

Quick Start Guide



GV-Storage System V2

The Vision of Security



FC C E



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Contents

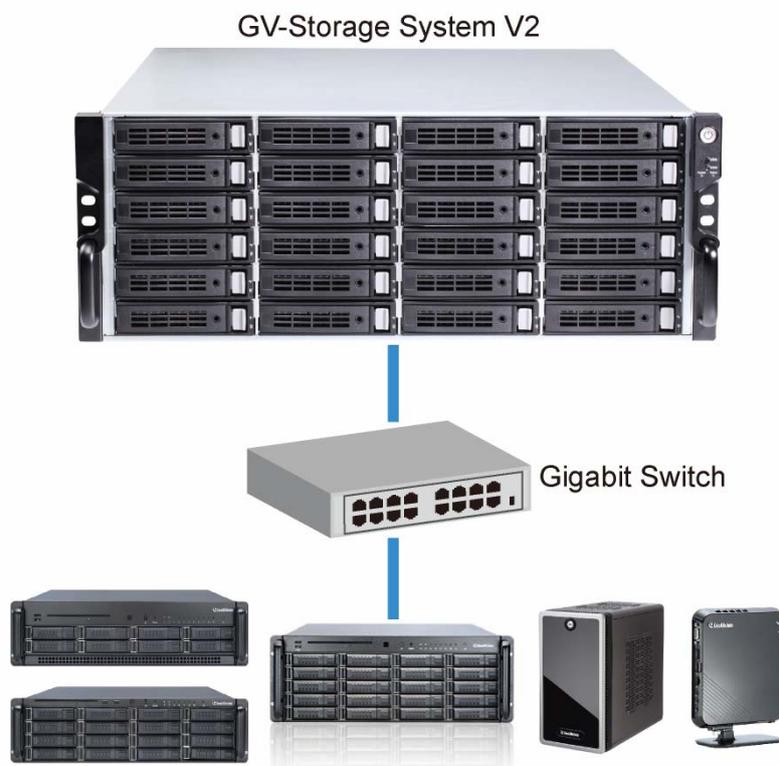
Contents	i
1. Introduction.....	1
1.1 Compatible GeoVision Products.....	1
1.2 Packing List	2
1.3 Before You Begin	3
1.4 Usage Notice	4
1.5 Front View & Rear View	7
2. Installation.....	10
2.1 Install on a Network	10
2.2 Turn on the Power	11
2.3 Log in	12
2.4 Create a RAID Volume	13
2.4.1 Use “Quick Installation”	14
2.4.2 Create an independent volume for each host	17
2.5 Configure Initiator on the Host.....	20
3. Accessing Video Recordings	24
4. Tools for GV-Storage System V2	26

1. Introduction

This guide is designed to assist the new user in getting immediate results from the GV-Storage System V2. For advanced information on how to use the GV-Storage System V2, please refer to *GV-Storage System V2 User's Manual*.

1.1 Compatible GeoVision Products

GV-Storage System V2 can work in conjunction with these GeoVision products to save data:



- **GV-Hot Swap System V5 Series**
- **GV-NVR System Lite V2**
- **GV-Tower / DVR / NVR / VMS System**
- **GV-DVR / NVR / VMS / Recording Server / Backup Center / Redundant Server / Failover Server**

1.2 Packing List

GV-Storage System V2:

- GV-Storage System V2
- HDD Tray x 24
- Power Cord x 2
- RS-232 Cable
(For UPS, phone jack to DB9 male).
- Rail Kit
- Keys, Screws for Drives and Rail Kit (packet)
- Quick Start Guide
- Software Disk

GV-Expansion System:

- GV-Expansion System
- HDD Tray x 24
- Power Cord x 2
- Mini-SAS Cable
- Rail Kit
- Keys, Screws for Drives and Rail Kit (packet)
- Quick Start Guide
- Software Disk

1.3 Before You Begin

Before starting, prepare the following items:

- A management computer with a Gigabit Ethernet network interface card (recommended) on the same network as the GV-Storage System V2.
- Connection cables:
 - **GV-Storage System V2:** CAT 5e, or CAT 6 (recommended) network cables for one management port and six iSCSI data ports.
 - **GV-Expansion System:** SAS cables (supplied)
- Prepare a storage system configuration plan by the network administrator. The plan should include network information for the management port and six iSCSI data ports. If using static IP addresses, please prepare a list of the static IP addresses, the subnet mask, and the default gateway.
- A Gigabit Layer 2 or Layer 3 managed stackable switch.
- CHAP security information, including CHAP username and secret (optional).

1.4 Usage Notice

Please pay attention to the following notice when you use the storage system.

- **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.

- WD RE series
- Seagate Constellation ES.3 series
- HGST Ultrastar series

- **Before Powering On and Off**

Shut down GV-Storage System V2 first and then GV-Expansion System if they are connected.

For powering on, be sure to turn on GV-Expansion System first and then GV-Storage System V2 in case of wrong data detection.

- **Default IP Addresses Setting**

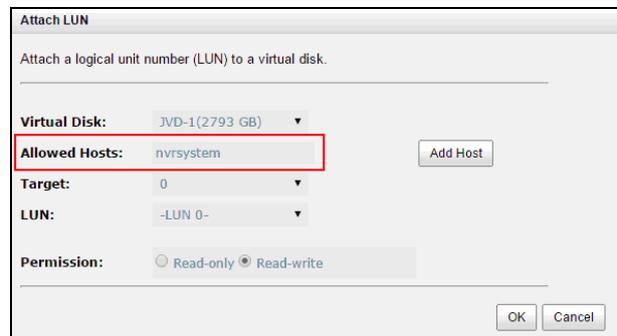
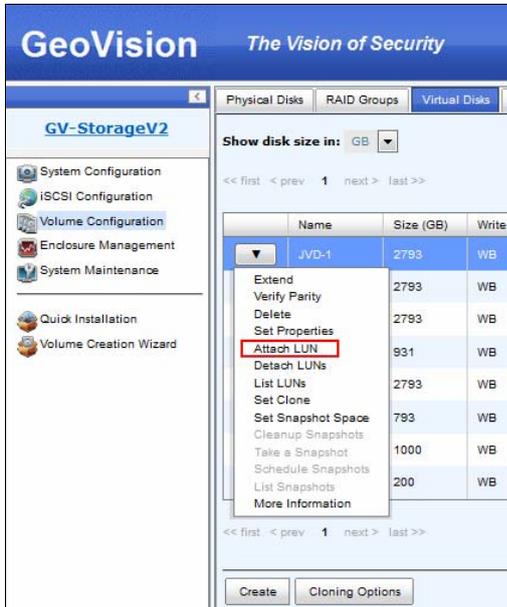
Port Type	Field	Default Setting
Management Port	ID	admin
	Password	0000
	IP	192.168.0.199
	Subnet Mask	255.255.252.0
	HTTP port	80
	HTTPS port	443
iSCSI Port	Port 1	192.168.1.1
	Port 2	192.168.2.1
	Port 3	192.168.3.1
	Port 4	192.168.4.1
	Port 5	192.168.5.1
	Port 6	192.168.6.1
	Subnet Mask	255.255.255.0
	iSCSI port	3260

- **VD (Virtual Disk) Restriction**

Don't assign the same VD to more than one host for recording usage; otherwise you may suffer data lost or corrupt.

