

VS-6048D Video Storage Configuration

Model: VS-6048D/VS-2024S

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Video Storage Deployment Instructions

Key words: Video Storage

Abstract: This document describes how to configure the Video Storage products. It is applicable to FS employees, system administrators, maintenance personnel, and other relevant personnel. Readers are expected to acquaint themselves with the Video Storage products

List of abbreviations:

Abbreviations	Definition
RAID	Redundant Array of Independent Disks
RAID Group	RAID Group
SAN	Storage Area Network
SAS	Serial Attached SCSI
SCSI	Small Computer System Interface
iSCSI	Internet SCSI
SCU	System Controller Unit
DEU	Disk Enclosure Unit
GUI	Graphical User Interface

Notes: Descriptions in blue require manual input

Descriptions in red require your special attention

1 Overview of Deployment Procedures

For deployment procedures, refer to Figure 1-1, where green indicates hardware configuration operations, orange indicates inspection operations and red indicates software configuration operations. The following sections will describe the sequential deployment procedures according to the flowchart.

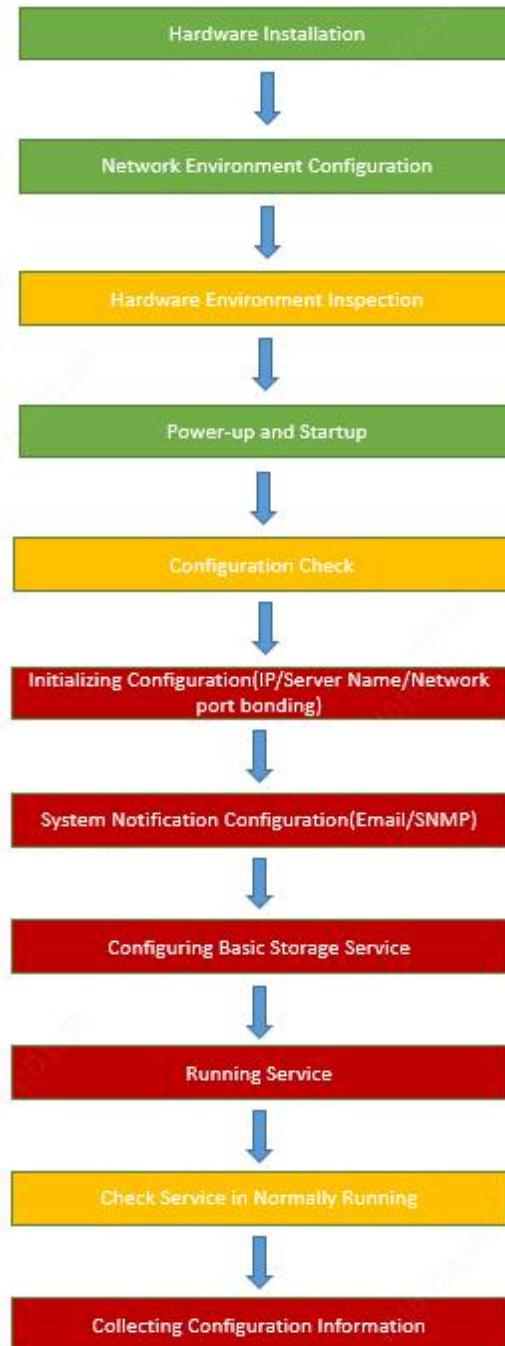


Figure 1-1 Deployment flowchart

2 Typical Application Configuration

Video Storage supports 1 SCU with up to 4 cascaded DEUs, all of which can be configured with up to 24 disks (for VS-6048D 48 disks). It is recommended to create RAID LUN with 11+1 and 12 disks in each chassis, wherein 11 or 12 disks are used as data disks, with the rest of one automatically being the hot spare disk, or you may add an exclusive hot spare disk. Use default configurations when creating RAID LUN (rebuilding speed is "High" by default and the initial verify is set as "Yes").

It is not recommended to use the same array to store images and video. For data safety, it is recommended to use enterprise-class hard drives to store important images and video. If surveillance-class hard drives are used, RAID6 should be the first choice instead of RAID5.

3 Precautions for Disk Deployment

1. As a precision electromechanical component, a disk should be deployed by taking into account the following points:
 - 1.1. Video Storage chassis should be horizontally arranged on the rack with its entire weight supported by the rails or the support tray. The mounting bracket screws should only be used for avoiding the equipment moving forwards and backwards.
 - 1.2. Before removing a disk, carry out the "Safely Remove" operation for the disk on the GUI console, and remove the disk until the disk LED flashes yellow and green alternatively.
 - 1.3. Ensure that the ambient temperature between 10°C~35°C and that the equipment is well cooled.
 - 1.4. Ensure that the operating humidity is between 20%~80% (no condensation).
 - 1.5. The cleanliness meets standard requirements for a machine room, with dust content of no more than 3×10⁴ particles/m³ (no visible dust on the desktop within 3 days).
 - 1.6. The equipment should be installed in a place free of significant vibration, especially avoiding installing in places close to construction sites or roads with a high traffic of trucks.
2. For other installations and configurations, please adhere to the following steps; precautions for Disk Deployment

4 Hardware Installation

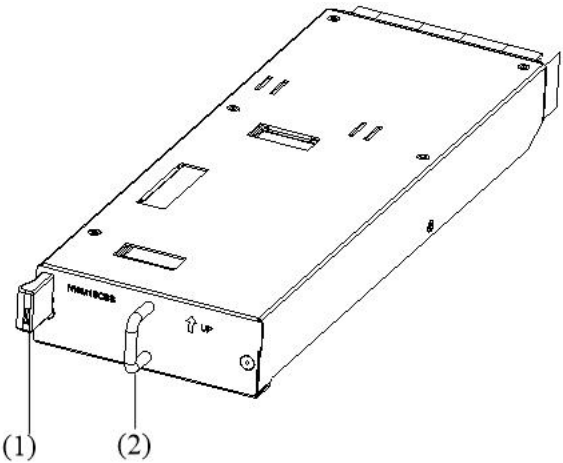
This manual describes the hardware features, equipment installation, cabling, and system power-on of each component of the network storage system. To avoid possible equipment damage or personal injury, please read this manual carefully before installing each component of the Video Storage product.

Installing the battery pack:

A battery is used to protect cache data when the system is abnormally powered off.

CAUTIONS

- Before installation, verify that screws of the battery cover and the port board are secure. The battery cover and the port cover respectively have 4 screws.
- When inserting the battery pack, to avoid damage or bending of battery terminals, remove the inserted module and insert it again if misalignment occurs.
- A battery is already installed inside the battery pack properly when it leaves the factory, hereinafter it will be referred to as an "integrated battery pack". As shown in Figure 4-1. The battery pack mentioned in the following installation steps is an integrated one.
- As the battery is heavy, you should be careful not to drop it onto a floor during insertion and extraction.



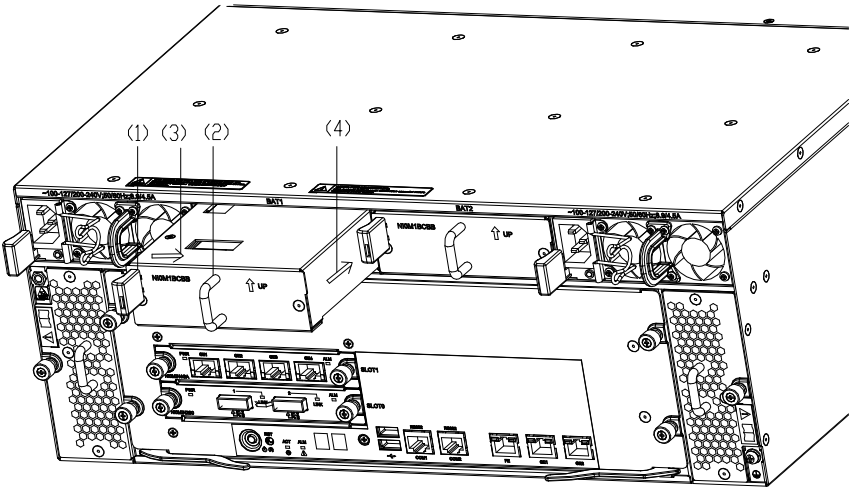
(1) Lock spring leaf

(2) Ring-shaped handle

Figure 4-1 Integrated battery pack

The steps to install the battery pack are as follows:

- (1) Take a new battery module out of its packaging case, and then determine the installation direction of the battery case by putting the lock spring piece on the left and putting the silkscreen of the battery module panel upright.
- (2) Press the lock spring piece in the direction of arrow 3, and push the ring handle along the guide rail slowly. See the following figure.



(1) Locking spring leaf

(2) Ring-shaped handle

(3) Arrow

(4) Arrow

Figure 4-2 Installation diagram of battery pack module

- (3) When inserting the battery module, verify that the module and the guide rail are in good contact. Push the battery module until it cannot move and you can hear the lock spring piece is buckled. In this way, the battery module is completely installed.
- (4) Verify that the battery case is secure and in position. Check that the module has good contact with the guide rail during insertion. Push the battery module all the way in until it stops; in this case, you will hear a “click” sound when the locking spring leaf is latched on, indicating that the battery module is installed.

Installing a disk

CAUTIONS

- Before installation, check if the panel is attached onto the front of the equipment; if yes, remove the panel.
- Check that the handles on the two sides of the disk module are fastened with screws (three screws on each side of the disk cartridge).
- The disk is already installed with structural components when it leaves the factory, hereinafter it will be referred to as an “integrated disk”, as shown in Figure 4-3. The disk mentioned in the following installation steps is an integrated one.
- If the 48-disk chassis is not fully occupied, install a pseudo disk module to the vacant slots to avoid local over-heating due to uneven heat dissipation.



Left disk handle bar	Right disk handle bar	Disk	Disk screw
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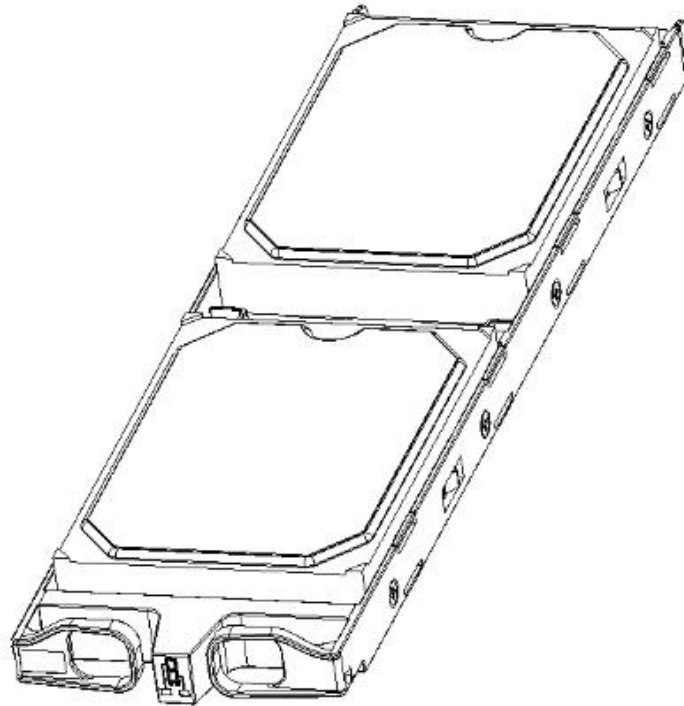


Figure 4-3 Disk appearance

The steps to install a disk are as follows:

(1) When the disk is initially inserted, hold the middle of its two sides, align with the disk slot in the chassis, and push the disk into the slot. See the following Figure. 4-4.

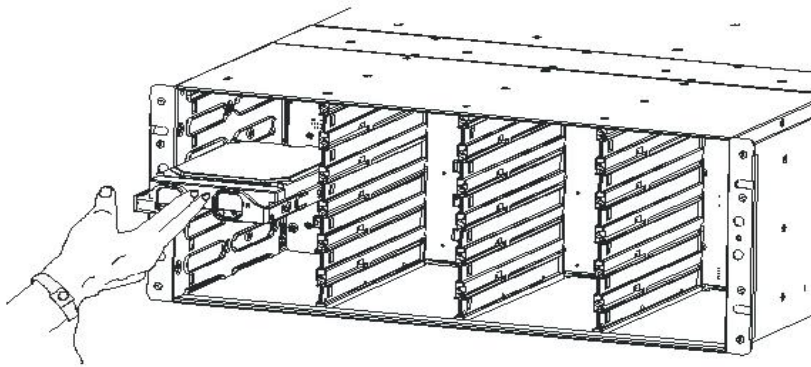


Figure 4-4 Inserting the disk

(2) When the disk is near the slot bottom, press the middle in the front of the disk with moderate force.

Press the disk until a clatter sound is heard, indicating that the disk connector and the chassis middle plane are in full contact. After the installation is complete, the handle bar and the chassis front panel will parallel. See the following figure. As shown in Figure 4-5.

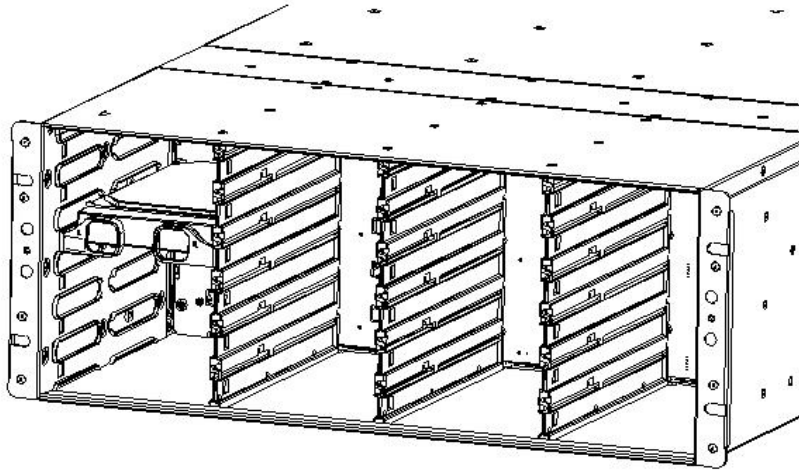


Figure 4-5 Disk correctly inserted

(3) Repeat the steps above to install the rest of disks. As shown in Figure 4-6.

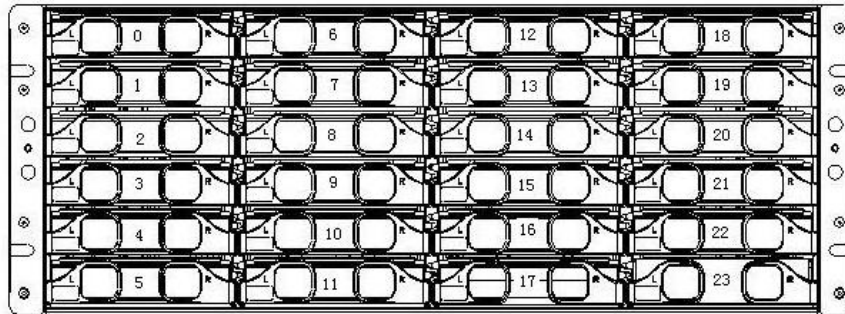


Figure 4-6 Full configured disks

5 Network Environment Configuration

A gigabit NIC (network interface card) should always be used for Video storage unit. Be careful not to use a 100 MBit/s switch to prevent the transmission rate from being negotiated to 100 MBit/s which significantly degrades its performance.

If network port bonding is used in a network environment, it should be noted that:

- For a two-layer network, the selection of Balance-xor (layer2) for storage load balancing is preferred for the best results. This corresponds to static bonding in the IRF switch.
- For a three-layer network, it is recommended to use the balance-xor (layer3+4) mode for storage, which corresponds to static bonding in the IRF switch.

Caution:

- Check that an Ethernet network port is properly connected and that the connector is not loose;
- Check that the network cable is firmly bundled and not easily loosened. Do not bundled network cables with a power cord;
- Do not place a network cable in front of an air outlet to prevent damage due to heat;
- Check that all connection cables are effectively identified with their name written clearly and correctly on labels.

6 Hardware Environment Inspection

Check if the power cord and SAS cables are properly connected. For details, refer to the following notes.

Cautions:

- The power supply is properly connected;
- The power cord and connectors are properly connected, and plugs with a mis-extraction prevention device are also properly installed;
- Cables are firmly bundled and not easily loosened, and power cords should not be bundled together with network and SAS cables;
- Do not place cables near an air outlet to prevent damage due to heat;
- Check that all connection cables are effectively identified with their name written clearly and correctly on labels;
- SAS cables should be properly connected, they must not be connected in the opposite orientation;
- SAS cables should have a curvature of no less than 90 degrees and a bending radius of no less than 80 mm;
- If several DEUs are cascaded for Video Storage product, please allocate these DEUs equally to two SAS ports. This is beneficial to the rebuild performance.

7 Power-up and Startup

The equipment can be powered on and started up only when the hardware and network environment of the storage device has been checked and no errors are found. After the equipment has started up normally, use a portable computer and connect a network cable to the management port on the storage controller in order to download the storage control panel to query and manage the equipment; connect the serial port cable to the system serial port of the storage controller to query and configure the equipment. For details about downloading and log in to the storage console for the first time, please refer to its User Manual.

8 Configuration Checking

8.1 Checking Hardware Configurations

Notes:

- Please always check the appropriateness of the hardware environment before upgrading or configuring the product. If there are any disagreements between the hardware configuration and the instructions, please contact the FS Supply Chain for replacement in time.

Please carry out each check in sequence as described in Table 9-1.

Table 9-1 Checking hardware environment

Check Item	Description
Number of SCU power supply	Each SCU is provided with one power module (an extra power supply is optional to support 1+1 dual-power mode)
Number of DEU power supply	The DEU is normally provided with one power module, or can be configured as 1+1 dual-power mode

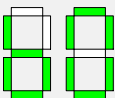
8.2 Check interface/LED status

8.2.1 Description of SCU/DEU LED

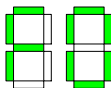
Each disk on the front panel of SCU has a yellow & green LED to indicate the status of the disk, while on the rear panel of SCU there are the power LED, locating LED, alarm LED and SAS port LED. The LED status is defined as following table.

Table 9 – 2 Description of SCU LED status

LED	Silk screen	Colour	Description
System status LED	ACT	Green	Off: indicates that the device is not started. Blinking at the frequency of 1 Hz: indicates that the device is running. Remarks: The LED does not blink until the host software is completely started. This is not a system failure.
System alarm LED	ALM	Yellow	Off: indicates that the system operates normally. Yellow Steady on: indicates that the system hardware is faulty. Meanwhile, the buzzer beeps. Blinking at the frequency of 2 Hz: indicates the locating state. Blinking at the frequency of 8 Hz: indicates that the system is running in exception protection mode.
GE network port LED		Green/yellow	Off: indicates that the network port is powered off. Green steady on: indicates that the auto-negotiation rate reaches 1000 Mbit/s. Green blinking: indicates that the auto-negotiation rate reaches 1000 Mbit/s, and data is being transmitted. Yellow steady on: indicates that the auto-negotiation rate reaches 100 Mbit/s. Yellow blinking: indicates that the auto-negotiation rate reaches 100 Mbit/s, and data is being transmitted.
Network port LINK LED on the GE interface module	LINK	Green/orange	Off: indicates that the Ethernet port is powered off. Green steady on: indicates that the auto-negotiation rate of the Ethernet port reaches 1000 Mbit/s. Orange steady on: indicates that the auto-negotiation rate reaches 100 Mbit/s.
Network port ACT LED on the GE interface module	ACT	Yellow	Off: indicates that no data is being transmitted. Yellow steady on: Data is being transmitted.
Global LED	SYS	Green/yellow	Green steady on: indicates that the system is normal. Yellow steady on: indicates that the system hardware is faulty. Meanwhile, the buzzer beeps. Yellow blinking at the frequency of 2 Hz: indicates the locating state. Yellow blinking at the frequency of 8 Hz: indicates that the system is running in exception protection mode. Remarks: The LED does not blink until the host software is completely started. This is not a system failure.

