 3 Live Video 18
3.1 Live View 18
3.1.1 Displaying Single Live View 18
3.1.2 Displaying Multi Views 20
3.1.3 Enhancing Live Video 24
3.1.4 Adjusting Distorted Views 25
3.2 PIP and PAP View 26
3.2.1 Starting PIP View 27
3.2.2 Starting PAP View 28
3.3 Panorama View 29
3.3.1 Creating a Panorama View 31
3.3.2 Accessing a Panorama View 35
3.3.3 Panorama View Controls 35
3.4 VMD Monitoring 36
3.4.1 Running VMD 36

3.4.2 The Controls on the Window 37
3.4.3 Temperature Alarm 38
3.4.4 Dual-Monitor Display 39
3.4.5 Pop-up Viewer on Another Monitor 41
Chapter 4 Audio Communication 42
4.1 Audio Communication 42
4.2 Audio Broadcast 43
4.2.1 Starting the Audio Broadcast 43
4.2.2 The Audio Broadcast Window 44
Chapter 5 Playback 45
5.1 Instant Playback 45
5.2 Remote Playback 48
5.2.1 Running the Remote ViewLog 48
Chapter 6 Remote DVR Applications 49
6.1 Remote DVR 49
6.1.1 Running the Remote DVR 49
6.2 Remote Desktop 51
6.2.1 Running Remote Desktop 51
6.2.2 File Transfer 52
6.3 Data Event Query on GV-DVR / NVR 53
Chapter 7 I/O Central Panel 55
7.1 Running the I/O Central Panel 55
7.2 The I/O Central Panel 56
7.3 Creating a Group for Cascade Triggers 57
7.3.1 Creating a Group 57
7.3.2 Editing a Group 58
7.3.3 Editing an I/O Device 59
7.4 Monitoring Hosts from the I/O Central Panel 60
7.5 Configuring the I/O Central Panel 62
7.6 Viewing Connection Log 63
7.7 Setting Up Mode Schedule 64
7.7.1 Creating a Mode 64
7.7.2 Creating a Mode Schedule 65
7.8 Quick Link 66
7.9 Forcing Output 67
7.10 Editing Background Image 68
7.11 Managing a Group of I/O Devices 69
7.12 Controlling I/O Devices 70
7.13 Popping Up Live Video upon Input Trigger 71

Chapter 8 Multi Monitors Applications 73
8.1 Application Position 73
8.2 Matrix View 76
8.2.1 Running the Matrix View 77
8.2.2 Live View Enhancement 80
8.2.3 Two-Way Audio 80
8.2.4 Instant Playback 81
8.2.5 Channel Display on Another Monitor 82
8.2.6 Quick Zoom 83
8.2.7 Configuring the Matrix Position 84
8.2.8 POS Live View 85
8.2.9 Advanced Settings 86
8.3 Video Wall 87
8.3.1 Setting Up a Video Wall Server 89
8.3.2 The Layout List 92
8.3.3 Adding a Server and Configuring the Layout 93
8.3.4 Advanced Layout Settings 98
8.3.5 Activating the Channel and Layout 100
8.3.6 Setting Up a Zoom Window 101
8.3.7 Setting Up a Scan Window 103
8.3.8 Displaying Remote Monitor, Web Page and Playing Back Videos 106
8.3.9 Displaying Live View from Remote E-Map 113
8.3.10 Setting Up a VMD Window 114
8.3.11 Remotely Accessing the Video Wall Server 115
8.3.12 Updating the Video Wall Server Version 116
8.4 Fisheye View 117
8.4.1 Virtual PTZ Tour 120
Chapter 9 Other Applications 122
9.1 Remote E-Map 122
9.1.1 The E-Map Editor Window 124
9.1.2 Creating an E-Map 125
9.1.3 E-Map Alerts 127
9.1.4 Setting the Polygonal Area 128
9.1.5 Setting up the View Zone 129
9.1.6 The E-Map Window 130
9.1.7 Configuring the Remote E-Map 131
9.1.8 Connecting to GV-ASManager 132
9.2 MultiLang Tool for Translated Text 133
9.3 Batch Functions 137

9.3.1 Configuring the IP Address 138
9.3.2 Renaming Devices 140
9.3.3 Configuring the NAS 141
9.3.4 Viewing the Storage Information 144
9.3.5 Updating Host Information 145
9.4 Authentication Center 146
9.4.1 Installing the Authentication Center 146
9.4.2 The Authentication Center Window 147
9.4.3 Setting Up the Authentication Center 149
9.4.4 Logging In the GV-Control Center 152
9.4.5 System Settings 154
9.4.6 Backup Settings 156
9.5 Authentication Server 157
9.6 Multicast Setting 159
Chapter 10 System Configuration 162
10.1 General Settings 162
10.2 Network Settings 164
10.3 VMD System Settings 165
10.4 Remote Desktop Settings 166
10.5 Video Wall Settings 167
10.6 Authentication Center Settings 168
10.7 Account Management 169
10.8 Backing Up System Configurations 171
Appendix A. GV-USB Dongle Upgrade 172
Dongle Requirements 172
Upgrading the Black Dongle 172
Appendix B. PTZ Control Using GV-Joystick and/or GV-Keyboard 174
Appendix C. RTSP Streaming 176
Appendix D. Specifications 177

Naming and Definition

GV--DVR / NVR	GeoVision Analog and Digital Video Recording Software. The GV-DVR also refers to **GV-Multicam System**, **GV-NVR System**, **GV-DVR System** and **GV-Hybrid DVR System** at the same time.
GV-VMS	GeoVision Video Management System for IP cameras.

GDPR Practice

For details on how GeoVision Inc. is committed to helping users become GDPR (General Data Protection Regulation) compliant, visit the GDPR Consent Request.

GPU Decoding Specifications

For **GV-Control Center** and **GV-Video Wall V3.1.1 or later**, GPU (Graphics Processing Unit) decoding is added to lower the CPU loading and to increase the maximum frame rate. GPU decoding can be performed on onboard and/or external GPU under the following specifications.

Onboard GPU: GPU decoding is only supported when using the following Intel chipsets:

For **H.264** Video Compression

- 2nd Generation Intel Core i3 / i5 / i7 Desktop Processors (Sandy Bridge) - only support 1 MP to 2 MP videos
- 3rd Generation Intel Core i3 / i5 / i7 Desktop Processors (Ivy Bridge)
- 4th Generation Intel Core i3 / i5 / i7 Desktop Processors (Haswell / Haswell Refresh)
- 6th Generation Intel Core i3 / i5 / i7 Desktop Processors (Skylake)
- 7th Generation Intel Core i3 / i5 / i7 Desktop Processors (Kaby lake)
- 8th Gen Intel Core i3 / i5 / i7 Desktop Processors (Coffee Lake)
- 9th Gen Intel Core i3 / i5 / i7 Desktop Processors (Coffee Lake / Coffee Lake Refresh)

For **H.265** Video Compression

- 6th Generation Intel Core i3 / i5 / i7 Desktop Processors (Skylake)
- 7th Generation Intel Core i3 / i5 / i7 Desktop Processors (Kaby lake)
- 8th Gen Intel Core i3 / i5 / i7 Desktop Processors (Coffee Lake)
- 9th Gen Intel Core i3 / i5 / i7 Desktop Processors (Coffee Lake / Coffee Lake Refresh)

External GPU: GPU decoding is only supported when using the NVIDIA graphics card with compute capability 3.0 or above and memory 2 GB or above. To look up the commute capability of the NVIDIA graphics cards, refer to: https://developer.nvidia.com/cuda-gpus

Note:

1. Only one external NVIDIA graphics card is supported to perform GPU decoding.
2. GeForce GTX1060 is not supported.

Onboard GPU + External GPU: To have both the onboard and external GPU to perform GPU decoding, the GPUs must follow their respective specifications listed above.

Note:

1. If you have both onboard and external GPUs installed, the onboard GPU must be connected to a monitor for H.264 / H.265 GPU decoding.
2. CUDA compute capability 5.0 or higher is required to ensure optimal performance.

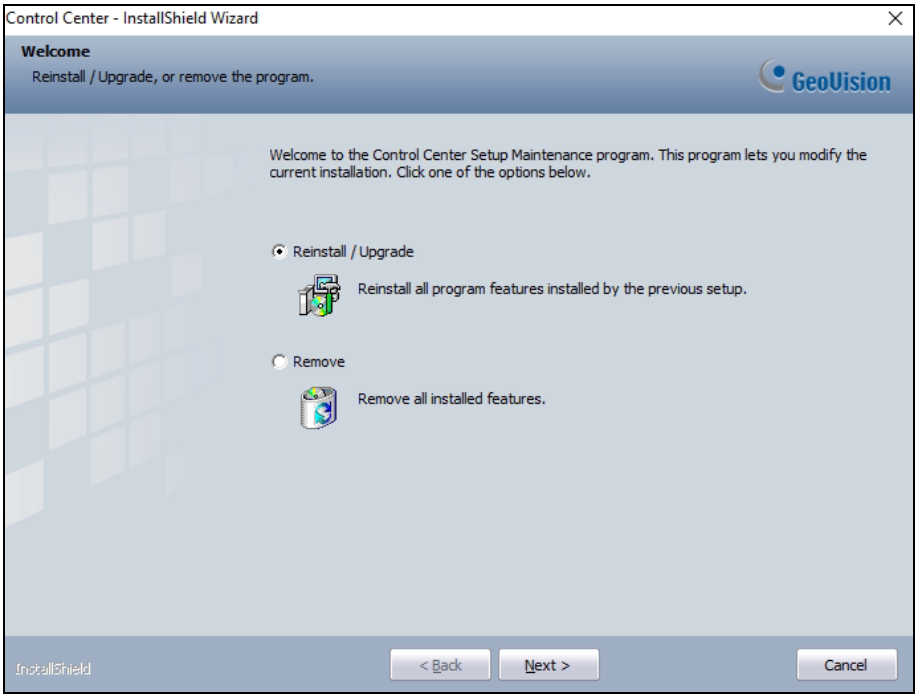
Software Specifications for H.264 and H.265

GPU decoding is only supported under the following operating system, resolution, and codec.

		Sandy Bridge	Ivy Bridge / Haswell / Haswell Refresh / Skylake / External VGA (NVIDIA)	Skylake	Kaby Lake / Coffee Lake
Operating System	**64-Bit**	Windows 8 / 8.1 / 10 / Server 2012 R2			Windows 10
Resolution		1 MP / 2 MP	1 MP / 2 MP / 3 MP / 4 MP / 5 MP / 8 MP / 12 MP	1 MP / 2 MP / 3 MP / 4 MP / 5 MP	
Codec		H.264		H.265	

Note for Upgrading GV-Control Center

To upgrade GV-Control Center, run the **Installer** (setup.exe) included in the latest software downloads from our website. Select **Reinstall / Upgrade** to start.



Chapter 1 Introduction

GV-Control Center is a central monitoring station solution (CMS) that provides these major features:

- Picture-in-Picture and Picture-and-Picture views (See *3.2 PIP and PAP View*)
- Panorama View (See *3.3 Panorama View*)
- Pop-up video alerts upon motion detection, input trigger, critical temperature and many more (See *3.4 VMD Monitoring*)
- Instant Playback (See *5.1 Instant Playback*)
- Remote playback (See *5.2 Remote Playback*)
- Access to client DVRs (See *6.1 Remote DVR*)
- Access the desktop of a host GV-DVR / NVR / VMS and the operating system (See *6.2 Remote Desktop*)
- Central management for I/O devices from different hosts (See Chapter 7 *I/O Central Panel*)
- Display of up to **96** cameras from different hosts on the same screen (See *8.2 Matrix View*)
- Video Wall (See *8.3 Video Wall*)
- Access to the desktop of Video Wall server (See *8.3.9 Remotely Accessing the Video Wall Server*)
- Remote E-Map (See *9.1 Remote E-Map*)
- Support for 31 languages on the user interface

Control Center also supports GV-IP Devices (GV–Video Server, GV-Compact DVR, and GV-IPCam) and GV-Recording Server or GV-Video Gateway for central monitoring.

1.1 Minimum System Requirements

Before installation, make sure your computer meets the following requirements.

OS	**64-bit**	Windows 8 / 8.1 / 10 / Server 2012 R2
CPU		Core i7 2600K, 3.4 GHz
RAM		16 GB Dual Channels
Hard Disk		1 GB
Processor Graphics		Please see the GPU Decoding Specifications above.
DirectX		9.0c
LAN Card		Gigabit Ethernet x 2
Hardware		Internal or External GV-USB Dongle

Note:

1. It is not recommended to install GV-Control Center and GV-Center V2 Pro on the same PC. Running the two software together on the same PC may result in CPU overload error or system failure.
2. To display a megapixel IP channel across monitors, make sure the external graphic cards on a server are of the same brand, model and driver version, and the capacity of graphic cards are of NVIDIA GTS 450 or higher to ensure maximum efficiency.
3. When you find CPU usage is high or live view is unsmooth (dropping frames), you may need to increase CPU threads and memory, or decrease the number of connected cameras to improve the system performance.
4. For Control Center to support up to 8 Matrix views with 768 cameras at a time, the minimum CPU and memory requirements are Core i7 3770 and 16 GB dual channels respectively.

1.1.1 Software License

Free License	N/A
Maximum License	Unlimited
Increment for each license	N/A
Optional Combinations	1. Control Center 2. Control Center + Video Wall (1 to 200 license) 3. Control Center + Vital Sign Monitor 4. Control Center + Vital Sign Monitor + Video Wall (1 to 200 license)
Dongle Type	Internal or external
Note: 1. For Video Wall, make sure you insert a GV-USB dongle with Video Wall function to Control Center server. 2. It is recommended to use the internal GV-USB dongle to have Hardware Watchdog which restarts the PC when Windows crashes or freezes.	

1.1.2 Supported GeoVision IP Devices and Software

- GV-DVR / NVR (V8.5 or later)
- GV-VMS (V14.1 or later)
- GV-ASManager (V4.3 or later)
- GV-SNVR0400F / 1600 (FW V1.1 or later); GV-SNVR0411 (FW V2.0 or later); GV-SNVR0812 (FW V1.03 or later); GV-SNVR1611 (FW V3.03 or later); GV-SNVR0412 (FW V1.13 or later); GV-SNVR0811 (FW V2.73 or later); GV-SNVR0812 (FW V1.03 or later); GV-SNVR1611 (FW V3.03 or later); GV-SNVR1612 (FW V1.01 or later)
- GV-VS11 / 12 / 14 / 2400 / 2420 / 2800 / 2820 (FW V1.01 or later)
- GV-VS2401 / VS21600 (FW V1.01 or later)

Note: Make sure to meet the remote connection criteria of the following hosts before building the connection:

- **GV-VMS / NVR**: The maximum remote connection is subject to the CPU specification and usage and the available bandwidth. See *Step 3~4*, *2.3.3 Connecting to GV-DVR / NVR / VMS* in *GV-Edge Recording Manager User's Manual* for details.

- **GV-Recording Server**: A maximum of 600 channels of remote connection is supported. See the *GV-Recording Server datasheet* for details.
- **GV-SNVR0412/0812/1600/1611/1612**: The maximum remote connection varies for different models. See the column of *Remote Monitoring* in *GV-SNVR Comparison Chart* for details.

1.2 Options

Optional devices can be purchased to assist your surveillance management.

Device	Description
GV-Keyboard V3	GV-Keyboard V3 can be used to operate PTZ camera, Matrix View, ViewLog and Video Wall.
GV-Joystick V2	GV-Joystick can be used in conjunction with GV-Keyboard V3 to control PTZ channels from GV-Control Centers.
GV-IO Box Series	GV-IO Box series (4E / 4 Ports / 8 Ports / 16 Ports) provide 4 / 8 / 16 inputs and relay outputs and support both DC and AC output voltages, with optional support for Ethernet module and 4E additionally supporting PoE, TCP/IP and RS-485 connection.
Internal GV-USB Dongle	Internal GV-USB Dongle provides the hardware watchdog function to restart the PC when Windows crashes.

1.3 Overview

1.3.1 The Control Center Main Window

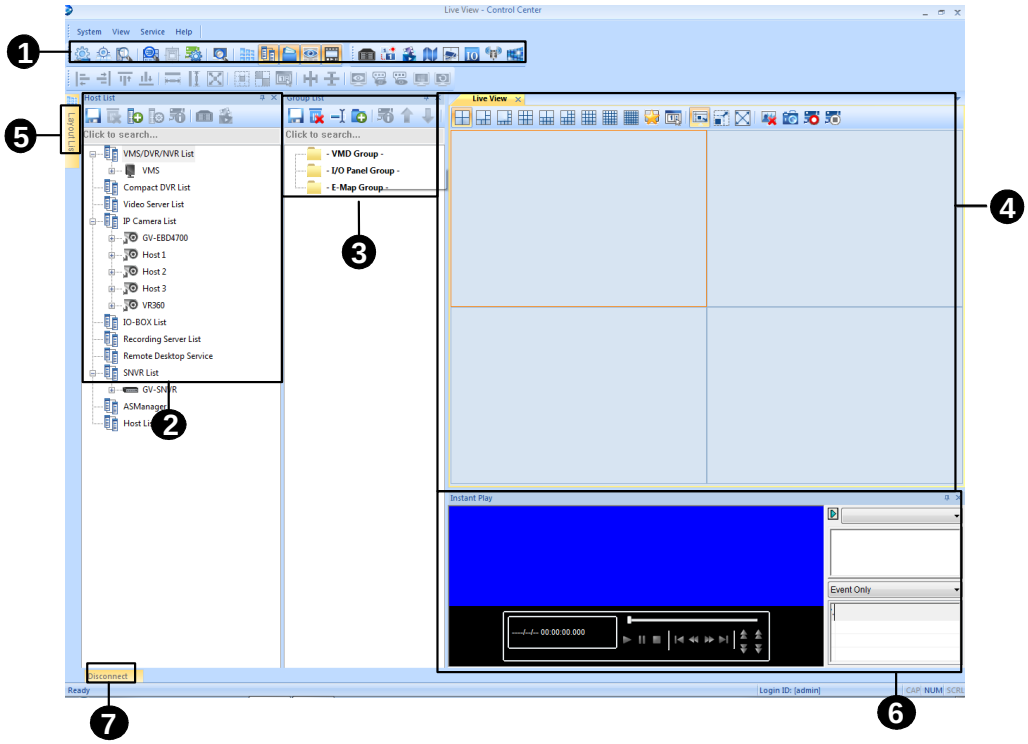


Figure 1-1

No.	Name	Description
1	Toolbar	See *1.3.2 The Toolbar* later.
2	Host List	Displays hosts and its channels in a tree diagram. See *1.3.3 The Host List*.
3	Group List	Displays hosts in Groups of VMD, I/O and E-Map. See *1.3.4 The Group List*.
4	Live View	Displays images from the hosts. Drag and drop the cameras from the Host List for live view display. See *3.1.2 Displaying Multi Views*.
5	Layout List	Click the tab to switch to the Layout List. The Layout List contains layouts for Video Wall. See *8.3.2 The Layout List*.
6	Instant Play	Displays the Instant Play window on the main window for playback. See *5.1 Instant Playback*.
7	Disconnect	Click **View** on the main window and select **Disconnected List** to display the disconnected cameras from Live View, Matrix View and Video Wall.

1.3.2 The Toolbar

Figure 1-2

No.	Name	Description
1.	Configure	Displays system settings including general settings, network settings, VMD settings, Remote Desktop and Video Wall.
2.	Application Position	Configures position and resolutions of application windows, including GV-DVR / NVR / VMS, Remote ViewLog, Remote E-Map, I/O Central Panel, and up to **8** matrices. See *8.1 Application Position*.
3.	Search Host	Opens the Search Host window, with which you can detect and add devices of the same LAN to the Host List and select a network card if you have installed more than one.
4.	Search Server	Searches for Video Wall servers. See *8.3 Video Wall*.
5.	Open Activated Layout	Opens the activated layout on the Control Center's main window. See *8.3 Video Wall*.
6.	Batch Update Wizard	Manages mass number of GV-IP Devices with integrated interface. You can change/assign IP address, rename devices, assign NAS and view storage space information of multiple GV-IP Devices. See *9.4 Batch Functions*.
7.	Search Server	Searches for any remote servers with Remote Desktop service activated. See *Displaying a Remote Monitor on Video Wall*, *8.3.7 Displaying Remote Monitor, Web Page and Playing Back Videos*.
8.	Layout List	Displays the Video Wall Layout List on the main window. See *8.3.2 The Layout List*.
9.	Host List	Displays Host List on the main window.
10.	Group List	Displays the Group List on the main window.
11.	Live View Window	Displays live views collectively on the main window. Drag and drop cameras for live view display. For more detail, see *3.1.2 Displaying Multi-Views*.
12.	Instant Play	Displays the Instant Play window on the main window. See *5.1 Instant Playback*.

No.	Name	Description
13.	Remote DVR	Allows the Control Center to access a remote client GV-DVR / NVR. See *6.1 Remote DVR*.
14.	Remote DVR Desktop	Allows the Control Center to access the desktop of a host GV-DVR / NVR and the operating system. See *6.2 Remote Desktop*.
15.	Remote ViewLog	Allows the Control Center to access the event files of different hosts and play them back. See *5.2 Remote ViewLog*.
16.	Remote E-Map	Allows you to monitor client DVR and GV-IP Devices on E-Maps. See *9.1 Remote E-Map*.
17.	VMD System	Displays pop-up live views when a motion, input or temperature alert is detected. See *3.4 VMD Monitoring*.
18.	I/O Central Panel	Collectively manages I/O devices of different hosts. See *I/O Central Panel*, Chapter 7.
19.	Broadcast Service	Speaks to multiple hosts over LAN or the Internet simultaneously. See *4.2 Audio Broadcast*.
20.	Matrix Quick Zoom	Displays a selected camera view on the primary monitor when multiple monitors are used. For Matrix View, see *8.2 Matrix View.*

1.3.3 The Host List

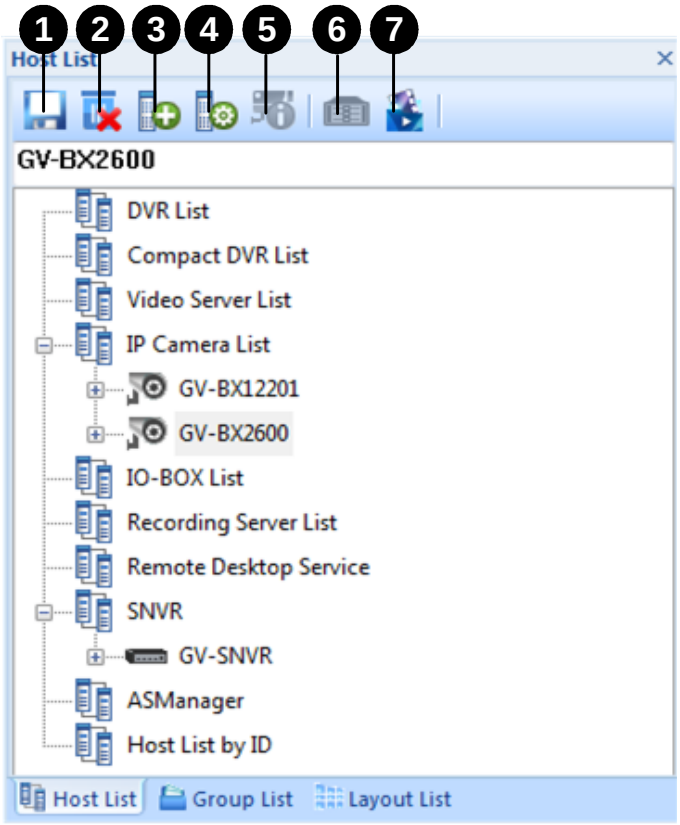


Figure 1-3

The controls on the Host List:

No.	Name	Description
1	Save	Saves the changes made in Host List.
2	Delete	Deletes the selected host.
3	Add Host	Adds a Host.
4	Host Settings	Displays the host settings of the selected host.
5	Camera Information	Click to watch live view, access Remote ViewLog and play back recordings instantly.
6	Remote Control	Access applications including Remote DVR, Remote Desktop and Event Data Query. See *Remote DVR Applications*, Chapter 6.
7	Remote ViewLog	Plays back recordings of the selected camera. See *5.2 Remote ViewLog*.

1.3.4 The Group List

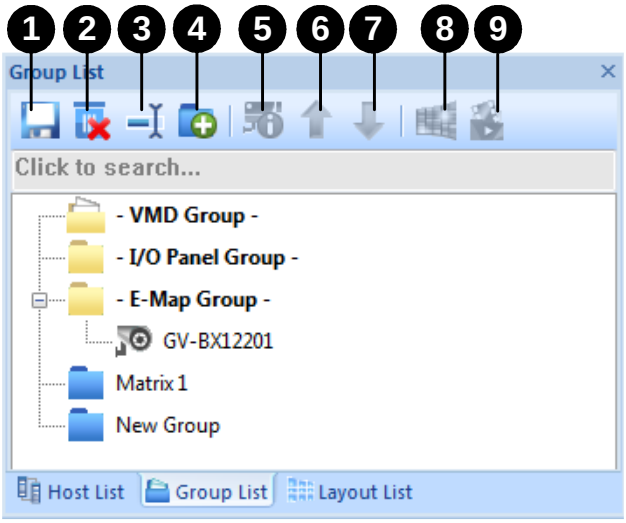


Figure 1-4

The buttons on the Group List:

No.	Name	Description
1	Save	Saves the changes made in Group List.
2	Delete	Deletes the selected group.
3	Rename Group	Renames the selected group.
4	Add Group	Adds a new group under the selected category.
5	Camera Information	Looks up device information and access its live view.
6	Move up	Moves the selected camera up in its group.
7	Move down	Moves the selected camera down in its group.
8	Matrix	Displays matrix view. See *8.2 Matrix View*.
9	Remote ViewLog	Plays back recordings of the selected camera. See *5.2 Remote ViewLog.*

Chapter 2 Getting Started

2.1 Installation

Follow the steps below to install GV-Control Center from the Software DVD or GeoVision Website.

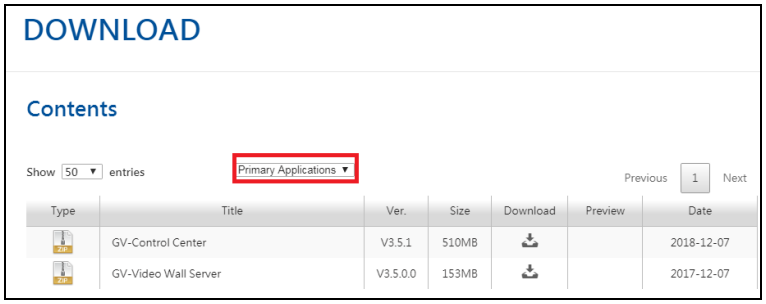
IMPORTANT: By default, GV-Control Center contains an Administrator account with the Login ID **admin** and no password. To change the password or create another account, see *10.7 Account Management*.

Installing from Software DVD

1. Plug in the GV-USB Dongle to the computer.
2. Insert the Software DVD to your computer. It runs automatically and a window appears.
3. To install the USB device driver, select **Install or Remove GeoVision GV-Series Driver** and follow the on-screen instructions.
4. To install GV-Control Center, select **Install GeoVision GV-Control Center** and click **Yes** to accept the License Agreement.
5. Click **GeoVision Control Center** and follow the on-screen instructions.

Downloading from GeoVision Website

1. Plug in the GV-USB Dongle to the computer.
2. Go to the Download page of GeoVision Website
3. To install the USB device driver, select **Driver, F/W, Patch** from the drop-down list to download the driver.
4. To install GV-Control Center, select **Primary Applications** from the drop-down list to download the software.



2.2 Hosts and Groups

You need to create hosts and groups before starting the services. To create hosts, you can use the **Search Host** function  (No. 3, Figure 1-2) to detect GV devices and compatible third-party IP devices on the same LAN and add them to the Host List, or you can follow the steps in the following section.

Note:

1. To use the Search Host function to locate GV devices, it is required to open TCP port 5201 on the client DVR, TCP port 5202 on the Video Server and Compact DVR, and UDP port 5200 on the Control Center.
2. If antivirus software is installed, the Search Host function may be interfered and will not detect the available hosts. In this case, turn off the antivirus software and try again.

2.2.1 Creating a Host

You can create a host of the DVR, Compact DVR, Video Server, IP Camera, I/O Box and Recording Server. The Host Settings dialog box may look different among these devices. The following steps are an example of adding an IP camera host.

1. On the Host List window, click the **Add Host** button  (No. 3, Figure 1-3) and select **Add IP Camera**. This dialog box appears.

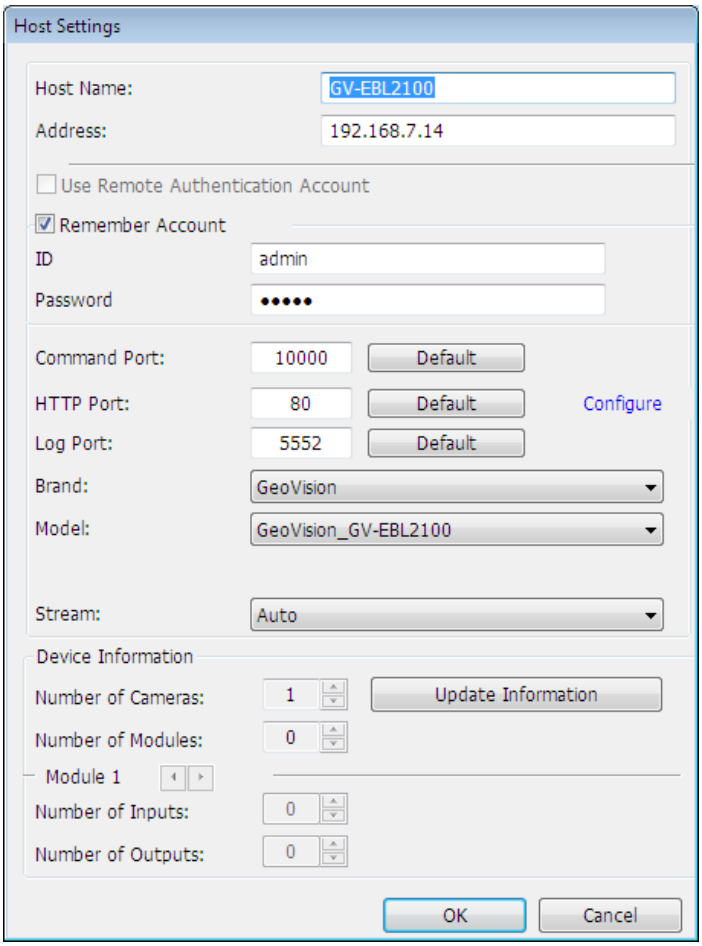


Figure 2-1

2. Type the host name, IP address, login ID and password of the host. Keep the communication port as default, unless otherwise necessary.
3. Click the **Update Information** button to request the number of cameras, I/O modules and streams of the host. When the update is complete, the message *Update system information successfully* appears.
4. Optionally select **Stream 1** or **Stream 2** for live view display. By default, the Stream setting is **Auto** and the received streaming is based on the streaming setting of the connected IP camera.
5. Click **OK** to add the host.

Tip:

1. To access the Web interface of the IP device, click **Configure** on the Host Settings dialog box (Figure 2-1).
2. To access live view of a camera, right-click the camera on the Host List and select **Live View**.

Note:

1. To add a DVR host, it is required to enable **Control Center Service** at the DVR; otherwise the message Unable to Connect will appear when accessing the live view. See *2.3 Connecting to Control Center*.
2. The Control Center supports IP video devices using RTSP, ONVIF and PSIA standards. To connect the IP device compatible with any of these standards, select **Protocol** from the Brand drop-down list. See *RTSP Streaming, Appendix C*.
3. Only supported by GV-Control Center V3.8.0 or later, users can add GV-IP Decoder Box for assigning the desired camera channels for convenient remote monitor display. For details, see *Chapter 6 Integration to GV-Software* in *GV-IP Decoder Box Series and Display User's Manual*.

2.2.2 Creating a Group

You can group cameras from different hosts by location and purpose (such as matrix view display).

1. On the Group List window, click the **Add Group** button  (No. 4, Figure 1-4).
2. Name the created group.
3. Drag the desired cameras from the Host List to the created group.
4. Click the **Save** button  (No. 1, Figure 1-4) to store your settings.

Tip: Right-click a camera to see the device information and access the live view.

2.3 Connecting to Control Center

The Control Center supports several types of hosts. Only the **DVR (GV-DVR / NVR / VMS)** hosts need to be configured and started for connection to Control Center.

To configure the client DVR in order to access the Control Center services remotely through a network connection, click the **Network** button on the main screen, select **Control Center Server**, and select **Start Default Service** or **Start All Service** to connect.

2.3.1 The Control Center Server Window

When the client DVR starts the Control Center Service (CCS) as described above, the server will be minimized to the system tray. Click the server's icon to restore its window.

GV-DVR / NVR

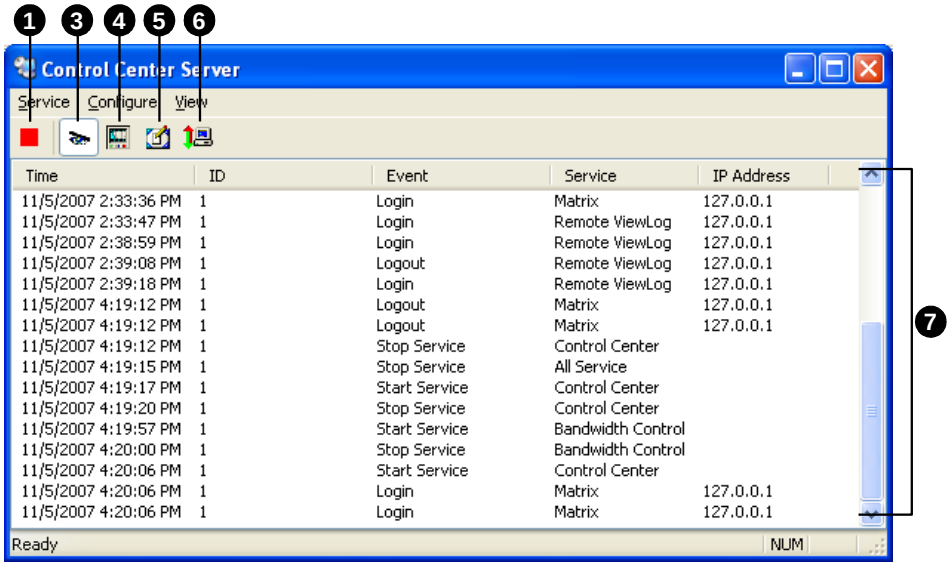


Figure 2-2

GV-VMS

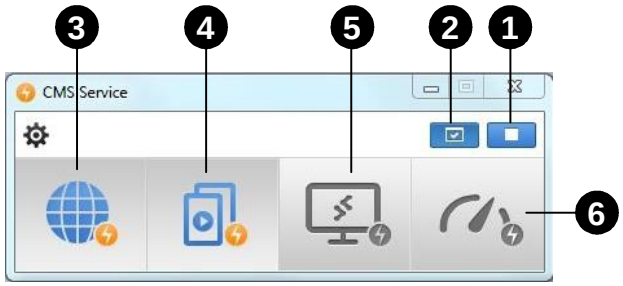


Figure 2-3

The controls on the CMS Server:

No.	Name	Description
1	Stop All Service	Stops all Control Center Server services.
2	Start Default Service	Starts all default services.
3	Start / Stop Control Center Service	Starts or stops these services: Matrix, I/O Central Panel and Remote DVR. It indicates that the host allows or not allows the Control Center to access the I/O modules and GV-DVR / NVR / VMS.
4	Start/Stop Remote ViewLog Service	Allows or prohibits the Control Center to access the ViewLog files.
5	Start/Stop Desktop Service	Allows or prohibits the Control Center to control the desktop.
6	Start / Stop Bandwidth Control Service	Allows or prohibits the Bandwidth Control Server to control the bandwidth. See *11.11 Bandwidth Control Applications, GV-DVR User's Manual* on the Software DVD.
7	Event List	Indicates login ID, event type, event time, service activation and IP address.

Note:

1. By default, the live stream images of GV-DVR / NVR / VMS are compressed for better bandwidth control at the cost of increased CPU usage. The number of remote connections allowed from the same GV-DVR / NVR / VMS depends on the specs and the usage of the DVR's / NVR's / VMS' CPU.
2. For GV-VMS V17.1 or later, optionally enable the Substream FIFO function under the Settings of CMS Server (Figure 2-3) for reduced CPU usage of the GV-VMS and improved streaming quality at the cost of increased bandwidth. The number of remote connections allowed from the same GV-VMS depends on the amount of bandwidth available.
3. To access certain specified streams of a GV-VMS host from multiple CMS servers under the same LAN, the Multicast function is recommended. For details, see *9.6 Multicast Setting*.

2.3.2 Advanced Settings

To configure the CCS Server, click **Configure** on the window menu.

[Network Settings] Keep the four communication ports as default, unless otherwise necessary.

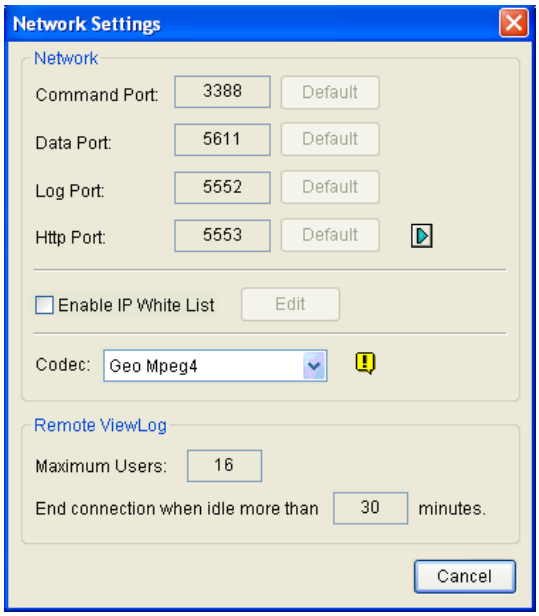


Figure 2-4 GV-DVR / NVR

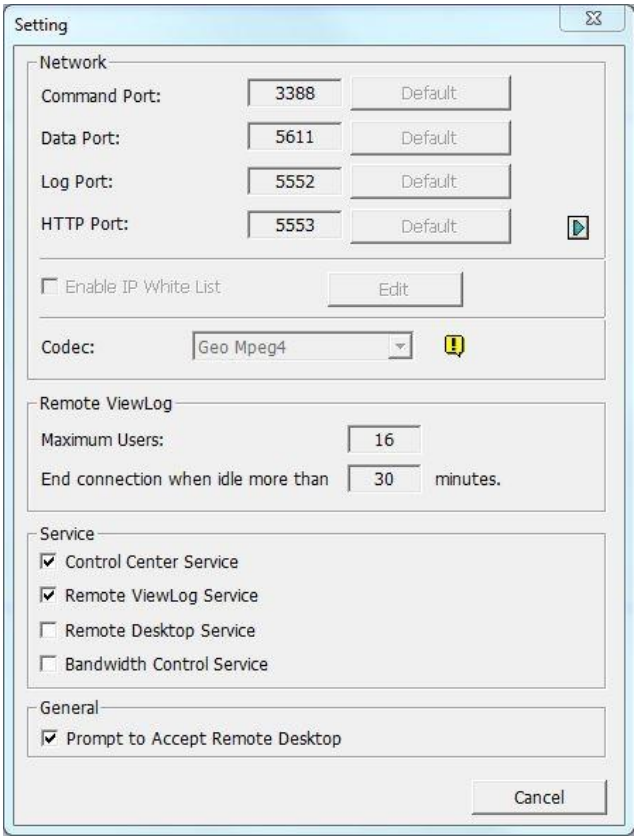


Figure 2-5 GV-VMS

- **Enable IP White List:** Limits access to the Control Center Server by assigning IP ranges.
- **Codec:** Sets video compression to Geo Mpeg4 or Geo H264. Note Remote Desktop does not support Geo H264 codec.
- **UPnP:** To automatically configure three communication ports on your router, click the **Arrow** button beside Http Port for UPnP settings.
- **Remote ViewLog :** Sets the maximum number of users to access the video files for playback from 1 to 16. It also sets the idle time after which to end the Remote ViewLog application.

[Event Log Settings] Sets the log storage path and duration.

[Set Default Service] Select the desired services to set as default.

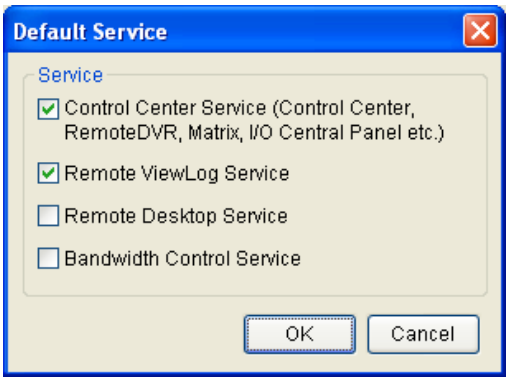


Figure 2-6 GV-DVR / NVR

[Prompt to accept] The client can be prompted to accept or reject the connection when the Control Center attempts to access its GV-System (through Remote DVR service) or Desktop (through Remote Desktop).

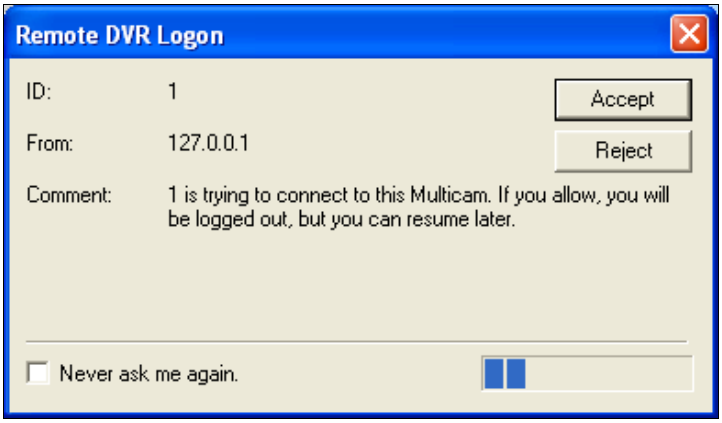


Figure 2-7 GV-DVR / NVR

[Auto start default service when Windows starts] Automatically runs the default services at Windows startup.

[Hide when minimized] Hides the minimized Control Center Server window to the system tray.

Chapter 3 Live Video

3.1 Live View

You can choose to display live views in separate windows or collectively on the Live View window.

3.1.1 Displaying Single Live View

To display single live view window (Figure 3-1):

- On the Host List (Figure 1-3) or Group List (Figure 1-4), right-click any camera and select **Live View**.
- On the Host List or Group List, select a camera, click the **Camera Information** button  and select **Live View**.
- On a Remote E-Map window (Figure 9-11), click a camera icon.

Figure 3-1

The controls on the single Live View window:

No.	Name	Description
1	Change Camera	Switches to another camera of the same host.
2	Change Size	■ **Stream1/Stream2:** Changes the size of the live video. The size corresponds to the video resolution set at the host. The size choices are only available when the video resolution is higher than 320 x 240. ■ **Defog:** Enhances image visibility. ■ **Stabilizer:** Stabilizes live images. ■ **PIP View:** Refers to Picture in Picture. You can zoom in on the video. See *3.2 PIP and PAP View*. ■ **PAP View:** Refers to Picture and Picture. You can create a split video effect with multiple close-up views on the video. See *3.2 PIP and PAP View*. ■ **Fisheye:** Dewarps the fisheye view to quad view. ■ **IMV1 Panomorph:** Dewarps the fisheye view. Note this option is only available for a third-party fisheye camera and when the camera resolution is set as 1280 x 1024 or higher. ■ **Wide Angle Lens Dewarping:** Corrects live view distortions. See *3.1.4 Adjusting Distorted Views*.
3	Audio	Receives audio from the host.
4	Microphone	Enables speaking to the host. A microphone must be installed properly in the computer.
5	Setting	Enables and configures the audio and video settings; Adjusts the image color (Normalization) and decreases the fogginess of the image (Sampling Range). Fixes the window to a specific size.
6	PTZ	Activates the PTZ control by selecting PTZ Panel or PTZ Automation.
7	Visual Automation	Allows you to change the current state of an electronic device, e.g. light ON, by clicking on its image directly. The function is only available when the same function is set at the host.
8	Snapshot	Takes the snapshot of the displayed live video.
9	Zoom	Enlarges the video by selecting 1.0x, 2.0x and 3.0x.
10	Instant Play	Plays back the recording in the last 10 seconds, 30 seconds, 1 minute or 5 minutes.

Note: When the video resolution of the IP camera is larger than the screen resolution of the Control Center, the maximum live video you can view is approximately half size of that IP Camera resolution.

3.1.2 Displaying Multi Views

The Live View window is designed for multi-channel live view display. You can monitor up to **36** channels simultaneously. To display live view on this window, you can:

- Drag the cameras from the Host List (Figure 1-3) to Live View window (Figure 3-2).
- From a Remote E-Map (Figure 9-11), click on a camera icon.

Note: For live views enabled from Remote E-Map to display on the Live View window, define the display position in Application Position window. For detail, see Step 3 in *8.1 Application Position*.

