

# GV-Tower System V2 (Rev. D)

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## *User's Manual*





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# User's Manual for GV-Tower System V2 (Rev. D)

Welcome to the GV-Tower NVR/VMS System V2 (Rev. D) User's Manual.

The Manual provides an overview of GV-Tower NVR/VMS System V2 (Rev. D) and its accessories. It also includes the instructions to guide you through the installation and use of GV-Tower NVR/VMS System V2 (Rev. D):

## **Chapter 1, Introduction**

Identifies the accessories and options of GV-Tower NVR/VMS System V2 (Rev. D).

## **Chapter 2, Overview**

Identifies the components of GV-Tower NVR/VMS System V2 (Rev. D).

## **Chapter 3, Getting Started**

Provides step-by-step instructions on setting up GV-Tower NVR/VMS System V2 (Rev. D).

## **Chapter 4, Troubleshooting**

Suggests courses of action if GV-Tower NVR/VMS System V2 (Rev. D) doesn't seem to be working properly.

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## 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.
- **Do not operate** the product in high humidity areas or expose it to water or moisture.
- **Do not put** the product in an unstable, a 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.

# Chapter 1 Introduction

## 1.1 Features

- Powered by Intel Core i5 Processor
- 64-bit Windows 10 IoT Enterprise
- Support for GPU Decoding
- 4-bay hot swap data HDD
- Maximum storage capacity of 56 TB
- One Gigabit LAN port
- Support for dual display from the two video outputs: HDMI, DisplayPort
- Support for 3rd party IP devices
- Support for 32-channel GV-NVR/VMS
- All-in-one solution (Live View, Playback, Recording, Backup, CMS)
- Video analysis (Advanced Motion Detection, Privacy Mask, Scene Change Detection and Counter)
- Fisheye camera dewarping function
- Automatic connection to GV-IP devices
- H.265 / H.264 / MJPEG / MPEG4
- On-screen LED panel for HDD status
- Smart device access
- Multiple languages

## 1.2 Model

GV-Tower NVR/VMS System V2 (Rev. D) has the following models:

<b>GV-Tower NVR System V2 (Rev. D)</b>	<ul style="list-style-type: none"> <li>- 32-channel digital video recorder</li> <li>- 32-channel of free GeoVision IP devices, or 32-channel combination of GeoVision IP devices and third-party IP devices digital video recorder</li> </ul>
<b>GV-Tower VMS System V2 (Rev. D)</b>	<ul style="list-style-type: none"> <li>- 32-channel digital video recorder</li> <li>- 32-channel of free GeoVision IP devices, or 32-channel combination of GeoVision IP devices and third-party IP devices digital video recorder</li> </ul>

## 1.3 Software License

### 1.3.1 GV-Tower NVR System V2 (Rev. D)

<b>Free License</b>	32 channels from GV-IP devices
<b>Maximum License</b>	32 channels from third-party IP devices
<b>Increment for Each License</b>	1 to 32 third-party IP cameras in increments of 2 channels
<b>Optional Combinations</b>	N/A
<b>Dongle Type</b>	Internal
<b>Note:</b> The Maximum License is a paid service.	

### 1.3.2 GV-Tower VMS System V2 (Rev. D)

<b>Free License</b>	32 channels from GV-IP devices
<b>Maximum License</b>	32 channels from 3 <sup>rd</sup> -party IP devices
<b>Increment for Each License</b>	3 <sup>rd</sup> -party IP cameras, in increments of 1 channel
<b>Optional Combinations</b>	N/A
<b>Dongle Type</b>	Internal
<b>Note:</b> The Maximum License is a paid service.	



## 1.4 Packing List

The GV-Tower NVR/VMS System V2 (Rev. D) package includes the following items. If any of the items are missing or damaged, contact your dealer to arrange a replacement.

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

---

- GV-Tower NVR / VMS System V2 (Rev. D) x 1
- Keys for Hard Disk Safety Lock x 2
- Hard Disk Drive Screw x 16



- AC Power Cord x 1



- Documents Download Guide x 1

## 1.5 Recommended Hard Drive

For system efficiency, we recommend the following enterprise level hard disk drives. Avoid using desktop level or green HDD which may affect system efficiency. For details, see *Appendix D. Certified Hard Disk Drive*.

- Seagate Enterprise Series
- WD Gold Level Series
- WD Ultrastar Series

## 1.6 Options

Optional devices can expand the capabilities and versatility of your GV-Tower NVR/VMS System V2 (Rev. D). Contact your dealer for more information.

<b>GV-COM V3</b>	This unit can add 1 RS-485 port to your computer through a USB connector.
<b>GV-Data Capture V3 Box</b>	GV-Data Capture unit allows the integration of POS systems and the GeoVision surveillance system through cable or network connection.
<b>GV-IO Box Series</b>	GV-IO Box series provides 4 / 8 / 16 inputs and relay outputs, and supports both DC and AC output voltages, with optional support for Ethernet module and 4E additionally supporting PoE connection.
<b>GV-IR Remote Control</b>	GV-IR Remote Control provides easy control of the GeoVision surveillance system.
<b>GV-Joystick V2</b>	GV-Joystick facilitates the PTZ camera control. It can be either plugged into the GeoVision surveillance system for independent use or connected to GV-Keyboard to empower the operation.
<b>GV-Keyboard V3</b>	GV-Keyboard V3 is designed to program and operate the GeoVision surveillance system using keyboard and function keys, and it can also be connected with PTZ cameras directly for PTZ control.

## Chapter 2 Overview

### 2.1 Front View

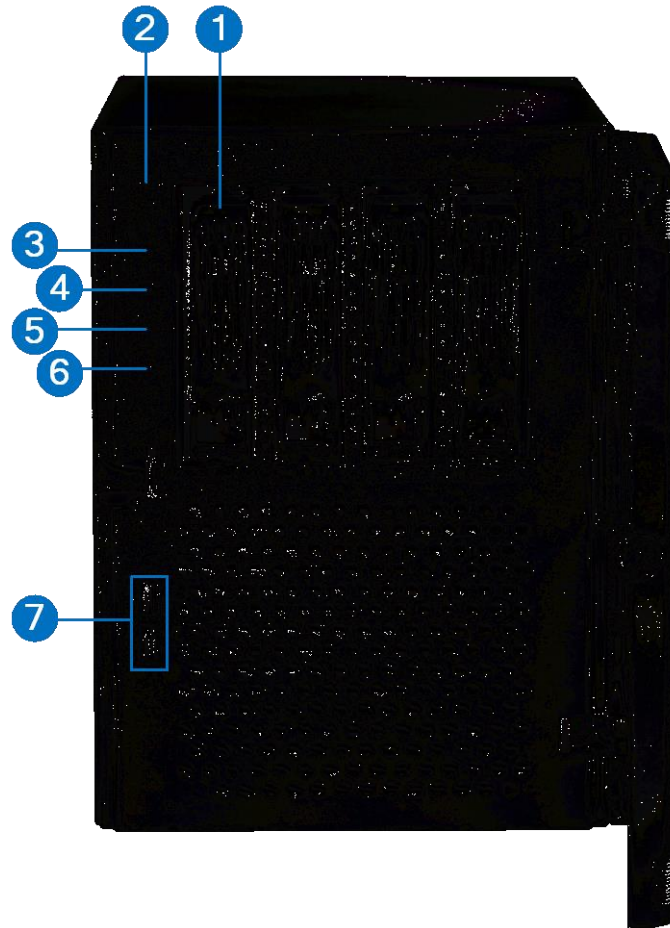


Figure 2-1

No.	Name	No.	Name
1	3.5" HDD Tray x 4	5	Not Functional
2	Power Button	6	Reset Button
3	Power LED (Blue)	7	USB (3.2 Gen 1) x 2
4	HDD Activity LED (Red)		

## 2.2 Rear View

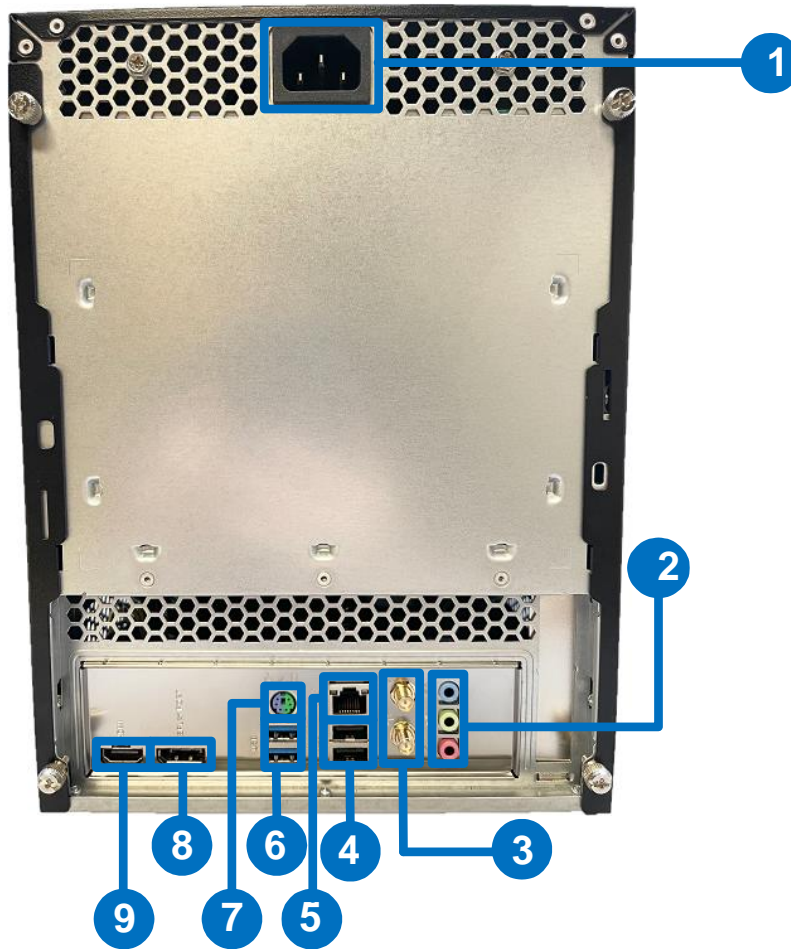


Figure 2-2

No.	Name	No.	Name
1.	Power Connector	6.	USB 3.2 Port x 2
2.	Audio Jack x 3 ➤ Line In (Blue) ➤ Line Out / Front Speaker Out (Green) ➤ Mic In (Pink)	7.	PS/2 keyboard / mouse port
3.	Not functional	8.	DisplayPort x 1
4.	USB 2.0 Port x 2	9.	HDMI Port x 1
5.	Ethernet Port x 1		

## Chapter 3 Getting Started

### 3.1 Basic Installation

This section describes all the equipment required to program and operate GV-Tower NVR/VMS System V2 (Rev. D). Here we use GV-Tower NVR System V2 (Rev. D) as the example.

