GeoVision inc.
The Vision of Security

GV-Hot Swap Surveillance System V5 (Rev.E)

User's Manual

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User's Manual for GV-Hot Swap Surveillance System V5 (Rev. E)

Welcome to the *GV-Hot Swap Surveillance System V5 (Rev. E) User's Manual*.

The Manual provides an overview of the 2U / 3U / 4U GV-Hot Swap Surveillance System V5 and its accessories. It also includes the instructions to guide you through the installation and use of the GV-Hot Swap Surveillance System V5:

Chapter 1 Introduction

Identifies the GV-Hot Swap Surveillance System V5 (Rev. E)'s accessories and options.

Chapter 2 Overview

Identifies the GV-Hot Swap Surveillance System V5 (Rev. E)'s components.

Chapter 3 Getting Started

Provides step-by-step instructions on setting up the GV-Hot Swap Surveillance System V5 (Rev. E).

Chapter 4 Troubleshooting

Suggests courses of action if the GV-Hot Swap Surveillance System V5 (Rev. E) doesn't seem to be working properly.

Contents

Notice

- **The back panel of GV-Hot Swap Surveillance System V5 (Rev. E) is subject to change without prior notice.**

- For the users of **GV-Hot Swap NVR / VMS System**, please see the User's Manual for the hardware introduction and installation, and see the *GV-DVR/NVR User's Manual and GV-VMS User's Manual* from C:\User Manual for the software operation.

- For the users of **GV-Hot Swap Recording Server System**, please see the User's Manual for the hardware introduction and installation, and see the *GV-Recording Server User's Manual* from C:\User Manual for the software operation.

Note for Recording

1. Be sure to install each of your hard drives separately in alphabetical order as indicated below for formatting. See *3.5 Formatting the Hard Drive* for details.

Disk (D:)	Disk (I:)	Disk (N:)	Disk (S:)
Disk (E:)	Disk (J:)	Disk (O:)	Disk (T:)
Disk (F:)	Disk (K:)	Disk (P:)	Disk (U:)
Disk (G:)	Disk (L:)	Disk (Q:)	Disk (V:)
Disk (H:)	Disk (M:)	Disk (R:)	Disk (W:)

20-Bay Models

| Disk (D:) | Disk (F:) | Disk (H:) | Disk (J:) |
| Disk (E:) | Disk (G:) | Disk (I:) | Disk (K:) |

8-Bay Models

Disk (D:)	Disk (H:)	Disk (L:)	Disk (P:)
Disk (E:)	Disk (I:)	Disk (M:)	Disk (Q:)
Disk (F:)	Disk (J:)	Disk (N:)	Disk (R:)
Disk (G:)	Disk (K:)	Disk (O:)	Disk (S:)

16-Bay Models

| Disk (D:) | Disk (E:) | Disk (F:) | Disk (G:) |

4-Bay Models

2. Before recording, you need to divide your hard disks into 4 / 8 storage groups and each group is assigned with an equal number of cameras. See *3.6 Setting Up the Video Storage Location* for details.

3. The H.265 CPU and GPU decoding are only supported by GV-NVR V8.7.0.0 and GV-VMS V15.11.0.0 or later versions.

Safety Instructions

⚠️ Observe these safety instructions to help ensure against injury to yourself and damage to the product.

- **Read** all safety and installation instructions before you operate the product.

- **Install** the equipment in a restricted access area only, as it is intended only for authorized personnel.

- **Keep away** from moving parts of the hardware, such as fan blades, while during operation.

- **Do not operate** the product in high humidity areas or expose it to water or moisture.

- **Do not put** the product in an unstable, slanting or vibrated place.

- **Do not block** any ventilation opening.

- **Do not install** the product near any heat sources, such as radiator, heat register, or other apparatus that produce heat.

- **Operate** the product using only the type of power source indicated on the marking label.
  - ➤ If you are in an area with unstable voltage, make sure to install an automatic voltage regulator (AVR) or a UPS power supply with AVR function, to maintain a constant voltage.
  - ➤ All damages to the power supply caused by unstable voltage are not included in the 2-year warranty service.

- **Do not defeat** the safety purpose of the grounding-type plug. A grounding plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

- **Do not overload** wall outlets or extension cords, as this may cause fire or electric shock.

- **Do not use** the product when abnormality occurs, such as emitting smoke from the product, smelling burning, being damaged by drop, invasion of foreign objects inside the product, etc. Be always sure to remove the AC adaptor at once and contact your dealer.

- **Do not use** accessories or attachments not recommended by the manufacturer, as they may cause hazards and void the warranty.

- **Do not attempt** to service the product yourself, as removing the casing may expose you to dangerous voltage and void the warranty.

- **Do not replace** batteries with ones of unsuited specifications as which may be subjected to risk of explosion.

- **Only dispose batteries** in accordance to the battery disposal regulations set in your country and/or region.

Chapter 1 Introduction

1.1 Models

The 3U / 4U GV-Hot Swap Surveillance System V5 (Rev. E) has the following models:

GV-NVRH V5	**NVR (GV)** - 32-channel digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive bays - Extends compatibility to GeoVision IP Devices only **NVR** - 32-channel GeoVision IP Devices and 1 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 24 / 26 / 28 / 30 / 32-channel third-party IP devices digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive bays
GV-VMSH V5 / GV-VMSH Pro	**GV-VMSH V5 (GV)** - 32-channel digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive bays - Extends compatibility to GeoVision IP Devices only **GV-VMSH V5** - up to 32-channel GeoVision IP Devices and third-party IP devices digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive Bays **GV-VMSH Pro V5 (GV)** - 64-channel digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive bays - Extends compatibility to GeoVision IP Devices only **GV-VMSH Pro V5** - up to 64-channel GeoVision IP Devices and third-party IP devices digital video recorder - Has the options of 4U (20-bay), 3U (16 / 8-bay), and 2U (4-bay) hot-swap SATA drive bays

GV-Hot Swap Recording Server System	- Receives and records up to 128 IP channels - Distributes up to 300 IP channels - Has the options of 4U (20-bay) and 3U (16-bay) hot-swap SATA drive bays
Note: A dongle used for hardware watchdog is internally inserted in GV-NVRH V5, GV-VMSH V5, and GV-Hot Swap Recording Server System.	

1.2   Packing List

The GV-Hot Swap Surveillance System V5 (Rev. E) package includes the following items. If any of the items are missing or damaged, contact your dealer to arrange a replacement.

Important: Please keep the original carton and all packing materials for future shipping need.

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1. GV-Hot Swap NVR System V5 (Rev. E) / GV-Hot Swap VMS System V5 (Rev. E) / GV-Hot Swap Recording Server System V5 (Rev. E)
2. AC Power Cord
3. Self-Stick Rubber Pad x 4
4. Documents Download Guide
5. Warranty Card

1.3   Software License

The following Maximum License of IP devices are available as a paid service. The license is based on your requirements for the number of connection channels. The USB dongle for software license will be inserted to the system before shipment.

1.3.1   GV-Hot Swap NVR System

Free License	32 channels from GV-IP Devices
Maximum License	32 channels from third-party IP devices
Increment for Each License	1 to 32 third-party IP cameras in increments of 2
Dongle Type	Internal

1.3.2   GV-Hot Swap VMS System

GV-VMS V17 for Free 32 GV Channels

GV-IP Devices Only	32 ch	No license required
	64 ch	GV-VMS Pro license required, 32 ch per license
GV + 3rd-Party IP Devices	16 ch	**Trial Version**: 16 channels of 3rd-Party IP devices
	32 ch	3rd-Party license required, in increments of 1 ch
	64 ch	2 licenses required: • GV-VMS Pro license, 32 ch per license. • 3rd-Party license, in increments of 1 ch
License Type		Internal Dongle or Software License

GV-VMS V18 for AI Integration

GV-IP Devices Only	32 ch	Initial license
	64 ch	2 licenses required: • **GV-VMS V18.1 or later** initial license • **GV-VMS Pro** license, 32 ch per license
GV + 3rd-Party IP Devices	32 ch	2 licenses required: • **GV-VMS V18.1 or later** initial license • **3rd-Party** license required, in increments of 1 ch
	64 ch	3 licenses required: • **GV-VMS V18.1 or later** initial license • **GV-VMS Pro** license, 32 ch per license • **3rd-Party** license, in increments of 1 ch
License Type		Internal Dongle or Software License

1.3.3   GV-Hot Swap Recording Server System

Free License	N/A
Maximum License	128 channels
Increment for Each License	1. **GV-IP video devices only**: 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128 IP channels 2. **Third-party IP devices (Includes GV-IP video devices)**: 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128 IP channels
Dongle Type	Internal

1.4 Recommended Hard Disks

For system efficiency, we recommend the following enterprise level hard disk drives. Avoid using desktop level or green HDD which may affect system efficiency.

1. Seagate Enterprise Series
2. WD Gold Level Series
3. WD Ultrastar Series

1.5   Options

Optional devices can expand your GV-Hot Swap Surveillance System V5 (Rev. E)'s capabilities and versatility.

GV-IO 12-In Card	With 12-point digital inputs, this card expands the GV-Hot Swap Surveillance System V5 (Rev. E) up to 16 sensor inputs. ** This device is not supported by Recording Server and 2U 4-Bay models.
GV-IO 12-Out Card	With 12-point relay outputs, this card expands the GV-Hot Swap Surveillance System V5 (Rev. E) up to 16 alarm outputs. ** This device is not supported by Recording Server and 2U 4-Bay models.
GV-Data Capture V3 Box	GV-Data Capture V3 Box integrates the GV-Hot Swap Surveillance System V5 (Rev. E) to an electronic POS system, while GV-Data Capture V3E Box can establish such integration through LAN or Internet. **This device is not supported by VMS and Recording Server.
GV-COM V3	This unit adds 1 RS-485 port to your computer through a USB connector. ** This device is not supported by Recording Server.
GV-IR Remote Control	GV-IR Remote Control provides easy control of the GV-Hot Swap NVR / VMS System. ** This device is not supported by Recording Server.

GV-IO Box Series	GV-IO Box series provides 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 connection.
GV-Joystick	GV-Joystick facilitates the PTZ camera control. It can be either plugged into the GV-Hot Swap Surveillance System V5 (Rev. E) for independent use or connected to GV-Keyboard to empower the operation. ** This device is not supported by Recording Server.
GV-Keyboard V3	GV-Keyboard V3 is designed to program and operate GV-System and GV-VMS, and it can also be connected with PTZ cameras directly for PTZ control. ** This device is a standard package item. ** This device is not supported by Recording Server.
Gigabit Network Card	For 3U and 4 U models, Gigabit Network Card is provided with two options of 1-Gb single port card and 2-port 10-Gb (20 Gb) card. The number of network cards supported varies based on models and combination of the RAID card. For more information, contact with our sales representatives.
RAID Card	The supported RAID types include 0, 1, 3, 5, 6, 10, 00,30, 50, 60,100 Single Disk or JBOD. ** This device is not supported by 2U 4-Bay models.
Redundant Power Supply	Redundant Power Supply comes with 2 hot-swap modules for 3U models and 3 hot-swap modules for 4U models. When 1 module is down, the remaining module(s) can still supply full power to the system. For details, see 3.14.7 Redundant Power Supply. ● 3U 8-Bay models: 460 W 1+1 mode; 100~240V, 47~63 Hz ● 3U 16-Bay models: 550 W 1+1 mode; 100~240V, 47~63 Hz ● 4U 20-Bay models: 800 W 1+1 modes; 90~264V, 47~63 Hz

Note:

1. The GV-IO 12-In and GV-IO 12-Out Cards must work and be purchased together.

2. The optional accessories will be built in the GV-Hot Swap Surveillance System V5 (Rev. E) and tested before shipment. Opening the case and installing the accessories yourself will void the warranty.

Chapter 2 Overview
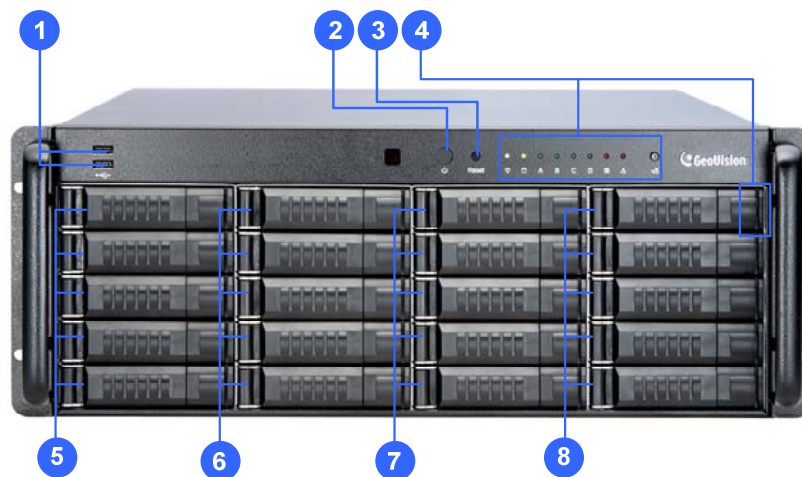
2.1 Front View

2.1.1 4U (20-Bay) Models

Figure 2-1

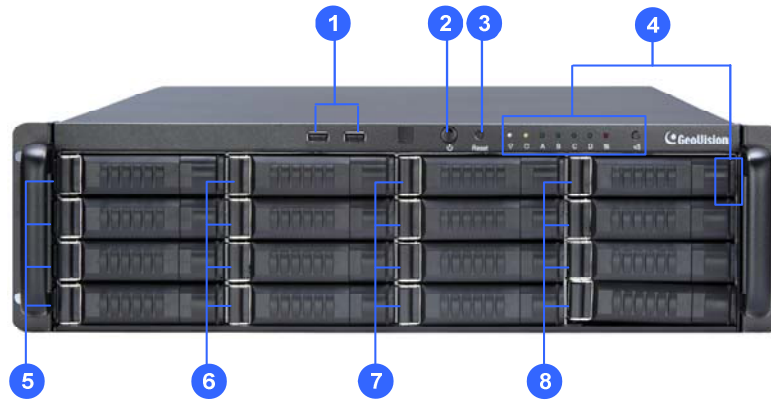| No.	Name	No.	Name
1	USB 3.1 Gen 1 Port x 2	5	HDD Group A
2	Power Button	6	HDD Group B
3	Reset Button	7	HDD Group C
4	LED Panel (See *2.2 LED Panel View* for details.）	8	HDD Group D

2.1.2 3U (16 / 8-Bay) Models

2.1.2.1 16-Bay Models

Figure 2-2

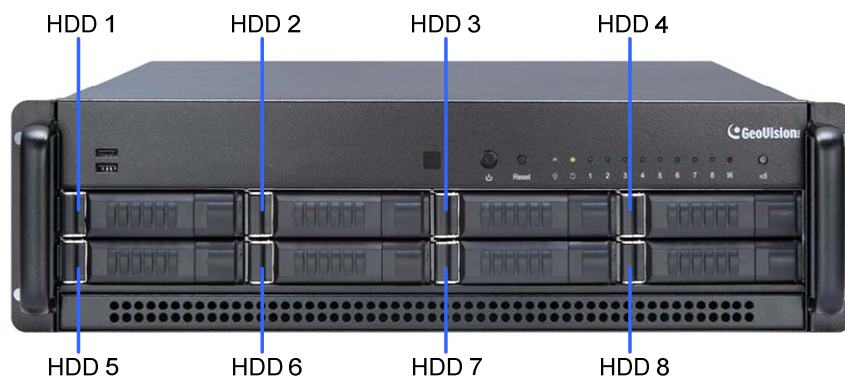| No.	Name	No.	Name
1	USB 3.1 Gen 1 Port x 2	5	HDD Group A
2	Power Button	6	HDD Group B
3	Reset Button	7	HDD Group C
4	LED Panel (See *2.2 LED Panel View* for details.)	8	HDD Group D

2.1.2.2 8-Bay Models

Figure 2-3

For details on the other features of the front panel, see Figure 2-2.

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2.1.3 2U (4-Bay) Models
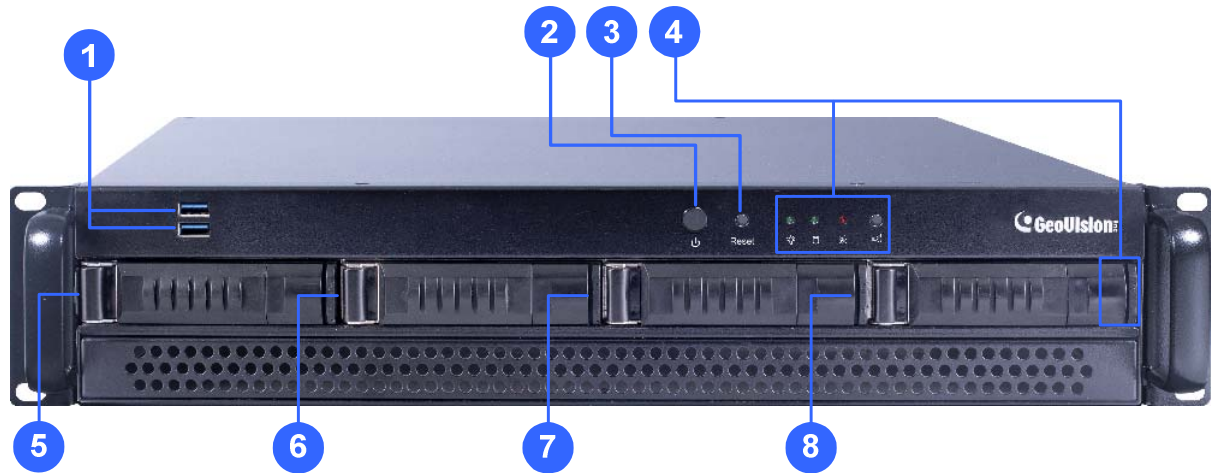
Figure 2-4

No.	Name	No.	Name
1	USB 3.1 Gen 1 Port x 2	5	HDD Group A
2	Power Button	6	HDD Group B
3	Reset Button	7	HDD Group C
4	LED Panel (See *2.2 LED Panel View* for details.)	8	HDD Group D

2.2 LED Panel View

A LED panel on the front door provides a quick indication of the activity status of hard disk drives. Note the panel design and function vary from model to model.
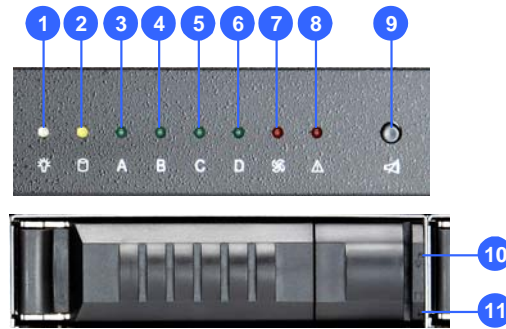
2.2.1 4U (20-Bay) / 3U (16-Bay) Models

Figure 2-5

No.	LED	Description
1	Power LED	The LED shines when the power is on.
2	HDD Activity LED	The LED shines when the HDDs are writing or reading data.
3	RAID status LED	The LED shines when any HDD among a created RAID set is powered.
4	Failure Alert LED	The LED shines when damages occur to any HDD in the RAID set.
5	HDD Group C LED	The LED does not have any function.
6	HDD Group D LED	The LED does not have any function.
7	System Alert LED	The LED shines and the system sounds on if one fan stops or the GV-Hot Swap Surveillance System V5 is overheated.
8	Alert LED	(reserved)
9	Alarm Mute Button	Press this button to silence the alarm when the System Alert LED shines and the system sounds.
10	HDD Power LED (White)	The LED shines white after the HDD is installed.
11	HDD Activity LED (Blue)	The LED shines blue if the HDD is reading or writing data.