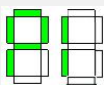
Disk LED	None	Green/yellow	Off: indicates that the disk is powered off.
			Green steady on: indicates that the disk is normal.
			Green quickly blinking: indicates that the system is reading or writing the disk.
			Yellow steady on: indicates that disk alarms exist.
			Green quickly blinking + yellow blinking at the frequency of 1 Hz: indicates that the array where the disk resides is being synchronized or rebuilt.
Power LED	None	Yellow/green	Yellow blinking at the frequency of 2 Hz: indicates that the disk or the array where the disk resides is in the locating state.
			Green and yellow alternatively blinking at the frequency of 1 Hz: indicates that the disk can be safely removed.
			Off: indicates that no AC power is connected.
			Green blinking: indicates that AC power is connected but the system is in the suspend state.
			Green steady on: indicates that the power module of the system is powered on.
SAS port LED (on the SAS interface module)	LINK/ACT	Green	Yellow steady on: indicates that the power module is faulty or no AC power is connected.
			Green steady on: indicates that the four channels are connected.
			Green quickly blinking: indicates that data is being transmitted.
			Green blinking at the frequency of 0.5 Hz: indicates that at least one channel is disconnected.
			Off: indicates that no SAS cable is connected or all the four channels are disconnected.
Digital LED	None	Green	During BIOS boot: output data of port 80 is displayed
			After the system has booted, the operating temperature of the system is displayed
			Flashing indicates a warning (for the following alarm statuses, the buzzer will also go off). When there are several warnings at the same time, the different warnings will be displayed alternatively, each warning will flash 3 times before switching to the next warning.
			During booting
			Displays the output data of BIOS port 80
			Running normally after logging into the system
			Two digits: The system is running and these two digits indicate the current temperature (in Celsius) of the motherboard
			Two digits flashing
			The system has a temperature warning and the two digits indicate the current temperature (in Celsius) of the motherboard
			b flashes (b0/0b/bb)
			Indicates that a battery module is faulty. For example: If b is blinking on the left, the left battery module is faulty. If b is blinking on the right, the right battery module is faulty. 0 indicates the normal module.

F flashes (F0/0F/FF)



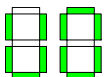
Indicates that a fan module is faulty. For example: If F is blinking on the left, the left fan module is faulty. If F is blinking on the right, the right fan module is faulty. 0 indicates the normal module.

P flashes (P1/P2)



Indicates that a power module is faulty. For example: If P1 is blinking, the left power module is faulty. If P2 is blinking, the right power module is faulty. 0 indicates the normal module.

U flashes (U0/0U/UU)

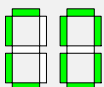


U0: indicates that the Complementary Metal Oxide Semiconductor (CMOS) battery is undervoltage.

0U: indicates that some voltage on the main board is detected abnormal.

UU: indicates that CMOS and some voltage on the main board are both abnormal.

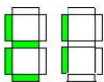
C flashes (C0)



C0: access exception has occurred to the CF card used for OS

t flashes

(t1/t2/t3/t4)



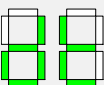
For 2 CPU fans:

1. When only CPU fan 1 is faulty, t1 flashes on the digital display
2. When only CPU fan 2 is faulty, t2 flashes on the digital display
3. When all CPU fans are faulty, t1 and t2 flash alternatively on the digital display

For 4 CPU fans:

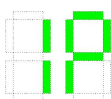
1. When only CPU fan 1 is faulty, t1 flashes on the digital display
2. When only CPU fan 2 is faulty, t2 flashes on the digital display
3. When only CPU fan 3 is faulty, t3 flashes on the digital display
4. When only CPU fan 4 is faulty, t4 flashes on the digital display
5. When all CUP fans are faulty, t1, t2, t3 and t4 flash alternatively on the digital display

dt flashes



Indicates that the hard disk temperature read from the disk SMART information exceeds the threshold. In this case, check the running status of the dust screen, equipment room temperature, and device fans.

IP flashes

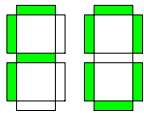
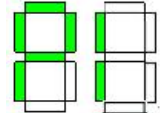
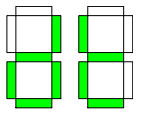


Indicates that an IP conflict exists in any network port.

Each disk on the front panel of the DEU chassis has a yellow & green LED to indicate the status of the disk, while included on the rear panel of the chassis are the power LED, alarm LED, running status LED, and SAS port LED, as shown in the table.

Table 9 – 3 Description of DEU LED status

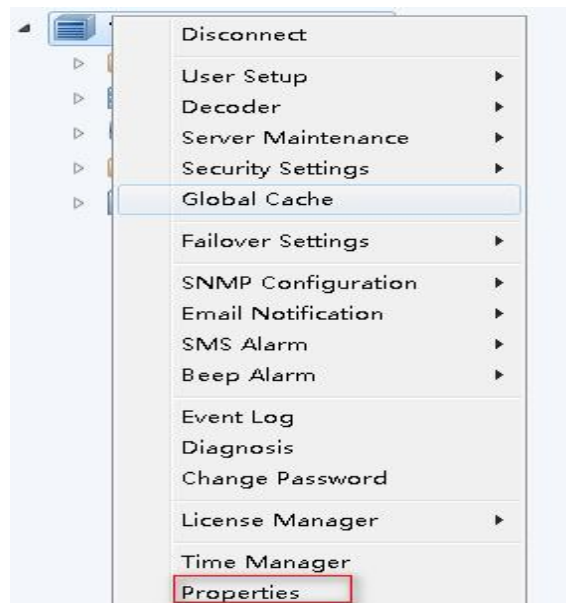
Indicator	Silk screen	Colour	Description
System status LED	ACT	Green	Off: indicates that the device is not started. Blinking at the frequency of 1 Hz: indicates that the device is running. Remarks: The LED does not blink until the host software is completely started. This is not a system failure.
System alarm LED	ALM	Yellow	Off: indicates that the system operates normally. Yellow Steady on: indicates that the system hardware is faulty. Meanwhile, the buzzer beeps. Blinking at the frequency of 2 Hz: indicates the locating state.
Global LED	SYS	Green/yellow	Green steady on: indicates that the system is normal. Yellow steady on: indicates that the system hardware is faulty. Meanwhile, the buzzer beeps. Yellow blinking at the frequency of 2 Hz: indicates the locating state. Remarks: The LED does not blink until the host software is completely started. This is not a system failure.
Disk LED	None	Green/yellow	Green: The disk link is in LINK status Fast flash in green: Data is transmitting Yellow: Disk alarm Fast flash in green and flash in yellow at 1 Hz: The array where the disk is located is synchronizing or rebuilding Flash in yellow at 2 Hz: The disk or the array where the disk is located is being locating LED flash Green and yellow alternatively at 1 Hz: It is safe to remove the hard disk
Power LED	None	Yellow/green	Off: indicates that no AC power is connected. Green blinking: indicates that AC power is connected but the system is in the suspend state. Green steady on: indicates that the power module of the system is powered on. Yellow steady on: indicates that the power module is faulty or no AC power is connected.
SAS port LED	LINK/ACT	Green	Green steady on: indicates that the four channels are connected. Green quickly blinking: indicates that data is being transmitted. Green blinking at the frequency of 0.5 Hz: indicates that at least one channel is disconnected. Off: indicates that no SAS cable is connected or all the four channels are disconnected.
Digital LED	None	Green	After the system has booted, the temperature of the system is displayed Flashing indicates an alarm (for the following alarm status, the buzzer will also beep). When there are several alarms at the same time, the different alarms will be displayed alternatively, each alarm

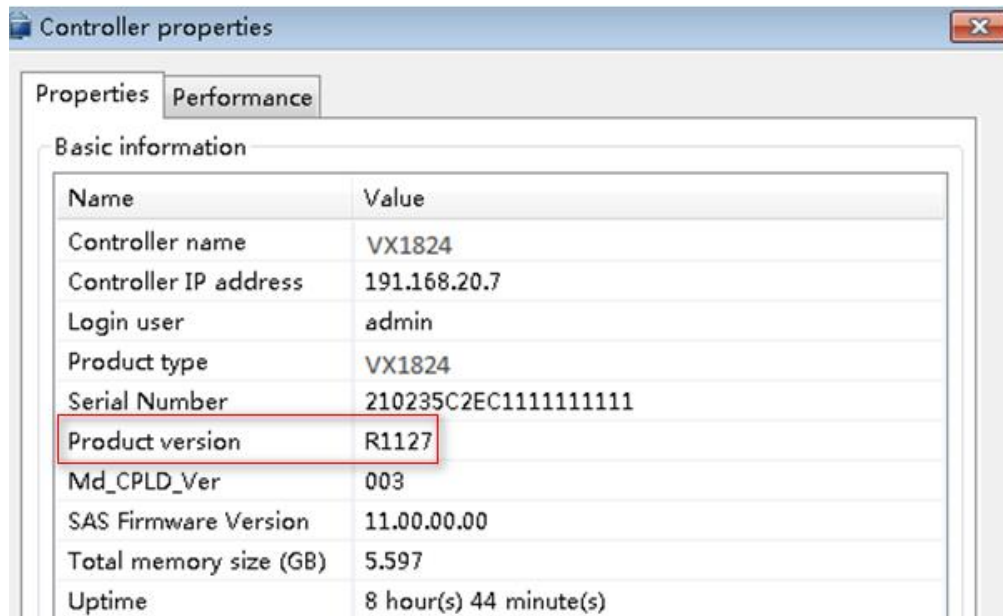
Indicator	Silk screen	Colour	Description
			will flash 3 times before switching to the next alarm.
		Two digits flashing	The system has a temperature warning and the two digits indicate the current temperature (in Celsius) of the motherboard
		F flashes (F0/0F/FF) 	Indicates that a fan module is faulty. For example: If F is blinking on the left, the left fan module is faulty. If F is blinking on the right, the right fan module is faulty. 0 indicates the normal module.
		P flashes (P1/P2) 	Indicates that a power module is faulty. For example: If P1 is blinking, the left power module is faulty. If P2 is blinking, the right power module is faulty. 0 indicates the normal module.
		dt flashes 	Indicates that the hard disk temperature read from the disk SMART information exceeds the threshold. In this case, check the running status of the dust screen, equipment room temperature, and device fans.

8.3 Checking Software Version

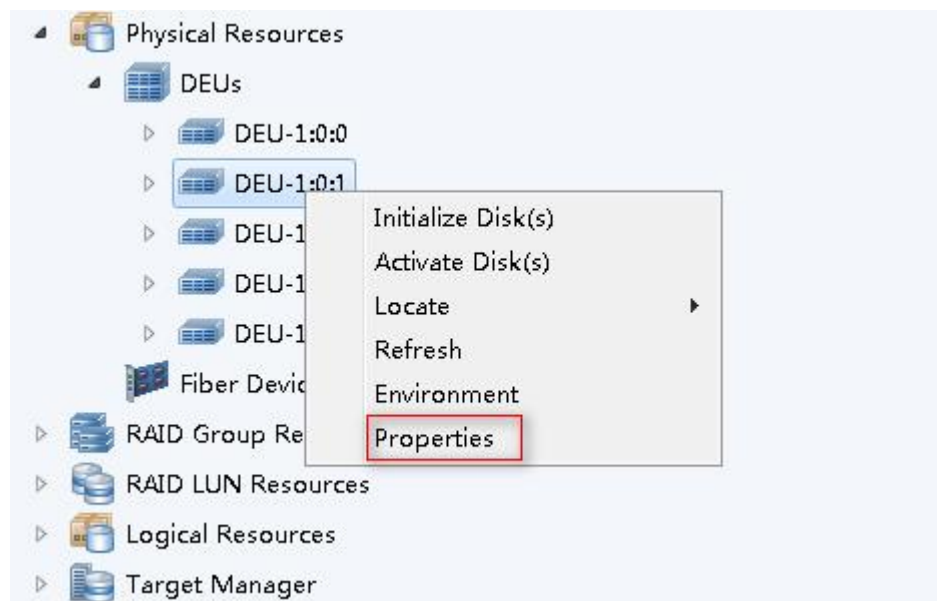
Log in to the GUI consol to get the software & hardware version of the product as following steps.

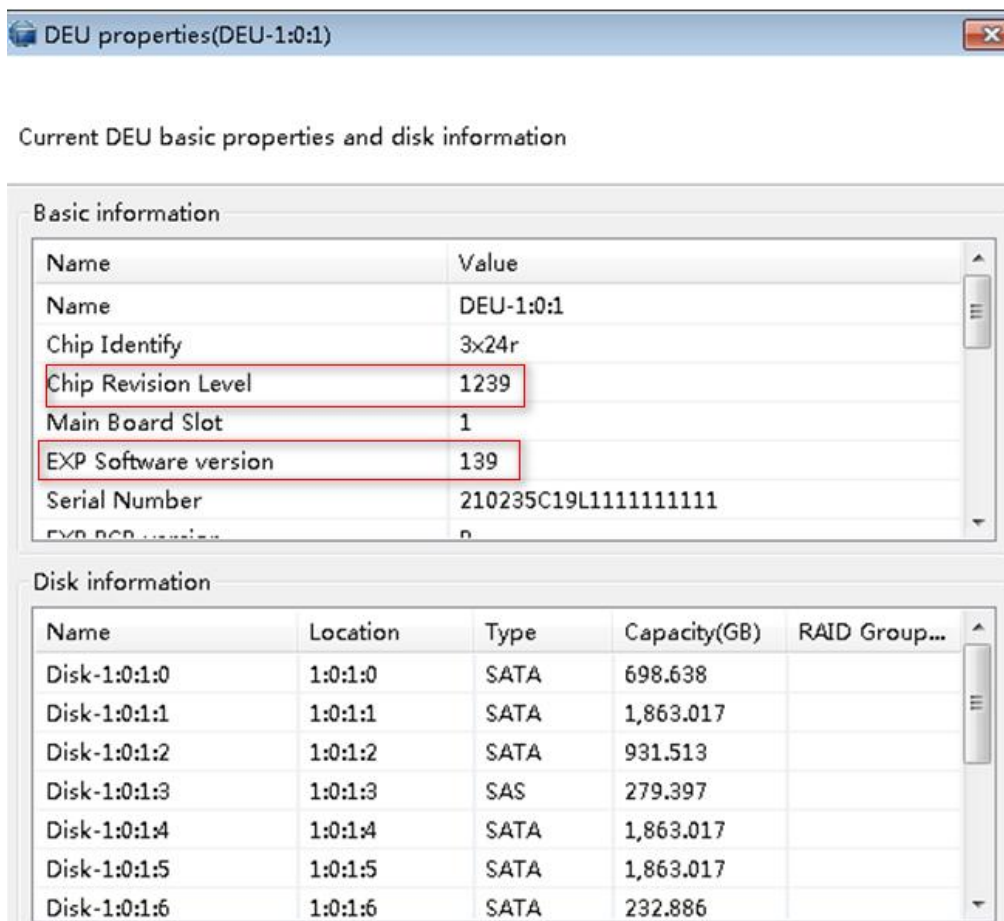
1. Get the software and hardware of storage controller. Log in to the GUI console. Right click the **hostname** node of the storage controller and select **[Properties]**, and the system will display the “**Controller properties**” dialogue box as shown below





- Get the software and hardware of DEU. Log in to the GUI console. From the **[Device]** tab, expand the path **[Storage Controller > hostname > Physical Resources > DEUs]**. Right click the DEU which you will check software version and hardware version, and then select **[Properties]**. And the system will display the “DEU properties” dialogue box as shown below





9 Initializing Configuration

9.1 GUI Console Configuration

9.1.1 GUI Console Environment

A GUI console configures and manages a storage controller. You can directly download it to the management workstation and run it. You can use one GUI console to centrally manage a maximum of 32 storage controllers under the condition that the version of the GUI console matches the version of the storage controllers. A maximum of eight users can log in to a same GUI console. For example: Run the GUI console in management workstations A, B, and C. In this case, the same GUI server can be logged in by a same user or different users in three management workstations.

- Memory

Memory: no less than 512 MB.

- Operation system

Operating system: Microsoft Windows

- Java operating environment

A GUI console is a program based on Java. Therefore, the management workstation must run Java Runtime Environment (JRE6.0 or above version). If JRE is not installed for the management workstation, the system will prompt you to download and install JRE before you start the GUI console. The software version is R1127 or higher than R1127, Java Runtime Environment is JRE8.0 or above version.

- Microsoft Internet Explorer

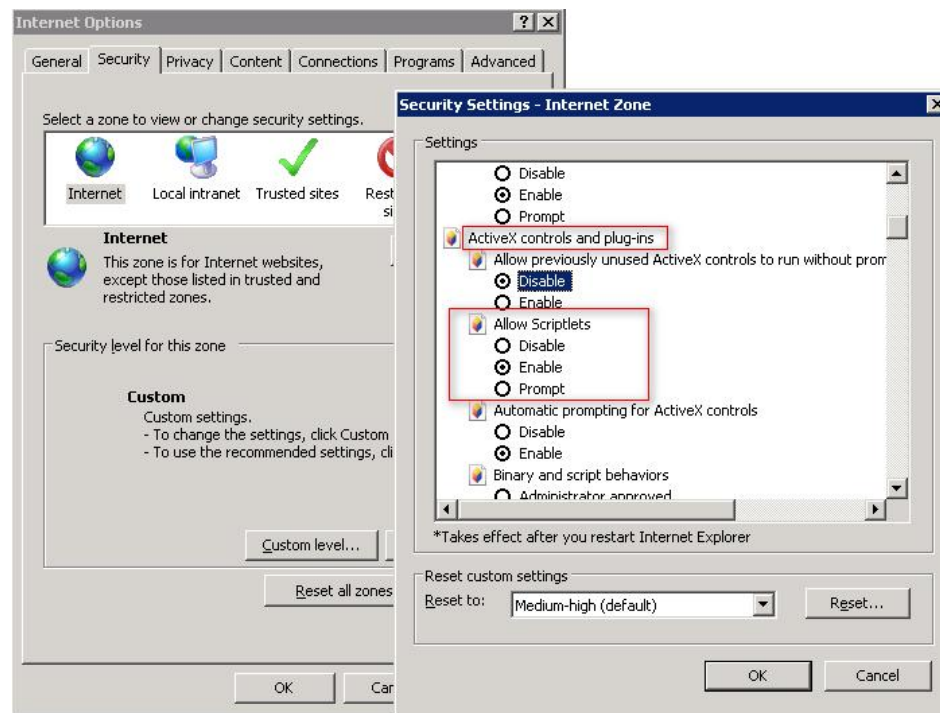
Microsoft Internet Explorer 6.0 or later can be used and the pop-up window blocking function need to be disabled.

Notes:

- The software version is R1127 or higher than R1127, Java Runtime Environment needs JRE8.0 or above version.

9.1.2 Logging In to the GUI Console

Before download the GUI Console, Ensure the configuration of Internet Explore is correct. Open Internet Explore, Select **[Tools> Internet Options>Security]** to set ActiveX controls and plug-ins buttons to enable as below figure.



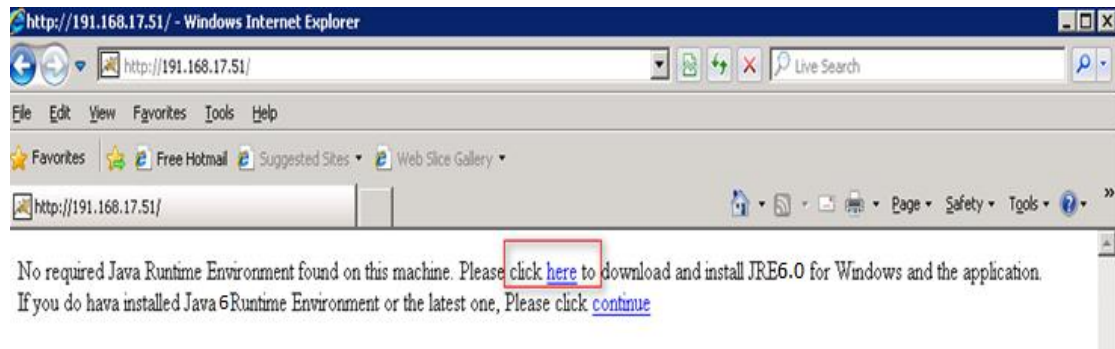
There are two situations:

JRE6.0 has been installed for the management workstation: Perform steps (1) and (2).