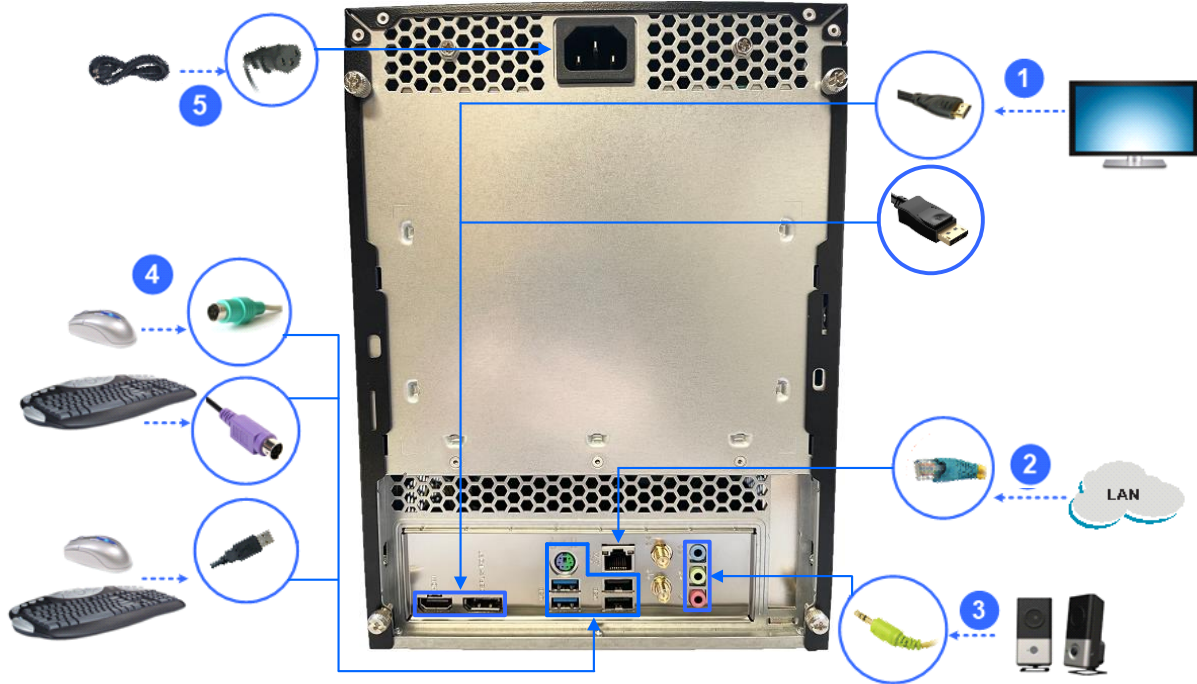


Figure 3-1

1. Connect an HDTV to GV-Tower NVR/VMS System V2 (Rev. D) using the HDMI / DisplayPort cable supplied by the HDTV manufacturer.
2. Using the RJ-45 cable, connect one end to the Ethernet port and the other end to Network.
3. Connect speakers to the Audio Line Out port.
4. Connect the mouse and keyboard to the USB port (either USB 2.0 or USB 3.2 port) or the PS/2 mouse / keyboard port.
5. Using the supplied power cord, connect one end to the AC input and the other end to the power outlet.

Once the above hardware is properly connected, press the Power button on the front panel to start the system. It takes about 1 minute for startup. The system should load automatically and display cameras in the main screen.

### 3.1.1 Using the IR Remote Control

The optional GV-IR Remote Control provides easy control of GV-Tower NVR/VMS System V2 (Rev. D). Its receiver should be plugged into any USB ports of the system.

For details, see *GV-IR Remote Control User's Manual* (**C:\UserManual**).

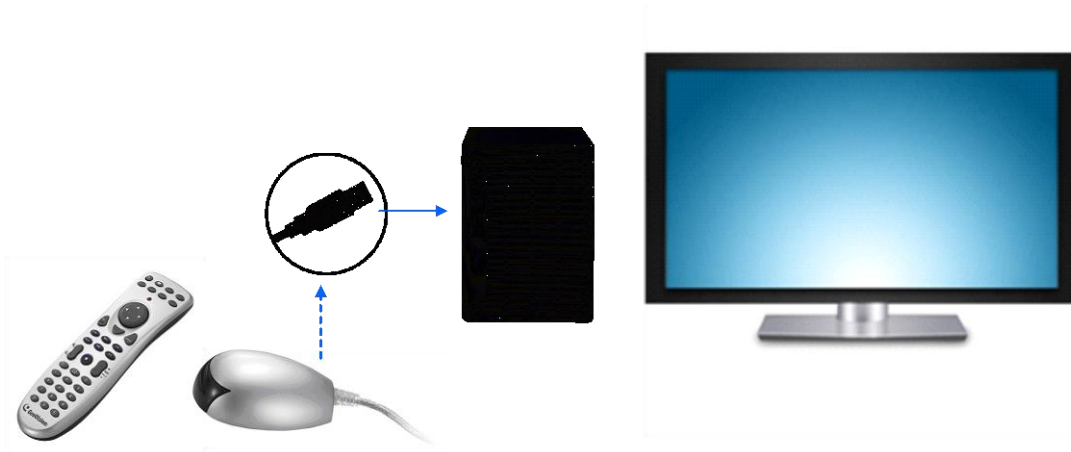


Figure 3-2

## 3.2 Installing the Hard Drive

GV-Tower NVR/VMS System V2 (Rev. D) uses SATA hard drives for video and audio data storage. Before recording, ensure to install your hard drives. Follow the below steps to install the hard drive.

1. Press the release latch. The drawer handle pops up.

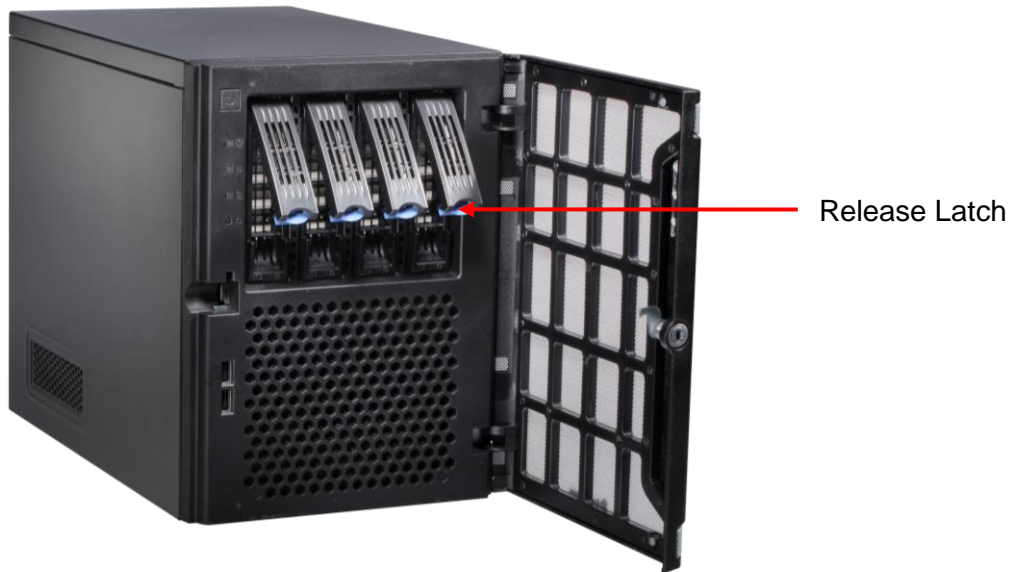


Figure 3-4

2. Pull out the drive drawer.
3. Remove the plastic carrier from the chassis.

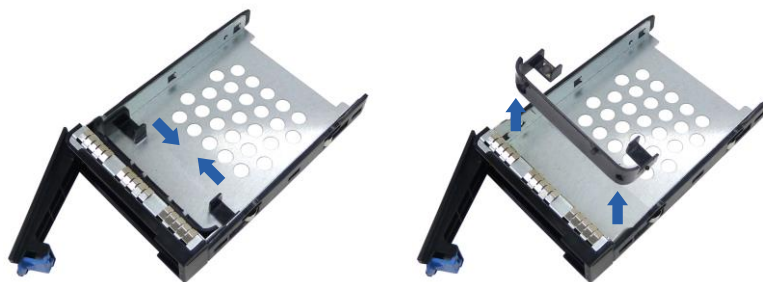


Figure 3-5

4. Insert the hard drive in the drawer.



Figure 3-6

5. Secure the hard drive with the 4 screws, and make sure all screw heads flush with the surface.



Figure 3-7

6. Put the drawer back in the drive bay of GV-Tower NVR/VMS System V2 (Rev. D), and push the latch until it locks.
7. When the Power LED on the drawer shines blue, the hard drive is now ready to use.



Figure 3-8



### 3.3 Starting up Windows

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.