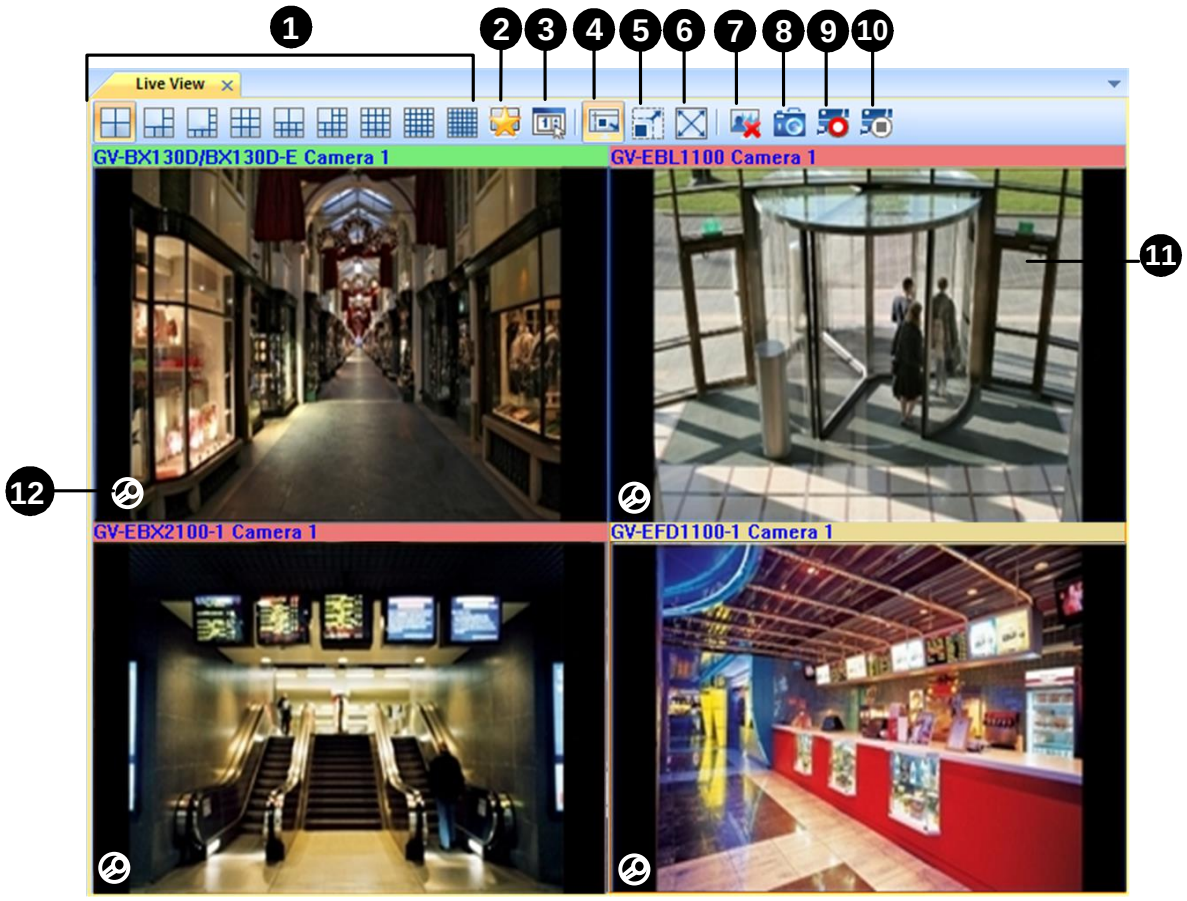


Figure 3-2

The controls on the Live View window:

No.	Name	Description
1.	Screen Division	Select a screen division.
2.	Favorite	Click **Set Quad** to specify the number of rows and columns in the live view layout. Click **Add to List** to save the current layout and camera assignment to the Favorite list.
3.	Live View Setup	Contains the following settings: • **Full-screen:** You can designate a monitor to be used when you click the full-screen button. • **QView:** When there are two or more monitors connected, you can designate a monitor for QView function if you wish to view a single-channel live view as full screen on a separate monitor. • **Caption:** Select to display the camera name and host name. • **Waveout When Zoomed:** Enable audio waveout when a live view is selected and extended to single view. • **Snapshot Select:** Set the storage path for captured snapshots.
4.	Fit Window	Extends the live view to fill the channel.
5.	Keep Image Ratio	Displays the live view proportionally to its source.
6.	Full Screen	Changes the live view window to full-monitor display.
7.	Close all video	Closes all the live view channels.
8.	Snapshot	Snapshots and saves the live views currently displayed on the Live View window.
9.	Monitor	Enables monitoring of all the live views.
10.	Stop All Monitoring	Disenables monitoring of all the live views.
11	Monitoring Status	The monitoring status is indicated by the color of the device name. For GV-DVR / NVR / VMS / GV-IP Device / GV-Recording Server hosts (V1.25 or later): • **Red:** ⊙ A channel from GV-DVR / NVR / VMS V17.1 or later is being monitored and recorded. ⊙ A GV-IP Device / GV-Recording Server host is being recorded. • **Green:** The channel is being monitored but not recorded. • **Yellow:** The camera is not monitored nor recorded.

No.	Name	Description
12		If you move the cursor to a live view grid, the icon will appear in the corner. Click and hold to speak to the surveillance site, or release the button to listen to the surveillance site.

Right-click the live view to access the following features:

No.	Name	Description
1	Snapshot	Snapshots and saves the live view.
2	Advanced Control	Displays the live view in a separate window. For detail, see *3.1.1 Displaying Single Live View*.
3	PTZ	Enables the PTZ function. Note this function is only supported by IP Cameras that support the PTZ function.
4	Instant Play (5 min)	Plays back the recordings of the last 5 minutes.
5	Face Detection	Adds photos of the persons to be recognized into the Face Database of a GV face recognition camera. The settings are similar to those on GV-VMS. See *Enrolling Face Data*, Chapter 3, *GV-VMS User's Manual*.
5	Audio	Enables Microphone, Wave Out or Two-Way Audio.
6	Face Enroll	Enrolls faces to a GV face recognition camera from the live images of any connected camera. The settings are similar to those on GV-VMS. See the *Enrolling Face Data from Live View / ViewLog*, Chapter 3, *GV-VMS User's Manual*.
7	Show Position	Locates the current host camera on the Host List by highlight.
8	Monitor	Starts or stops monitoring.
9	NAS Setup	Provides a shortcut to the NAS Setup page.
10	Zoom	Displays and extends the current live view to the full Live View window.
11	VR360	Pans around the 360º image of GV-VR360. Click  or  to adjust the speed of the auto pan and click  to zoom in.
12	Wide Angle Lens Dewarping	Corrects image distortion. See *3.1.4 Adjusting Distorted Views.*
13	Wide Angle Lens Setting	Sets the degree of dewarping to adjust image distortion. See *3.1.4 Adjusting Distorted Views.*

Note for GV-VR360:

1. To view the dewarped images of GV-VR360 on GV-Control Center V3.6 or later, the graphic card must support DirectX 10.1 or above.
2. Up to 2 GV-VR360 can be connected to a GV-Control Center with a total frame rate of 24 fps. The dewarped images are only supported on Live View and Matrix View.

3.1.3 Enhancing Live Video

You can enhance the coloring to have more vivid and saturated images. Click the **System** on the main window menu and select **DirectDraw Configuration**. The Colorful dialog box appears. Select **Use Colorful Model**, click **OK** and restart the Control Center program for the mode to take effect.

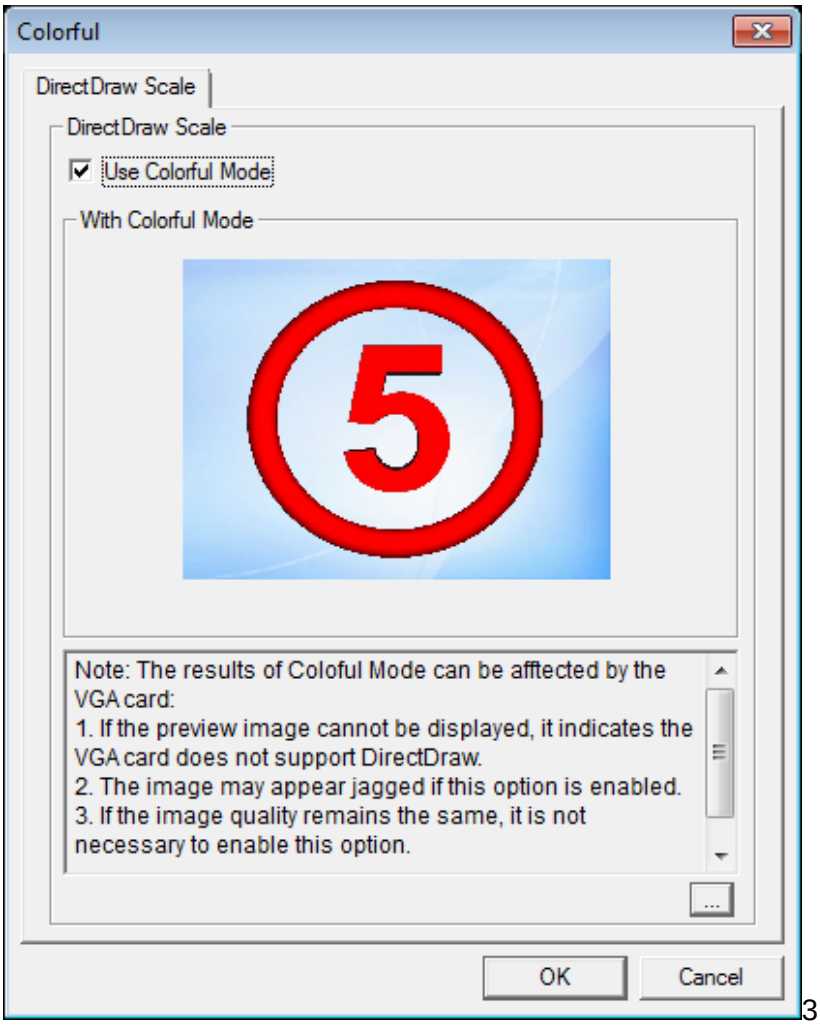


Figure 3-3

3.1.4 Adjusting Distorted Views

When viewing images through Single Live View, Matrix View or Video Wall, the images may be curved near the corners. Use the Wide Angle Lens Dewarping feature to correct image distortion.

1. On the live view, select the **Change Size** button (No. 2, Figure 3-1) and select **Wide Angle Settings**. The Wide Angle Dewarping Setting dialog box appears.

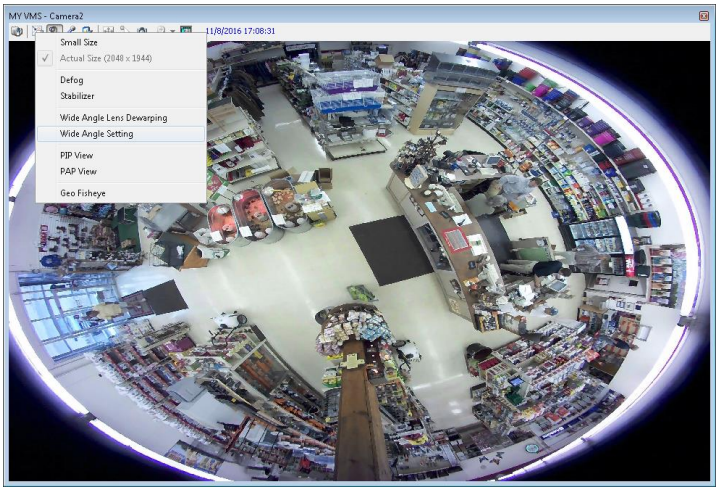


Figure 3-4

2. Move the slider at the bottom to correct the degree of warping. The adjusted view is shown on the right.

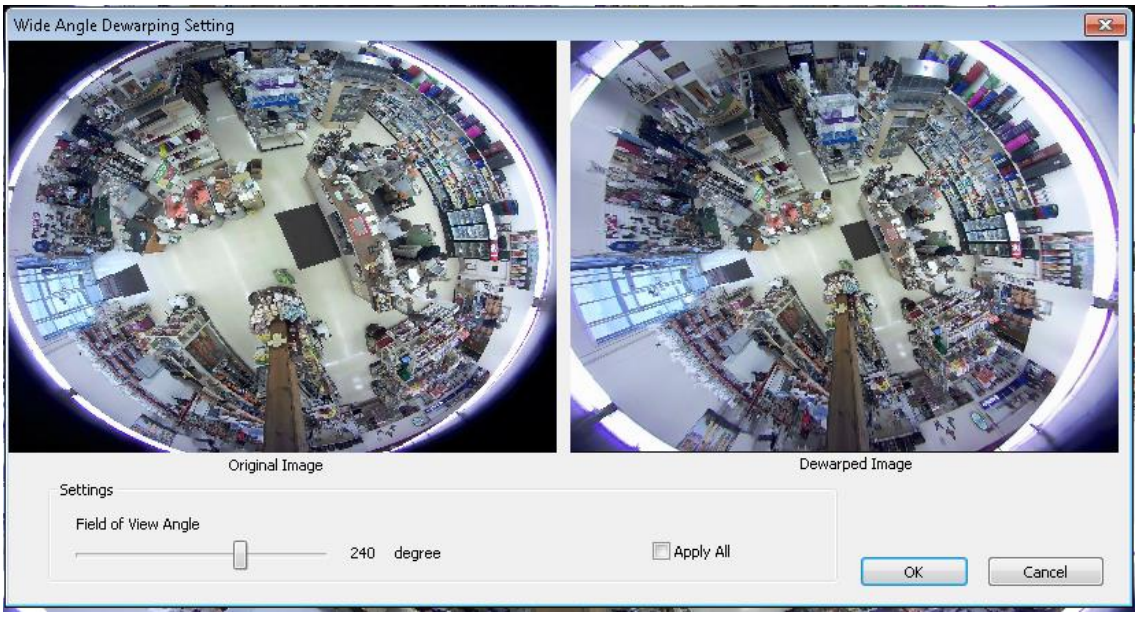


Figure 3-5

3. To apply the configuration, select the **Change Size** button (No. 2, Figure 3-1) and select **Wide Angle Lens Dewarping**.

3.2 PIP and PAP View

With PIP (Picture in Picture), you can crop your video to get a close-up view or zoom in on your video. With PAP (Picture and Picture), you can create a split video effect with multiple close-up views on the video.

You can enable PIP or PAP functions in Live View, Remote ViewLog and Matrix View.

- **Live View:** In the Host or Group List, right-click one camera and select **Live View**. In the Live View window, click the **Change Size** icon and select **PIP View** or **PAP View**.

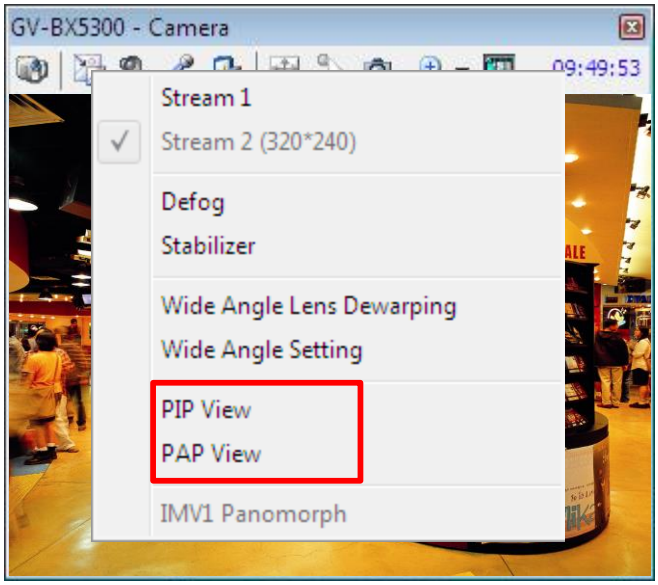


Figure 3-6

- **Playback:** Right-click one camera in the Host List or the Group List, and select **Remote ViewLog**. In the Remote ViewLog window, click the **View Mode** button, select **Single View**, and select **Mega Pixel (PIP)** or **Mega Pixel (PAP).**
- **Matrix:** Right-click one camera view, and select **PIP View** or **PAP View**.

3.2.1 Starting PIP View

To start the PIP View, follow the instructions below:

1. After you select **PIP View**, an inset window of the camera view with a navigation box appears in the image.

Figure 3-7

2. Point the cursor to the inset window. A hand icon appears. You can drag the inset window to the desired area on the image.
3. Point the cursor to the navigation box. A star icon appears. You can move the navigation box around in the inset window to have a close-up view of the selected area.
4. To adjust the navigation box size, move the cursor to any of the box corners, enlarge or diminish the box.
5. To change the frame color of the navigation box, right-click the image, select **Mega Pixel Setting**, and select **Set Color of Focus Area**.
6. To exit the PIP view, click **PIP View** again.

3.2.2 Starting PAP View

To start the PAP View, follow the instructions below:

1. After you select **PAP View**, a row of three inset windows appears on the bottom of the screen.

Figure 3-8

2. Draw a navigation box on the image, and this selected area is immediately reflected in one inset window. Up to **7** navigation boxes can be drawn on the image.
3. To adjust a navigation box size, move the cursor to any of the box corners, enlarge or diminish the box.
4. To move a navigation box to another area on the image, drag it to that area.
5. To change the frame color of the navigation box, right-click the image, select **Mega Pixel Setting** and click **Set Color of Focus Area**.
6. To hide the navigation box on the image, right-click the image, select **Mega Pixel Setting** and click **Display Focus Area of PAP Mode**.
7. To delete a navigation box, right-click the desired box, select **Focus Area of PAP Mode** and select **Delete**.
8. To add another navigation box when less than seven navigation boxes are drawn, right-click the image, select **Mega Pixel Setting**, and then select **Enable Add-Focus-Area-Mode**.
9. To exit the PAP view, click **PAP view** again.

3.3 Panorama View

Spliced from multiple camera images, a panorama view provides a continuous scene for live monitoring.

Each camera selected for the panorama view will keep the recording in original format. Up to **4** sets of panorama views can be created.

To access this feature, on the Group List, right-click the desired group, and select **Panorama Setting**. The CMS Panorama program is enabled and minimized to the system tray. The following Panorama Setup dialog box also appears.

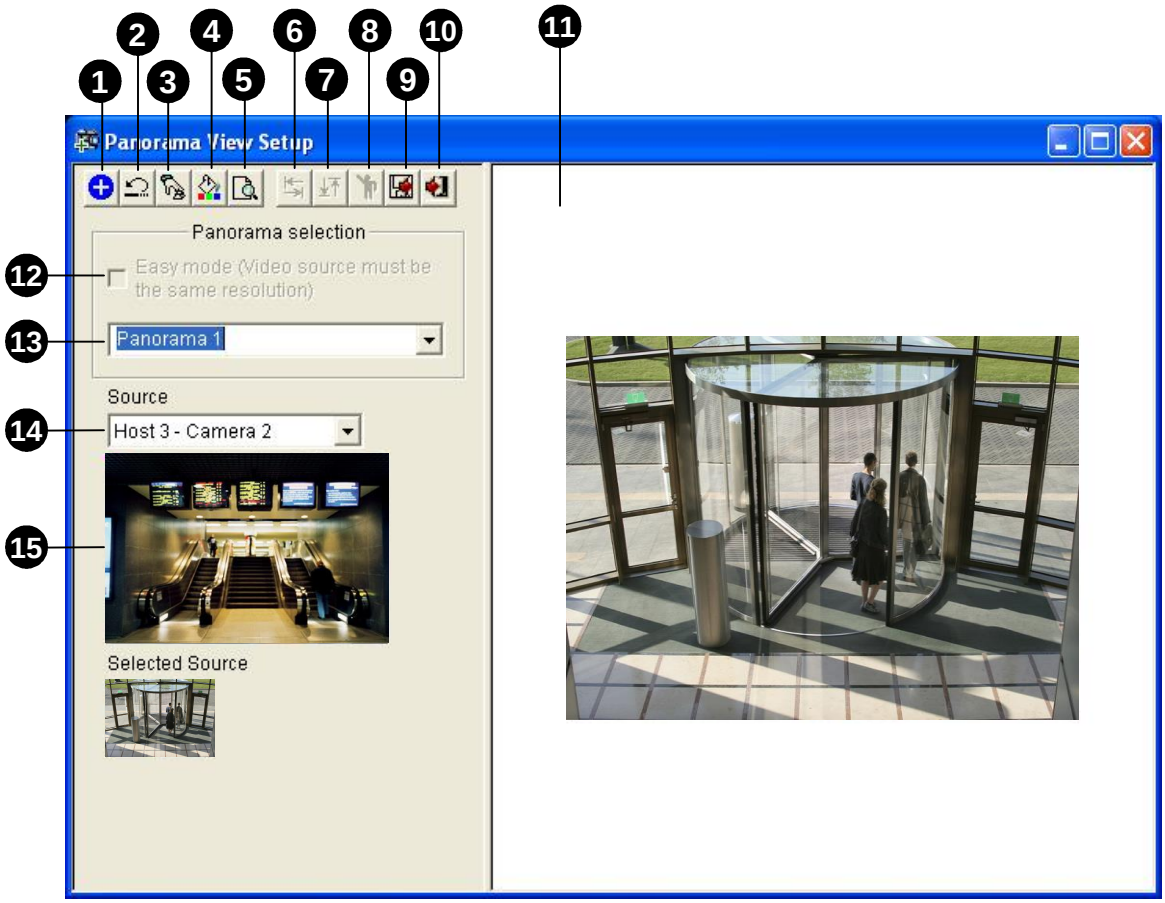


Figure 3-9

The controls on the Panorama View Setup dialog box:

No.	Name	Description
1	Add	Adds an image for automatic splicing.
2	Undo	Cancels the settings.
3	Manual Setting	Manually splices the images together.
4	Blending	Makes the spliced images seamless.
5	Demo	Displays the setup procedure.
6	Left-right location	Changes image addition to the left-or-right option. This function is only available with the Easy Mode.
7	Top / Bottom	Changes image addition to the top-or-bottom option. This function is only available with the Easy Mode.
8	Customize resolution	Sets the resolution of the panorama view.
9	Save Before Exit	Saves the created panorama view and closes the dialog box.
10	Exit	Closes the dialog box.
11	Preview Window	Displays the selected source image or the spliced images.
12	Easy Mode	Splices more than two images of the same resolution together. See Using Images of the Same Resolution in *3.3.1 Creating a Panorama View*.
13	Panorama Selection	Selects the panorama set for the images to be spliced together. Clicks again to rename the panorama set.
14	Source	Selects the source image to be spliced.
15	Selected Source	Displays the selected image.

3.3.1 Creating a Panorama View

To connect camera views with overlapped areas, follow the steps in *Using Images with Overlapped Areas*. To connect camera views without overlapped areas and of the same resolution, follow the steps in *Using Images with the Same Resolution*.

Using Images with Overlapped Areas

1. Select one panorama set (No. 13, Figure 3-9) from the drop-down list. If you want to rename the selected panorama set, type the name in the field.
2. Select one camera from the **Source** drop-down list (No. 14, Figure 3-9) and click the **Add** button (No. 1, Figure 3-9).
3. Click **Manual Setting** (No.3, Figure 3-9). This dialog box appears.

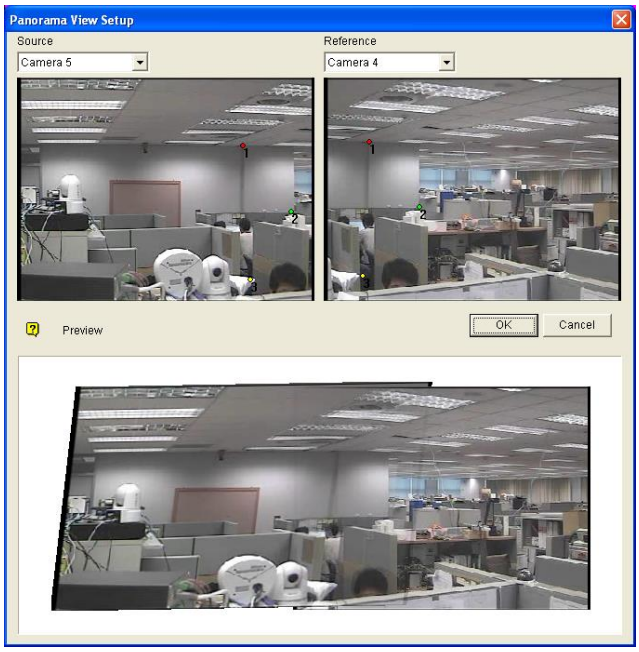


Figure 3-10

4. From the Reference drop-down list, select one camera as the Reference image. At this step, the camera you selected at Step 2 will be the only Reference image.
5. From the Source drop-down list, select one camera as the Source image to be stitched with the selected Reference image.

6. To stitch the two images together, click on a significant point in the Reference image and then look for the same point in the Source image. A dialog box of point selection will prompt you to confirm. You need to set up 3 points for stitching.

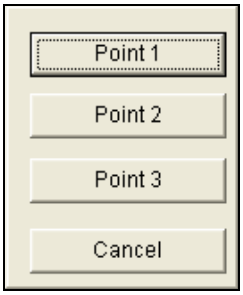


Figure 3-11

Note: For the best result, position the points in the overlapping areas on both images. Avoid placing the points in a cluster or lining them up straight.

---

7. The resulting image is displayed in the Preview window. If satisfied with the result, click **OK** to exit the setup dialog box. If not, re-enter the 3 points for stitching.
8. If you want to stitch a third image or more, click **Manual Setting** and repeat Steps 3 to 5 multiple times.
9. When you finish stitching images, click the **Save Before Exit** button (No.9, Figure 3-9) to save the created panorama view before exiting the Panorama View Setup dialog box.

Note: The resolution of the images to be stitched will be reduced to 320 x 240. A panorama view has a resolution limit of 1920 x 1080. Once the limit is reached, you cannot stitch more images to the created panorama view.

Using Images of the Same Resolution

To stitch images of the same resolutions and with no overlapping into a panorama view, follow the steps below.

1. On the Panorama View Setup dialog box (Figure 3-9), select **Easy Mode (Video source must be the same resolution)**.
2. Select one panorama set from the drop-down list. To rename the selected panorama set, type the name in the field.

3. Select a reference image.

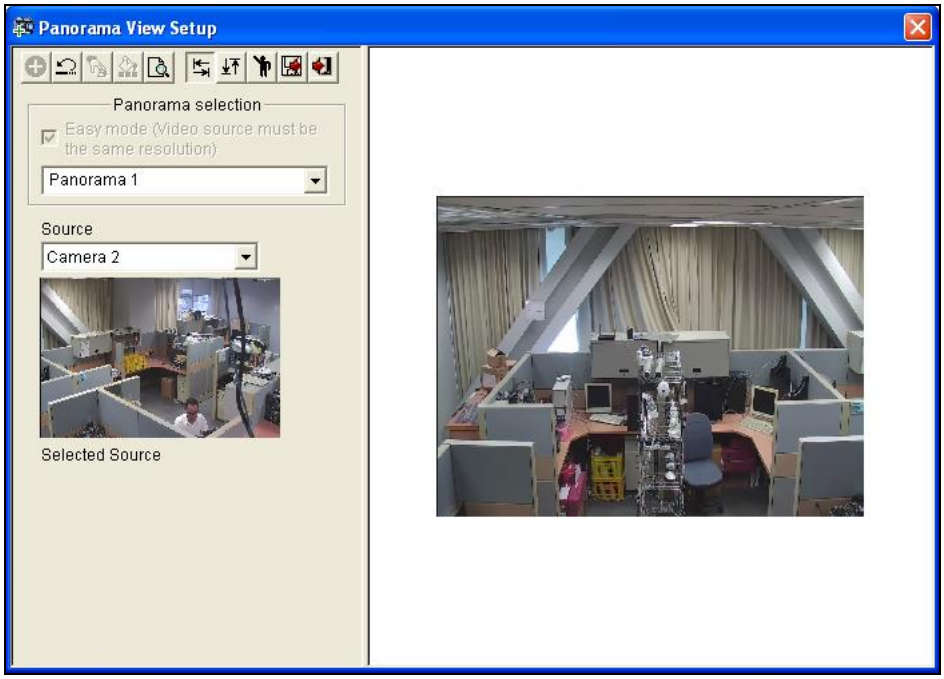


Figure 3-12

A. Select one camera from the **Source** drop-down list (No. 14, Figure 3-9)

B. Click the **Add** button (No. 1, Figure 3-9). This image appears in the Preview Window (No. 11, Figure 3-9).

4. Select an image to be stitched to the reference image.

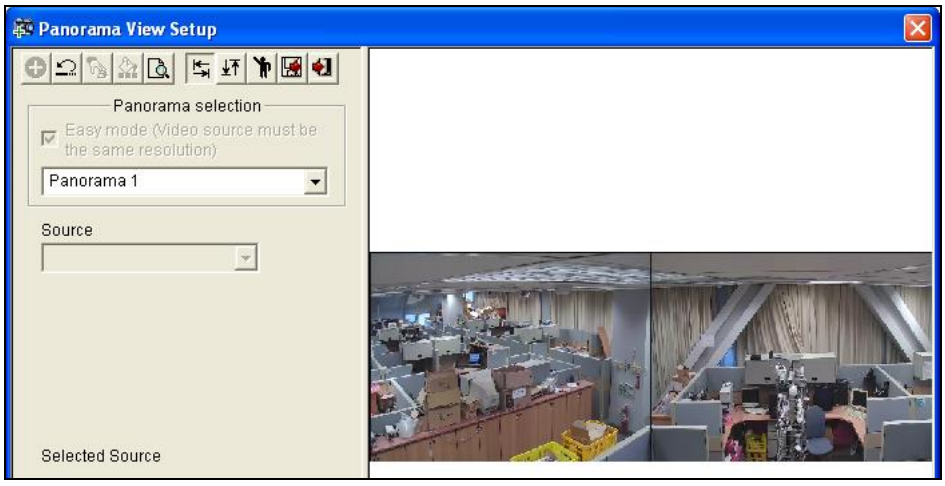


Figure 3-13

A. Select a camera from the **Source** drop-down list (No. 14, Figure 3-9).

B. To place the image to the left or right of the reference image, click the **Left / Right** button (No. 6, Figure 3-9). To place the image to the top or bottom of the reference image, click the **Top / Bottom** button (No. 7, Figure 3-9).

C. Click the **Add** button (No. 1, Figure 3-9). The Left or right / Top or bottom location dialog box appears.

D. Select **Left** or **Right** / **Top** or **Bottom** to add the image.

5. To add another image, repeat Step 4.

Note: You will only be able to add cameras next to the last camera view added. For example, when adding a third camera, you can only use the direction buttons  in relation to the second camera. You will not be able to go back and select the first camera.

---

6. To specify the width and height of the panorama view, click the **Customize Resolution** button (No. 8, Figure 3-9), select **Enable** and type the **Width** and **Height** (in pixels).

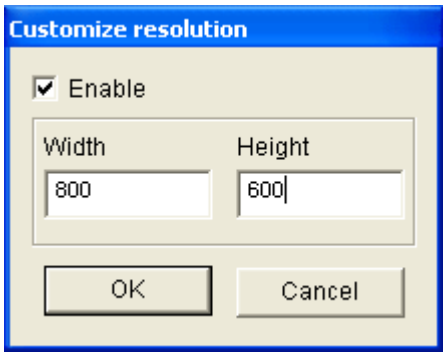


Figure 3-14

7. When you finish stitching images, click the **Save Before Exit** button (No.9, Figure 3-9) to save the created panorama view before exiting the Panorama View Setup dialog box.

3.3.2 Accessing a Panorama View

There are two ways to access a panorama view:

- Right-click the Group that has set a Panorama view, select **Panorama View** and select the desired panorama set from the list.
- Right-click the CMS Panorama icon on the system tray, select **Panorama View**, and select the desired panorama set from the list.

3.3.3 Panorama View Controls

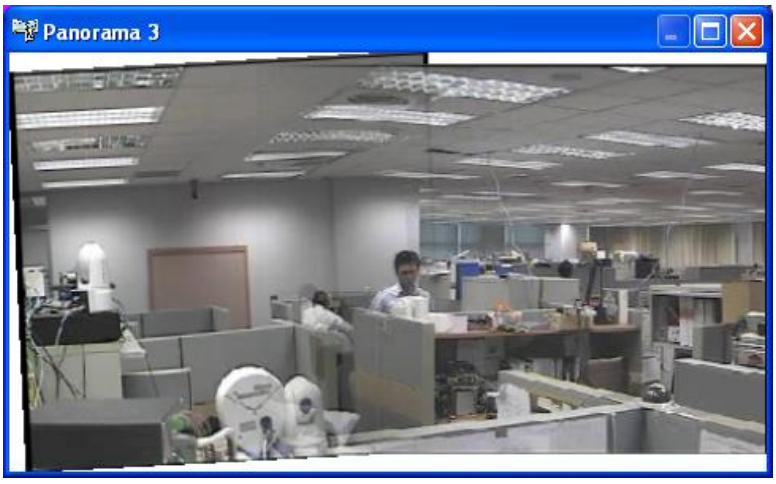


Figure 3-15

Right-click the panorama view to have these options:

- **Snapshot:** Save the current panorama view as an image file.
- **Blending:** Make the two images smoothly blended together. If this is not set, there can be harsh edges in the panorama.
- **Refresh Rate:** When the panorama view is enabled, the system load will increase. Change the refresh rate for the panorama images to optimize system performance. The refresh rate is from **Speed 1 (Slow)** to **Speed 5 (Fast)**.

3.4 VMD Monitoring

With the VMD (Video Motion Detection) function, the operator can be alerted with a pop-up display of live videos when any of the following events occur: Motion, Temperature Alarm, Input Trigger, Crowd Detection, Advanced Unattended Object Objection, Advanced Scene Change Detection and Advanced Missing Object Detection.

Note: The VMD feature does not support the third-party IP cameras.

3.4.1 Running VMD

1. Drag the desired cameras from the Host List and drop them to **VMD Group** in the Group List.

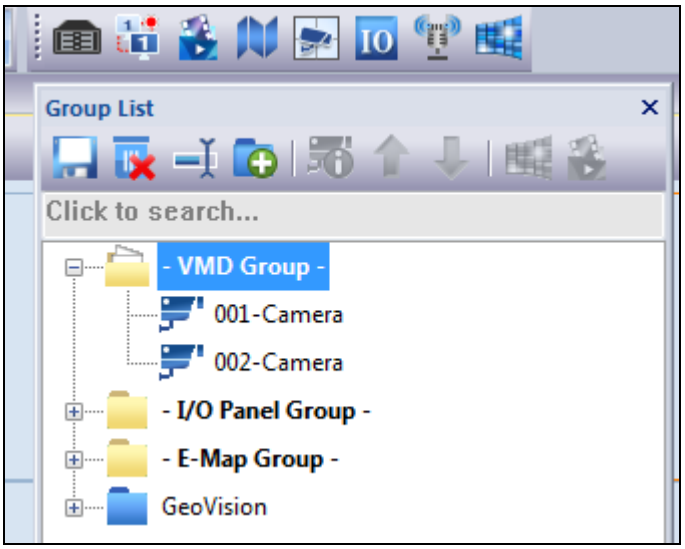


Figure 3-16

2. To select the event type for a pop-up alert, right-click the VMD Group, select **Video Analysis**, and select the type of event that have been configured for this camera at its host. Note Motion Detection is selected by default.
3. To open the VMD window, click the **VMD System** icon  . When motion or event is detected within the camera view, the live video will pop up on the VMD window.

3.4.2 The Controls on the Window

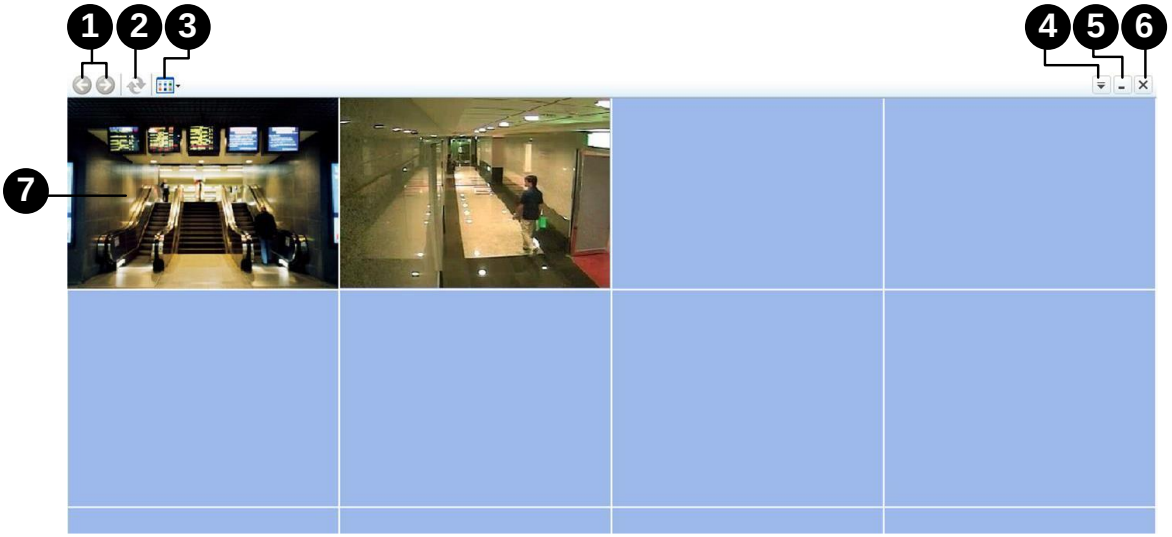


Figure 3-17

No.	Name	Description
1	Page Up & Down	Scrolls the page up and down.
2	Refresh	Refreshes the camera view. The feature is unavailable when the **Camera pops up in the user-defined position** option is enabled (Figure 10-3).
3	Select Quad	Sets the screen division.
4	Show System Menu	Includes these settings: • **Image Quality:** Changes the display quality to Best, Normal or Low. • **Host List:** Displays the hosts added to the VMD group in tree view. • **Pop-up Viewer:** Displays a pop-up event on another monitor. See *3.4.5 Pop-up Viewer on Another Monitor*. • **System Configure:** Enables DirectX; specifies Dwell Time (the duration of popup camera view), Minimum Duration (the interval of each motion and input trigger detection); enables Invoke Alarm (computer alarm upon each motion detection); defines the critical temperature. • **Event Popup:** Changes the duration that a pop-up view remains on the screen. By default each popup remains for 60 seconds. • **Sound Scheme:** Changes the alarm sound for different events.
5	Minimize	Minimizes the window in Windows taskbar.
6	Exit	Closes the window.
7	Pop-up camera	Right-click the pop-up camera to have these settings: • **Advanced Live View:** Opens the live view window for further control. See *3.1 Live View*. • **Instant Playback:** See *5.1 Instant Playback*.

3.4.3 Temperature Alarm

You can set up a temperature alarm by specifying a critical temperature, upon or beyond which the live view will pop up on the VMD window.

Note:

1. The critical temperature refers to the interior temperature of the device, but not its operating temperature.
2. This feature is only supported by GV-DVR with GV-3008 Card and certain GV-IP Cameras. For the support list, refer to the *GV-IPCAM User's Manual* for detail.

1. On the VMD window, click the **Show System Menu** icon on the top right corner and select **System Configure**. The System Configure dialog box appears.
2. Type **Critical Internal Temperature**.

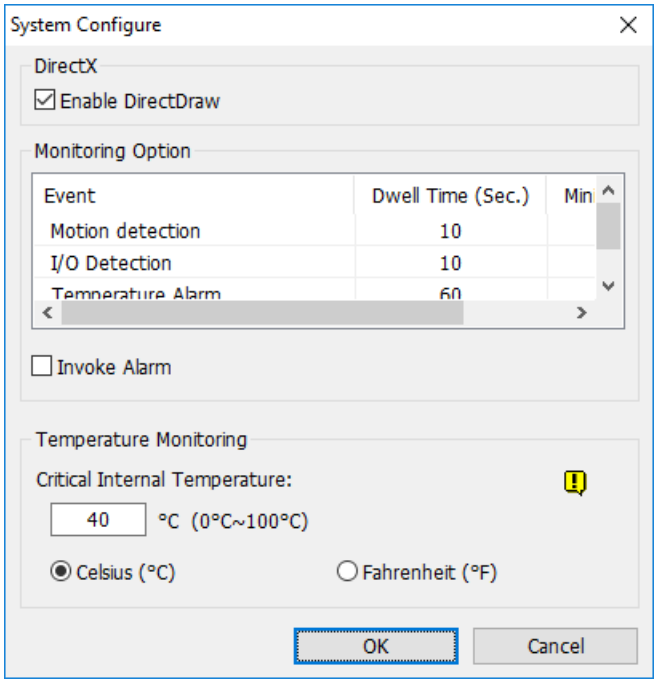


Figure 3-18

3. Right-click the camera under the VMD Group, select **Video Analysis** and select **Temperature Alarm**.
4. The live view should pop up on the VMD window when the camera's temperature reaches or exceeds the specified critical temperature.

3.4.4 Dual-Monitor Display

You can set up two monitors to display the VMD windows for pop-up displays.

Note: For monitor resolution of 1280 x 1024 and above, up to **42** pop-up views can be displayed on a VMD window. For monitor resolution lower than 1280 x 1024, up to **36** pop-up views can be displayed on a VMD window.

To set two monitors to display the VMD windows:

1. On the main window, select System, select **Configure** and click the **VMD System** tab.

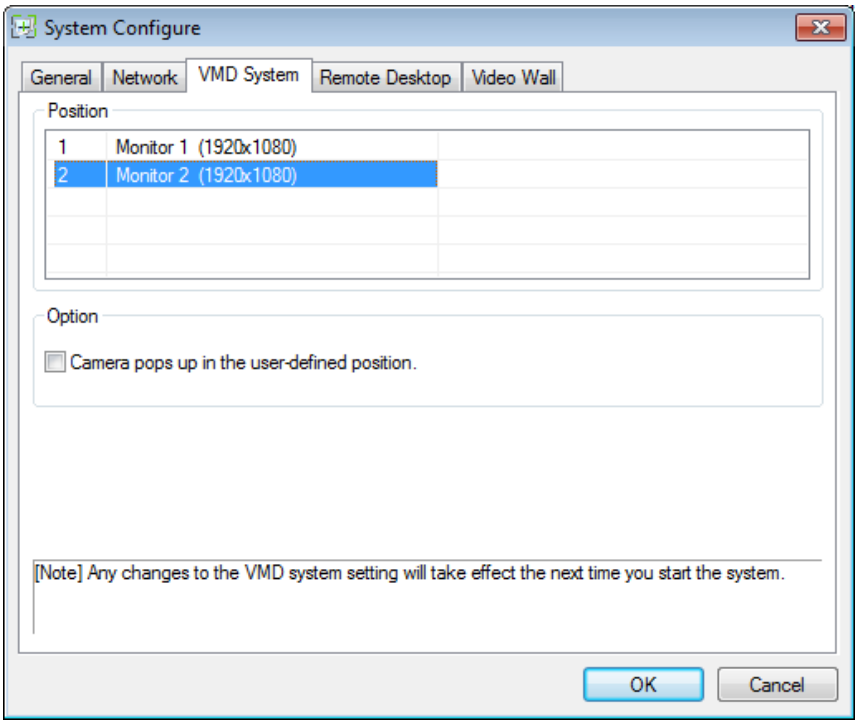


Figure 3-19

2. In the **Position** section, select the monitor to be the first VMD window (Monitor 1) and the second Vital Sign Monitor window (Monitor 2). Click **OK**.
3. To open the VMD window, click the **VMD System** button on the Group List.
4. To set the screen division for both Monitor 1 and Monitor 2, click the **Select Quad** button on the VMD window and select a screen division.

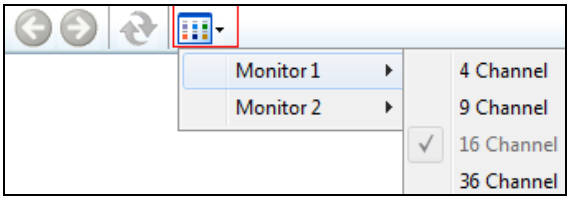


Figure 3-20

5. When the first monitor is full of the pop-up camera view, the next pop-up camera view will go to the second monitor.

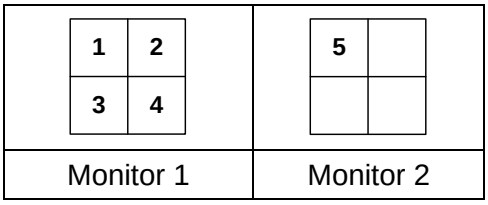
Applications of two VMD windows:

The position of pop-up cameras on the VMD windows varies when you enable or disable the **Camera pops up in the user-defined position** option in ***Figure 10-3.***

- **When the option is disabled:** When multiple pop-up alerts are triggered simultaneously, the positions of pop-up views on the VMD windows are based on the sequence order of motion or event detection. When the first monitor is full of pop-up views, the next pop-up view will go to the second monitor.

  Example:

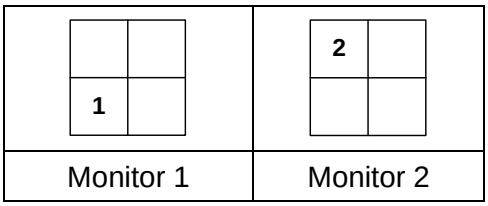
  Both Monitor 1 and Monitor 2 are set at 4 screen divisions. When 5 pop-up alerts are triggered simultaneously, the first 4 pop-up views will appear on Monitor 1 and the last pop-up view will appear on Monitor 2.



- **When the option is enabled:** The positions of pop-up views on the VMD windows are based on the camera sequence in the VMD Group.

  Example:

  In the VMD Group, Camera A is listed as the third camera and Camera B is the fifth. Both monitor 1 and monitor 2 are set at 4 screen divisions. When the pop-up alerts from the two cameras are triggered simultaneously, Camera A images will appear on the third square of Monitor 1 and Camera B images will appear on the first square of Monitor 2. Note the order of pop-up views is from left to right on the VMD window.



3.4.5 Pop-up Viewer on Another Monitor

With the Pop-up Viewer feature, you can define the duration that a pop-up view stays on another monitor. The pop-up view on the VMD window will be closed as soon as motion stops or an event is undetected.

When motion or an event is detected, the camera view will pop up on the primary monitor and the assigned monitor together. When motion or an event is undetectable, the pop-up view on the primary monitor will close, but the pop-up view on the other monitor will last for the specified time. The last image of the pop-up view will remain on the screen if no new event pops up. To clear the image, right-click on the screen and select **Clear**.

Note: For this function to work, the Control Center must be set up with at least two monitors.

---

1. Click the **Show System Menu** button on the toolbar of VMD window, and select **Pop-up Viewer**. This dialog box appears.

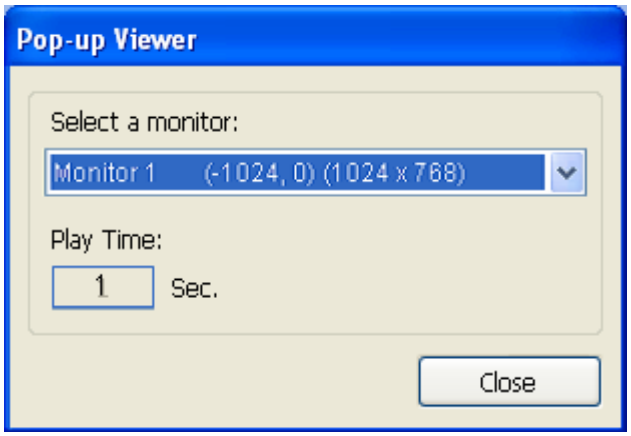


Figure 3-21

2. Use the drop-down list to select a desired monitor.
3. Type **Play Time** to specify the length of time that a pop-up view remains on another monitor. Type the time length between 1 and 10 seconds.

Chapter 4 Audio Communication

4.1 Audio Communication

The Control Center operator can speak to, listen to and engage in two-way communication with a specified host.

Speaking and Listening to a Camera

There are two ways of enabling audio from cameras:

1. Move the cursor to the live view grid and click  at the left bottom corner.
2. Right-click the live view, click **Audio**, select **Microphone** and select **Wave Out / 2 Way**.

Speaking and Listening to a client GV-VMS

1. Right-click the client GV-VMS from the Host List, select **Microphone** and type the **ID** and **Password** of the client GV-VMS.
2. Select **2 Way** so you can speak and listen to the GV-VMS with microphone and speaker.

4.2 Audio Broadcast

The Control Center operator can use the Audio Broadcast function to speak to multiple hosts at one time.

Note: The Audio Broadcast function supports both GV and third-party IP devices with speaker functions.

4.2.1 Starting the Audio Broadcast

1. To open the Audio Broadcast window, click the **Broadcast Service** button on the Toolbar. This dialog box appears.

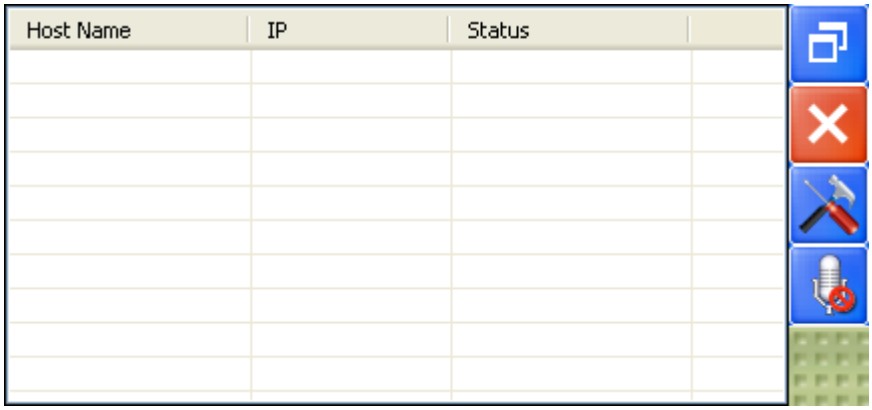


Figure 4-2

2. Right-click the host and select **Add to Broadcast Service** or drag the desired hosts from the Host List to the Audio Broadcast window.