Note: The HDD Activity LED (No.11) only shines if the installed HDD is SATA II.
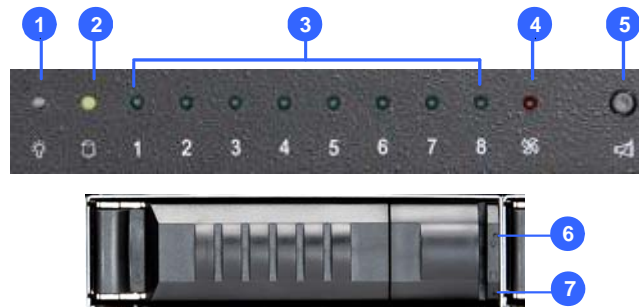
2.2.2   3U (8-Bay) Models

Figure 2-6

No.	LED	Description
1	Power LED	The LED shines when the power is on.
2	HDD Activity LED	The LED shines when the HDDs are writing or reading data.
3	RAID Status 1 ~ 8 LEDs	The LEDs of HDD 1 ~ 8 shine when the HDDs are powered.
4	System Alert LED	The LED shines and the system sounds on if one fan stops or the GV-Hot Swap Surveillance System V5 is overheated.
5	Alarm Mute Button	Press this button to silence the alarm when the System Alert LED shines and the system sounds.
6	HDD Power LED (White)	The LED shines white after the HDD is installed.
7	HDD Activity LED (Blue)	The LED shines blue if the HDD is reading or writing data.

Note: The HDD Activity LED (No.7) only shines if the installed HDD is SATA II.
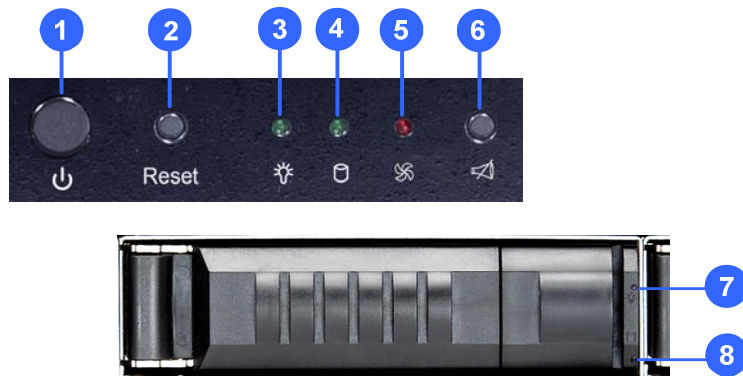
2.2.3 2U (4-Bay) Models

Figure 2-7

No.	LED	Description
1	Power Button	Press this button to turn on the power.
2	Reset Button	Press this button to reset the system.
3	Power LED	The LED shines when the power is on.
4	HDD Activity LED	The LED shines when the HDDs are writing or reading data.
5	System Alert LED	The LED shines and the system sounds on if one fan stops or the GV-Hot Swap Surveillance System V5 is overheated.
6	Alarm Mute Button	Press this button to silence the alarm when the System Alert LED shines and the system sounds.
7	HDD Power LED (White)	The LED shines white after the HDD is installed.
8	HDD Activity LED (Blue)	The LED shines blue if the HDD is reading or writing data.

Note: The HDD Activity LED (No.8) only shines if the installed HDD is SATA II.

2.3 Rear View

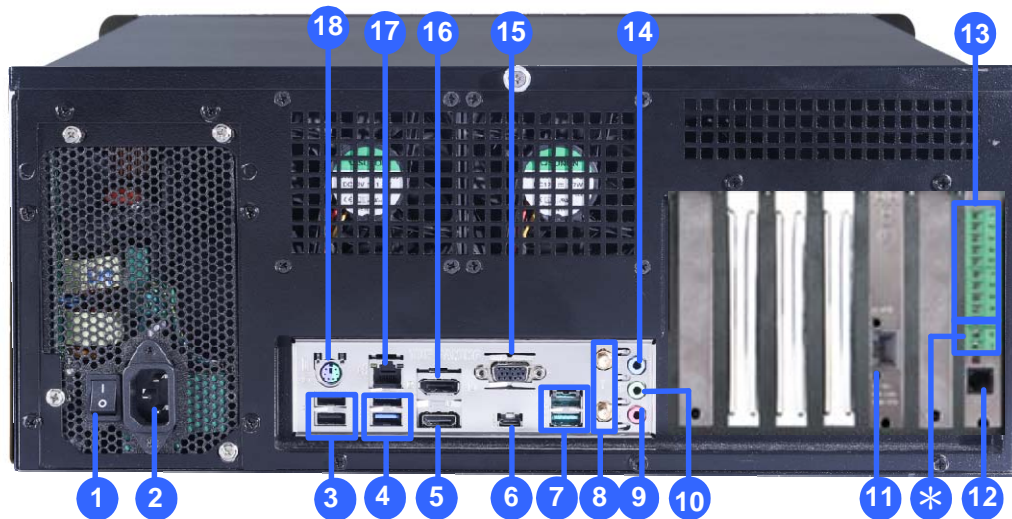### 2.3.1 4U (20-Bay) Models

2.3.1.1 GV-NVRH V5 / GV-VMSH V5

Figure 2-8

No.	Name	No.	Name
1	AC Power Switch	11	Gigabit Ethernet Port
2	AC Power Input (Full Range)	12	RJ-11 Port
3	USB 2.0 Port x 2	13	I/O Terminal Block
4	USB 3.1 Gen 1 x 2	14	Audio Line In Port
5	HDMI Port	15	VGA Port
6	USB Type C. Port	16	DisplayPort
7	USB 3.1 Gen 2 x 2	17	Gigabit Ethernet Port
8	Not Functional	18	Keyboard / Mouse
9	Audio Microphone In Port	*	The RS-485± ports are not functional.
10	Audio Line Out Port		

Note: To connect three monitors, use ports No. 5, 15 and No. 16.

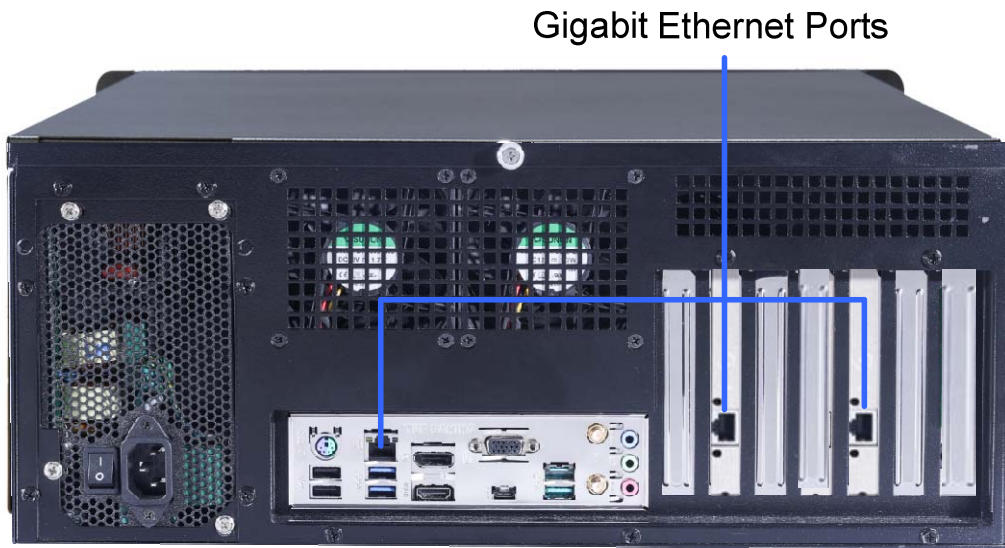## 2.3.1.2   GV-Hot Swap Recording Server System

Figure 2-9

For details on the other features of the motherboard and power supply on the rear panel, see Figure 2-8.

2.3.2   3U (8 / 16-Bay) Models
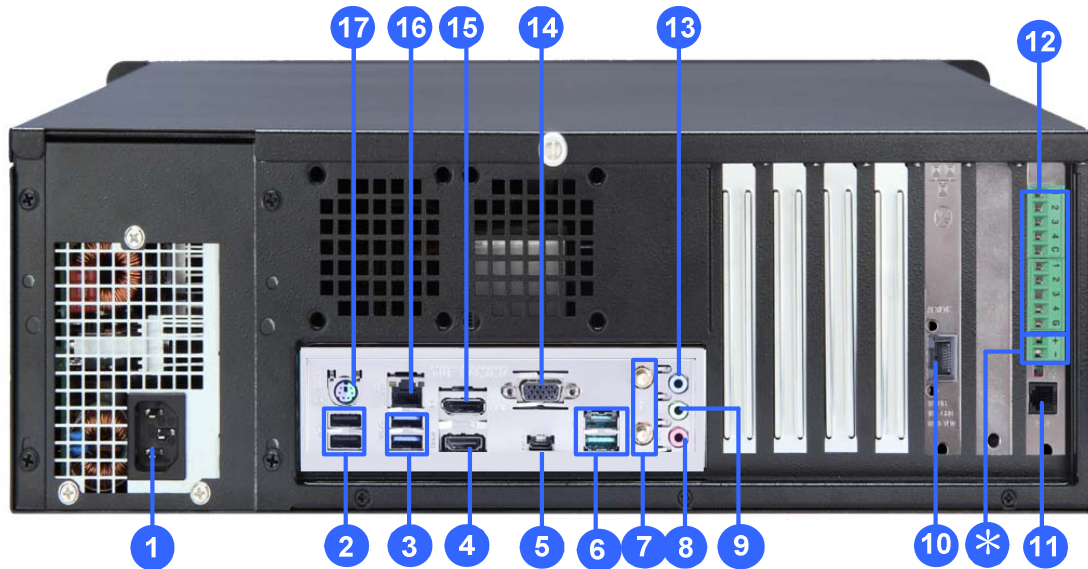
2.3.1.1   GV-NVRH V5 / GV-VMSH V5

Figure 2-10

No.	Name	No.	Name
1	AC Power Input (Full Range)	10	Gigabit Ethernet Port
2	USB 2.0 Port x 2	11	RJ-11 Port
3	USB 3.1 Gen 1 x 2	12	I/O Terminal Block
4	HDMI Port	13	Audio Line In Port
5	USB Type C. Port	14	VGA Port
6	USB 3.1 Gen 2 x 2	15	DisplayPort
7	Not Functional	16	Gigabit Ethernet Port
8	Audio Microphone In Port	17	Keyboard / Mouse
9	Audio Line Out Port	*	The RS-485± ports are not functional.

Note: To connect three monitors, use ports No. 3, No. 14 and No. 15.

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2.3.2.2   GV-Hot Swap Recording Server System (Only 16-Bay Model)
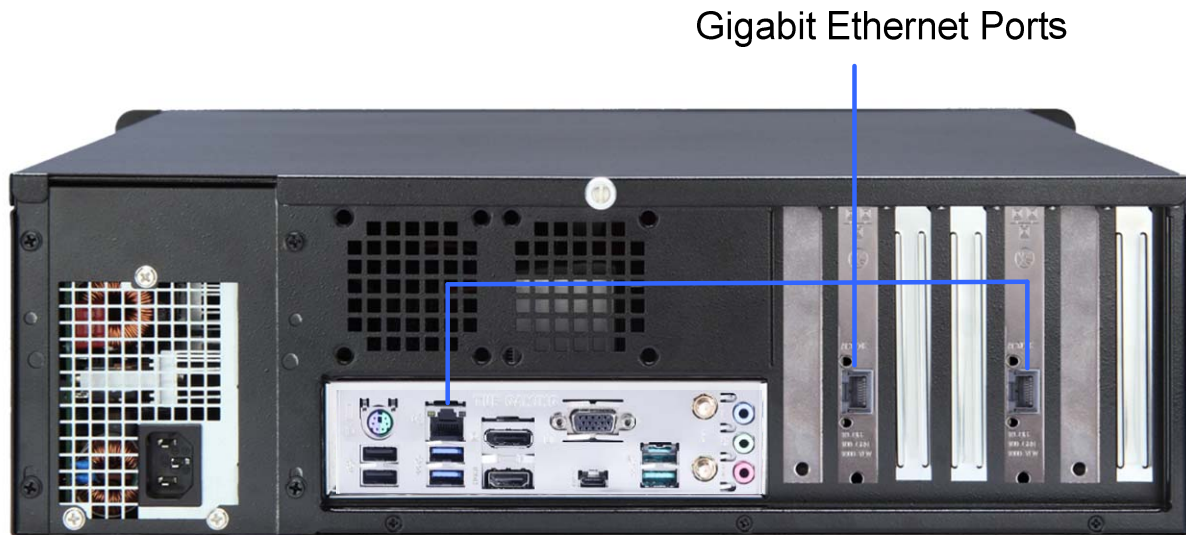
Gigabit Ethernet Ports

Figure 2-11

For details on the other features of the motherboard and power supply on the rear panel, see Figure 2-10.

Note: There is no 3U (8-bay) model for GV-Hot Swap Recording Server System.

2.3.3   2U (4-Bay) Models
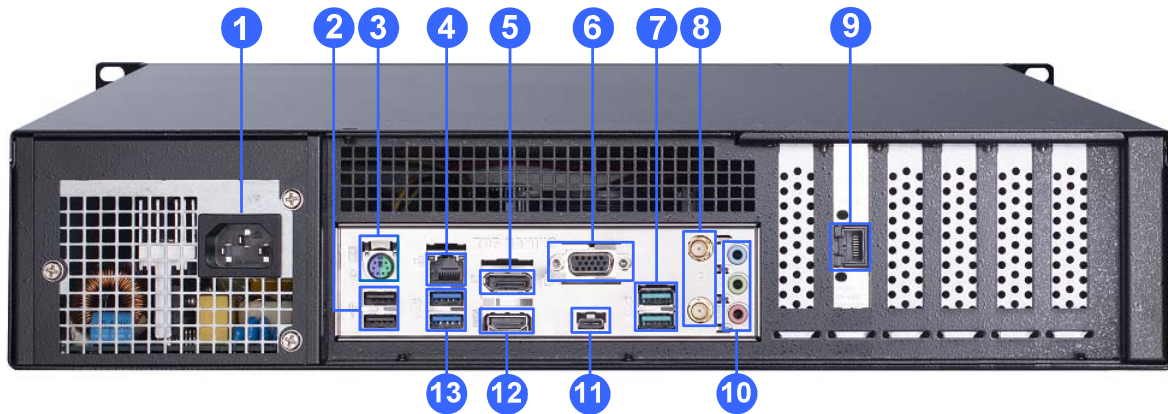
2.3.3.1   GV-NVRH V5 / GV-VMSH V5

Figure 2-12

No.	Name	No.	Name
1	AC Power Input (Full Range)	8	Not functional
2	USB 2.0 Port x 2	9	Gigabit Ethernet Port
3	PS/2 Port	10	Audio Line In Port (Blue) Audio Line Out Port (Green) Audio Microphone In Port (Pink)
4	Gigabit Ethernet Port	11	USB Type C. Port
5	DisplayPort	12	HDMI Port
6	VGA Port	13	USB 3.1 Gen 1 x 2
7	USB 3.1 Gen 2 x 2		

Note: To connect three monitors, use ports No. 5, No. 6 and No. 12.

Chapter 3   Getting Started

3.1   Basic Installation

This section describes all the equipment required to program and operate the GV-Hot Swap Surveillance System V5. Up to 3 monitors can be connected to the System.

3.1.1   All Models

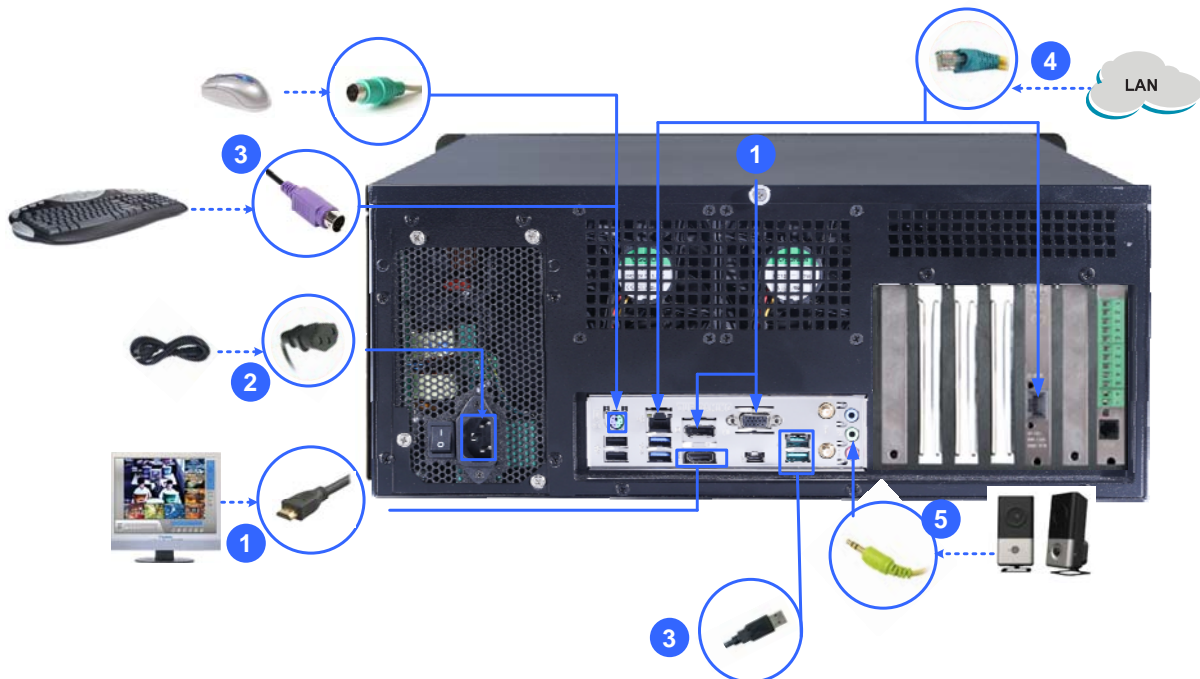Here we use the 4U (20-bay) models of GV-NVRH V5 as the example.