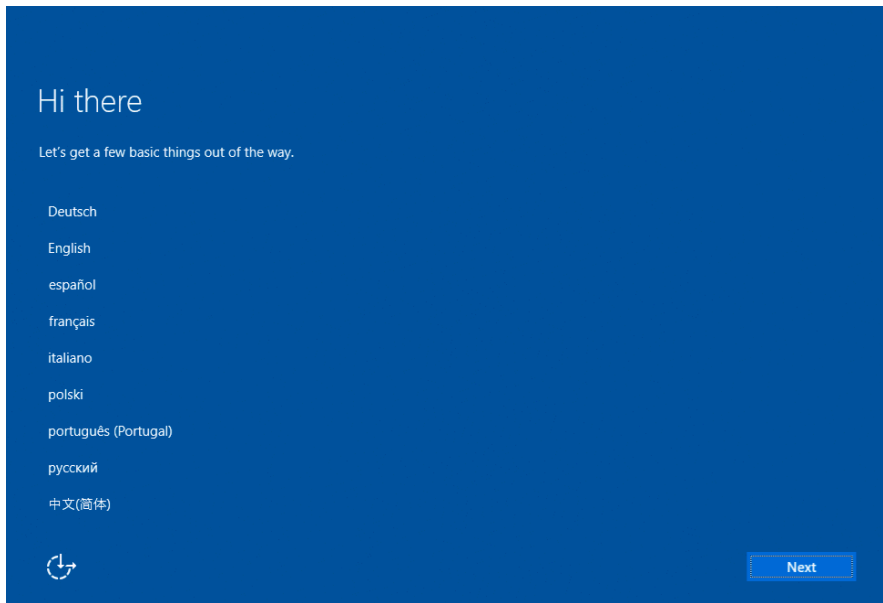


Figure 3-9

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

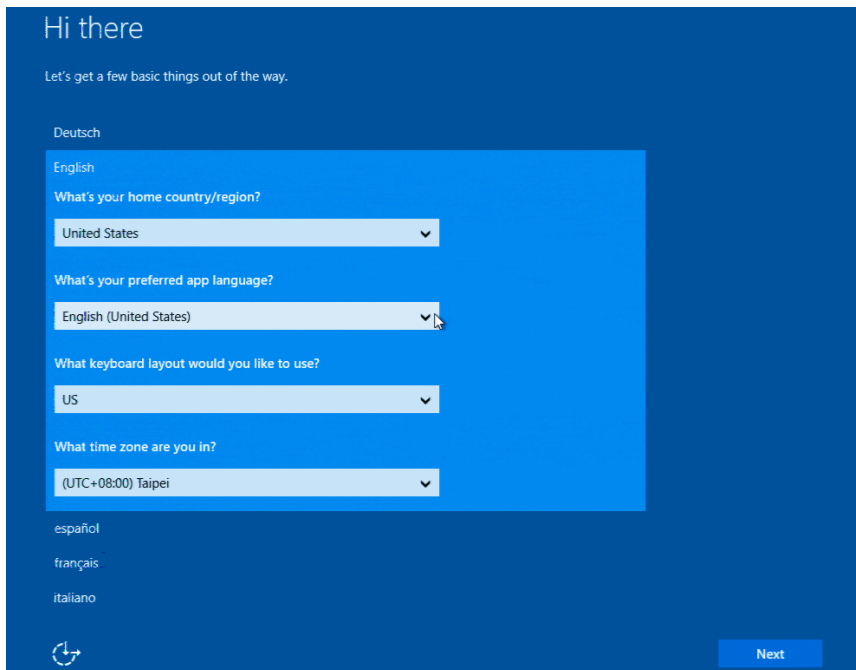


Figure 3-10

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**.

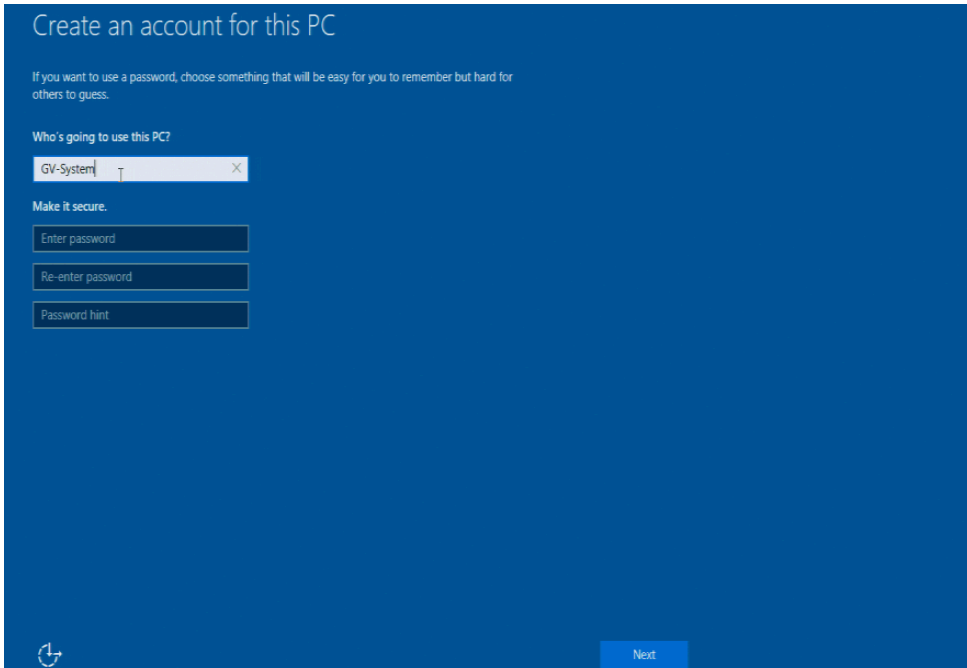


Figure 3-11

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


---

**IMPORTANT:** In case of any problems causing you unable to access Windows operating system, it is highly recommended to back up the OS before you start any settings or operations. For details, see [3.10 System Restoration](#).

---

## 3.4 Formatting the Hard Drive

After installing hard drives to your system, you will need to format them before use.

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.

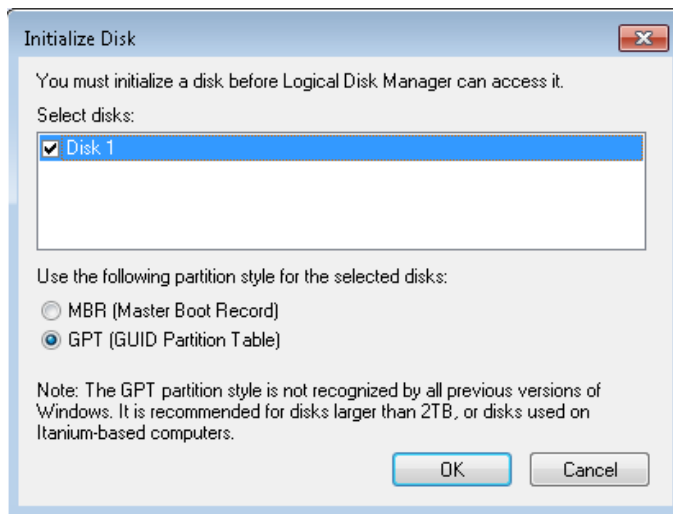


Figure 3-9

3. Right-click in the unallocated space of a new drive, and select **New Simple Volume**.

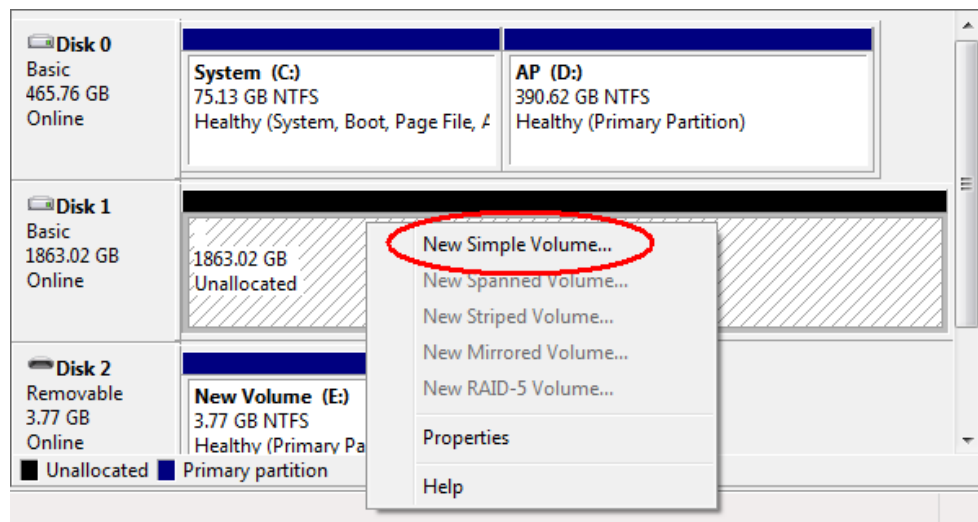


Figure 3-10

4. The New Simple Volume Wizard appears. Click **Next** to continue.

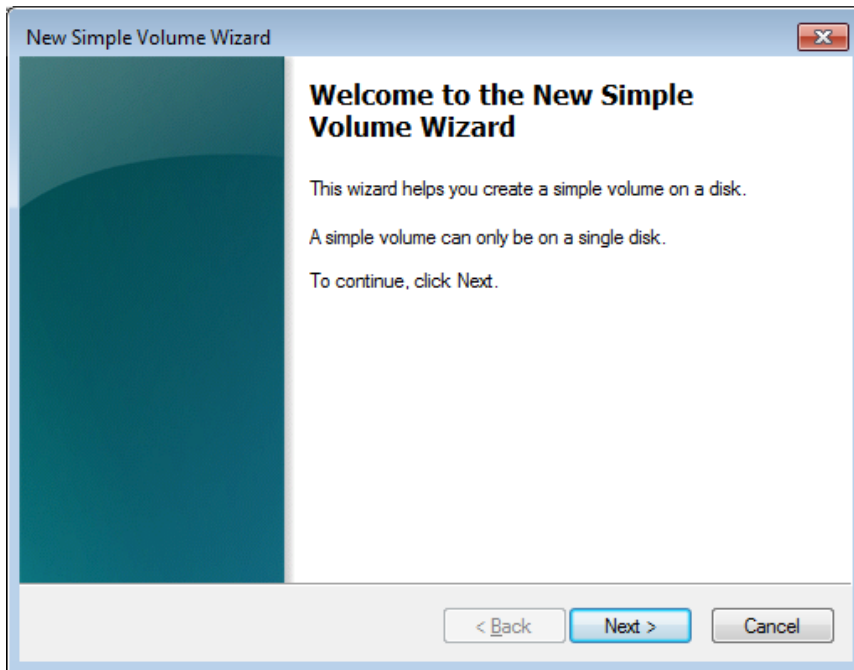


Figure 3-11

5. The default partition size is the same as the maximum disk space. Make changes if necessary. Click **Next** to continue.