JRE6.0 is not installed for the management workstation: Perform steps (1) to (9), and then repeat steps (1) and (2).

Perform the following steps to log in to the device:

- (1) Open Microsoft Internet Explorer in the management workstation.
- (2) Enter `http://IP address of the storage device management port`. By default, enter `http://192.168.0.1` to download the console as below figure.
- (3) Click the link **here** on the page to download and install JRE6.0.



(4) Click the light yellow prompt bar **This site...** and select **Install ActiveX control**.

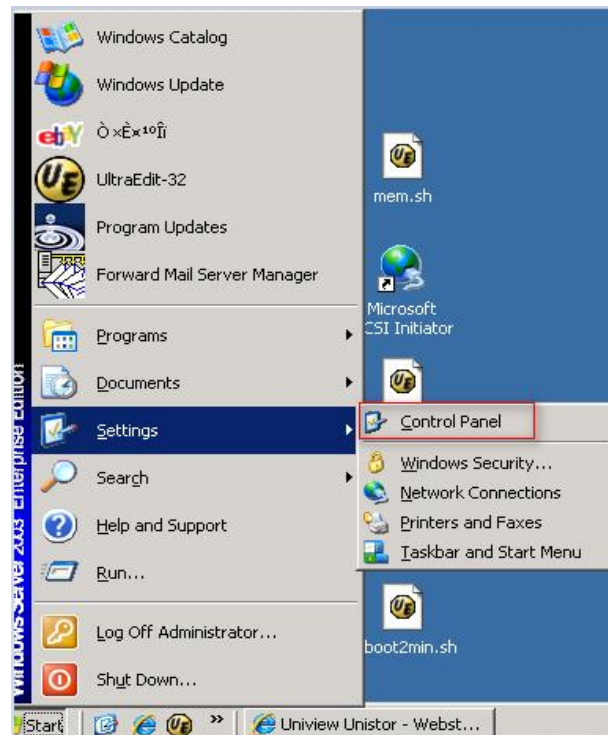
(5) Click **Install**.

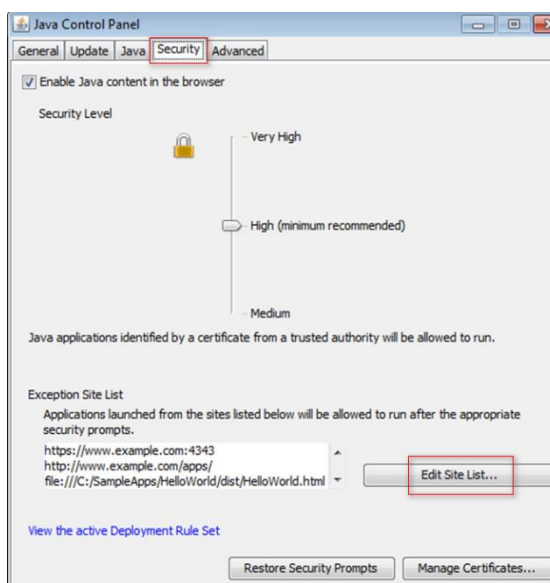
(6) Select **Typical Installation**, and click **Accept**. The system starts to install JRE6.0.

(7) Deselect **Start Internet Explorer** and click **Finish** to complete JRE6.0 installation.

(8) Afterwards, you need to set the IP address of the management port as a trusted site as following steps:

First find **Control Panel**, and then double click **Java**, select **security** panel, set **Security Level** as High, and then select **'Edit Site List...'**, and then add the storage controller URL as **'http://ip address.'**





(9) Open **Internet Explorer**, and input URL as ‘**http:// ip address**’ to download GUI console

9.2 Change the password

Log in to the GUI console by the management network port using the default IP address 192.168.0.1 as shown in Figure 10-1. After successfully log in to the GUI console as an admin or general administrator, if an admin’s or general administrator’s password is weak (the default password is 123456), the system will display the “**Change password**” dialogue box as shown in Figure 10-2. After the password is changed to a strong one, continue to log in to the GUI console. Please change the default password for the sake of security.

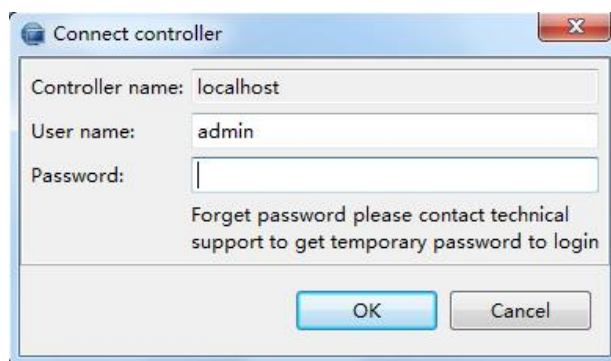


Figure 10-1 Connecting

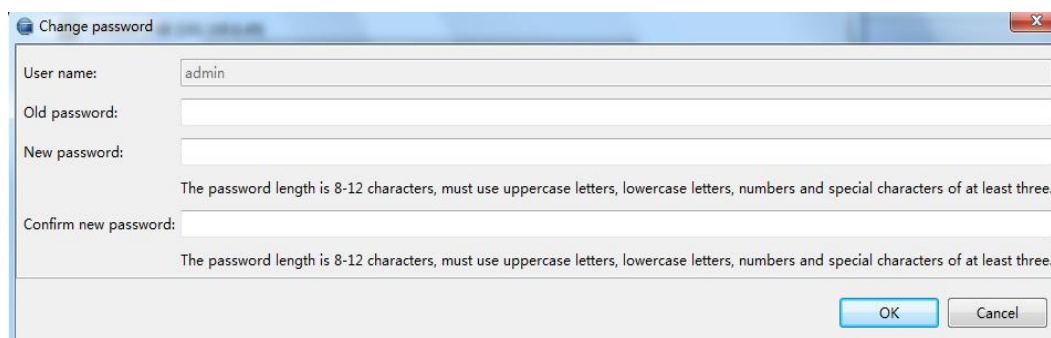


Figure 10-2 Changing the default password

Notes:

- When you log in to the GUI console, changing the admin's or general administrator's password will automatically change the root password to a dynamic password. A dynamic password can be obtained by providing SN (Serial Number) for the After-sales Department

9.3 Setting the Network Port IP Address and MTU**Description:**

- Manage on the GUI console. Allow logging in to the GUI console through the service network port .

(1) Log in to the storage interface. Right click the **hostname** node of the storage controller and change the IP of the other service ports in [Server Maintenance > Configure Network], as shown in the Figure 10-3:

Notes:

- If you change the current login network port, after configuring the "Configure Network", you will be prompted with a message indicating that the controller is disconnected, click [OK] button to re-connect the controller.
- The MTU of the service port is set to 1500 by default and it is not recommended to change.

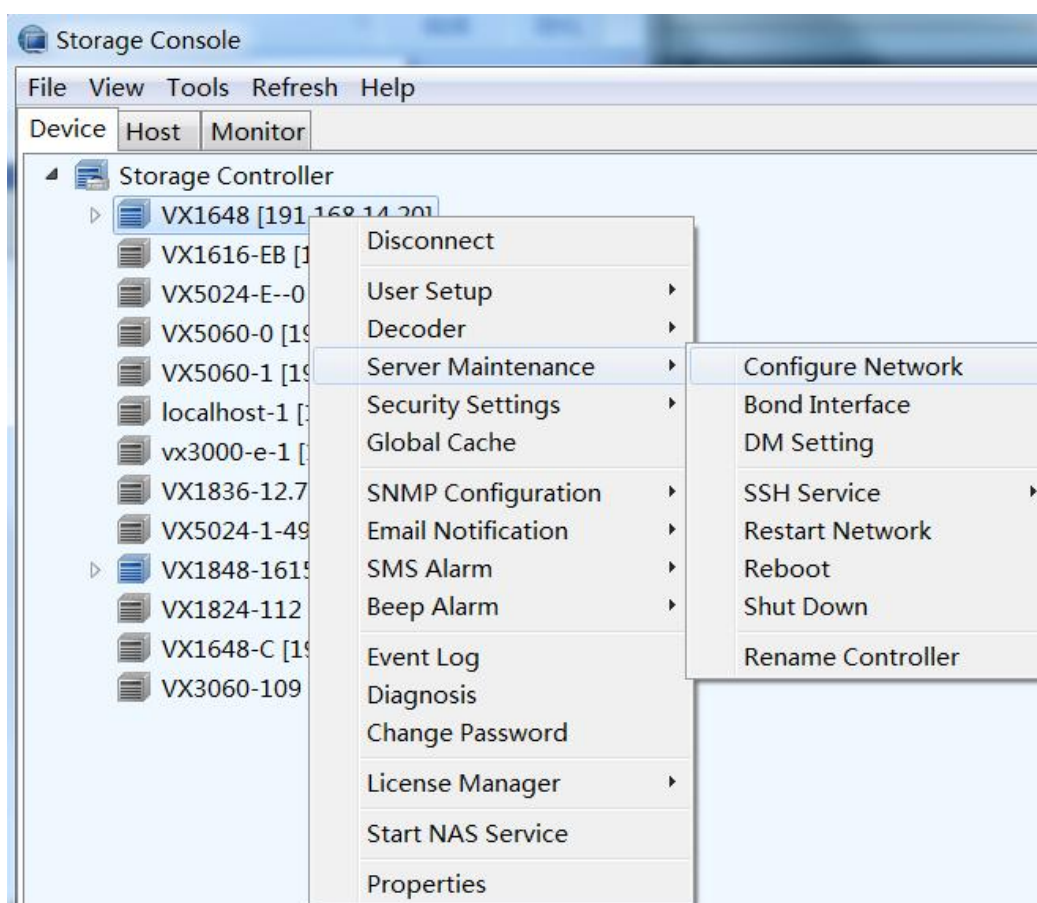


Figure 10-3 Setting the network port IP address

(2) Select **[Server Maintenance > Network Configuration]**, select the port and click the **[Configure]** button, as shown in the Figure 10-4:

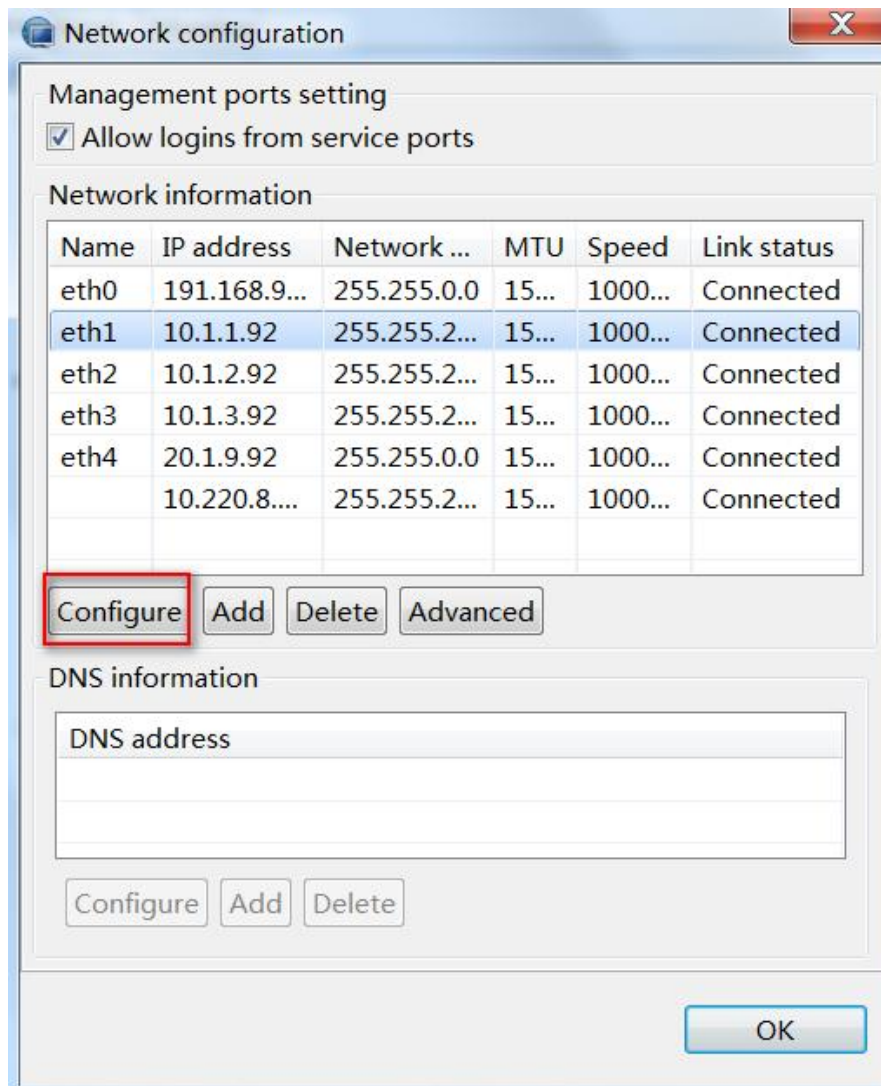


Figure 10-4 Selecting the port

(3) On the pop-up dialogue box, input the correct IP address and mask of the port, then click the **[OK]** button, as shown in the Figure 10-5:

(4) Repeat steps (2)~(3) to set the IP addresses for all the ports and then review them from **[Server Maintenance > Network Configuration]**.

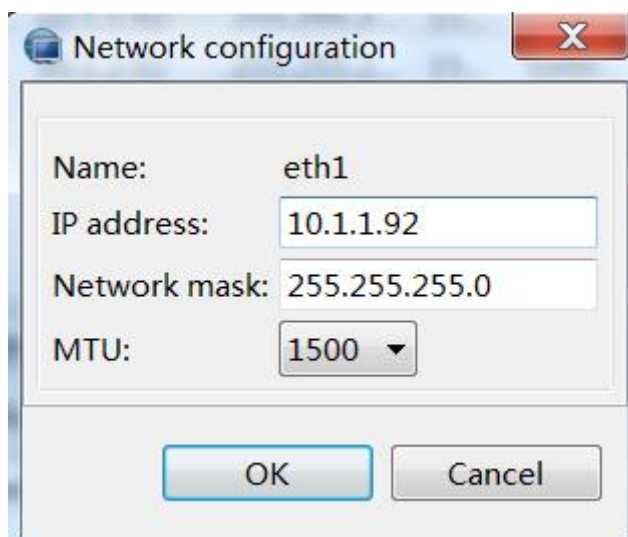


Figure 10-5 Setting the IP address and mask

9.4 Setting Controller Name

The steps are as follows:

- (1) Right click the **hostname** node of the storage controller, select the [Server Maintenance > Rename Controller] menu, and input the new name of controller into the popup dialogue box, as shown in the Figure10-6;
- (2) Unless otherwise specified, please follow the format - "**Abbreviated name of Office Name - Equipment Coding**" to name the controller. For example, if the office is University of California, Berkeley, and only an equipment is available (equipment coding is 1), then the name of the storage controller is UCB-1.

Notes:

- The system will automatically restart after the name of the controller has been changed.
- Do not change the name of the storage controller when it is in service.
- Try not to change the controller name again once it is set.
- If the controller name contains ",", the controller name contained in messages takes only the field before ".".

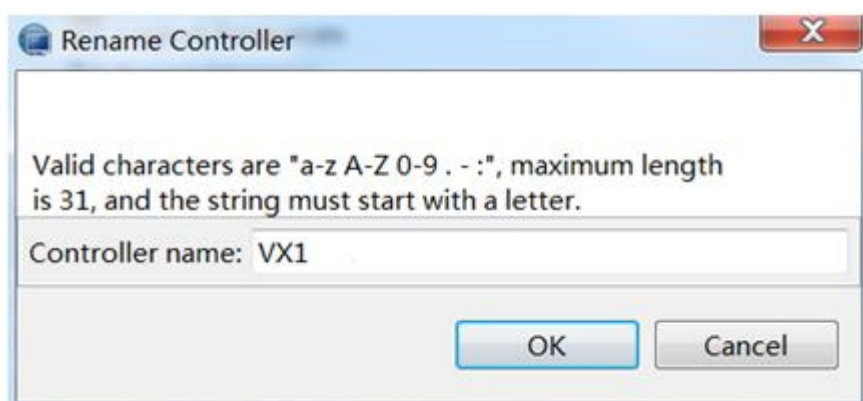


Figure 10-6 Setting the controller name

9.5 Setting System Time

If the system time is different from the actual time, you can change the system time.

Open the storage console and double click the time area in the lower right corner of the window to display the “**System time**” setting dialogue box to set the time zone, as shown in the Figure10-7:

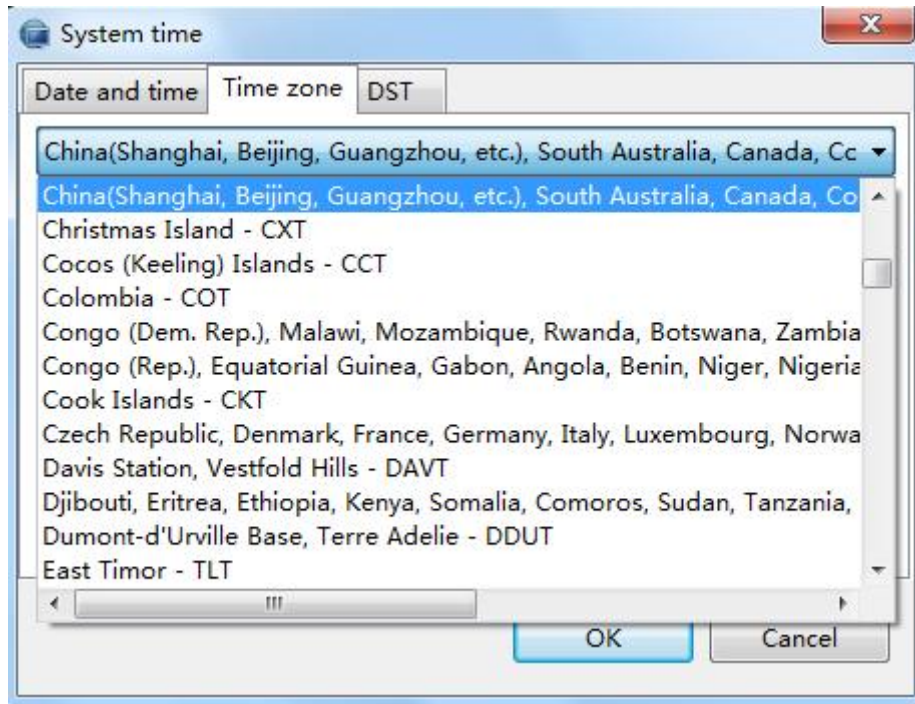


Figure 10-7 Change system time zone

Change the time as shown in Figure 10-8

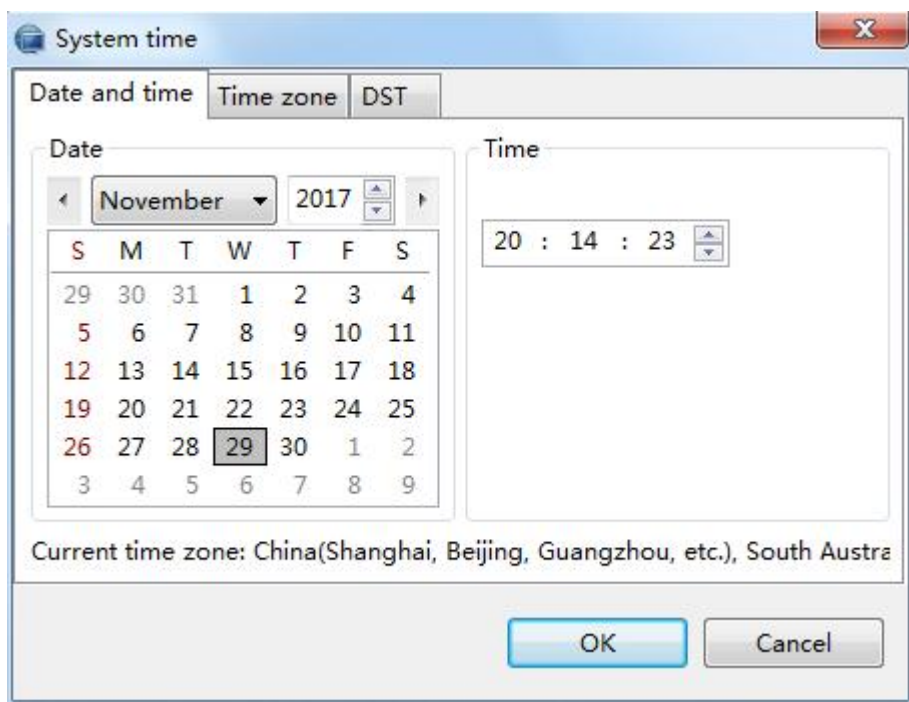


Figure 10-8 change system date and time

Setting the time as DST mode as shown in Figure 10-9

If the local area clock is setting as 'Daylight Savings Time', you can change the storage as DST mode