Tip: To add hosts by dragging, click the **Setup** button and select **Always on top** to keep the Audio Broadcast window to be on top of other windows.

3. You can mark or unmark the hosts on the Audio Broadcast window to enable or disable audio broadcasting to them.
4. To start audio broadcasting to the hosts, click the **Start/Stop Broadcasting** button on the Audio Broadcast window, and talk to the microphone connected to the computer of Control Center.

4.2.2 The Audio Broadcast Window

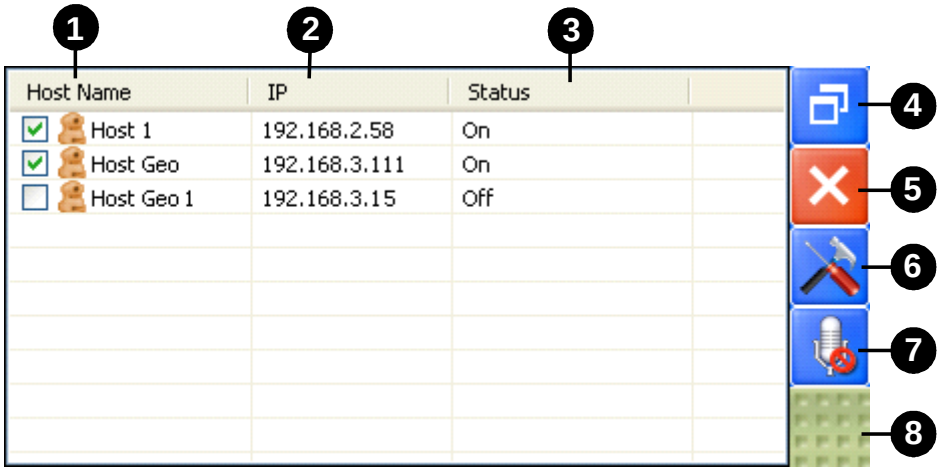


Figure 4-3

The controls on the Audio Broadcast window:

No.	Name	Description
1	Host Name	Displays the host name.
2	IP	Displays the host IP address.
3	Status	Displays the connection status of the host.
4	Change Style	Minimizes or enlarges the Audio Broadcast window.
5	Close	Closes the Audio Broadcast window.
6	Setup	■ **Always on top:** Always displays the Audio Broadcast window on top of the screen. ■ **Opacity:** Select the opacity level for the Audio Broadcast window. The value can range from 20% (fully transparent) to 100% (fully opaque).
7	Start/Stop Broadcasting	Starts or stops audio broadcasting.
8	Dragging Area	Click the button and drag the Audio Broadcast window to the desired position.

Chapter 5 Playback

5.1 Instant Playback

You can retrieve and play back recordings from DVR, GV-IP Device, GV-Recording Server and GV-SNVR System.

Note: Playback for GV-Recording Server is only supported for V1.230 or later.

The following function must be enabled ahead to allow remote access from the Control Center:

- **DVR:** Enable recording and **Remote ViewLog Service** (No. 4, Figure 2-2).
- **GV-IP Devices:** Enable recording and **ViewLog Server**.

1. To start instant playback:
   - In the Host List (Figure 1-3) or Group List (Figure 1-4), right-click one camera and select **Instant Play (5 Min)**.
   - On the Live View window (Figure 3-2), right-click one camera and select **Instant Play (5 Min)**.
   - In the VMD window, right-click the pop-up camera and select **Instant Play (5 Min)**.
   - On the I/O Central Panel (Figure 7-2), click an input icon and select **Instant Play** or right-click an input icon, select **Information**, select an event from the Trigger Time List and select **Instant Play**.
   - In the Matrix view (Figure 8-5), click on the Camera Name, select **Instant Play** and select the time length.
   - On the Remote E-Map (Figure 9-11), click the **Host Information** button  to display the Host Information dialog box and select an event for playback.

Tip: By default, the event selected from Remote E-Map is played back on the Control Center's main window. To play back in a separate Instant Playback window, see *8.1 Application Position* for details.

2. The Instant Play window appears. You can select the camera, date and video events for playback.

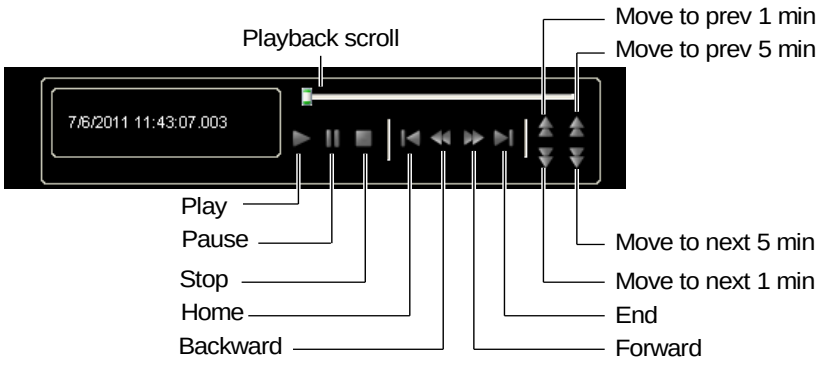


Figure 5-1

For further playback features, right-click the Instant Play window. The features vary based on the selected host.

Name	Functions
Play Mode	Includes these options: • **Frame by Frame:** Plays back video frame by frame. • **Real Time:** Plays back video on real time. This mode saves waiting time for rendering, but drop frames to give the appearance of real-time playback. • **Key frame:** Plays back the key frame of the video. • **Audio:** Turns the video sound on or off and reduce noise. • **Play Speed:** Plays back the video at a faster or slower speed. • **Auto play next 5 minutes:** Plays back video up to 5 minutes.

Name	Functions
Render	Includes these options: • **Deinterlace:** Converts the interlaced video into non-interlaced video. • **Scaling:** Smoothens mosaic squares when enlarging a playback video, and applies the colorful mode to enhance the coloring. • **Deblocking:** Removes the block-like artifacts from low-quality and highly compressed video. • **Defog:** Enhances image visibility. • **Stabilizer:** Reduces camera shake. • **Text overlay's camera name and time:** Overlays camera name and time onto the video. • **Text overlay's POS/GV-Wiegand:** Overlays POS or GV-Wiegand Capture data onto the video. • **Fisheye:** Select **Geo Fisheye** to choose a camera mode; select **Panomorph** to enable a 360 view of a third-party fisheye camera. • **Mega Pixel View:** Enable PIP or PAP view. See *3.2 PIP and PAP View*. • **Wide Angle Lens Dewarping:** Corrects image distortion. See *3.1.4 Adjusting Distorted Views.* • **Display GPS:** Shows the camera's position on the video. • **Select GPS Map:** Selects a map type for GPS display. • **Full Screen:** Switches to the full screen view.
Tools	• **Snapshot:** Saves a video image. • **Save as AVI:** Saves a video as avi format. • **Download: Downloads** the video clip from the DVR or IP video device to the local computer.

Note: The Defog and Stabilizer only work when the functions have been applied on the recording from the DVR.

5.2 Remote Playback

The Remote ViewLog service allows the Control Center to access the event files of different hosts and play them back with ViewLog player.

5.2.1 Running the Remote ViewLog

1. For DVR hosts (GV-DVR / NVR / VMS), their **Remote ViewLog Service** (No. 4, Figure 2-2) must be activated first.
2. At the Control Center, highlight a host in the Host List or a group in the Group List. Then click the **Remote ViewLog** button  .

When the connection is established, the ViewLog player will appear on the Control Center desktop. For details on ViewLog, see Chapter 4, *GV-VMS User's Manual*.

Chapter 6 Remote DVR Applications

6.1 Remote DVR

The Remote DVR service allows GV-Control Center to remotely access and configure client GV-DVR / NVR settings. This feature reduces the number of trips to each client's system.

Note: The Remote DVR service is not supported by GV-VMS.

6.1.1 Running the Remote DVR

1. The client DVR / NVR must activate **Control Center Service** (No. 3, Figure 2-2) first.
2. In GV-Control Center, highlight a DVR / NVR host on the Host List, click the **Remote Control** button  and select **Remote DVR**.

If the connection is established, the main screen of client GV-DVR / NVR will be displayed on GV-Control Center's desktop. At the same time, the client will have the following message, indicating GV-DVR / NVR is in use and has been locked.

Figure 6-1

If the client wants to interrupt the connection, click the button  at the bottom right corner. A valid ID and Password are required to stop the connection.

Tip: If you wish to minimize the bandwidth used while viewing cameras of the client DVR, you can choose to view certain cameras only. There are two ways to activate and deactivate cameras:

1. Before connecting to the client DVR, in the Control Center, click the **Application Position** button  , right-click the Remote DVR window, and select **Activate Remote Channels** to select or unselect cameras.

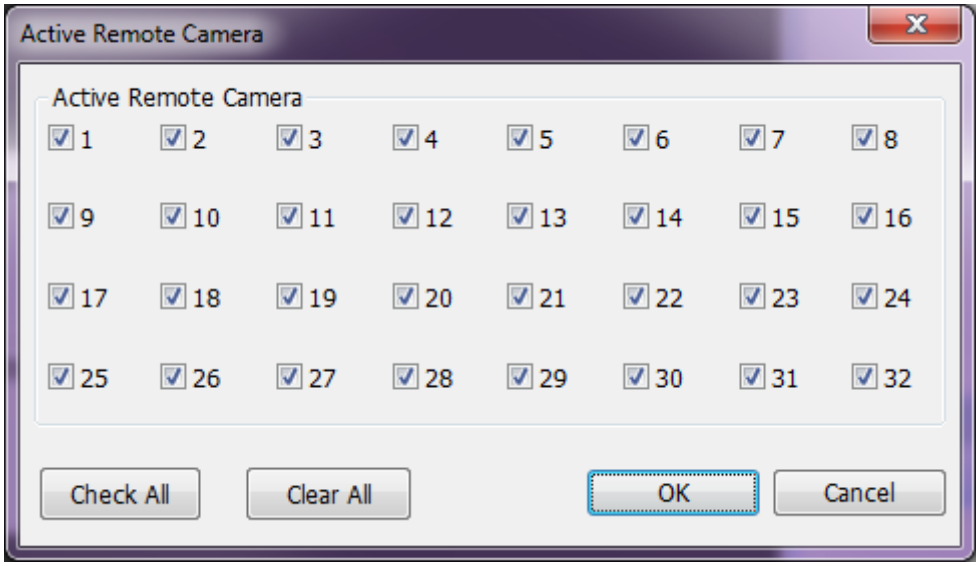


Figure 6-2

2. When connecting to the client DVR, on the main screen of the client DVR, click the **Exit** button, and then select **Activate Remote Camera**. Check or uncheck cameras.

Note: Currently Remote DVR does not support audio output, PTZ and I/O control.

6.2 Remote Desktop

The Remote Desktop enables the GV-Control Center operator to remotely access the GV-DVR / NVR / VMS desktop. The operator of GV-Control Center has full control over the surveillance system and Windows operation system of the client.

6.2.1 Running Remote Desktop

1. The client must activate **Remote Desktop Service** (No. 5, Figure 2-2) first.
2. In GV-Control Center, highlight a host in the DVR List. Then click the **Remote Control** button  , and select **Remote Desktop**.

When the connection is established, the client's desktop will appear in a separate window on GV-Control Center desktop. If the client DVR is using multiple monitors, you can click the **Monitor** icon  to switch between them.

Note:

1. You can choose a suitable connection speed. See *10.4 Remote Desktop Settings*.
2. The Monitor button is only supported by GV-VMS 15.10.1.0 or later.

6.2.2 File Transfer

The File Transfer function is designed to transfer files easily between the Control Center and client DVR.

1. Run the **Remote Desktop**.
2. Click the **File Transfer** button on the upper left corner of the Remote Desktop. The File Transfer Service dialog box appears.
3. Select the desired file to transfer to **Local** (the Control Center) or **Remote** (the client DVR).

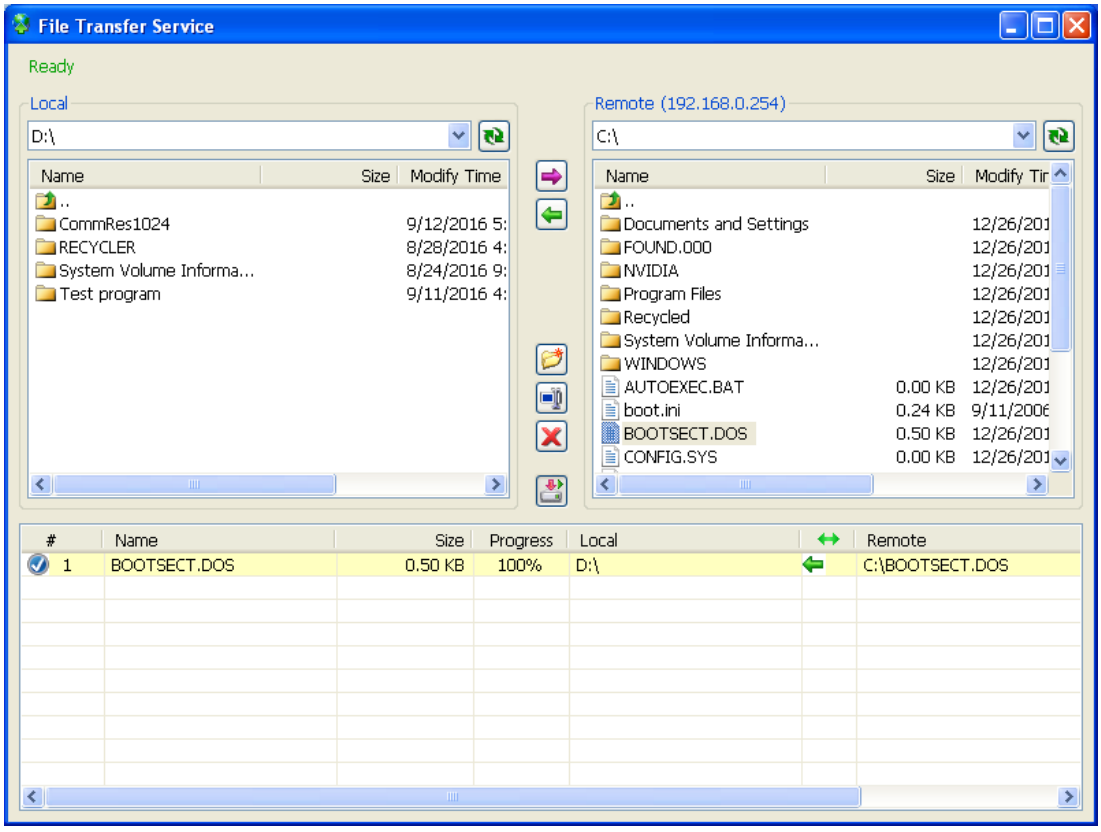


Figure 6-3

Note: The size of one single file for transfer cannot exceed 4 GB, but there is no size limit for multiple files.

6.3 Data Event Query on GV-DVR / NVR / VMS

You can query events that occur at DVR hosts by defining search criteria. The search results can be displayed in text or in chart. You can also export your research results in the form of text, html or excel.

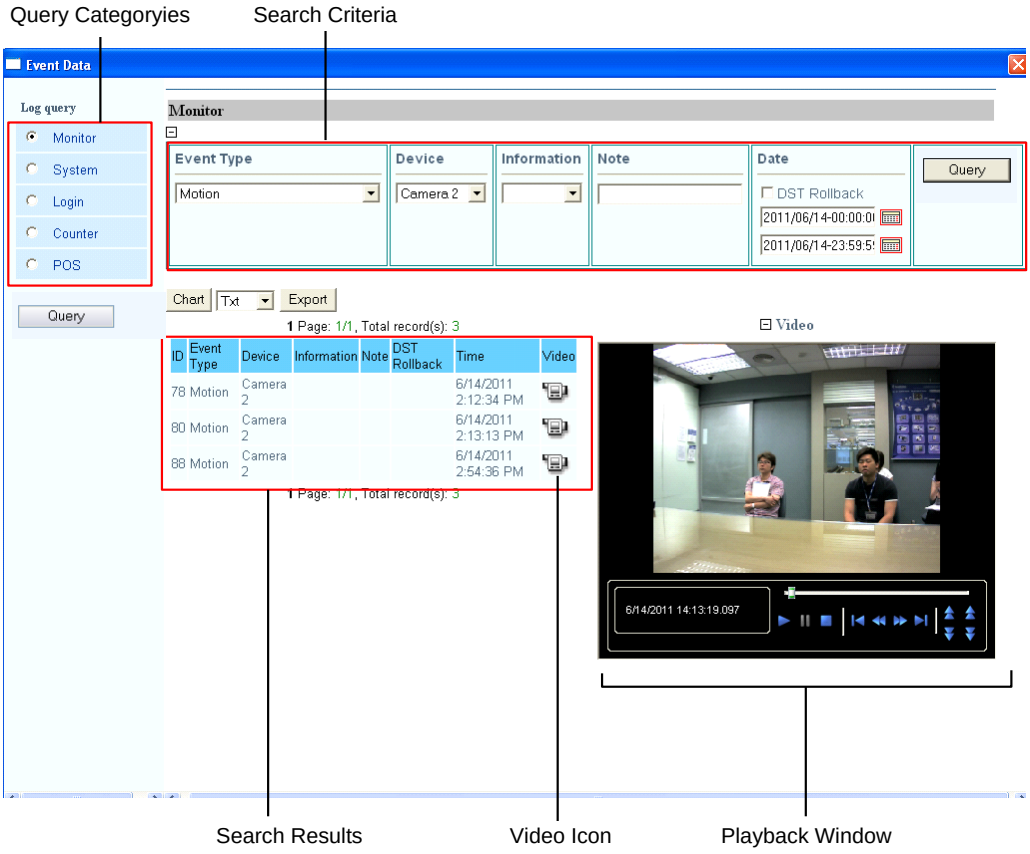


Figure 6-4

1. Enable the WebCam Server.
   - On GV-DVR / NVR, click the **Network** button, select **WebCam Server** and click **OK**.
   - On GV-VMS, click **Home**, click **Toolbar**, click **Network**, click **WebCam Server** and click **OK**.
2. On the Control Center, right-click the desired DVR host on the host list, select the **Remote Control** button and select **Event Data Query**. The Event Data window appears.
3. On the left panel, select a query category and then click **Submit Query** at the bottom to display its search criteria.
   - **Monitor:** events that are monitored
   - **System:** system activities

- **Login:** user login/logout status
- **Counter:** counter events
- **POS:** POS transaction events

4. Define each search criteria such as Event Type, Device, Information, Date etc. The search criteria vary depending on the search category selected.
5. If you want to search the events recorded during the Daylight Saving Time period, select **DST Rollback** and specify the time period in the Date column.
6. Click **Submit Query**. The search results will be displayed in text form.
7. To graph the search results, click the **Chart** button.
8. To play back any attached video, click the Video icon  .
9. To export the search results, select the file type using the drop-down list and click **Export**.

Chapter 7 I/O Central Panel

The I/O Central Panel provides a centrally managing solution for I/O devices from different hosts. Its major features are:

- Group I/O devices from different hosts
- Trigger I/O devices in cascade mode
- Monitor different I/O cascade configurations at different times of the day
- Provide quick access to triggered I/O devices by a Quick Link window

---

Note:

1. Configurations in the Advanced I/O Panel of the client GV-DVR / NVR / VMS and in the I/O Central Panel of GV-Control Center may conflict. It's recommended that the client cleans up the settings in the Advanced I/O Panel and renders I/O control to GV-Control Center.
2. The I/O Central Panel only supports GV-IP Devices.

7.1 Running the I/O Central Panel

1. For DVR hosts, the client DVRs must activate **Control Center Service** (No. 3, Figure 2-2) first.
2. On the Control Center Toolbar, drag the desired hosts from the Host List to the **I/O Panel Group** in the Group List and click the **Save** button.

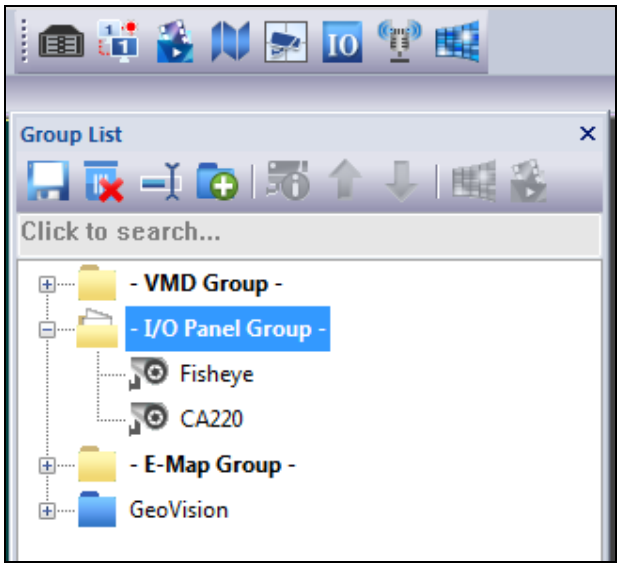


Figure 7-1

3. Click the **I/O Central Panel** button  on the Control Center toolbar.

When the connection is established, the I/O Central Panel appears on the Control Center desktop.

7.2 The I/O Central Panel

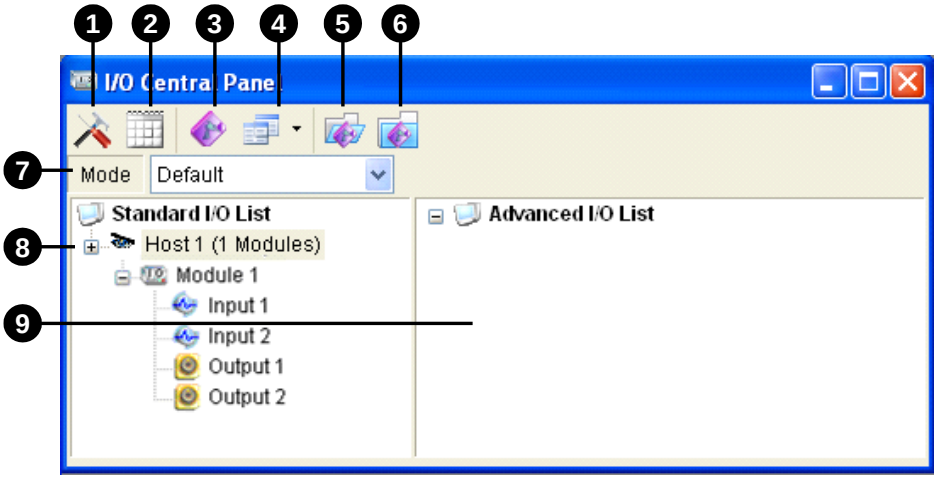


Figure 7-2

The controls on the I/O Central Panel:

No.	Name	Description
1	Configure	Accesses Panel and Schedule settings.
2	Mode Schedule	Starts/stops Mode Schedule.
3	Toggle Quick Link	Displays the Quick Link window for quick access to triggered I/O devices.
4	Advanced I/O List Style	Displays the Advanced I/O List in various styles: View/Edit, Icon and Detail.
5	Expand Tree Row	Expands tree branches.
6	Collapse Tree Row	Collapses tree branches.
7	Mode	Configures various cascade modes.
8	Standard I/O List	Displays connected I/O modules.
9	Advanced I/O List	Groups I/O devices in cascade mode.

7.3 Creating a Group for Cascade Triggers

You can group I/O devices by function or geography. Further, the group allows cascade triggers, meaning that the trigger actions of one trigger can activate another trigger.

For this example, you might have a group called “Entrance” that contains all I/O devices installed at entrances. The “Entrance” group might contain other sub groups, each of which contains just the related I/O devices in various geographic locations:

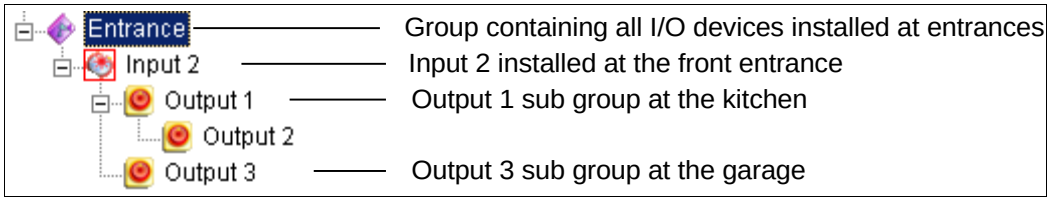


Figure 7-3

When Input 2 is triggered, it will trigger Output 1 and Output 3 sub groups, and Output 1 will trigger Output 2 in a cascade series.

7.3.1 Creating a Group

1. Right-click on **Advanced I/O List** (No.9, Figure 7-2), and then select **Add A Group**. This dialog box appears.

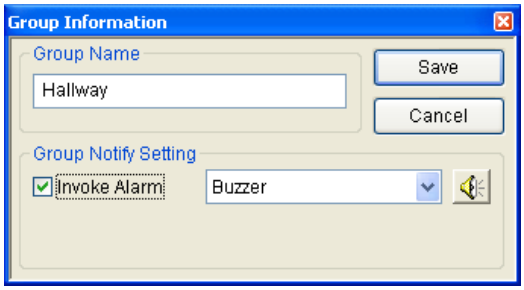


Figure 7-4

[Group Name] Names the group.

[Group Notify Setting]

- **Invoke Alarm:** Invokes the computer alarm upon I/O trigger. Select a sound from the drop-down list.

2. Click **Save** to apply the settings, and return to the panel.
3. To create a cascading hierarchy, drag the desired inputs/outputs from the left **Standard I/O List** to the group.

Note: In the cascading hierarchy, each input can only be used once while the same output can be used repeatedly.

7.3.2 Editing a Group

To modify group settings, right-click a group, and select **View/Edit**. This dialog box appears.

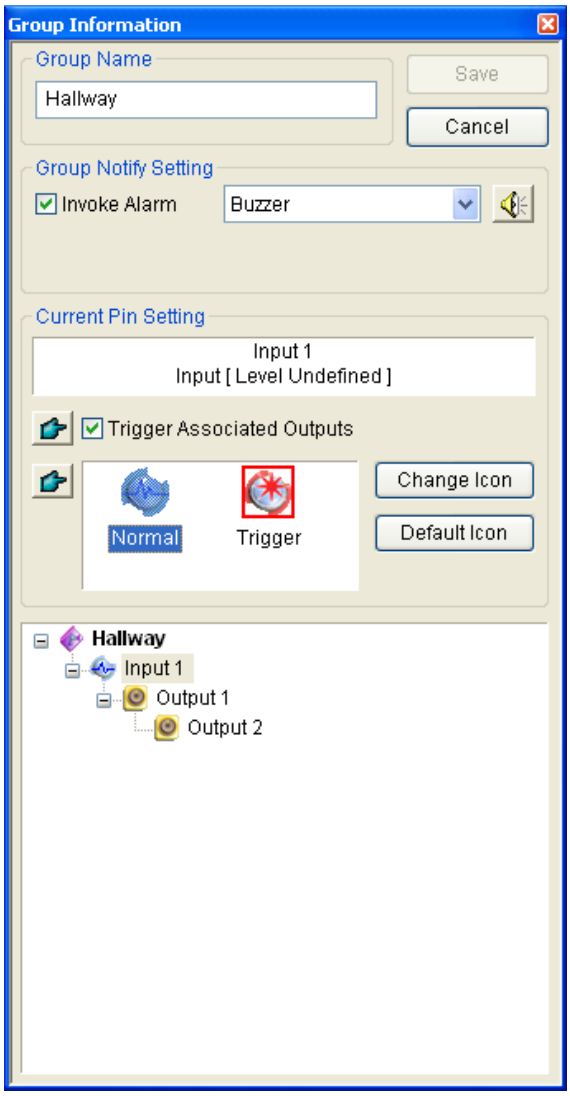


Figure 7-5

[Group Name] As described in Figure 7-4.

[Group Notify Setting] As described in Figure 7-4.

[Current Pin Setting] To enable this option, highlight an I/O device from the group list at the bottom.

- **Trigger Associated Outputs:** Triggers outputs in cascade mode. Click the **Finger** tab to apply the change to all I/O devices at the same group.
- **Change Icon:** To enable this option, select one of two displayed icons: Normal or Trigger. Click the **Change Icon** tab to change an icon. Click the **Finger** tab to apply the change to all I/O devices at the same group.

7.3.3 Editing an I/O Device

In addition to editing groups, you can also edit the settings of individual I/O device. Right-click an I/O device, and select **Setting**. This dialog box appears.

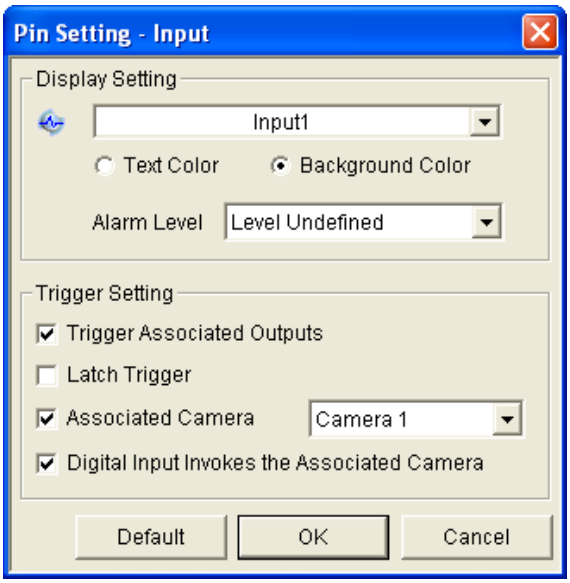


Figure 7-6

[Display Setting] You can define the nature of I/O devices by colors. Note that the setting only affects the **Detail** style of the Advanced I/O List (No. 4, Figure 7-2).

- **Alarm Level drop-down list:** Click the drop-down list, and select one of the six default colors: Fire, Smog, Vibration, Intruder, Motion and Emergency. For the Level Undefined option, select **Text Color** or **Background Color**, and then click the Input/Output drop-down list to change its color.

Tip: To modify the naming for default alarm level, see *7.4 Configuring the I/O Central Panel* in the following section.

[Trigger Setting]

- **Trigger Associated Outputs:** Triggers outputs in cascade mode.
- **Latch Trigger:** Instead of a lasting output alarm, the Latch Trigger option provides a momentary alarm when an input is triggered in cascade mode. For details, see *Latch Trigger*, Chapter 6, *GV-DVR User's Manual* on the Software DVD.
- **Associated Camera:** Assign a camera for its live view to be popped up when this input is triggered. After this option is enabled, you can click the input icon and select **View Associate Camera** to view live video anytime.
- **Digital Input Invoke Associated Camera:** The live video pops up when its associated input is triggered. See *7.13 Popping Up Live Video After Input Trigger*.

7.4 Monitoring Hosts from the I/O Central Panel

You can watch host live view, play back recordings and view host information directly from the I/O Central Panel. This is especially useful for administrator to get an immediate checkup of the host when a trigger event occurs.

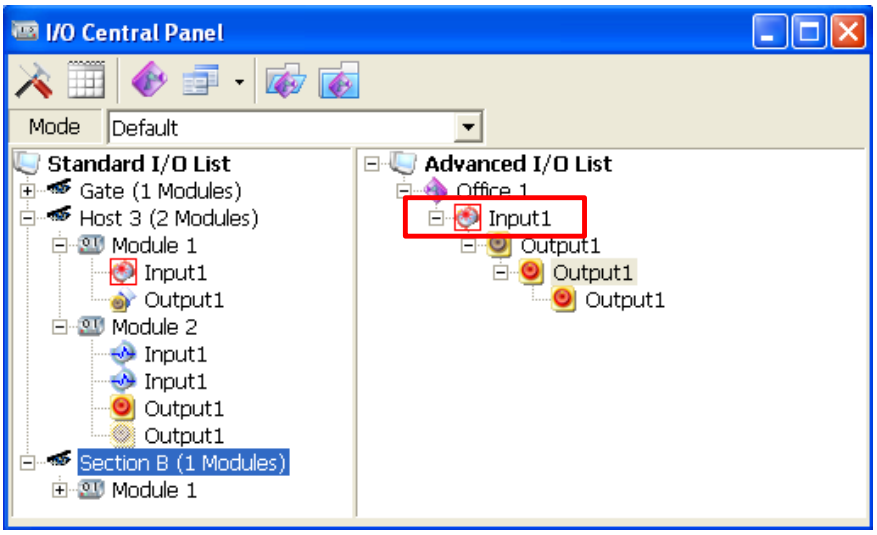


Figure 7-7

Watching Live View

On the I/O Central Panel, click an input and select **View Associated Camera** to watch the live view of the camera associated with this input device. A single Live View window appears.

To associate a camera with the input, see *7.3.3 Editing an I/O Device*. For details on single Live View, see *3.1.1 Displaying Single Live View*.

Viewing Host Information

You can obtain information on host name, alarm level and a history of trigger events. Right-click an input icon from the Advanced I/O List and select **Information**. The Pin Information dialog box appears.

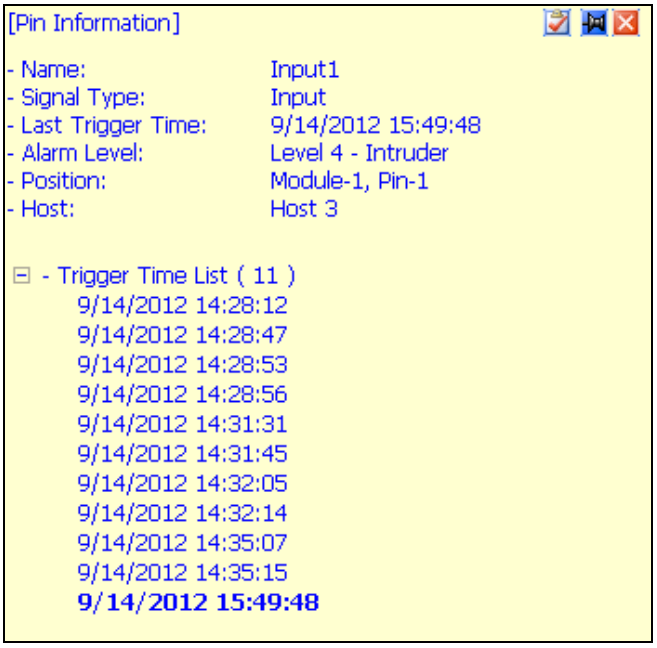


Figure 7-8

Playing Back Trigger Events

To play back host recordings, click its associated input from the Advanced I/O List and select **Instant Play**. The Instant Playback window appears. For details, see *5.1 Instant Playback*.

Alternatively you can select a specific trigger event for playback. Right-click the input icon from the Advanced I/O List, select **Information**, select an event from the Trigger Time List (Figure and select **Instant Play**.

Note: To allow remote access from Control Center, the following functions must be enabled ahead:

- **DVR:** Enable recording and **Remote ViewLog Service**
- **GV-IP Devices:** Enable recording and **ViewLog Server**

7.5 Configuring the I/O Central Panel

On the panel toolbar, click the **Configure** button (No.1, Figure 7-2) and select **Panel Setting**. This dialog box appears.

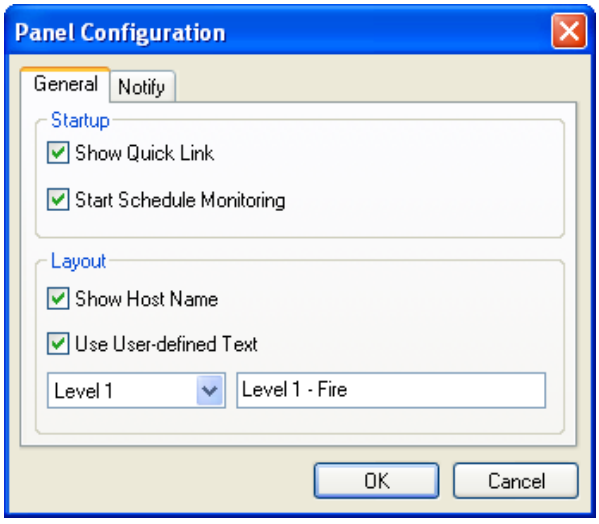


Figure 7-9

[Startup]

- **Show Quick Link:** Opens the Quick Link window at panel startup.
- **Start Schedule Monitoring:** Starts Mode Schedule at panel startup. For details, see *7.7Setting up Mode Schedule* below.

[Layout]

- **Show Host Name:** Displays the host name of each I/O device on the Advanced I/O List.
- **Use User-defined Text:** Allows you to modify the text of Alarm Level (Figure 7-6).

7.6 Viewing Connection Log

You can view the connection status of the hosts. On the panel toolbar, click the **Configure** button (No.1, Figure 7-2) and select **View Notification**. This dialog box will appear. The maximum of 1000 messages will be logged for reference.

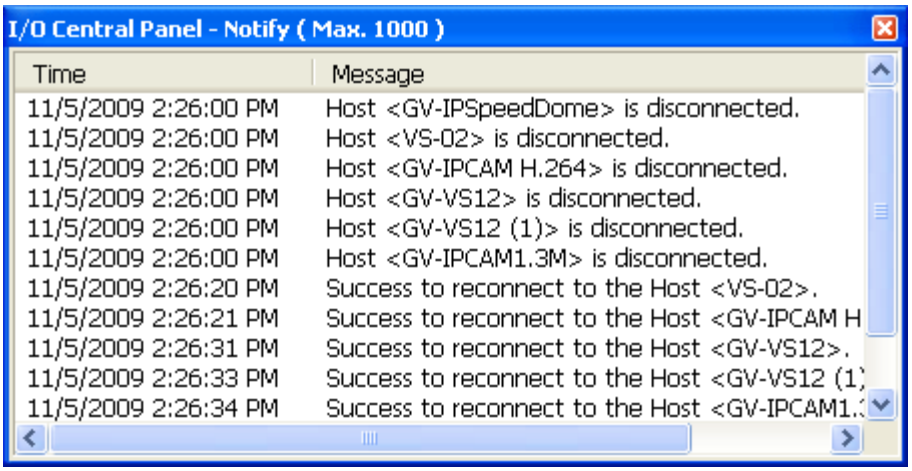


Figure 7-10

- **Time:** Displays the time of the connection/disconnection.
- **Message:** Displays the connection/disconnection status of the hosts.

7.7 Setting Up Mode Schedule

The Mode Schedule allows you to monitor surveillance sites using different I/O cascade configurations according to the scheduled time. For example, you may want I/O cascade triggers one way during business hours and another way for non-business hours. Modes can be switched automatically at a scheduled time.

7.7.1 Creating a Mode

1. Click the **Mode** drop-down list (No. 7, Figure 7-2), and select **Mode Edit**. This dialog box appears.

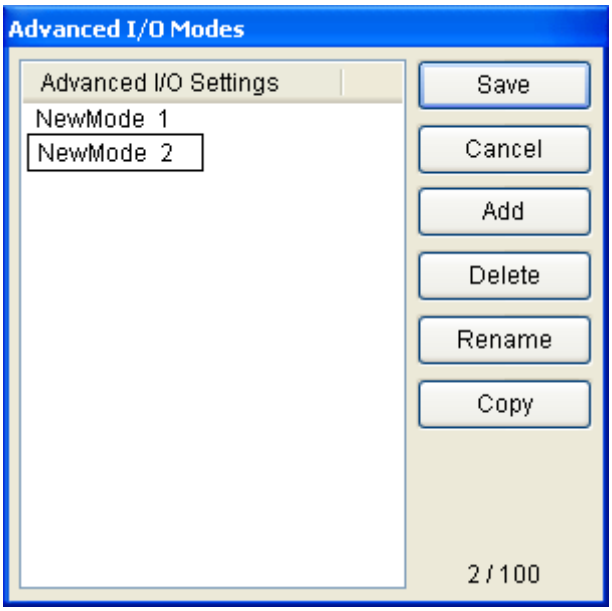


Figure 7-11

2. Click **Add**, and name the created mode. You can create up to 100 modes.
3. Click **Save** to return to the panel.
4. Select the created mode from the **Mode** drop-down list, and create the groups in the Advanced I/O List. For details, see *7.3 Creating a Group for Cascade Triggers* earlier in this chapter.

7.7.2 Creating a Mode Schedule

Define the times and days you like the panel to switch modes.

1. On the panel toolbar, click the **Configure** button (No.1, Figure 7-2), and select **Schedule Setting**. This dialog box appears.

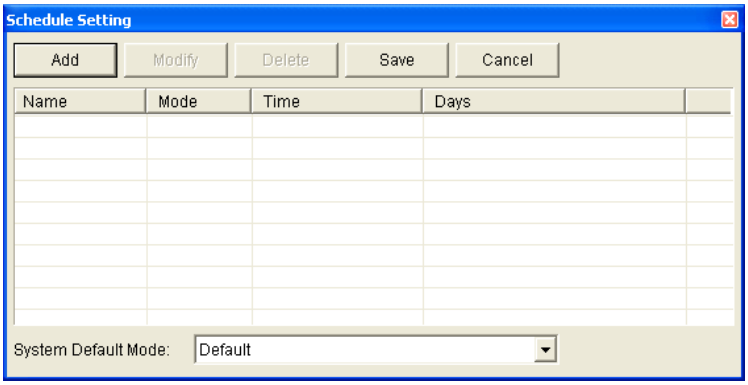


Figure 7-12

2. Click **Add** to create a schedule. This dialog box appears.

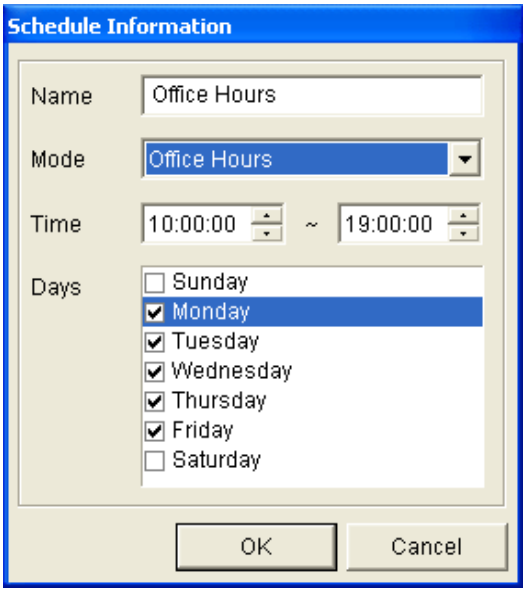


Figure 7-13

- **Name:** Type a name for the schedule.
- **Mode:** Select a mode from the drop-down list.
- **Time:** Define a time period you want the mode to run.
- **Days:** Check the day box(es) you want the mode to run.

3. Click **OK** to apply the settings, and click **Save** to return to the panel.
4. To start the mode schedule, click the **Mode Schedule** button (No. 2, Figure 7-2), and then select **Mode Schedule Start**.

7.8 Quick Link

The Quick Link provides a quick access to triggered I/O devices. It is a separate window that displays all the groups established in the Advanced I/O List. The group icon flashes when any included I/O device is triggered. Clicking the flashing icon will bring you to the I/O location in the Advanced I/O List.

- To open the Quick Link window, click the **Toggle Quick Link** button. (No. 3, Figure 7-2).
- To open the Quick Link window at panel startup, check the **Show Quick Link** option in Figure 7-9.

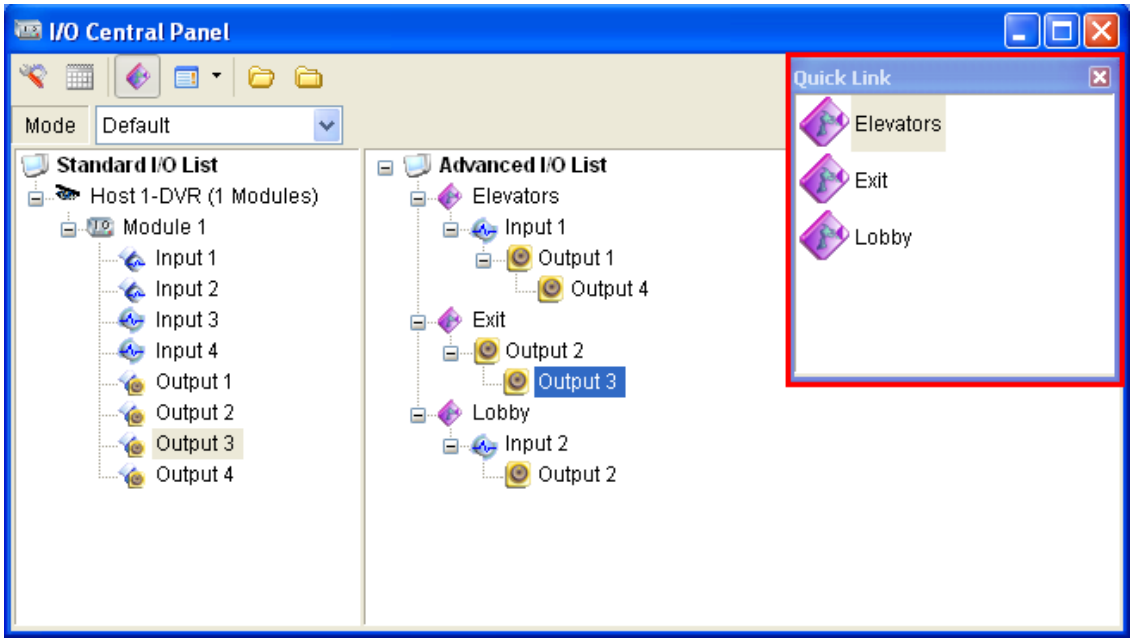


Figure 7-14

7.9 Forcing Output

To manually force an output, click one output, and select **Force Output**.

- In the Standard I/O List, you can force the output individually.
- In the Advanced I/O List, considering cascade triggers, you can only manually force the output at the top level, e.g. Figure 7-15. Outputs at sub levels cannot be forced manually, e.g. Figure 7-16.

However, if the output is not in a cascading hierarchy, you can definitely force it manually, e.g. Figure 7-17.

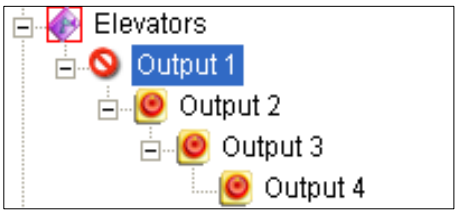


Figure 7-15

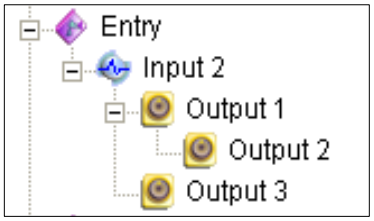


Figure 7-16

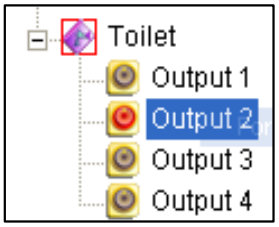


Figure 7-17

7.10 Editing Background Image

With the Background Image feature, you can import a floor plan to lay out the locations of triggered I/O devices. This feature works in the **Icon** style of the Advanced I/O List.