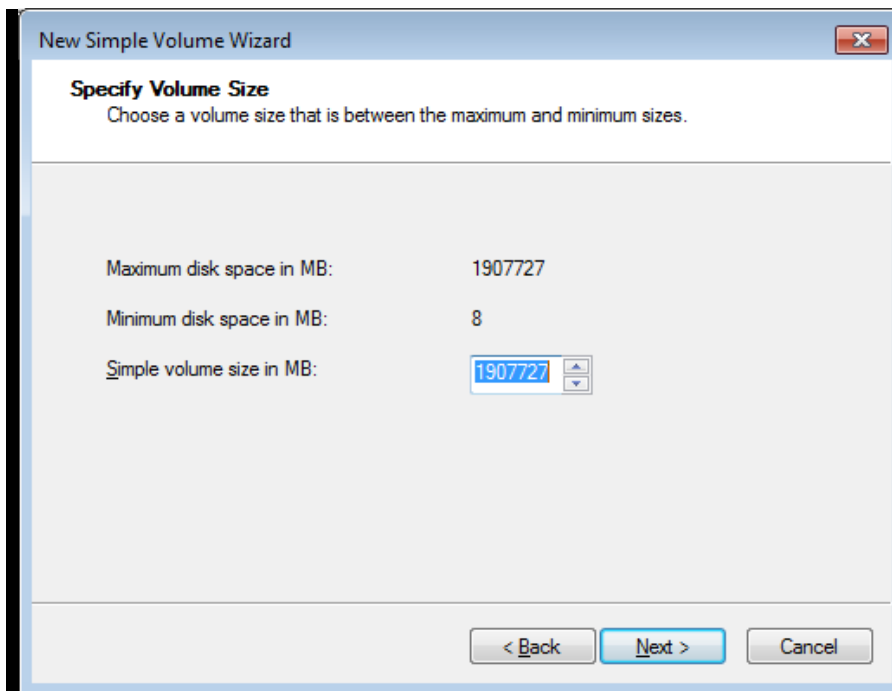


Figure 3-12

6. Assign a drive path that is not in use by other devices, and click **Next** to continue.

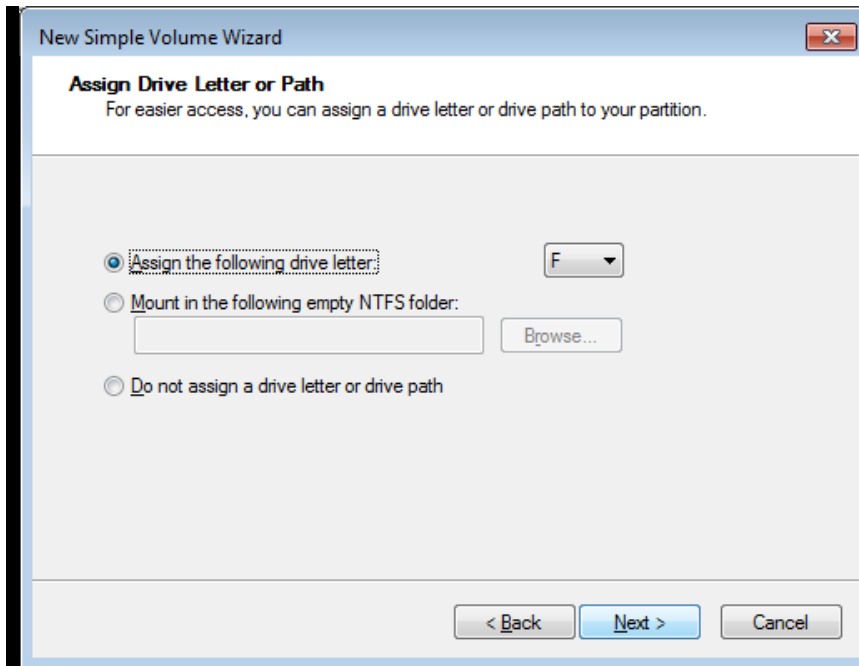


Figure 3-13

---

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

---

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

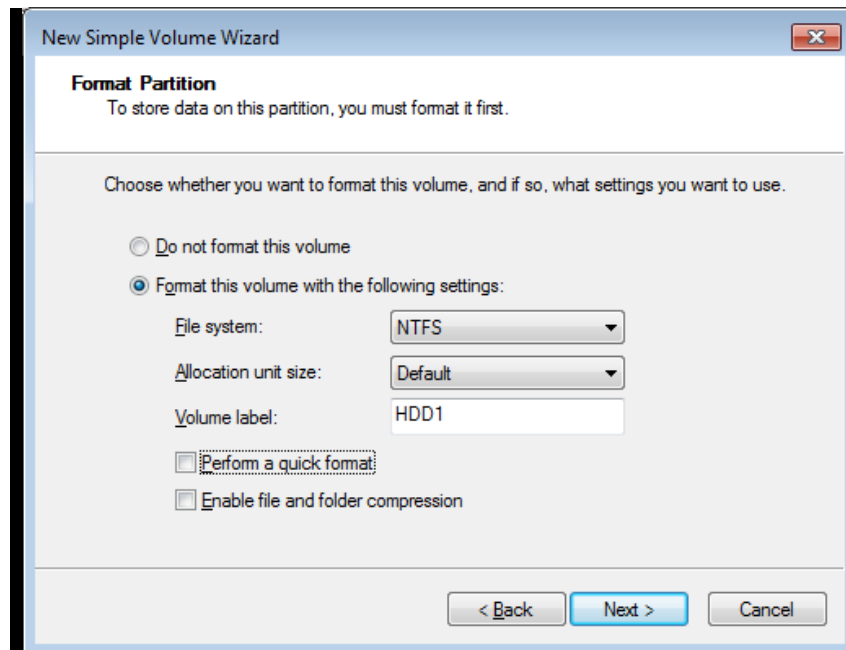


Figure 3-14

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

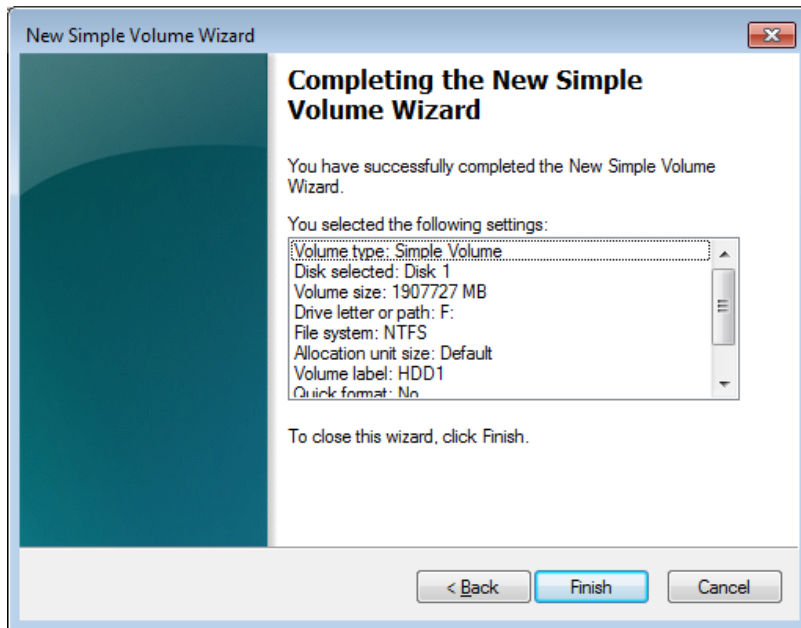


Figure 3-15

- When the drive is successfully initialized, partitioned, and formatted, its status description should display *“Healthy.”*

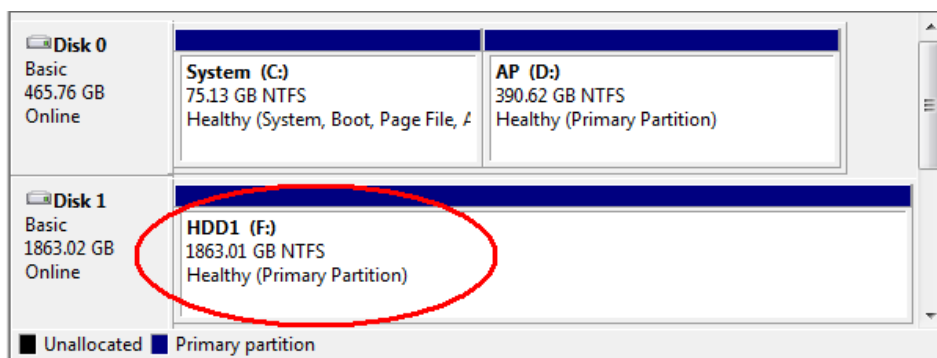


Figure 3-16

## 3.5 Adding the Hard Drive to the Recording Path

For GV-Tower NVR/VMS System V2 (Rev. D), you need to add the formatted hard drives to the recording path before recording.

### 3.5.1 GV-Tower NVR System V2 (Rev. D)

1. Click the Windows **Start** button, click **GV-NVR**, and select **Hot Swap HDD Tool**. The MediaMan Tools window appears.

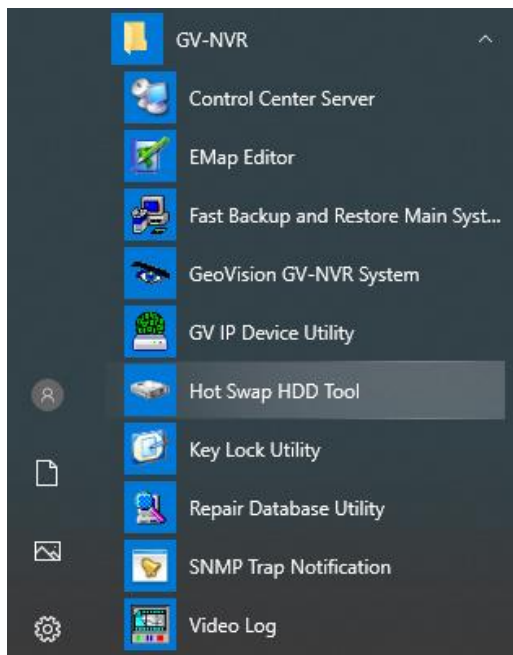


Figure 3-17

2. If a hard drive is already inserted, right-click it in the MediaMan Tools window, select **Add for recording**, and then select the storage group from the drop-down list.

3. If a hard drive is not inserted, follow these steps:
  - A. Insert a hard drive or plug a USB hard drive to GV-Tower NVR System V2 (Rev. D).

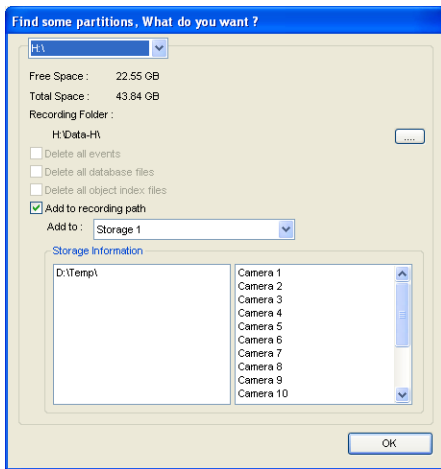


Figure 3-18

- B. Select **Add to recording path**, and select the storage group from the drop-down list.

---

**Note:** Storage 1 is the default storage group.

---

4. Click **OK** to automatically configure the hard drive to the recording path.
5. In the MediaMan Tools window, if the hard drive is successfully added to store data, its Status field should display “Standby”.