Figure 3-1

1. Connect the monitor using the HDMI / VGA / DisplayPort cable supplied by the monitor manufacturer.

2. Connect one end to the AC input and the other end to the power outlet using the supplied power cord.

3. Connect the keyboard and mouse to the PS/2 or USB port.

4. Connect one end to the Ethernet port and the other end to Network using the RJ-45 cable.

5. Connect speakers to the Audio Line Out port.

Note: The monitor you use must be capable of having a screen resolution of 1280 x 1024 and display color of 32 bits.

Connecting to 3 Monitors

You can connect up to 3 monitors to the ports labeled below on the back panel of the GV-Hot Swap Surveillance System V5. Here we use the 3U (16-bay) model as the example.
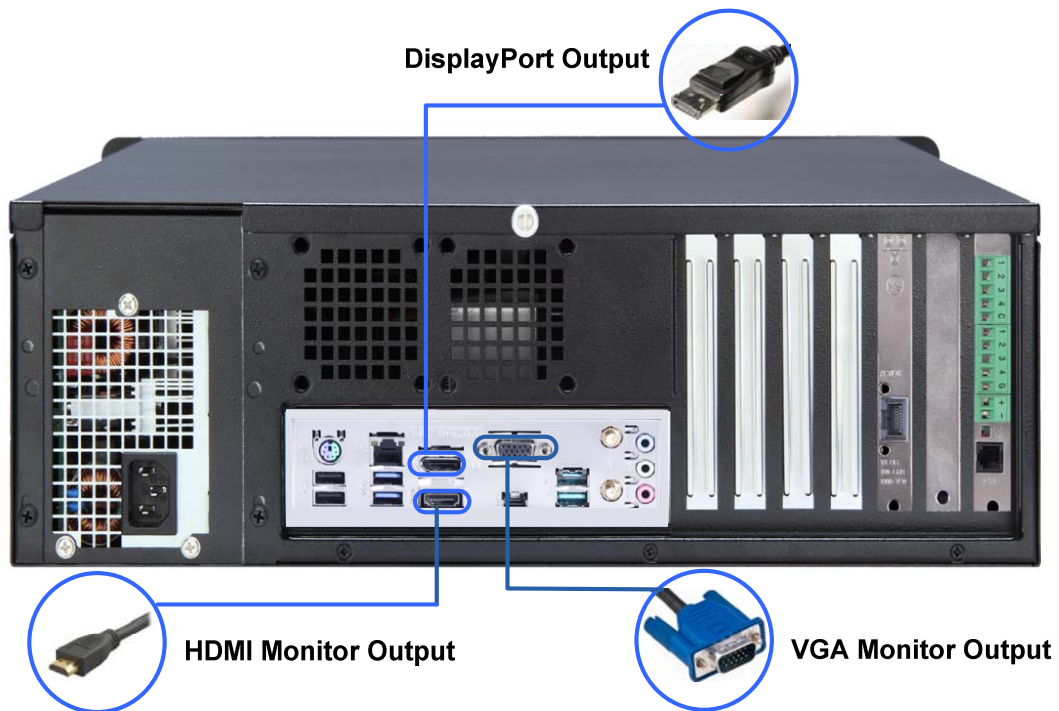

DisplayPort Output

HDMI Monitor Output

VGA Monitor Output

Figure 3-2

3.2   Turning on the Power

Once the above hardware is properly connected, it is the time to turn on the GV-Hot Swap Surveillance System V5. To turn on the power, follow these steps:
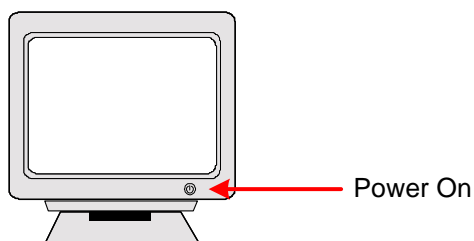
1. Turn on the monitor.

Figure 3-3

2. For 4U (20 bay) models, turn on the AC power switch on the rear panel first.

    4U (20-Bay) Models

Figure 3-4

3. Turn on the main power switch on the front panel.

Figure 3-5

The GV-Hot Swap Surveillance System V5 will run a series of self-tests, and later series of messages may be displayed as the various hardware and software subsystems are activated. After this is finished,

- **GV-Hot Swap NVR System** pops up GV-IP Device Utility to detect IP devices under the same LAN. To add an IP camera to the system, see *Adding IP Video Devices,* Chapter 5, in the *Quick Start Guide*.
- **GV-Hot Swap VMS System** pops up the Automatic Setup dialog box. To add an IP camera to the system, see *Adding IP Cameras to GV-VMS*, Chapter 6, in th*e Quick Start Guide*.
- **GV-Hot Swap Recording Server System** pops up login Web interface. See Chapter 7 in the *Quick Start Guide*.

Note:

1. The series of self-tests will take around 20 seconds to 2 minutes, depending on the number of installed hard drives.

2. For 4U (20-bay) and 3U (16-bay) models, the Power LED and the LEDs of HDD Groups A to D should shine after power is on. If any of HDD Group LEDs does not shine, please contact GeoVision.

3.3   Installing the Hard Drive

The GV-Hot Swap Surveillance System V5 uses SATA hard drives for video and audio data storage. Before recording, be sure to install your hard drives.

IMPORTANT: Be sure to install each of your hard drives separately for formatting. See *3.5 Formatting the Hard Drive* for details.

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1. Slide the release latch to the right. The drawer handle pops up.

Release Latch

Figure 3-6

2. Pull out the drive drawer.
3. Insert the hard drive in the drawer.
4. Secure the hard drive with the 4 screws (included in the drawer), and make sure all screw heads flush with the surface.

Figure 3-7

5. Put the drawer back in the drive bay of the System, and push the latch until it locks. The white LED on the drawer shines, and the hard drive is now ready to use.

3.4 Windows Setup Installation

The Windows setup is preparing your computer for first use.

1. After the Windows starts, this setup screen appears. Select your language and click **Next** to continue.
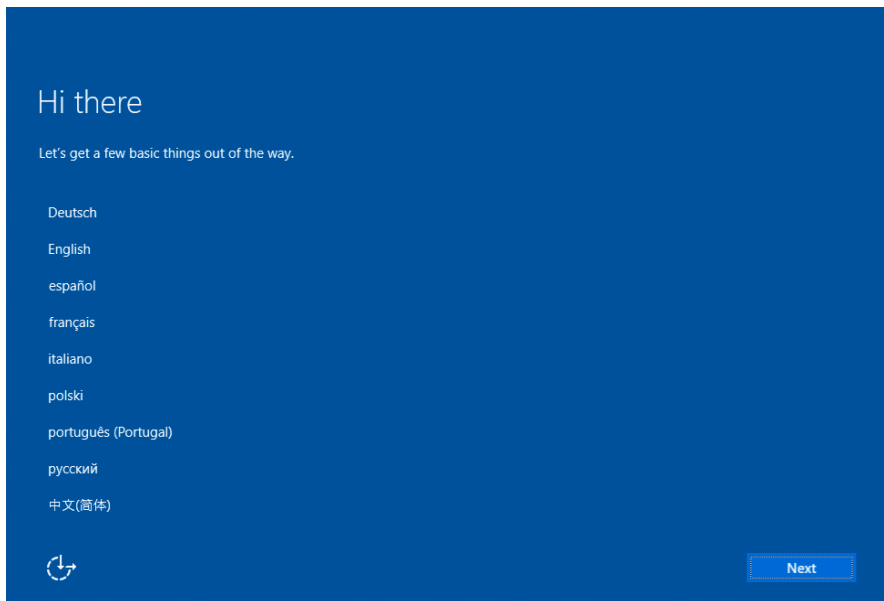

Figure 3-8

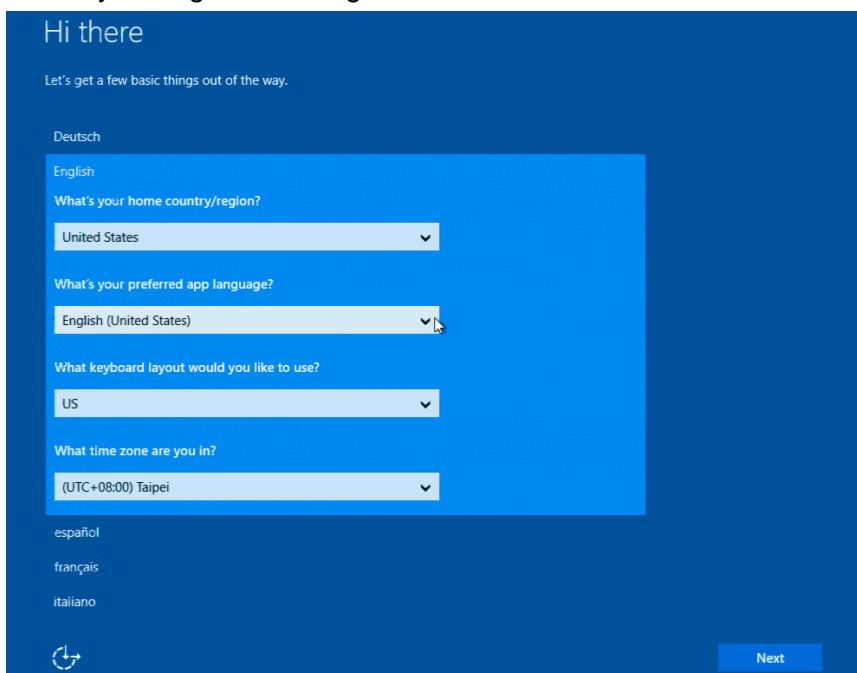2. Select your regional settings and time zone and click **Next** to continue.

Figure 3-9

3. Click **Accept** to accept Microsoft software license terms.

4. Select between "Customize" or "Use Express settings" for your Windows 10 installation.

5. Type your account name. It is recommended that you create a password for your account and click **Next**.
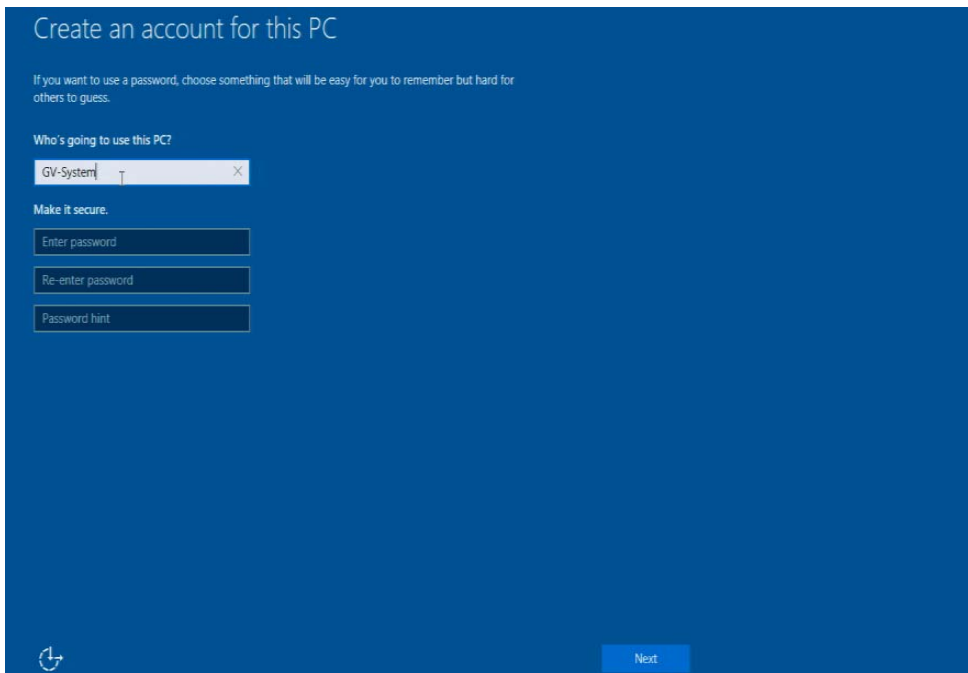

Figure 3-10

When the above setup process is complete, Windows will finalize your settings automatically in the background and restart.

3.5   Formatting the Hard Drive

Be sure to install each of your hard drives separately for formatting. Do not install and format more than one hard drive at a time.

Depending on the model of your choices, install and format the hard drives in alphabetical order as indicated below.
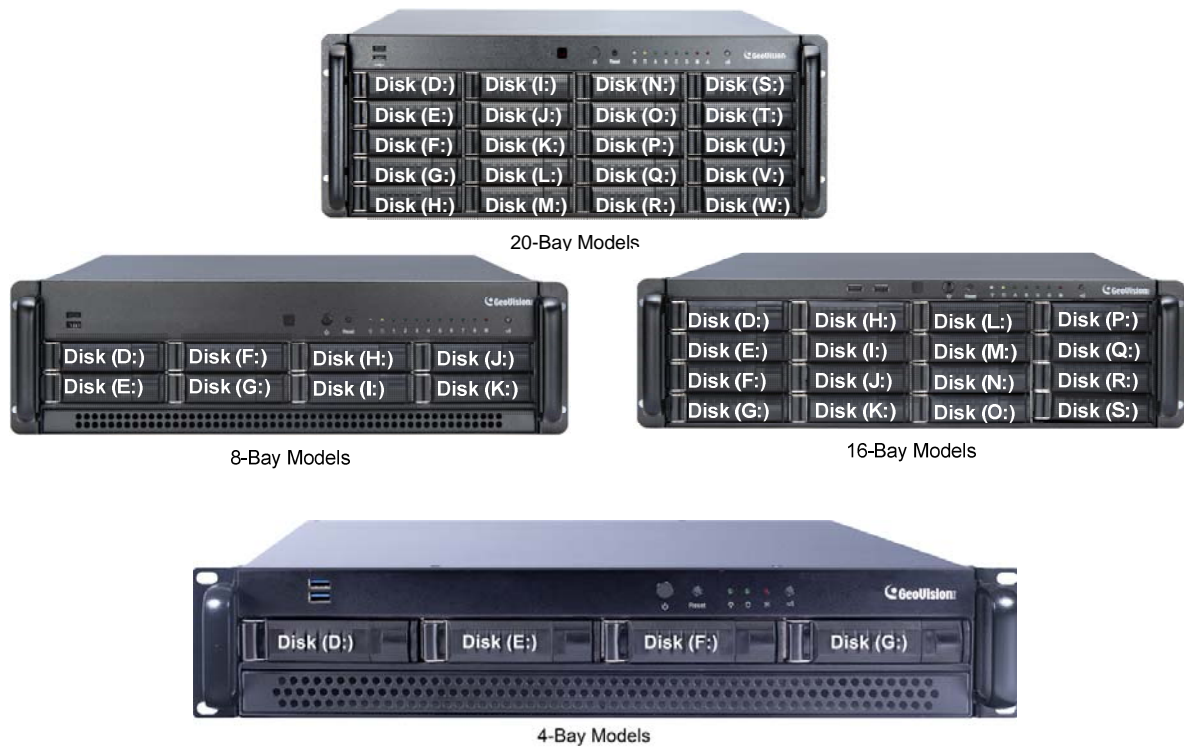

Figure 3-11

26

To format a hard disk, follow the steps below:

1. Right-click the **Computer** icon   on your desktop, select **Manage**, and select **Disk Management** when the Computer Management window appears.