1. To switch to the Icon style, click the **Advanced I/O List Style** button (No. 4, Figure 7-2) and then select **Icon**.
2. Select a group in the Advanced I/O List. The I/O icons of this group will be displayed.
3. Right-click on the right screen, and select **Background Image** to import a graphic file.
4. Now you can freely drag the I/O icons to the desired locations on the imported map.
5. To add images to another group, repeat Steps 2 to 4.

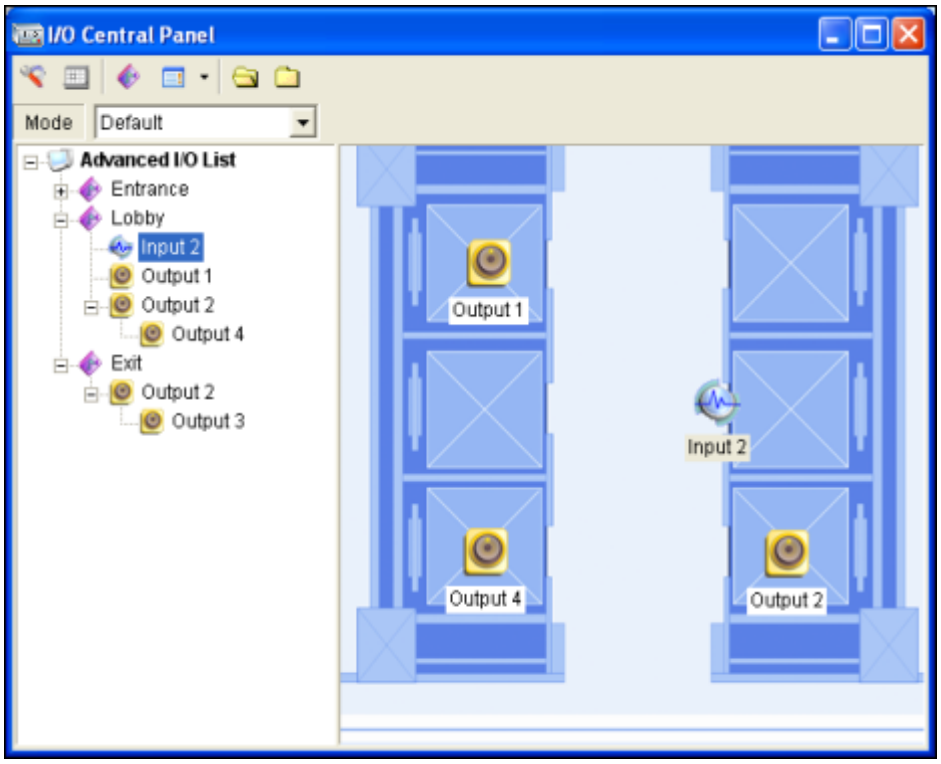


Figure 7-18

7.11 Managing a Group of I/O Devices

With groups of I/O devices set up on the Advanced I/O List, you can enable or disable these I/O devices by groups.

Enabling a Group

On the Advanced I/O List, right-click a desired group and select **Start Monitoring**. All input devices of this group are now enabled. When inputs are triggered, outputs will be activated in cascade mode.

Disabling a Group

On the Advanced I/O List, right-click a desired group and select **Stop Monitoring**. All input devices of this group are now disabled. No cascade triggers will occur.

Pausing the Triggered Inputs

This feature is designed for a group of outputs set to be Toggle mode. When inputs activate outputs in cascade triggers, right-click this group and select **Pause Monitoring**. The inputs of the group will be reset, but the outputs keep on alarming.

7.12 Controlling I/O Devices

The Control Center operator can manually arm or disarm any I/O devices of different hosts without interrupting the monitoring.

Note: This function also supports the client GV-IP Devices of these firmware versions:

GV-Compact DVR: Firmware V1.43 or later

GV-IP Camera: Firmware V1.05 or later

GV-Video Server: Firmware V1.45 or later

Arming or disarming I/O devices

1. On the Standard I/O List, right-click one host and select **I/O Enable Setting**. This dialog box appears.

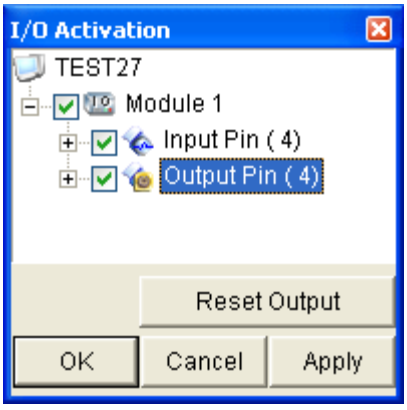


Figure 7-19

2. Check the Input/Output to arm or uncheck the Input/Output to disarm the device (s). Then click **Apply** to verify the changes.

7.13 Popping Up Live Video upon Input Trigger

You can be alerted by a pop-up live video after an input device is triggered. One input device can trigger up to 4 camera views and a total of **16** camera views can be accessed on I/O Control Panel simultaneously.

1. On the toolbar, click the **Configure** button (No.1, Figure 7-2), select **Panel Setting** and click the **Notify** tab. This dialog box appears.

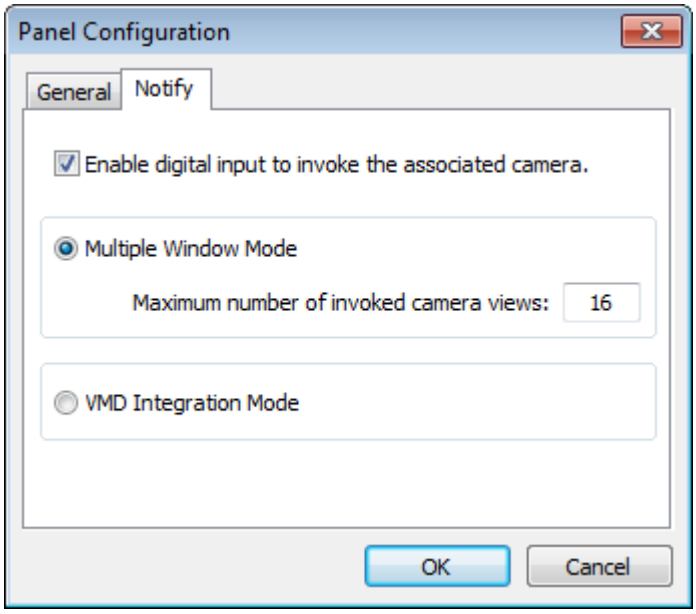


Figure 7-20

2. By default, the pop-up camera view is displayed in a separate window. Specify the **Maximum Number of Invoked Camera Views** that can pup up simultaneously when input devices are triggered. Up to 16 camera videos can be accessed.
3. Select **Enable digital input to invoke the associated camera** to activate the function.
4. If you want to pop up the camera view on the VMD window, select **VMD Integration Mode**. For this option, you must also enable the VMD window by clicking **VMD System** icon (No. 18, Figure 1-2).

5. To map a camera to an input device, right-click an input device in the Advanced I/O List, and select **Setting**. This dialog box appears.

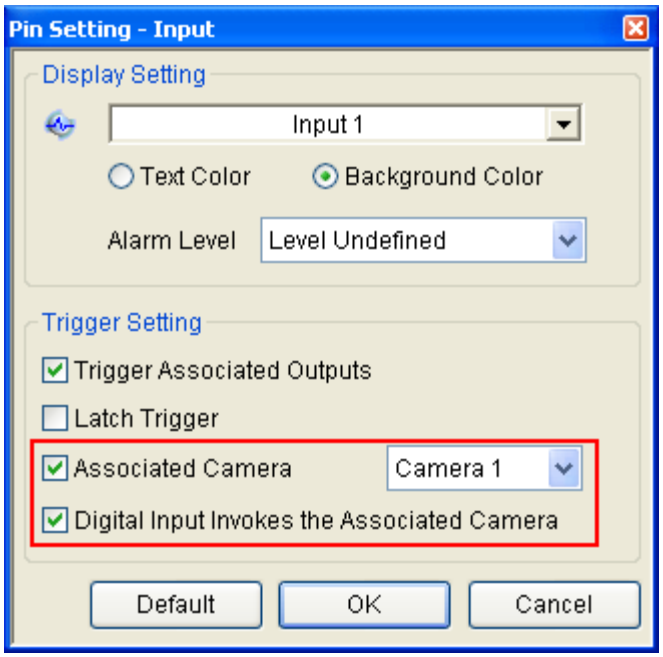


Figure 7-21

6. Select **Associated Camera** and assign up to four cameras from the drop-down list.
7. Select **Digital Input Invokes the Associated Camera**.
8. Click **OK**. When the input is triggered, the live video of its associated camera will pop up.

Tip: You can use a GV-Keyboard to switch the audio (microphone and speaker) of the pop-up video on or off.

Chapter 8 Multi Monitors Applications

8.1 Application Position

The Application Position is a tool for adjusting the resolution and position of the multiple application windows in Control Center.

Note: If the Control Center is displayed on a widescreen monitor, you can also utilize this feature to help you arrange the positions of multiple application windows.

---

1. Click the **Application Position** button  on toolbar. The Application Position window appears.

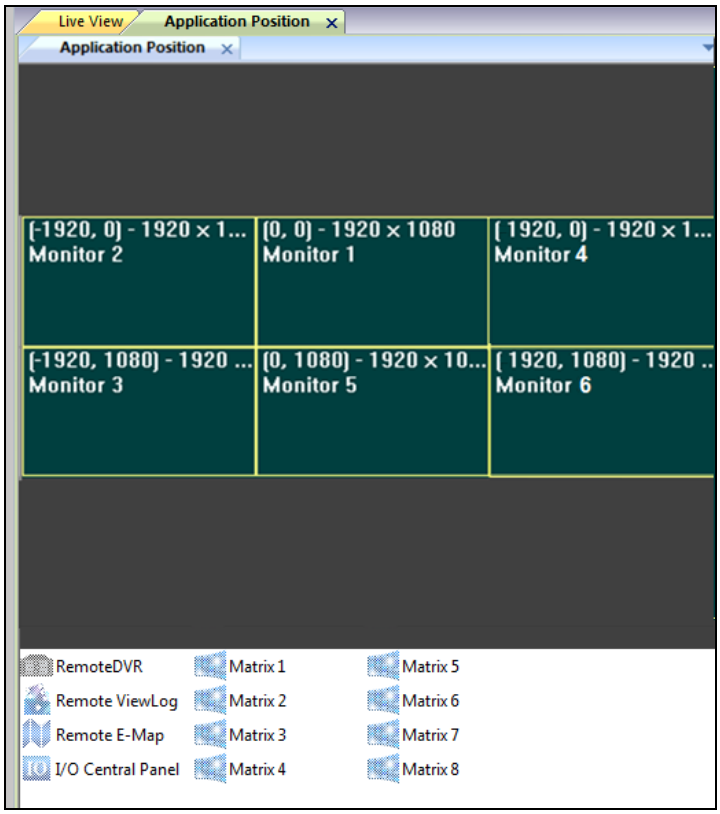


Figure 8-1

Tip: Right-click the space at the bottom to sort icons in **Icon**, **List**, **Tile** or **Details**.

---

2. Right-click an icon, select **Show** to display the window on the layout and manually drag the window to assign position. Alternatively right-click the window/icon, select **Set Position** and type co-ordinates.

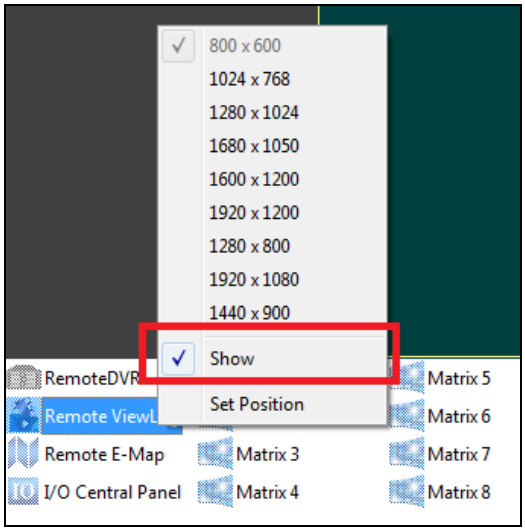


Figure 8-2

Tip: You can freely move and place a window between or among monitors.

---

3. To adjust the resolution and access other settings, right-click the application window or the icon at the bottom.

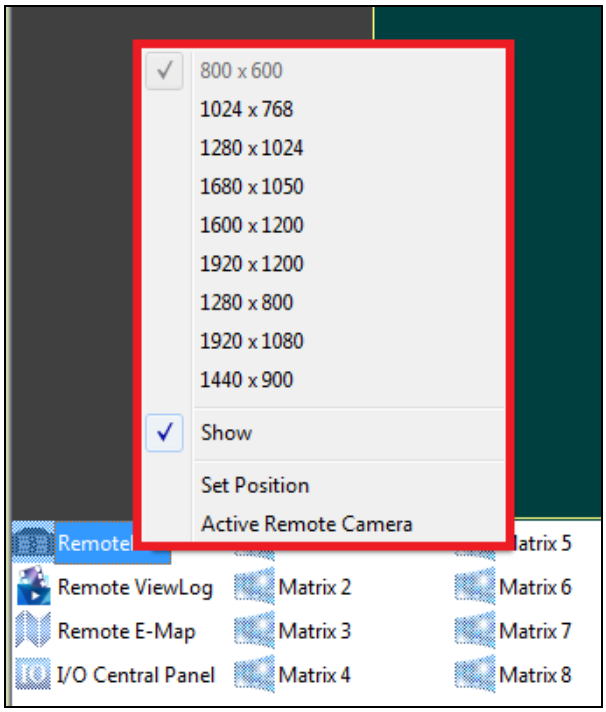


Figure 8-3

- **Resolution:** Select a resolution option.
- **Show:** Uncheck this option to remove the window from the Application Position panel.
- **Activate Remote Camera:** For Remote DVR only. Select or unselect access to individual channels of client DVR.
- **Shut down when the Control Center is closed:** For I/O Central Panel only. Select to inactivate the I/O Central Panel when the Control Center is closed.
- **Always apply specified position:** For I/O Central Panel only. Select to always show the I/O Central Panel at the specified position upon startup.
- **Full Screen:** For Matrix window only.
- **Set Position:** See *Step 2* in this section.

4. To configure the view and playback types for Remote E-Map, right-click the **Remote E-Map** icon or window:

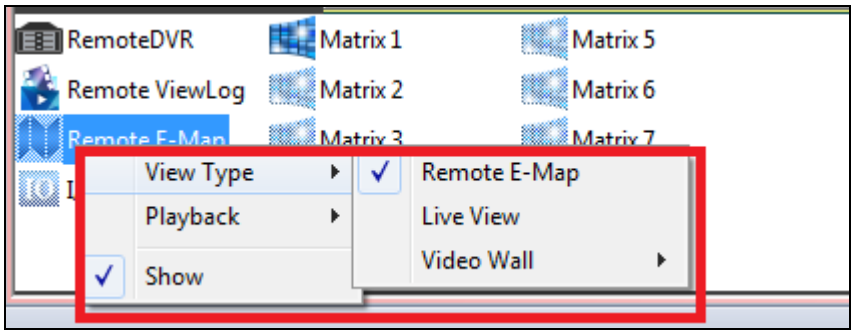


Figure 8-4

- **View Type:** You can define the display position of live view enabled from the Remote E-Map.
  - ⊙ **Remote E-Map:** Select this mode for the camera live view to appear in a separate window (Figure 3-1). This option is selected by default.
  - ⊙ **Live View:** Select this mode for camera live view to appear on Control Center's Live View window (Figure 3-2).
  - ⊙ **Video Wall:** Select this mode for camera live view to appear on the Video Wall. For further details on Video Wall settings, see *8.3.8 Displaying Live View Enabled from Remote E-Map*.
- **Playback:**
  - ⊙ **Remote E-Map:** Select this option to play back recordings in a separate Instant Playback window.
  - ⊙ **Control Center:** Select this option to play back recordings in the Instant Playback window on the Control Center's main window.

5. Re-activate the application for the configurations to apply.

8.2 Matrix View

Matrix View allows the center operator to monitor up to **96** cameras from different hosts on the same screen. Further, the operator can remotely change camera's monitoring status and properties. The Matrix view provides these features:

- Support for screen resolution of 1024 x 768, 1280 x 1024, 1600 x 1200, 1680 x 1050, 1920 x 1200, 1280 x 800, 1920 x 1080 and 1440 x 900
- Simultaneous display of up to **96** cameras
- Display of up to **8** Matrix windows in 1 monitor or separate **8** monitors at a time
- Support for remote configuration of camera status and properties
- Support for Camera Scan, PTZ Control and POS Live View functions
- Access to client ViewLog for playback

Note: For Control Center to support up to 8 Matrix views with 768 cameras at a time, the minimum CPU and memory requirements are Core i7 3770 and 16 GB dual channels respectively.

8.2.1 Running the Matrix View

1. For DVR hosts, the client DVRs must activate **Control Center Service** (No.3, Figure 2-2) first.
2. At the Control Center, highlight a Group and click the **Matrix** button  . The Matrix window appears.

Tip:

1. To add or replace one camera view in a Matrix view, make sure you have set the Control Center window position to be always on top and simply drag the desired camera from the Group List to the desired channel position. See *10.1 General Settings*. Note that when Matrix is closed and opened next time, the dragged cameras will not be displayed.
2. You can set the access right to a group folder. By default, only Administrator and Power User accounts have the right to configure the access to a group folder. To allow for access, log in an Administrator account, right-click a group folder, select **Matrix Privilege Setting**, select **User** or **Power User** and select accounts to allow for access to this folder.

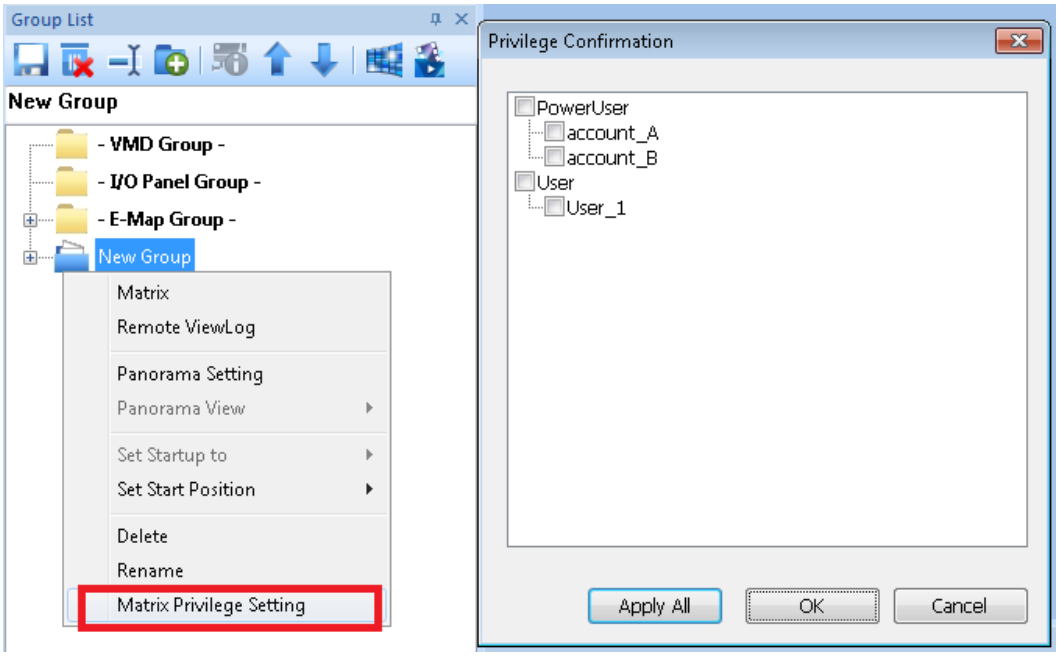


Figure 8-5

Figure 8-6

The controls on the Matrix window:

No.	Name	Description
1	Exit	Closes or minimizes the Matrix window.
2	Screen Division	Select screen divisions with the choices of 1, 4, 6, 8, 9, 12, 16, 20, 24, 32, 36, 48, 64, 80 or 96 channels.
3	Date/Time	Indicates the current date and time.
4	Monitor	Starts or stops monitoring.
5	Configure	Access the Matrix settings and camera properties.
6	ViewLog	Opens ViewLog player.
7	Camera Scan	Rotates through screen divisions.
8	PTZ	Displays the PTZ control panel. To display the PTZ control panel, you can also right-click the connected channel and select **PTZ Control**.

No.	Name	Description
9	Monitoring Status	Monitoring status is indicated by the color of the device name (not supported with GV-Recording Server). • **Red:** ⊙ A channel from GV-DVR / NVR / VMS is being monitored and recorded. ⊙ A GV-IP Device / GV-Recording Server / GV-SNVR host is being recorded. • **Green:** The channel is being monitored but not recorded. • **Yellow:** The camera is not monitored nor recorded.

Tip: To enable monitoring, right-click a channel and select **Start Monitoring**. The device name bar of the monitored channels change to red when these cameras are being recorded.

Note:

1. To display Matrix views in separate 8 monitors, make sure your computer is equipped with enough VGA cards. To set up multiple monitor positions and resolutions, see *8.1 Application Position*.
2. The Matrix supports megapixel resolution only on a single screen. Click the  button at left-top corner of the single screen to display megapixel images.
3. According to your screen divisions, the Matrix will reduce the received resolution as close to the division size as possible. For GV-IP Devices, the JPEG stream of 704 x 480 or smaller will be changed to the MPEG stream of the similar size; the JPEG stream higher than 704 x 480 will remain as JPEG stream. The mechanism is designed to reduce CPU usage and save bandwidth.

8.2.2 Live View Enhancement

Enhancing Live Images

You can enhance the coloring to have more vivid and saturated images. This function is enabled by default. Click the **Configure** button (No. 5, Figure 8-6), select **System Configure**, select **Enable DirectDraw**, click **OK** and restart the Control Center program for the mode to take effect.

Adjusting Distorted Views

Images may be curved especially near the corners. To correct image distortions, right-click the channel you want to adjust for distortion and select **Wide Angle Lens Settings**. The Wide Angle Dewarping Setting dialog appears. For details, see *3.1.4 Adjusting Distorted Views*.

8.2.3 Two-Way Audio

The Two-Way Audio feature allows the operator to speak to and listen from the selected host. This is especially useful when suspicious events occur and the operator would like to communicate with the security personnel at the surveillance site. To access this feature, right-click on a camera view that you wish to communicate with, and select **Wave out Toggle** to access audio from the host and **Talk Back Toggle** to speak to the host.

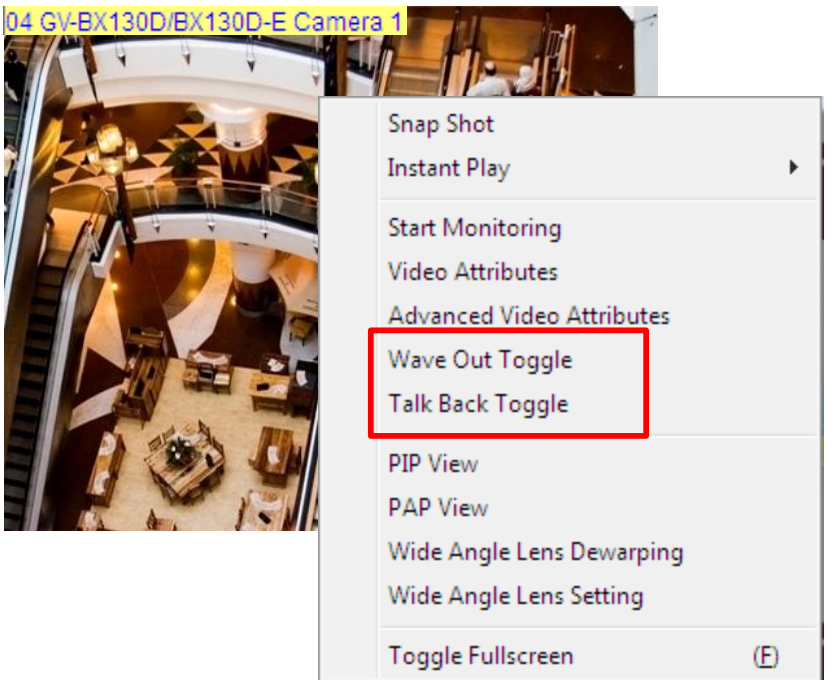


Figure 8-7

8.2.4 Instant Playback

When monitoring through Matrix View, you can instantly play back any suspicious videos of a certain time length. Time length choices include 10 seconds, 30 seconds, 1 minute and 5 minutes. For details see *5.1 Instant Playback*.

- To instantly play back the events of all channels, click the **ViewLog** button (No.6, Figure 8-6), select **Instant Play**, and select the time length.
- To instantly play back the event(s) of a single channel, right-click the **camera** on the device tree on the Control Center window and select **Instant Play (5 min.)**.

8.2.5 Channel Display on Another Monitor

If the Control Center is equipped with multiple monitors, you can use the QView feature to display a selected channel on another monitor screen.

1. Open the Matrix window, click the **Configure** button (No. 5, Figure 8-6), and select **QView**. This dialog box appears.

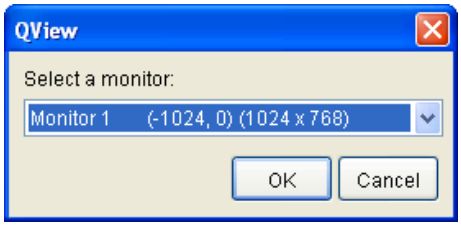


Figure 8-8

2. Use the drop-down list to select a desired monitor.
3. Click one channel to be displayed on that monitor.

Select a channel to be displayed on another monitor screen.

The selected channel is displayed on another monitor screen.

Figure 8-9

4. To switch to another channel, simply click another channel in the Matrix.

8.2.6 Quick Zoom

When you are monitoring Matrix Views on multiple monitors, the Quick Zoom feature allows you to call back a desired camera view to display on the primary monitor for instant inspection.

1. Click the **Matrix Quick Zoom** button  (No. 21, Figure 1-2). This dialog box appears.

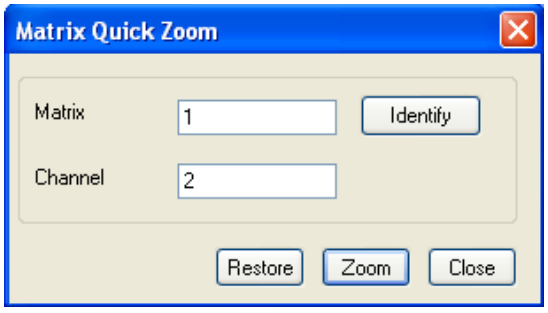


Figure 8-10

2. To identify the position numbers of monitors, click the **Identify** button. The position numbers will be displayed on the Matrix Views. Following is an example of running four Matrix Views in four separate monitors.

Figure 8-11

3. To display a desired camera view on the primary monitor, type its monitor number of the Matrix View and the camera channel. Click **Zoom**.
4. To return to the previous Matrix View settings, click **Restore**.
5. To disable the position numbers displayed on Matrix Views, click **Identify** again.

8.2.7 Configuring the Matrix Position

When you have set up more than one monitor and want to display matrices separately on each of the monitors, you can assign a monitor to each of the matrix groups.

1. Configure the matrix position using the **Application Position** button (No. 2, Figure 1-2). For details, see *8.3 Application Position*.
2. Right-click a Matrix group, select **Set Start Position** and select a matrix number. The matrix numbers here correspond to the ones on Application Position layout. A “P” letter appears on the group folder once the position is assigned.

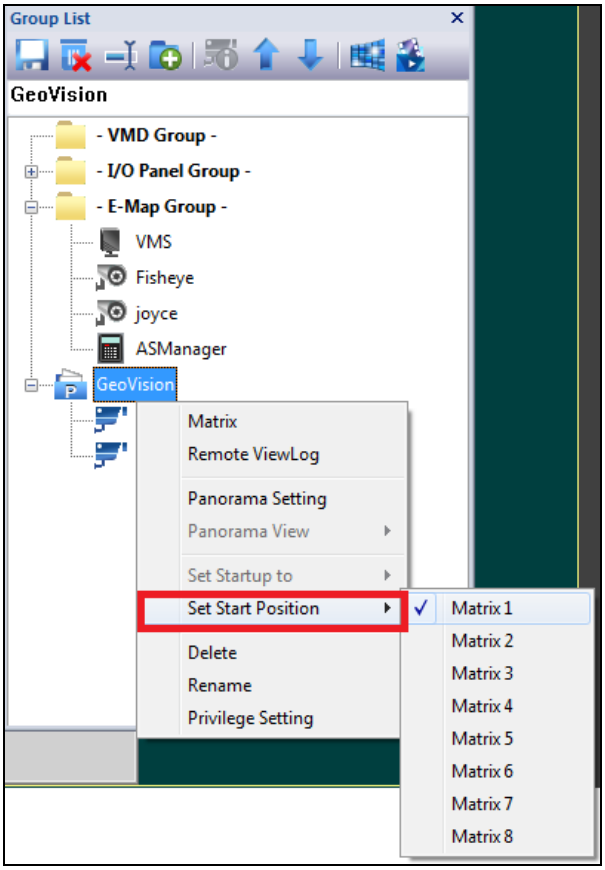


Figure 8-12

Note: To automatically display Matrix views at Control Center startup, and set up the display order, see *10.1 General Settings*. The folder turns red when it is assigned with a startup position.

8.2.8 POS Live View

The POS Live View allows you to view POS transaction data or cardholder information of access control in a separate window.

Note: This function is only supported by GV-DVR / NVR / VMS.

- To open the POS Live View window, click the **ViewLog** button (No. 6, Figure 8-6) and select **POS Live View**.
- To have the instant playback, double-click the desired transaction item or cardholder data on the POS Live View window.

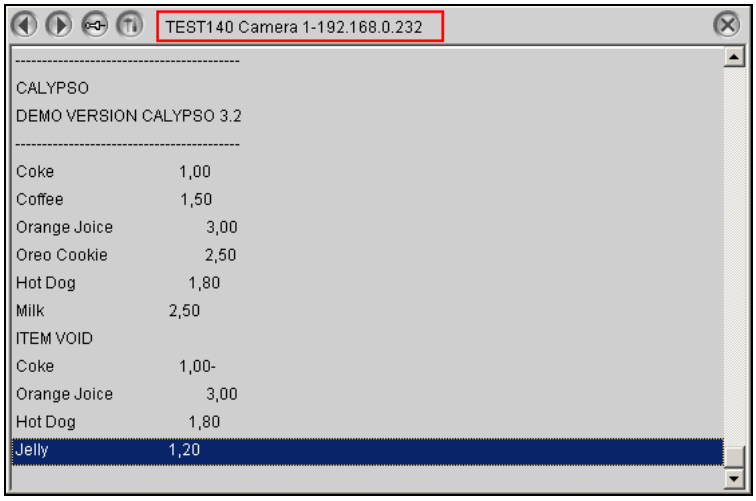


Figure 8-13

For details on POS Live View on GV-DVR / NVR, see *POS Live View*, Chapter 7, *GV-DVR User's Manual*.

For details on POS Live View on GV-VMS, see *Point-Of-Sale (POS) Application*, Chapter 10, *GV-VMS User's Manual*.

8.2.9 Advanced Settings

On the Matrix window, click the **Configure** button (No. 5, Figure 8-6).

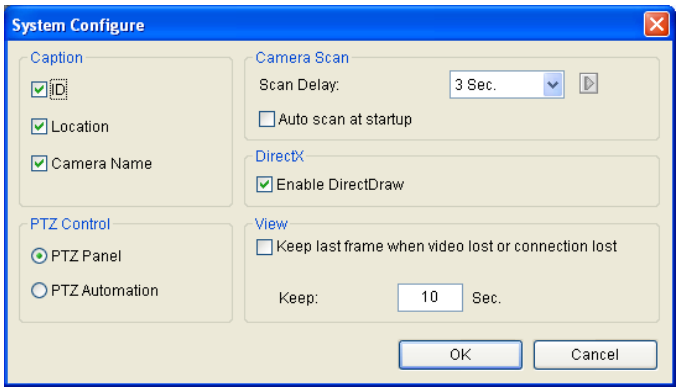


Figure 8-14

- **Caption:** Displays the ID, Location or Camera Name stamp on screen.
- **Camera Scan:** Sets the rotation interval between cameras. Click the **Arrow** button to set rotation mode of 1, 4, 6, 9, 16 or 24 channels. You can also enable the automatic scan function at the Matrix startup.
- **DirectX:** Sets the DirectDraw function.
- **PTZ Control:** Select one type of PTZ control panel. For details on PTZ Automation, see *PTZ Automation*, Chapter 1, *GV-DVR User's Manual* on the Software DVD.
- **View:** If your video sources or connections tend to be interrupted, or if you want to prevent the operator from knowing about a broken connection, select this option and set the duration for the last frame to remain on the screen when connections are lost.

[Camera Configure] Adjusts the properties and recording settings of cameras from DVR / NVR hosts.

[Video Attributes] Adjusts video attributes of cameras.

[Image Quality] Adjusts the video quality with the choices of **Best**, **Normal** and **Low**. The better quality will result in bigger image size and need bigger bandwidth.

[QView] Allows you to display channels on another monitor. For details, see *8.2.5 Channel Display on Another Monitor*.

[Full Screen] Extends the channels to full screen. Press the **Esc** key to return to the original mode.

[Auto Retry when Connection Broken] Automatically reconnects when the connection between the Matrix View and cameras is lost. This option is enabled by default.

8.3 Video Wall

A Video Wall is an establishment of multiple monitors on a server, displaying composite IP sources from various IP devices. Using the Control Center, you can remotely configure and manage up to **200** Video Walls, each with a different layout. On each Video Wall, you can:

- display up to **288** IP channels
- freely adjust the size and position of each channel, whether it be within or across monitors
- create up to **16** Zoom Windows, which display channels through manual activation
- create up to **16** Scan Windows, which are capable of displaying up to **64** channels in turn, at customizable time interval
- display up to **16** web pages using Web Window
- play back up to **16** videos using Media Window
- play back up to **16** videos using Remote ViewLog Window
- display live views enabled from Remote E-Map
- display live views in up to **16** screen divisions upon motion detection using the VMD Window
- display up to **288** channels of customized view region of a remote monitor

From Control Center, you can:

- access and configure the settings of Video Wall server

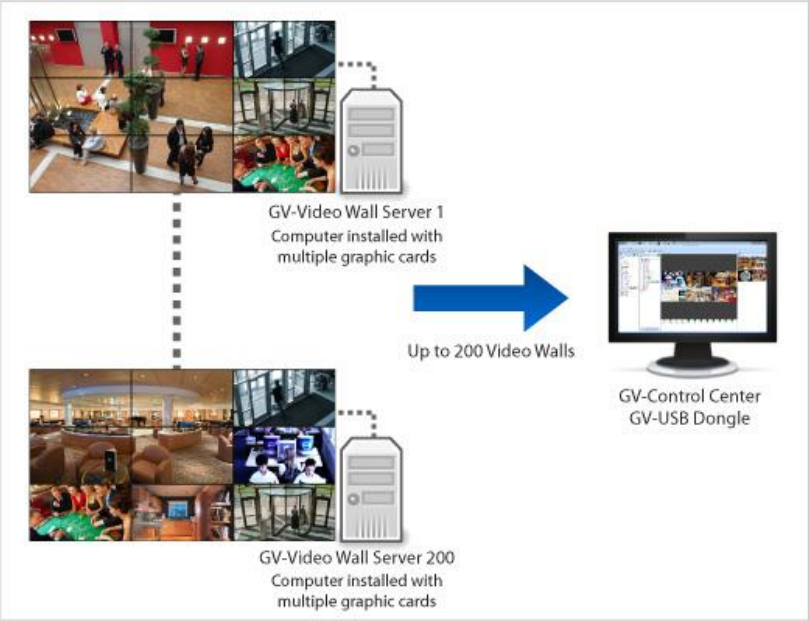


Figure 8-15

Note:

1. A GV-USB dongle with Video Wall function is required to connect to the Control Center.
2. The number of monitors allowed depends on the capability of the Video Wall server's graphic card.
3. For the minimum system requirements of a Video Wall server, see *1.1 Minimum System Requirements*.

An application of the Video Wall

With the appropriate dongles, the Control Center allows you to display application windows such as Remote eMap, GIS, Vital Sign Monitor, Remote Desktop and Remote ViewLog on the defined monitors, along with the Video Wall. This establishment is illustrated below.

Figure 8-16

To create Scan Window and Zoom Window on the Video Wall, see *8.3.5 Setting Up a Zoom Window* and *8.3.6 Setting Up a Scan Window*.

To create a Remote E-Map, see *9.1 Remote E-Map*.

To define the display position of applications on different monitors, see *8.1 Application Position.*

8.3.1 Setting Up a Video Wall Server

You can build the Video Wall server on a dedicated server or with the GV-Control Center. A GV-USB dongle with Video Wall function needs to be inserted to the GV-Control Center server for connection to the Video Wall server. Follow the steps below to install the program and set up the Video Wall server.

1. Insert the Software DVD to your computer (where multiple monitors are established for Video Wall), select **Install GeoVision Paid Software** and click **Yes** to accept the License Agreement.
2. Click **GV-Video Wall Server** and follow the on-screen instructions.
3. Point to **Start** and select the **Video Wall Server** to execute the service. The Video Wall server icon is minimized in the system tray.

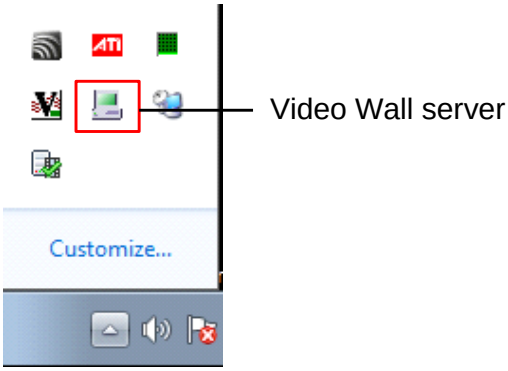


Figure 8-17

4. Right-click the Video Wall server icon and select **Configure**. This dialog box appears.

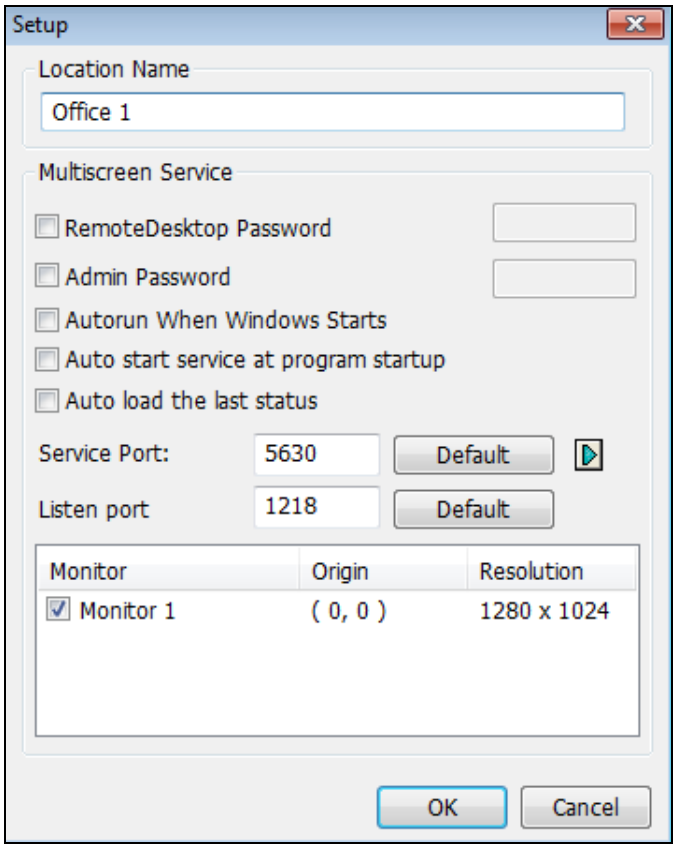
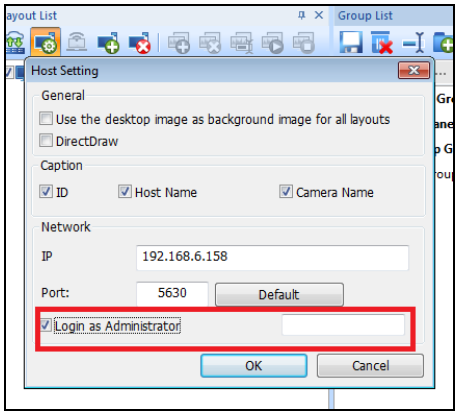


Figure 8-18

- **Location Name:** Displays the name of the local computer.
- **Remote Desktop password:** Sets up a password for accessing the desktop of this Video Wall server from the Control Center.
- **Admin Password:** Sets up a password to give the user of this Video Wall server the highest access level among multiple GV-Control Centers.

Note:

1. If **Admin Password** is not created, multiple GV-Control Center users will be able to access the Video Wall Server settings simultaneously.
2. After setting **Admin Password**, you can log in as an Administrator from GV-Control Center (Layout List > Host Setting) to prevent other users from configuring the Video Wall server at the same time.



- **Auto run when Windows starts:** Starts the Video Wall service when the Windows starts.
- **Auto start service when program starts up:** Starts the Video Wall service when the Video Wall server program is launched.
- **Auto load the last status:** Select this option to automatically load the previous Video Wall settings.
- **Service port:** Corresponds to the Control Center server port. See Figure 8-20.
- **Listen port:** Corresponds to the port for searching servers in Control Center server. See Figure 8-22.
- **Monitor:** displays the number of monitors installed, co-ordinates and resolutions

5. Select the monitors to be used for Video Wall display and click **OK**.
6. Right-click the Video Wall server icon and select **Start Service**.

Note:

1. To find and modify the Listen port on the Control Center, click the **Search Server** button (No. 5, Figure 1-2).
2. With Control Center, the **VideoWallServer** program is installed, launched and activated by default.

8.3.2 The Layout List

After you have installed the Video Wall server on a dedicated server, utilize the **Layout List**  on the Control Center's main window to create a Video Wall layout. For detailed steps, see *8.3.3 Adding a Server and Configuring the Layout* and *8.3.5 Activating the Channel and Layout*.

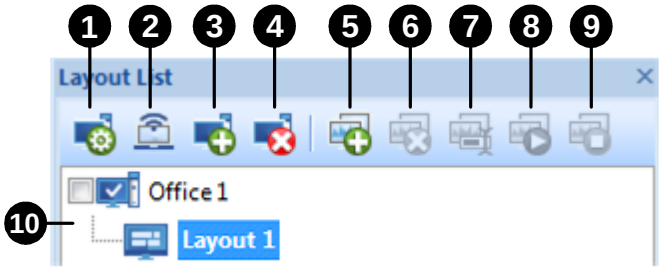


Figure 8-19

No.	Name	Description
1	Host Setting	Configures background settings.
2	Host Remote Control	Accesses the desktop of a Video Wall server. See *8.3.9 Remotely Accessing the Video Wall Server*.
3	Add Host	Adds a host.
4	Delete Host	Deletes a host.
5	Add New Layout	Adds a layout for Video Wall.
6	Delete the Selected Layout	Deletes the highlighted layout.
7	Rename the Selected Layout	Renames the selected layout.
8	Apply the Selected Layout	Applies the selected layout.
9	Deactivate Layout	Disables the applied layout.
10	Server and Layout tree view	Displays remote servers and layouts.

8.3.3 Adding a Server and Configuring the Layout

Follow the steps below to add the Video Wall server you have set up and configure its layout on the Control Center server.

1. From the Control Center's main window, click the **Layout List** button  (No. 9, Figure 1-2) on the toolbar.

2. On the Layout List window, click the **Add Host**  button. This dialog box appears.

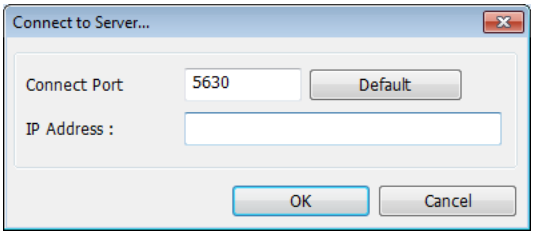


Figure 8-20

3. Type the IP Address of the remote server and click **OK**. The remote server is displayed.

Figure 8-21

Tip: Alternatively press **F8** or click the **Search Server**  button (No. 5, Figure 1-2) to search for available servers on the same LAN.

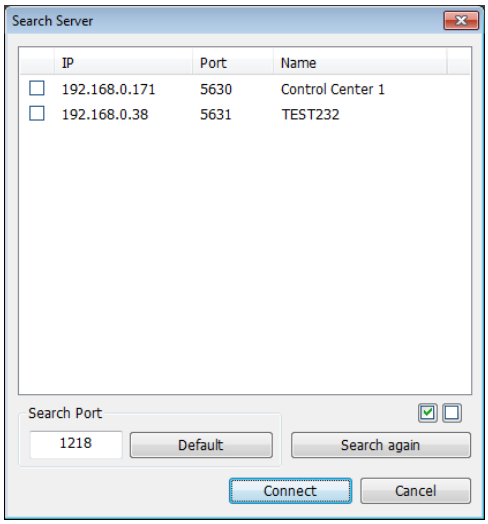


Figure 8-22

---

4. Click the **Add new layout** button  to create a new layout. This dialog box appears.

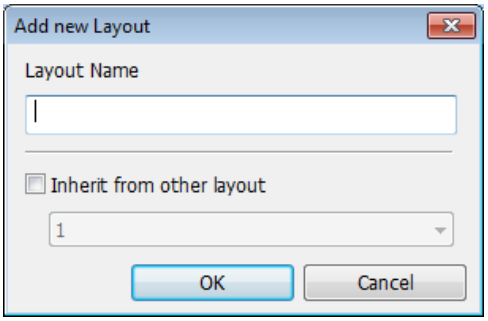


Figure 8-23

5. Name the layout and click **OK**. The monitors are displayed. In this example, the remote server (Office 1) contains 6 monitors.