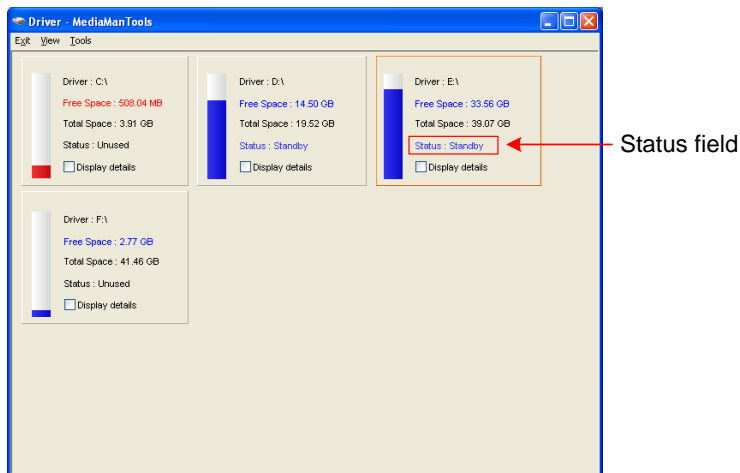





Figure 3-19

6. To add another formatted hard drive for storage, repeat the above steps.

For the details on using Hot Swap HDD Tool, see *Hot-Swap Recording*, Chapter 11, *DVR User's Manual (C:\UserManual)*.



### 3.5.2 GV-Tower VMS System V2 (Rev. D)

1. On GV-VMS, click **Home** , select **Toolbar** , select **Configure** , select **System Configure**, and click **Record Setting**. This dialog box appears.

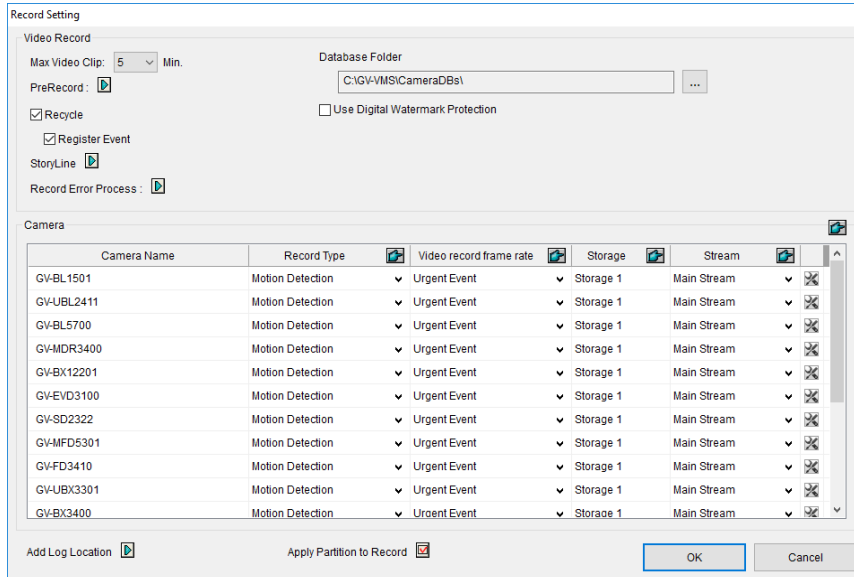



Figure 3-20

2. Click the Arrow button  next to **Storage**. This dialog box appears.

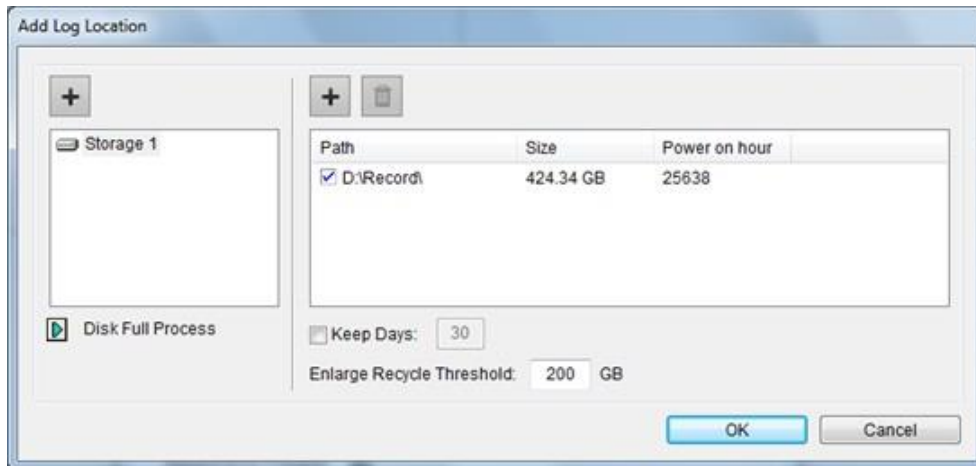


Figure 3-21

3. To add a hard drive to the recording path, follow these steps:

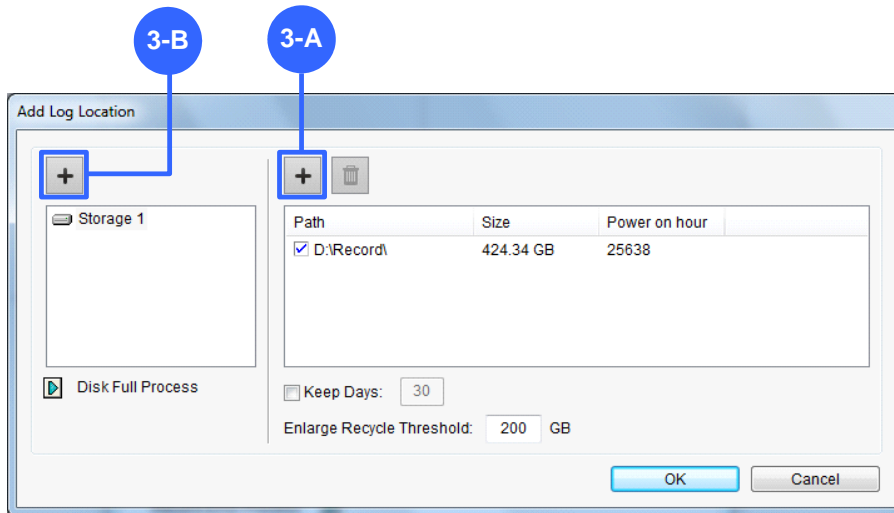




Figure 3-22

- A. To add a new folder in the first storage group, click the **Add** button  on the right pane and select a folder. Only 1 folder can be assigned as storage folder for each partition (e.g. only 1 folder in D drive).
  - B. To add a new storage group, click the **Add** button  on the left pane and repeat the step 3-A to assign at least one folder to the storage group.
  - C. Click **OK**.
4. To add another formatted hard drive for storage, repeat the above steps.

For the details on setting the recording path, see *Setting Up the Video Storage Location* Chapter 1, *GV-VMS User's Manual (C:\UserManual)*.

### 3.6 Setting Up On-Screen LED Panel

For GV-Tower NVR/VMS System V2, a LED panel on the screen provides a quick indication of the activity status of hard disk drives.



Figure 3-23

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

1. Click the Windows **Start** button, and select **Hot Swap HDD Tool**.
2. Click **Tools** on the menu bar, and select **Setup LED Panel**. This dialog box appears.

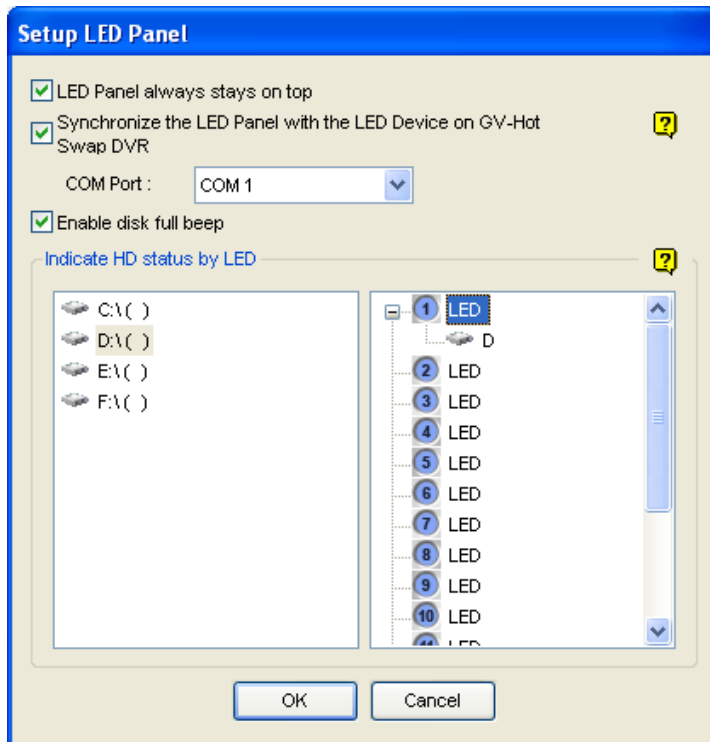


Figure 3-24

- **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-Tower System V2:** Not functional on **GV-Tower NVR/VMS System V2**.
  - **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 GV-Tower NVR/VMS System V2 (Rev. D).
3. By default, only the hard disk drive D 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.
-

## 3.7 Replacing the Hard Drive

You can replace the hard drive without shutting down GV-Tower NVR/VMS System V2 (Rev. D).

1. Do not turn off the power before you replace the hard drive.
2. Push the release latch. The drawer handle pops up.
3. Lift the handle, 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. Put the drawer back in the drive bay.
6. Push the release latch until it locks.

## 3.8 Twin View Display

### 3.8.1 GV-Tower NVR System V2 (Rev. D)

You can display live view and play back video in two separated monitors.

1. Follow Steps 1 and 2 in 3.8 *Configuring the IP Address* to access the Control Panel window. See Figure 3-36.
2. In the Control Panel window, click **Adjust Screen Resolution** under the Appearance and Personalization section. This dialog box appears.

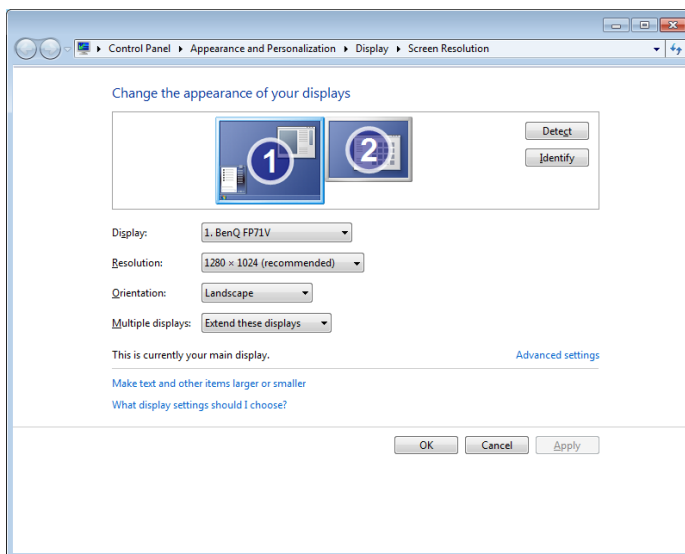


Figure 3-25

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**.