Open the storage console and double click the time area in the lower right corner of the window to display the **"System time"** setting dialogue box to set DST, and chose 'Enable DST', and then set Start Time, End Time and DST Bias as shown in the Figure 10-9:

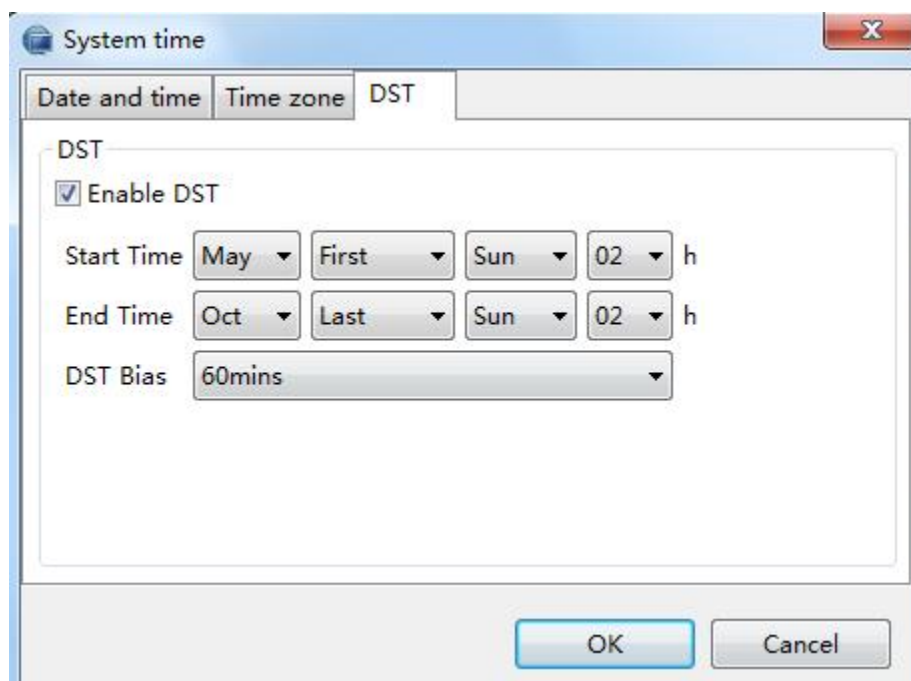


Figure 10-9 change system time as DST mode

9.6 Configuring Service Port Bonding (optional)

9.6.1 Network Port Bonding

Notes:

- Before configure network port bonding, please log in to GUI by management network port.
- If storage controller has configure network port bonding, the switch is also configure bonding accordingly. Static bonding is used for the bonding of the switch.

- (1) Right click the storage controller name in the catalogue tree to select the **[Server Maintenance > Bond Interface]** menu item.
- (2) Select **[Bonding mode]** from the popup dialogue box according to the actual application, and then select a network port name; in this case, the **[Bond]** option will be available. Click **[Bond]** button, as shown in Figure 10-9.

Description:

- There are 4 bonding modes available: 802.3ad (layer2), Balance-XOR (layer2), Balance-XOR (layer3+4) and Active-backup, which can be selected according to actual requirements.
- 802.3ad mode: combines several networks into a full duplex link bonding sharing the same rate to achieve fault tolerance, load balance and transmission efficiency improvement. The 802.3ad mode can be enabled only when the switch port is configured as 802.3ad bonding; that is, the switch supports the 802.3ad dynamic link bonding specification.
- Balance-XOR (layer2) mode: distributes packet flows to all available networks. This is effective for malfunction & failure tolerance and flow load balance. If this mode is configured, bonding should be configured at the switch; otherwise, packet loss from the EC2516 is possible when the load is too great.
- Balance-XOR (layer3+4): applicable for three-layer services.
- Active-backup: normally, there is only one active link and the backup link can be activated only when the active link is disconnected. Load balance is unavailable.

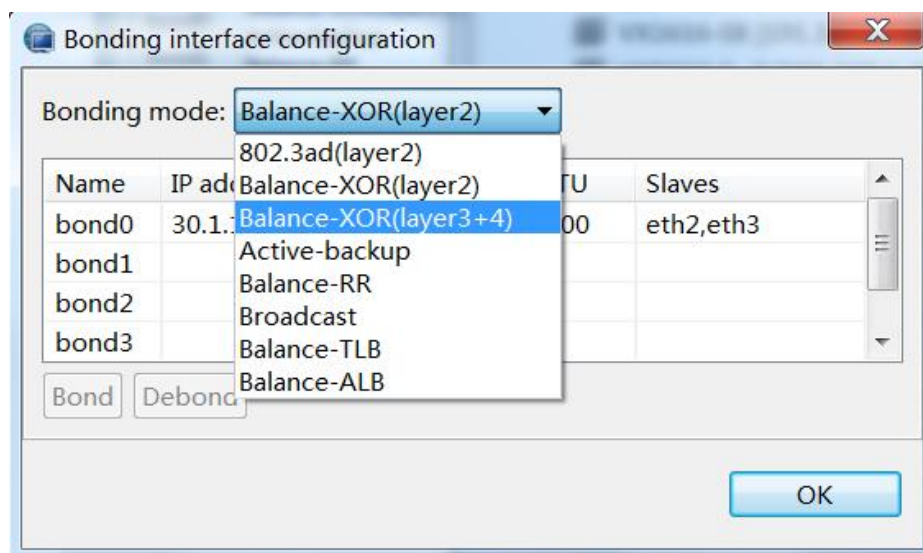


Figure 10-10 Selecting a network port for bonding 1

- (3) In the popup **“Bonding interface configuration”** dialogue box, enter the bonded IP address according to the planned IP, and select

the name of the network port to be bonded. Then, click **[OK]** button, as shown in the Figure 10-10:

Description:

- During bonding, there are no special limits on the settings of the bonded IP.
- Modifying the bonding mode will affect services. The default Balance-XOR(layer2) bonding mode is recommended.
- To configure the switch, please refer to commonly-used switch configuration commands.

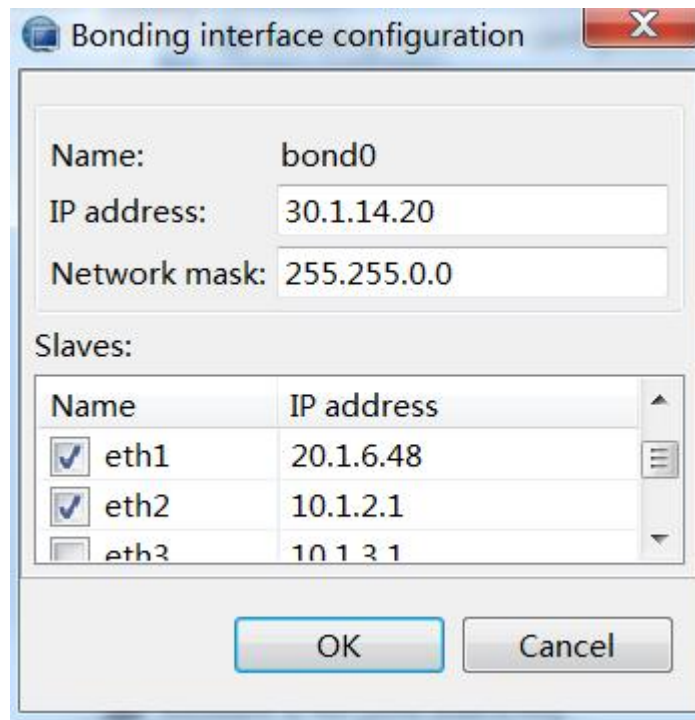


Figure 10-11 Selecting the network port for bonding 2

(4) Clicking **[OK]** button will show the configured bonding network port information, as shown in the Figure 10-11:

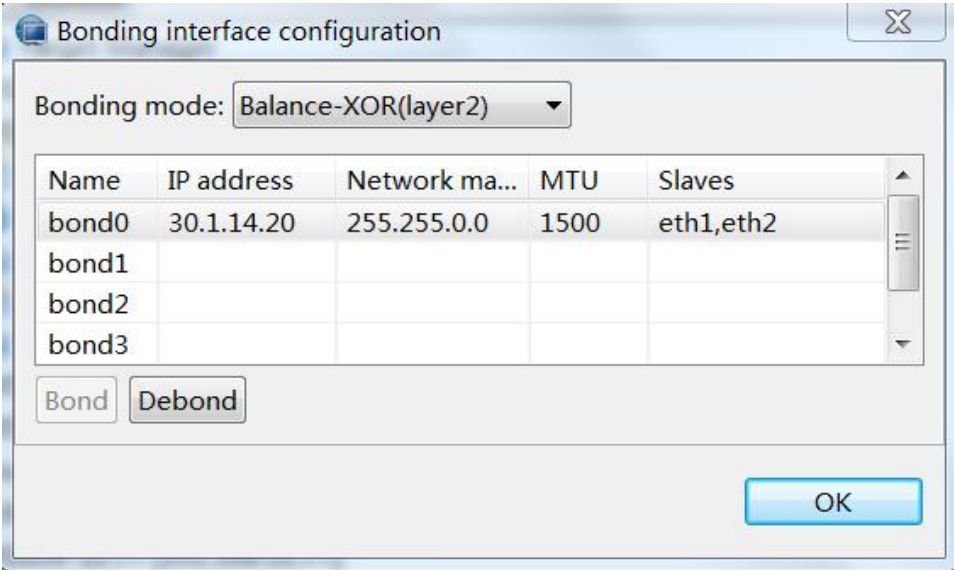


Figure 10-12 Selecting a network port for bonding 3

(5) Selecting the [System Maintenance > Network Configuration] menu item will show bonding information, as shown in Figure 10-12, or you can select the [System Maintenance > Network Bonding] menu item to check bonding information, as shown in Figure 10-13:

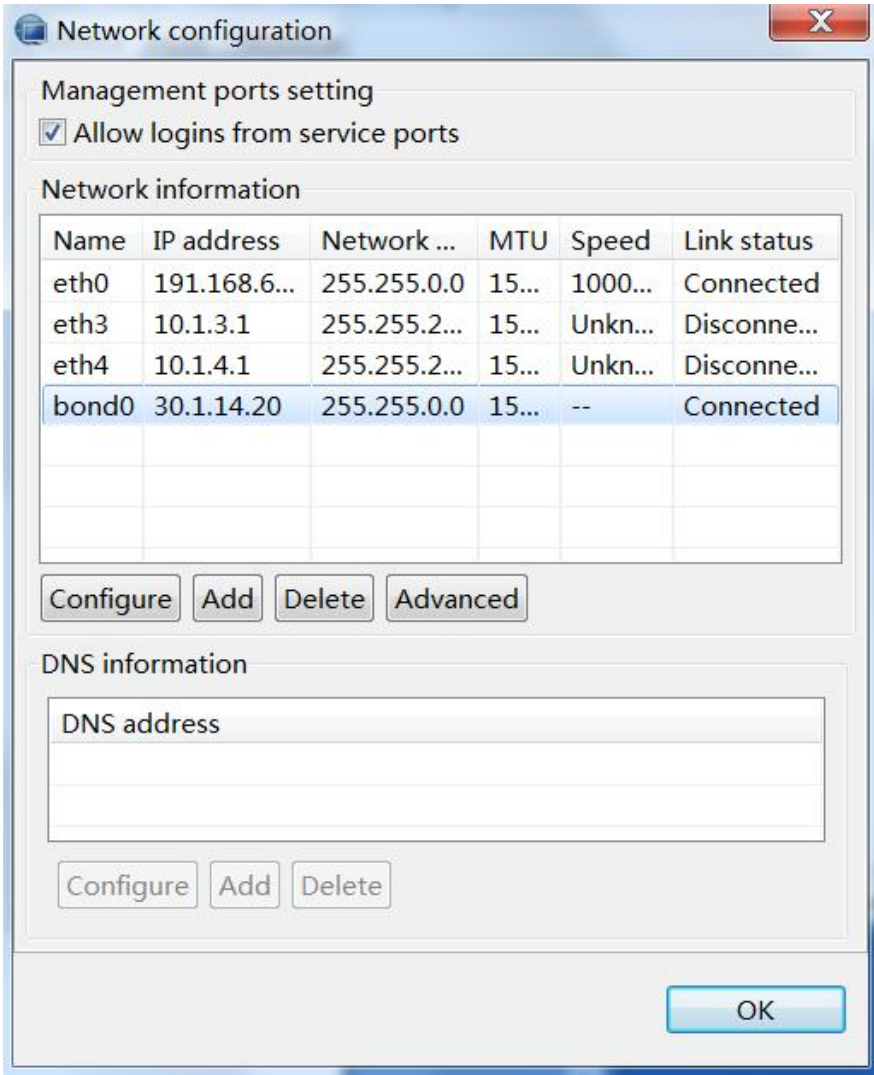


Figure 10-13 Checking bonding information 1

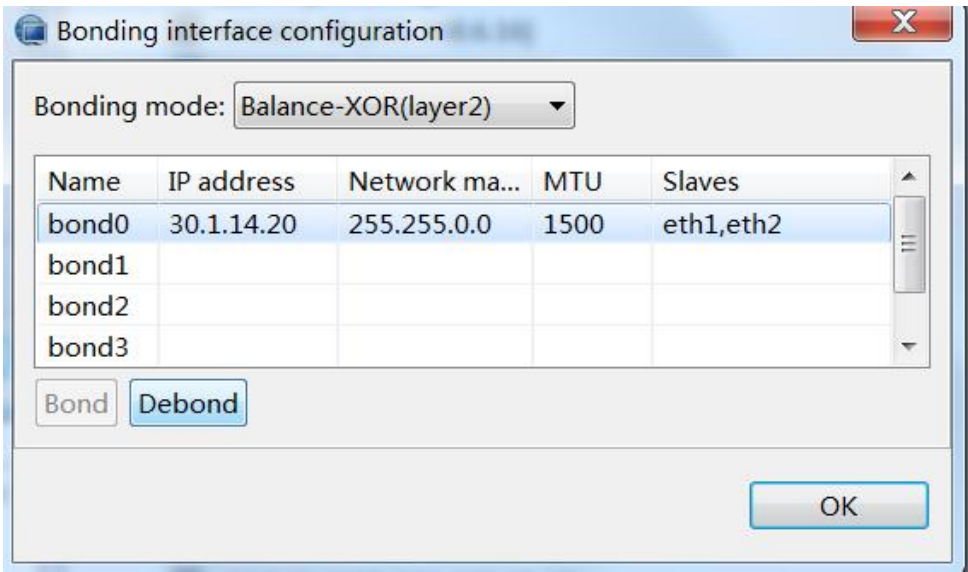


Figure 10-14 Checking bonding information 2

(6) To change the bonding IP, select the **[Server Maintenance > Network Configuration]** menu item, select the bond port name to be changed, click the **[Configure]** option and input a new bonding IP, as shown in the Figure10-14:

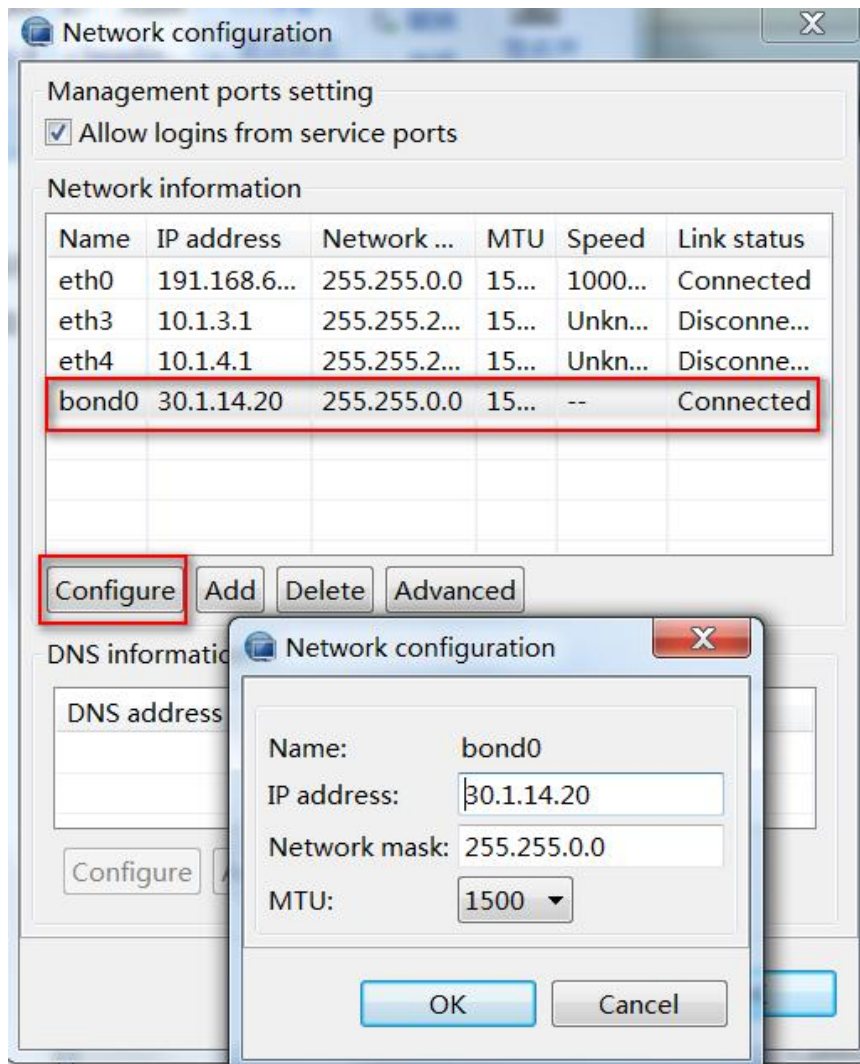


Figure 10-15 Changing the bonding IP

(7) To debond, select the **[Server Maintenance > Bond Interface]** menu item to select the bond to be debonded, and click the **[Debond]** option, as shown in the Figure10-15:

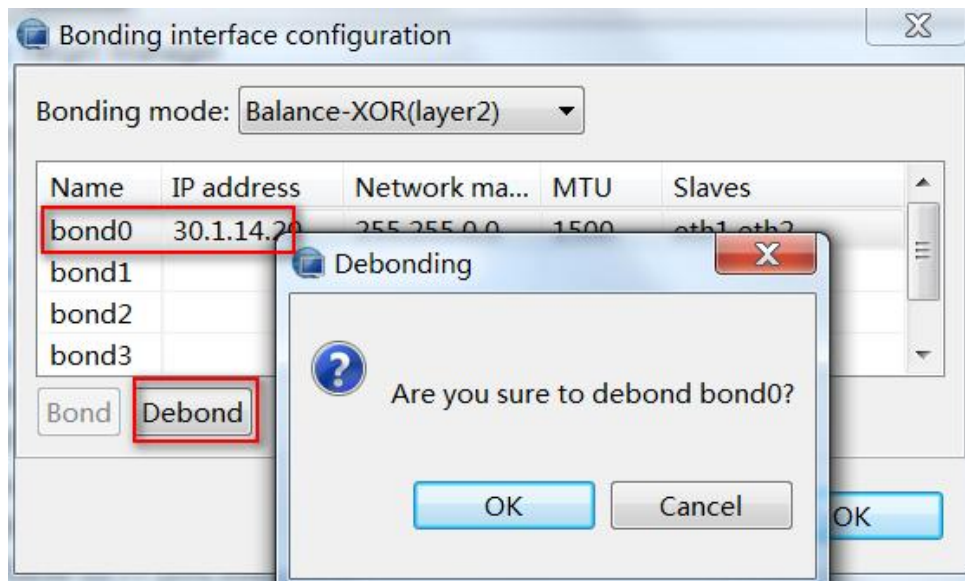


Figure 10-16 Debonding

9.6.2 Setting the Network Route

To communicate with the storage controller in a non-local network, the network route for the storage controller must be set in addition to providing route devices.