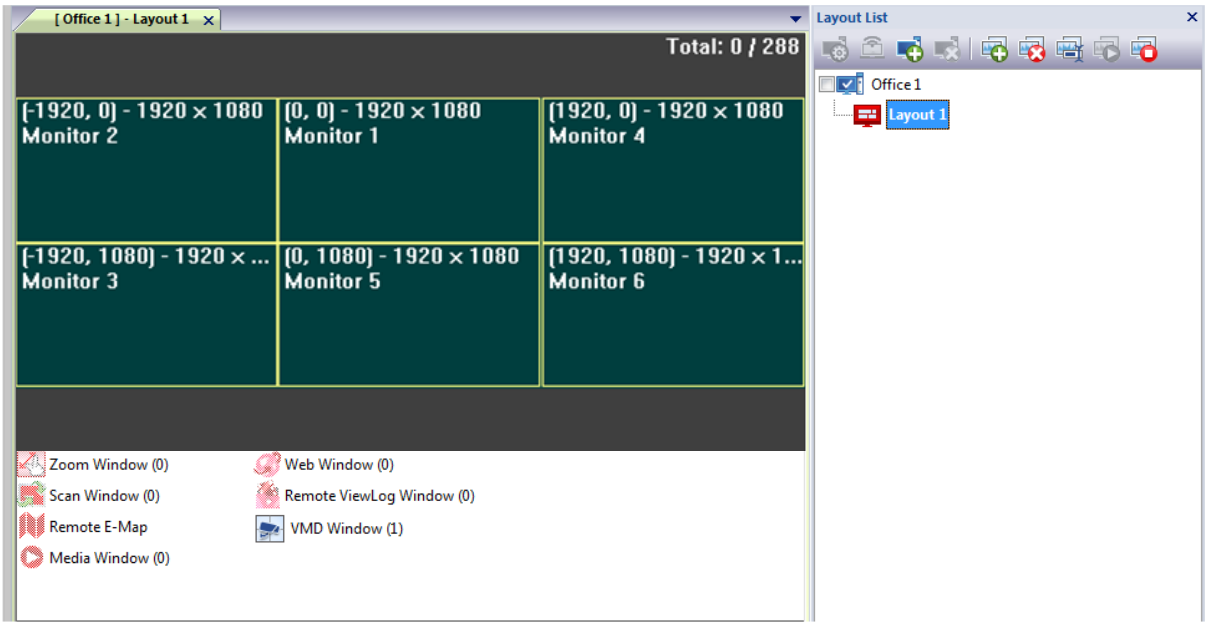


Figure 8-24

6. Drag and drop the desired channels from the Host List or Group List to the layout.

7. Adjust the channel size and position.

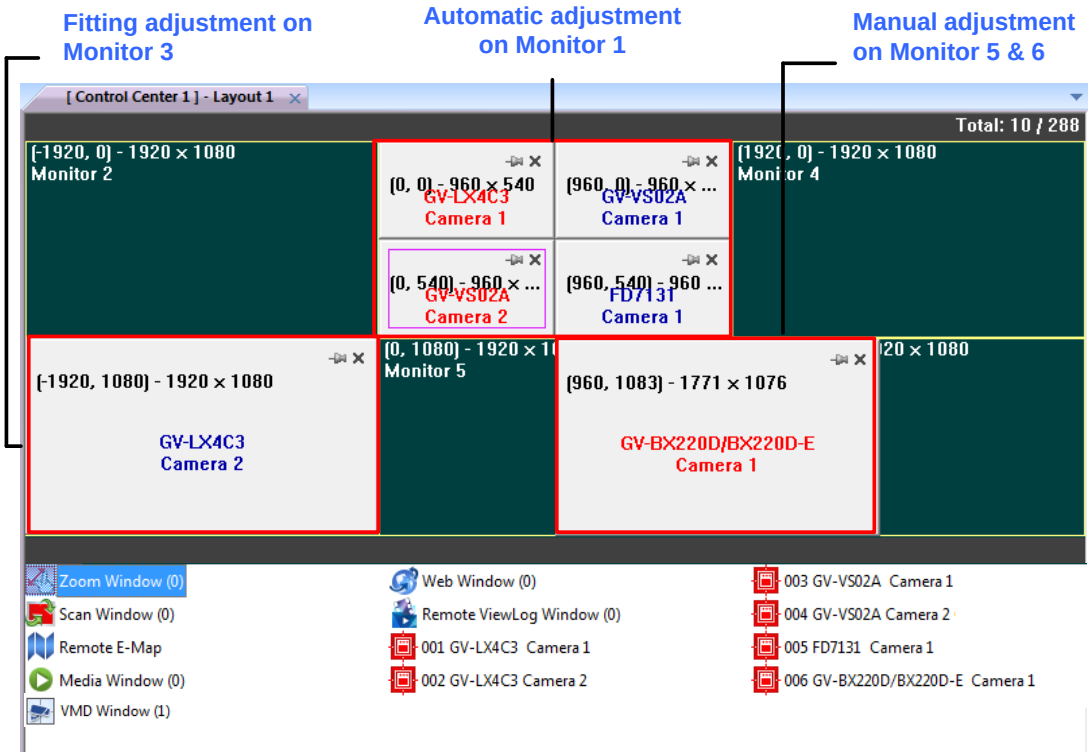


Figure 8-25

- **Manual adjustment:** Drag the four corners and sides of a channel to adjust its size and re-position. For example, the GV-BX220D/BX220D-E channel is manually placed across Monitors 5 and 6.
- **Automatic adjustment:** Right-click the space on a desired monitor and select **Auto Arrange**, the channels on the selected monitor will be automatically reshaped to equal size and arranged in order (of being added to the layout). For example, four channels are automatically sorted on Monitor 1.
- **Fitting adjustment:** Right-click a channel and select **Fit to Screen**, the channel will fit the nearest monitor. For example, GV-LX4C3 is fitted to Monitor 3.

Tip:

1. To set multiple channels to the same size, drag your mouse to highlight the channels, right-click one of the channels and then select **Setup**. Type the width and height.
2. Double-click a channel for it to extend to full-monitor size. For example, a channel put across two monitors will be extended to fit the two monitors.
3. Click the pin icon to fix a channel to the assigned position.

---

8. Right-click the space of a monitor to access the following features:

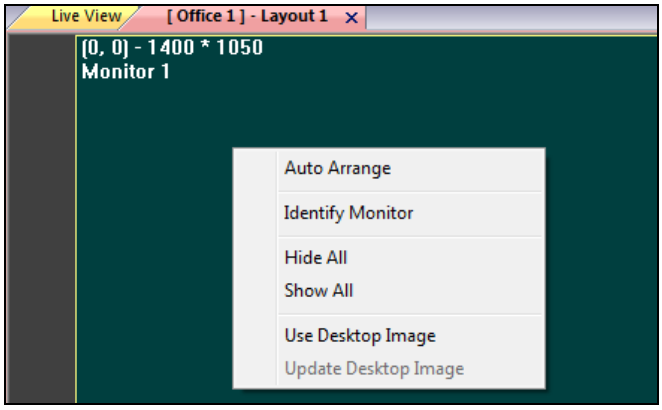


Figure 8-26

- **Auto Arrange:** See *Automatic adjustment* in Step 7.
- **Identify Monitor:** Shows the monitor number.
- **Hide All:** Inactivates and hides all the channels.
- **Show All:** Shows all the channels on the layout.
- **Use Desktop Image:** Use the desktop image on the layout.
- **Update Desktop Image:** Refreshes the Video Wall with desktop image. This option is only available when **Use Desktop Image** is enabled.

9. Right-click a channel to access the following features:

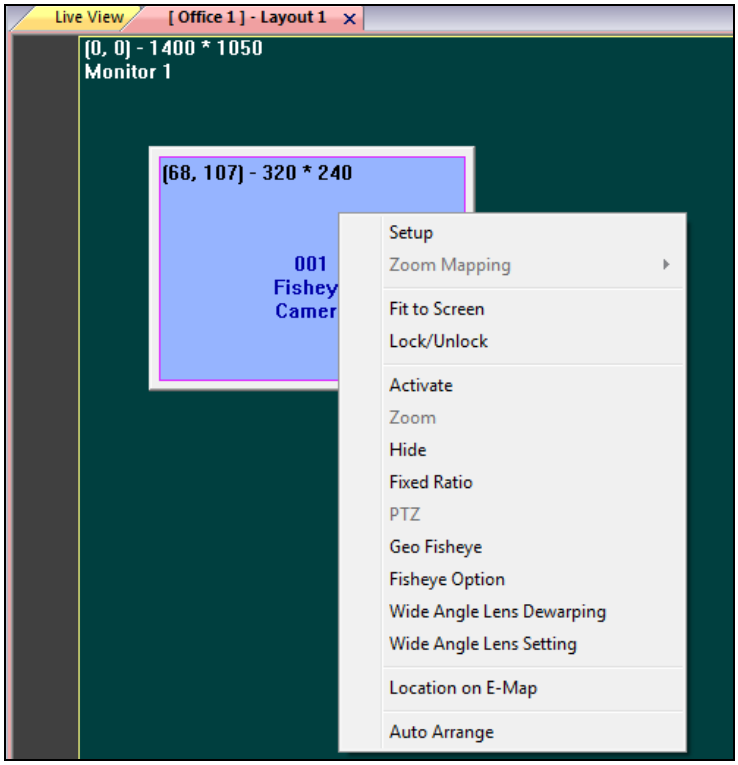


Figure 8-27

- **Setup:** Contains settings on position (co-ordinates), size, captions (host name and camera name).
- **Zoom Mapping:** See *8.3.5 Setting Up a Zoom Window* later in this section.
- **Fit to Screen:** See *Fitting adjustment* in Step 7.
- **Lock/Unlock:** Select to lock or unlock the channel at its current position. A locked channel appears in dark gray.
- **Activate:** Activates the current channel on Video Wall.
- **Zoom:** See *8.3.5 Setting Up a Zoom Window* later in this section.
- **Hide:** Inactivates and hides the channel. To show a hidden channel, right-click the icon at the bottom of the layout and select **Show**.
- **Fixed Ratio:** Show the host live view proportional to its source image.
- **Geo Fisheye:** Activates the display settings configured for **Fisheye Option**. For detail, see *8.4 Fisheye View.*
- **Fisheye Option:** Configures the display settings and PT settings of fisheye camera.
- **Wide Angle Lens Dewarping:** Enables dewarping to the current channel. Sets the degree of dewarping first.
- **Wide Angle Lens Setting:** Sets the degree of dewarping. See *3.1.4 Adjusting Distorted Views*.
- **Location on E-Map:** Shows the position of this camera on Remote E-Map. This host will be highlighted in yellow.
- **Auto Arrange:** See *Automatic adjustment* in Step 7.

Tip: You can set up multiple channels to the same size by highlighting the channels and right-clicking one of them to define their width and length,

---

Note:

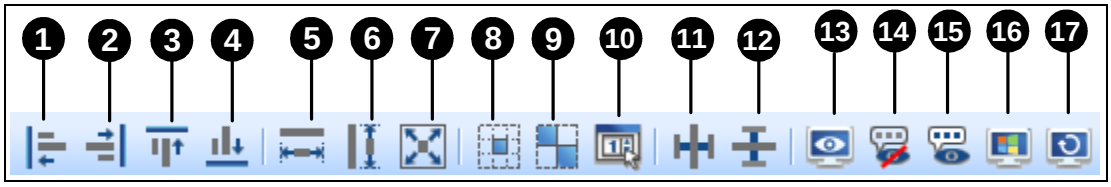
1. For the Remote E-Map channel, **Zoom Mapping**, **Zoom**, **Fixed Ratio**, **Wide Angle Lens Dewarping** and **Location on E-Map** options are not supported.
2. The **Geo Fisheye** and **Fisheye Option** are only available for activated fisheye channels.

---

10. To create another layout, repeat Steps 3 to 8.

8.3.4 Advanced Layout Settings

You may also use the controls on the Layout Tool to adjust the channel layout and size.



No.	Name	Description
1	Align Left	Aligns the selected channels to the left of the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
2	Align Right	Aligns the selected channels to the right of the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
3	Align Tops	Aligns the selected channels to the top of the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
4	Align Bottoms	Aligns the selected channels to the bottom of the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
5	Make Same Width	Makes the selected channels the same width as the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
6	Make Same Height	Makes the selected channels the same height as the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
7	Make Same Size	Makes the selected channels the same size as the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
8	Auto Layout	Automatically reshapes the channels to equal size and rearranges the channels in order.
9	Show/Hide Auxiliary Line	Shows or hide the auxiliary lines to precisely position the channels.
10	Config Arrange	Contains settings for monitor selection and channel division.

11	Horizon	Reshapes and aligns the selected channels horizontally to the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
12	Vertical	Reshapes and aligns the selected channels vertically to the reference channel. Drag-select desired channels and the last selected one will be the reference channel.
13	Identify Monitor	Shows the monitor number.
14	Hide All	Inactivates and hides all the channels.
15	Show All	Show all the channels on the layout.
16	Use Desktop Image	Use the desktop image on the layout
17	Update Desktop Image	Refreshes the Video Wall with desktop image. This option is only available when Use Desktop Image is enabled.

8.3.5 Activating the Channel and Layout

After you have set up at least one layout, you can activate a channel at a time or all the channels of a layout at once. The activated channel or layout will be displayed on the Video Wall.

- To activate a channel, right-click the channel and select **Activate**. You can repeat this operation with another desired channel.
- To activate all the channels of a layout, click the layout on the tree view and select the **Apply the Selected Layout**  button (No. 8, Figure 8-19).

8.3.6 Setting Up a Zoom Window

A Zoom Window is a window reserved for displaying zoomed channels. Up to **16** Zoom Windows can be established.

1. Drag the **Zoom Window** icon from the Channel List to a desired monitor. The **Zoom Window (0)** is created by default.

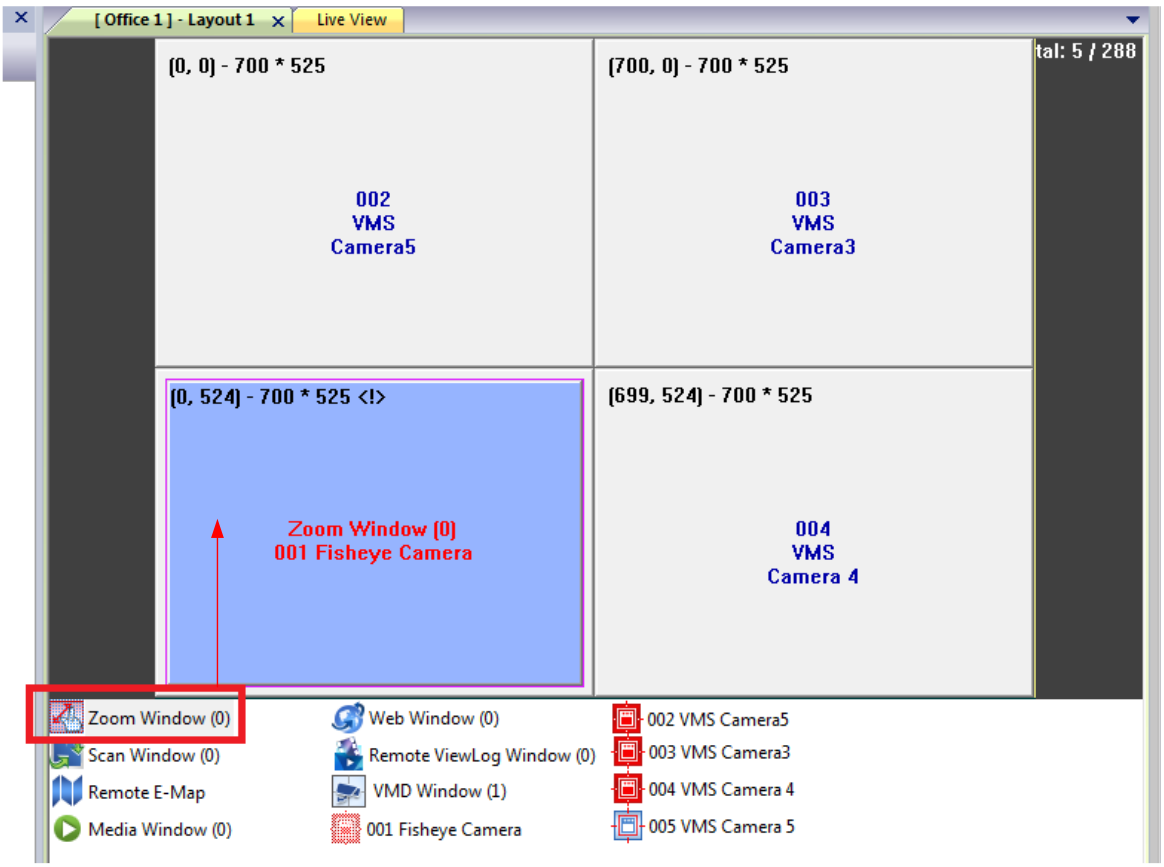


Figure 8-28

2. Adjust the position and size of the created Zoom Window. For detail, see Step 7 in *8.3.3 Adding a Server and Configuring the Layout* earlier in this section.
3. Make sure the channels intended for zoomed view are activated. Right-click the channel and select **Activate**.
4. Right-click the channel again and select **Zoom**. The channel is displayed on the Zoom Window.
5. To disable zooming, right-click the channel and select **Zoom** again.
6. When the Zoom Window already displays a zoomed view, you can replace the view by right-clicking another channel and selecting **Zoom**.

7. To add another Zoom Window, right-click the space in Channel List, select **Add Zoom Window**, drag the new Zoom icon to a desired monitor. To display on the new Zoom Window, right-click a channel and select **Zoom Mapping** to select the window.
8. To delete a Zoom Window, right-click its icon on the Channel List and select **Remove**.

Note:

1. To set the size of Zoom Window proportional to the source video, right-click the window and select **Fixed Ratio**.
2. To operate the Zoom Window using GV-Keyboard V3, see *2.6 GV-Video Wall GV-Keyboard V3 User's Manual.*

8.3.7 Setting Up a Scan Window

With a Scan Window, you can reserve a portion of the Video Wall to display a group of channels in turn. Up to **16** Scan Windows can be established and a Scan Window can display up to **64** channels in turn.

1. Establish a Group with the channels for scan display.
2. Drag a **Scan Window** icon from the Channel List to a desired monitor. **Scan Window (o)** is created by default.

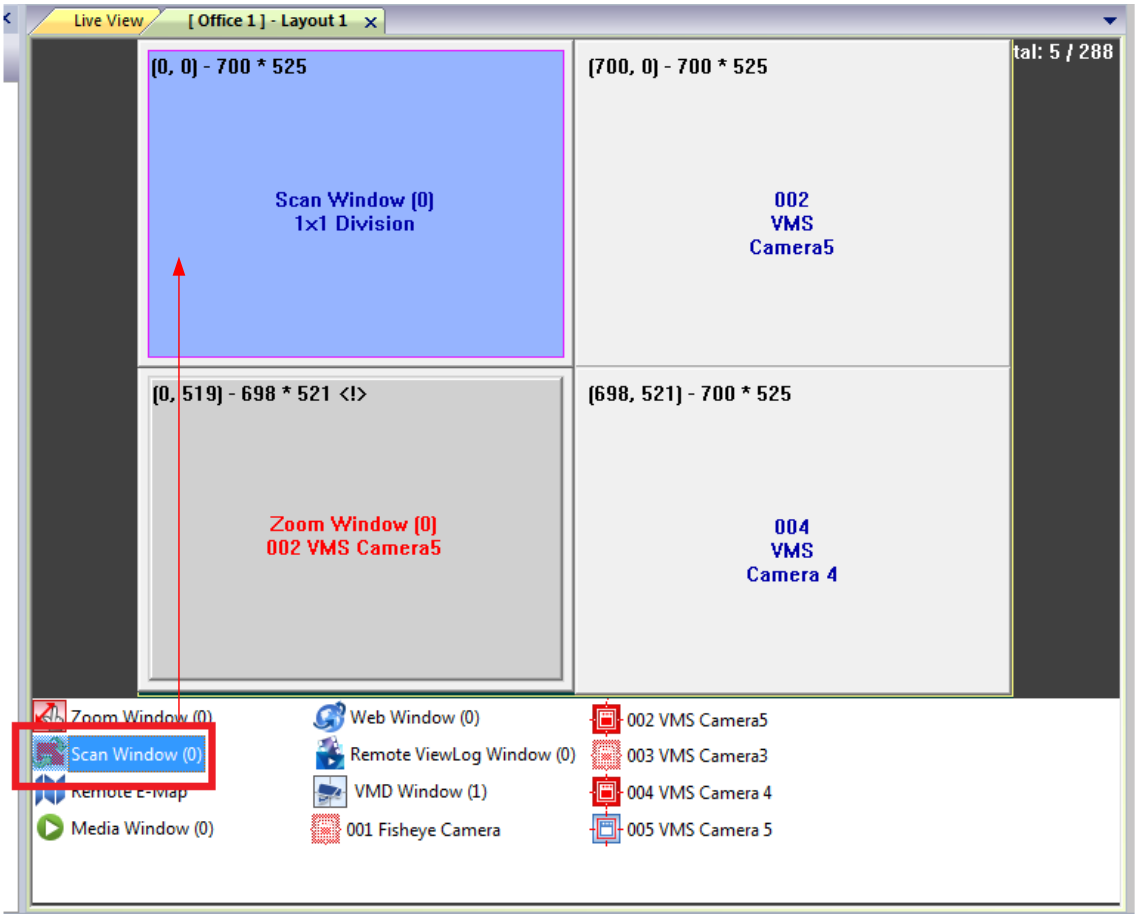


Figure 8-29

3. Adjust the position and size of the created Scan Window. For detail, see Step 7 in *8.3.3 Adding a Server and Configuring the Layout* earlier in this section.

4. To configure the scan display settings, right-click the Scan Window, select **Setup**. This dialog box appears.

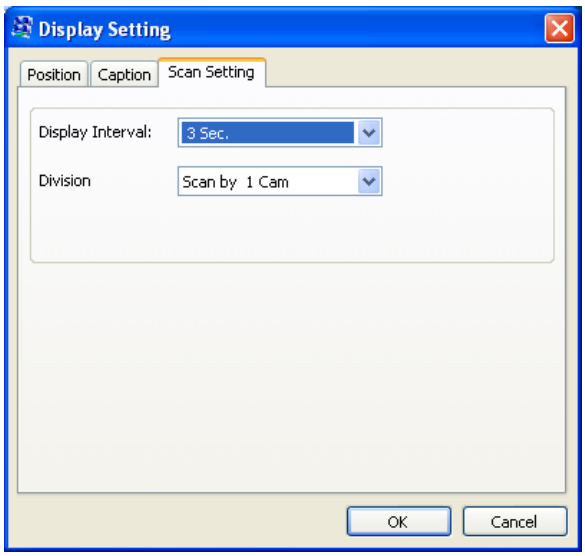


Figure 8-30

[Scan Setting]

- **Display Interval:** displays channels at the specified interval. The default is 3 seconds.
- **Division:** the channels are displayed in the specified divisions.

Note: For megapixel channels, it is strongly recommended to set the Display Interval to at least 10 seconds to compensate for longer connection and processing time.

---

5. Drag and drop the established group to the Scan Window.
6. To activate scan display, right-click the Scan Window and select **Activate**. The channels are displayed by turn on the Scan Window at the specified interval.
7. To inactivate scan display, right-click the Scan Window and select **Activate** again.
8. To add another Scan Window, right-click the space in Channel List, select **Add Scan Window** and repeat Steps 1 to 6.
9. To remove a Scan Window, right-click its icon in Channel List and select **Remove**.

To zoom a Scan Window

1. If only one Zoom Window is set up, right-click the activated Scan Window and select **Zoom**. The channels are displayed in turn on the Zoom Window and disappear on the original Scan Window.
2. If more than one Zoom Windows are set up, right-click the activated Scan Window, select **Zoom Mapping**, select a Zoom Window, and select **Zoom**. The channels are displayed in turn on the selected Zoom Window and disappear on the original Scan Window.
3. To disable zooming, right-click the activated Scan Window and select **Zoom** again. The channels return to the original Scan Window.

Note: To operate the Scan Window using GV-Keyboard V3, see *2.6 GV-Video Wall* in the *GV-Keyboard V3 User's Manual.*

8.3.8 Displaying Remote Monitor, Web Page and Playing Back Videos

Displaying a Remote Monitor on Video Wall

You can display customized view region of a remote monitor as a channel on Video Wall. Up to **288** Remote Monitor channels can be displayed.

1. Install the Remote Desktop server to the remote server you intend to access.
   A. Insert the Software DVD to the server, select **Install GeoVision Paid Software** and click **Yes** to accept the License Agreement.
   B. Click **GV-Remote Desktop Server** and follow the on-screen instructions. The Remote Desktop server is installed shortly and automatically enabled. The RDS icon appears in the system tray.
2. Define the display area of the remote server and access other settings.
   A. Right-click the RDS icon and select **Stop Service**.
   B. Right-click the RDS icon again and select **Configure**. This dialog box appears.

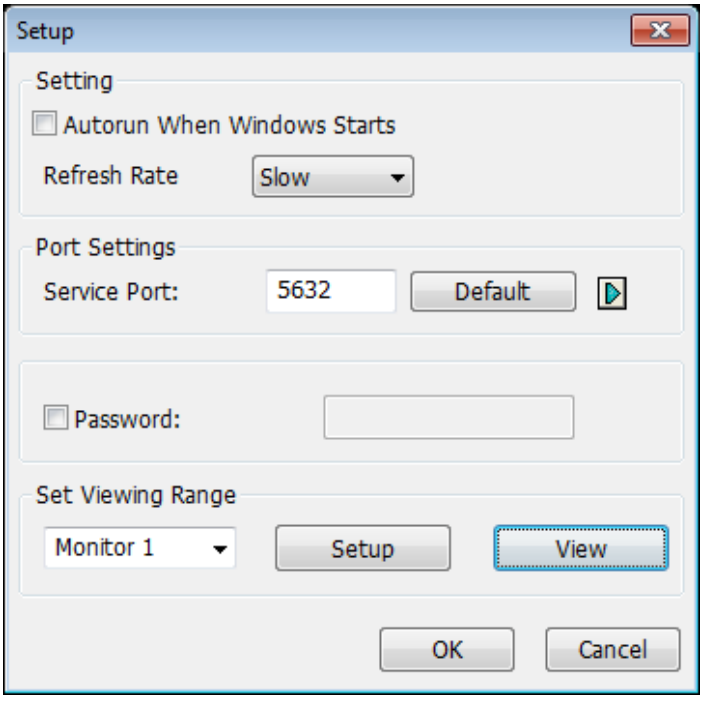


Figure 8-31

- **Autorun When Windows Starts:** automatically activates Remote Desktop Service when Windows starts.
- **Refresh Rate:** defines how quickly this remote server refreshes while being accessed. By default, the **Slow** option is selected.
- **Service Port:** corresponds to the Data port for Remote Desktop Service in Control Center Server. By default it is 5632.
- **Password:** sets a password requirement for any remote access of this server.

C. If the remote server contains more than one monitor, select a monitor using the drop-down list under Set Viewing Range.

D. To define the display area, select **Setup** and draw a square on the monitor. These options appear.

- **Save:** Saves the selected display area.
- **Abort:** Gives up the configuration.
- **Full Screen:** Sets the display area to full screen.

E. After you have defined the display area, click **Save** to store the configuration.

F. Right-click the RDS icon and select **Start Service**.

Tip: To access the Data port in Control Center Server, right-click **Remote Desktop Service** from the Host List and select **Add Remote Desktop**.

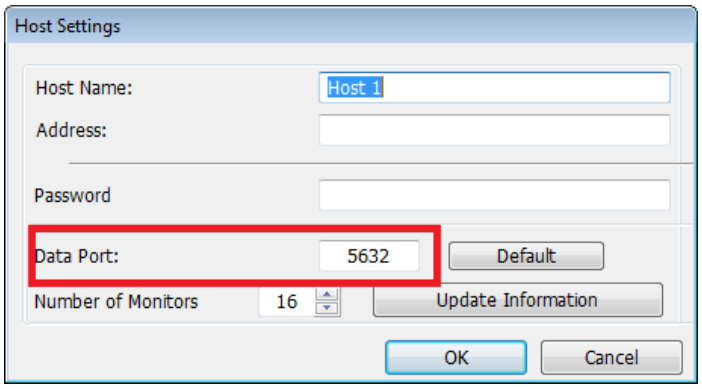


Figure 8-32

---

3. Add and connect the Remote Desktop server to Control Center..

   A. On the Control Center's toolbar, click the **Search RSD** button (No. 8, Figure 1-2). The Remote Desktop servers under the same LAN with Control Center are searched.

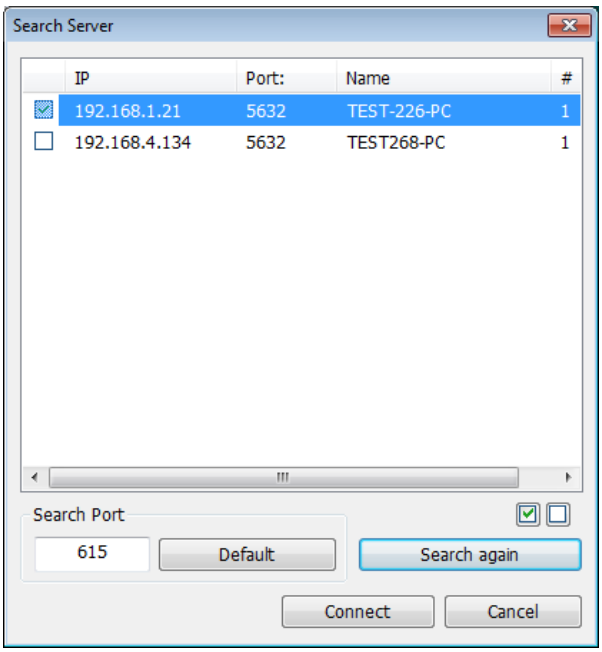


Figure 8-33

   B. Select a server and click **Connect**. The remote server and the installed monitors are shown in the Host List and connected to Control Center. In this example, the remote server contains one monitor.

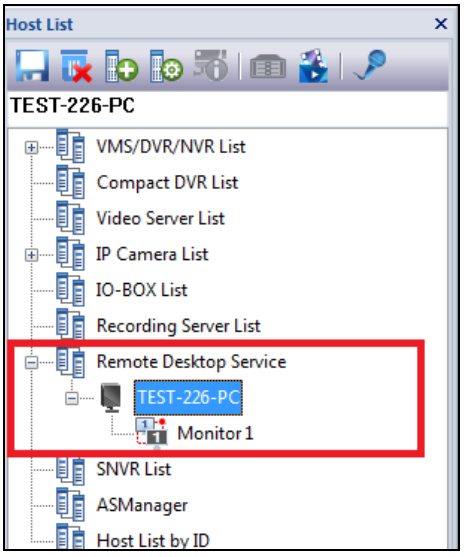


Figure 8-34

Tip: Alternatively, you can add a remote desktop server by right-clicking the **Remote Desktop Service** from Host List and selecting **Add Remote Desktop**.

4. Drag the monitor to the layout and configure the position and size of the remote desktop on Video Wall. For details, see Step 7 in *8.3.3 Adding a Server and Configuring the Layout*.
5. Activate the layout. For details, see *8.3.5 Activating the Channel and Layout*. The defined area of the remote monitor is displayed on the Video Wall.

Displaying Web Pages on Video Wall

You can display and operate up to **16** web pages on the Video Wall.

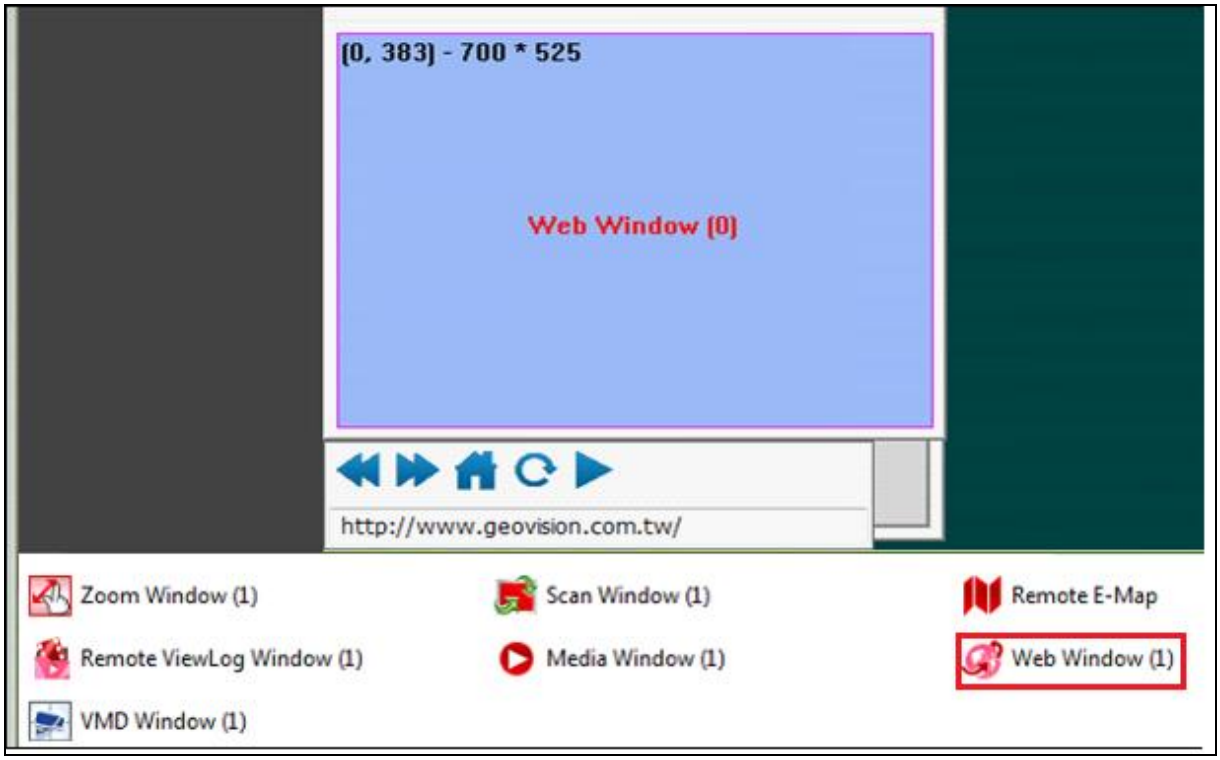


Figure 8-35

Controls on the Web Window:

Icon	Function
	Click to go back to the previous page.
	Click to go to the next page.
	Click to go to the home page.
	Click to refresh the Web page.
	Click to link to the specified Web address.

Follow the steps below to display a Web page on Video Wall:

1. Drag and drop the **Web Window** icon to the layout.
2. Adjust the size and position of the Web Window. For details, Step 7 in *8.3.3 Adding a Server and Configuring the Layout*.
3. Type the Web address in the blank and click  .
4. To add another Web Window, right-click the space in Channel List and select **Add Web Window**.
5. To delete a Web Window, right-click its icon in Channel List and select **Remove**.

Note: To set up a home page on the Web Window, see *10.5 Video Wall Settings*.

Video Playback on Video Wall

You can display and play back up to **16** recordings (of last 5 minutes) on Video Wall.

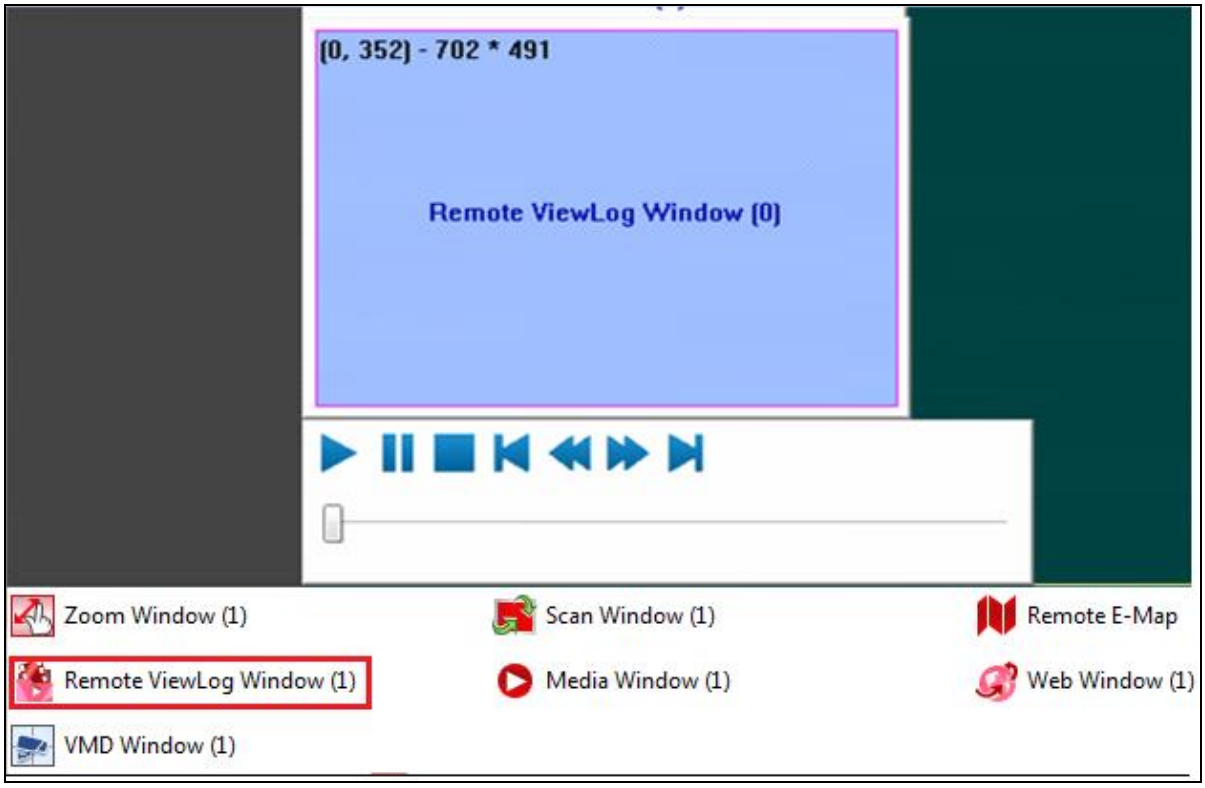


Figure 8-36

1. Drag and drop the **Remote ViewLog Window** icon to the layout.
2. Adjust the size and position of the Remote ViewLog Window. For details, Steps 7 to 9 in *8.3.3 Adding a Server and Configuring the Layout*.
3. Drag a drop a camera from the Host List to the Remote ViewLog Window for playback. Events recorded from the previous 5 minutes are played back on the Video Wall.
4. To add another Remote ViewLog Window, right-click the space in Channel List and select **Add Remote ViewLog Window**.
5. To delete a Remove ViewLog Window, right-click the icon in Channel List and select **Remove**.

Note: Make sure you have enabled **Remote ViewLog service** on the GV-IP Devices and GV-DVR / NVR VMS for this application.

Video Playback on Video Wall with Media Window

You can play back and display up to**16** media files on Video Wall. File types supported by Microsoft Media Player are supported for playback in Media Window.

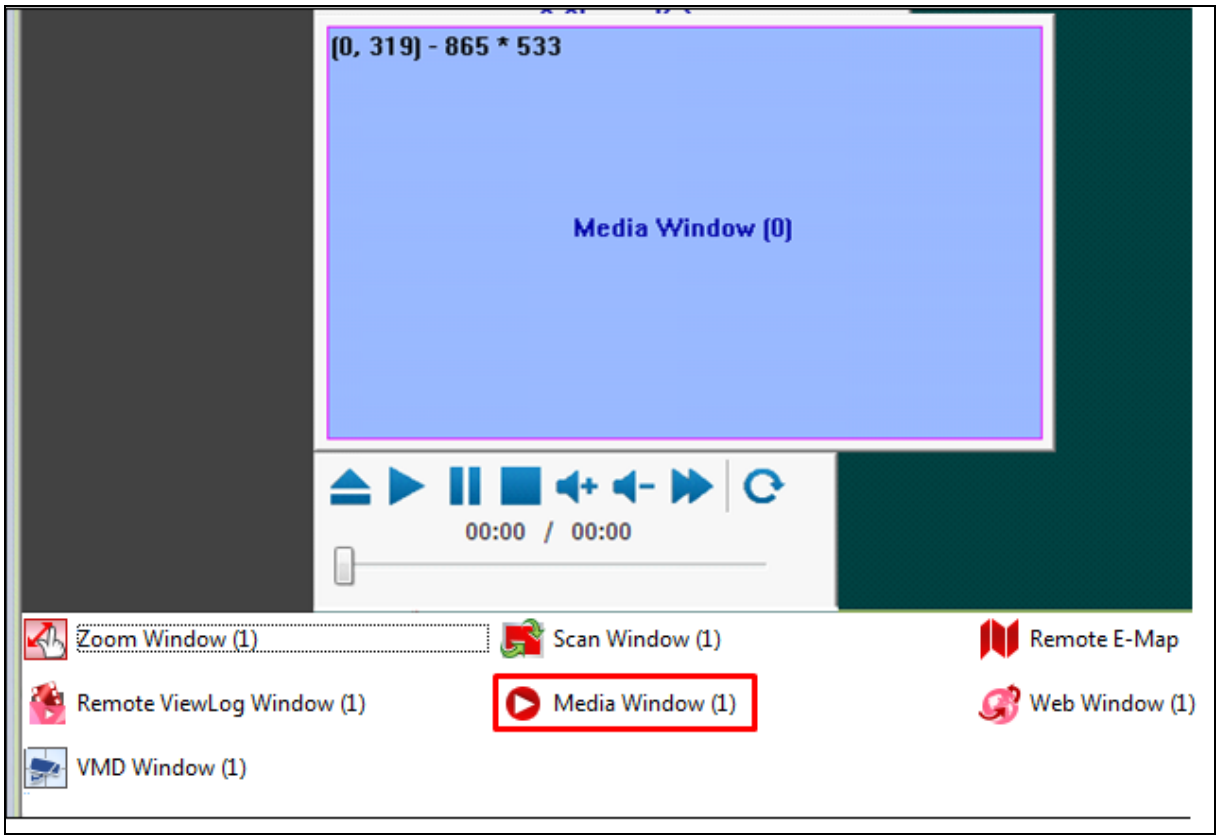


Figure 8-37

1. Drag and drop the **Media Window** icon to the layout.
2. Adjust the size and position of the created Media Window. For details, Steps 7 to 9 in *8.3.3 Adding a Server and Configuring the Layout*.
3. Click the **Browse** button  to browse a file for playback. The recording is played back shortly.
4. To add another Media Window, right-click the space in Channel List and select **Add Media Window**.
5. To delete a Media Window, right-click its icon in Channel List and select **Remove**.

8.3.9 Displaying Live View from Remote E-Map

The Video Wall can be used to display live views enabled from Remote E-Map.

- Make sure you have selected **Video Wall** for Remote E-Map's view type. For details, see Step 4 in *8.1 Application Position*.
- Adjust the E-Map channel size and position on the Video Wall. See Step 7 in *8.3.3 Adding a Server and Configuring the Layout*.

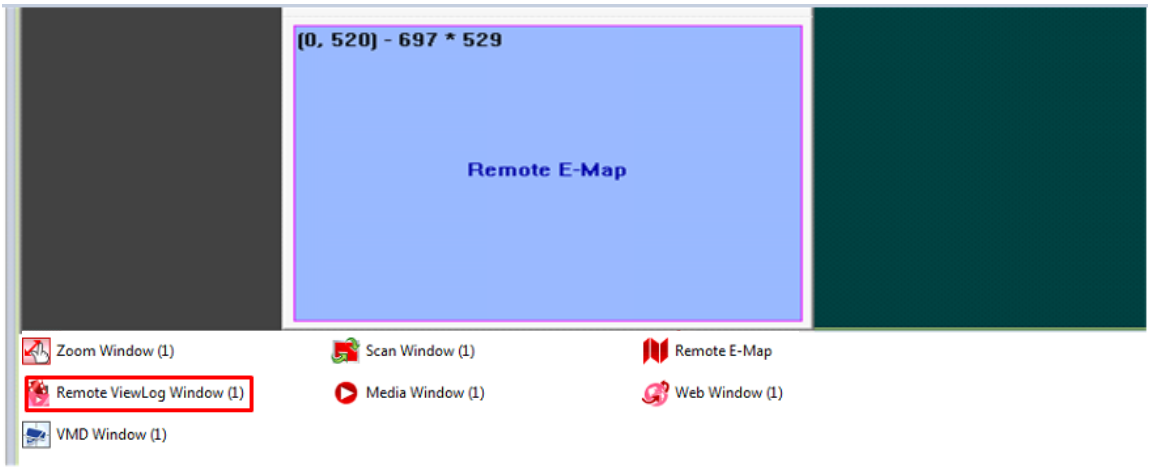


Figure 8-38

- Right-click the E-Map channel to access more settings. See Step 8 in *8.3.3 Adding a Server and Configuring the Layout*.

Tip: You can have 1, 4, 9 or 16 divisions within the Remote E-Map channel by right-clicking the channel, selecting **Setup** and then **Division**.

- When the layout is activated, live views from E-Map will be displayed on the Video Wall.

8.3.10 Setting Up a VMD Window

Pop-up live views can be displayed in up to **16** screen divisions on the VMD window immediately whenever assigned video analysis events, e.g. motion detection, occur.

1. Establish a Group with the channels for the pop-up display.
2. Drag and drop the **VMD Window** icon to the layout.

Figure 8-39

3. To configure the display setting including the position, caption and screen divisions, right-click the created VMD Window and select **Setup**.
4. Drag and drop the established group to the VMD Window.
5. To assign the type of video analysis events to trigger the live view, right-click the VMD Window and select **Video Analysis**.
6. To activate pop-up display, right-click the VMD Window and select **Activate**. A live view will pop up upon the assigned video analysis events.
7. To create another VMD Window, right-click the space in Channel List, select **Add VMD Window** and repeat Steps 1 to 6.
8. To remove a VMD Window, right-click its icon and select **remove**.

8.3.11 Remotely Accessing the Video Wall Server

You can remotely access any connected Video Wall server and its operating system from Control Center.

Note: You can access the desktop of one Video Wall server at a time. Any newly opened desktop window will replace the previous one.

1. Make sure the Video Wall server is connected to Control Center.
2. On the Layout List, select the server and click the **Host Remote Control** button  (No. 2, Figure 8-19). If you have set up a password for remote access, a password prompt appears. For details, see Step 4, *8.3.1 Configuring and Setting Up the Remote Server*.
3. Type the password and click **OK**. The desktop of the selected Video Wall server appears in a window. You can control the desktop by using the control buttons on the window.

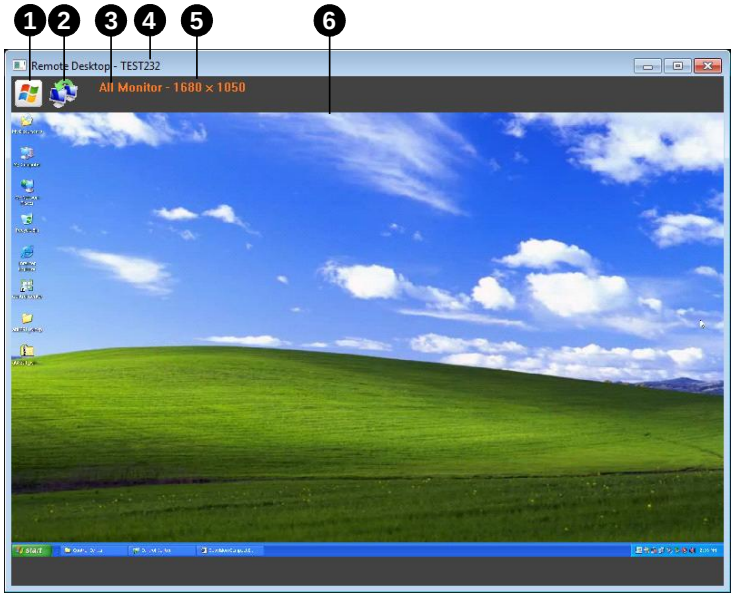


Figure 8-40

No.	Name	Description
1	Window Start	Opens the start menu of the remote desktop.
2	Change Monitor	Changes the display mode (all Monitors or a single monitor only)
3	Monitor Display Mode	Shows the current display mode.
4	Host Name	Shows the name of the server.
5	Host Resolution	Shows the resolution of the server desktop.
6	Server Desktop	Shows the server desktop.

8.3.12 Updating the Video Wall Server Version

You can remotely update the version of Video Wall servers from Control Center server.

Note: This function is only supported by V3.0.3.0 and later.

---

1. On the Layout List (Figure 8-19), right-click a Video Wall server and select **Update**. The update starts immediately and the Video Wall server is disconnected from Control Center. The **Video Wall Server** icon disappears from the system tray.