- lick the **Up** button on the toolbar, go to the system folder and locate **DMPOS.exe**.

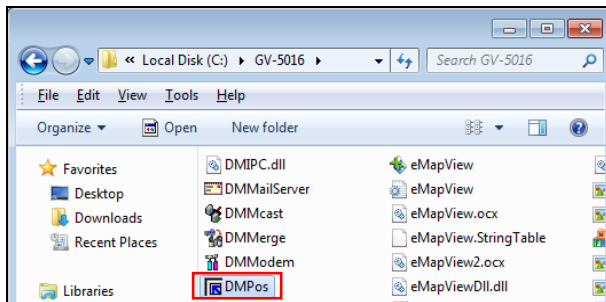


Figure 3-26

- Double-click **DMPOS.exe**. The Set Application Function Position dialog box appears.

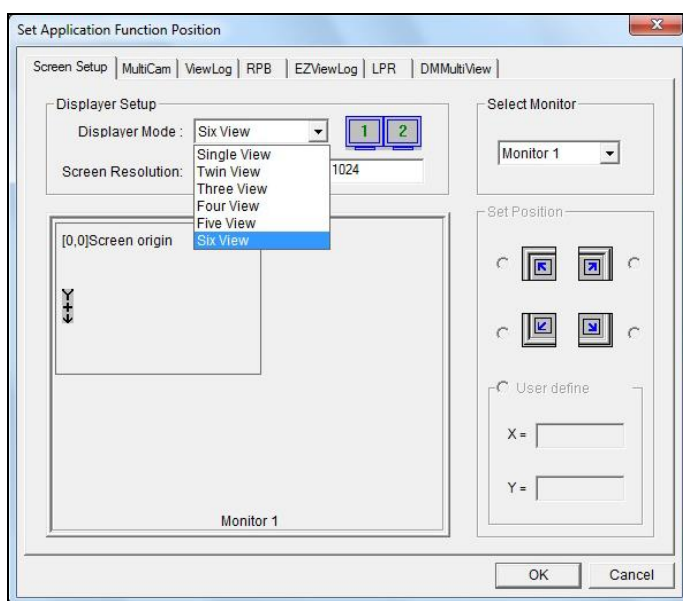





Figure 3-27

- In the Screen Setup tab, select **TwinView** from the Displayer Mode drop-down list.
- To define the live view monitor, in the MultiCam tab, select **Monitor 1** from the Select Monitor drop-down list.
- Click the desired application tab to move the application to another monitor. In this case, ViewLog is used as an example.
- To define the playback monitor, in the ViewLog tab, select **Monitor 2** from the Select Monitor drop-down list.
- Click the **OK** button.
- Exit and re-start the system. The live view should appear on monitor 1.
- Click the **ViewLog** button on the main screen and select **Video/Audio Log** from the menu. The ViewLog player should appear on monitor 2.

### 3.8.2 GV-Tower VMS System V2 (Rev. D)

You can customize the display settings of GV-VMS. Click **Home** , select **Toolbar** , select **Configure** , 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.

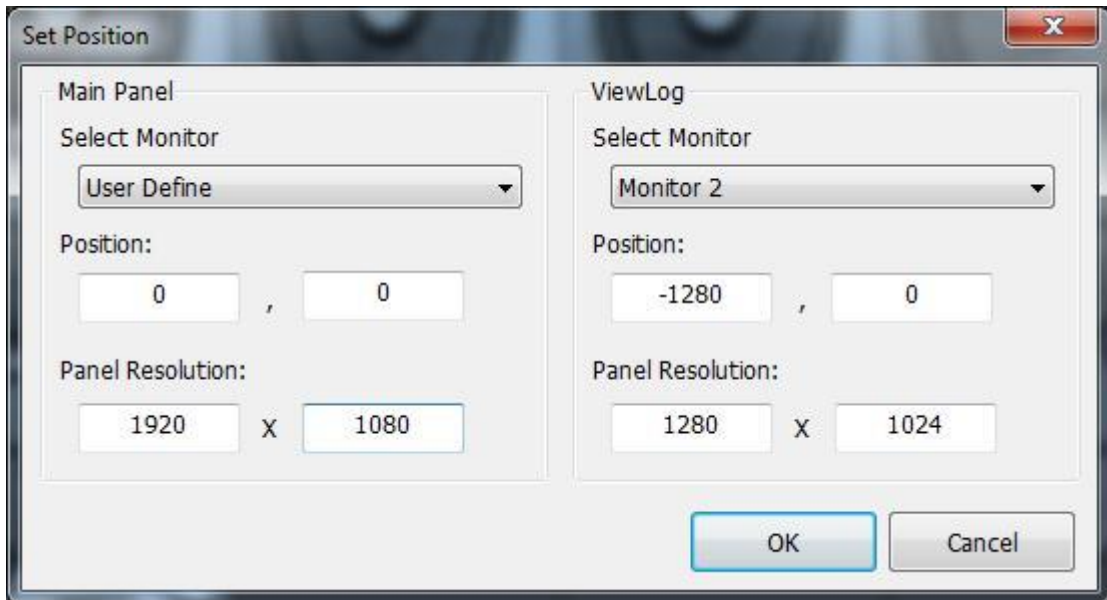


Figure 3-28

- **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.

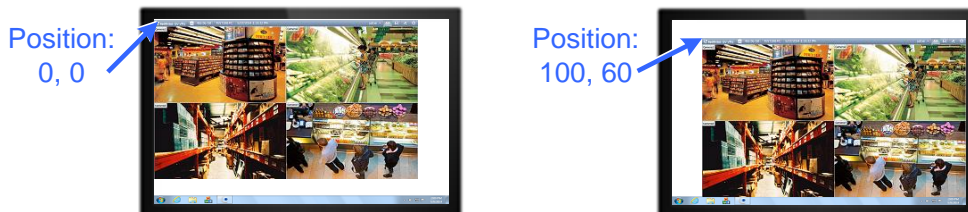


Figure 3-29

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



## 3.9 Digital Matrix

To display multiple channels through two monitors, Digital Matrix is thus introduced to provide a method.

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.
- **Popup Alert:** You can be alerted by popup live videos when motion is detected or I/O devices are triggered.

---

**Note:** Digital Matrix is not supported by GV-Tower VMS System V2 (Rev. D).

---

### 3.9.1 Activating Two Monitors

Use Windows Display Property to activate multiple monitors.

1. Follow Steps 1 to 6 in 3.8 *Twin View Display* to configure the second monitor.
2. Start GV-DVR / 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 monitor should now display the channels seen on the primary monitor.

### 3.9.2 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.

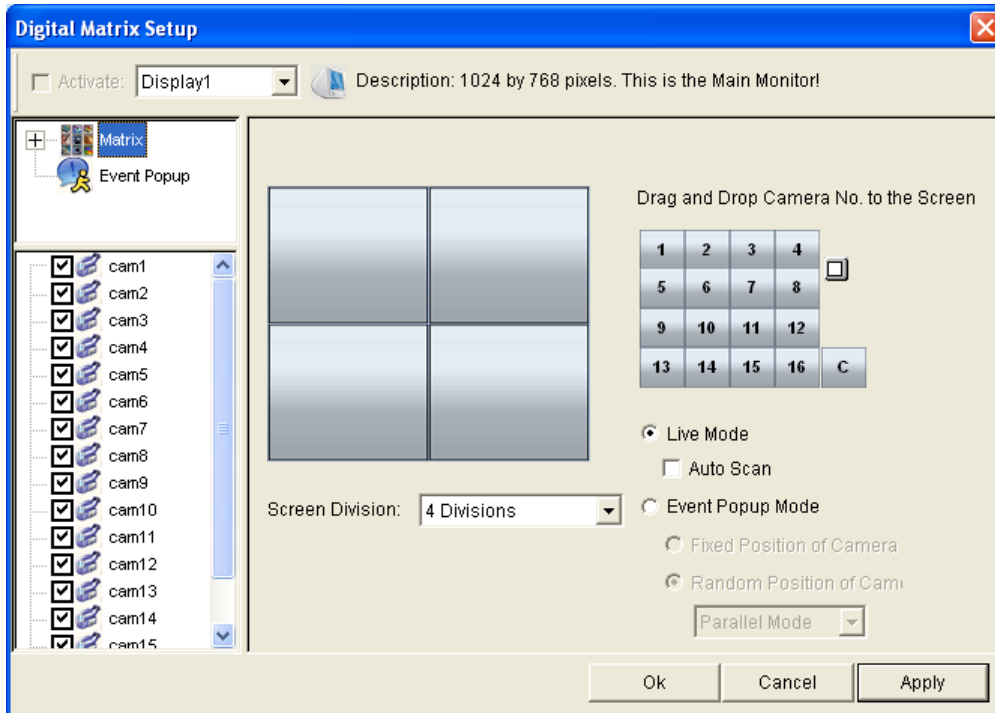


Figure 3-30

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.