2. On the main page of Disk Management, the Initialize Disk dialog box appears for the new drive. Click the created disk and select a partition style.
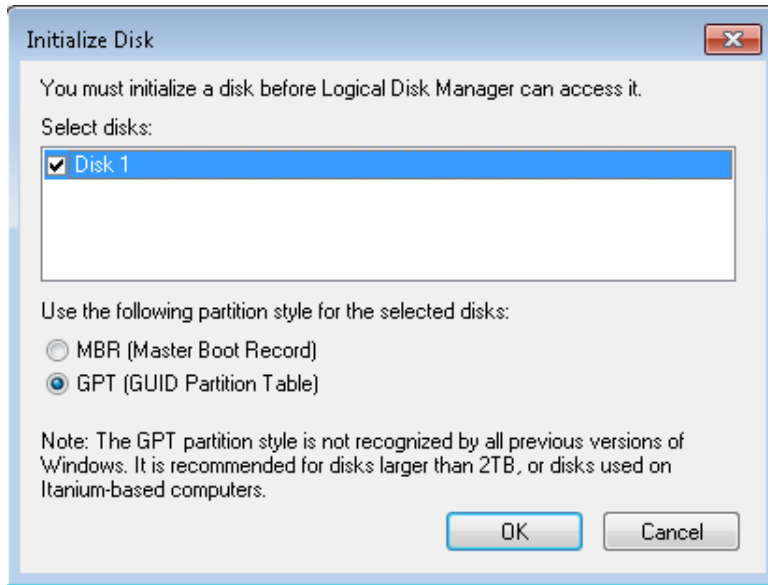

Figure 3-12

3. Click **OK**. The created disk is successfully initialized.

4. On the main page of Disk Management, right-click in the unallocated space of a new drive and select **New Simple Volume**.
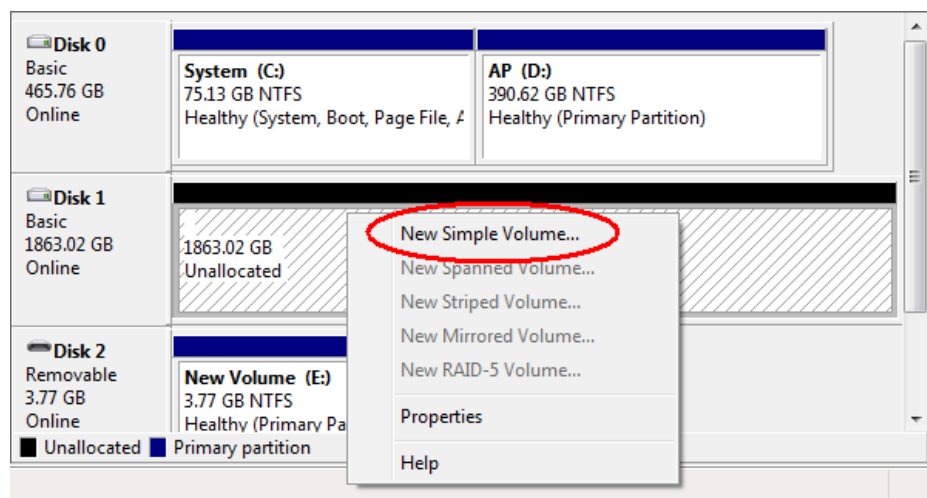

Figure 3-13

5. The New Simple Volume Wizard appears. Click **Next** to continue.
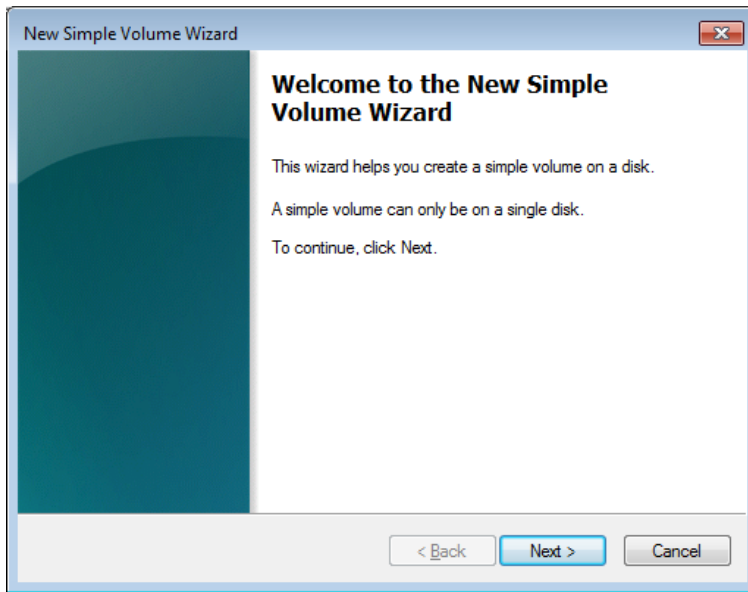
Figure 3-14

6. The default partition size is the same as the maximum disk space. Make changes if necessary. Click **Next** to continue.
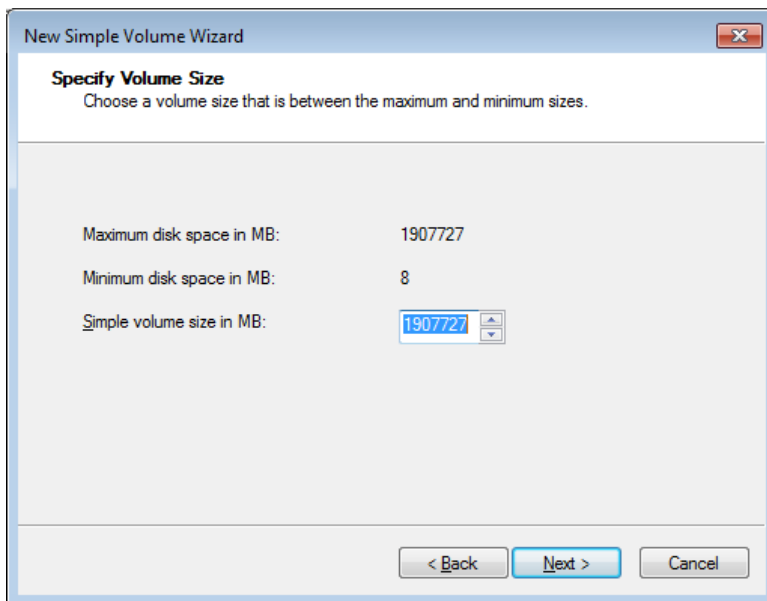
Figure 3-15

7. Assign a drive path that is not in use by other devices, and click **Next** to continue.
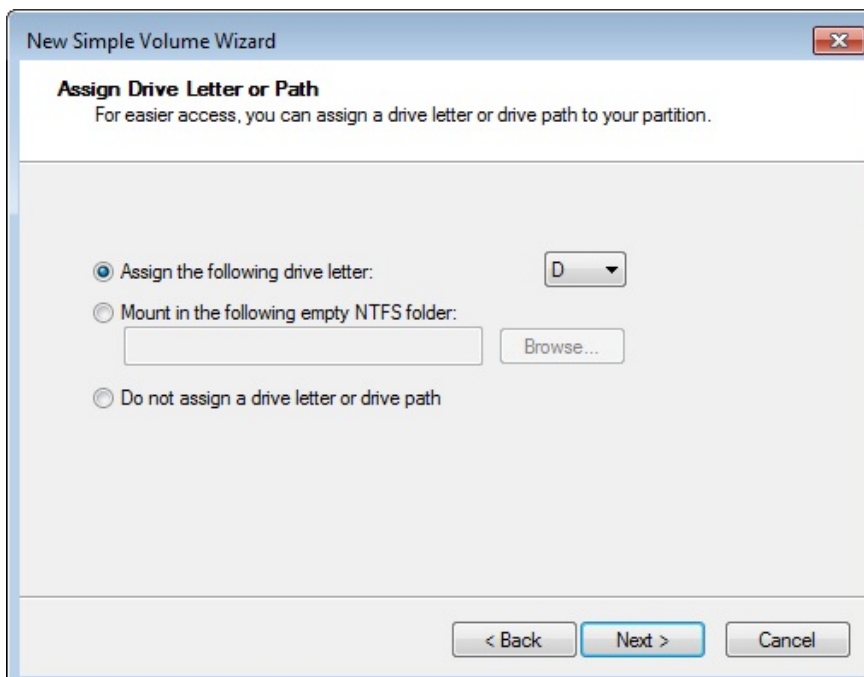
Figure 3-16

Note: The default drive path starts from **D:\.**

---

8. Type a name in the **Volume label** box, ex. HDD1, and click **Next** to continue.

Figure 3-17

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9. When the formatting is complete, click **Finish** to close the wizard.

Figure 3-18

10. When the drive is successfully initialized, partitioned, and formatted, its status description should display "*Healthy.*"

Figure 3-19

3.6   Setting Up the Video Storage Location

To achieve stable recording performance, you need to divide your hard disks into 4 / 8 storage groups and each group is assigned with an equal number of cameras.
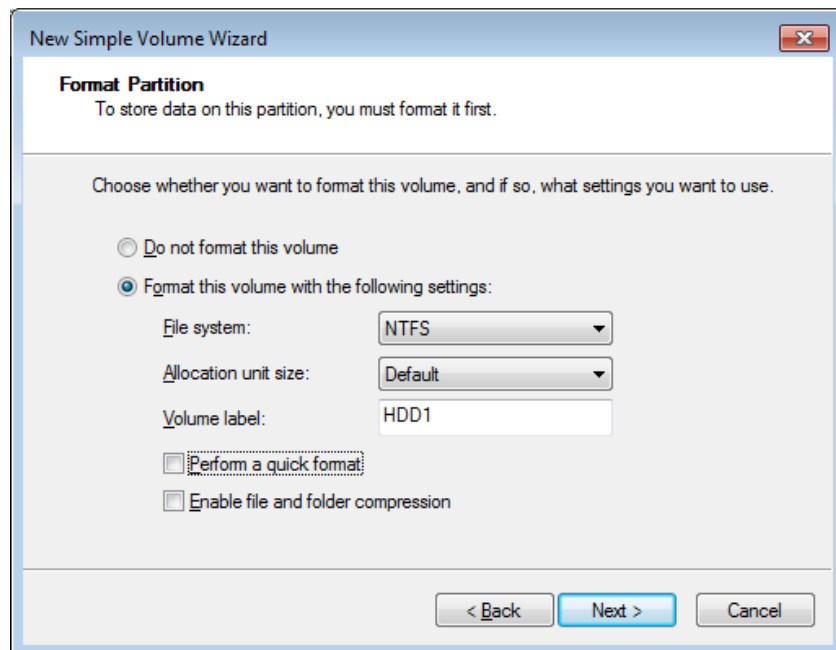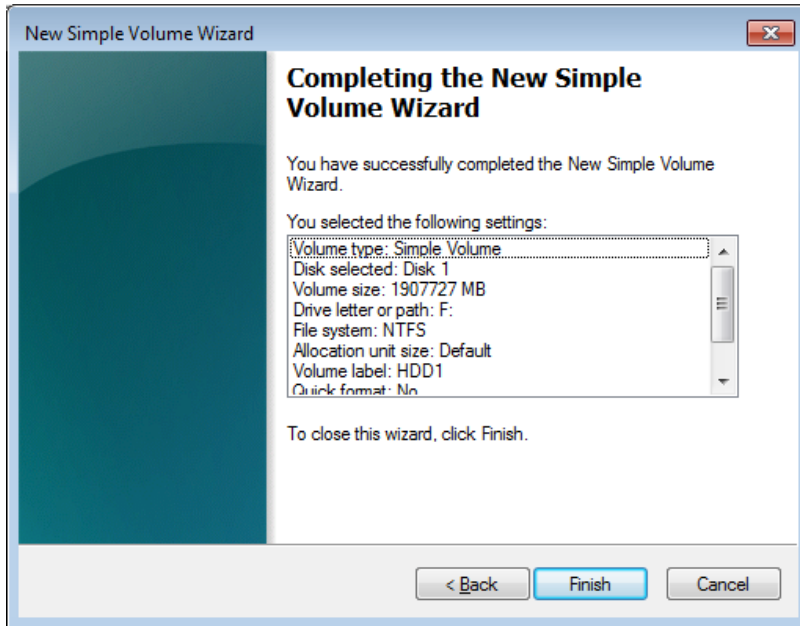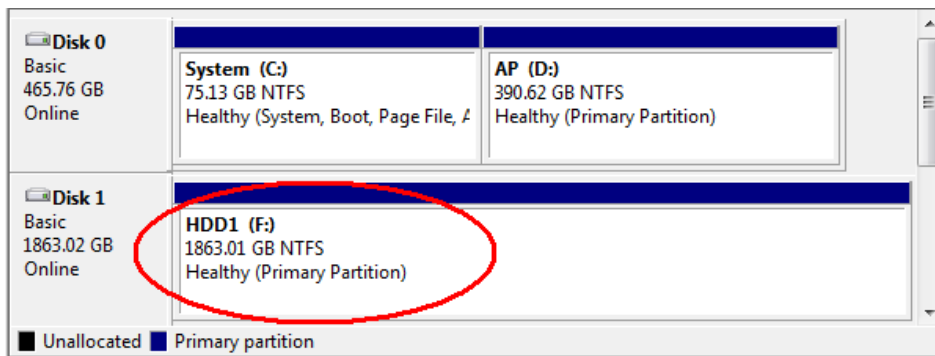

Note: Be sure to follow the hard drive installation of 20 / 16 / 8 / 4-bay models as below. See *3.5 Formatting the Hard Drive* for details.

Figure 3-20

For the users of **GV-Hot Swap NVR / VMS System**, create **4 storage groups** and assign the specified hard drives and camera channels in the storage group according to the tables below. Take the 4U 20-bay 64-channel model as an example, you should assign hard drive D, E, F, G, H to **Storage Group 1**, and then assign camera 01-16 to be recorded in **Storage Group 1**.

	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4
4U 20-bay GV-Hot Swap NVR / VMS System	D	I	N	S
	E	J	O	T
	F	K	P	U
	G	L	Q	V
	H	M	R	W
64-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64
32-channel	Camera 01-08	Camera 09-16	Camera 17-24	Camera 25-32

3U 16-bay GV-Hot Swap NVR / VMS System	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4
	D	H	L	P
	E	I	M	Q
	F	J	N	R
	G	K	O	S
64-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64
32-channel	Camera 01-08	Camera 09-16	Camera 17-24	Camera 25-32

3U 8-bay GV-Hot Swap NVR / VMS System	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4
	D	F	H	J
	E	G	I	K
64-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64
32-channel	Camera 01-08	Camera 09-16	Camera 17-24	Camera 25-32

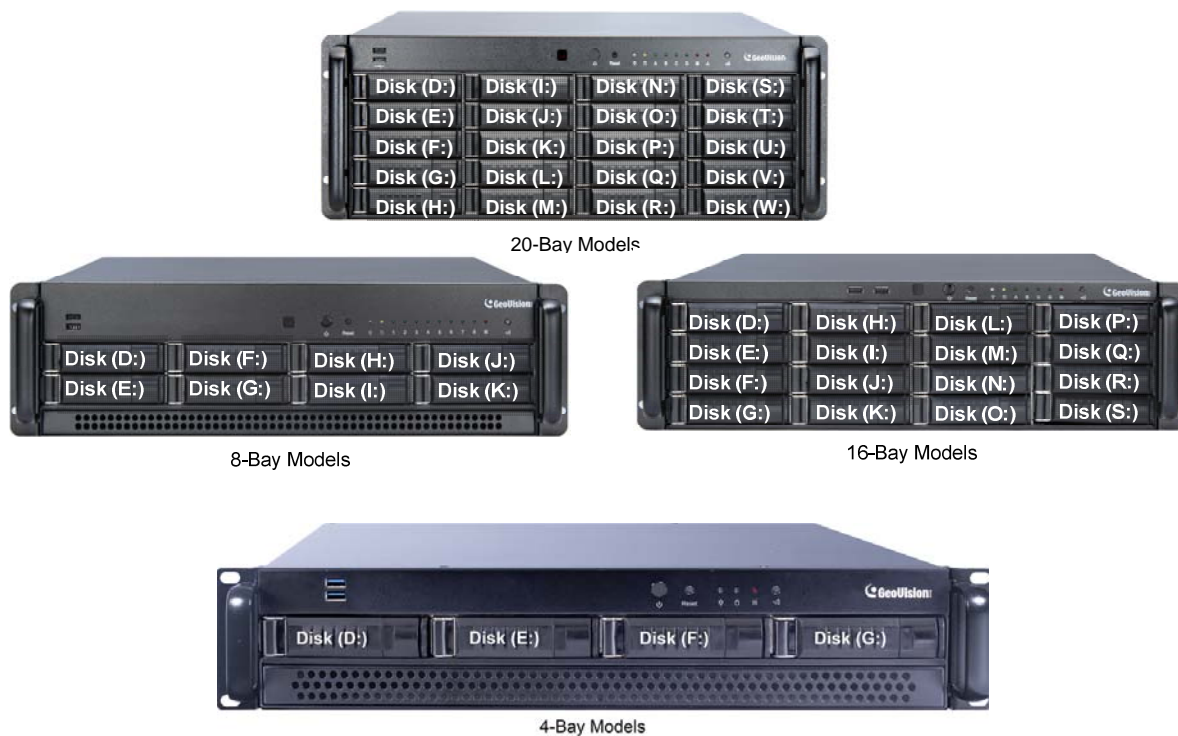| 2U 4-bay GV-Hot Swap NVR / VMS System	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4
	D	E	F	G
64-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64
32-channel	Camera 01-08	Camera 09-16	Camera 17-24	Camera 25-32

For the users of **GV-Hot Swap Recording Server System**, create **8 storage groups** and assign the specified hard drives and camera channels in the storage group according to the tables below. Take the 4U 20-bay model as an example, you should assign hard drive D, F, H to **Storage Group 1**, and then assign camera 01-16 to be recorded in **Storage Group 1**.

4U 20-bay GV-Hot Swap Recording Server System	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4	Storage Group 5	Storage Group 6	Storage Group 7	Storage Group 8
	D	E	I	J	N	O	S	T
	F	G	K	L	P	Q	U	V
	H	M	R	W				
128-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64	Camera 65-80	Camera 81-95	Camera 96-112	Camera 113-128

3U 16-bay GV-Hot Swap Recording Server System	Storage Group 1	Storage Group 2	Storage Group 3	Storage Group 4	Storage Group 5	Storage Group 6	Storage Group 7	Storage Group 8
	D	E	H	I	L	M	P	Q
	F	G	J	K	N	O	R	S
128-channel	Camera 01-16	Camera 17-32	Camera 33-48	Camera 49-64	Camera 65-80	Camera 81-95	Camera 96-112	Camera 113-128

To create a storage group for **GV-Hot Swap VMS System,**

1. On the GV-VMS, open the Recording dialog box (**Home** ⬤ > **Toolbar** ✕ >
   Configure ⚙ > **System Configure** > **Record Setting**).

2. Select a camera and click ▷ next to **Add Log Location** to open the following dialog box.
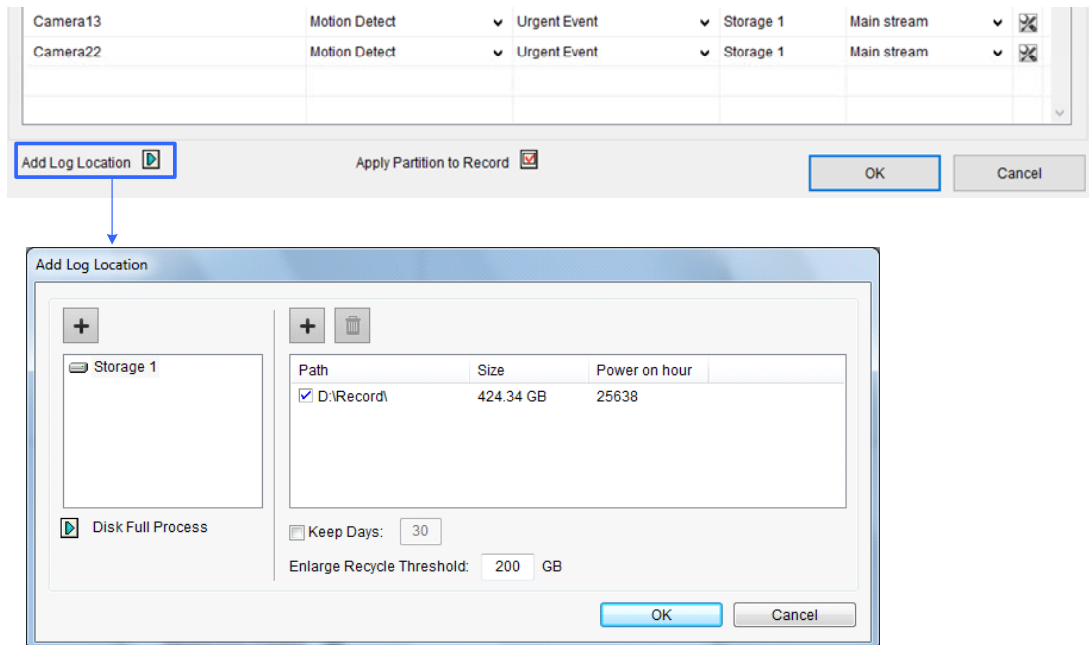

Figure 3-21

3. To create a storage group, click the **Add** button ➕ in the top-left corner. The first
   storage group is created by default.