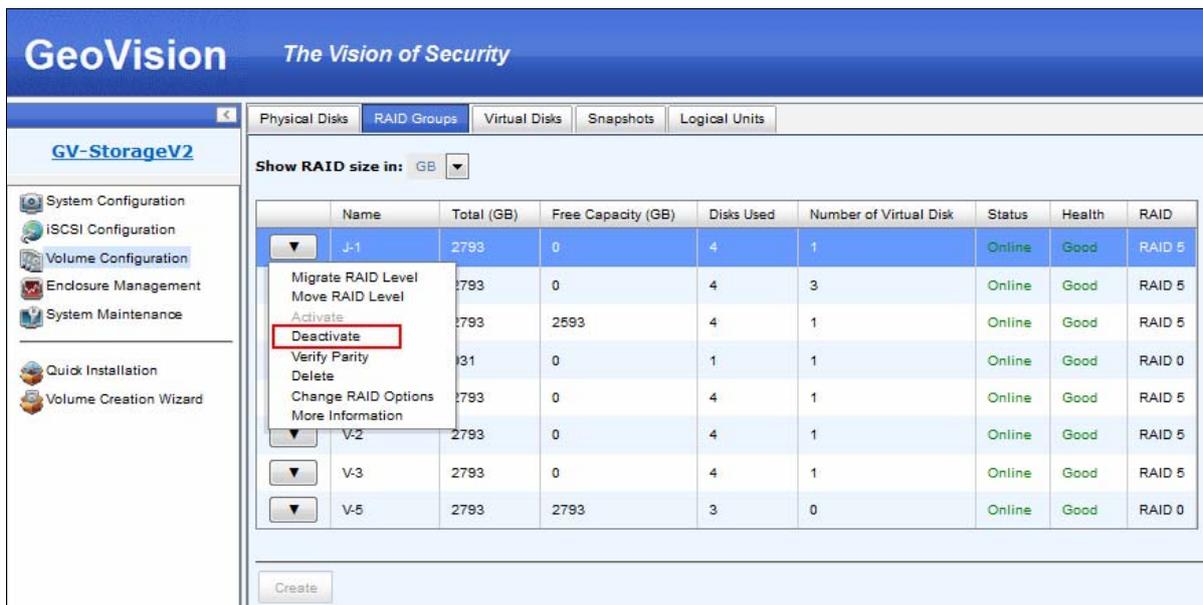
- **Initiator Node Name Restriction**

The Initiator node name only accepts lower-case letters. Use lower-case letters for **Host** name in the storage system (select **Volume Configuration / Virtual Disks / Options ▼ / Attach LUN / Allowed Hosts**). Otherwise you cannot establish the connection between the storage system and the host.



- **Replacing Hard Drives**

To prevent the storage system from RAID failure, select **Volume Configuration / RAID Groups / Options ▼ / Deactivate** to deactivate the RAID group on the Web UI when replacing the hard drive. Then re-activate the RAID group after you finish replacing the hard drive.



- **Order of Hard Drive Slots**

Remember the order of hard drive slots on the storage system. When you see the “Failure” health status on Web UI (select **Volume Configuration / Physical Disks**) or the warning message from Email notification, remove the failed hard drive in the correct slot.

If you remove the hard drive in the wrong slot, you could suffer data loss.



- **Maximum Recording Channels**

The maximum number of channels supported by GV-Storage System V2 varies with the resolution, as listed below. It's highly suggested to keep the total bitrates under 2700 Mbps for better recording performance.

Video Streaming		Complex Scenes		Normal Scenes	
Resolution	Frame rate	Bitrate	Record Channels	Bitrate	Record Channels
1.3 MP	30 fps	5 Mbps	534 ch	1.73 Mbps	1560 ch
2 MP	30 fps	7 Mbps	385 ch	3.86 Mbps	699 ch
3 MP	20 fps	10.48 Mbps	257 ch	3.38 Mbps	798 ch
4 MP	15 fps	11.65 Mbps	231 ch	8.93 Mbps	302 ch
5 MP	10 fps	16.48 Mbps	163 ch	3.16 Mbps	854 ch

1.5 Front View & Rear View

Front View

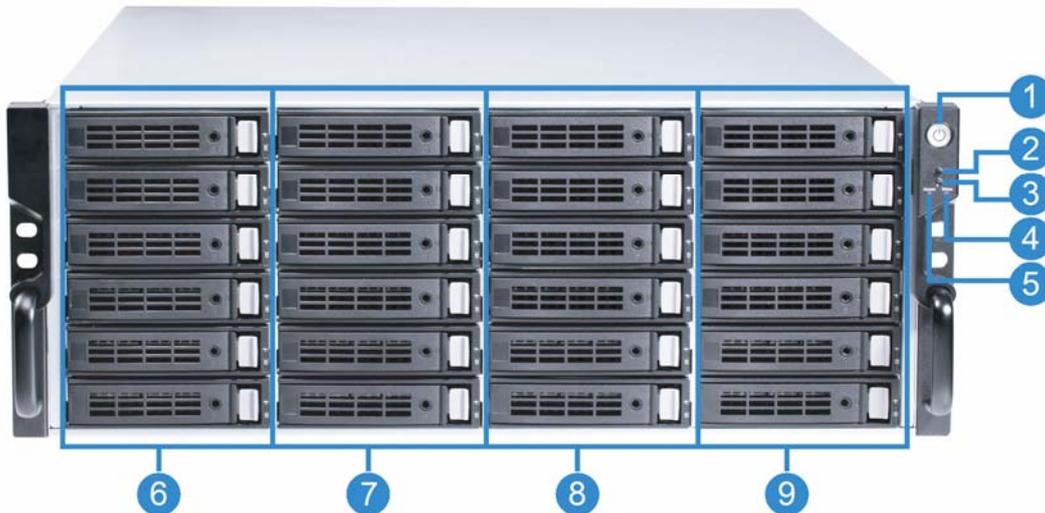


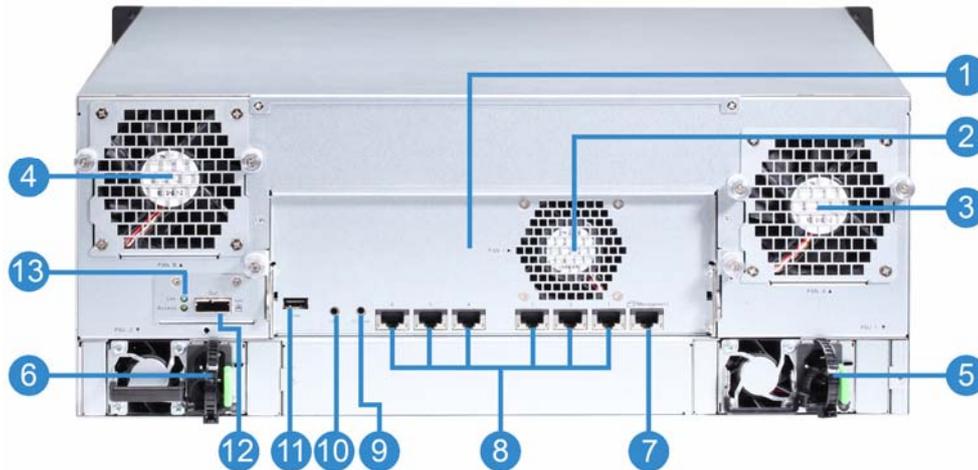
Figure 2-1

No.	Name	Description
1	Power Button and Power LED	Blue: Power ON. Off: Power OFF.
2	Mute Button	Press to mute the alarm.
3	IP Reset Button	Reset the IP address of the management port to default settings: 192.168.0.199.
4	Status LED:	Red: System failure. Off: System OK.
5	Access LED	This indicates host connectivity, not the hard drive activity. Blink: There is host activity (data I/O or management). OFF: There is no host activity.
6~9	HDD Groups	HDD Groups A, B, C, D

Note: IP Reset button is not available in GV-Expansion System.