### 3.9.3 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 click **Page 1**. This page appears.

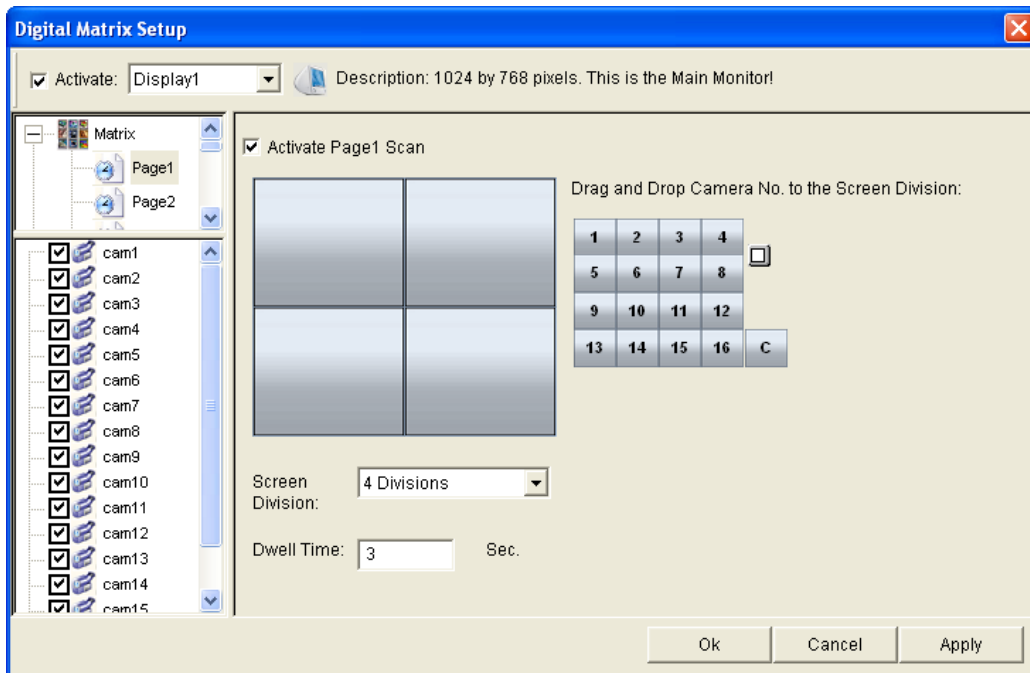


Figure 3-31

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 the second monitor.
9. In the upper-left column, click the **Matrix** icon and return to Figure 3-31.
10. Select **Auto Scan**.
11. Click **OK** to start scanning among pages.

### 3.9.4 Setting Popup Alert

You can be alerted by popup 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.

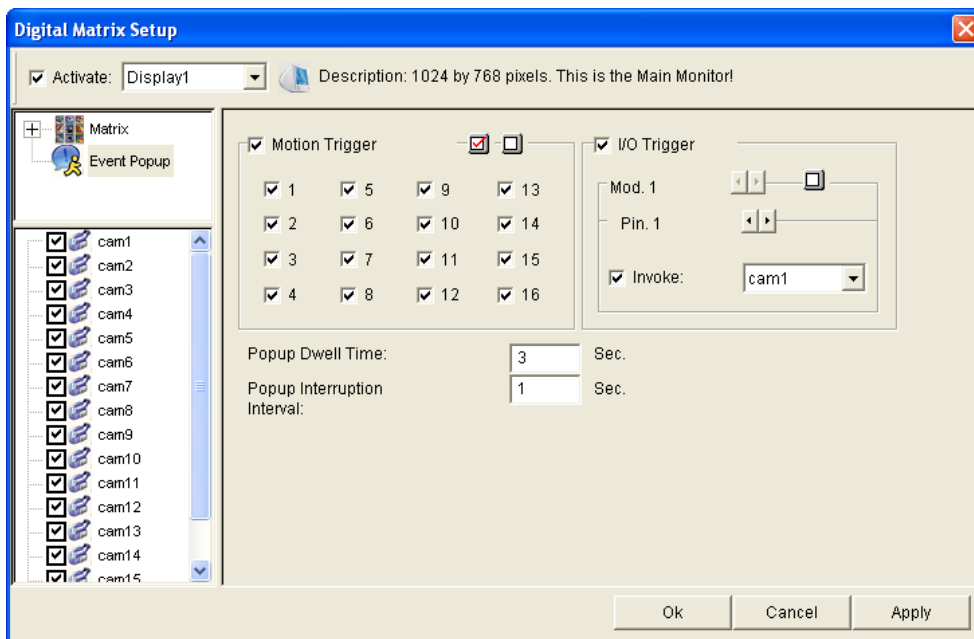


Figure 3-32

- **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 popup live video remains in the foreground.
- **Popup Interruption Interval:** Specify the interval between camera popups. This option is useful when several cameras are activated for popup 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 3-31.
5. Select **Event Popup Mode**. Then select **Fixed Position of Camera** or **Random Position of Camera**. For these two options, see 3.9.4.1 *Setting Popup 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.

### 3.9.4.1 Setting Popup Positions

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

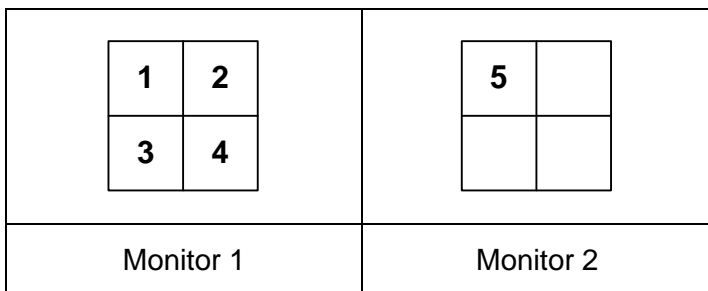
- **Fixed Position of Camera:** The cameras pop up in their assigned positions. To assign positions, select **Screen Division**. Then drag and drop the cameras number to the desired positions on the divisions.

- **Random Position of Camera:** The positions of popup 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:

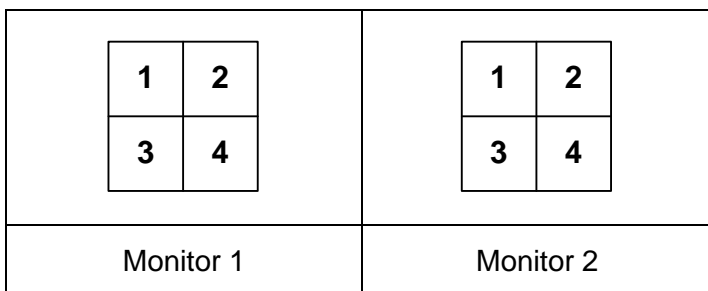
Camera 1, Camera 2, Camera 3, Camera 4 and Camera 5 are assigned for popup alert on both Monitor 1 and Monitor 2. Monitor 1 is set at 4 screen divisions. When the five cameras are triggered at same time, the first 4 cameras show up on Monitor 1 and the 5th on Monitor 2.



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 popup 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.



### 3.9.5 Setting Live View with Popup Alert

You can set a different live view mode with popup 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 *3.9.2 Setting Live View*.
2. To configure popup alert, in the upper left column, click **Event Popup**.
3. Configure **Motion Trigger**, **I/O Trigger**, **Popup Dwell Time** and **Popup Interruption Interval** for each monitor. For details see *3.9.4 Setting Popup Alert*.
4. Click the **Matrix** icon and return to Figure 3-31. 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.

## **3.10 System Restoration**

You can restore the operating system and system software back-up files using Windows Tool. Refer to the instructions [here](#).

### **3.11 Updating GV-Tower System V2 (Rev. D)**

If you like to update your GV-Tower NVR/VMS System V2 (Rev. D), contact your dealer for more information.

Before contacting your dealer, you may check software update news at our website:

<http://www.geovision.com.tw>



## Chapter 4 Troubleshooting

### GV-Tower NVR/VMS System V2 (Rev. D) stops responding (aka “crashed” or “froze”).

If your GV-Tower NVR/VMS System V2 (Rev. D) is not responding to your clicking, typing, or mouse movements, try these steps to get your GV-Tower NVR/VMS System V2 (Rev. D) back on track. Please note that you will lose any unsaved changes in all open applications.

1. Restart your GV-Tower NVR/VMS System V2 (Rev. D) by pressing the **Reset** button on the front panel.
2. If your GV-Tower NVR/VMS System V2 (Rev. D) is still unresponsive, press the **Power** button to shut it down. Wait 30 seconds and then restart your GV-Tower NVR/VMS System V2 (Rev. D).

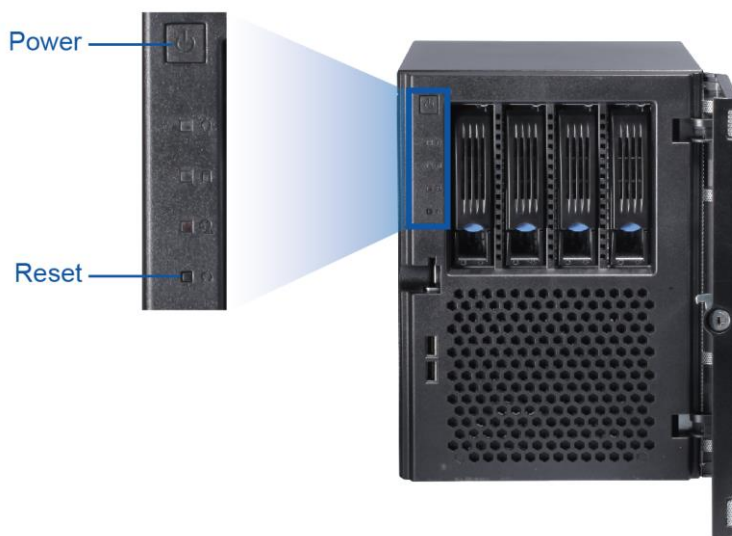


Figure 4-1

### GV-Tower NVR/VMS System V2 (Rev. D) 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 as below.

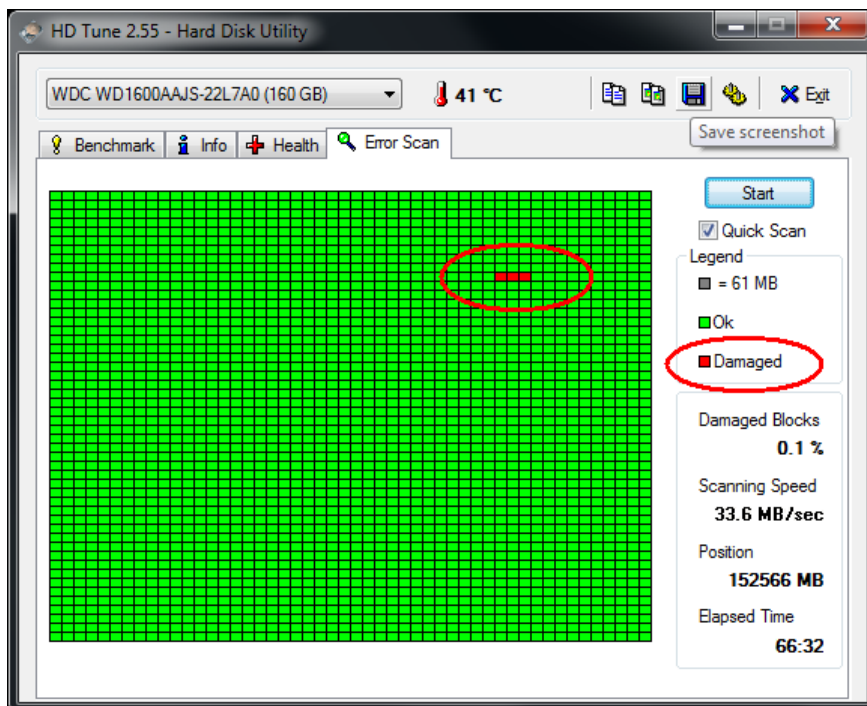



Figure 4-2

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

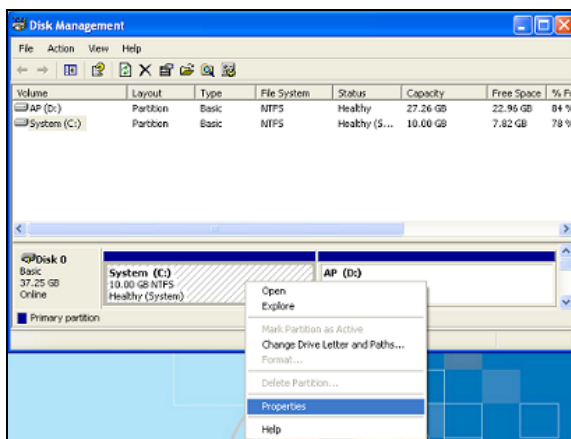


Figure 4-3

- C. Click the **Tools** tab in the upper portion of the window.
- D. Under Error-checking, click the **Check Now** button.