4. To assign hard drives to a storage group, click the **Add** button ➕ above Path and select
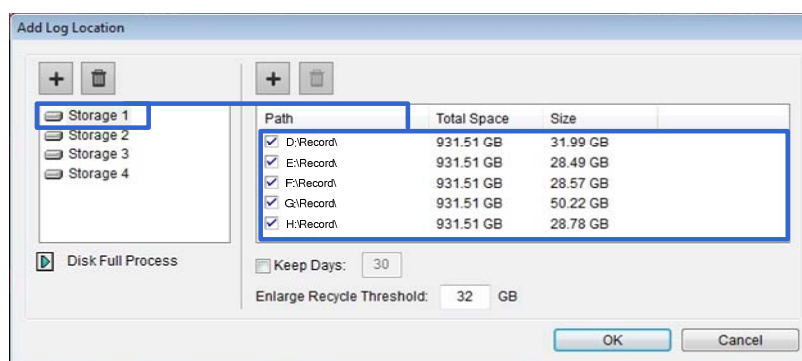   folders to be assigned to the storage group.

Figure 3-22

5. Click **OK** to apply the settings. The Record Setting dialog box appears.

6. To assign cameras to a storage group, select the cameras and select a storage group
   from the **Storage** drop-down list. Note one camera can only be added to one storage
   group.

To create a storage group for **GV-Hot Swap NVR System,**

1. On the GV-NVR, click the **Set Location** button and select **Storage Group Folder**. This dialog box appears.
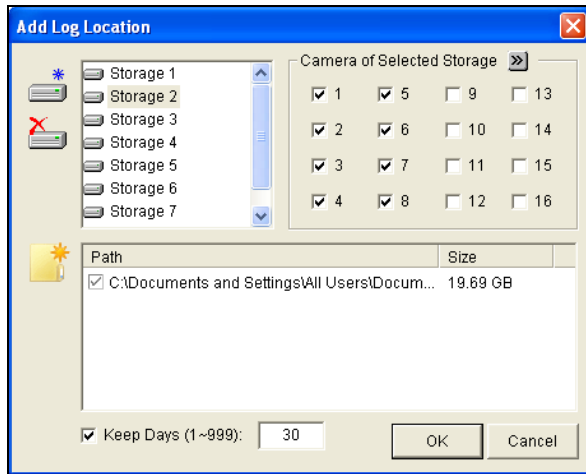

Figure 3-23

2. To create a storage group, click the **Add Storage Group** icon [icon]. The first storage group is created by default.

3. To assign hard drives to a storage group, click the **Add New Path** icon [icon] and select folders to be assigned to the storage group.

4. To assign cameras to a storage group, select cameras under Camera of Selected Storage. Note one camera can only be added to one storage group.

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

To create a storage group for **GV-Hot Swap Recording Server System,**

1. On the GV-Recording Server, click **Storage Path** under **Server**. This dialog box appears.
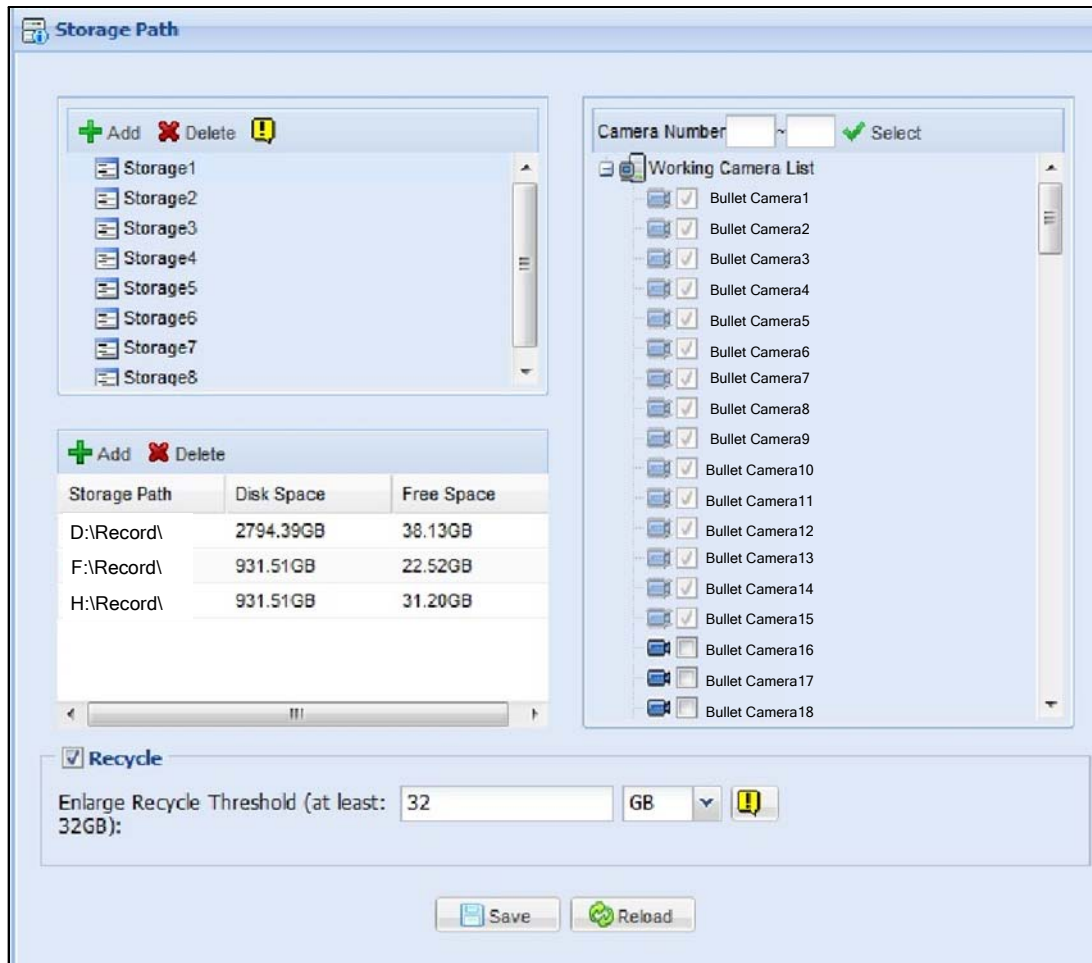
Figure 3-24

2. To create a storage group, click the **Add** button ➕ Add . The first storage group is created by default.
3. To assign hard drives to a storage group, click the **Add** button above Storage Path and select folders to be assigned to the storage group.
4. To assign cameras to a storage group, type a range of camera number and click the **Select** button in the Working Camera List section. You can also select the **Working Camera List** checkbox to select cameras individually.
5. Click **Save** and click Next Page at the lower-right corner of the page.

3.7 Setting Up On-Screen LED Panel

Note the function is not supported by **GV-Hot Swap Recording Server System**.

For GV-Hot Swap NVR / VMS System, a LED panel on the screen provides a quick indication of the activity status of hard disk drives.

Figure 3-25

LED Color	Description
Gray	- No HDD is assigned to this LED. - GV-System is not started.
Green	A HDD is assigned to this LED.
Red	The HDD is full.
Flashing Green	GV-System is recording.
Flashing Red	The HDD is recycling.

1. Go to **C:\GV-NVR** or **C:\GV-VMS** folder and double-click **MediaManTools.exe**.
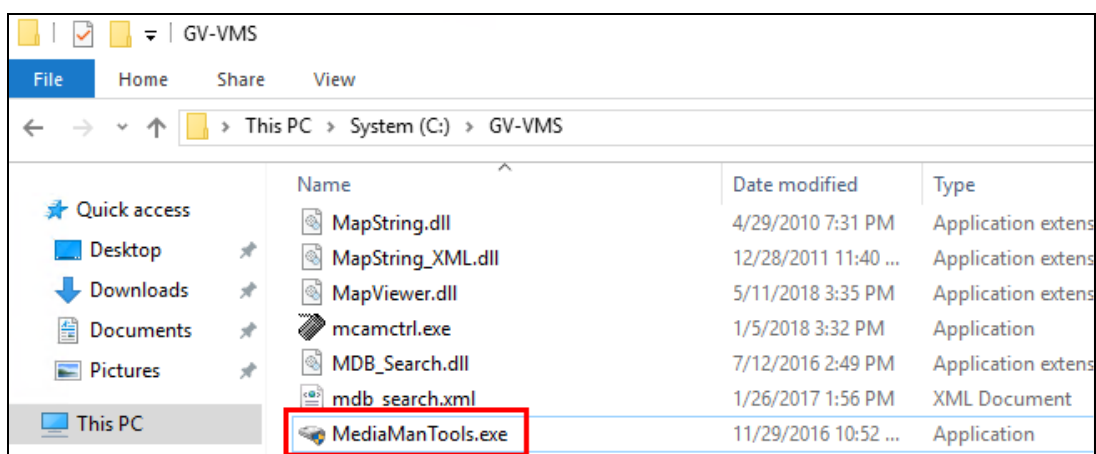

Figure 3-26

2. Click **Tools** on the menu bar and select **Setup LED Panel**. This dialog box appears.
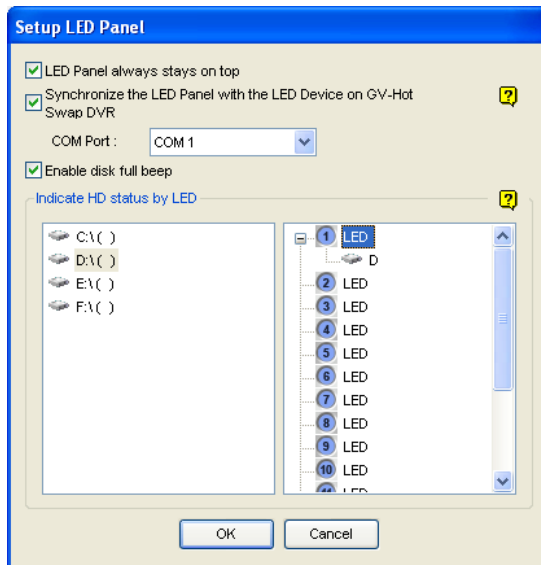

Figure 3-27

- **LED Panel always stays on top:** This option makes the LED panel stay on top of other windows when the Media Man Tools window is minimized.

- **Synchronize the LED Panel with the LED Device on GV-Hot Swap NVR:** When this option is enabled, the LED device installed on the front door of the GV-Hot Swap NVR / VMS System will synchronize with the LED panel on the screen.

- **Enable disk full beep:** When the hard disk drive is full, the system sounds on. Note this function only works when speakers are connected to the GV-Hot Swap NVR / VMS System.

3. By default, only the hard disk drive F will be assigned to LED. If you want to re-assign the hard disk drive or assign other drives to LEDs, freely drag and drop the hard disk drive to the desired LED on the tree.

4. Click **OK** to apply the settings, and minimize the MediaMan Tools window to display the LED panel on the screen.

5. If you want to return to the MediaMan Tools window, right-click the LED panel and select **Switch to the setup window**.

Note:

1. Because the LEDs are designed to indicate the video and audio files are being written or read, it is not recommended to assign the HDDs that store log files to the LEDs.

2. If the HDD that stores log files is assigned to a LED and its LED turns red, make sure the log files are not being written before you remove it. Otherwise, the log files might be lost during the removal.

3.8 Replacing the Hard Drive

You can replace the hard drive in the Hot Swap Drive Bay without shutting down the GV-Hot Swap Surveillance System V5.

1. Make sure the HDD Activity LED (No. 2, Figure 2-5) is off.

2. Slide the release latch to the right. The drawer handle pops up.

3. Pull out the drawer slightly, and wait until the hard drive spins down.

4. Pull out the drawer completely, remove the hard drive, and then mount a new one.

5. Screw the hard drive, and make sure all screw heads flush with the surface.

6. Put the drawer back in the drive bay and slide the release latch again.

3.9   Configuring the IP Address

The GV-Hot Swap Surveillance System V5 supports remote monitoring, control and configuration over a network connection. The following default IP addresses will automatically be assigned.

- **192.168.0.200** (All models)

- **192.168.0.201** (Only available for GV-Hot Swap NVR / VMS / Recording Server System)

- **192.168.0.202** (Only available for GV-Hot Swap Recording Server System)

The system supports up to 3 Ethernet ports. The number of Local Area Connection is assigned from the left to the right. Here we use the 4U (20-bay) model of GV-Hot Swap Recording Server System as illustration.

Local Area Connection 1
Default IP: 192.168.0.200

Local Area Connection 2
Default IP: 192.168.0.201

Local Area Connection 3
Default IP: 192.168.0.202

Default Subnet Mask: 255.255.252.0

Figure 3-28

To change the static IP addresses or to enable dynamic IP address, follow the steps below.

1. Right-click the **Network Connection** icon from the notification area and select **Open Network and Sharing Center**.
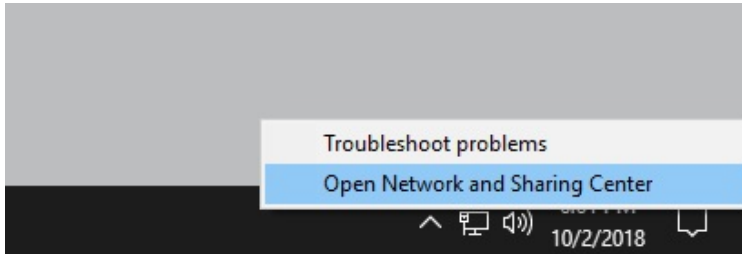

Figure 3-29

2. Click **Change Adapter Settings** from the left-hand side menu of the Network and Sharing Centre window.

3. Under Network Connections, select a network connection you want to configure its IP address.
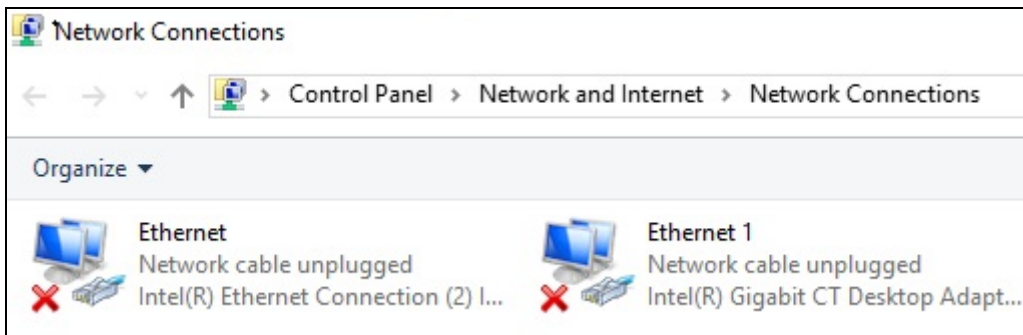

Figure 3-30

4. Select **Internet Protocol Version 4 (TCP/IPv4)** and then click **Properties**.
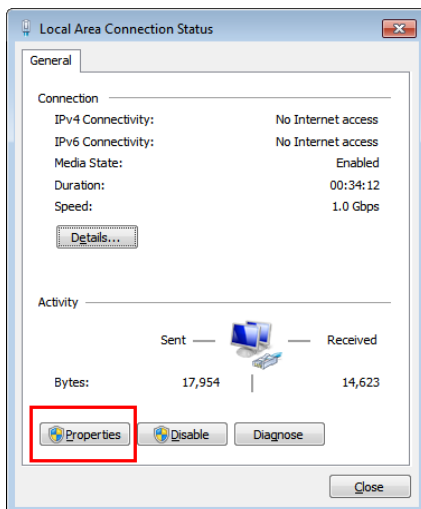
Figure 3-31

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5. Select **Use the following IP address** and type the new IP information in the fields or select **Obtain an IP address automatically** to enable dynamic IP address.
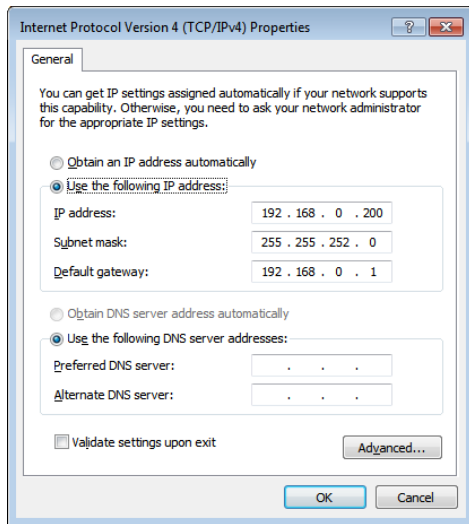

Figure 3-32

6. Click **OK** to finish the setting.

Note: For models with multiple Ethernet ports, it is recommended to assign IP channels received and clients transmitted into different networks. Refer to *Appendix B. Assigning Network Cards* for more details.


3.10 Multi View Display

Note this function is not available for **GV-Hot Swap Recording Server System**.

3.10.1 GV-Hot Swap NVR System

You can display multiple views on up to 6 monitors simultaneously, one for live viewing and the others for playback or other operation without obstructing surveillance scene, with GV-DVD / NVR System.

1. Click the **Search** button ![search] on your desktop, type **Control Panel** and press Enter key to open Control Panel.