Rear View

- **GV-Storage System V2:**



- **GV-Expansion System:**



No.	Description
1	Controller
2	Fan 1
3	Fan A
4	Fan B
5	Power Supply Unit (PSU1)
6	Power Supply Unit (PSU2)
7	Management Port

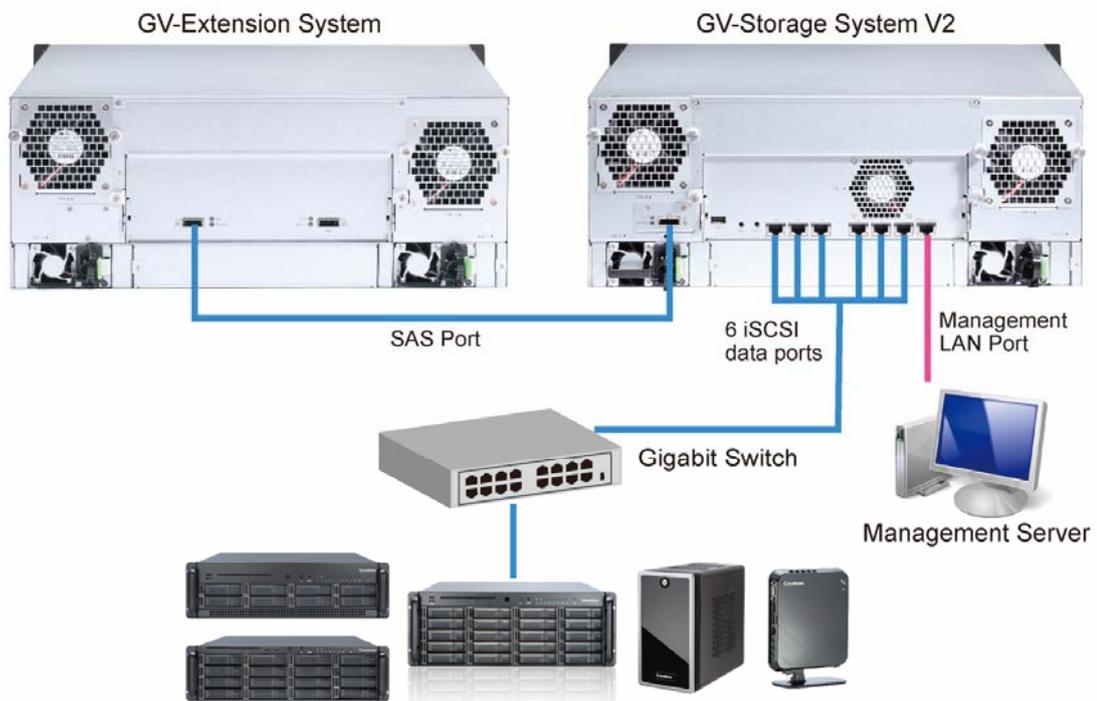
No.	Description
8	6 x 1 GbE iSCSI Ports
9	Console Port (Debug Port)
10	UPS Port
11	USB Port (No function. Reserved for the future design purpose.)
12	SAS JBOD Expansion Port
13	<p>Link LED (All): Blue: Asserted when GV-Storage System V2 and GV-Expansion System are connected.</p> <p>Access LED (All): Blinking green: Asserted when the link is established and packets are being transmitted along with any receive activity.</p>

2. Installation

2.1 Install on a Network

GV-Storage System V2

1. Connect the unit's management port to the network on which you will manage the storage system. The default IP address of the management port is **http://192.168.0.199**.
2. Using network cables, connect the unit's iSCSI data ports to a Gigabit switch.
3. Using the two provided power cords, connect the unit's two power supplies to a different power source/circuit.
4. Optionally connect GV- Expansion System to GV-Storage System V2 via SAS ports. Up to 7 sets of GV- Expansion System can be connected.



- GV-Hot Swap System V5 Series
- GV-NVR System Lite V2
- GV-Tower / DVR / NVR / VMS System
- GV-DVR / NVR / VMS / Recording Server / Backup Center / Redundant Server / Failover Server

For details see 3.1.2 *Installing the System & Network* in *GV-Storage System V2 User's Manual*.

GV-Expansion System

Connect the SAS Port (In) of GV-Expansion System to the SAS Port (Out) of GV-Storage System V2. There are two methods to examine the connection between the storage system and expansion system.

1. If the connection is successful, the LED of SAS port flashes in blue.
2. If the connection is successful, you can see the JBOD information from **System Maintenance, System Information** tab on the Web UI.

Item	Information
CPU Type	Intel(R) S1200 series
System Memory	4096 MB
Firmware Version	GV-StorageV2 1.1.1 (build 201408281700)
SAS IOC Firmware No.	17.00.01.00
SAS Expander Firmware No.	1320
Controller Serial Number	001378CD8A60 (5001378007900A80)
Serial Number (S/N)	QG42414092601201
Backplane ID and HW No.	QV424 1.0
JBOD MAC/SAS Address	JBOD 1 MAC/SAS Address 001378CD88C0
JBOD Firmware Version	JBOD 1: 1.7.1
QThin	Inactive

2.2 Turn on the Power

1. Press the power button on the front panel.
2. Check status of powering on to ensure that everything is running smoothly.
 - **Power LED:** The LED on the front panel should turn blue.
 - **Drive Tray LED:** Power LEDs for all drive bays containing hard drives should light up.
 - **SAS LED:** If GV-Storage System V2 is connected with GV-Expansion System, the SAS LED turns blue.

2.3 Log in

On the management server, open the browser and enter the default IP: **http://192.168.0.199**. In the login page, type the default login name **admin** and password **0000**. Click **Login** to access the Web interface.



For details, see *4.1 Management Interfaces* in *GV-Storage System V2 User's Manual*.

2.4 Create a RAID Volume

There are two methods to create a RAID volume.

1. If only one host connects to the storage system, you may use the **Quick Install** function to create a volume quickly. For this, follow the instructions in *2.4.1 Use “Quick Installation”*.
2. If more than one host connects to the storage system, you need to create an independent volume for each host for data storage. For this, follow the instructions in *2.4.2 Create an independent volume for each host*.

Before creating a volume, please make sure there are free disks available in the system.

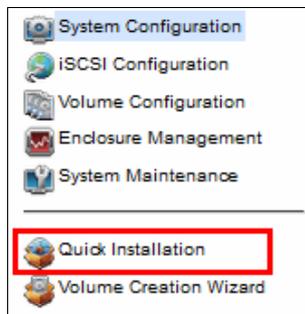
Then select **Volume Configuration / Physical disks** tab. The status of hard disks should be “Free”.