Figure 4-4

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

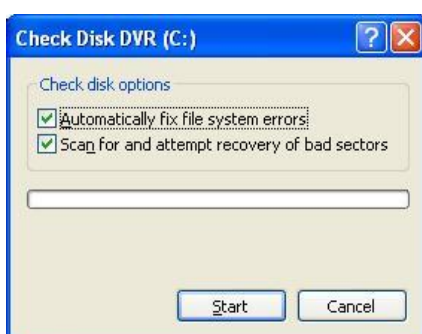


Figure 4-5

- F. Click **Start**.

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

### **GV-Tower NVR/VMS System V2 (Rev. D) suffers virus attack.**

GV-Tower NVR/VMS System V2 (Rev. D) is designed and optimized for 64-bit Windows IoT Enterprise 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-Tower NVR/VMS System V2 (Rev. D) suffers virus attack, try restoring the operating system and GV-System Software by using Windows Tool. Refer to *3.10 System Restoration*.

### **The screen image appears distorted or jitters.**

If the screen image seems to be distorted, jitter, or not to look right, make sure the camera and its cable are not damaged or frayed. Try to replace a camera or camera cable to see if this fixes the problem.

### **How can I find more help?**

1. Visit our website at <http://www.geovision.com.tw/>
2. Write us at [support@geovision.com.tw](mailto:support@geovision.com.tw)

## Specifications

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

- [Datasheet GV-Tower NVR System V2](#)
- [Datasheet GV-Tower VMS System V2](#)

## Appendix

### A. 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 when connecting to IP cameras

Frame Rate Limit in a Single Hard Disk						
Video resolution	H.264		H.265		MJPEG	
	Frame Rate	Bit Rate	Frame Rate	Bit Rate	Frame Rate	Bit Rate
12 MP	330 fps	14.47 Mbps	N/A	N/A	56 fps	65.98 Mbps
8 MP	660 fps	14.13 Mbps	N/A	N/A	96 fps	58.52 Mbps
5 MP	220 fps	8.5 Mbps	660 fps	6.73 Mbps	80 fps	30.4 Mbps
4 MP	330 fps	10.4 Mbps	550 fps	7.74 Mbps	105 fps	40.53 Mbps
3 MP	440 fps	9.83 Mbps	660 fps	5.35 Mbps	140 fps	38.67 Mbps
2 MP	660 fps	12.59 Mbps	N/A	N/A	210 fps	44.93 Mbps
1.3 MP	660 fps	6.16 Mbps	N/A	N/A	300 fps	32.26 Mbps

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**Note:** The above data was determined using the bitrate listed above and hard disks with average R/W speed above 110 MB/s.

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### B. Total Frame Rate and Max. No. of Channels Supported

Below are the total frame rates GV-Tower NVR/VMS System V2 (Rev. D) can support with CPU usage of approximately 70% to ensure performance and stability. You could connect up to 32 cameras to the system. See the below charts to calculate frame rate for connected IP cameras.

For instance, if you connect 8 units of GV Fisheye 12 MP cameras to GV-Tower VMS System V2 (Rev. D) supporting CPU Intel Core i5 Processor, you will receive 15 fps for each channel (120 fps / 8 units = 15 fps).

**Note:** The total frame rate and channels supported are determined in round-the-clock recording settings with live view only, while remote connections and video analysis features being disabled.

### NVR System

#### For GV-IP Camera (Dual Stream)

Video Resolution	Stream 1 (H.264)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
1.3 MP	1280 x 720	3.99	640 x 360	1.99	30 fps	960 fps	32 ch
2 MP	1920 x 1080	6.12	640 x 360	2.19	30 fps	960 fps	32 ch
3 MP	2048 x 1520	9.17	640 x 360	1.99	30 fps	960 fps	32 ch
4 MP	2560 x 1440	9.21	640 x 360	1.72	25 fps	800 fps	32 ch
5 MP	2592 x 1944	9.19	640 x 480	2.29	30 fps	960 fps	32 ch
8 MP	3840 x 2160	13.47	1280 x 720	3.14	25 fps	700 fps	28 ch
12 MP	4000 x 3000	13.73	1024 x 768	3.07	15 fps	450 fps	30 ch
Video Resolution	Stream 1 (H.265)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
1.3 MP	1980 x 720	0.83	640 x 360	0.84	30 fps	960 fps	32 ch
2 MP	1920 x 1080	1.6	640 x 360	0.84	30 fps	960 fps	32 ch
3 MP	2048 x 1536	2.05	640 x 360	0.83	30 fps	960 fps	32 ch
4 MP	2560 x 1440	2.21	640 x 360	0.82	25 fps	800 fps	32 ch
5 MP	2560 x 1920	2.41	640 x 360	0.83	30 fps	960 fps	32 ch
8 MP	3840 x 2160	3.52	640 x 360	1.24	20 fps	640 fps	32 ch

#### For GV-Fisheye Camera (Single Stream, 360° De-warping)

Video Resolution	Stream 1 (H.264)	Mbps	Max. FPS	Intel Core i5	
				Total FPS	Full-Frame Channels
8 MP	2896 x 2768	6.39	25 fps	25 fps	1 ch
12 MP	4000 x 3000	13.74	15 fps	30 fps	2 ch
Video Resolution	Stream 1 (H.265)	Mbps	Max. FPS	Intel Core i5	
				Total FPS	Full-Frame Channels
3 MP	2048 x 1536	3.3	30 fps	120 fps	4 ch
5 MP	2592 x 1944	7.75	30 fps	30 fps	1 ch
12 MP	4000 x 3000	9.85	20 fps	20 fps	1 ch

## VMS System

### For GV-IP Camera (Dual Stream)

Video Resolution	Stream 1 (H.264)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
1.3 MP	1280 x 720	3.99	640 x 360	1.99	30 fps	960 fps	32 ch
2 MP	1920 x 1080	6.12	640 x 360	2.19	30 fps	960 fps	32 ch
3 MP	2048 x 1520	9.17	640 x 360	1.99	30 fps	960 fps	32 ch
4 MP	2560 x 1440	9.21	640 x 360	1.72	25 fps	800 fps	32 ch
5 MP	2592 x 1944	9.19	640 x 480	2.29	30 fps	960 fps	32 ch
8 MP	3840 x 2160	13.47	1280 x 720	3.14	25 fps	800 fps	32 ch
12 MP	4000 x 3000	13.73	1024 x 768	3.07	15 fps	480 fps	32 ch
Video Resolution	Stream 1 (H.265)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
1.3 MP	1980 x 720	0.83	640 x 360	0.84	30 fps	960 fps	32 ch
2 MP	1920 x 1080	1.6	640 x 360	0.84	30 fps	960 fps	32 ch
3 MP	2048 x 1536	2.05	640 x 360	0.83	30 fps	960 fps	32 ch
4 MP	2560 x 1440	2.21	640 x 360	0.82	25 fps	800 fps	32 ch
5 MP	2560 x 1920	2.41	640 x 360	0.83	30 fps	960 fps	32 ch
8 MP	3840 x 2160	3.52	640 x 360	1.24	20 fps	640 fps	32 ch

### For GV-Fisheye Camera (Dual Stream, 360° De-warping)

Video Resolution	Stream 1 (H.264)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
8 MP	2896 x 2768	6.39	640 x 608	0.38	25 fps	650 fps	26 ch
12 MP	4000 x 3000	13.74	640 x 480	0.24	15 fps	390 fps	26 ch
Video Resolution	Stream 1 (H.265)	Mbps	Stream 2 (H.264)	Mbps	Max. FPS	Intel Core i5	
						Total FPS	Full-Frame Channels
3 MP	2048 x 1536	3.3	640 x 480	1.02	30 fps	840 fps	28 ch
5 MP	2592 x 1944	7.75	640 x 480	1.09	30 fps	840 fps	28 ch
12 MP	4000 x 3000	9.85	1024 x 768	1.01	20 fps	560 fps	28 ch



## C. 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/\\_upload/files/support\\_list.pdf](http://www.geovision.com.tw/_upload/files/support_list.pdf)

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

## D. Certified Hard Disk Drive

This following hard disk drive models are certified by Geovision to be compatible with GV-Tower NVR/VMS System V2 (Rev. D).

Model	Capacity
<b>WD</b>	
WD1002F9YZ	1 TB
WD1003FBYZ	1 TB
WD1005FBYZ	1 TB
HUS722T1TALA604	1 TB
HUS722T2TALA604	2 TB
HUS726T4TALE6L4	4 TB
HUS726T6TALE6L4	6 TB
HUS728T8TALE6L4	8 TB
HUH721010ALE604	10 TB
HUH721212ALE604	12 TB
HUH721214ALE604	14 TB
<b>Seagate</b>	
ST1000VX000	1 TB
ST1000NM0053	1 TB
ST1000NM0033	1 TB
ST3000VX000	3 TB
ST4000NM0033	4 TB
ST4000VN0001	4 TB
ST8000VE000	8 TB
ST8000VX004	8 TB
ST14000VE0008	14 TB
<b>Toshiba</b>	
MG03ACA100	1 TB
MG07ACA10TE	10 TB
MG07ACA14TE	14 TB

### Warranty Requirements

Thank you for purchasing the GV-Tower NVR / VMS System V2 (Rev. D). GeoVision understands that accident 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 *3.10 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
  - 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.

## 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](mailto:sales@geovision.com.tw) or [support@geovision.com.tw](mailto:support@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-TOWER NVR/VMS V2 SYSTEM 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.**