2. In the Control Panel window, click **Adjust Screen Resolution** under the Appearance and Personalization section. This dialogue box appears.
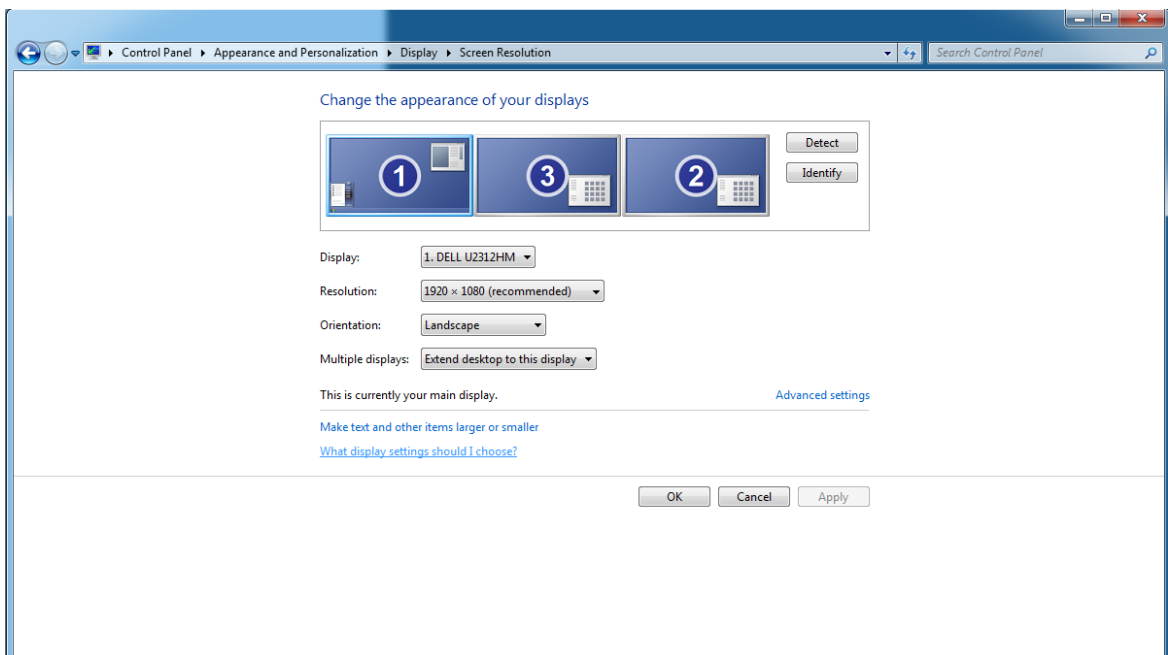
Figure 3-33

3. Click the **Display** list. If you do not see multiple monitors listed, check if your additional monitors are connected with the system properly.

4. Select the primary monitor from the list, and select **Make this my main display**.

5. Select additional monitors from the list, and select **Extend these displays** in the Multiple displays drop-down list.

6. Click **Identify**. Drag and drop the monitor icons to match the physical arrangement of your monitors.

7. Click **OK**.

8. Go to the system folder and locate **DMPOS.exe**.
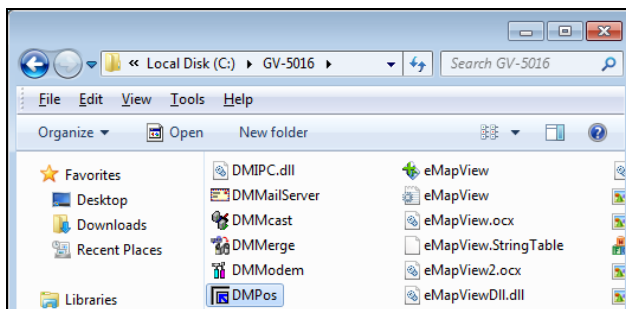
Figure 3-34

9. Run **DMPOS.exe**. This dialog box appears.
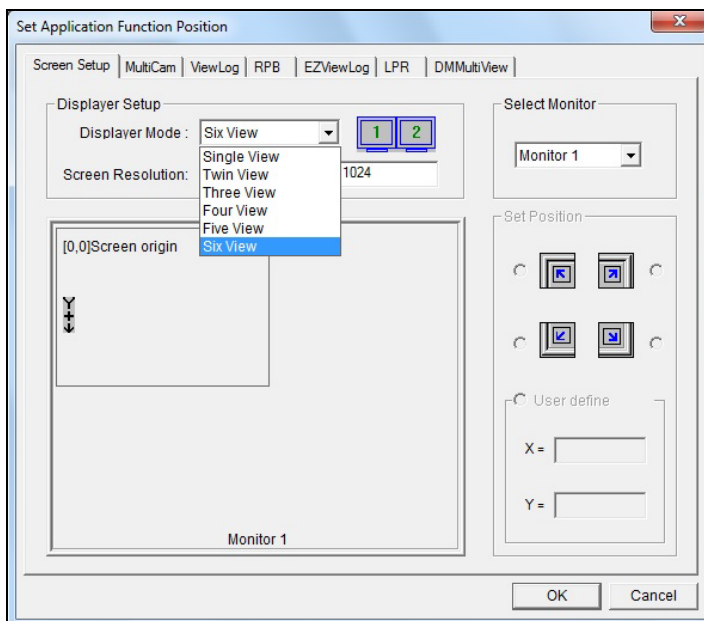
Figure 3-35

10. In the Screen Setup tab, select a desired monitor display mode, such as **Twin View** or **Three View**, from the Displayer Mode drop-down list.

11. To define the live view monitor, in the MultiCam tab, select **Monitor 1** from the Select Monitor drop-down list.

12. Click the desired application tab to move the application to the monitor, For example, select the **ViewLog** tab and **Monitor 2** from the Select Monitor drop-down list.

13. Click **OK**.

The live view should appear on monitor 1. After you open the ViewLog player, it will be displayed on monitor 2.

For details, see *Multi-view Display*, Chapter 11, *GV-DVR/NVR User's Manual* (C:\User Manual).

3.10.2   GV-Hot Swap VMS System V5

You can customize the display settings of GV-VMS. Click **Home** [icon], select **Toolbar** [icon], select **Configure** [icon], select **System Configure**, and click **Set Position**. This dialog box appears. The right side of the dialog box is only available when multiple monitors are installed.
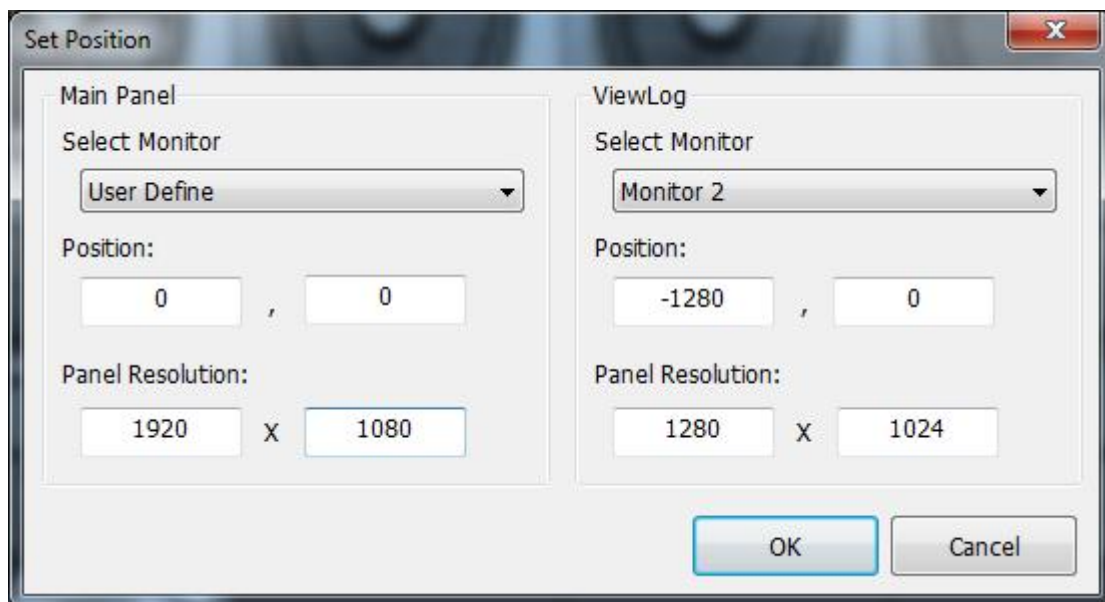
Figure 3-36

■ **Select Monitor:** If you have multiple monitors connected, select the monitor you want to configure from the drop-down list.

■ **Position:** Offsets the position of the GV-VMS window relative to the upper-left corner of the screen. The default position is 0, 0. A position of 100, 60 will place the GV-VMS window 100 pixels to the right and 60 pixels below the upper-left corner. This function is only supported when the GV-VMS window does not take up the entire screen.
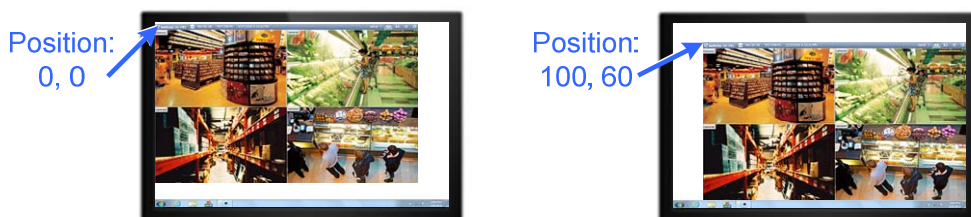
Figure 3-37

■ **Panel Resolution:** Sets the Panel Resolution of the GV-VMS.

3.11 Digital Matrix

Note this function is not available for **GV-Hot Swap VMS System V5, GV-Hot Swap Recording Server System**.

To create more screen space to display multiple channels, such as 32 channels, Digital Matrix is thus introduced to provide a way to view and manage multiple monitor displays.

The Digital Matrix includes these features:

- **Live view:** You can set different live views and screen divisions for each monitor.
- **Automatic channel scan:** You can set up to 16 scanned pages with different screen divisions and channels for each monitor.
- **Pop-up Alert:** You can be alerted by pop-up live videos when motion is detected or I/O devices are triggered.

3.11.1 Activating Multiple Monitors

Use Windows Display Property to activate multiple monitors.

1. Follow Steps 1 to 6 in *3.10 Multi View Display* to configure the additional monitors.

2. Start the GV-NVR, click the **Configure** button, click **Accessories**, select **Digital Matrix Setting**, select monitors from the **Display** list and select **Activate** for each monitor. All monitors must be activated one by one.

3. Click **Apply**. Your additional monitors should now display the channels seen on the primary monitor.

3.11.2 Setting Live View

You can set different live views and screen divisions for each monitor.

1. On the main screen, click the **Configure** button, click **Accessories**, and select **Digital Matrix Setting**. This dialog box appears.
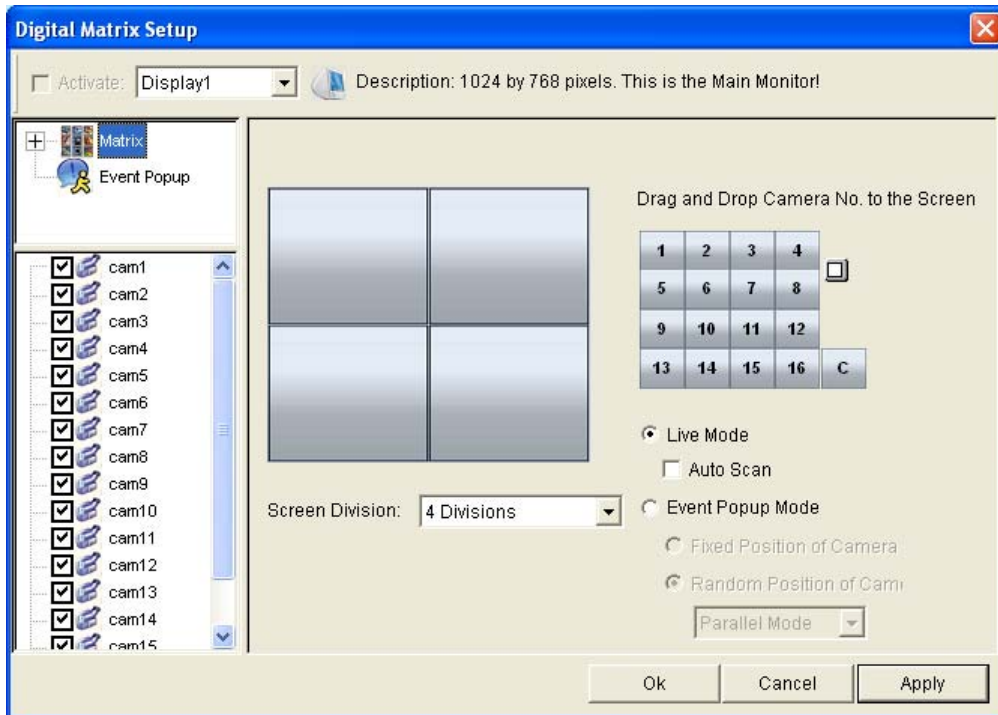
Figure 3-38

2. Use the **Display** list to select the monitor to be configured.

3. Select **Screen Division**.

4. Drag and drop the camera numbers to the desired positions on the divisions. To clear the assignment, drag and drop the "C" icon to that position.

5. Select **Live Mode**.

6. Repeat above steps to configure other monitors.

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

3.11.3 Setting Scanned Pages

You can set up to 16 scanned pages with different screen divisions and channels for each monitor.

1. Use the **Display** list to select the monitor to be configured.

2. In the upper-left column, expand the **Matrix** folder tree, and then click **Page 1**. This page appears.
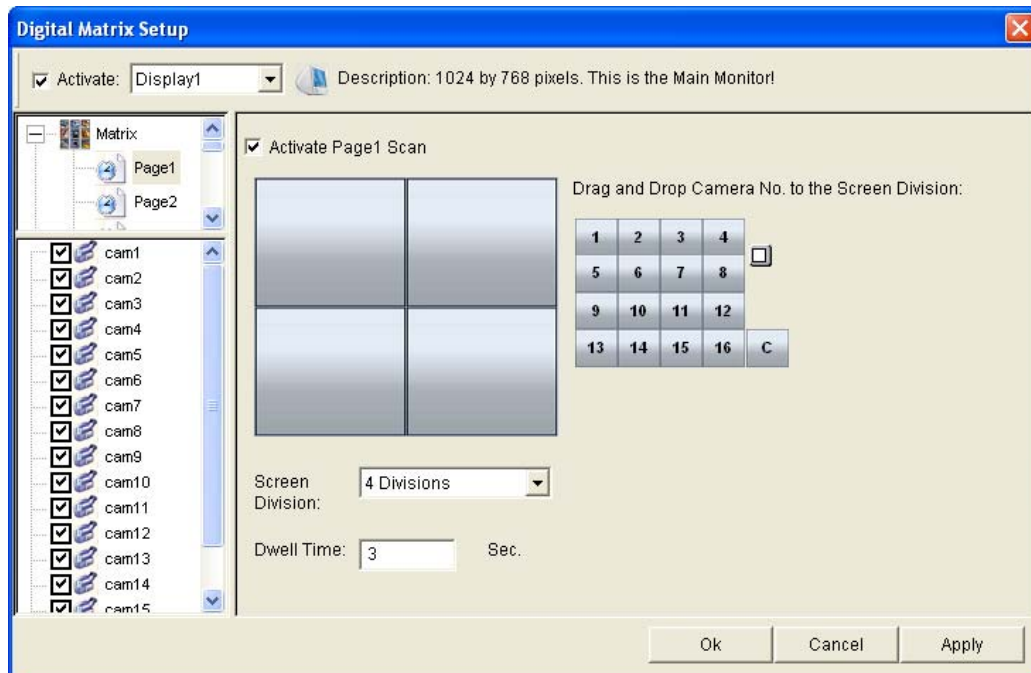
Figure 3-39

3. Select **Activate Page 1 Scan**.

4. Select **Screen Division**.

5. Drag and drop the camera numbers to the desired positions on the divisions. To clear the assignment, drag and drop the "C" icon to that position.

6. Specify **Dwell Time** for how long this scanned page remains on the monitor.

7. Repeat Steps 2 to 5 to configure more scanned pages for the specific monitor.

8. Repeat Steps 1 to 7 to configure scanned pages for other monitors.

9. In the upper-left column, click the **Matrix** icon and return to Figure 3-38.

10. Select **Auto Scan**.

11. Click **OK** to start scanning among pages.

3.11.4 Setting Pop-up Alert

You can be alerted by pop-up live videos when motion is detected or I/O devices are triggered.

1. Use the **Display** list to select the monitor to be configured.

2. In the upper-left column, click **Event Popup**. This page appears.
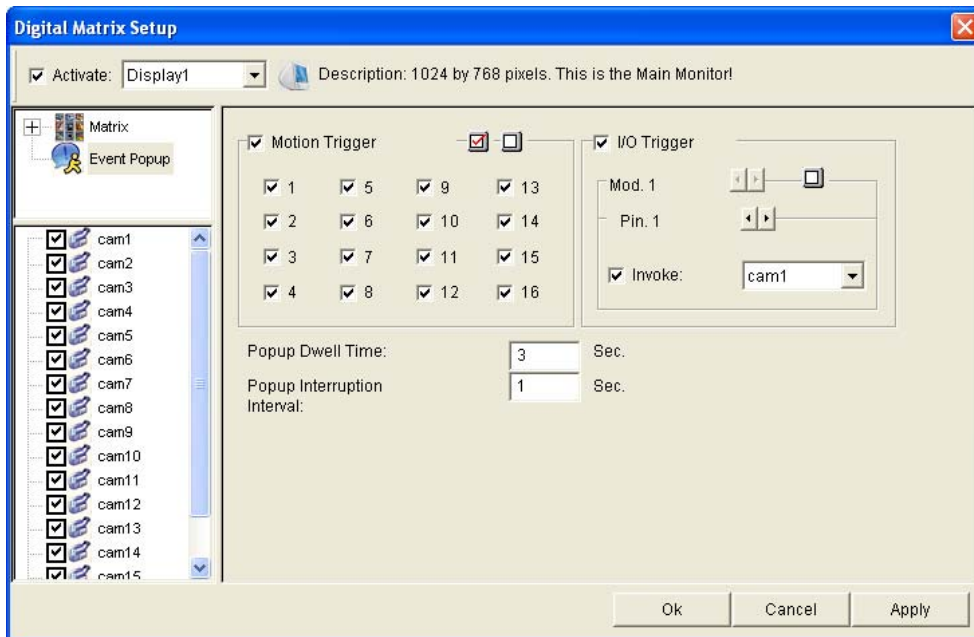
Figure 3-40

- **Motion Trigger:** The live video of selected cameras pops up when motion is detected.

- **I/O Trigger:** The live video of assigned camera pops up when the selected input device is triggered.

- **Popup Dwell Time:** Specify the amount of time that a pop-up live video remains in the foreground.

- **Popup Interruption Interval:** Specify the interval between camera pop-ups. This option is useful when several cameras are activated for pop-up alert at the same time.