Physical Disks													
RAID Groups													
Virtual Disks													
Snapshots													
Logical Units													
Show disk for: - Local -													
Show disk size in: GB													
<< first < prev 1 next > last >>													
Slot	Size (GB)	RAID Group	Status	Health	Usage	Vendor	Serial Number	Rate	Write Cache	Standby	Read-Ahead	Command Queuing	
1	931		Online	Good	Free	WDC	WD-WCAW3LWV0NT5	SATA 6.0Gb/s	Enabled	Disabled	Enabled	Enabled	
2	931		Online	Good	Free	WDC	WD-WCAW3AYZVPRH	SATA 6.0Gb/s	Enabled	Disabled	Enabled	Enabled	
3	931		Online	Good	Free	WDC	WD-WCAW3AYZVXL9	SATA 6.0Gb/s	Enabled	Disabled	Enabled	Enabled	
4	931		Online	Good	Free	WDC	WD-WCAW3LWV0XUD	SATA 6.0Gb/s	Enabled	Disabled	Enabled	Enabled	
<< first < prev 1 next > last >>													
Disk Health Check													
Disk Check Report													

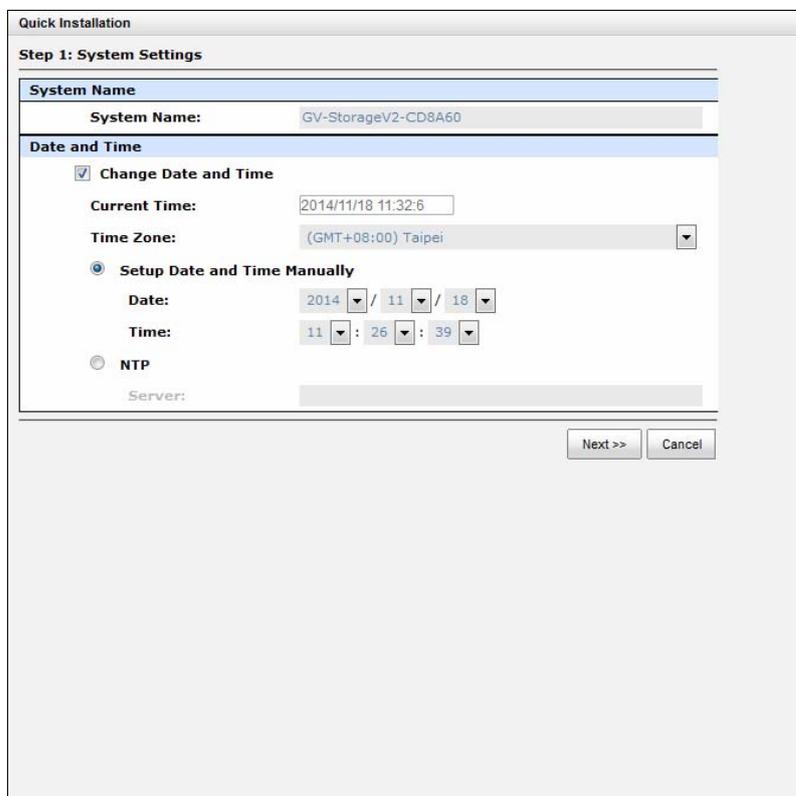
Figure: Physical disks listed in the figure are inserted to slot 1 to slot 4. The size of each disk is 931 GB. The status of the disks is free.

2.4.1 Use “Quick Installation”

1. Select **Quick Installation**.

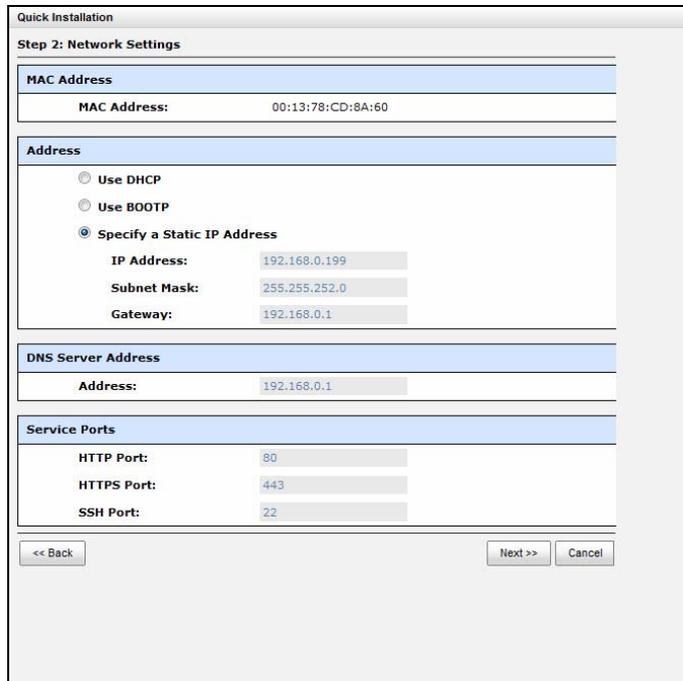


2. Type a **System Name** and set up the **Date and Time**. Click **Next** to proceed.



A screenshot of the 'Quick Installation' wizard, Step 1: System Settings. The window title is 'Quick Installation'. The 'System Name' field contains 'GV-StorageV2-CD8A60'. Under 'Date and Time', the 'Change Date and Time' checkbox is checked. The 'Current Time' is '2014/11/18 11:32:6' and the 'Time Zone' is '(GMT+08:00) Taipei'. The 'Setup Date and Time Manually' radio button is selected. The 'Date' is set to 2014 / 11 / 18 and the 'Time' is set to 11 : 26 : 39. The 'NTP' radio button is unselected. At the bottom right, there are 'Next >>' and 'Cancel' buttons.

3. Confirm or change the IP address of the management port and DNS server. If the default HTTP (80), HTTPS (443) port numbers are not allowed on your network, they can be changed here as well.



Quick Installation

Step 2: Network Settings

MAC Address

MAC Address: 00:13:78:CD:8A:60

Address

Use DHCP
 Use BOOTP
 Specify a Static IP Address

IP Address: 192.168.0.199

Subnet Mask: 255.255.252.0

Gateway: 192.168.0.1

DNS Server Address

Address: 192.168.0.1

Service Ports

HTTP Port: 80

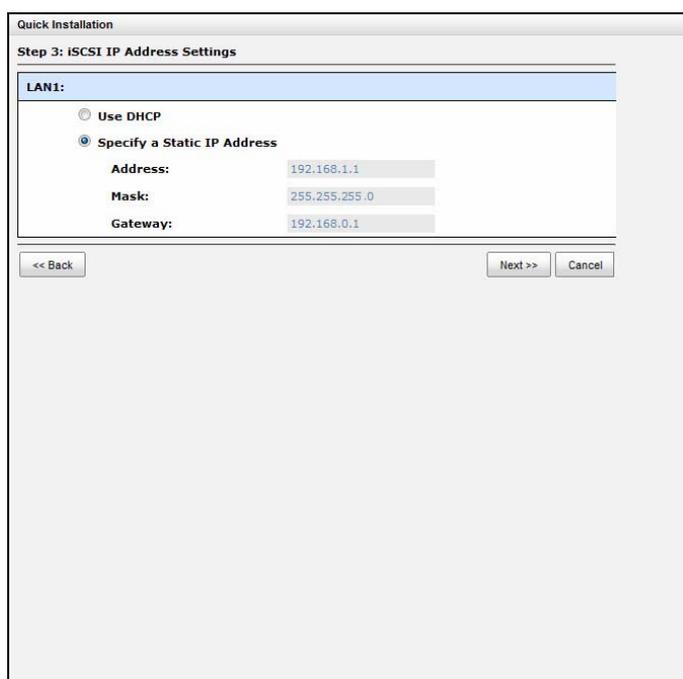
HTTPS Port: 443

SSH Port: 22

<< Back Next >> Cancel

Note: SSH port is not available.