Figure 8-.41

2. The update completes when the **Video Wall Server** icon reappears.
3. Right-click the **Video Wall Server** icon and select **Start Service**.
4. On the Layout List, right-click the Video Wall server and select **Connect** to resume the connection.

8.4 Fisheye View

The hemispherical image of a fisheye host can be converted to a conventional rectilinear projection and displayed on Single Live View, Matrix and Video Wall.

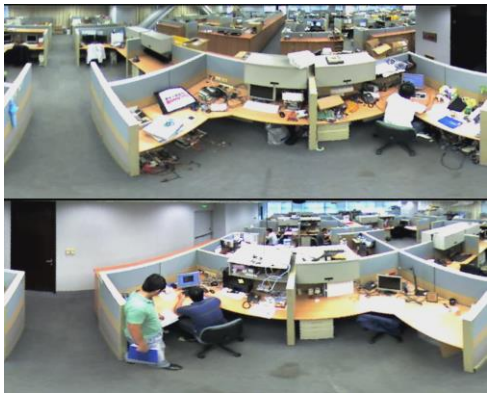
The following camera types are supported:

- GV-Fisheye Camera
- Any camera (without a built-in lens) with an ImmerVision IMV1 Panorama Lens installed
- GV-IPCAM Camera of Box module with a third-party fisheye lens installed
- Any IP camera supported by GeoVision with a third-party fisheye lens installed

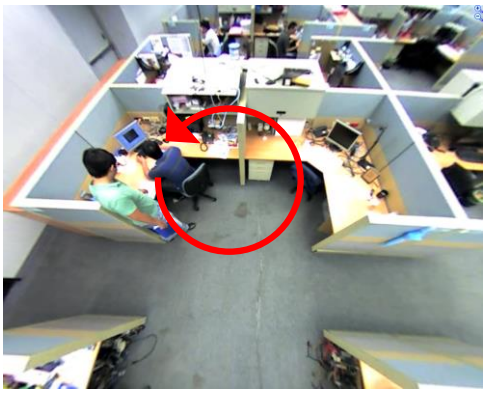
You can choose among four view modes and adjust the PTZ views to different angles.

Quad view: 4 PTZ views

360 degree: 2 PTZ view & 1 360º view



Dual 180 degree: 2 180º views



Single view: 1 PTZ view

Figure 8-42

Setting Up the Fisheye View

1. Enable the fisheye live view.
   - For Single Live View, right-click the camera from the Host List (Figure 1-1).
   - For Matrix display, enable the Matrix view containing the fisheye view. For detail, see *8.2.1 Running the Matrix View*.
   - For Video Wall display, activate the fisheye channel. For detail, see *8.3.5 Activating the Channel and Layout*.
2. Enable the dewarped views.
   - For Single Live View, select the **Change Size** button (Figure 3-1) and then select **Geo Fisheye**.
   - For Matrix display, right-click the fisheye channel on the Matrix window (Figure 8-6) and then select **Geo Fisheye**.
   - For Video Wall display, right-click the fisheye channel on the layout (Figure 8-24) and then select **Geo Fisheye**.

   The original hemispherical view is converted to 4 PTZ views, the **Quad View**, by default on the Matrix window or the Video Wall.
3. To customize other settings, right-click the channel on the Single Live View, Matrix or the Video Wall layout and select **Fisheye Option** to access the following.
   - **Camera Modes:** You can choose among four view modes.
     - **Geo Fisheye: Quad view:** Composed of four PTZ views.
     - **Geo Fisheye: 360 degree:** Composed of two PTZ views and one 360º panoramic view.
     - **Geo Fisheye: Dual 180 degree:** Composed of two 180º views.
     - **Geo Fisheye: Single view:** Composed of one PTZ view.
   - **Camera Position:** Select **Ceiling**, **Wall** or **Ground** according to where the camera is mounted.
   - **Adjust Auto Pan Speed At Top-Left Channel:** Select **low**, **medium**, or **high speed** to enable Auto Pan for one PTZ view at the rotation speed of your choice. This option applies to **Quad view**, **360 degree** and **Single view**.
   - **Zoom:** Select **Zoom In** or **Zoom Out** and then click on the image.
   - **Show Source Video At Top-Right Channel:** You can display the circular source image in the top-right quadrant when **Quad view** is selected.

- **Guard Tour Setting:** Guard tour is a virtual PTZ tour to monitor important spots within the live view range. This option is only available under the **Single View** mode. For details, see *8.4.1 Virtual PTZ Tour*.
- **Fisheye Settings:**

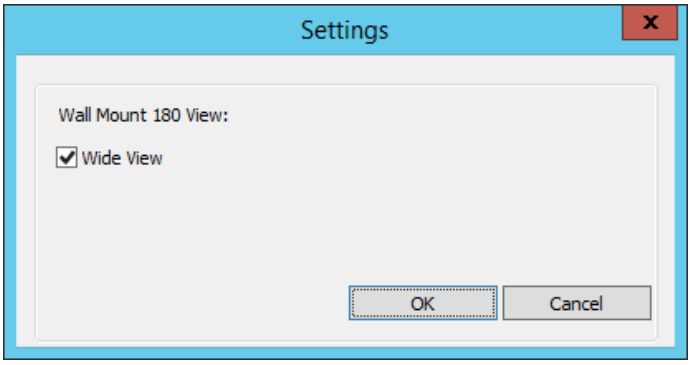


Figure 8-43

- **Wide View:** Increases the height of the 180 degree view when camera position is set to wall mount.

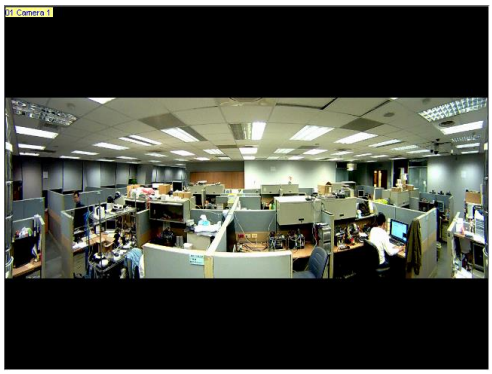


Figure 8-44-1: Wide View Disabled

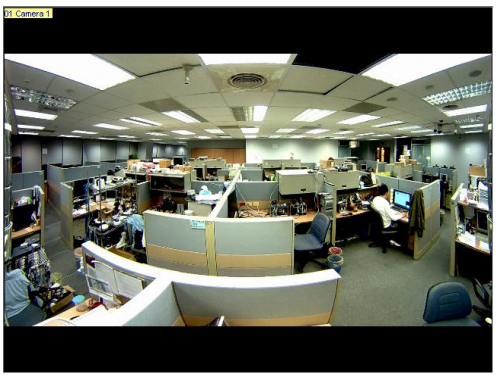


Figure 3-44-2: Wide View Enabled

4. You can drag and drop any PTZ view or 180 degree view to adjust the viewing angle.

8.4.1 Virtual PTZ Tour

Set up a virtual PTZ tour to monitor important spots of your surveillance site. This function can be applied to Single Live View, Live View Window, Matrix and Video Wall. Before you start, make sure your GV-Fisheye Camera is set to **Single View**. For details on the view mode, see *Cameras Modes*, *8.4 Setting Up a GV-Fisheye Camera*.

1. Right-click the camera live view or the camera on the layout (Figure 8-24), select **Fisheye Option** and then select **Guard Tour Setting**. The Guard Tour Setting dialog box appears.
2. Type a name for the current live view and click **Add**. This live view point (preset point) automatically appears under Preset ID.

Figure 8-45

3. Specify the duration for the live view to stay on this preset point (dwell time). The default setting is **10** seconds.
4. Optionally click **Preview** to see a preview of the preset point.
5. Click **Apply**. This point is added to Guard Tour Setup.

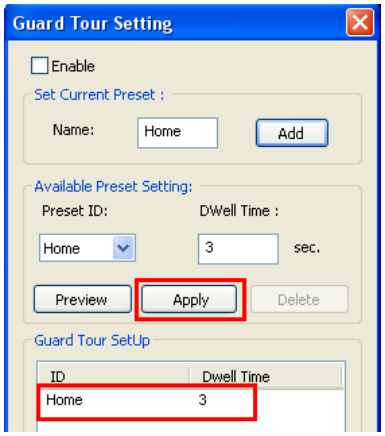


Figure 8-46

6. To add more preset points, follow Steps 1 to 6. In this example, three preset points Home, Gate and Desk are established.

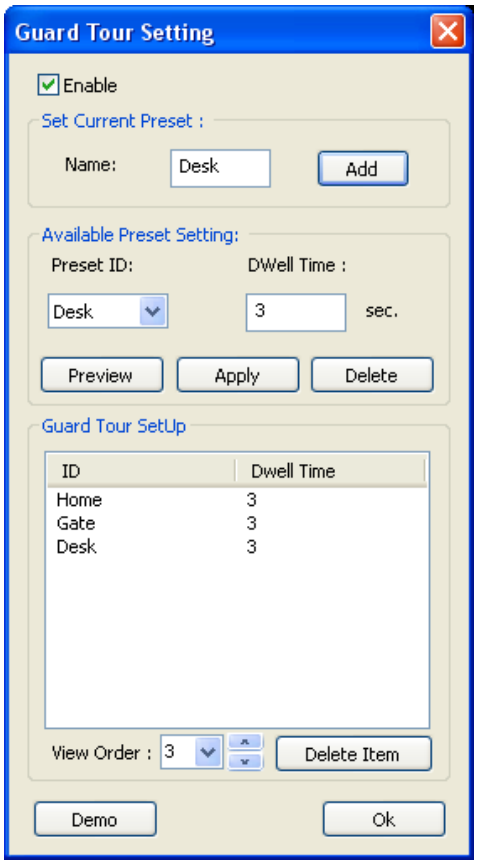


Figure 8-47

7. To change the order of the preset points, select a preset point from the ID column and select a number from the View Order drop-down list.
8. Optionally click **Demo** to watch a preview of the PTZ tour.
9. Select **Enable** to start the PTZ tour. To stop the PTZ tour, disable this function on the Guard Tour Setting.

Chapter 9 Other Applications

9.1 Remote E-Map

The Remote E-Map is a map used to monitor the installed GV-IP Devices, I/O devices and cameras connected to GV-DVR / NVR / VMS / Recording Server. The Remote E-Map can:

- illustrate the location of the installed cameras and I/O devices with icons
- illustrate the surveillance zone of the installed cameras
- signal motion and I/O events with blinking camera icons or blinking map areas
- access and play back recordings via camera icons. For detail, see *5.1 Instant Playback*.

Note:

1. Third-party IP cameras are not supported in Remote E-Map.
2. The Remote E-Map also supports access control software GV-ASManager to monitor the vehicle lanes and doors. For which event to trigger a blinking icon on E-Map and limits, see *9.1.8 Connecting to GV-ASManager*.

Follow the steps below to create and activate a Remote E-Map:

1. Drag the desired hosts from the Host List to the **E-Map Group** in the Group List.

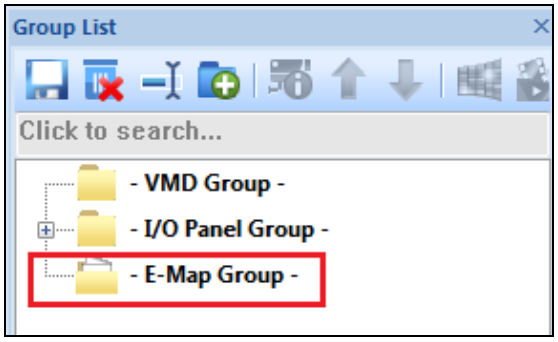


Figure 9-1

2. Click **Save** to store the settings.
3. If your E-Map Group contains any client GV-DVR / NVR / VMS channel, be sure to enable the Control Center service on the client server.
4. To create E-Maps for the hosts you saved in the E-Map Group in Step 1, select **System** on the Control Center's main window and select **E-Map Editor**. The E-Map Editor window appears. For an overview of the E-Map Editor window, see *9.1.1 The E-Map Editor Window*. For details on creating an E-Map, see *9.1.2 Creating an E-Map*.
5. Set up motion and I/O alerts for the hosts. For details, see *9.1.3 E-Map Alerts*.

6. Optionally set up the following:
   - Polygonal areas for a blinking effect when trigger events occur. See *9.1.4 Setting the Polygonal Area*.
   - View zones to illustrate the monitoring area on the E-Map. See *9.1.5 Setting the View Zone*
7. Click the **Remote E-Map** button. The Remote E-Map window appears (Figure 9-11). You can click a camera icon to watch its live view. For detail on the E-Map Window, see *9.1.6 The E-Map Window*.

Note: By default, each camera live view is displayed in a separate window. You can also choose to display the live view on the Live View panel or Video Wall. For detail, see *8.1 Application Position*.

For details on general settings of Remote E-Map, see *9.1.7 Configuring the Remote E-Map*.

9.1.1 The E-Map Editor Window

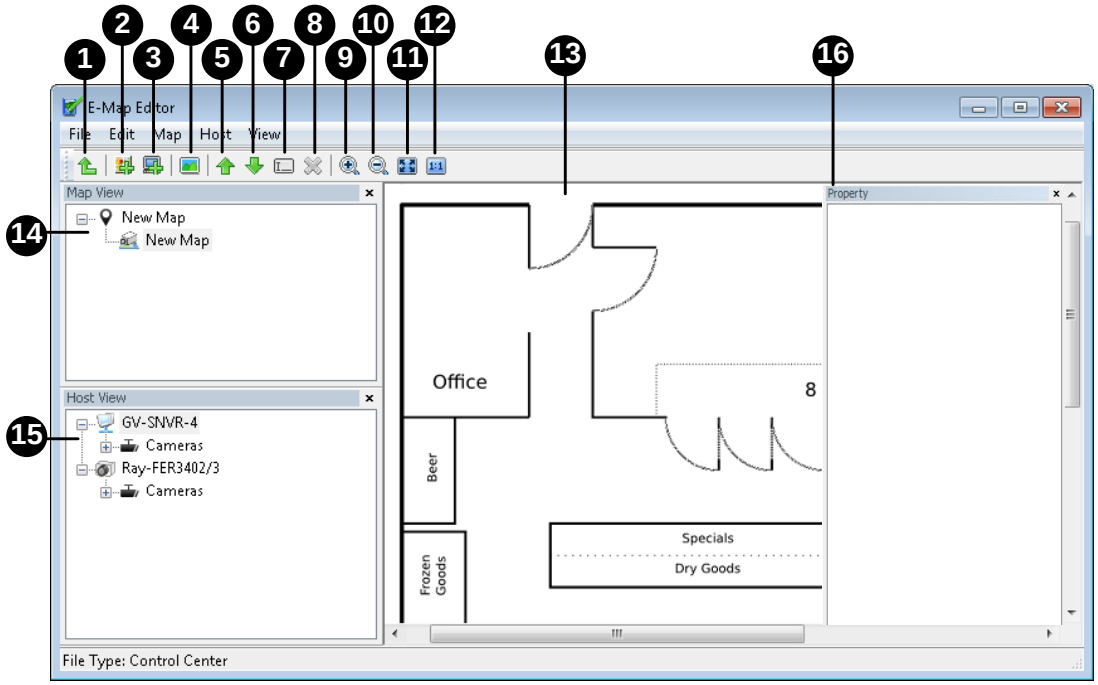


Figure 9-2

The controls on the E-Map Editor window:

No.	Name	Description
1	Up	Returns to the previous E-Map file.
2	Add Map	Adds an E-Map file.
3	Add Host	Adds a host folder in the Host View.
4	Load Map	Imports a floor plan.
5	Move Up	Moves the selected map up in the list.
6	Move Down	Moves the selected map down in the list.
7	Rename	Renames an E-Map file and/or folder.
8	Delete	Deletes an E-Map file and/or folder.
9	Zoom In	Zooms in on the floor plan.
10	Zoom Out	Zooms out on the floor plan
11	Fit to Screen	Fits the floor plan to the E-Map Editor Window.
12	Actual Size	Shows the floor plan in its original size.
13	Floor Plan	The window displays the imported graphic file.
14	Map View	Tree view of E-Map files and/or folders.
15	Host View	Tree view of host folders.
16	Property	Adjust the property of the view zone

9.1.2 Creating an E-Map

To create and edit an E-Map file, follow the steps below.

1. Click the **Add Map** button on the toolbar. A New Map file is created in Map View and the Floor Plan window separately.

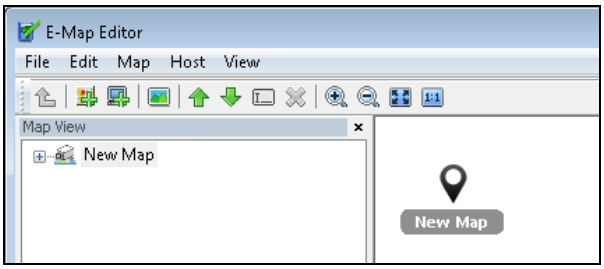


Figure 9-3

2. Click the **New Map** file in Map View, and then click the **Load Map** button to import a graphic file. The file opens in the Floor Plan window.
3. Drag and drop the icons from Host View onto the map in the Floor Plan window.
4. To change the orientation of the default camera icon, right-click the camera from the Host View (No. 13, Figure 9-2), and select an orientation.
5. To change the camera icon to your own:
   A. Right-click the camera from the Host View (No. 13, Figure 9-2) and select **Change icon**. This dialog box appears.

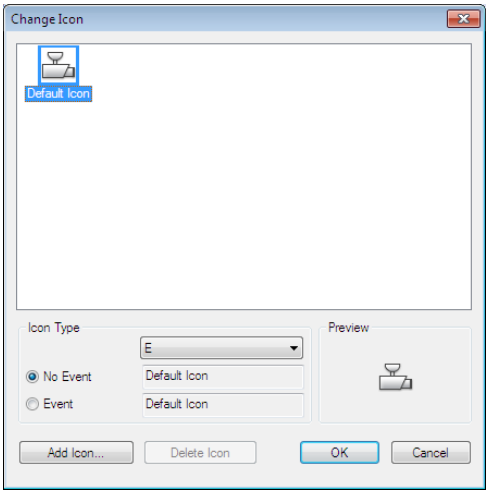


Figure 9-4

   B. Click the **Add Icon** button and locate your icon file.

Note: Make sure the icon file is of 32 x 32 pixels or smaller.

C. Select the icon you just added, specify the condition that the icon appears by selecting **No Event** or **Event** and define the orientation using the drop-down list. You can set different icons for an event and no-event situation. In this example, the icon of IPCam.jpg appears on the E-Map when no event occurs and when an event occurs, the icon changes to the default one.

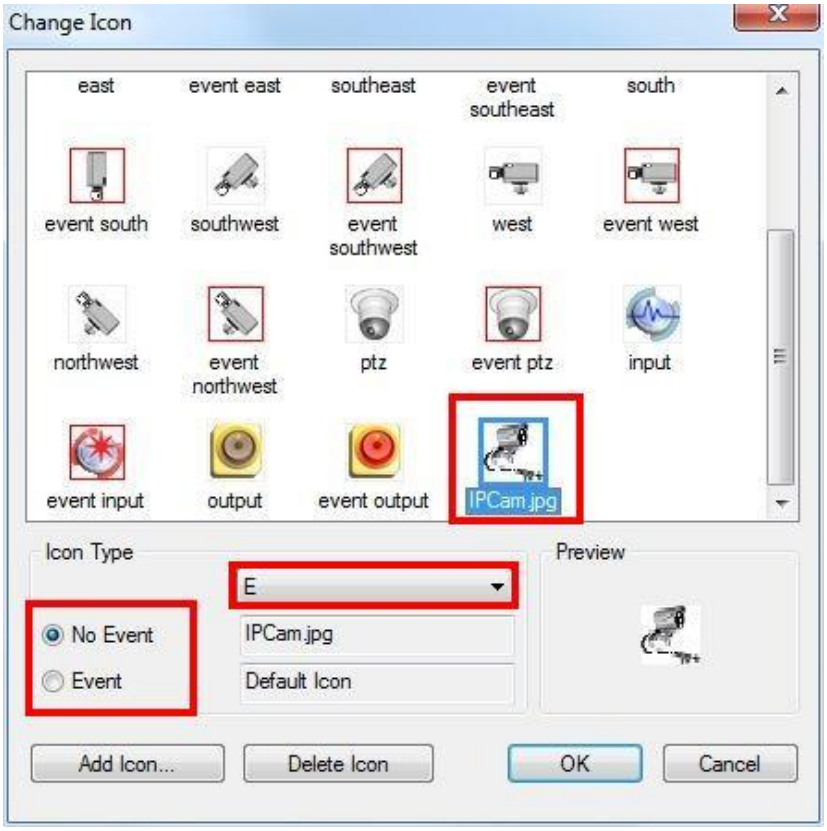


Figure 9-5

6. To change the icons for I/O devices, right-click any I/O device icon on the map and select **Change Icon**. The following window appears.

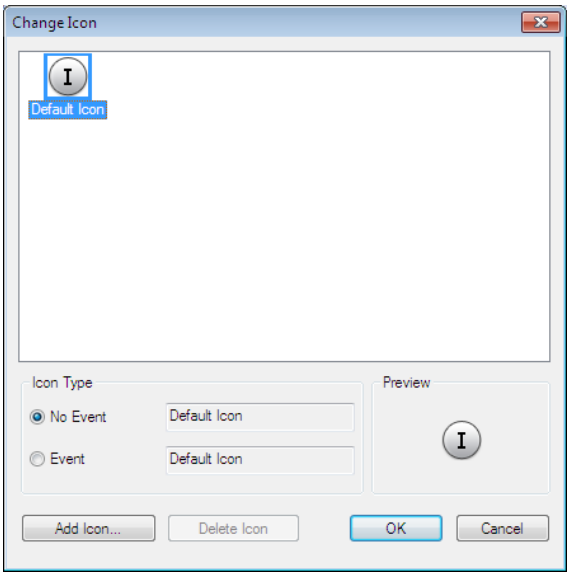


Figure 9-6

7. Click **No Event** and select an icon to display when the I/O device is not triggered. Click **Event** to select an icon to display when the I/O device is triggered. You can use your own icon by clicking **Add Icon**.
8. Click **File** in the window menu, and select **Save to Control Center** or **Save to File** to save the created E-Map file.

9.1.3 E-Map Alerts

You can monitor and set up alerts on E-Maps. When motion or input trigger is detected on the subscriber, the camera or input icon on the E-Map will be enclosed with a blinking frame to indicate an event. You can also click the camera icon to watch its live view.

For this application to work, subscribers must have:

- installed and enabled related I/O settings on the client DVR and IP devices
- created their own E-Maps (see *9.1 Remote E-Map*)
- activated **Control Center Service** on the host GV-DVR / NVR / VMS.

To access this function, click the **Remote E-Map** button  on the main window, the E-Map Window appears.

9.1.4 Setting the Polygonal Area

Use the **Polygonal Map** function to help you quickly locate a triggered device. Draw an area on the map and it will flash when any device within the area is triggered.

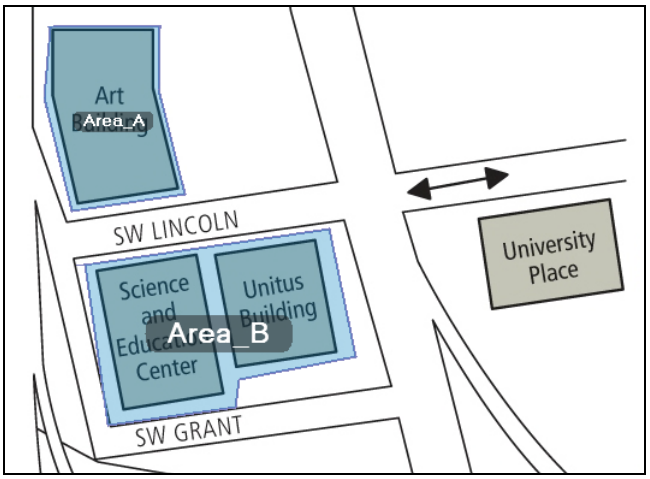


Figure 9-7

Setting Up a Polygonal Map

1. On the E-Map, select a map icon or an I/O icon.
2. Highlight and right-click the icon, and select **Edit Polygonal Map**.
3. Click on the map to start drawing a polygonal shape, indicated by a yellow dotted line.

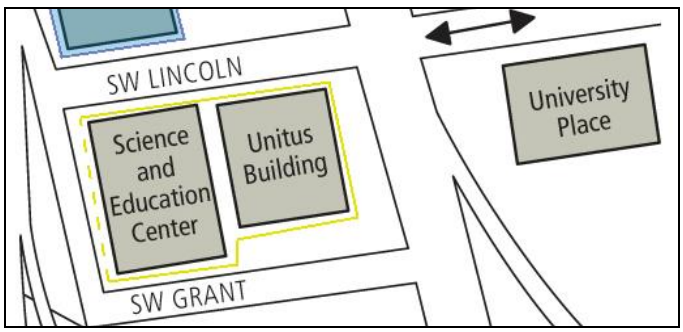


Figure 9-8

4. After closing the shape, right-click the map and select **Finish**.

The enclosed area will be colored in blue. When a device placed within the polygonal map is triggered, the blue area will flash in blue and red.

9.1.5 Setting up the View Zone

The View Zone function allows you to illustrate the monitored area of each device on the E-Map.

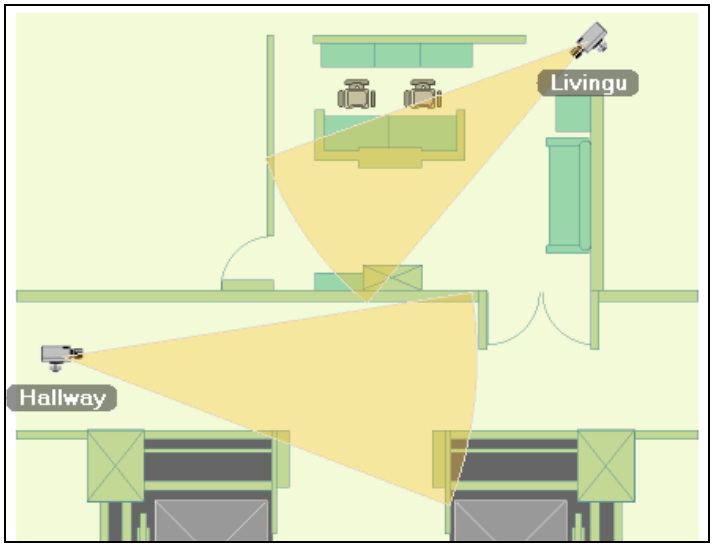


Figure 9-9

Setting Up a View Zone

1. In the E-Map Editor window, select a device icon.
2. Highlight and right-click the device icon and select Edit View Zone.
3. Move the mouse to adjust the size and direction of the monitored area.

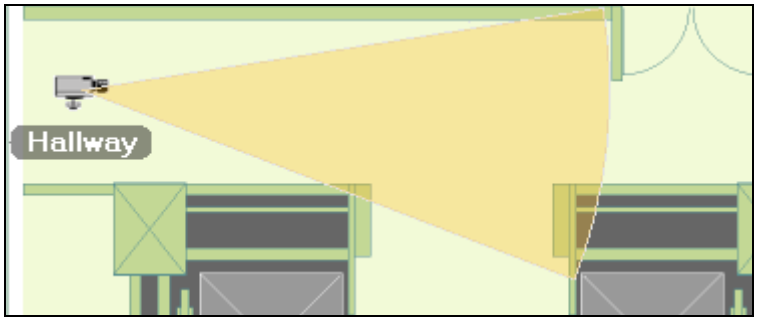
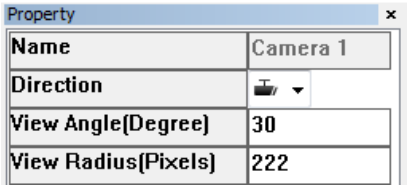


Figure 9-10

4. Right-click the map and select **Finish** to finalize the zone.
5. You can adjust the property of the view zone from the Property menu.



9.1.6 The E-Map Window

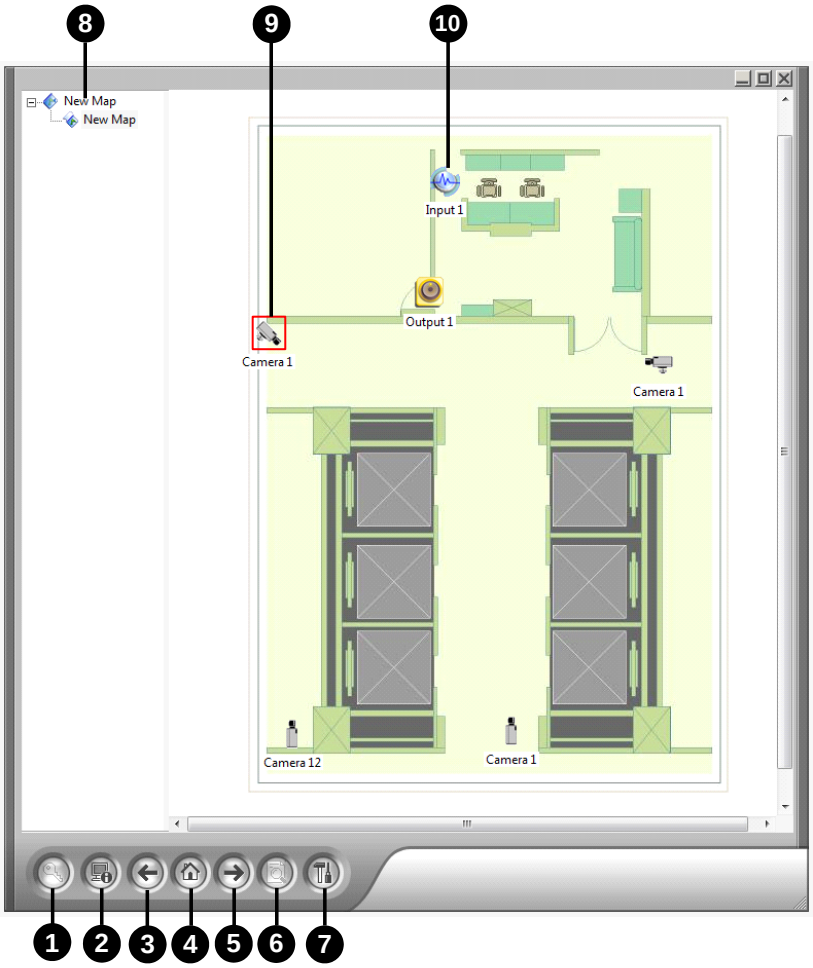


Figure 9-11

The controls on the Remote E-Map window:

No.	Name	Description
1	Login	Click to log in up to **500** hosts.
2	Host Information	Click to view the information of incoming events upon motion detected and I/O devices triggered.
3	Previous	Click to go to the previous E-Map file.
4	Home	Click to back to the top of the tree view.
5	Next	Click to go to the next E-Map file.
6	ViewLog	Click to access the Remote ViewLog function.
7	Configure	Click to configure the Remote E-Map.
8	Tree List	The list displays all created E-Map files and folders.
9	Blinking Icon	The blinking icon represents a triggered camera or I/O device.
10	Output Icon	Click to manually force the output device.

9.1.7 Configuring the Remote E-Map

Click the **Configure** button (No. 7, Figure 9-11) to display the following dialog box:

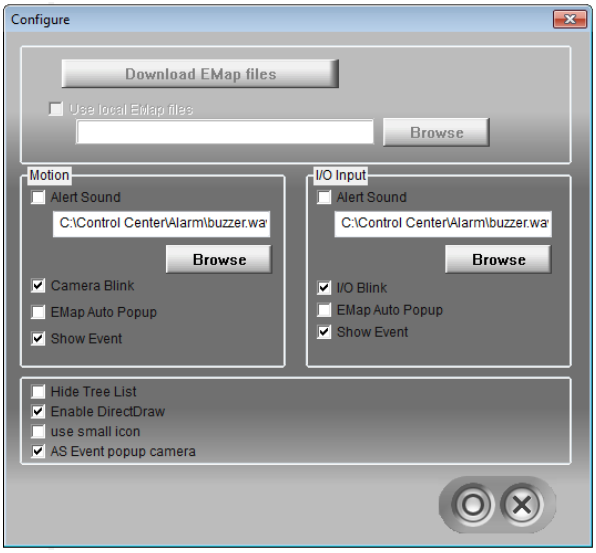


Figure 9-12

[Download EMap files] Click to download E-Map files from the subscriber server to the local computer. This option can reduce network load when you want to view E-Maps of multiple subscribers.

- **Use local EMap files:** Once downloading E-Map files to the local computer, you can use these E-Map files for connection.

[Motion] / [I/O Input]

- **Alert Sound:** Select this option and assign a .wav file to alert the operator when motion is detected or input devices are triggered.
- **Camera Blink, I/O Blink:** When cameras or input devices are triggered, their icons on the E-map flash.
- **EMap Auto Popup:** When cameras or input devices are triggered, the related map will be displayed on the Remote E-Map window instantly.
- **Show Event:** Select this option to display motion or input triggered events on the Host Information window.
- **Hide Tree List:** Select this option to hide the tree list.
- **Enable DirectDraw:** The DirectDraw is enabled by default. Some VGA cards might not support DirectDraw and can produce distorted frames. In this case, disable the feature.
- **Use small icon:** The Remote E-Map uses the large icons of cameras and I/O devices by default. Select this option if you want to use small icons.
- **AS Event popup camera:** When there are doors event on GV-ASManager, the related live view will be displayed on the Remote E-Map window instantly.

9.1.8 Connecting to GV-ASManager

You can create an E-Map for access control software GV-ASManager, and display the icons of vehicle lanes and doors on an electronic map. When the following door events happen, the related icons will blink to alert you and the associated live view will pop up if a camera is available.

Supported door events:

1. Held open
2. Force Open
3. Duress
4. Access Denied
5. Tamper
6. Fire Alarm

Note:

1. Make sure the **Remote Monitor Server** is enabled on GV-ASManager to allow remote access from GV-Control Center.
2. Currently, the icons of vehicle lanes do not support any event alert. You can only right-click the icon to access live view.
3. When creating an E-Map, you can map up to 2 cameras for each Door and up to 7 cameras for each Vehicle Lane (including 4 Recognition Cameras and first 3 Overview Cameras).

9.2 MultiLang Tool for Translated Text

The user interface has been translated from English into 30 other languages. If you find the translation to be unsuitable and would like to correct it, you can use the MultiLang Tool to revise the translation. Next, you can apply the revised text to the applications and export an .exe file to make the same revision on another computer. You can also send the revision back to GeoVision to have the revision included in future software releases.

Note: When using the MultiLang Tool, it is recommended to revise an entire sentence at a time instead of simply searching a single word and replacing the word in all other strings.

Revising the translated text:

1. Install the MultiLang Tool from the Software DVD.
   A. Insert the Software DVD to your computer. It runs automatically and a window appears.
   B. Select **Install GeoVision Free Utility** and click **Yes** to accept the License Agreement.
   C. Select **GV-MultiLang Tool** and follow the on-screen instructions.
2. Close all GeoVision applications first and then double-click **MultilingualConfig.exe**. This dialog box appears.

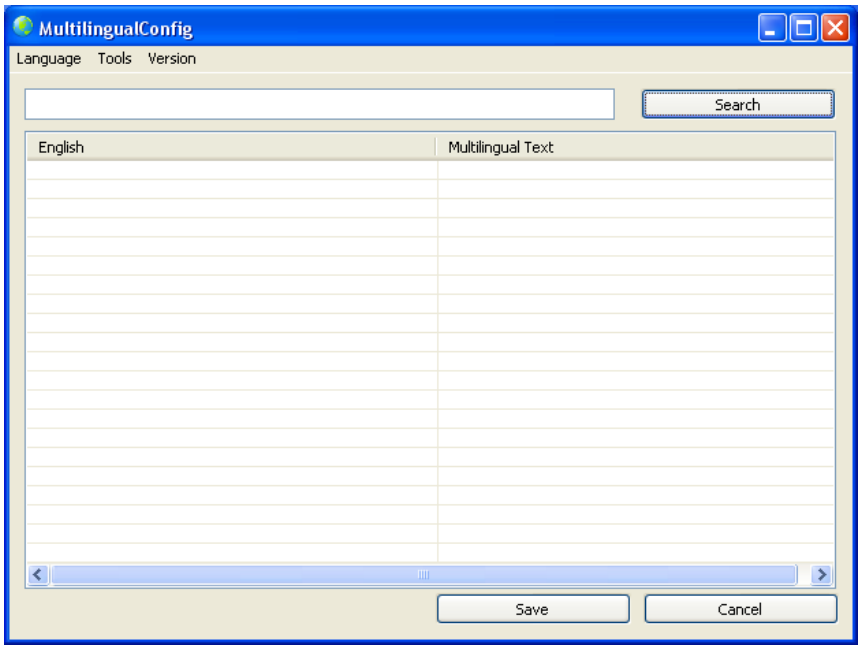


Figure 9-13

3. Click **Language** and select the language of the text you want to revise.

4. In the **Search** field, type all or part of the text in English or the target language and click **Search**.

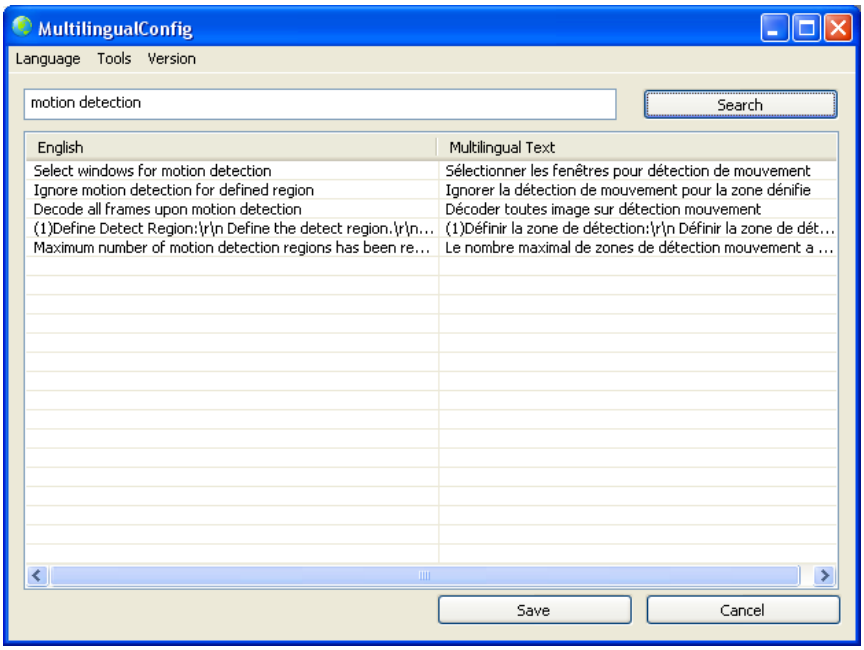


Figure 9-14

Note:

1. The search is case sensitive.
2. Before making any revision, click **Tools** and select **Revision Note** to read the revision instructions.

---

5. Double-click the text you want to revise. This dialog box appears.

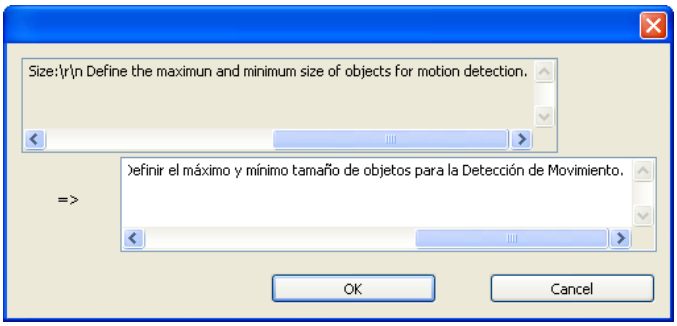


Figure 9-15

6. Revise the translated text and click **OK**.

Tip: The text may contain symbols such as **%d** or **\n** that instruct the application to perform certain functions. Be careful not to change the symbols in the translated text.

Applying the revised text:

1. To apply the revised translation to the applications, click **Save**. For the following applications, the system will automatically locate the corresponding files on your computer and replace with the revised translation.
   - GV-Control Center V3.0 or later
   - GV-Video Wall Server V3.0 or later
   - GV-DVR / NVR / VMS
   - Remote ViewLog
   - GV-IP Device Utility
   - Multi View
   - Remote E-Map
   - Center V2
   - Vital Sign Monitor
   - Dispatch Server
   - GV-GIS
   - MCamCtrl Utility
   - POS Text Sender
   - Authentication Server
   - SMS Server
   - Audio Broadcast
   - Multicast
   - TwinDVR System
   - Bandwidth Control Client Site
   - Backup Viewer
   - Mobile Server

2. After applying the revision, a dialog box appears to show which applications have been revised. Click **OK**.

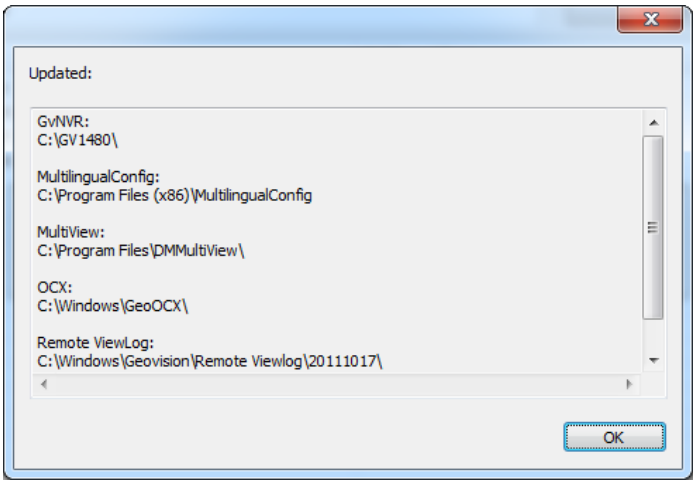


Figure 9-16

3. The message "*Do you want to apply the revised multilingual texts to another folder?*" appears. If the storage path for the application has been changed or if the associated application is not listed in the dialog box, click **Yes** and select the folder of the application.

To export or send the revised text:

1. To export the revision as an executable file, click **Tools**, **Export** and **Export executable file**. You can copy the .exe file to another computer and apply the same translation revision by running the .exe file.
2. To report the translation revision back to GeoVision,
   - If your default mail client is Outlook, Outlook Express or Mozilla Thunderbird, click Tools, Export and Send Report to send the revision.
   - If your default mail client is not set up or supported, click Tools, Export and Export text file, and email the exported text file to gvlocalize@geovision.com.tw

9.3 Batch Functions

The batch functions are integrated interfaces designed for management of mass number of GV-IP Devices without the need to configure each device from its Web interface. On these interfaces, you can change/assign IP address, rename devices, assign NAS and view storage space information of multiple GV-IP Devices.

Supported GV-IP Devices

The batch functions only support the following GV-IP Devices of the specified firmware versions and do not apply to GV-Recording Server, GV-DVR / NVR / VMS.

GV-IP Devices		Supported Version
GV-IP Camera		V3.00 or later
GV-IP Speed Dome	GV-SD220	V1.04 or later
	GV-SD220-S	
GV-Target Camera		V1.02 or later
GV-Video Server	GV-VS11	V1.03 or later
	GV-VS12	V1.07 or later
	GV-VS14	V1.01 or later
	GV-VS2400	V1.0 or later
	GV-VS2420	V1.0 or later

Note:

1. Recording to GV-NAS Systems is only supported by GV-IP Camera and GV-Target Camera of the specified versions.
2. Files recorded to GV-NAS Systems are stored in the MPEG4 format and those recorded to memory cards are stored in the AVI format.

9.3.1 Configuring the IP Address

You can set the IP address of more than one GV-IP Devices at a time. Follow the steps below.

1. On the main screen, click the **Batch Update Wizard** button (No. 7, Figure 1-2) and select **Auto Set IP Address**. This window appears.

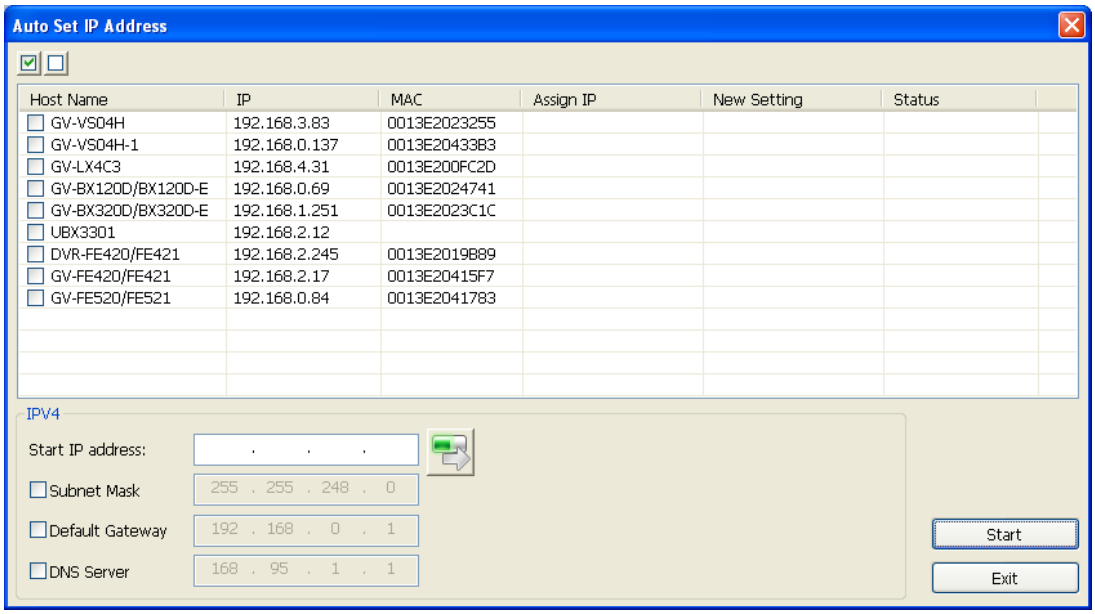


Figure 9-17

2. Select the devices to be configured from the **Host Name** column. To select all the devices, click . To uncheck all the devices, click .
3. To assign consecutive IP addresses to multiple GV-IP Devices, follow the steps below.
   A. Under the IPV4 section, select and type the Start IP address, Subnet Mask, Default Gateway and DNS server.

B. Click the button  to preview the new IP address in the **Assign IP** column. If more than one device is selected, their IP addresses will proceed after the **Start IP address**.