3. Use the **Display** list to select other monitors for setup.

4. After above settings, click the **Matrix** icon and return to Figure 3-38.

5. Select **Event Popup Mode**. Then select **Fixed Position of Camera** or **Random Position of Camera**. For these two options, see *3.11.5 Setting Pop-up Positions*.

6. Click **OK**.

7. Start monitoring. When motion is detected or the input device is triggered, the live video will pop up for alert.

3.11.5   Setting Pop-up Positions

When you select **Random Position of Camera**, you can decide the positions for pop-up cameras.

■ **Fixed Position of Camera:** The cameras pop up in their assigned positions. To assign positions, select **Screen Division**. Then drag and drop the cameras number to the desired potions on the divisions.

■ **Random Position of Camera:** The positions of pop-up cameras are based on the sequence order of triggers. There are two modes for this position:

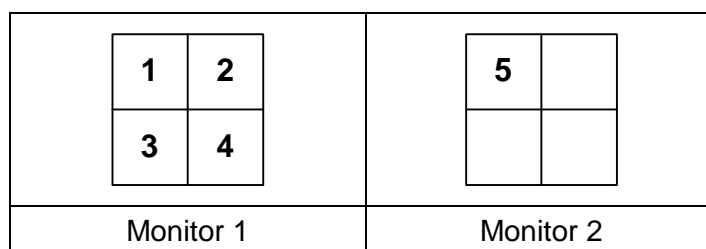　1. **Cascade Mode:** This mode can avoid the same cameras popping up on different monitors. This is suggested to be used when multiple monitors are placed close to each other.

　Example:

　Camera 1, Camera 2, Camera 3, Camera 4 and Camera 5 are assigned for pop-up alert on both Monitor 1 and Monitor 2. Monitor 1 is set at 4 screen divisions. When the five cameras are triggered at same time, the first 4 cameras show up on Monitor 1 and the 5th on Monitor 2.

1	**2**	**5**	
3	**4**		
Monitor 1		Monitor 2	

　2. **Parallel Mode:** This mode allows the same cameras simultaneously pop up on different monitors. This is suggested to be used when multiple monitors are placed in separate rooms.

　Example:

　Camera 1, Camera 2, Camera 3 and Camera 4 are assigned for pop-up alert on both Monitor 1 and Monitor 2. When the four cameras are triggered at the same time, they will show up simultaneously on both Monitor 1 and Monitor 2.

1	**2**	**1**	**2**
3	**4**	**3**	**4**
Monitor 1		Monitor 2	
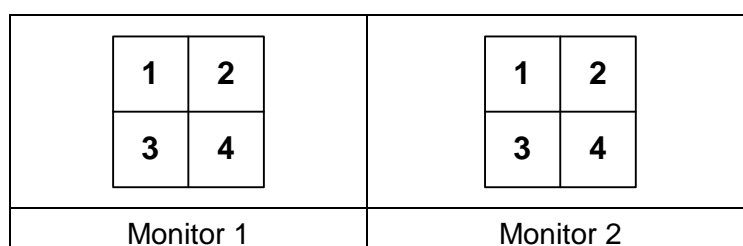
3.11.6   Setting Live View with Pop-up Alert

You can set a different live view mode with pop-up alert together for each monitor. When alert events occur, the live video of the associated camera will pop up on the assigned monitor to replace its live view mode.

1. To configure live view mode, follow the instructions in *3.11.2 Setting Live View*.

2. To configure pop-up alert, in the upper left column, click **Event Popup**. Figure 3-40 appears.

3. Configure **Motion Trigger**, **I/O Trigger**, **Popup Dwell Time** and **Popup Interruption Interval** for each monitor. For details see *3.11.4 Setting Pop-up Alert.*

4. Click the **Matrix** icon and return to Figure 3-38. Ensure the **Live Mode** option is selected.

5. Click **OK**. The live view mode you configured for each monitor is displayed.

6. Start monitoring. When alert events occur, the associated camera will pop up on the desired monitor.

3.12   Extended Installation

Optionally, you can purchase GV-IR Remote Control or GV-Keyboard V3 accessories to make your unit even more powerful and convenient, Gigabit Network Cards for additional gigabit ports, and Redundant Power Supply for uninterrupted supply of power.

- GV-Keyboard V3
- GV-IR Remote Control
- Gigabit Network Card
- Redundant Power Supply

3.12.1   GV-Keyboard V3

Note that this function is not supported by **GV-Hot Swap Recording Server System.**

The optional GV-Keyboard V3 is designed to operate the GV-Hot Swap NVR / VMS System exclusively. Using the USB cable supplied with the GV-Keyboard V3, plug one end into the GV-Keyboard V3 and the other end into any one of the USB ports on the back of the System; you can operate the Keyboard immediately without installing any drivers.

For details on the GV-Keyboard V3, find the *Installation Manual* included in its own package.

USB Cable

GV-Keyboard V3

USB Port
GV-Hot Swap Surveillance System V5
Back Panel
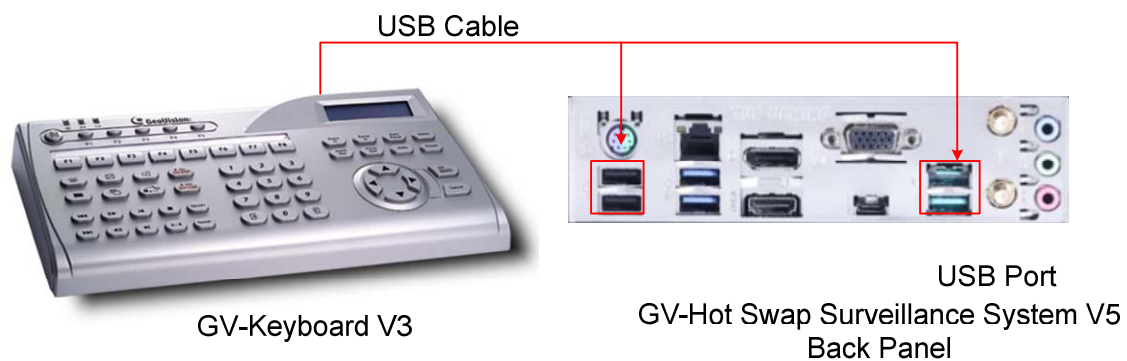
Figure 3-41

After the System starts up, the Keyboard controller dialog box will automatically appear and start service. The dialog box will run in the background and closing the dialog box will cause GV-Keyboard V3 to disconnect.
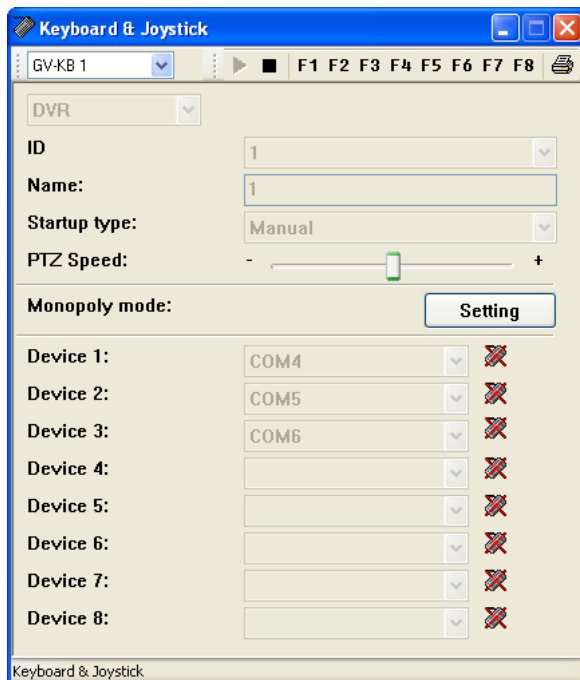
Figure 3-42

3.12.2   GV-IR Remote Control

Note that this function is not supported by **GV-Hot Swap Recording Server System.**

The optional GV-IR Remote Control provides easy control of the GV-Hot Swap NVR / VMS System. Its receiver is built in all models.

For details, see *GV-IR Remote Control User's Manual.*

GV-IR Remote Control   GV-Hot Swap DVR/NVR System V5

Figure 3-43

3.12.3   I/O Devices

Note that this function is not supported by **GV-Hot Swap Recording Server System**.

Note: Standard and optional GV-IO 12-In / Out Card are not applicable to 2U 4-Bay models. GV-IO Box is required for I/O connections to 2U 4-Bay models.

The GV-Hot Swap NVR / VMS System, with built-in GV-NET/IO Card, provides 4 alarm outputs and 4 sensor inputs.

4U (20-bay) & 3U (16 / 8-bay)

Figure 3-44

3.12.4   Gigabit Network Cards

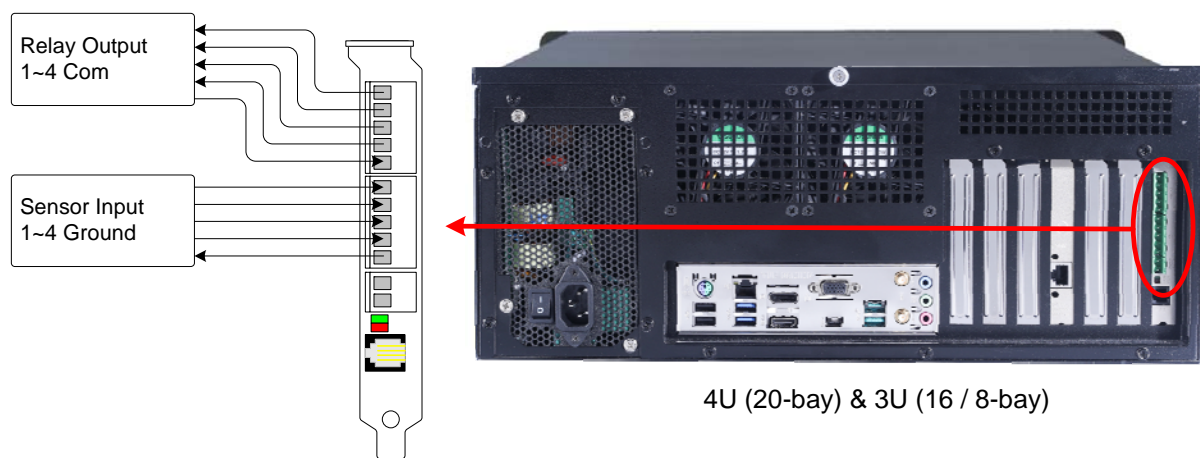The optional **Gigabit** and **10 Gigabit** Network Cards are available for GV-Hot Swap System V5 (Rev. E) upon request, with two choices of 1-Gb single port card and 2-port 10-Gb (20 Gb) card.

The number of optional Network Cards supported varies with different models. Refer to the table below.

GV-Hot Swap NVR / VMS System

Models	Default (1 Gb)	Optional Installation	
		1 Gb Network Card	20 Gb Network Card (2-port, 10-Gb)
2U (4-bay)	2 ports	N/A	N/A
3U (8-bay)	2 ports	3 cards	1 card
3U (16-bay)	2 ports	2 cards	1 card
4U (20-bay)	2 ports	2 cards	1 card

GV-Hot Swap Recording Server System

Models	Default (1 Gb)	Optional Installation	
		1 Gb Network Card	20 Gb Network Card (2-port, 10-Gb)
3U (16-bay)	3 ports	2 cards	1 card
4U (20-bay)	3 ports	2 cards	1 card

3.12.5   Redundant Power Supply

The Redundant Power Supply comes with 2 power supply modules for 3U and 4U models. Each power supply module shares the loading of the power supply. When one of the power supply modules is down, the other module still supports full power for the system.

4U models

Figure 3-45

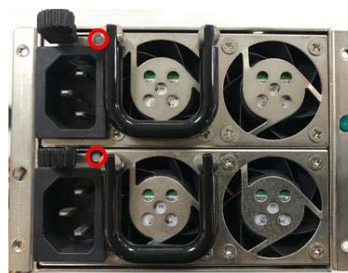| LED Indicators	Description
Ready LED	Glow red on both power supply modules when the power input is properly connected to the modules.
Access LED	Glow green on both power supply modules when the modules are functioning.
Alarm LED	Glow red or no light indicating the module is not functioning properly or out of order. The alarm LED will be accompanied by the alarm sound.

3U models

Figure 3-46

LED Indicators	Description
Ready LED	Glow red on both power supply modules when the power input is properly connected to the modules.
Access LED	Glow green on both power supply modules when the modules are functioning.
Alarm LED	Glow red on the broken power supply module for 2 ~ 5 sec, accompanying the alarm sound.

The Audio Alarm

When the audio alarm of the Redundant Power Supply rings, check:

1. if the modules are pushed all the way to the end, or

2. the power input is properly connected to the power supply.

If the modules are properly installed but the audio alarm continues to ring, the modules may be damaged and you may need to contact your distributor for a replacement. To stop the ringing alarm sound, press the alarm button. To remove the module from the system, push the release latch and pull out the entire module with the handle at the same time.
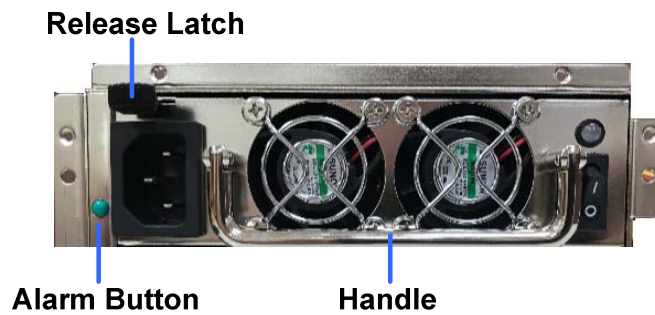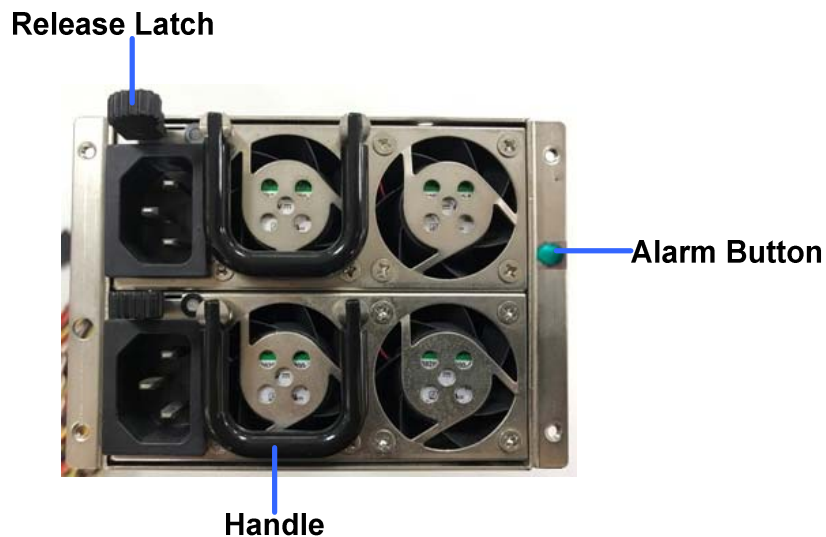
4U Models

Figure 3-47

3U Models

Figure 3-48

3.13   System Restoration

You can restore preinstalled files once they are damaged by running the recovery from the hidden partition. To restore the operating system and all preinstalled software, follow the steps below.

Note: After recovery, you need to re-install all settings and passwords. But the recovery will not delete your recording files saved on the GV-Hot Swap Surveillance System V5 since it only reformats the partition C and all of your files are still stored on other partitions.

---

1. Remove or turn off the power of any connected USB devices.
2. Turn off the power of all drive bays.
3. Restart the GV-Hot Swap Surveillance System V5.
4. Press **F11** button several times to avoid accessing the system.
5. When this screen appears, click the **OneKey System Recovery** button.
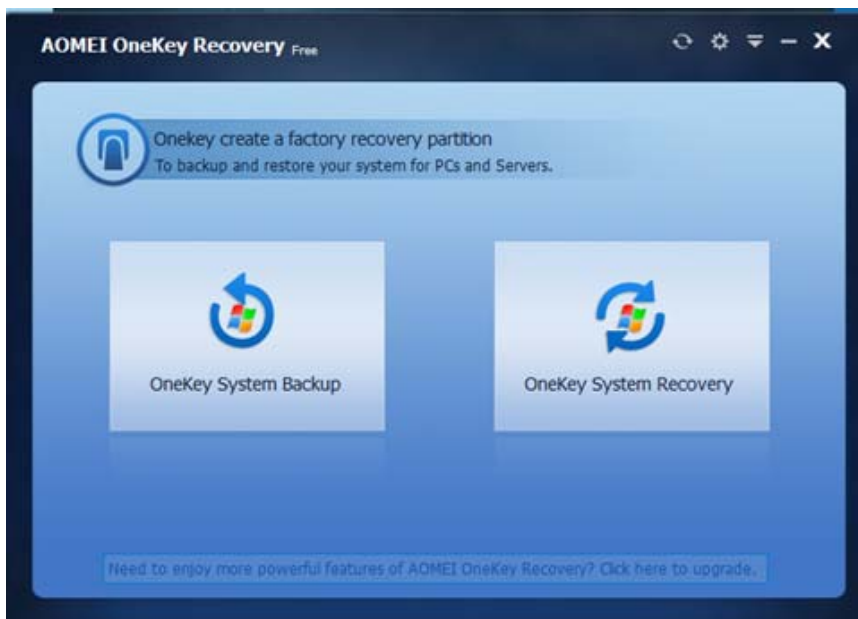
Figure 3-49

6. Select **Restore system using the image file in AOMEI OneKey Recovery Partition** and click **Next**.

7. After selecting which partition you want to recover, click **Start Restore** and click **Yes** when the following message appears to start restoring.
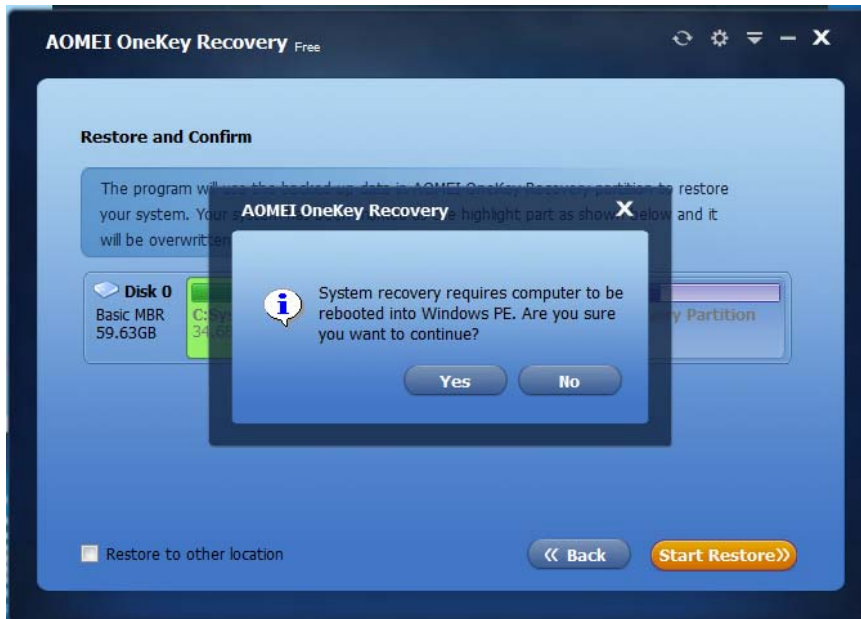
Figure 3-50

8. Once the restoration is complete, click **Finish** to leave the recovery system and restart the Windows automatically.