4. Change the IP address of the 1st iSCSI port if necessary. The default IP address is 192.168.1.1. Then click **Next**.



Quick Installation

Step 3: iSCSI IP Address Settings

LAN1:

Use DHCP
 Specify a Static IP Address

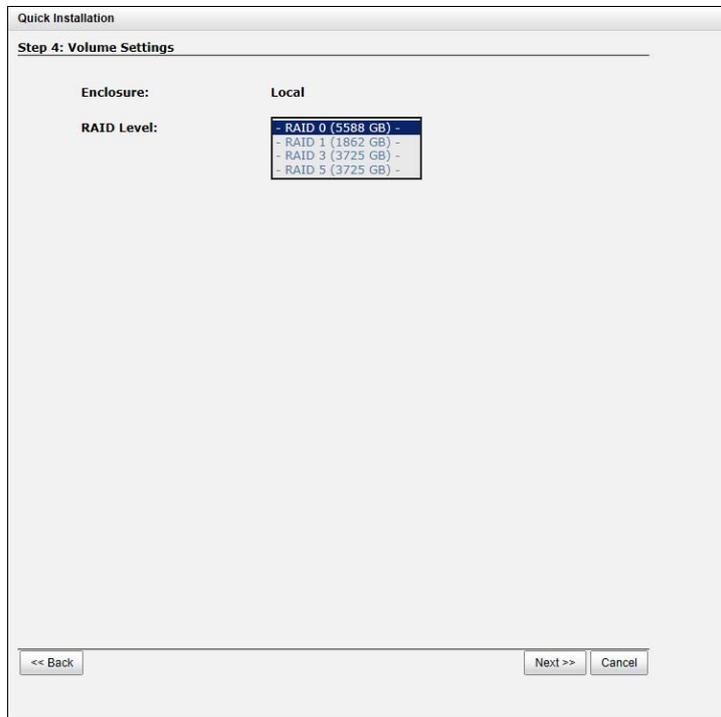
Address: 192.168.1.1

Mask: 255.255.255.0

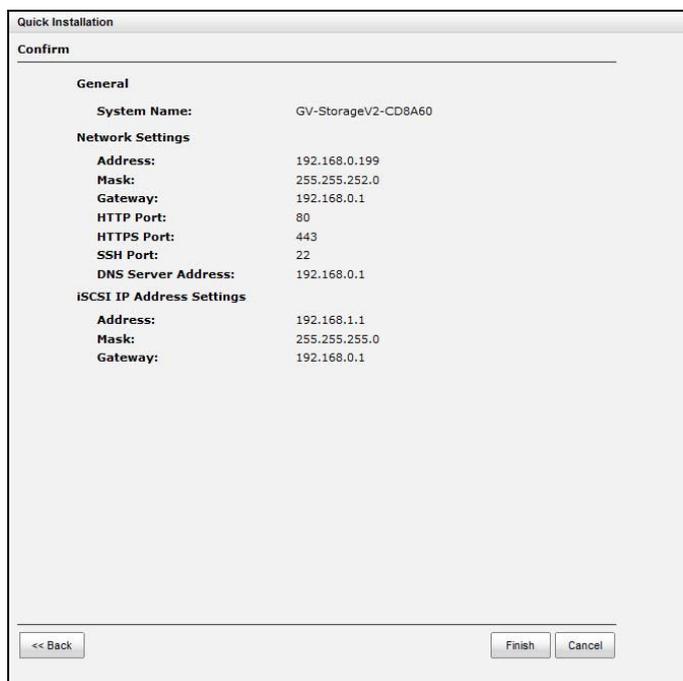
Gateway: 192.168.0.1

<< Back Next >> Cancel

5. Choose a **RAID Level**. The number in the brackets is the maximum capacity at the RAID level. This step utilizes all drives in the storage system as well as any JBOD expansion arrays present.



6. Verify all items, and then click **Finish** to complete the quick installation.



Then follow the instructions in *2.5 Configure Initiator on the Host* to connect GV-Storage System to a host.

2.4.2 Create an independent volume for each host

Note: For safety and performance, it is highly suggested to create RAID 5 with 4 drives for each host.

1. Create a RAID Group.

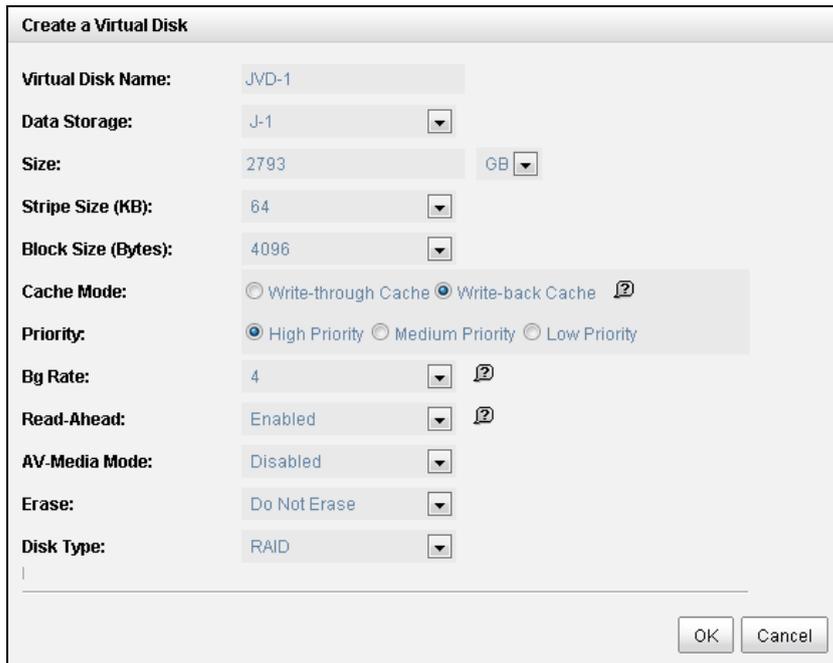


- Select **Volume Configuration / RAID Groups** tab.
- Click **Create**.
- Type a RAID name, select a RAID level, click **Select Disks** to choose the disk slot(s), and then click **OK**.
- After you are finished with selecting and checking the options, click **OK**.
- A RAID group has been created.

	Name	Total (GB)	Free Capacity (GB)	Disks Used	Number of Virtual Disk	Status	Health	RAID
▼	J-1	2793	2793	4	0	Online	Good	RAID 5

Figure: A RAID 5 is created with 4 physical 1 TB disks and named J-1. The total size is 2793 GB. Because of no related Virtual Disk there, free size still remains 2793 GB.

2. Create a Virtual Disk for a host.



- a. Select **Volume Configuration / Virtual Disks** tab.
- b. Click **Create**.
- c. Type a Virtual Disk name, choose a RAID Group name for Data Storage and type a size to the Virtual Disk.
 - The total size of the RAID Group is suggested to use.
 - The block size of 4096 bytes is suggested.
 - Write-back Cache mode is suggested.

You can keep the default values for the rest settings.
- d. Click **OK**. A virtual disk is created.
- e. Repeat the steps above to create another virtual disk.