- (1) Right click the controller name to be set, select **[Server Maintenance > Configure Network]** and click the **[Advanced]** option on the popup dialogue box, as shown in the following Figure 10-16:
- (2) From the “**Advanced Network Configuration**” dialogue box, you can add, modify and delete a route, and also configure the default gateway.

Description:

- The function of the default gateway is illustrated in the following case: when the storage controller is connected to a non-local network, if no match route is available from the network route list, the storage controller will send the IP packets to the default gateway, which will then forward the IP packets to the destination network.
- Only one default gateway can be set for each storage controller.

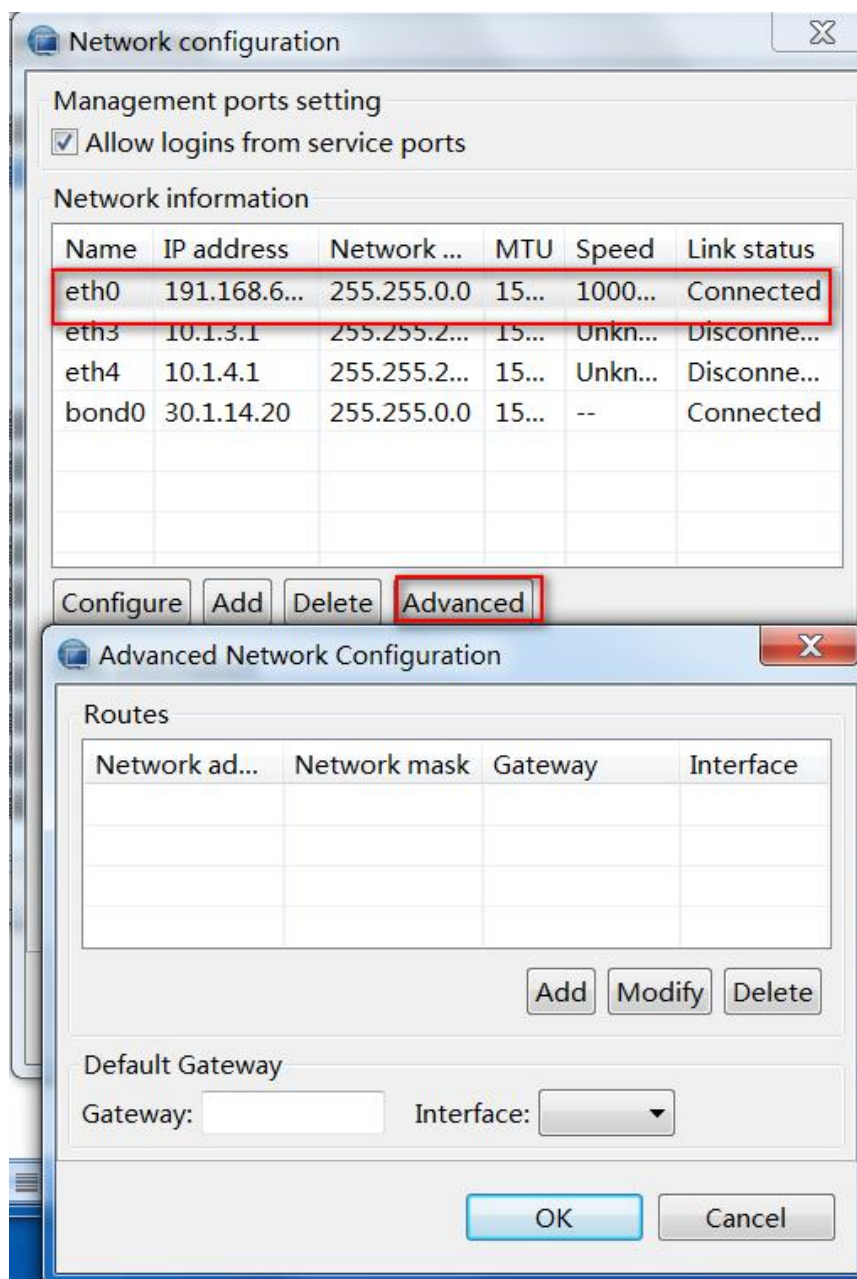


Figure 10-17 Setting network routes

10 Configure Failover

Dual-controller Video Storage needs configure failover to achieve fault protection. If the controller do not configure failover, they are running independently; When the controllers have configured failover, one controller logs in to the GUI, the other controller also attempts to connect the GUI automatically. After a manual failover occurs, the controller node that takes over service turns green, and the other controller turns red. If failover is disabled, both controller nodes turn yellow.

10.1 Configure Failover

Configure failover as the following steps

- (1) From the [Device] tab, expand the path [Storage Controller > hostname]

(2) Right click “hostname” node, and choose **[Failover Settings > Configure Failover]**

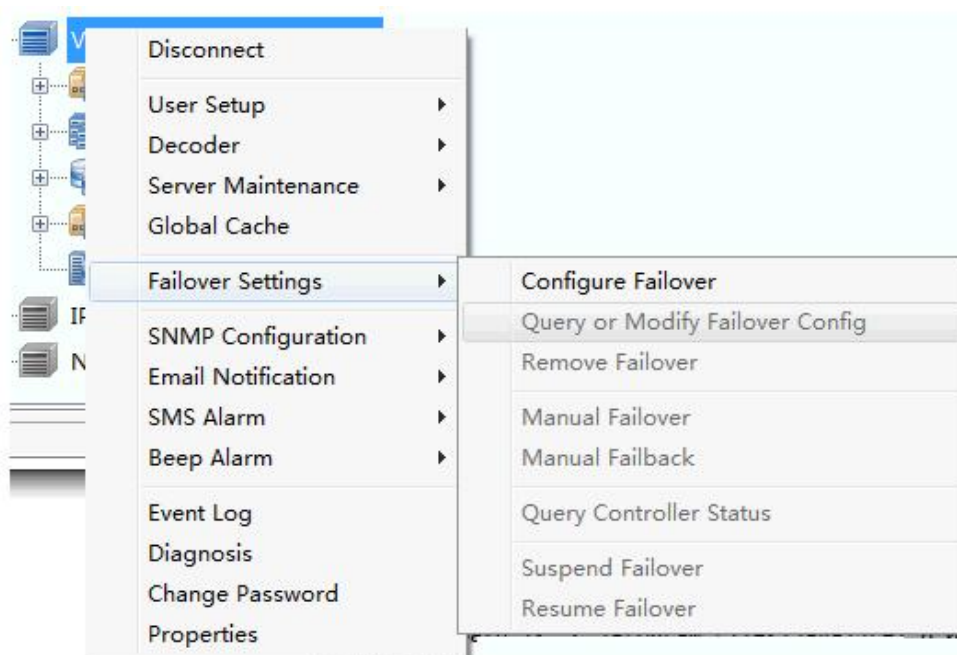


Figure 11-1 Setting Failover

(3) In the **Configure Failover** dialog box, each Eth port (or bond port) corresponds to an actual network port, which has been set by default. If a network port does not have linked up, a cross icon in red is displayed ahead of the network port, indicating that this network port cannot be protected. You can select a number from the drop-down list of **Port Group** to display it as the group number in the brackets on the left pane. It is recommended that each port number is unique. An **auto failover** will occur only when all network ports in a group are faulty.

(4) Select the network ports and their network ip address to protect, that is, select all IP addresses that are assigned to the local and peer Targets. Prerequisite: The local and peer ip which need configure failover must be in the same network segment. Protect network ports means the ports need configure targets to run the business. When you configure failover, you need choose the ports which have configure targets. Otherwise configuring failover, failover will be configured failed.

(5) Select whether to enable **Auto fallback**. **Auto fallback** is selected by default.

(6) Click **OK**. After the configuration is complete, an HA icon in green is displayed on the icons of the two controller nodes, indicating that the configuration is successful.

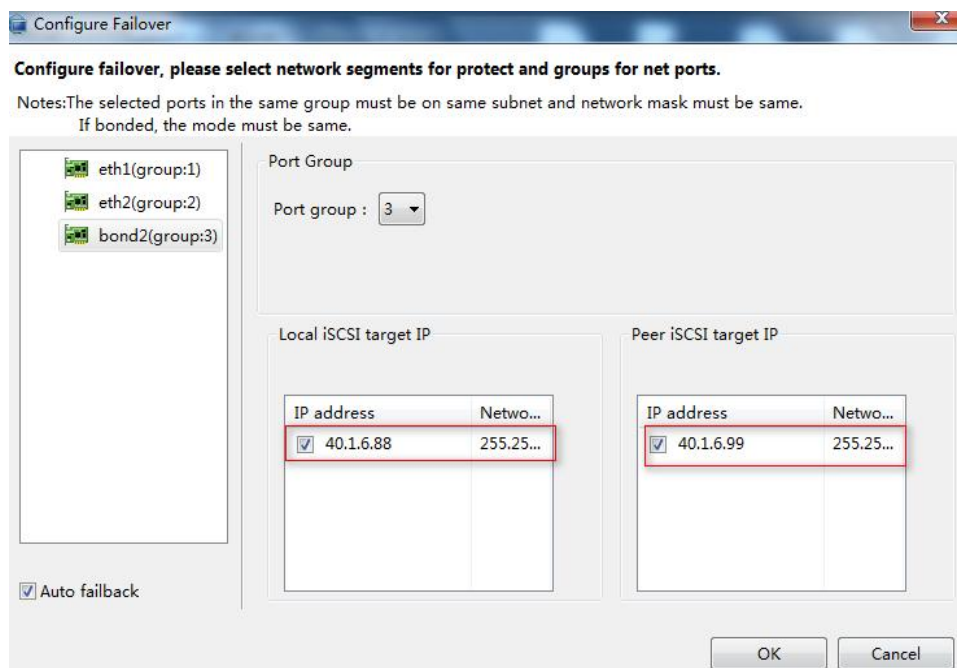


Figure 11-2 Selecting network port for protect and groups for net ports

10.2 Suspend Failover

After suspend failover, one controller is poweroff, and then the other controller will not take over the service of the poweroff controller. And the controller of poweroff also will not reboot automatically. This situation is applied to poweroff one controller to check its hardware problems.

Perform the following steps to disable failover:

- (1) On the **Device** tab, expand **Storage Controller** > *hostname*.
- (2) Right-click the *hostname* node and choose **Failover Settings** > **Suspend Failover**.
- (3) In the dialog box that is displayed, confirm the information and click **OK**. When failover is disabled, the controller node turns yellow.

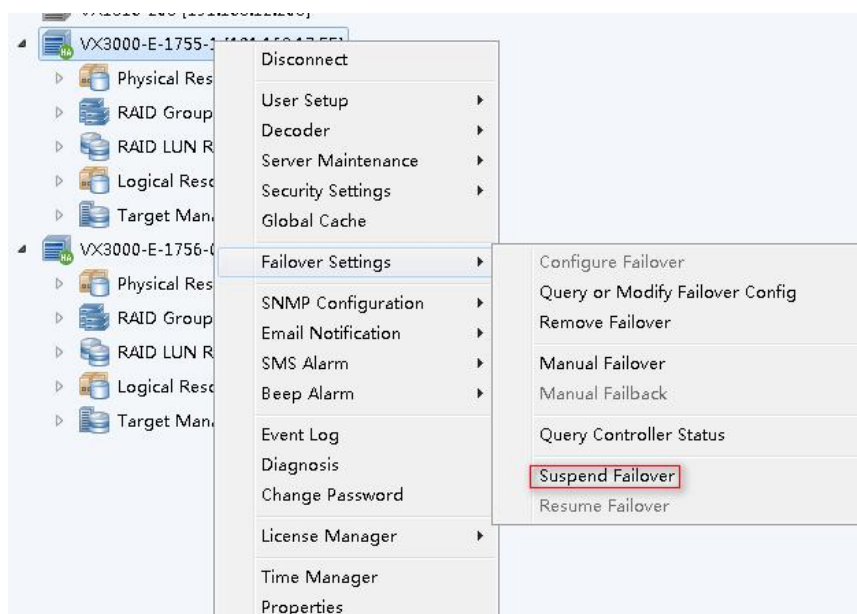


Figure 11-3 Disabling failover

10.3 Remove Failover

If failover is not required, you can remove related configuration and cancel protection. Perform the following steps to delete failover configuration:

- (1) On the **Device** tab, expand **Storage Controller > *hostname***.
- (2) Right-click the ***hostname*** node and choose **Failover Settings > Remove Failover**.
- (3) In the confirmation dialog box, enter YES in the text box and click **OK**.

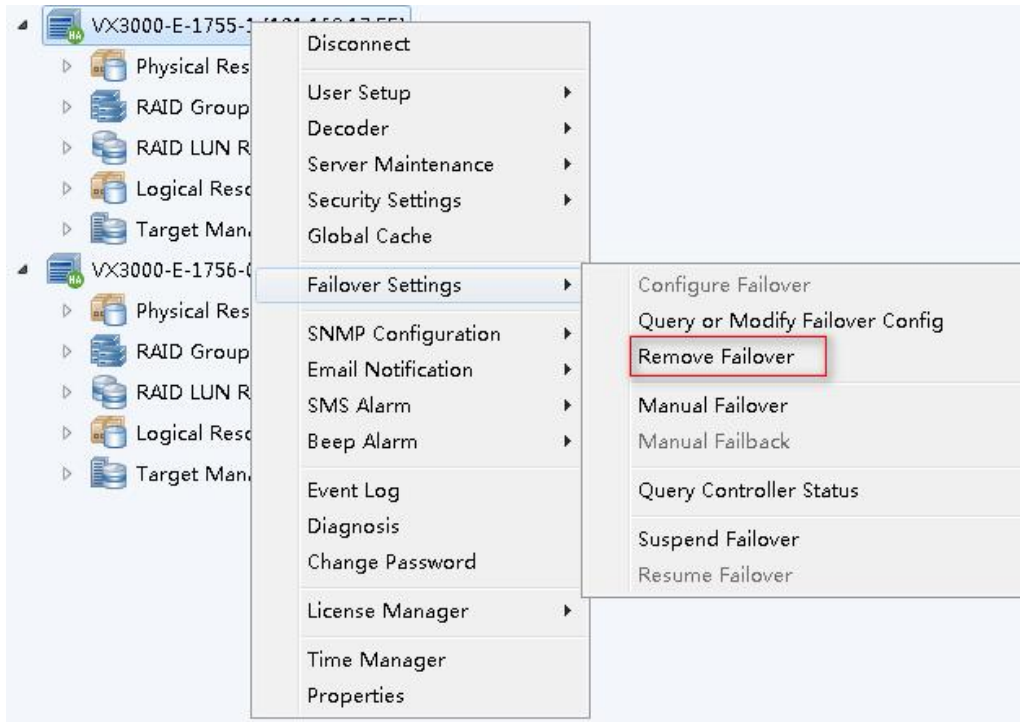


Figure 11-4 Deleting failover

11 System Notification Configuration

11.1 Configuring Email Notification

- (1) Right click the controller node name to configure email notification from the catalogue tree, select **[Email Notification > Configure]**, and configure it in a new dialogue box, as shown in Figure 11-1;

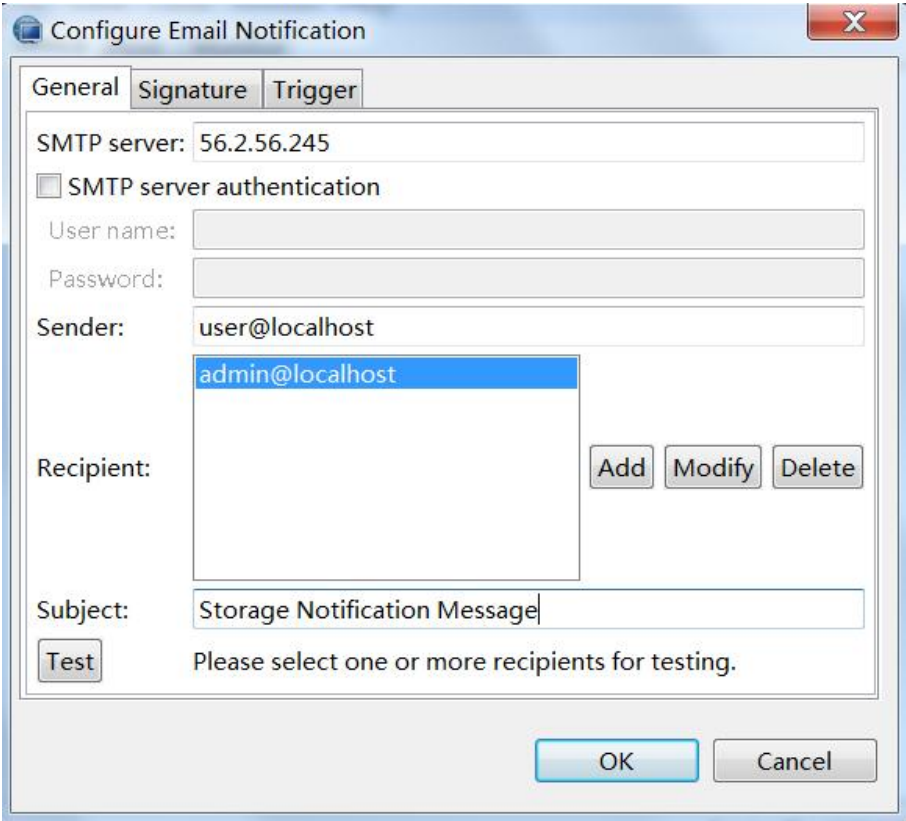


Figure 11-1 Setting Email Notification

(2) After configuration, click **[Test]** to test the function; if successful, a prompt dialogue box is displayed indicating successful Email test.

Table 11-1 General email property settings

Option	Description
SMTP server	The IP address of the SMTP server.
User name	User name used to log into the SMTP server. Whether or not a user name is required depending on whether the email service requires authentication or not.
Password	Password used to log into the SMTP server. Whether or not a password is required depending on the actual situation.
Sender address	Use to identify the sent email. For example, it can be set to the name of the storage server. After receiving an email, the system administrator can determine if the email came from the storage controller.
Recipient address	An account to receive email. There are 3 control buttons: • "Add": click the "Add" button to add one or more recipient addresses. Up to 10 recipient addresses can be added. • "Modify": click to select the added recipient address and then click the "Modify" button to edit it. • "Delete": click to select the added recipient address and then click the "Delete" button to delete it.
Subject	The system has the default subject of "Storage Notification Message". When sending an email, the system will automatically add the suffix "from <i>storage controller name</i> " to the subject, for example: Storage Notification Message from vx-1-test.