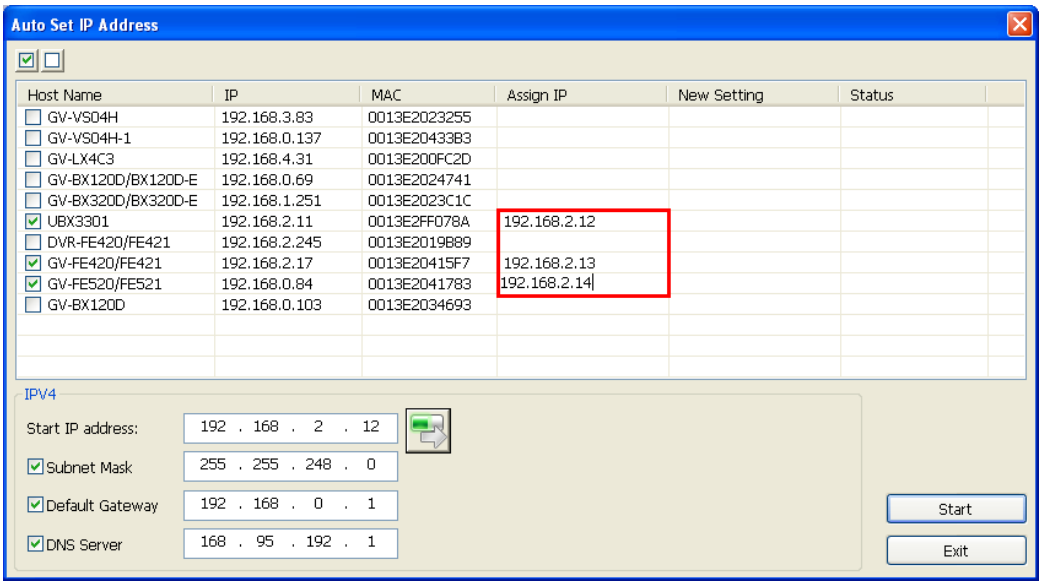


Figure 9-18

4. To manually enter IP addresses, type the IP addresses in the **Assign IP** column.
5. Click **Start** to start changing the IP address. When the update is completed, the new IP address is shown in the **New Setting** and “Success” is shown in the **Status** columns.

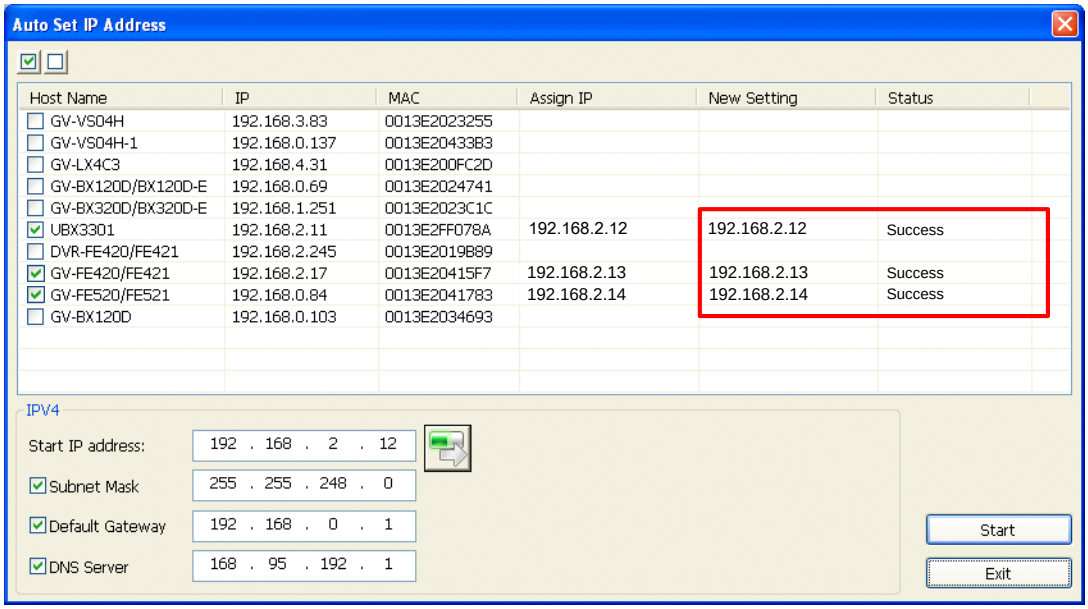


Figure 9-19

9.3.2 Renaming Devices

You can modify the device name for multiple devices through this interface, without visiting each device's host settings page.

1. On the main screen, click the **Batch Update Wizard** button (No. 7, Figure 1-2) and select **Upgrade Device Name**. This window appears.

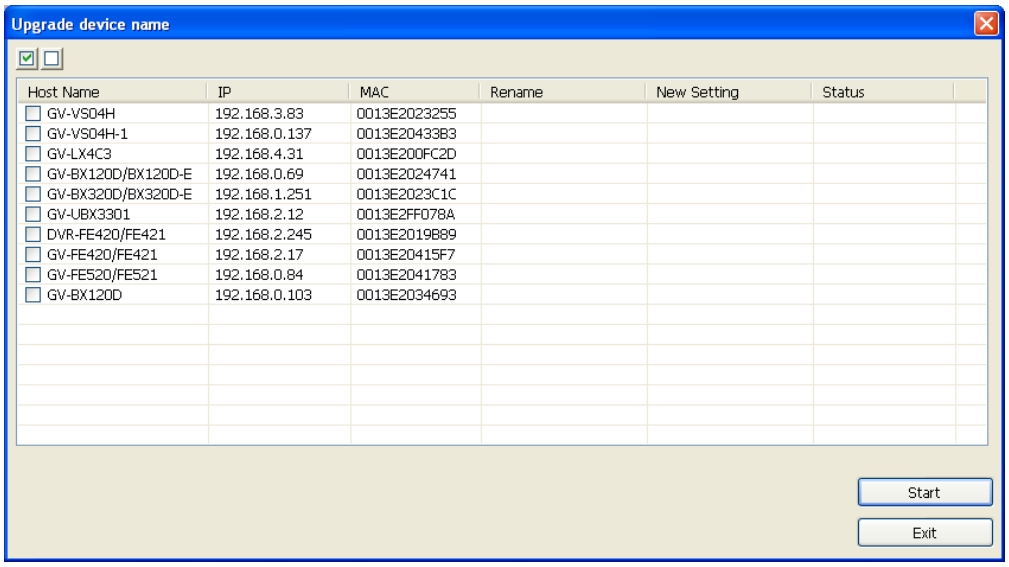


Figure 9-20

2. Select a device to be configured from the **Host Name** column. To select all the devices, click . To uncheck all the devices, click .
3. Type the new device name in the **Rename** column.
4. Click **Start** to start updating. When the update is completed, the new name is shown in the **New Setting** column and the **Status** shows "Success".

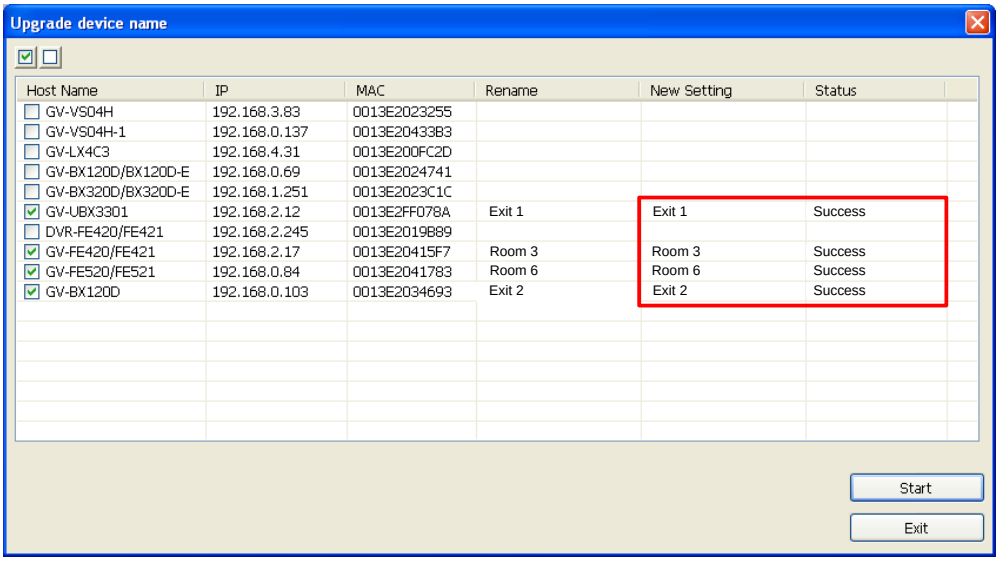


Figure 9-21

9.3.3 Configuring the NAS

You can set GV-IP Cameras and GV-Target Cameras to record to NAS (Network-Attached Storage) devices.

Note:

1. For the NAS application, it is required to use GV-IP Cameras (firmware V3.0 or later) and GV-Target Cameras (firmware V1.02 or later).
2. For system performance and compatibility, it is highly recommended to use GV-NAS Systems for recording.
3. Make sure the computer installed with GV-Control Center is under the same LAN with the NAS devices.

Assigning NAS Storage for Recording

Note: For system performance and compatibility, it is highly recommended to use GV-NAS Systems for recording.

1. On the main screen, click the **Batch Update Wizard**  button (No. 7, Figure 1-2) and select **NAS Setup**. The cameras that support NAS devices appear in the NAS Setup window.

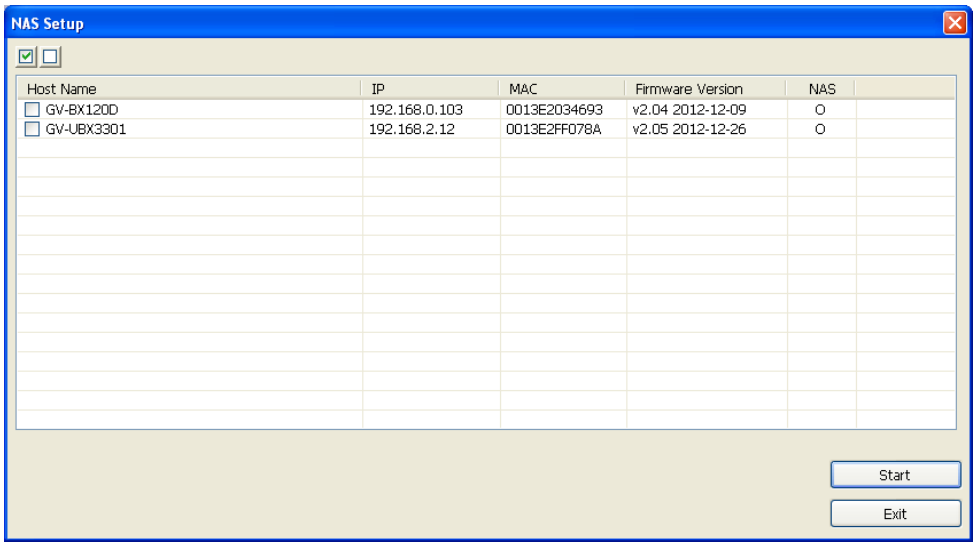


Figure 9-22

2. Select cameras for NAS management and click **Start**. This window appears.
3. Click the **Search all available network hosts** button to detect the NAS installed under the LAN. The detected network hosts are listed.

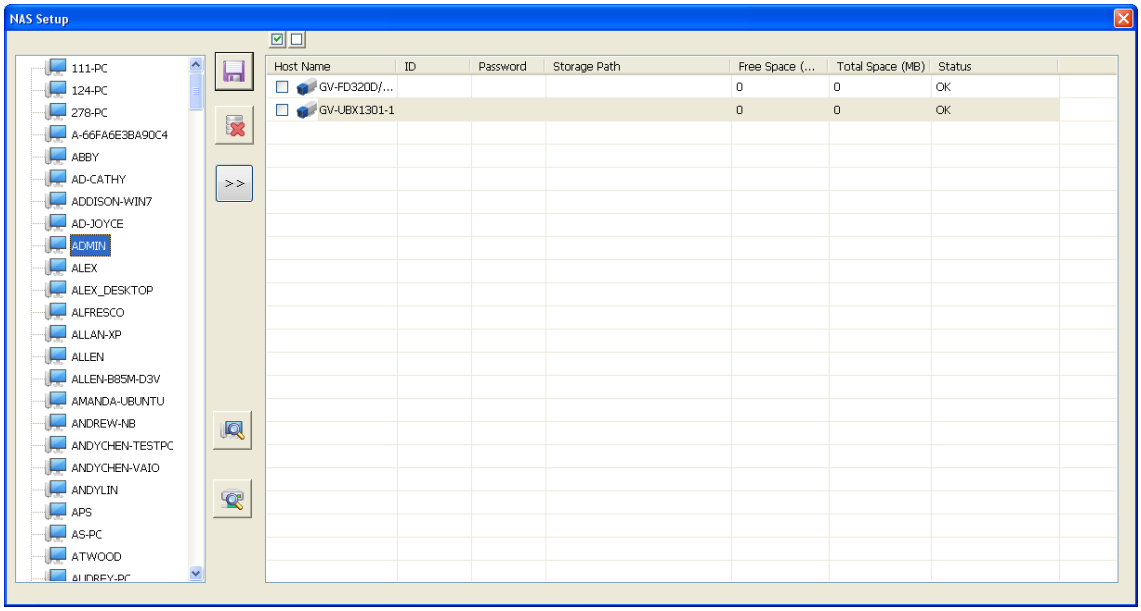


Figure 9-23

4. Select a NAS from the list and click the **Search the host's network storage** button to detect its shared folder(s).This dialog box appears.

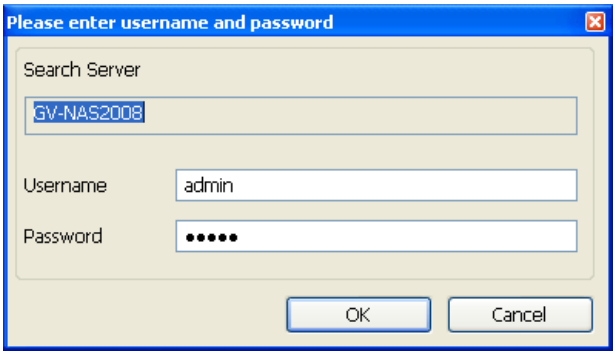


Figure 9-24

5. Type the administrator username and password of the NAS device that allows for highest level of access. The default username and password for a GV-NAS System are both **admin**. The server's folders are detected and shown.

6. Expand the server to show its folders.

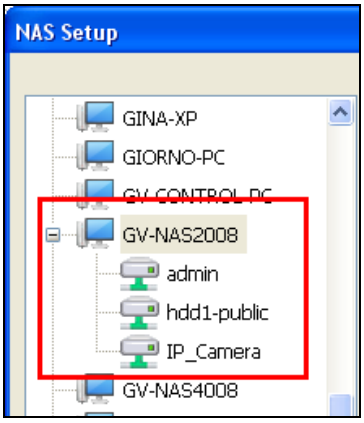


Figure 9-25

7. Assign storage paths for the cameras.

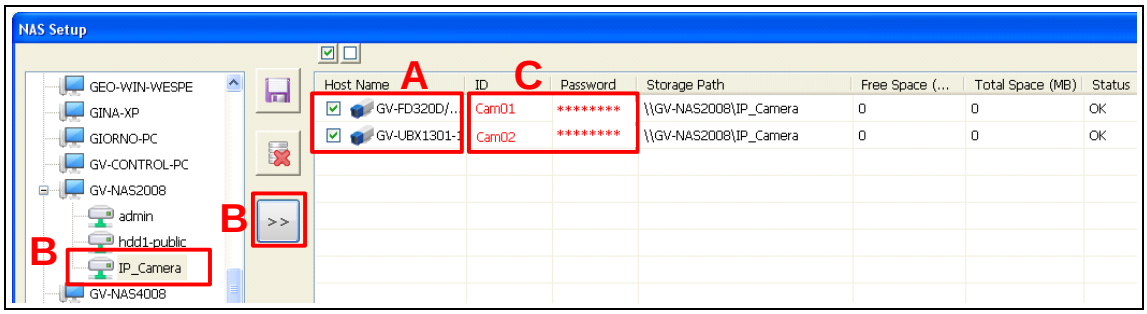


Figure 9-26

A. On the NAS Setup window, select at least one camera to assign the storage path.

B. Select a NAS folder from the list and click the **Select this storage path for the device** >> button to assign this storage path. The storage path appears in the Storage Path column immediately.

C. In the ID and Password column, type the ID and password of an established account of the NAS server. For example, for a GV-NAS System, type the default username **Cam01** and default password **12345678**.

8. Click the **Save** button to store the settings.

Note:

1. Instead of using the search function, you can also click the field under **Storage Path** to manually type the IP address and storage path of the NAS server.
2. Be sure that you assign each IP camera to record to a different user account in GV-NAS System to avoid disrupting the recycling process.
3. For GV-NAS2008 / 4008, the default user name is **Cam01** up to **Cam08** for each of the 8 user accounts; for GV-NAS2016 / 4016, the default user name is **Cam01** up to **Cam16** for each of the 16 user accounts. The default passwords are all **12345678**. For details, see *GV-NAS System Quick Start Guide* and *User's Manual*.

Changing the NAS Storage for Recording

In the NAS Setup window (Figure 9-26), select a camera, select a NAS folder, and click >>. The new storage path is immediately assigned. Alternatively type the storage path, ID and password of a NAS folder. Click **Save** to apply the settings.

Deleting the NAS Storage for Recording

1. In the NAS Setup window (Figure 9-26), select a camera and its storage path, and click the **Delete the selected storage path** button (Figure 9-26).
2. Click the **Save** button (Figure 9-26) to store the settings.

9.3.4 Viewing the Storage Information

You can view storage information such as the storage type, free space and the overall disk space of GV-IP Devices. Click the **Batch Update Wizard** button (No. 7, Figure 1-2) and select **Storage Information**.

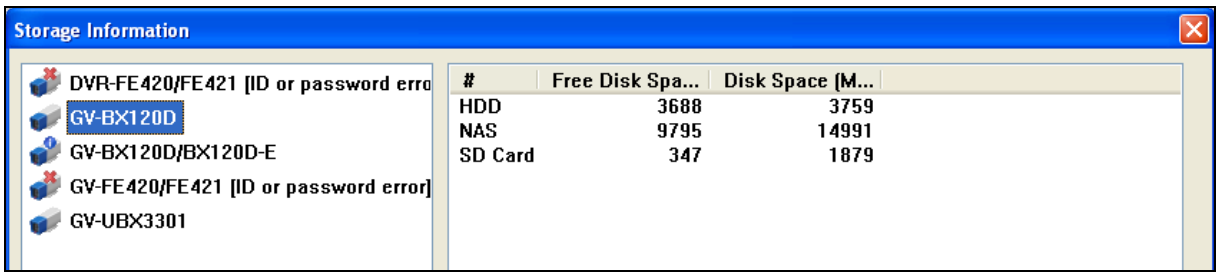


Figure 9-27

9.3.5 Updating Host Information

You can update the information (such as the port and the number of cameras, input and output modules installed) of multiple hosts.

Note: This function is supported for all host types.

1. On the Host List (Figure 1-3), right-click a List you want to update. For example, right-click the DVR List and select **Update DVR Information**.

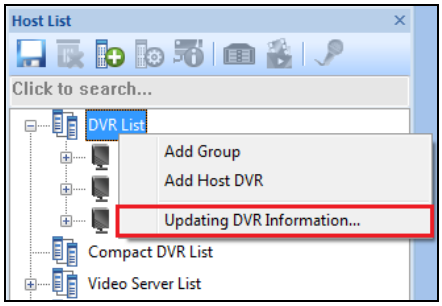


Figure 9-28

2. The Update Host Information window appears.

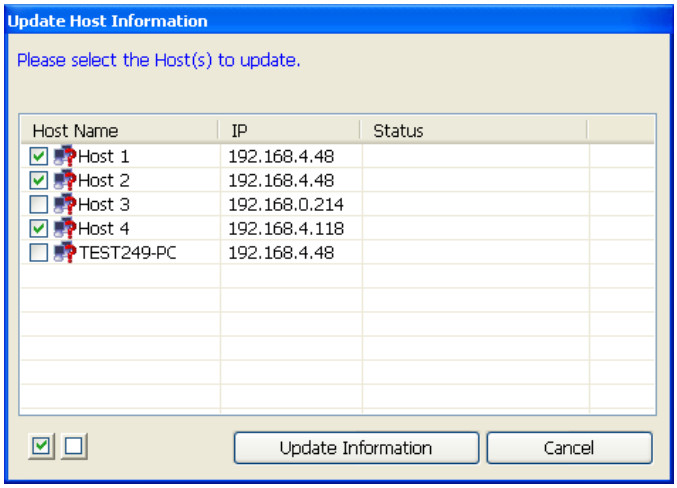


Figure 9-29

3. Select hosts and click the **Update Information** button to start updating.
4. You will be prompted when the update is completed. Click **OK** to finish.

9.4 Authentication Center

Authentication Center is an account and access rights management system that provides centralized control over multiple GV-Control Centers. When a GV-Control Center is logged in through an Authentication Center:

- The Authentication Center provides GV-Control Center the settings on user accounts (also their username and password), and only these accounts are legitimate for logging in the GV-Control Center
- The Authentication Center also provides GV-Control Center the Host List and Group List settings
- The GV-Control Center's account management, Host List and most of the Group List functions become non-configurable

9.4.1 Installing the Authentication Center

You can install the Authentication Center from Software DVD or GeoVision Website.

Installing from Software DVD

1. Insert Software DVD to the computer. It runs automatically and a window appears.
2. Click **Install GeoVision Free Utility** and click **Yes** to accept the License Agreement.
3. Select **GV-Authentication Center** and follow the on-screen instructions.

Downloading from GeoVision Website

1. Go to the Download page of GeoVision Website
2. Select **Utility** from the drop-down list and select **GV-Authentication Center** for download.

9.4.2 The Authentication Center Window

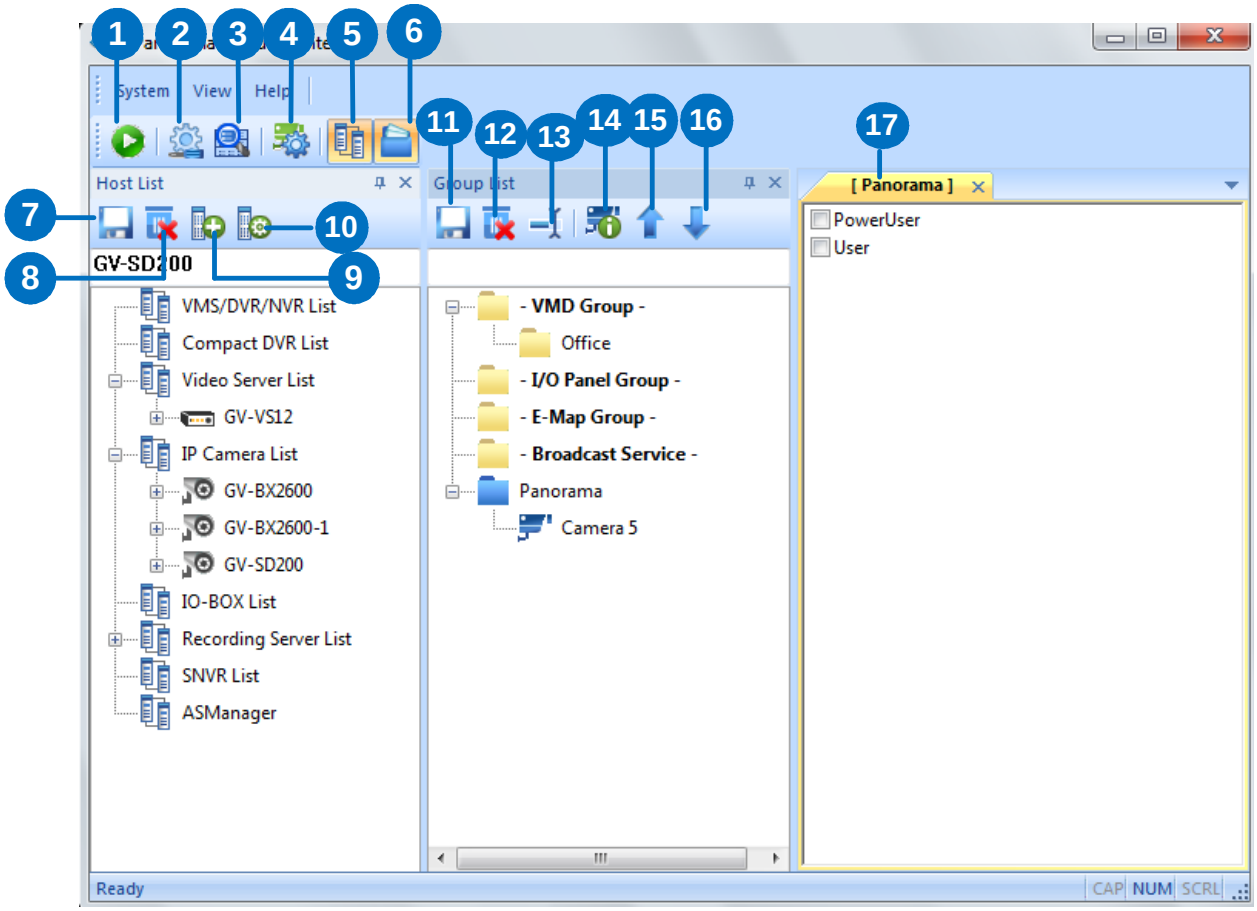


Figure 9-30

No.	Button	Description
1.	Activate	Activates the Authentication Center service, which will pass the access rights settings to the connected GV-Control Center.
2.	Configure	Configures the program startup, layout and network settings. For details, see *9.4.5 System Settings*.
3.	Search Host	Searches the GV-IP Devices under the same LAN with the Authentication Center.
4.	Batch Update Wizard	Configures IP address, device name, and NAS storage for multiple GV-IP Devices and displays storage space information.
5.	Host List	Displays or closes the Host List.

No.	Button	Description
6.	Group List	Displays or closes the Group List
7.	Save	Saves configurations made on the Host List.
8.	Delete	Deletes a selected host.
9.	Add Host	Adds a host.
10.	Host Settings	Displays host settings of the selected host.
11.	Save	Saves configurations made on the Group List.
12.	Delete	Deletes a selected group.
13.	Rename	Renames a selected group.
14.	Camera Information	Shows the device model, device name, IP address and the live view of a selected camera under the Group List
15.	Move Up	Moves the selected camera up on its group folder.
16.	Move Down	Moves the selected camera down on its group folder.
17.	Access Rights	Displays the access right of each user type by group.

9.4.3 Setting Up the Authentication Center

Follow the steps below to configure and activate the Authentication Center.

Note: If you have configured the Authentication Center with any GV-Control Center connected, restart and reconnect the GV-Control Center for the settings to take effect.

1. To launch the program, go to Windows **Start**, click **Programs**, select **AuthCenter**, click **AuthCenter** and type the username and password to log in. By default, the username is **admin**, and no password is required. The main window appears. For an overview of the main window, see *9.4.2 The Authentication Center Window*.
2. Configure the account and access rights.
   A. On the main window, click **System** and select **Account Setup**. This window appears. By default, an administrator account **admin** is created with no password. Optionally click **Change Password** to set up a password for the **admin** account.

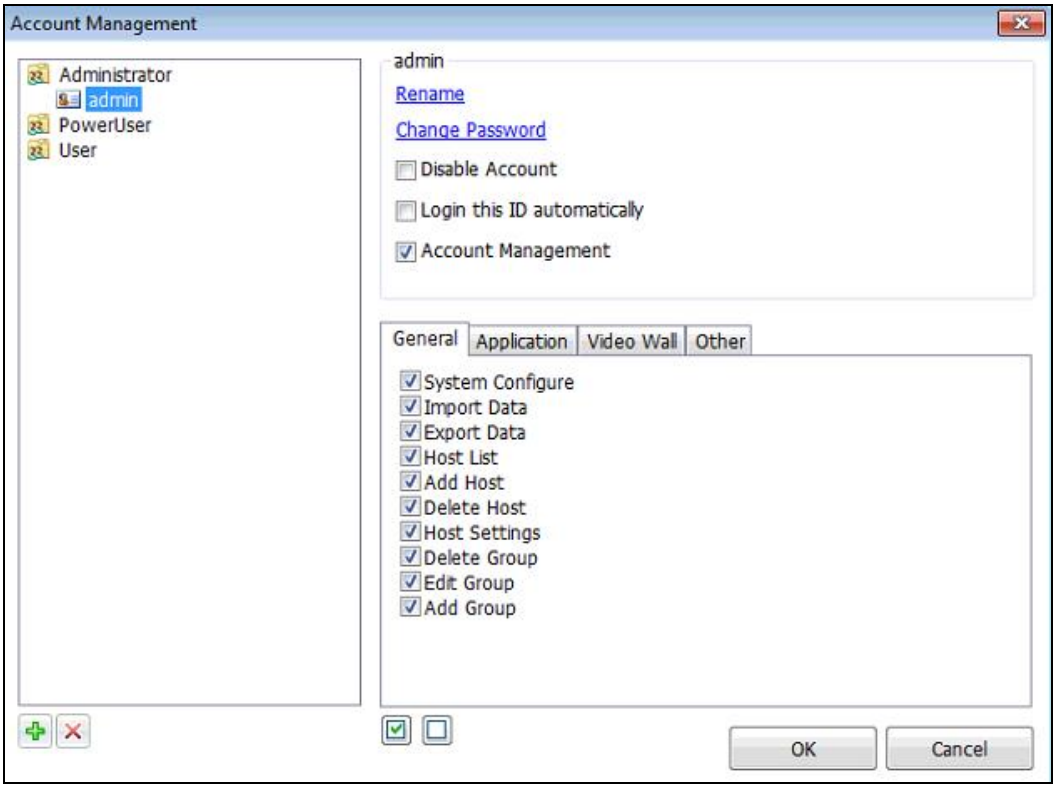


Figure 9-31

B. Click  to add accounts and configure the access rights using the **General**, **Application** and **Video Wall** tabs. For details, see *10.7 Account Management*. In this example, a user account **Security Room** is added with access to certain functions only.

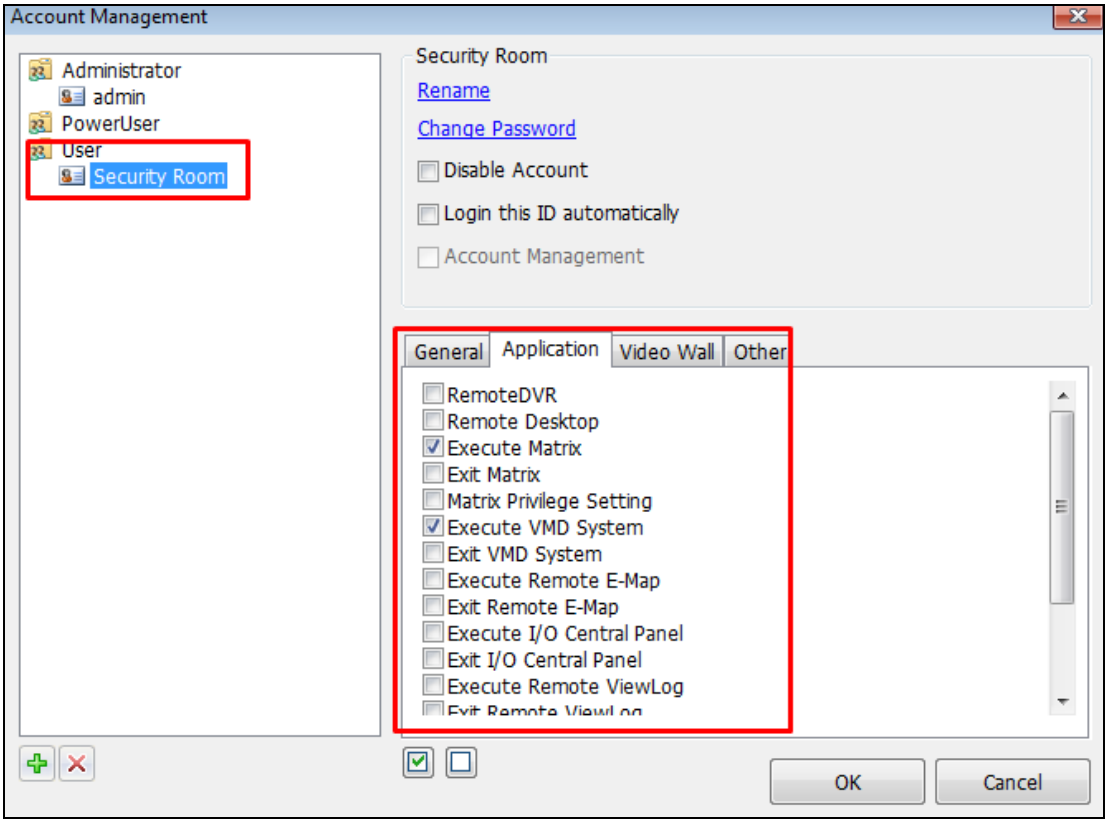


Figure 9-32

3. From Authentication Center's Host List, click the **Add Host**  button to add hosts. For details, see *2.2.1 Creating a Host*.

Tip: You can configure the IP address, device name, remote storage and view storage information of hosts using the **Batch Update Wizard**  button from Authentication Center's main window. For details, refer to *9.3 Batch Functions*.

---

4. Optionally group the hosts. You may create a group by its location or purpose, such as a VMD group, I/O Panel group, or an E-Map group. For each group, you can further allow or restrict its access from each account.

   A. Right-click a category (VMD, I/O Panel, E-Map, or Broadcast Service) and select **Add Group** or create an independent group by right-clicking the space and selecting **Add Group**.

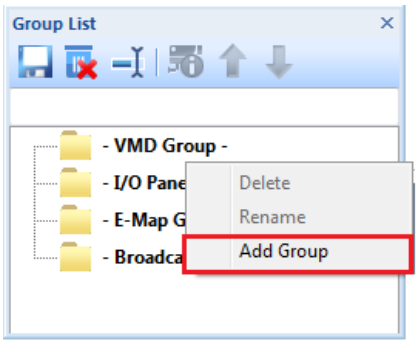


Figure 9-33

   B. Name the created group.

   C. Drag the desired cameras from the Host List to the group folder.

   D. Configure the access right for each group. Click each folder and grant access right to the group by selecting from the right tab. By default, access is not granted for any created account. For example:

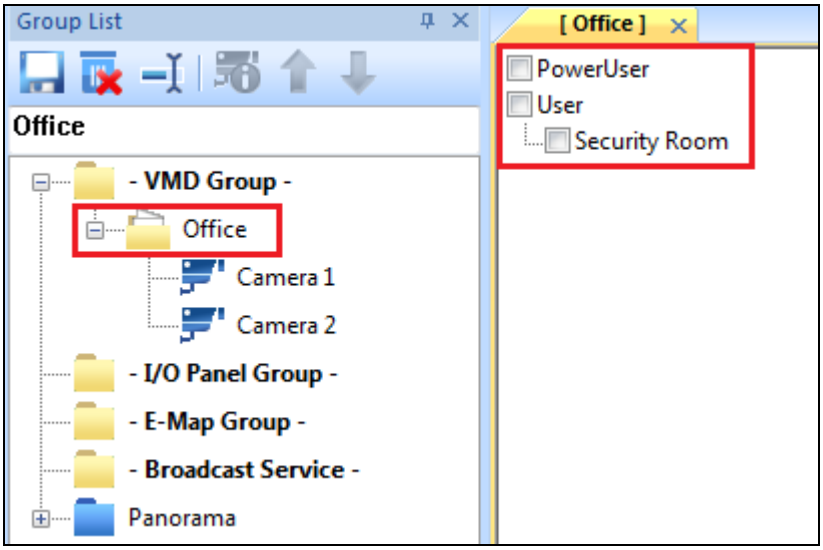


Figure 9-34

   E. Click the **Save** button.

5. On the main window, click to activate the Authentication Center.

9.4.4 Logging In the GV-Control Center

With Authentication Center activated, you may choose to log in GV-Control Center through Authentication Center, or retain the control at GV-Control Center by logging in locally.

1. Grant Authentication Center the right for managing GV-Control Center's accounts and access rights settings.
   A. On GV-Control Center's main window, select **System** and select **Configure**. The System Configure window appears.
   B. Click the **Auth Center** tab, select **Use Remote Authentication Account**, type the Authentication Center's IP address and only modify the port setting if necessary.

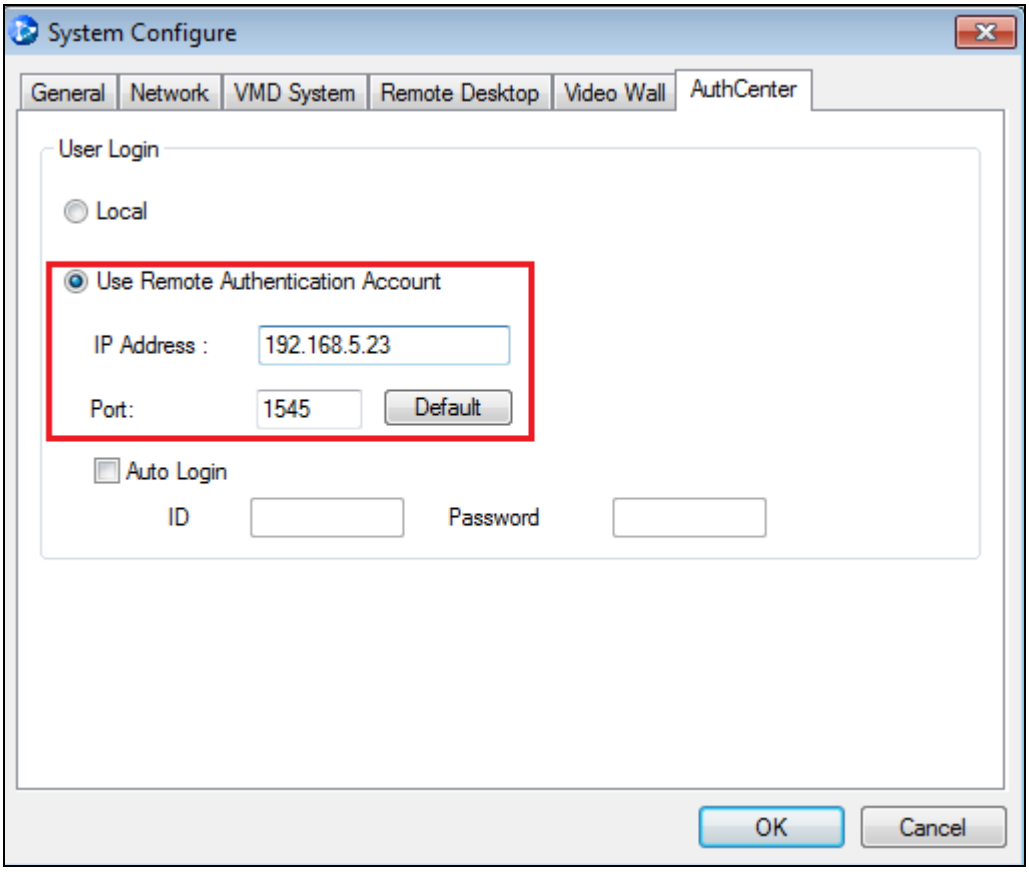


Figure 9-35

   C. To automatically log in using a specific account, select **Auto Login** and type the ID and password of an established account on Authentication Center.
   D. Click **OK**. Re-launch GV-Control Center for this setup to be effective.

2. To log in through the Authentication Center, make sure you have activated the Authentication Center (see Step 5 in *9.4.3 Setting Up the Authentication Center*) and follow the steps below.

   A. Launch the GV-Control Center. This dialog box appears.

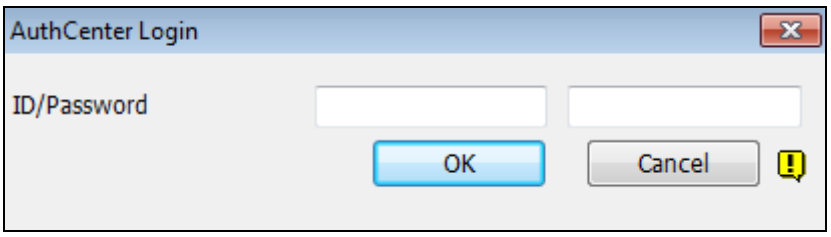


Figure 9-36

   B. Type the Authentication Center's ID and password of an established account at the Authentication Center (see Step 2 in *9.4.3 Setting Up the Authentication Center*).

   C. Click **OK**. GV-Control Center is logged in immediately.

Note: To log in locally to GV-Control Center at this step, select **Cancel** (Figure 9-36). From the pop-up dialog box as below, select **Local** and then follow Step 2 to log in locally. Clicking **AuthCenter** will bring you back to AuthCenter Login dialog box (Figure 9-36).

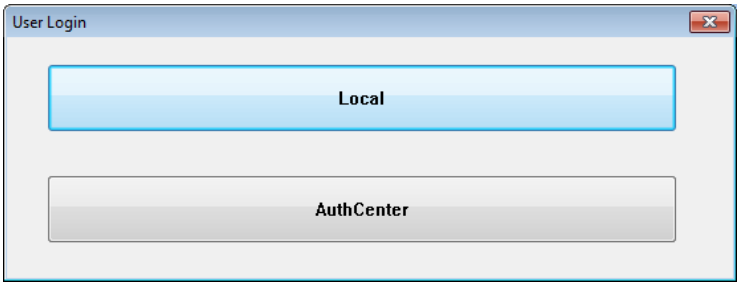


Figure 9-37

9.4.5 System Settings

General Settings

To access this dialog box, click the **Configure** button  from the Authentication Center's main window and select the **General** tab.

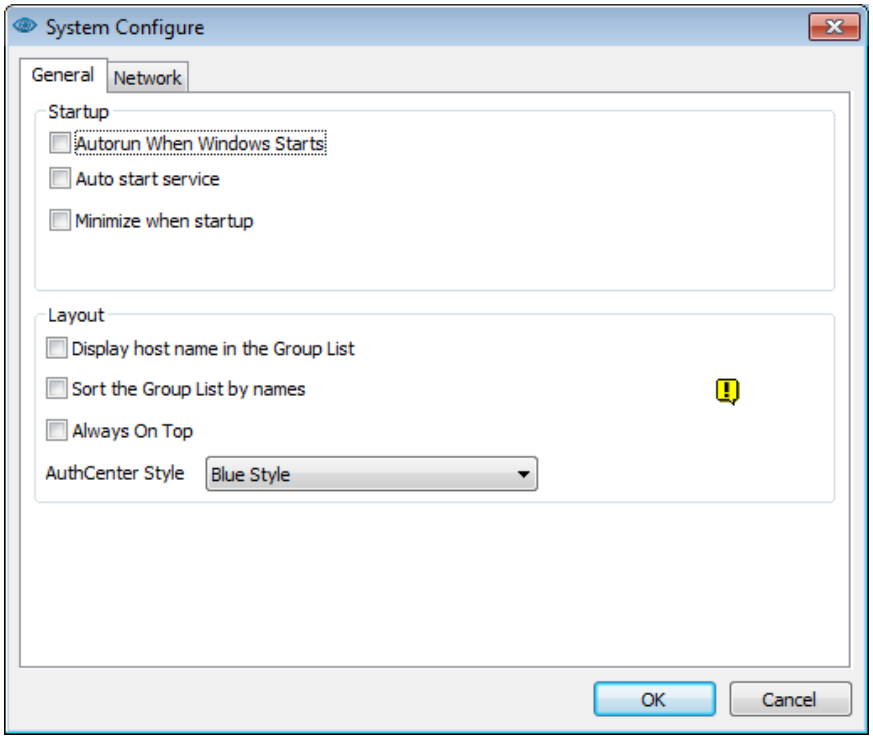


Figure 9-38

[Startup]

- **Autorun When Windows Starts:** Automatically runs the Authentication Center at Windows startup.
- **Auto Start Service:** Automatically activates the Authentication Center service.
- **Minimize When Startup:** Minimizes the Authentication Center window after login.

[Layout]

- **Display Host Name in Group List:** Displays the host name of the added cameras on Group List.
- **Sort the Group List by Names:** Arranges folders in alphabetical order.
- **Always On Top:** Keeps the Authentication Center window on top of all windows.
- **AuthCenter Style:** Select a theme for Authentication Center window using the drop-down list.

Network Settings

To access this dialog box, click the **Configure** button  from the Authentication Center's main window and select the **Network** tab.

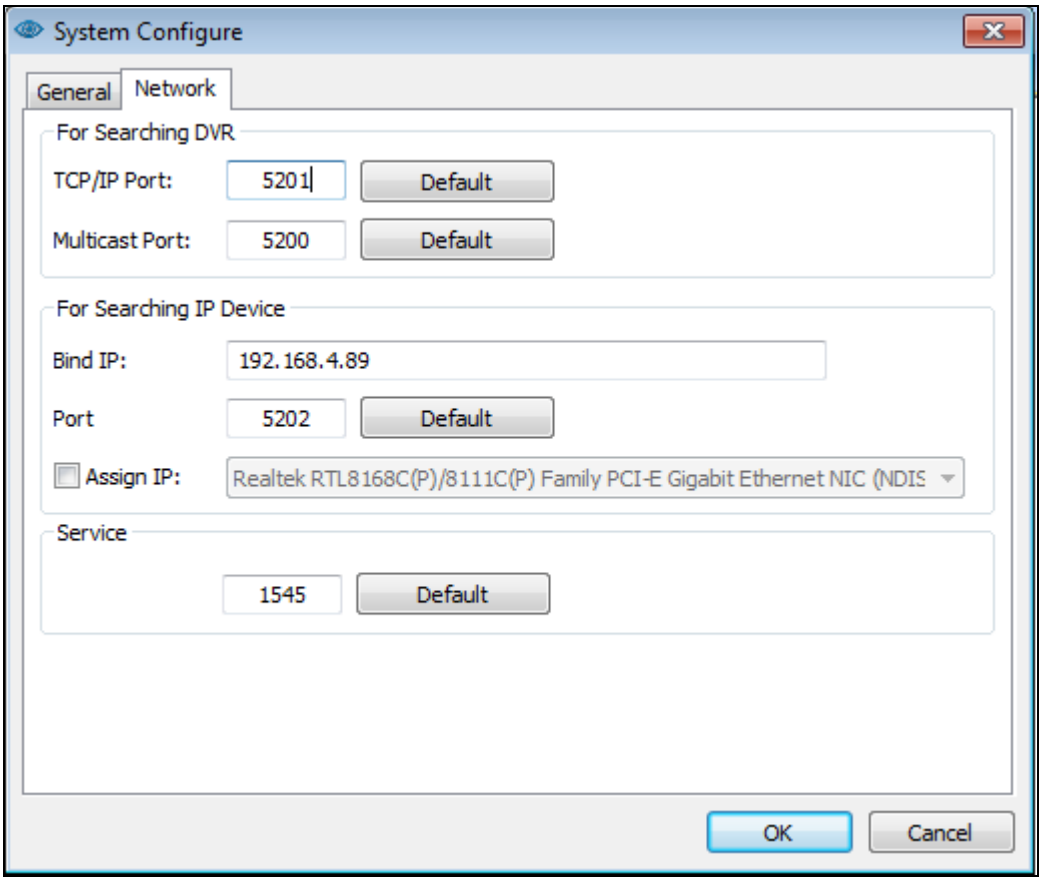


Figure 9-29

This dialog box displays the related ports for DVR and IP devices. To use the **Search Host** function (No. 3, Figure 9-30), it is required to open TCP port **5201** on the client DVR, TCP port **5202** on the GV-IP Devices, and UDP port **5200** on the Control Center. To connect GV-Control Center to Authentication Center, it is required to open port **1545**.