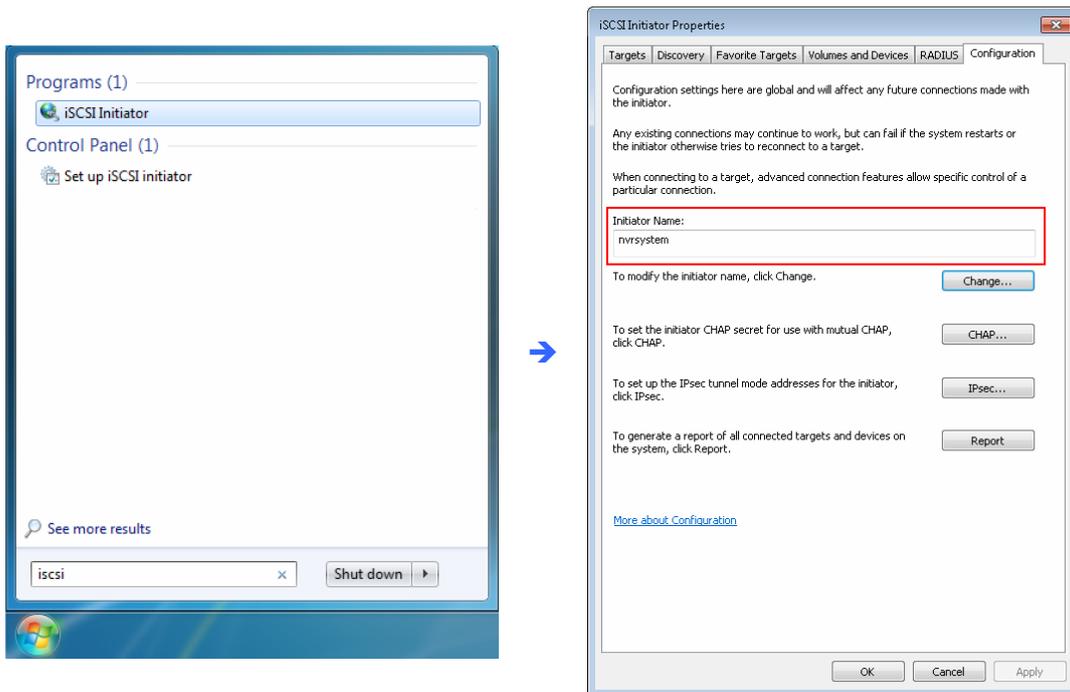
Name	Size (GB)	Write	Priority	Bg Rate	Type	Clone	Schedule Clone	Status	Health	R %	RAID	LUN #	Snapshot Space (GB)	Snapshot #	RAID Group
JVD-1	2793	WB	HI	4	RAID	N/A	N/A	Initializing	Optimal	56	RAID 5	0	0/0	0	J-1
JVD-2	2793	WB	HI	4	RAID	N/A	N/A	Initializing	Optimal	0	RAID 5	0	0/0	0	J-2
JVD-3	2793	WB	HI	4	RAID	N/A	N/A	Initializing	Optimal	0	RAID 5	0	0/0	0	J-3

Figure: Three Virtual Disks are created and named JVD-1, JVD-2 and JVD-3, which are related to J-1 , J-1, J-2 RAID Groups. JVD-1 is initialing about 56%. There is no LUN attached.

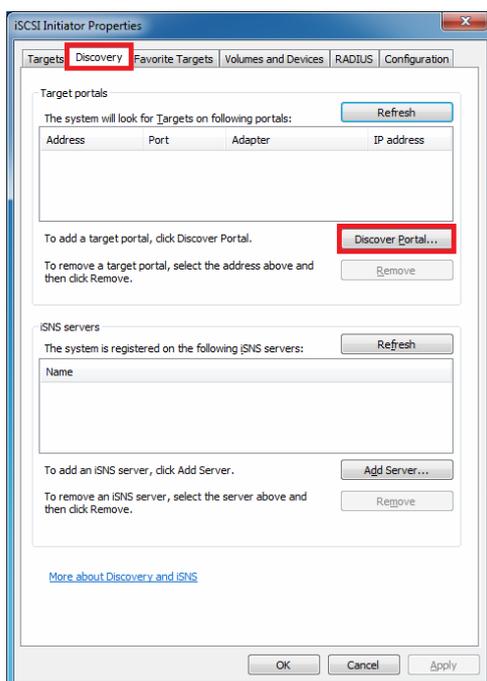
2.5 Configure Initiator on the Host

The host needs to run and set up the iSCSI Initiator to request access for storage. The following example is based on Microsoft Windows 7 in which iSCSI Initiator is integrated.

1. Search and run Microsoft iSCSI Initiator. Type the “Initiator Name” which should be matched with the one created on GV-Storage System.



2. To add target portals, click the **Discovery** tab and click **Discover Portal**.



3. Type the IP address of GV-Storage System V2, and click **OK**.
By default, the IP addresses of 6 iSCSI data ports are as follows:
Port 1: 192.168.1.1
Port 2: 192.168.2.1
Port 3: 192.168.3.1
Port 4: 192.168.4.1
Port 5: 192.168.5.1
Port 6: 192.168.6.1

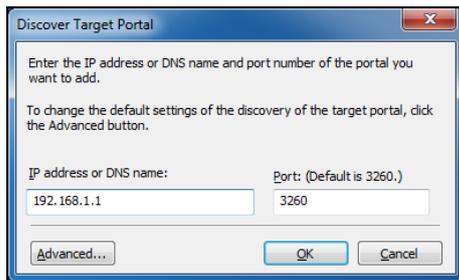
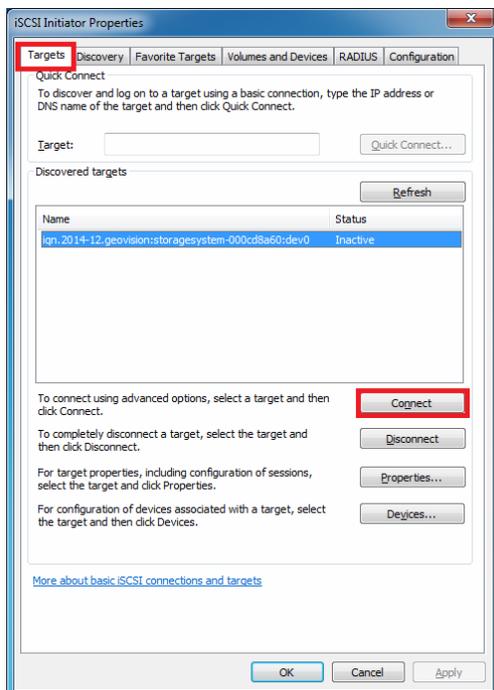
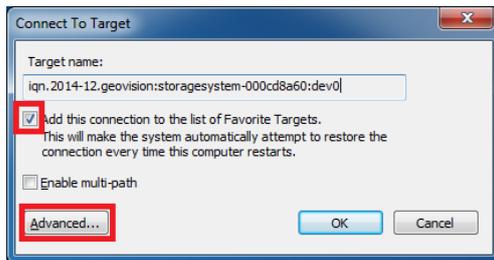


Figure: In the example, the iSCSI data port 1 of 192.168.1.1.

4. Click the **Targets** tab and click **Connect**.



5. Select **Add this connection to the list of Favorite Targets** and click **Advanced**.



6. Select **Local Adaptor** as Microsoft iSCSI Initiator, select **Initiator IP** as the host IP and select **Target Portal IP** as iSCSI data port 1. If the CHAP authentication is enabled at the storage system, select **Enable CHAP log on** and type a valid user name and target secret (password). Click **OK**.