11.2 Configuring SNMP TRAP

Video Storage supports the SNMP (Simple Network Management Protocol) feature. SNMP Trap allows fault or event notifications from the storage device being sent to SNMP network management center in time. The trigger conditions are shown below:

- (1) Startup or normal shutdown
- (2) Hardware faults, including temperature alarm, voltage alarm, fan faults, power module faults, RAID battery status change or battery fault.
- (3) Software failure, RAID-related operation events or abnormalities;
- (4) SAN resource online/offline failure
- (5) Disk unplugged or disk fault

The steps to configure SNMP TRAP are as follows:

- (1) Setting the Server

Right click the storage console node and select **[SNMP Configuration > SNMP Trap Configuration]**, as shown in Figure 11-3;

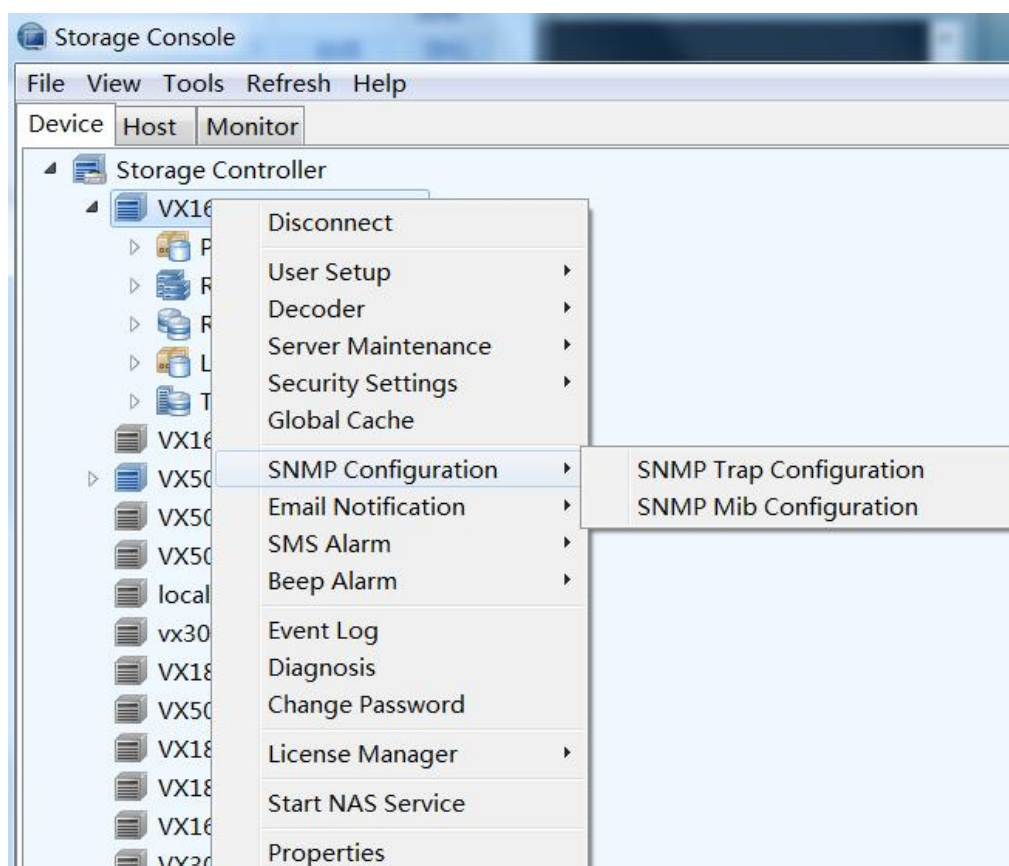


Figure 11-3 SNMP configuration menu

In the **"SNMP Trap configuration"** dialogue box, click the **[Add]** button, and in the popup **"Add"** dialogue box, input the server IP address and Community (customized); after configuration, click **[OK]** button, as shown in Figure 11-4;

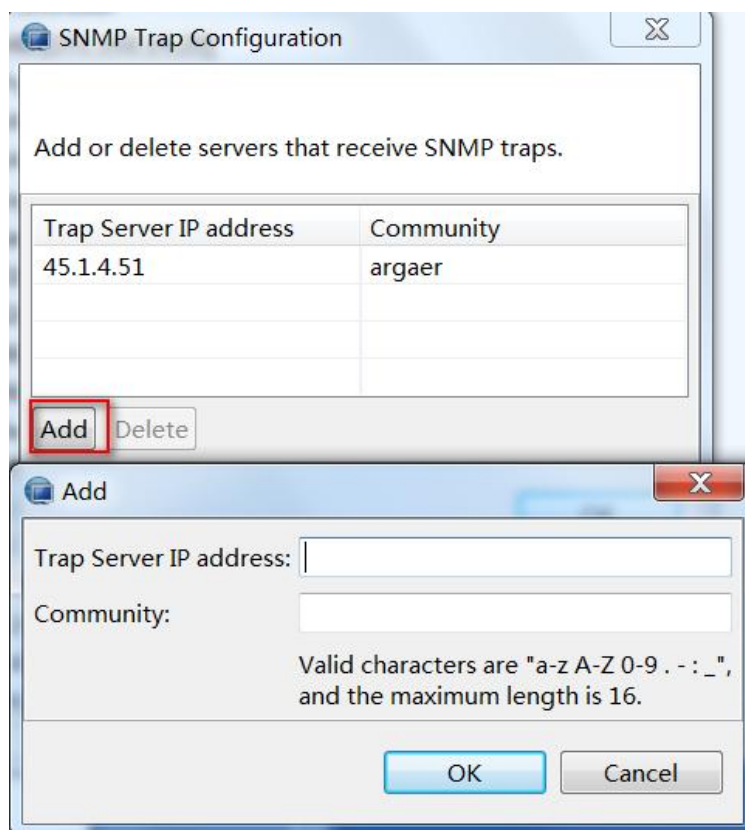


Figure 11-4 Adding a Trap receiver server

12 Configuring Basic Storage Service

12.1 Configuring RAID Group

12.1.1 GUI Login Interface

You can enter the GUI management interface by following these steps:

From the "Device" tab of the console, right click **"Storage Controller"** to select the **[Add Controller]** menu item. The system will show an **"Add Controller"** dialogue box, where you can input your user name and password.

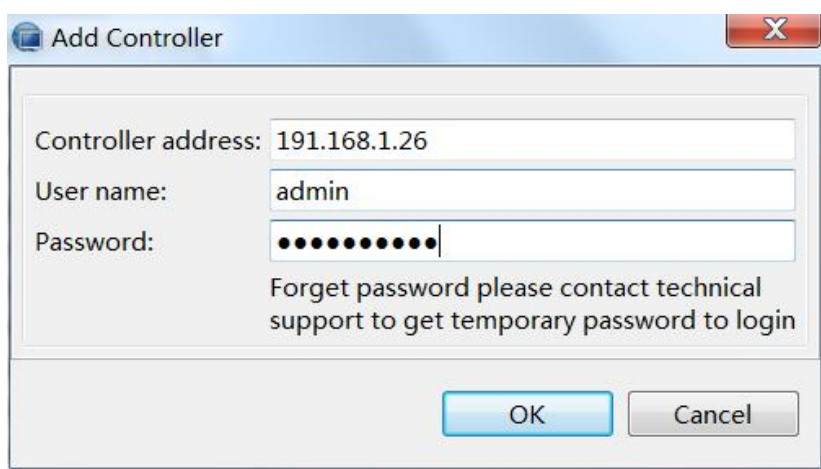


Figure 13-1 Add controller

RAID group management features are available for use after a successful login.

12.1.2 Disk Scan

Description:

- If a disk cannot be viewed on the interface, please check if the disk LED in the slot is green; if not, the disk may not be properly inserted. Remove and then re-insert the disk and then scan it again.
- If the problem persists, please insert the disk that has been already identified in the other slot to this slot and refresh to check if it is caused by a malfunctioning slot. If not, replace the disk.
- Drive information on the interface can be updated only when executing the **[Refresh]** operation for the DEU node each time you insert and remove the disk.

Expanding the **[Physical Resources]** node under the controller catalogue tree will show the DEU-related information and expanding the **[DEUs]** node further will show disk information under each DEU; each DEU can be fully equipped with 24 disks.

To scan a disk: right click the DEU node where the disk is located and then select **[Refresh]**.

12.1.3 Creating a RAID Group

A RAID group is used to organize physical disk, construct a RAID of a specific level and provide physical resources for RAID LUN. The maximum number of disks in a RAID Group is 24.

To create a RAID group:

From the **[Device]** tab, expand the path **[Storage Controller > *hostname* > RAID Group Resources > Local RAID Groups]**.

Right click the **[Local RAID Groups]** node and select the **[Create]** menu item.

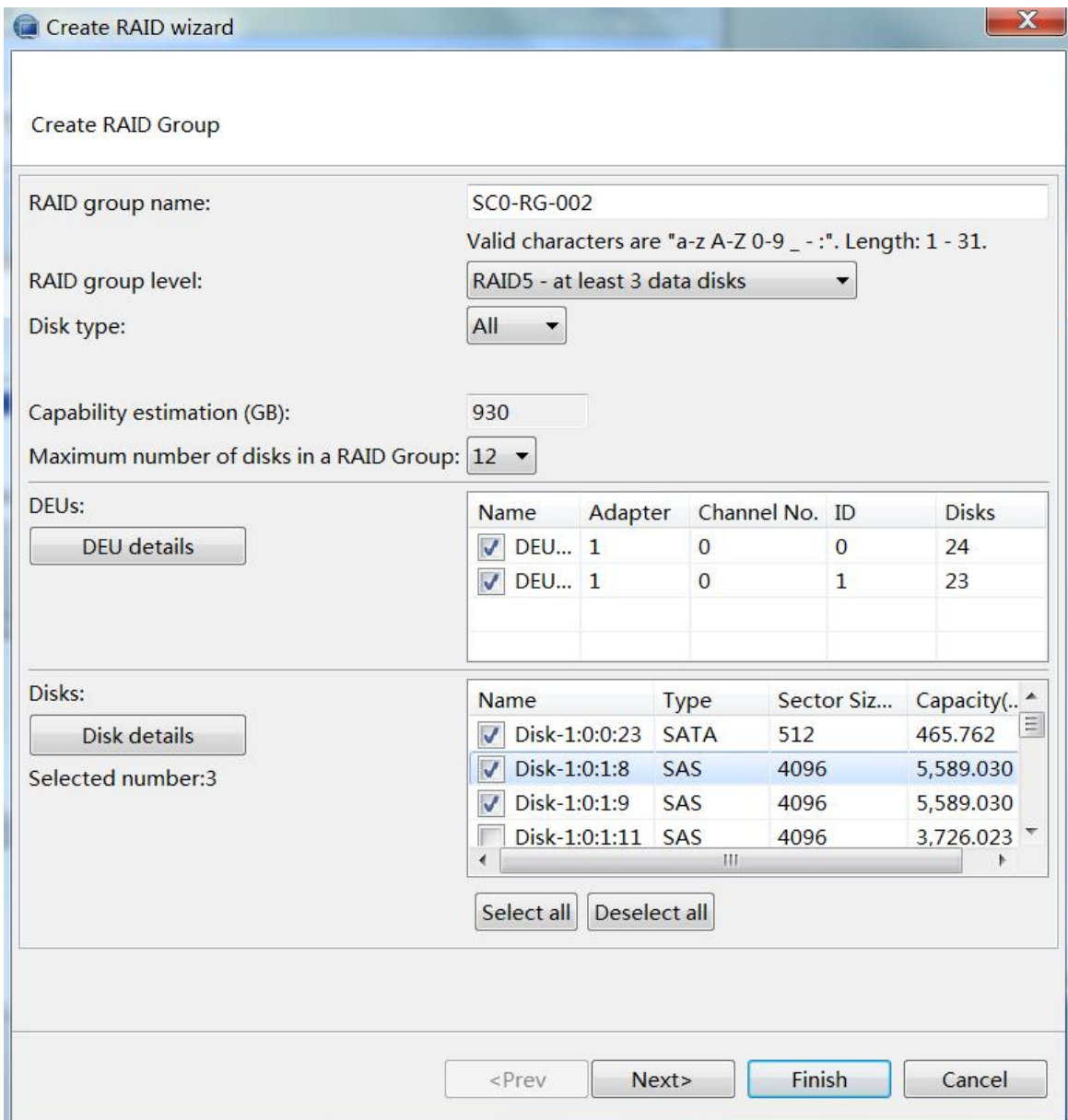
From the popup dialogue box, input or select the information shown in Table 13-1.

Table 12 – 1 Options when creating RAID group

Option	Description
RAID group name	Input a RAID group name according to the naming rules shown on the interface.  Description Different RAID groups should not have the same name.
RAID group level	Select the RAID group level from the dropdown list "RAID group level"
Capacity estimation (GB)	Displays the capacity of the RAID group to be created according to the selected RAID group level and disks.
DEUs	Select the DEU that can be used to create RAID group.  Description Click the [DEU details] button to check information about individual extended disk cabinet (information about the integrated disk cabinet cannot be viewed).
Disks	Select the disks to be used to create the RAID group.  Description Click the [Disk details] button to check information about individual disks.

Description:

- Initialize the disks before creating a RAID group. Right click the deu list under the DEU node, selecting **[Initialize Disk(s)]**. A vacant disk requires no initialization.
- When creating a RAID group, you can use disks of different DEUs, but they should be always either SAS or SATA disks. It is recommended to give priority to disks located in the same DEU.
- **It is recommended not to use a character string containing ":" when naming a RAID group**, as this may results in incomplete names displayed on event logs on the GUI. Likewise, it is also not recommended to use a character string containing ":" when naming SAN resources, Targets or Initiators.
- When the status of the RAID group changes, it is recommended to execute the **[Refresh]** operation and update the interface display by right clicking **[Local RAID Group-> Refresh]**.



Create RAID Group

RAID group name: SC0-RG-002
Valid characters are "a-z A-Z 0-9 _ - :". Length: 1 - 31.

RAID group level: RAID5 - at least 3 data disks

Disk type: All

Capability estimation (GB): 930

Maximum number of disks in a RAID Group: 12

DEUs:

	Name	Adapter	Channel No.	ID	Disks
☒	DEU...	1	0	0	24
☒	DEU...	1	0	1	23

Disks:

	Name	Type	Sector Siz...	Capacity(..
☒	Disk-1:0:0:23	SATA	512	465.762
☒	Disk-1:0:1:8	SAS	4096	5,589.030
☒	Disk-1:0:1:9	SAS	4096	5,589.030
☐	Disk-1:0:1:11	SAS	4096	3,726.023

Selected number:3

Select all Deselect all

<Prev Next> Finish Cancel

Figure 13-2 Creating a RAID Group

12.2 Creating a RAID LUN

Please use the default RAID LUN chunk size of 64k.
Create a RAID LUN on top of a RAID group, and use the attributed RAID group level after creation. Do not create a RAID LUN that spans RAID groups.
A RAID LUN can be a "Local RAID LUNs" or a "Third-party RAID LUNs"; of which only the former can be created. As shown in Figure 13-3:

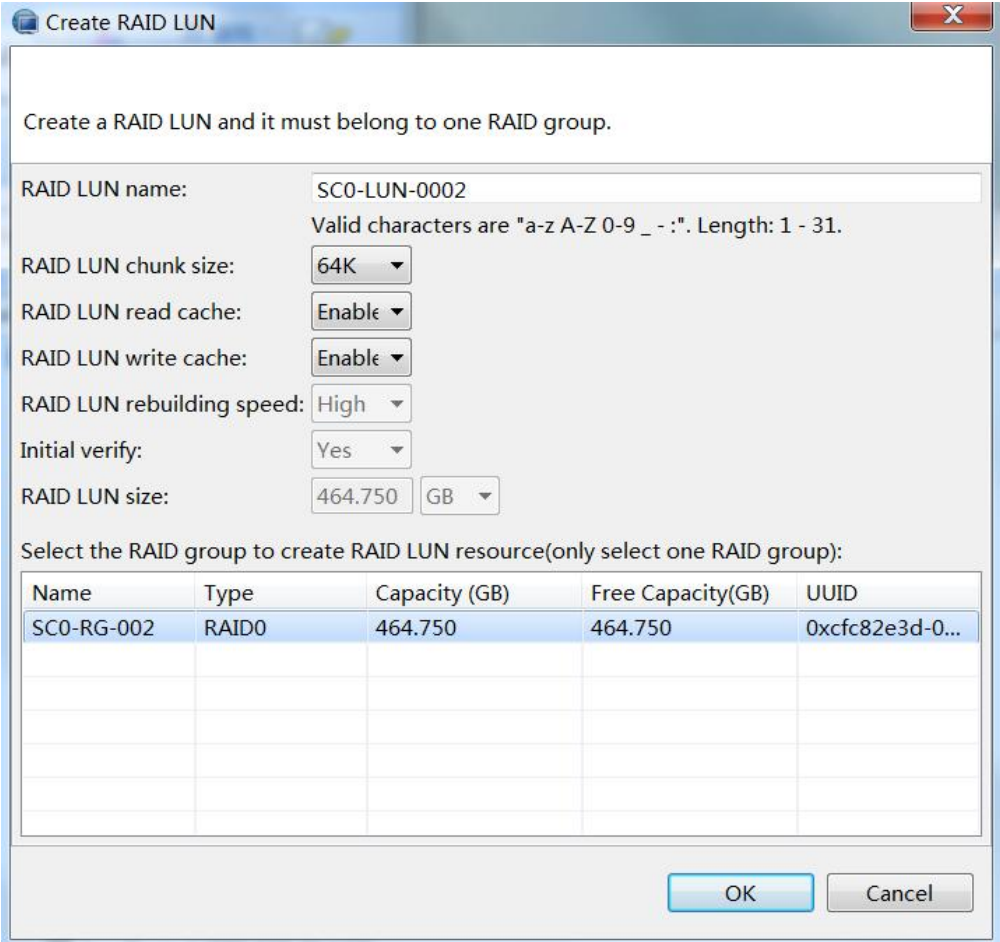


Figure 13-3 Creating a RAID LUN

- To create a local RAID LUN:
- (1) From the [Device] tab, expand the path [Storage Controller > hostname > RAID LUN Resources > Local RAID LUNs].
 - (2) Right click the [Local RAID LUNs] node, and select [Create] menu item.
 - (3) From the popup dialogue box, input or select the information shown in Table 13-2.

Table 13-2 Options when creating RAID LUN

Option	Description
RAID LUN name	Input a RAID LUN name according to the naming rules shown on the interface.  Description Different RAID LUNs should not have the same name.

Option	Description
RAID LUN chunk size	Set the RAID LUN chunk size. It is "64KB" by default
RAID LUN read/write cache	You can select "Enable" or "Disable". It is set to "Enable" by default.
RAID LUN rebuilding	You can select "High", "Medium" or "Low". It is set to "High" by default.
Initial verify	If "Yes" is selected, the system will immediately and automatically execute RAID LUN synchronization after an RAID LUN is created; "Yes" is selected by default If "No" is selected, the system will not automatically execute RAID LUN synchronization.
RAID LUN size	It is greyed out by default and cannot be set. All available space is used.

(4) From the RAID Group list, select one RAID Group.

(5) Click the [OK] button.

The local RAID LUN is created.