9.4.6 Backup Settings

Exporting Settings

1. From Authentication Center's main window, click **System** and select **Export Data**. This dialog box appears.

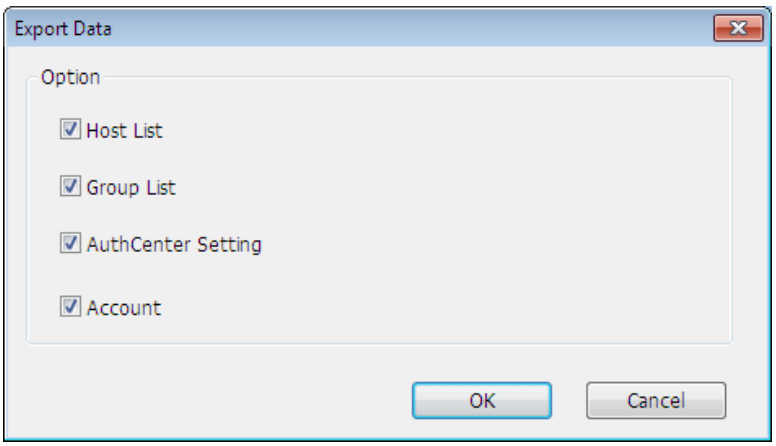


Figure 9-40

2. By default, all the options are enabled. Click an item to unselect, and click **OK**.
3. Type the hint (optional) and password, and click **OK**.

Importing Settings

You can restore the configurations or import the settings to another Authentication Center.

1. From Authentication Center's main window, click **System** and select **Import Data**. The Open dialog box appears.
2. Select a previously exported settings file and click **Open**. The password request dialog box appears.
3. Type the password you set up in Step 3 of *Exporting Settings* above, and follow the on-screen instruction to import the settings.
4. Once the settings are imported, you are prompted to log in the Authentication Center again.

9.5 Authentication Server

Authentication Server is a password and account management system that allows GV-Control Center to quickly manage hosts from multiple GV-VMS / DVR / NVR. On the Authentication Server, you will need to create a client for GV-Control Center, create a user account, and then assign a group of GV-VMS / DVR / NVR clients to the user account. For details, refer to the *Authentication Server* section in Chapter 9 of the *GV-VMS User's Manual*.

Follow the steps below to connect the GV-Control Center to the Authentication Server.

2. On the Host List window, right-click **Host List by ID** and select **Add Remote Authentication**.

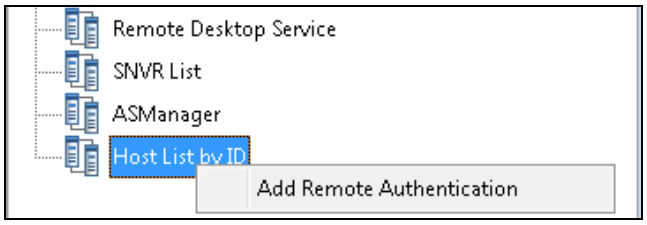


Figure 9-41

3. Type the IP address, Authorized ID and Authorized Password of the Authentication Server, as well as Control Center's client name created on the Authentication Server, and then click **OK** to connect to the Authentication Server.

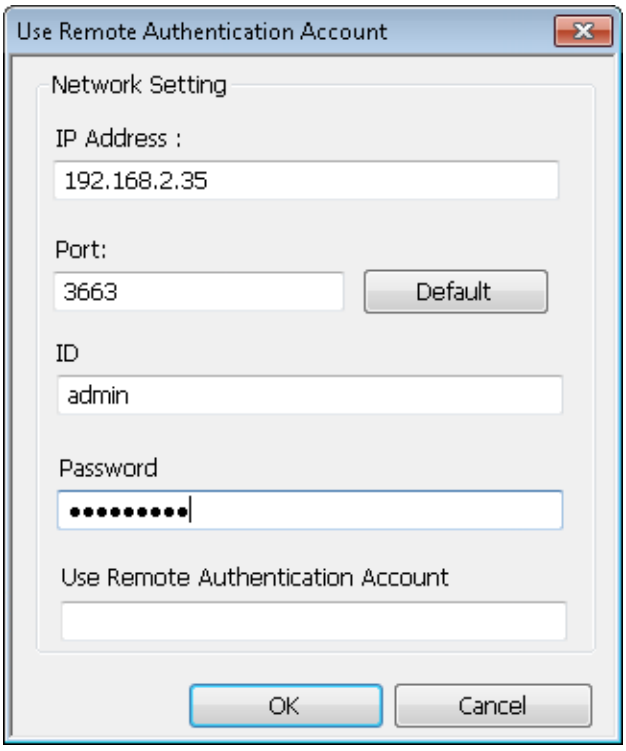


Figure 9-42

4. Right-click the Authentication Server under Host List by ID and select **Get Host List by ID**.
5. Type the ID and password of the user account created on the Authentication Server, and click **OK**. A list of GV-VMS / DVR / NVR hosts assigned to the user will be displayed.

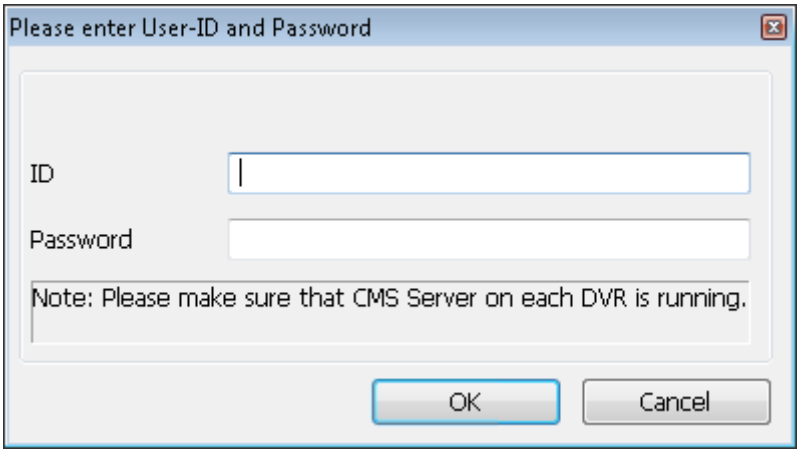


Figure 9-43

9.6 Multicast Setting

In a multicast environment, a GV-VMS can send a single stream to multiple Control Center servers on the LAN, thereby significantly reducing the VMS server's workload.

For this function to work, you must establish connection between the GV-VMS host and Control Center before configuring the relevant host settings of the GV-VMS host.

Note: The multicast function is only supported by GV-VMS V17.1 or later.

---

1. On the Control Center, right-click a GV-VMS host on the Host List to configure. This dialog box appears.

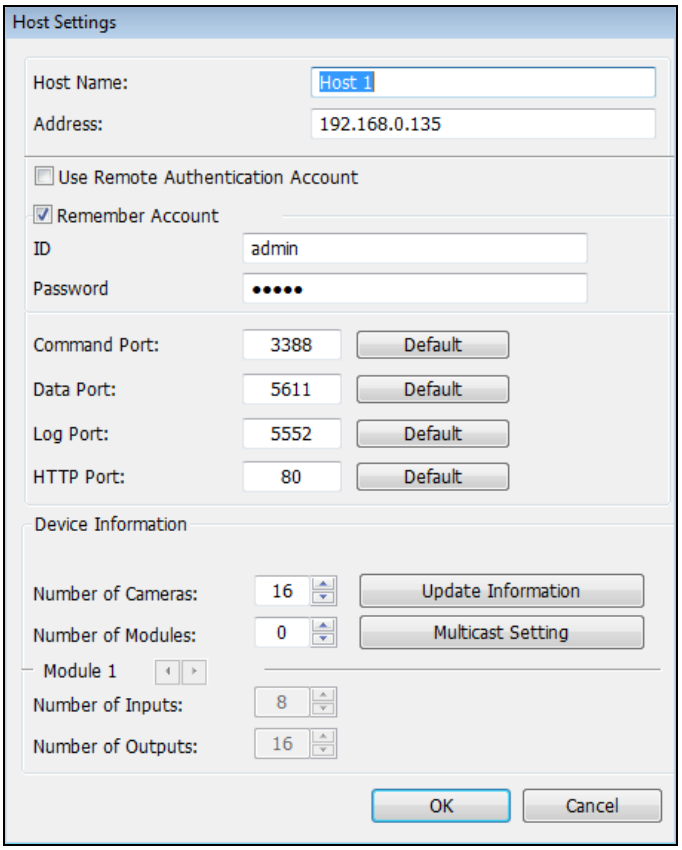


Figure 9-44

2. Click the **Multicast Setting** button to select IP cameras to be streamed to the GV-Control Center, and select **Stream 1** or **Stream 2** for live view display. Click **OK**.

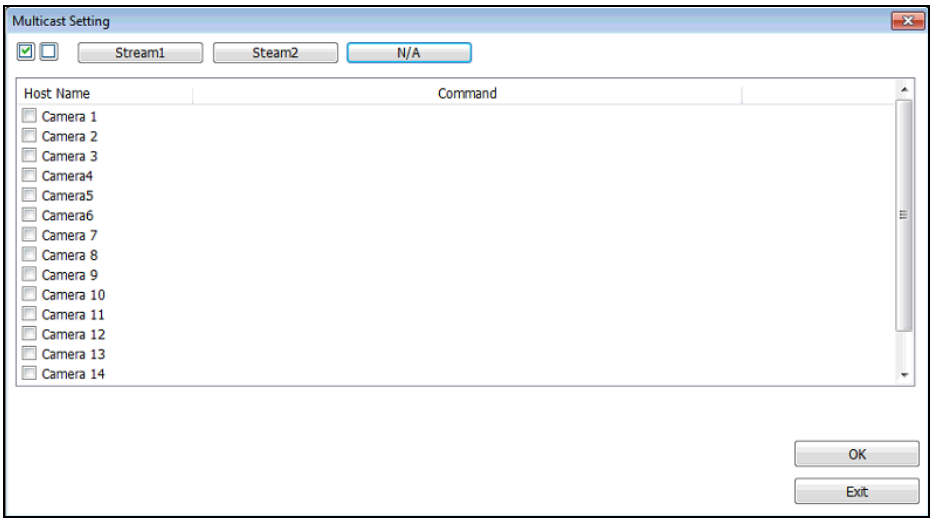


Figure 9-45

3. Click **OK** to finish.
4. Configure the GV-VMS host to other GV-Control Centers to enable multicasting, as described above.
5. On the main screen of the GV-VMS host, click **Home** , click **Toolbar** , select **Network** and select **Mobile Service** to access the following:

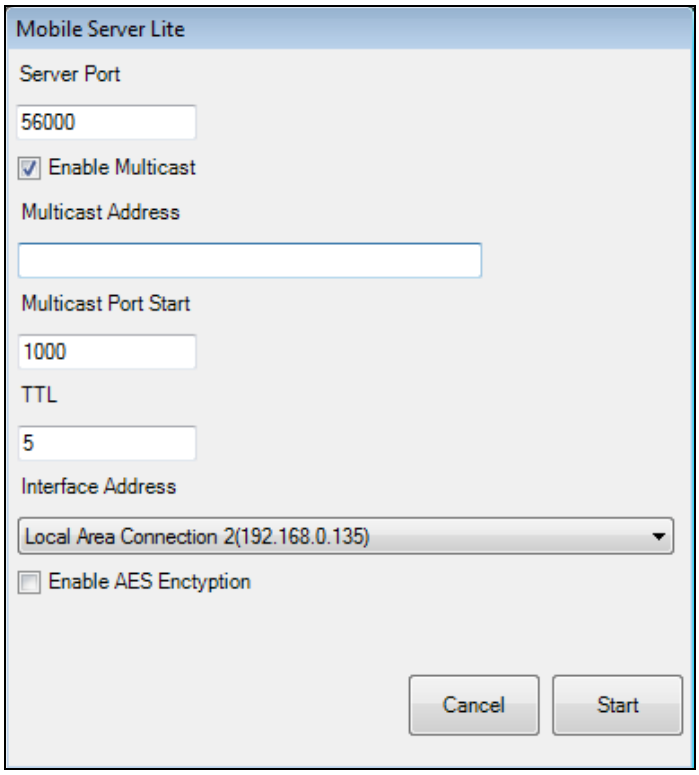


Figure 9-46

- **Server Port**: Change the default port 56000 if necessary.
- **Enable Multicast**: Enable the multicast function on the GV-VMS.
- **Multicast Address**: Define a multicast address in the range of 239.0.0.0 to 239.255.255.255.
- **Multicast Port Start**: Change the default port 1000 if necessary.
- **TTL**: Change the default TTL (time to live) value 5 if necessary.
- **Interface Address**: Select a network address.
- **Enable AES Encryption**: Enable AES encryption to secure data and video transmission.

6. Click **Start**. The GV-VMS is now multicasting the live streaming of selected IP cameras to multiple GV-Control Centers.

IMPORTANT:

1. The multicast settings can only support the live view display of GV-VMS to GV-Control Center. To have full Control Center services, activate **Control Center Service** (On the main menu of GV-VMS, click **Home** > **Toolbar** > **Network** > Control Center Server > Control Center Service).
2. The live view display will inherit the settings from the multicast environment if both the Control Center Server and the multicasting setting are enabled at the same time.

Chapter 10 System Configuration

This chapter details the following settings:

- General settings of GV-Control Center, including startup settings and layout (See *10.1 General Settings*)
- Port settings for searching client DVR and/or IP devices (See *10.2 Network Settings*)
- VMD display settings (See *10.3 VMD System Settings*)
- Connection speed for Remote Desktop (See *10.4 Remote Desktop Settings*)
- Video Wall captions (See *10.5 Video Wall Settings*)
- Login settings (See *10.6 Login Settings*)
- Types of accounts and access rights (See *10.6 Account Management*)
- Importing and exporting settings (See *10.7 Backing Up System Configurations*)

10.1 General Settings

To access this dialog box, click the **Configure** button (No. 1, Figure 1-2) and select the **General** tab.

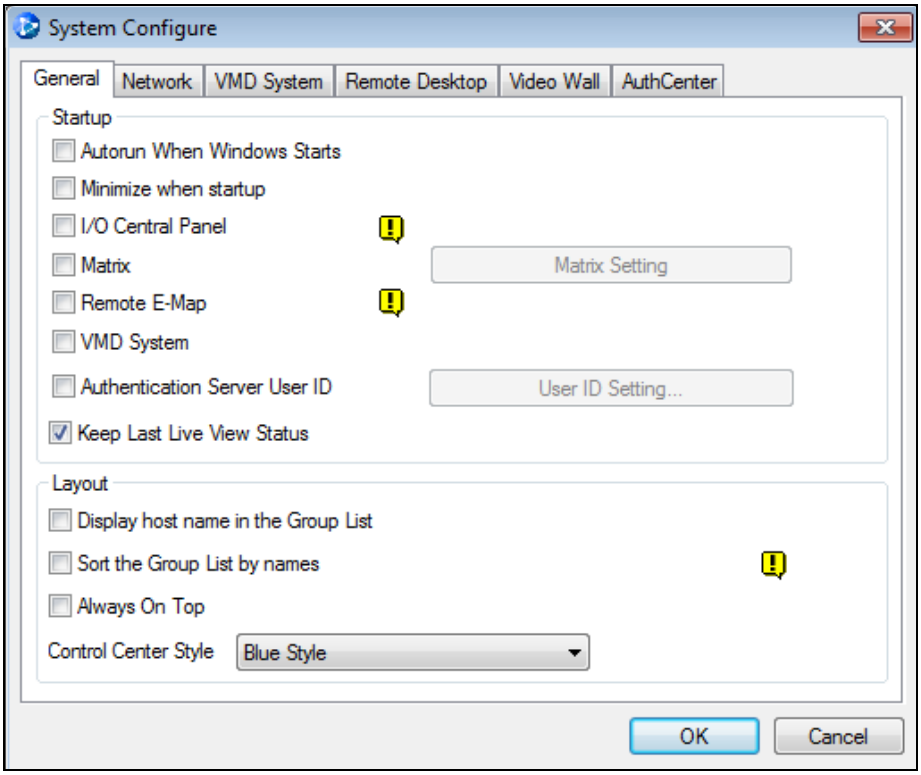


Figure 10-1

[Startup]

- **Autorun When Windows Starts:** Automatically runs the Control Center at Windows startup.
- **Minimize when startup:** Automatically minimizes the Control Center toolbar to the taskbar when the Control Center is started.
- **I/O Central Panel:** Automatically runs the I/O Central Panel at Windows startup.
- **Matrix:** Automatically displays up to **8** Matrix Views at Control Center startup. Click the **Matrix Setting** button to specify the display order.
- **Remote E-Map:** Automatically runs the Remote E-Map at Windows startup.
- **VMD System:** Automatically runs the VMD function at Windows startup.
- **Authentication Server ID:** Automatically connects to the Authentication Server. Click the **User ID Setting** button, and type the authorized ID and password of the Authentication Server. For the connection of multiple Authentication Servers, you can create the same user ID on these servers and then select **Use Current Login Account** to apply this only ID for login to all servers at a time.

[Layout]

- **Display host name in the Group List:** Displays the individual camera's host name on the Group List.
- **Sort the Group List by names:** Automatically arranges the created groups alphabetically. Note that when this function is enabled, the **Move up** and **Move down** buttons will not be available for re-arranging the order of the groups.
- **Always On Top:** The Control Center window always stays on the top of other windows.
- **Control Center Style:** Sets the color theme for Control Center user interface.

10.2 Network Settings

To access this dialog box, click the **Configure** button (No. 1, Figure 1-2) and select the **Network** tab.

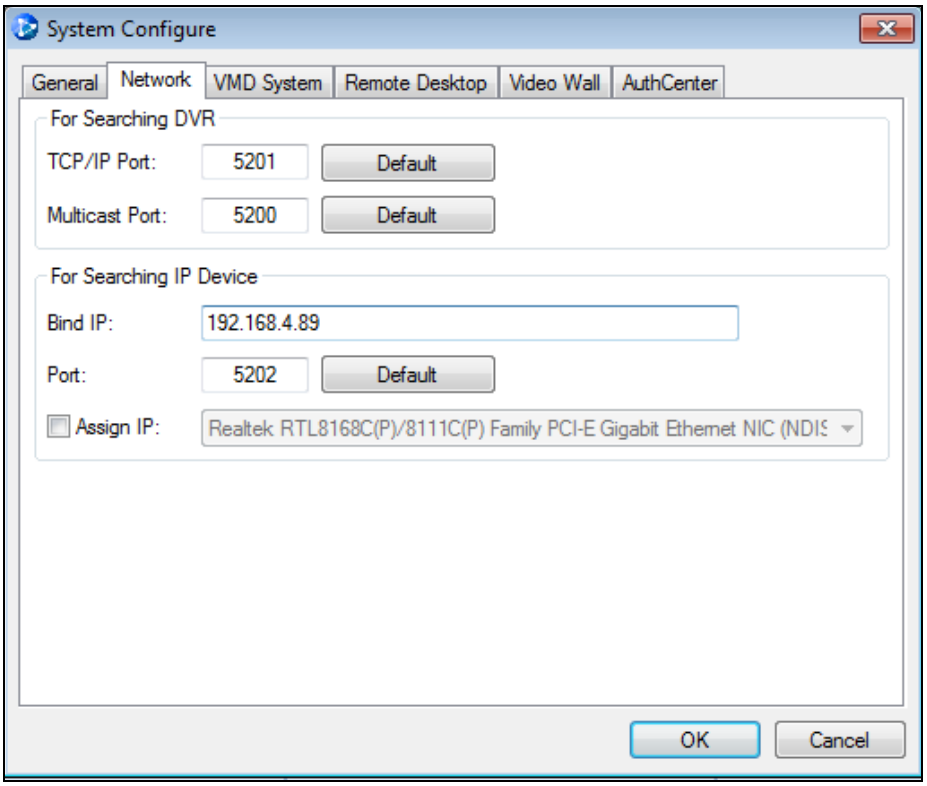


Figure 10-2

This dialog box displays the related ports for DVR and IP devices. To use the **Search Host** function (No. 3, Figure 1-2), it is required to open TCP port 5201 on the client DVR, TCP port 5202 on the GV-IP Devices, and UDP port 5200 on the Control Center.

10.3 VMD System Settings

To access this dialog box, click the **Configure** button (No. 1, Figure 1-2) and select the **VMD System** tab.

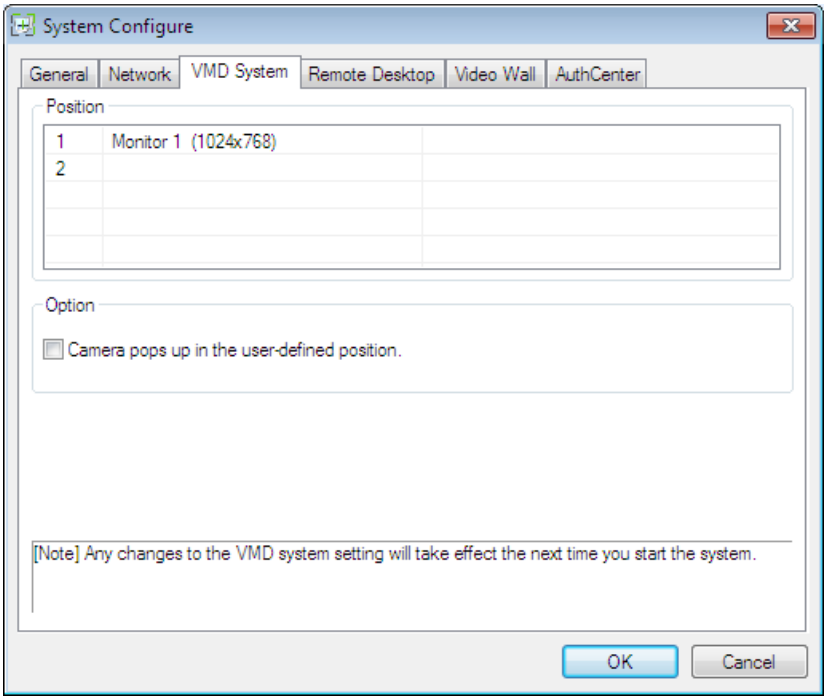


Figure 10-3

[Position] Sets up to two monitors to display the VMD windows.

[Option] When the **Camera pops up in the user-defined position** option is enabled, the position of pop-up camera on the VMD window is based on the camera sequence in the VMD Group, e.g. if camera1 is listed as the third camera in the VMD Group, camera1 will pop up on the third square on the VMD window (the order of pop-up cameras is from left to right). When this option is disabled, the poison of pop-up camera is based on the order of motions detected.

10.4 Remote Desktop Settings

To access this dialog box, click the **Configure** button (No. 1, Figure 1-2) and select the **Remote Desktop** tab.

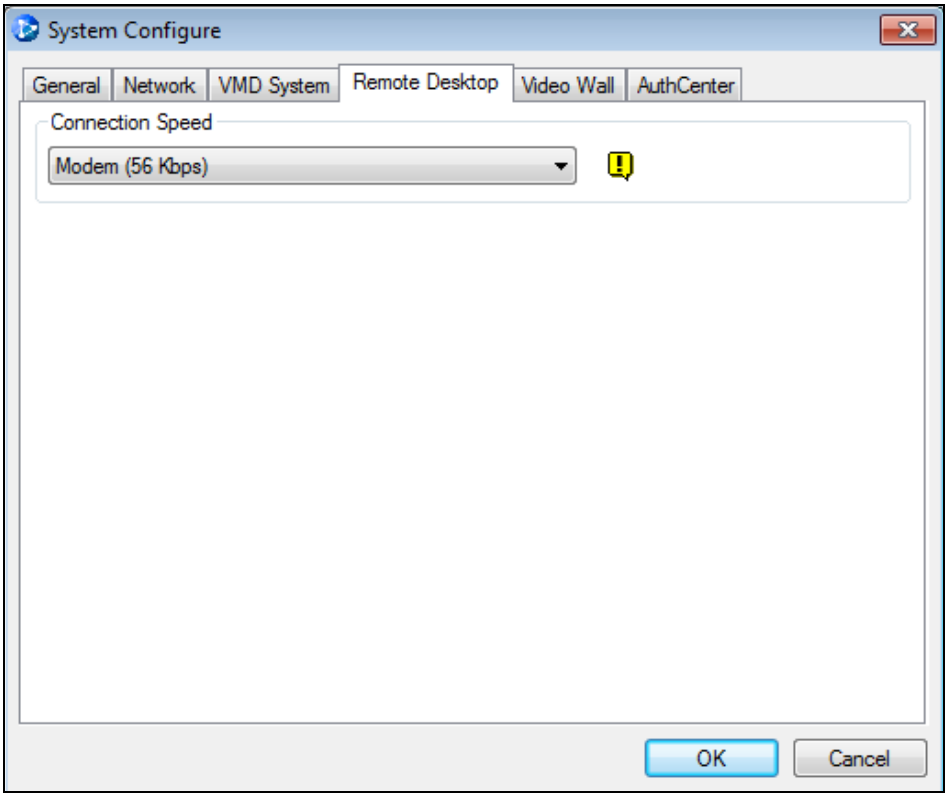


Figure 10-4

[Connection Speed]

Select the Internet connection speed to suit you needs: **Modem (56 Kbps)**, **Broadband (128 Kbps – 1.5 Mbps)** or **LAN (10 Mbps or higher)**.

10.5 Video Wall Settings

To access this dialog box, click the **Configure** button (No. 1, Figure 1-2) and select the **Video Wall** tab.

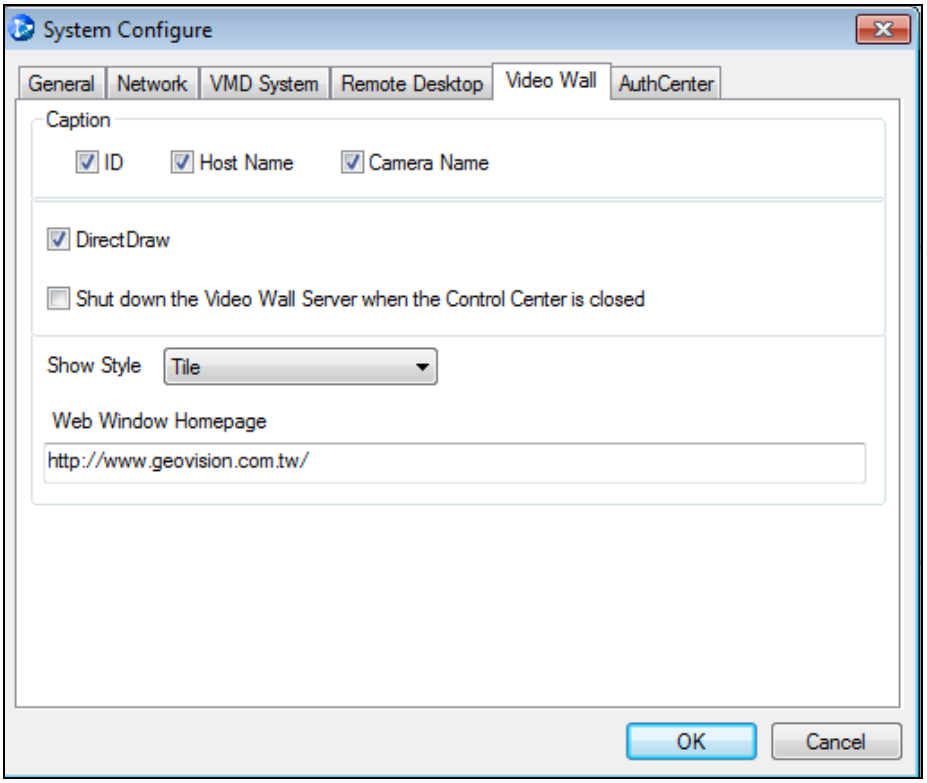


Figure 10-5

[Caption]

- **ID:** Shows the ordinal number of the channel being added to the layout.
- **Host Name:** Shows the host name of the channel.
- **Camera Name:** Shows the camera number or camera name.

[Others]

- **DirectDraw:** Enhances video performance of live view images. This function is enabled by default.
- **Shut down the Video Wall Server when the Control Center is closed:** Automatically disables Video Wall service when Control Center is closed.
- **Show Style:** Changes the icon display mode in Channel List (Figure 8-25).
- **Web Window Homepage:** Sets the homepage for Web Window on Video Wall. For details on Web Window, see *8.3.7 Displaying Remote Monitor, Web Page and Playing Back Videos*.

10.6 Authentication Center Settings

You can have all the user accounts and their access rights centrally managed by Authentication Center. For more details on Authentication Center, see *9.4 Authentication Center*.

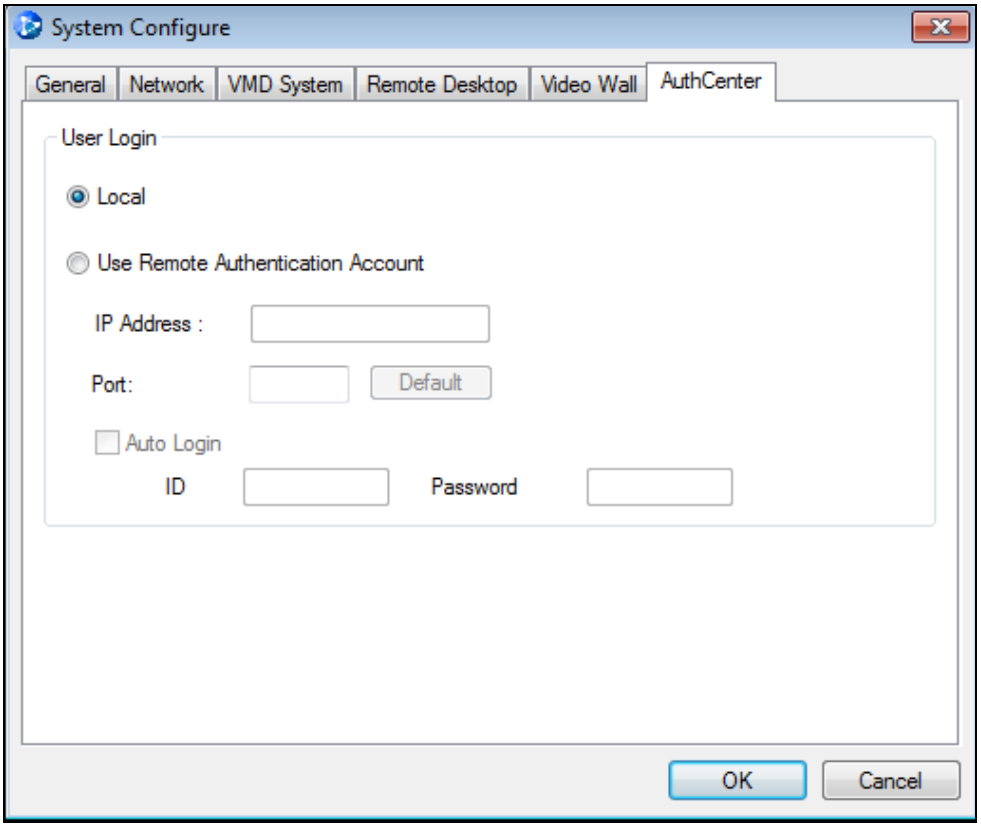


Figure 10-6

[User Login]

- **Local:** Logs in without connecting to an Authentication Center, and the GV-Control Center has full control over its accounts and their access rights.
- **User Remote Authentication Account:** Logs in using an account already created on the specified Authentication Center, to which the GV-Control Center submits to the access rights settings.
  - **IP Address:** Type the IP address of the Authentication Center.
  - **Port:** Type the port setting of the Authentication Center. The default is **1545**.
  - **Auto Login:** Select this option to automatically log in the Authentication Center using the specified ID and password as soon as Authentication Center is connected.

10.7 Account Management

You can establish multiple accounts of different access rights. There are three types of accounts available for setup – **Administrator**, **Power User** and **User**, each with different access rights by default (see the table below). However, you can also customize the access rights to suit your needs.

Functions / Account Type	General	Application	Video Wall	Live View
	System settings, settings backup, host and group settings	Configuring, executing and exiting all the applications in Control Center	Adding, configuring and deleting hosts and layout for Video Wall.	Live View
Administrator	Full access	Full access	Full access	Full access
Power User	Partial access	Partial access	Partial access	Full access
User	Access to Host List only	Execution of Matrix and VMD only	No access	No access

By default, the GV-Control Center contains an Administrator account with the Login ID **admin** and no password.

Establishing an Account

To add an account, follow the steps below.

1. On the main window, click **System** and select **Account Setup**. The Account Management dialog box appears.
2. Click the **Add new account** button at the left bottom and select **Add Administrator**, **Add Power User** or **Add User** to create an account.

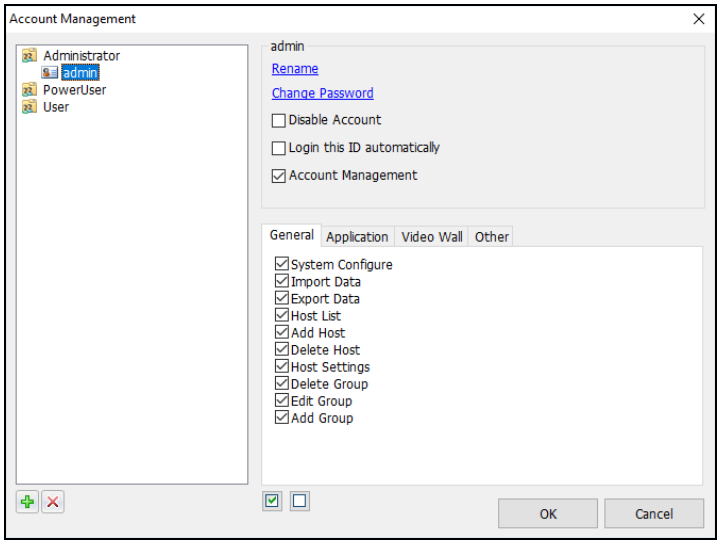


Figure 10-7

3. You can configure the following settings for the created account.
   - **Rename:** Click to rename the selected account.
   - **Change Password:** Click to set up or change the password.
   - **Disable Account:** Click to disable the account.
   - **Login this ID automatically:** Log in the account without password verification when the GV-Control Center is activated.
   - **Account Management:** Select to allow the account to access the Account Management dialog box (Figure 10-8) and hence the configuration of the access rights of all the accounts. This option is only available for an Administrator account.
   - Select or unselect the listed features and functions on the **General**, **Application**, **Video Wall** and **Live View** tabs to allow or prohibit the account's access.

Duplicating the Current Configuration Settings

After the access rights have been granted, the Administrator can duplicate the current configuration settings, from the live view layout, Matrix Privilege Setting (Figure 8-5), System Configure settings (Figure 10-1) and Application Position (Figure 8-1), to Power User and User accounts.

1. On the main window, click **System** and select **Save Configure to Other**. This window appears.

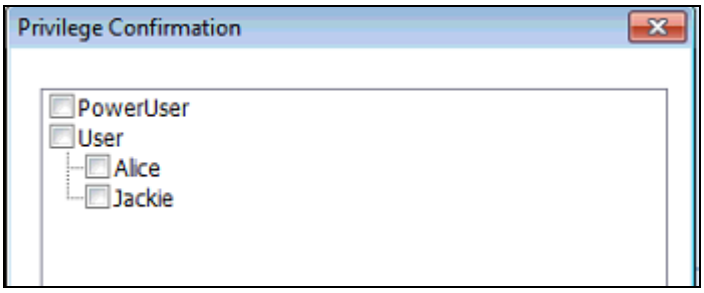


Figure 10-8

2. Select the account(s) you like to have the current configuration settings applied.

10.8 Backing Up System Configurations

You can export and back up GV-Control Center's preference settings and account data such as usernames and passwords. The preference settings include configurations in Host List, Group List, Control Center settings (in System Configure, Figure 10-1), Live View, Virtual PTZ, GV-Keyboard, E-Map and Video Wall.

Exporting System Configurations

1. On the GV-Control Center's main window, select **System** and select **Export Data**. This dialog box appears.

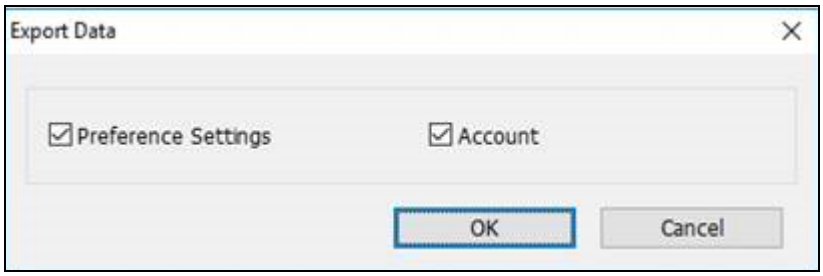


Figure 10-9

2. By default, all the options are enabled. Click an item to unselect.
3. Click **OK**. The login dialog box appears.
4. Set up the hint (optional) and password to restore system configurations, and click **OK**. The Save As dialog box appears.
5. Type the file name and click **Save** to start exporting.

Importing System Configurations

You can restore the configurations or import the settings to another Control Center.

1. On the GV-Control Center's main window, select **System** and select **Import Data**. The Open dialog box appears.
2. Browse a previously exported file and click **Open**. The password request dialog box appears.
3. Type the password set to restore system configurations.
4. Click **OK**. The Import Data dialog box appears.
5. Click to unselect the configurations for import and click **OK**. The Control Center logs out automatically and starts importing the selected settings. You will be requested to log in when the import is complete.

Appendix A. GV-USB Dongle Upgrade

Note the following requirements and limitations for the Control Center:

Dongle Requirements

- An appropriate USB dongle of “Black” color is required.
- It is required to install drivers from the Software DVD for the GV-USB Dongle to work.
- Installing the latest GV-USB Dongle driver (V1.2.1.0) will limit the total number of upgrade and downgrade of the dongle to **9 times**.
- The GV-USB Dongle can be upgraded to include more functions.
- Using more than one GV-USB Dongle of different applications on the same computer is possible. However, **Control Center** and **Center V2** cannot be run together.
- Two GV-USB dongles with Control Center application is not possible on a single computer.

Upgrading the Black Dongle

The Black Dongle can be upgraded to include more functions or enhance the system. You need to collect the data from your dongle and send it back to GeoVision for an upgrade. The upgrade is a charged service. To upgrade your dongle, follow these steps:

1. Each dongle has its own serial number. Find it on the side of the dongle. Later this serial number will be used in naming the files for upgrading.

Figure A-1

2. Insert the dongle to the computer.

3. In the GV folder, double-click **GVUsbKeyUpClient.exe**. This dialog box appears.

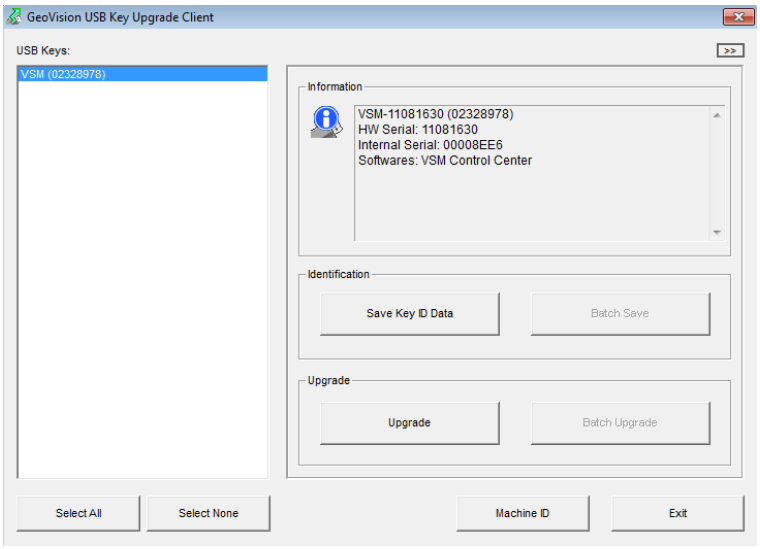


Figure A-2

4. To retrieve the data from the dongle, click **Select All**. The information of the dongle is displayed in the information field. Note the displayed number of “HW Serial” should be the same as that on the dongle.

5. To save the data to your local computer, click **Save Key ID Data**. If you have more than one dongle to upgrade, click **Batch Save**. Different dongle data will be saved as separate files. The file will be named after the serial number on the dongle and saved as ***.out**. For example, if a dongle serial number is 7116442, the file is named “NVR-7116442.out”.

6. Send this data file to GeoVision at sales@geovision.com.tw. The GeoVision will examine the data file and send an ***.in** file back to you. The file name also includes the serial number of that dongle. In this example, the data file you will receive is named “NVR-7116442.in”.

7. After you receive the updated file, insert the correct dongle matching the .in file you receive, and then run **GVUsbKeyUpClient.exe**.

8. Click **Select All** to read the dongle, click **Upgrade** and then open the updated file to upgrade the dongle. You can also select more than one dongle in the list and click **Batch Upgrade** to upgrade them at the same time. Make sure these dongles match the updated files you receive.

Appendix B. PTZ Control Using GV-Joystick and/or GV-Keyboard

You need to run the following program in the background when using the GV-Joystick and/or GV-Keyboard to control PTZ. For details on the GV-Joystick operations, see *GV-Joystick User's Manual*. For details on the GV-Keyboard operations, see *GV-Keyboard User's Manual*.

Control Center

You can control the PTZ cameras using up to **8** GV-Joysticks and/or GV-Keyboards in Live View and Matrix.

1. On the main screen, click **System** and select **GvKeyboard/Joystick Control**. The Keyboard & Joystick dialog box appears.

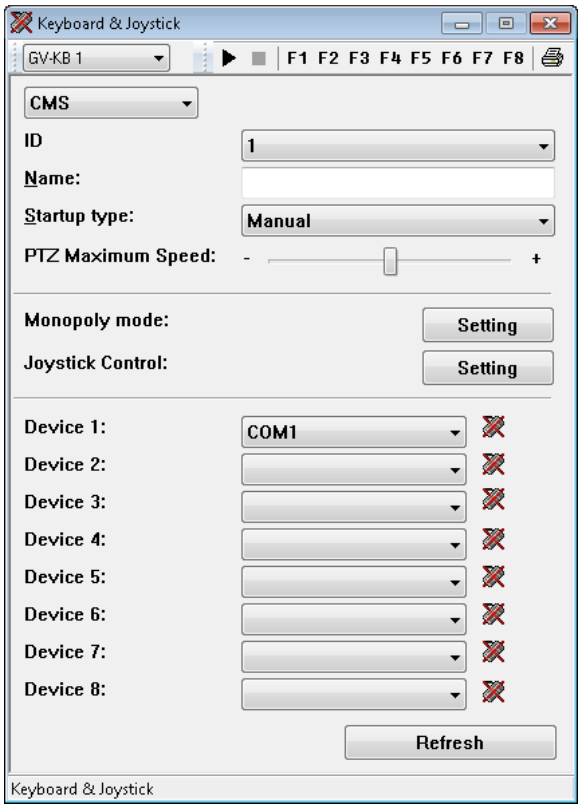


Figure B

2. In the Device field,
   - For GV-Joystick V1 and GV-Keyboard V3, select the **COM** port connected to the device.
   - For GV-Joystick V2, select **GeoVision Joystick** connected to the GV-Joystick V2.

3. Click the **Start Service** button ► and then you can use the GV-Joystick or GV-Keyboard to control the PTZ camera.
4. If more than one GV-Joystick or GV-Keyboard is connected, repeat Step 2 to set up and use another GV-Joystick or GV-Keyboard.

Appendix C. RTSP Streaming

GV-Control Center supports IP video devices using RTSP standard. To connect the IP device compatible with RTSP standard:

1. Select **Protocol** from the Brand drop-down list.

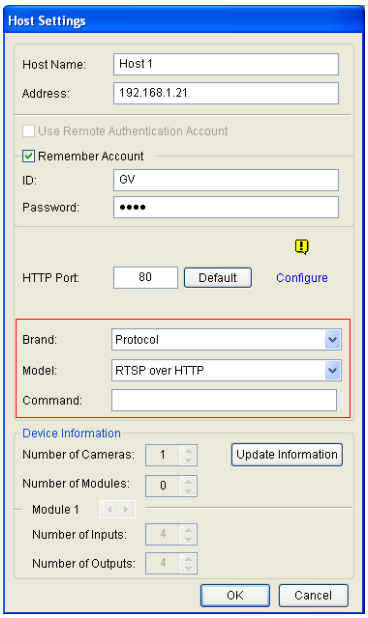


Figure C-1

2. Select one of the following options from the Model drop-down list.
   - **GV_HTTP_SDK_RTSP:** This option is for GeoVision SDK users. The RTSP protocol uses a HTTP port for video streaming from the IP camera.
   - **RTSP over HTTP:** The RTSP protocol uses a HTTP port for video streaming from the IP camera.
   - **RTSP over TCP:** The RTSP protocol uses a TCP port for video streaming from the IP camera.
   - **RTSP over UDP:** The RTSP protocol uses an UDP port for video streaming from the IP camera.

3. On the Command box, type the RTSP link address. For the RTSP command, please consult the documentation of your IP camera. For example:

   For an AXIS IP camera, type

   RTSP://<IP of the IP camera>/<codec>/media.amp

   For a HIKVISION IP camera, type

   RTSP://username:password@<IP of the IP Camera>

Appendix D. Specifications

Control Center

Feature	Amount	Note
GV-VMS/DVR/NVR Host	Unlimited*	
IP Camera Host		
GV-Video Server Host		
GV-Compact DVR Host		
GV-Recording Server/Video Gateway Host		
GV-SNVR System Host		
GV-ASManager		
I/O Host (Only for GV-IP Devices)	Unlimited*	One host supports up to 9 sets of 16-in and 16-out I/O modules.
Remote DVR	Unlimited*	
Remote DVR Desktop	Unlimited*	
Remote ViewLog	8	
Video Wall (optional)	1 to 200 license	
Remote E-Map Host/Map	500 hosts / unlimited	
Live View	Single view: 1 window Multiple views: 36 divisions each Window	
Matrix View / Group / Channel	8 views / unlimited / 768 CH in total	For 1920 x 1200, 1920 x 1080 resolution.
VMD Group / Channel (Only for GV-IP Devices)	1 group / 1200 CH	DVR: 1000 CH GV-Video Server + GV-Compact DVR + GV-IP Camera: 200 CH
Panorama View / Channel	4 views / 64 CH per view	
Matrix	1024 x 768: 64 CH	Total: 512 CH on 8 Matrixes
	1280 x 1024: 64 CH	Total: 512 CH on 8 Matrixes
	1680 x 1050: 80 CH	Total: 640 CH on 8 Matrixes
	1600 x 1200: 64 CH	Total: 512 CH on 8 Matrixes
	1920 x 1200: 96 CH	Total: 768 CH on 8 Matrixes
	1920 x 1080: 96 CH	Total: 768 CH on 8 Matrixes
	1280 x 800: 48 CH	Total: 384 CH on 8 Matrixes
	1440 x 900: 48 CH	Total: 384 CH on 8 Matrixes

Language	Arabic, Bulgarian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Indonesian, Italian, Japanese, Lithuanian, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Serbian, Simplified Chinese, Slovakian, Slovenian, Spanish, Sweden, Thai, Traditional Chinese, Turkish

Note: The maximum number of hosts allowed depends on the performance of Control Center server.

Video Wall Server

Feature	Amount
Max. No. of Monitors	Unlimited. *The maximum number of monitors allowed depends solely on the graphic cards installed to the Video Wall server.
Max. No. of Channels	288
Scan Window / Channels	16 / 64
Zoom Window	16
Web Window	16
Media Window	16
Remote ViewLog Window	16
VMD Window	16
Remote Monitor	288 *On each Video Wall you can display a customized view region of a remote monitor.
Live view from Remote E-Map	1
Language	Arabic, Bulgarian, Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hebrew, Hungarian, Indonesian, Italian, Japanese, Lithuanian, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Serbian, Simplified Chinese, Slovakian, Slovenian, Spanish, Sweden, Thai, Traditional Chinese, Turkish

Note: The total number of camera channels and Remote Monitors displayed on the Video Wall cannot exceed 288.

All specifications are subject to change without notice.