For the recovery system part, see *3.4 Windows Setup installation*.

3.14 Updating GV-Hot Swap Surveillance System V5

GeoVision will periodically update the GV-System Software (Multicam Surveillance System). If you like to update your GV-Hot Swap Surveillance System V5, contact your dealer for more information or check software update news at our website: http://www.geovision.com.tw

Chapter 4   Troubleshooting

GV-Hot Swap Surveillance System V5 is designed for durability. However, should problems occur, following the procedures here can help determine the cause.

A portable 2.5" HDD connected to the front panel cannot be detected.
When the portable 2.5" HDD connected to a GV-Hot Swap Surveillance System V5 cannot be detected, try this step:

Use a dual head USB cable and insert both heads to the USB ports on the GV-Hot Swap Surveillance System V5 front panel as illustrated below.
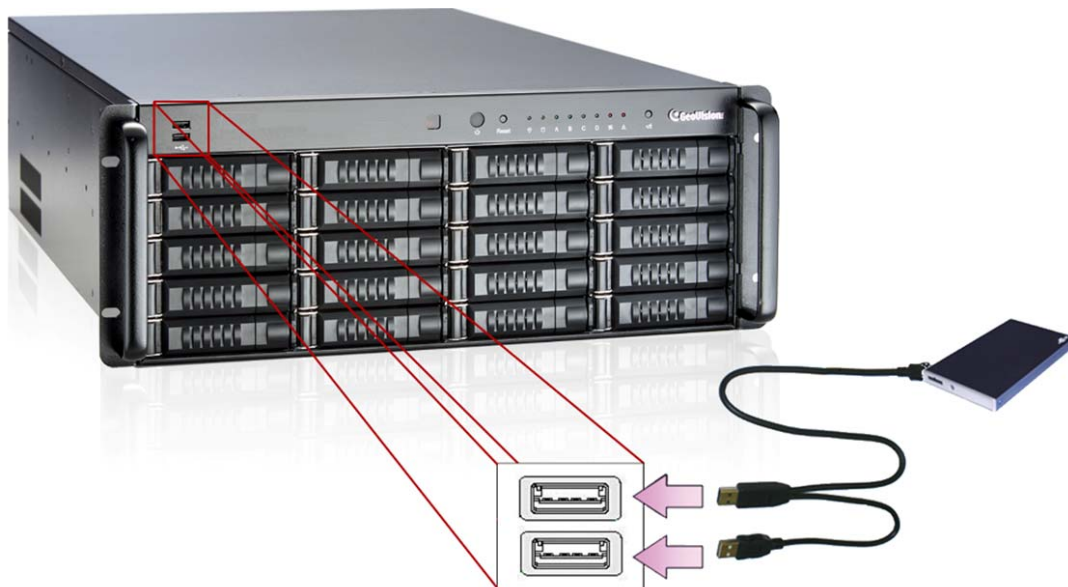
4U (20-Bay) Models

Figure 4-1

GV-Hot Swap Surveillance System V5 won't turn on.

If your GV-Hot Swap Surveillance System V5 won't turn on or you don't hear a startup sound or any fan or drive noise, try these steps:

1. For 4U (20-bay) models, make sure that you switch on the AC power on the rear panel.
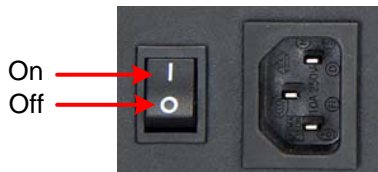
4U (20-Bay) Models

On
Off

Figure 4-2

2. Make sure that the power cord is properly connected to both GV-Hot Swap Surveillance System V5 and power outlet. If you are using a power strip, make sure that the strip is powered on.

3. If the problem persists, consult your dealer.

GV-Hot Swap Surveillance System V5 stops responding (aka "crashed" or "froze").

If your GV-Hot Swap Surveillance System V5 is not responding to your clicking, typing, or mouse movements, try these steps to get your GV-Hot Swap Surveillance System V5 back on track. Please note that you will lose any unsaved changes in all open applications.

1. Restart your GV-Hot Swap Surveillance System V5 by pressing the **Reset** button on the front panel.

2. If your GV-Hot Swap Surveillance System V5 is still unresponsive, switch off the **Power** button to shut it down. Wait 30 seconds and then restart your GV-Hot Swap Surveillance System V5.

Power
On/Off

Reset

Figure 4-3

GV-Hot Swap Surveillance System V5's hard disk corrupts.

If you are experiencing file system corruption problems, such as lost clusters, cross-linked files or invalid files or directories, try these steps:

1. Use the **HD Tune** utility to scan the hard disk for errors. Follow these steps:

   A. Download and install **HD Tune** from http://www.hdtune.com/

   B. Click the **Error Scan** tab and click **Start** to scan. Any found defects will be shown as red blocks.
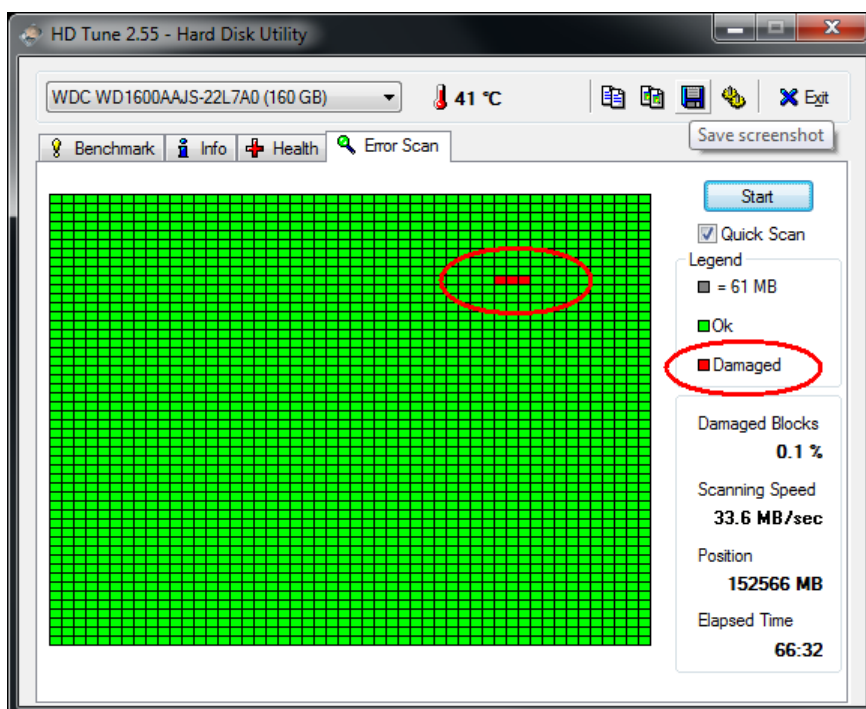
Figure 4-4

   C. If your hard disk drive is damaged, replace a new one.

2. If the HD Tune utility does not find any defects, use the Windows built-in utility to attempt to fix the errors. Follow these steps:

    A. Right-click the **Computer** icon on your desktop, select **Manage**, and select **Disk Management** when the Computer Management window appears.

    B. Right-click the desired hard disk and select **Properties** from the file menu to display the Properties window.

Figure 4-5

    C. Click the **Tools** tab in the upper portion of the window.

    D. Under Error-checking, click the **Check Now** button.
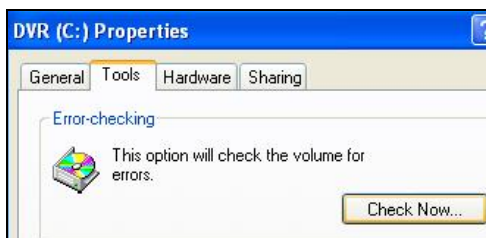
Figure 4-6

    E. Select **Automatically fix file system errors** and **Scan for and attempt recovery of bad sectors**.
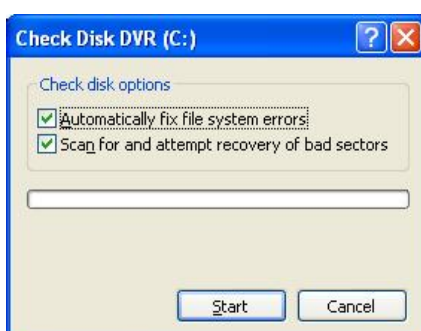
Figure 4-7

    F. Click **Start**.

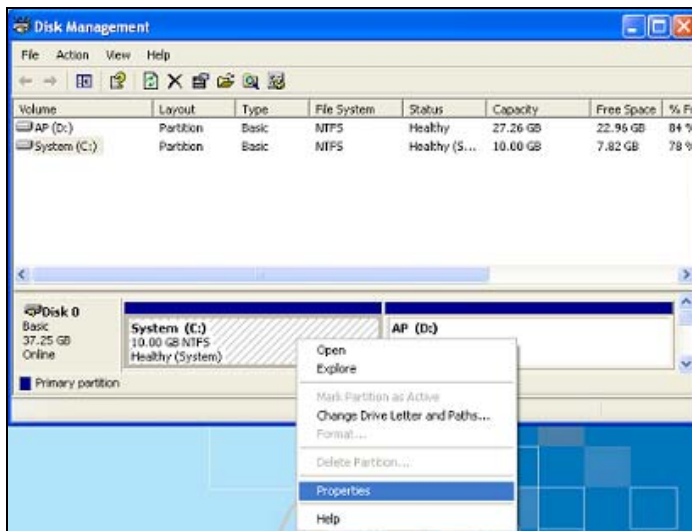3. If the Windows hard disk utility still cannot fix the problem in Partition C, try rebuilding the operating system and GV-System Software. Refer to *3.13 System Restoration.*

4. If the problem persists, replace a hard disk drive.

GV-Hot Swap Surveillance System V5 suffers virus attack.

GV-Hot Swap Surveillance System V5 is designed and optimized for Windows 7 platform. It may be vulnerable to newly created worms and exploits that attack any of the underlying operating system's previously undocumented flaws. If your GV-Hot Swap Surveillance System V5 suffers virus attack, try rebuilding the operating system and the software. Refer to *3.13 System Restoration.*

How can I find more help?

1. Visit our website at http://www.geovision.com.tw/

2. Write us at dvrsystem@geovision.com.tw

Specifications

GV-Hot Swap NVR / VMS System V5 (Rev. E)

For hardware and software specifications, and total frame rate and max number of channels supported, see details in:

- Datasheet GV-Hot Swap NVR System V5 – 4U 20-Bay
- Datasheet GV-Hot Swap VMS System V5 – 4U 20-Bay
- Datasheet GV-Hot Swap NVR System V5 – 3U 16 / 8-Bay
- Datasheet GV-Hot Swap VMS System V5 – 3U 16 / 8-Bay
- Datasheet GV-Hot Swap NVR System V5 – 2U 4-Bay
- Datasheet GV-Hot Swap VMS System V5 – 2U 4-Bay
- Surveillance System Comparison

Hard Disk Requirements

The total of recording frame rates that you can assign to a single hard disk is listed as below:

Frame Rate Limit in a Single Hard Disk				
Video resolution	H.264		H.265	
	Frame Rate (fps)	Bitrate (Mbit/s)	Frame Rate (fps)	Bitrate (Mbit/s)
1.3 MP	660	5.05	N/A	N/A
2 MP	660	7.01	N/A	N/A
3 MP	440	10.48	660	5.35
4 MP	330	11.65	550	7.74
5 MP	220	16.48	660	6.73
8 MP	550	14.13	N/A	N/A
12 MP	330	14.47	N/A	N/A

Note:

1. The data for GV-VMSH / NVRH V5 was determined using the bit rate listed above and hard disks with average R/W speed above 110 MB/s.
2. The H.265 codec is only supported by GV-VMS V15.11.0.0 or later and GV-DVR / NVR V8.7.0.0. or later through GPU decoding.

RAID Group Requirements

For ensuring high performance of RAID group deployment, the maximum number of recording channel that you can assign to a single RAID 5 group is suggested as below.

Video Resolution	Frame Rate (fps)	Max. Channel
1.3 MP	30	50 (6.16 Mbps)
2 MP	30	32 (12.59 Mbps)
3 MP	20	40 (9.83 Mbps)
4 MP	15	36 (10.4 Mbps)
5 MP	10	46 (8.5 Mbps)
8 MP	30	50 (16.9 Mbps)
12 MP	15	50 (17 Mbps)

GV-Hot Swap Recording Server System V5 (Rev. E)

For hardware and software specifications, and HDD capacity, see details in:

- Datasheet GV-Hot Swap Recording Server System V5 – 4U 20-Bay
- Datasheet GV-Hot Swap Recording Server System V5 – 3U 16 / 8-Bay

Appendix

A. Supported IP Devices

This list provides the supported IP device brands. For detailed information on the supported IP devices, refer to Supported IP Camera List on GeoVision's Website: http://www.geovision.com.tw/

GeoVision
ACTi
Arecont Vision
AXIS
Bosch
Canon
CNB
D-Link
Etrovision
Hikvision
HUNT
IQinVision
JVC
LG
MOBOTIX
Panasonic
Pelco
Samsung
Sanyo
SONY
UDP
Verint
VIVOTEK

B. Assigning Network Cards

GV-NVRH V5 / GV-VMSH V5 and GV-Hot Swap Recording Server System come with multiple Ethernet ports. To increase network bandwidth and avoid network bottleneck, you need to set up multiple networks and divide networks into different multiple subnets or segments. Next, organize IP channels received and clients transmitted into different networks.

1. To set up multiple networks, you need to install multiple network cards. Each network card is assigned a different IP address and subnet mask.
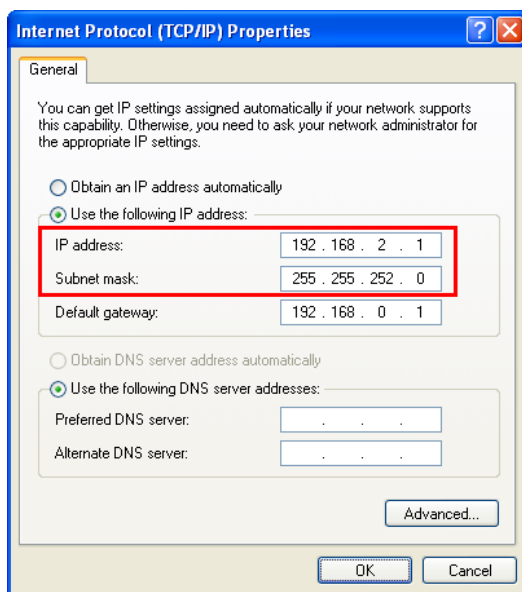
2. Organize IP channels and clients into groups and then assign each group to different network cards using the IP addresses you have set up.

For **GV-NVRH V5**, the recommended network allocation is illustrated as below. The first network card can receive up to 32 IP channels in 2 M resolution, and transmit up to 32 in 2 M resolution. The second network card can transmit up to 64 channels in 2 M resolution.

GV-NVRH V5 + 2 Network Cards assigned on different networks

Appendix

For **GV-VMSH V5**, the recommended network allocation is illustrated as below. The first network card can receive up to 64 IP channels in 2 M resolution. The second network card can transmit up to 64 channels in 2 M resolution.

GV-VMSH V5 + 2 Network Cards assigned on different networks

For **GV-Hot Swap Recording Server System**, the recommended network allocation is illustrated as below. The first network card can receive up to 256 IP channels in 2 / 3 / 4 M resolution. The second and third network cards can each transmit up to 300 channels to remote clients.

GV-Recording Server +
3 Network Cards assigned on different networks

Warranty Requirements

Thank you for purchasing the GV-Hot Swap Surveillance System V5 (Rev. E). GeoVision understands that accidents happen, and have developed a warranty policy in place. See http://www.geovision.com.tw/warranty.php for more information on warranty.

Before you return the product

Some problems you experience may be related to software or the operating system. It is important to investigate other sources of assistance first. Before returning the product, try the following:

1. Review troubleshooting sections in the documentation for software and peripheral devices.

2. Try rebuilding the operating system and GV-System. Refer to *3.13 System Restoration*.

3. Consult your dealer. They are your best sources for current information and support. Or you can call or email GeoVision offshore offices for assistance.

   When you call or e-mail, please inform us the following:

   - Model name
   - Bar Code
   - Software system version
   - Details of the defect or problem
   - Attempted solutions
   - Your contact information
   - Reseller's contact information

4. If you find it is the software problem, please check our website or your dealer for software updates.

Appendix

Obtaining Warranty Service

If you are still unable to solve the problem and suspect that it is hardware related, follow these:

1. Send an e-mail to GeoVision to start Return Merchandise Authorization (RMA) process.

   E-Mail: sales@geovision.com.tw or dvrsystem@geovision.com.tw

2. Securely pack the product in its original carton using the original packing material, or in equivalent packaging.

3. The product shall be returned to **GeoVision, Taiwan** at your expense for shipping and insurance costs.

BEFORE YOU DELIVER YOUR GV-HOT SWAP SURVEILLANCE SYSTEM V5 FOR WARRANTY SERVICE, IT IS YOUR RESPONSIBILITY TO BACK UP YOUR DATA. YOU WILL BE RESPONSIBLE FOR REINSTALLING ALL DATA, SETTINGS AND PASSWORDS. DATA RECOVERY IS NOT INCLUDED IN THE WARRANTY SERVICE AND GEOVISION IS NOT RESPONSIBLE FOR DATA THAT MAY BE LOST OR DAMAGED DURING TRANSIT OR A REPAIR.