12.3 Creating SAN Resource

The steps to create logical resources are shown below in Figure 13-4:

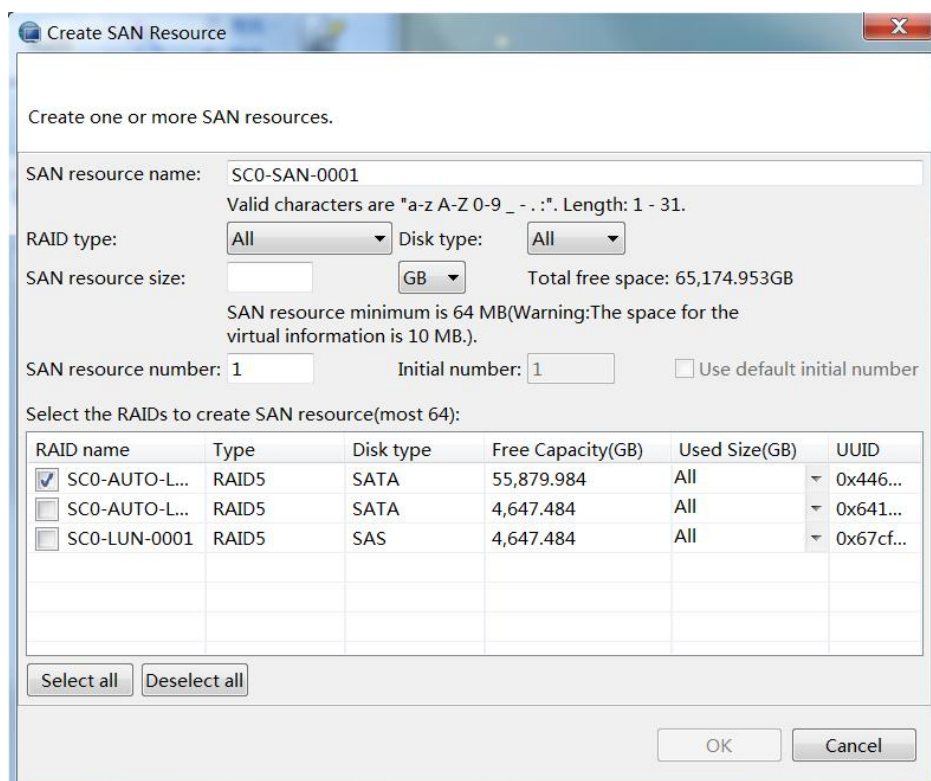
(1) From the "Device" tab, expand the path [Storage Controller > hostname > Logical Resources > SAN Resources].

(2) Right click "SAN Resources" node, and select [Create] menu item.

(3) Set the name, type, size and number for the SAN resource (the system will add the prefix SC0-SAN- to the SAN resource name by default).

(4) Select RAID LUN (can choose more than one).

(5) Click the [OK] button. The SAN resource is created.



Create one or more SAN resources.

SAN resource name: SC0-SAN-0001
Valid characters are "a-z A-Z 0-9 _ - . : ". Length: 1 - 31.

RAID type: All Disk type: All

SAN resource size: GB Total free space: 65,174.953GB

SAN resource minimum is 64 MB(Warning:The space for the virtual information is 10 MB.).

SAN resource number: 1 Initial number: 1 ☐ Use default initial number

Select the RAID's to create SAN resource(most 64):

RAID name	Type	Disk type	Free Capacity(GB)	Used Size(GB)	UUID
☒ SC0-AUTO-L...	RAID5	SATA	55,879.984	All	0x446...
☐ SC0-AUTO-L...	RAID5	SATA	4,647.484	All	0x641...
☐ SC0-LUN-0001	RAID5	SAS	4,647.484	All	0x67cf...

Select all Deselect all

OK Cancel

Figure 13-4 Creating SAN resource

12.4 Creating Target

12.4.1 Creating Target

- (1) From the **"Device"** tab, expand the path **[Storage Controller > hostname > Target Manager > iSCSI Target]**
- (2) Right click the **[iSCSI Target]** and select **[Create]**, and on the popup dialogue box, set the Target name and IP address, as shown in Figure 13-5:

Description:

- "0" is selected as the initial LUN by default.

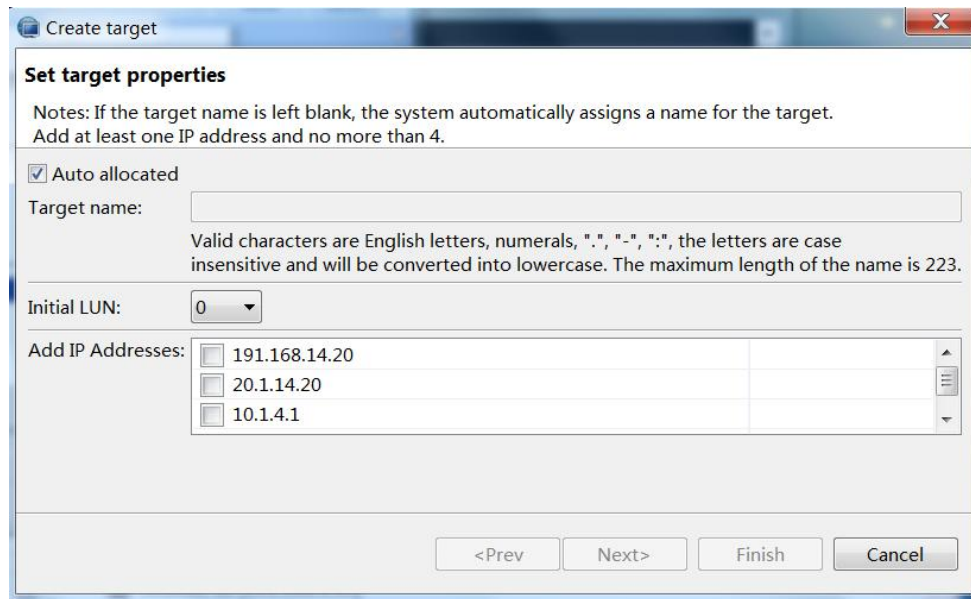


Figure 13-5 Creating a target

- (3) Click the **[Next]** button after configuration, and on the popup dialogue box, add or modify the initiator for the target, as shown in Figure 13-6:

Description:

- A target can be associated with up to 128 initiators.

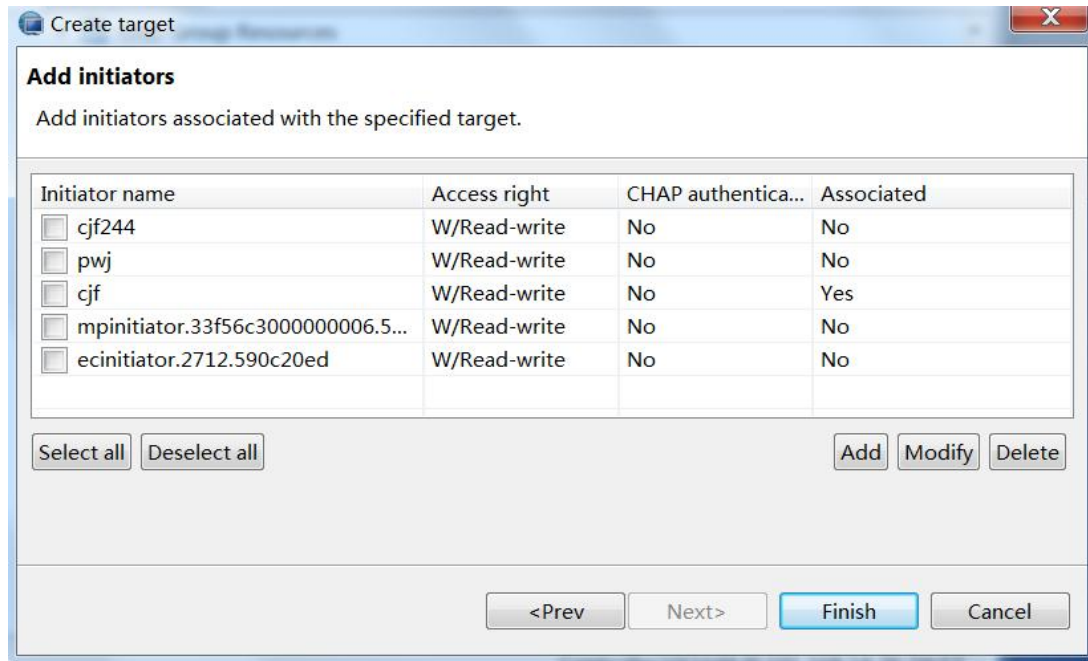


Figure 13-6 Setting an initiator

(4) After assigning initiators, click the [Finish] button.

Description:

- To ensure the resources are normal, the initiator and target should be correctly configured.
- Microsoft iSCSI Initiator 2.06 or a higher version is recommended.

12.4.2 Changing Target Properties

(1) Under the target directory to be modified, right click the initiator name that has been already assigned to this target to select the related options for changing the access rights or setting CHAP authentication.



Figure 13-7 Initiator options

(2) Select the **[Change Access Right]** option, and change the access right for the resources from the dropdown list. Three access rights are available for selection. Select **[OK]** button after changed.

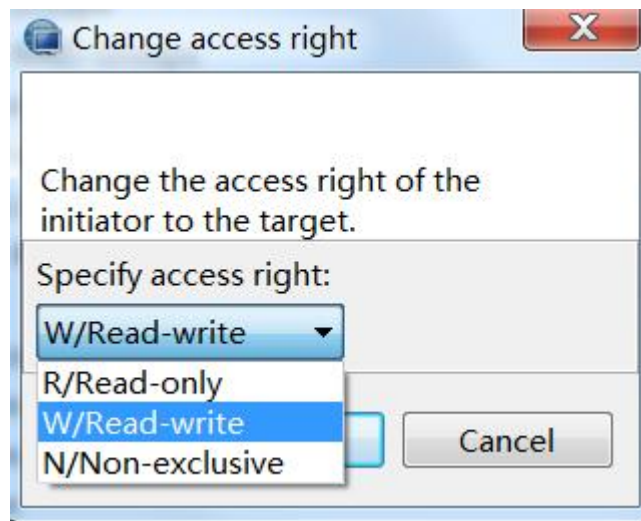


Figure 13-8 Changing initiator access right

(3) Select the **[CHAP Authentication > Add]** option, and set it as instructed on the popup dialogue box, then select **[OK]** button after input, as shown in Figure 13-9 and Figure 13-10:



Figure 13-9 CHAP authentication option

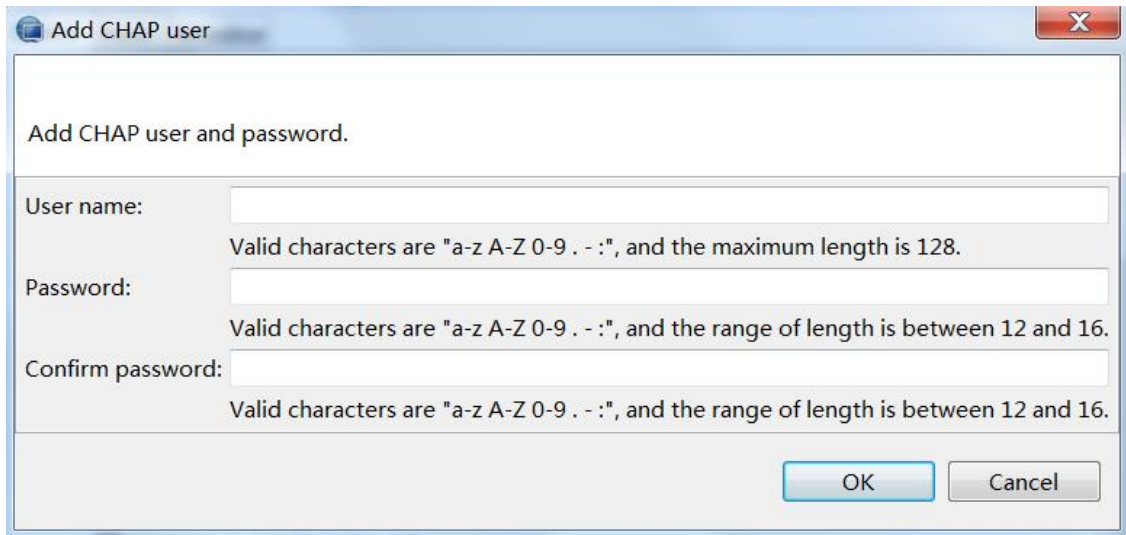


Figure 13-10 Add CHAP authentication

(4) To cancel CHAP authentication, select **[CHAP Authentication > Delete]**.

12.4.3 Assigning Resources

Description:

- Up to 255 SAN resources can be assigned to each target.

Steps:

(1) Expand the target name node to assign resources and right click **"SAN Resources"** to select **[Assign]**:



Figure 13-11 Assigning SAN resources

(2) The popup dialogue box will list all the SAN resources. click the checkbox for selection and then click **[OK]** button:

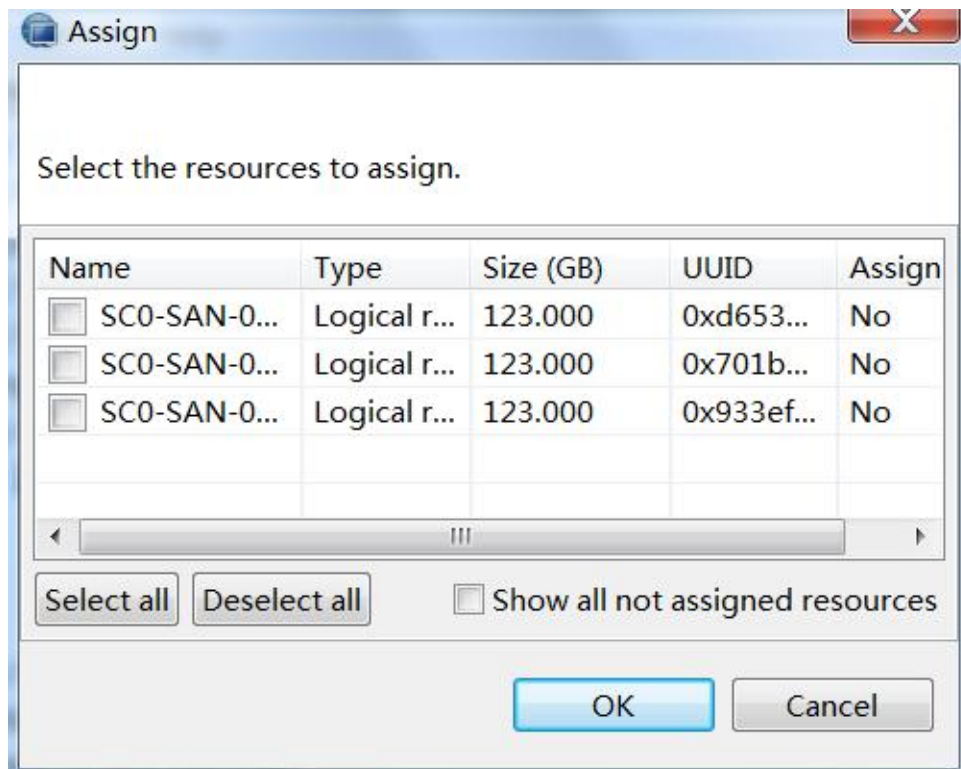


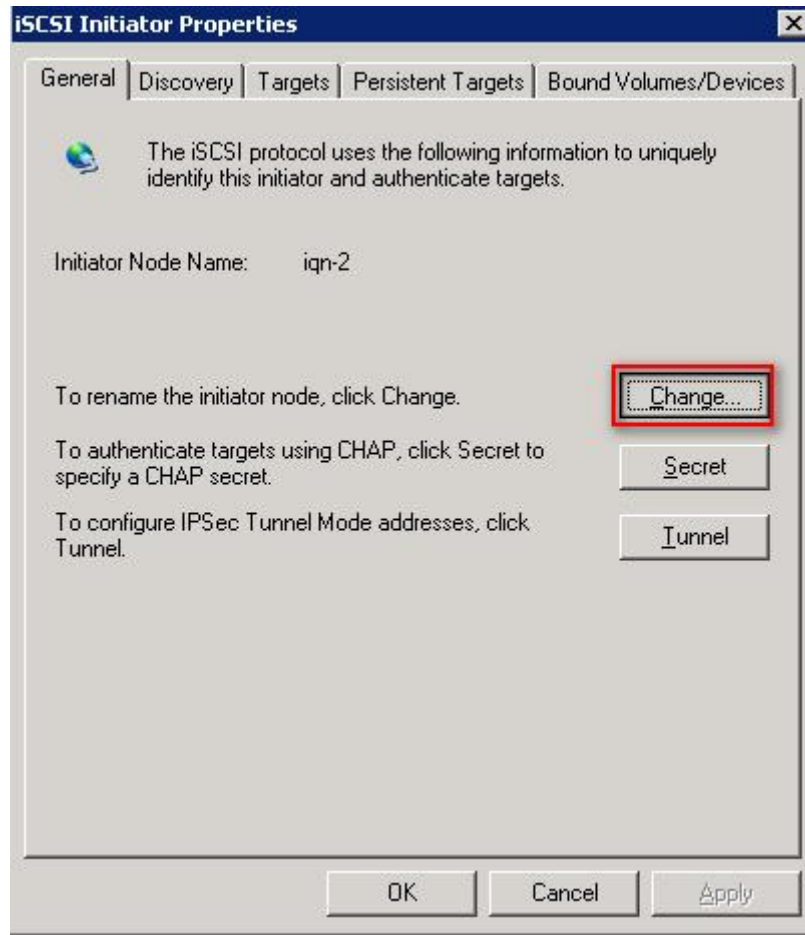
Figure 13-12 Selecting the resources to assign

(3) These assigned resources show in the corresponding target node.

12.5 Windows Client Configuration

12.5.1 Configuring initiatorname

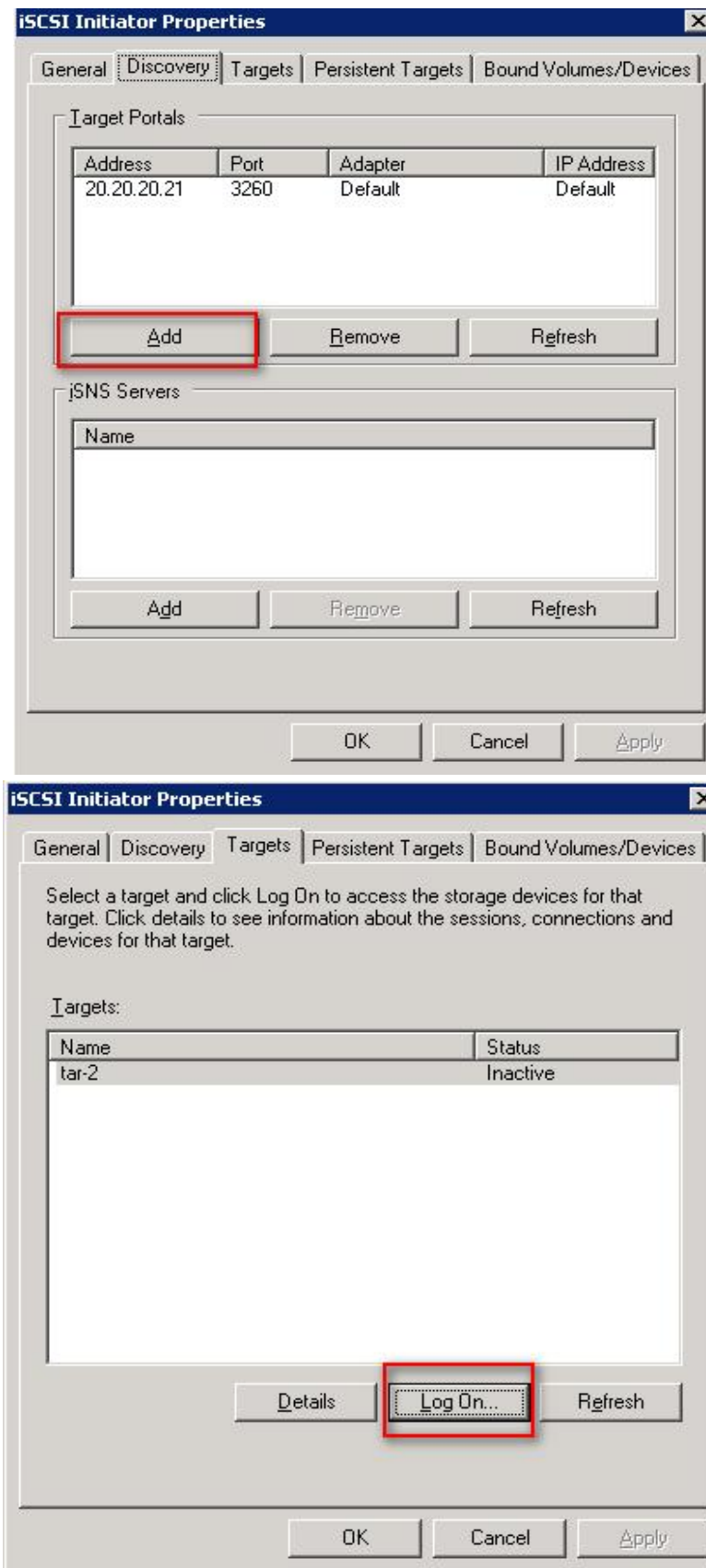
Double-click iscsicpl.exe, and choose **[General > Change...]** as shown in below figure, and then input the storage initiator name which needs connection.