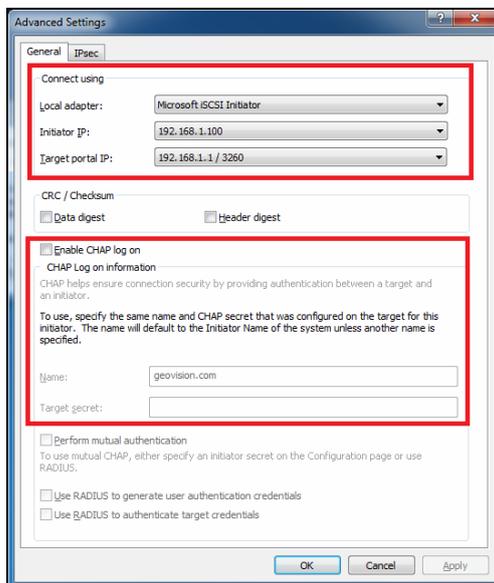
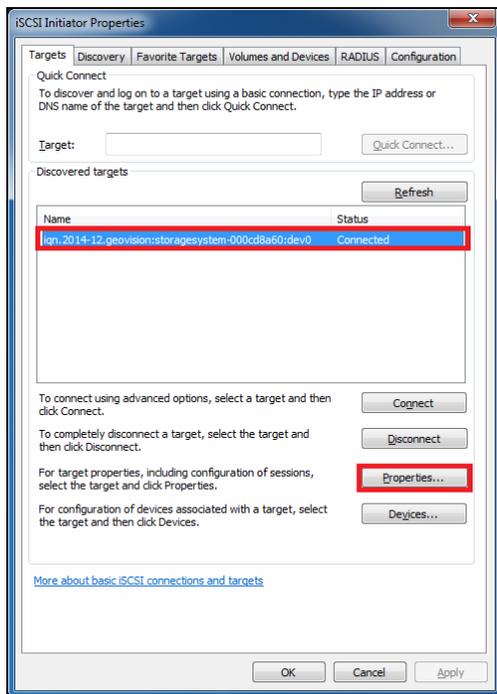
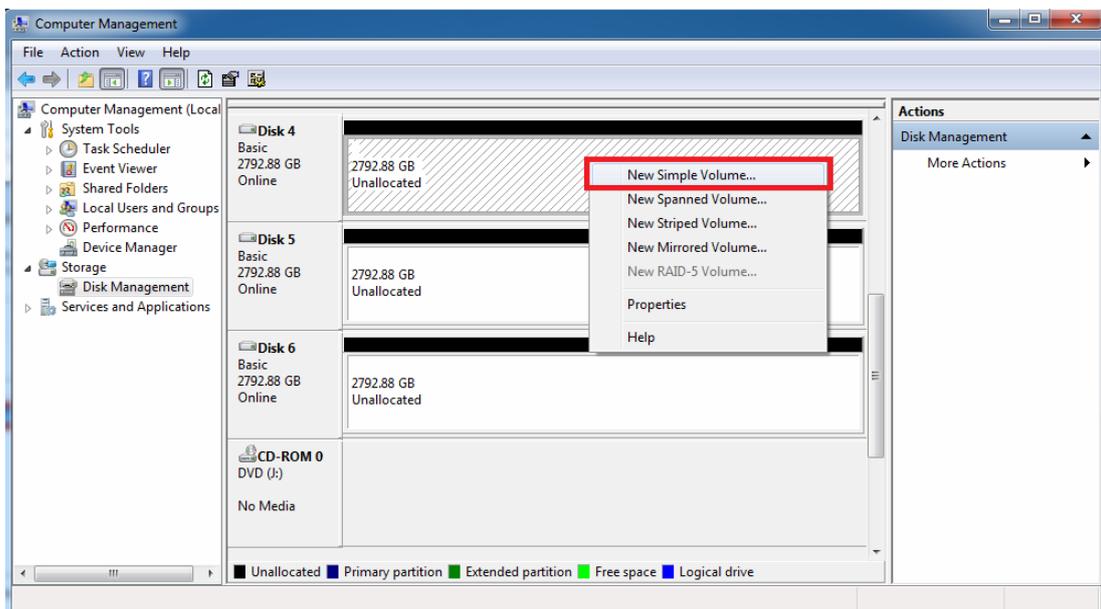


Figure: In this example, the Host IP address is 192.168.1.100 and the iSCSI data port 1 is 192.168.1.1.

- When the connection with the storage system is established, the status changes into “Connected”.



- When connecting to the iSCSI disk for the first time, it is necessary to format it as well as a local disk. Run Windows **Disk Management** to configure a disk. Note the settings of the formatted partition should be **Basic disk storage** and **NTFS file system**.



Note: If the HDD size exceeds 2 TB, right-click the disk and select **Convert to GPT Disk**.

For details see *Chapter 8 Software Application* in *GV-Storage System V2 User's Manual*

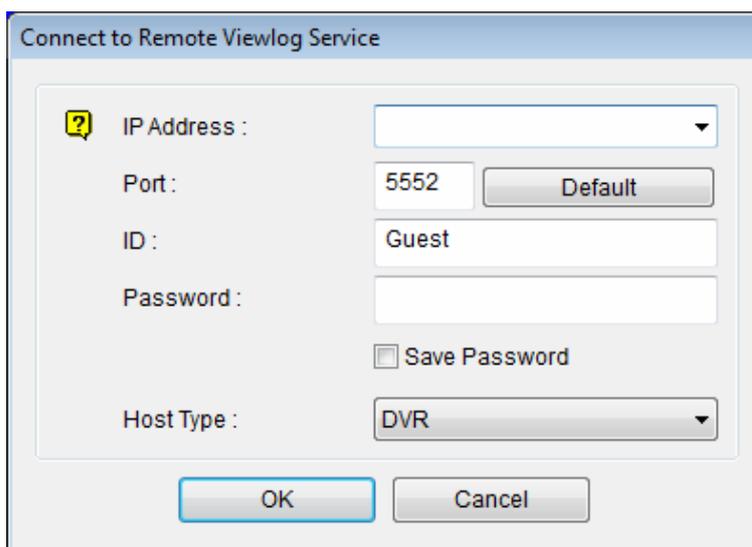
3. Accessing Video Recordings

You can use the Remote ViewLog program to access the video recordings when using GV-Storage System V2 with GeoVision surveillance systems and video management software.

1. The Remote ViewLog program is available at most of GeoVision software disk. You can also download the program from GeoVision Website http://www.geovision.com.tw/english/5_8.asp , go to **Downloads / Software / Supplement Utilities**, find GV-Remote ViewLog and click **Download**.

Supplemental Utilities		
Product	Version	Link
GV-E-Map Server Allows you to create multiple e-maps for GV IP devices and DVR/NVR systems.	V8590	▼ DOWNLOAD
GV-Multi View A multi-channel viewer for watching up to 32 live cameras simultaneously.	V8590	▼ DOWNLOAD
GV-Remote E-Map Allows you to activate and view E-Maps remotely.	V8590	▼ DOWNLOAD
GV-Remote ViewLog Retrieves and plays recordings from remote GV IP devices or DVR/NVR systems.	V8590	▼ DOWNLOAD

2. Follow the on-screen instructions to install GV-Remote ViewLog.
3. Run GV-Remote ViewLog and press **F10**. This dialog box appears.



The dialog box titled "Connect to Remote Viewlog Service" contains the following fields and controls:

- IP Address :** A dropdown menu.
- Port :** A text box containing "5552" and a "Default" button.
- ID :** A text box containing "Guest".
- Password :** A text box.
- Save Password**
- Host Type :** A dropdown menu containing "DVR".
- OK** and **Cancel** buttons at the bottom.

4. Type the IP address, ID and password of the host. Only modify the default port **5552** if necessary.

5. Select the Host Type.
 - If you are using GV-NVR System Lite V2, GV-Tower DVR / NVR System, GV-DVR / NVR System and software, and GV-VMS, select **DVR**.
 - If you are using GV-Recording Server, GV-Redundant Server and GV-Failover Server, select **GV-Server**.
6. Click **OK**. The Remote ViewLog connects to the specific host and starts playing back the events stored on the GV-Storage System V2.



4. Tools for GV-Storage System V2

There are two tools in the software disk for GV-Storage System V2, the storage system finder (**GV-Storage System V2 Finder.jar**) and Wake-on-LAN (**WoICmd.exe**).

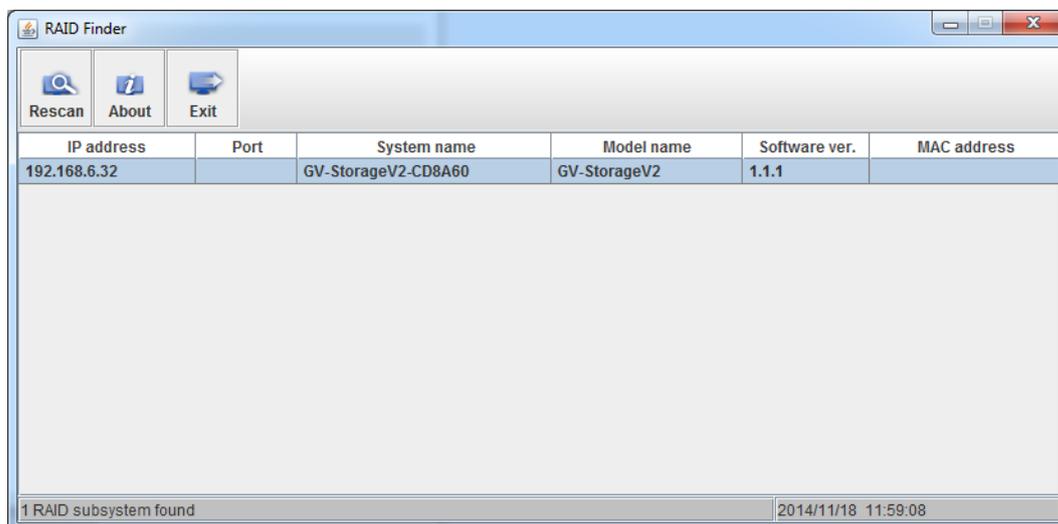
- The storage system finder (**GV-Storage System V2 Finder.jar**) detects and displays the IP address of GV-Storage System V2.
- Wake-on-LAN (**WoICmd.exe**) allows you to turn on GV-Storage System V2 from a remote PC.

4.1 Find the IP Address

Run the **GV-Storage System V2 Finder.jar** from the software disk to find the IP address of GV-Storage System V2 under LAN.

Note: Before running the tool, be sure to install Java on your computer.

1. Run **GV-Storage System V2 Finder.jar**.



2. Click **Rescan** if detection fails.

Note: If the IP address of GV-Storage System V2 cannot be detected, you can check if your netmask is the same as the storage system on 255.255.252.0, or press the IP Reset button on the front panel of GV-Storage System V2 to reset the IP address as 192.168.0.199.

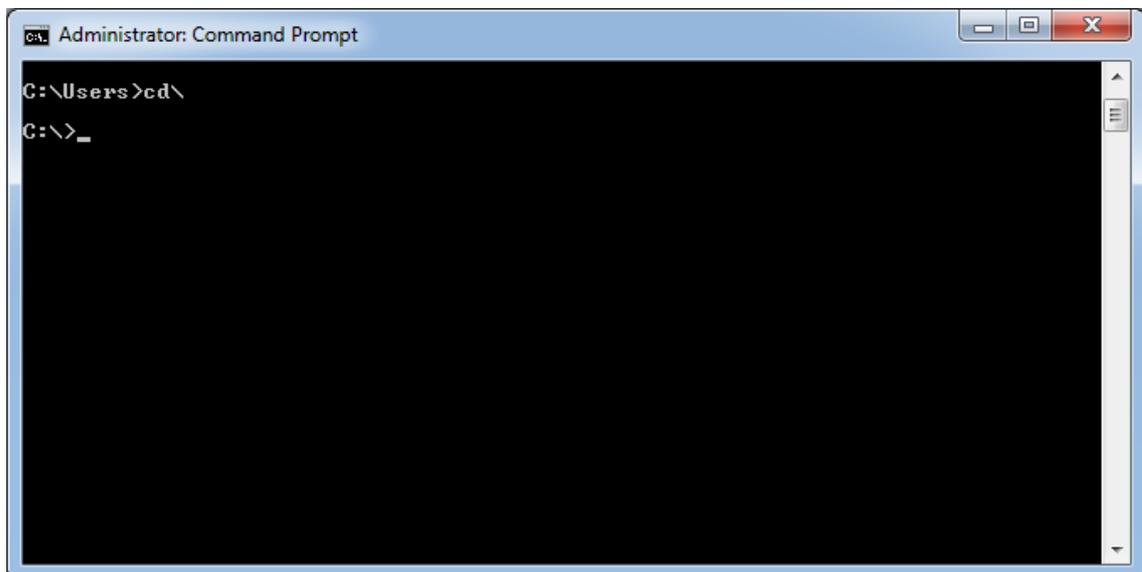
4.2 Turn on GV-Storage System V2 Remotely

You can power on the GV-Storage System V2 from a remote PC with the Wake-on-LAN tool (**WoICmd.exe**) in the software disk. Follow the steps below.

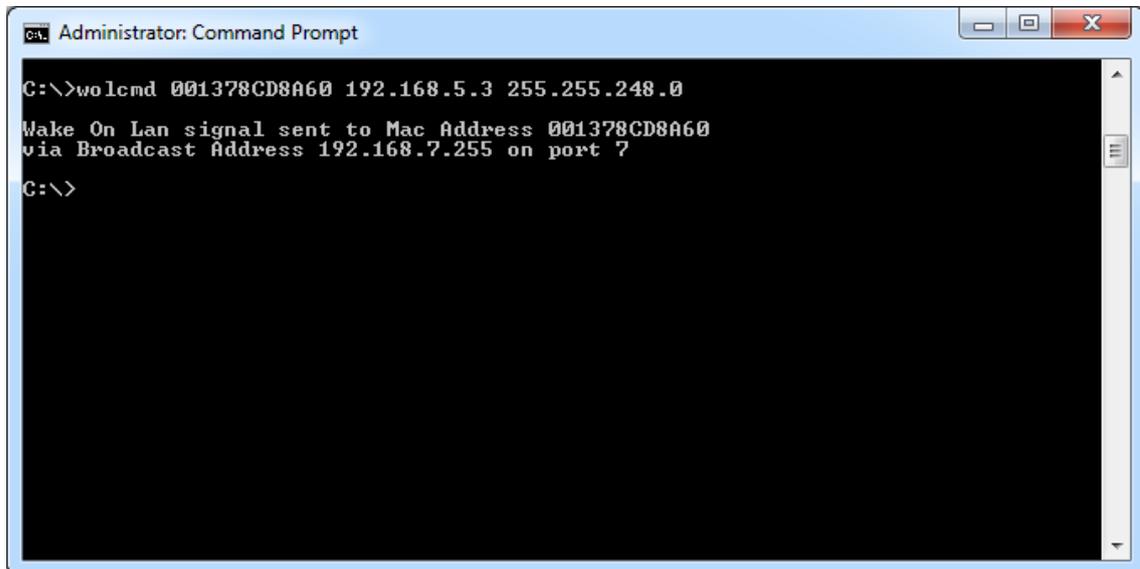
1. Copy **WoICmd.exe** from the software disk to C:\ of your PC.
2. Click Windows Start menu, click **Accessories**, and run **Command Prompt**.



3. Type **cd** to go to C:\.



4. Type **wolcmd [GV-Storage System V2 MAC Address] [Your PC's IP] [Subnet Mask] [port number]**. If the port number of GV-Storage System V2 has not been changed, you don't need to type the port number.



```
Administrator: Command Prompt
C:\>wolcmd 001378CD8A60 192.168.5.3 255.255.248.0
Wake On Lan signal sent to Mac Address 001378CD8A60
via Broadcast Address 192.168.7.255 on port ?
C:\>
```

In this example:

GV-Storage System V2 MAC Address: 001378CD8A60

PC IP: 192.168.5.3

Subnet Mask: 255.255.248.0

Port Number: N/A

GV-Storage System V2 is now activated remotely.