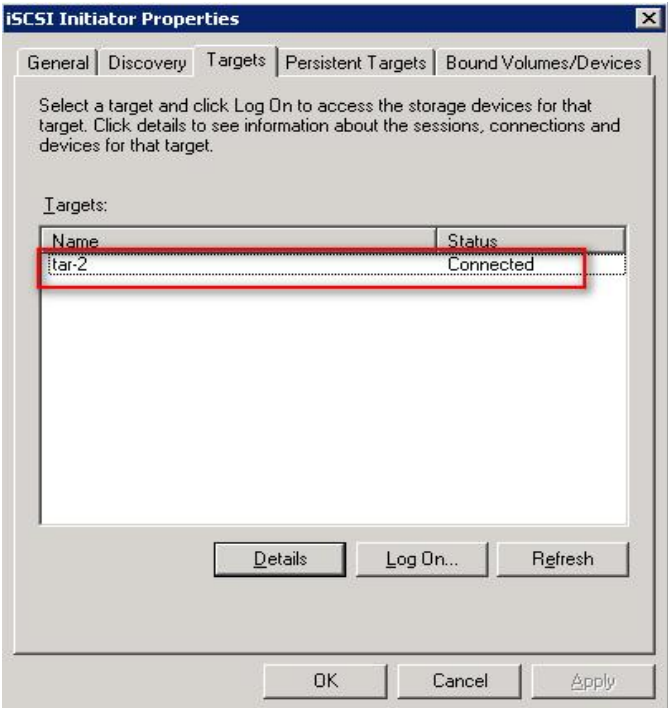
12.5.2 Configuring connection

(1) Add the IP address of the target to be discovered

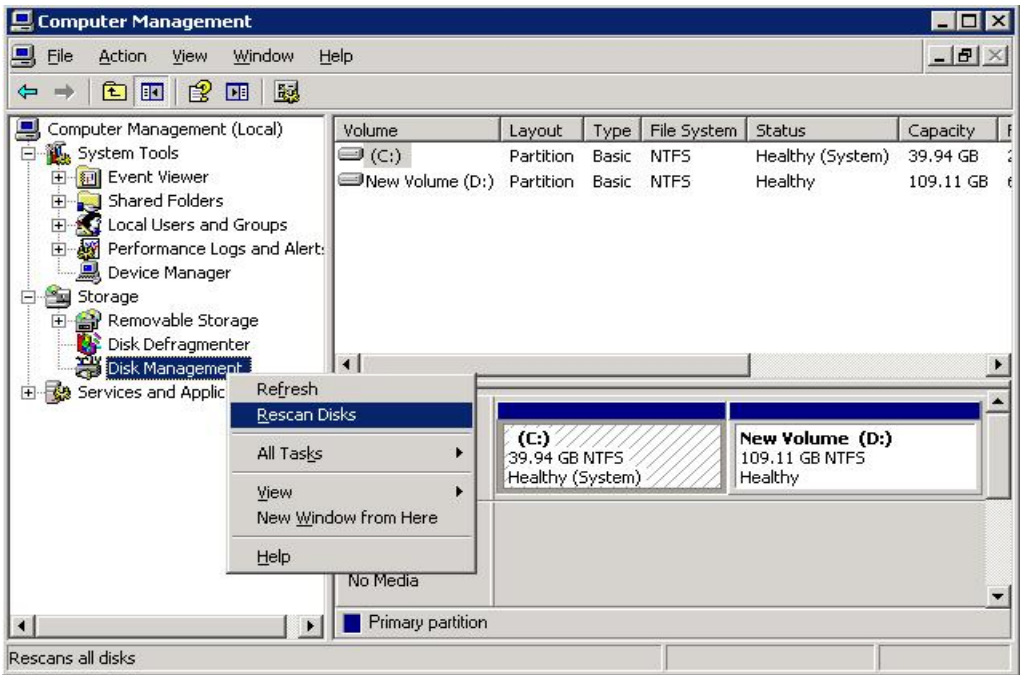
Choose **[Discovery > Add]**. Input the IP address of the storage target in the target and click **[Log on...]**.

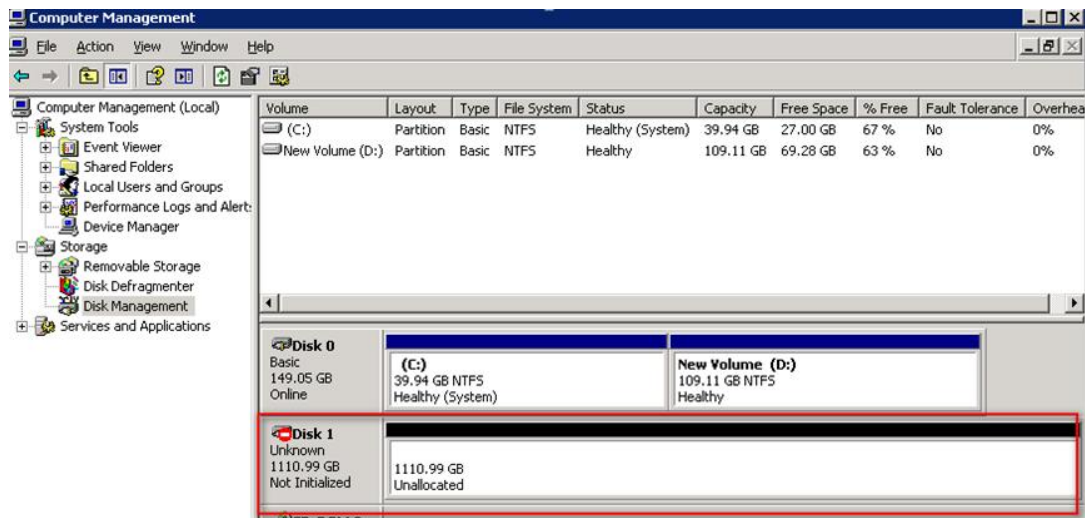


(2) Check the connection status of the iscsi device



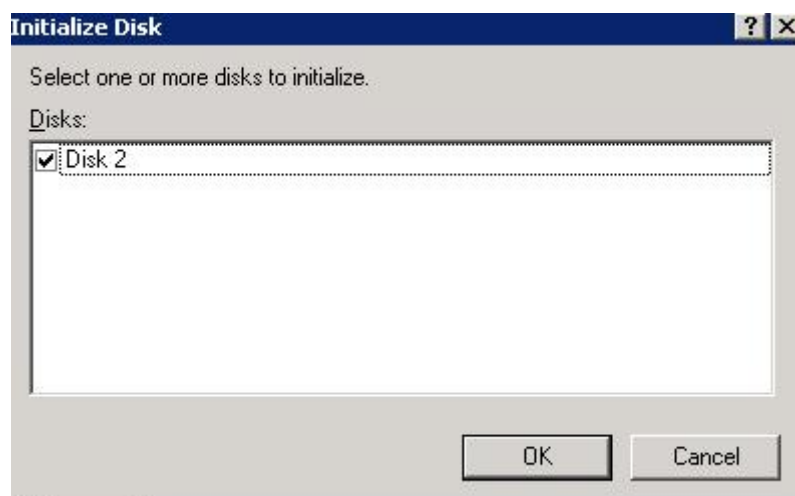
(3) Scan the SAN resource

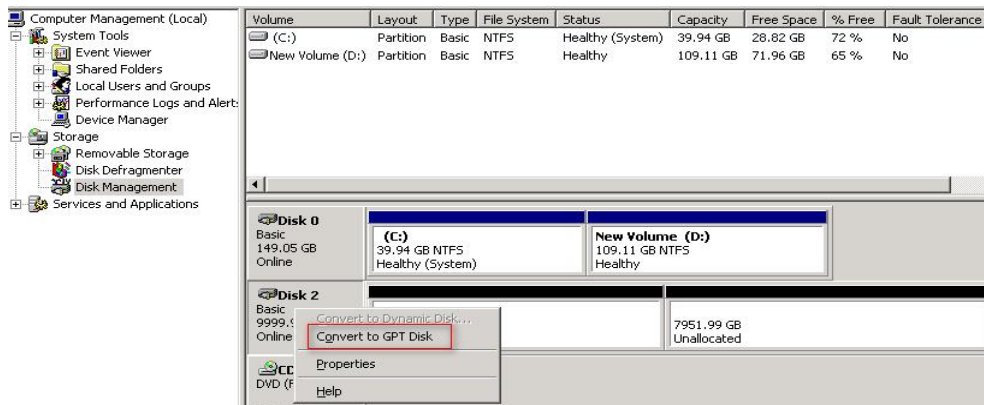




(4) Initialize the disk (MBR partition by default).

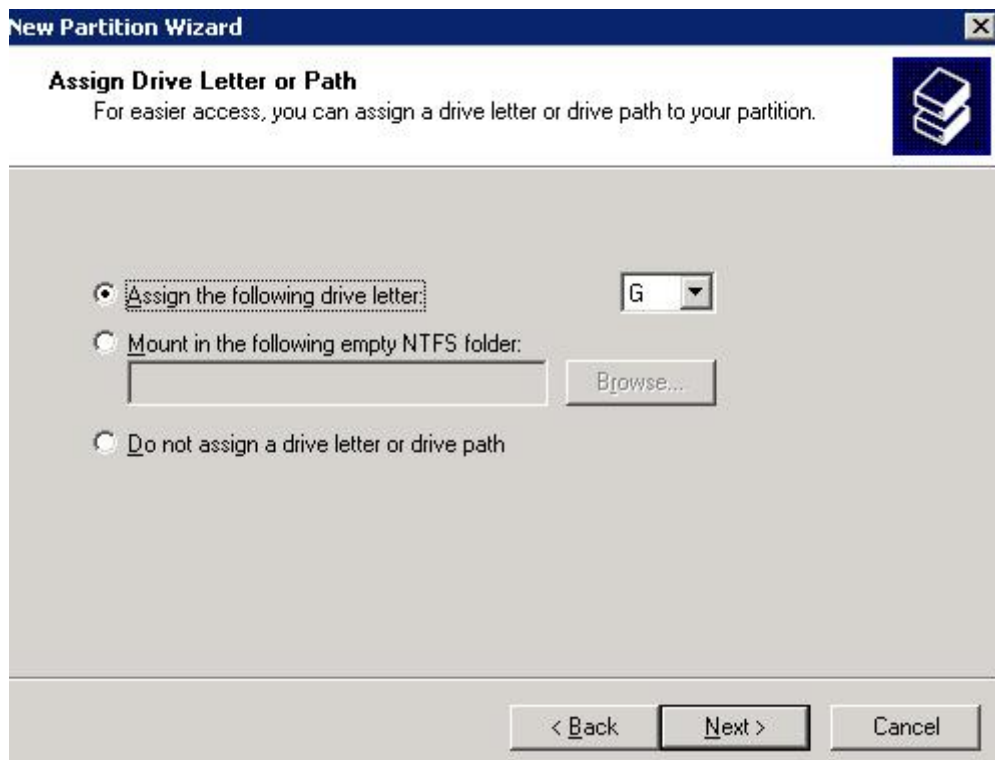
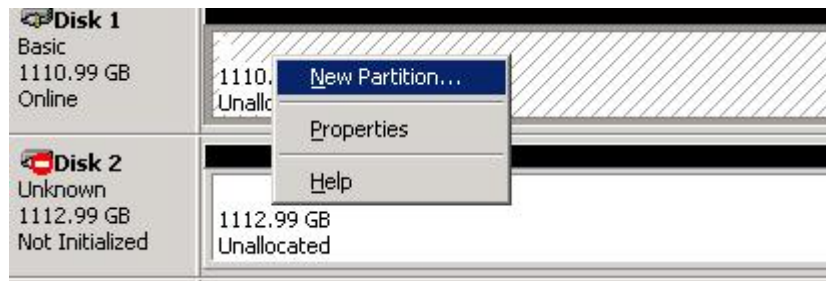
When the disk capacity is more than 2TB, you **must** select GPT partition to initialize the disk. When the disk capacity is less than 2TB, you can select GTP or MBR partition to initialize. If the disk partition whose capacity is more than 2TB has been MBR partition, you **must** right click the disk and select '**Convert to GPT disk**' to change to GTP partition.

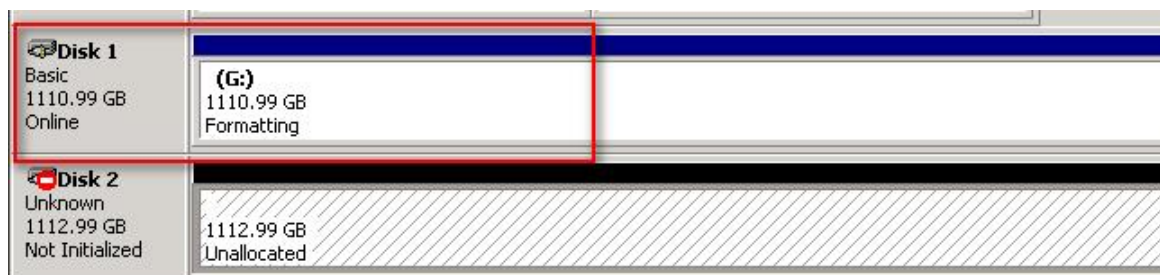
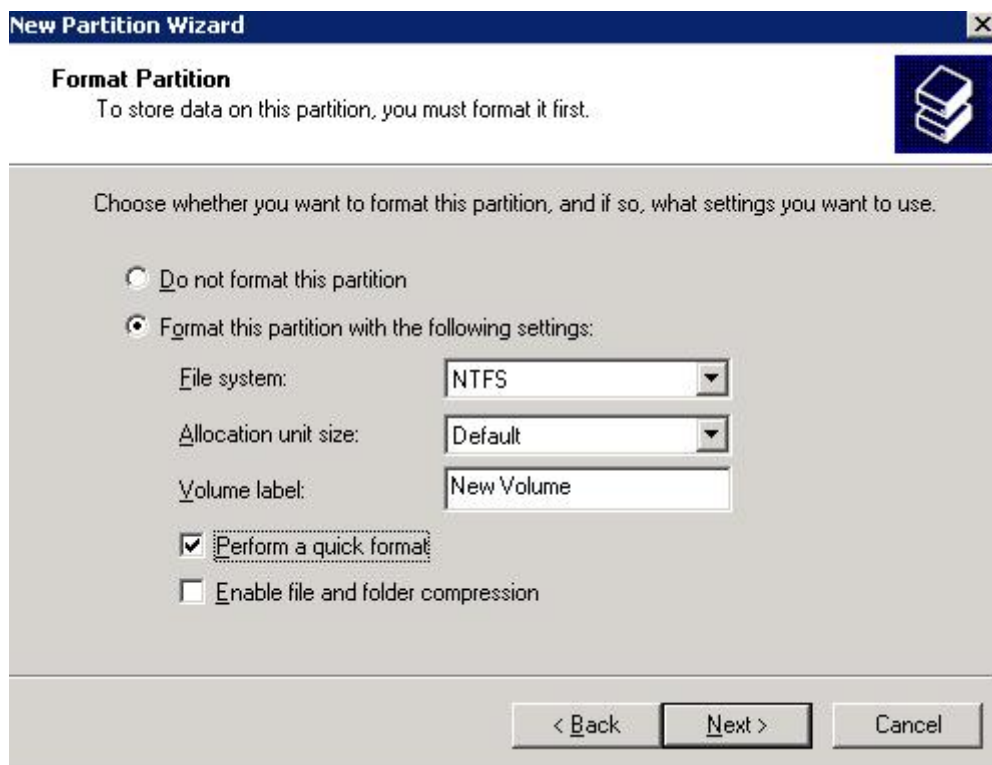




(5) Format the file system.

A raw disk should be formatted for the streaming media writing mode





12.6 Linux Client Configuration

12.6.1 Configuring the initiatorname.iscsi file

Modify the name of the iscsi Initiator in the /etc/iscsi/initiatorname.iscsi file with the same storage initiator name, for example:

```
InitiatorName= iqn.2012-05.com.microsoft:fs
```

Description:

- Generally, InitiatorName has already been configured for the operating system, and requires modification in the field implementation to meet user requirements.
- The initiator should be named by following IQN naming rules in the format of iqn.domaindate.reverse.domain.name:optional name, for example: iqn.1991-05.com.microsoft:fs.

12.6.2 Configuring the iSCSI device to be connected

In general, a complete iSCSI storage device can be configured as follows:

- (1) Add the IP address of the target node to be discovered

```
# iscsiadm -m discovery -t st -p 191.168.16.15:3260
Starting iscsid: [ OK ]
191.168.16.15:3260,1 iqn.com:storage.bff80f.target2
```

You can repeatedly execute this command to add multiple IP addresses of the target nodes.

(2) Log in to all discovered target nodes

```
# iscsiadm -m node -L all
Logging in to [iface: default, target: iqn.com:storage.bff80f.target2, portal: 191.168.16.15,3260] (multiple)
Login to [iface: default, target: iqn.com:storage.bff80f.target2, portal: 191.168.16.15,3260] successful.
```

(3) Check if the iSCSI device has been successfully connected

```
# iscsiadm -m session
tcp: [2] 191.168.16.15:3260,1 iqn.com:storage.bff80f.target2
```

Description:

- The part in red iqn.com:storage.bff80f.target2 is the target name of the discovered iSCSI device

(4) Scan and view the mounted SAN resource

The part in red /dev/sdb is the resource

```
# fdisk -l

Disk /dev/sda: 1000.2 GB, 1000204886016 bytes
255 heads, 63 sectors/track, 121601 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x0008162a

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1  *           1           26       204800   83  Linux
Partition 1 does not end on cylinder boundary.
/dev/sda2             26        63767   512000000   83  Linux
/dev/sda3          63767       76515   102400000   83  Linux
/dev/sda4          76515      121602   362156760    5  Extended
/dev/sda5          76516       76770     2048000   82  Linux swap / Solaris
/dev/sda6          76771      121602   360105984   83  Linux

Disk /dev/sdb: 536.9 GB, 536870912000 bytes
255 heads, 63 sectors/track, 65270 cylinders
```

```
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x00000000

Disk /dev/sdb doesn't contain a valid partition table
```

(5) Format the file system for the SAN resource

When formatting, specify the type of file system needed, as shown in red. If the file system needs be formatted as an xfs file system, and then change the following command in red part to "xfs"

```
# mkfs -t ext4 /dev/sdb
mke2fs 1.41.12 (17-May-2010)
/dev/sdb is entire device, not just one partition!
Proceed anyway? (y,n) y
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
32768000 inodes, 131072000 blocks
6553600 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=0
4000 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
    102400000

Writing inode tables: done
Creating journal (32768 blocks):
done
Writing superblocks and filesystem accounting information:
done

This filesystem will be automatically checked every 28 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

(6) Mount the file system

After mounting the file system, specify the storage path for media stream to that of the file system for storage

```
# mkdir /123
# mount /dev/sdb /123
# df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/sda6	339G	9.5G	312G	3%	/
tmpfs	1.9G	4.0K	1.9G	1%	/dev/shm
/dev/sda1	194M	45M	140M	25%	/boot
/dev/sda2	481G	266M	456G	1%	/mnt/syncdata
/dev/sda3	97G	569M	91G	1%	/var/log/imoslog
/dev/sdb	493G	198M	467G	1%	/123

(7) RemoveSAN resource mounting

First, remove the file system mounting and then remove iscsi target connection

```
# umount /123
# df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/sda6	339G	9.5G	312G	3%	/
tmpfs	1.9G	4.0K	1.9G	1%	/dev/shm
/dev/sda1	194M	45M	140M	25%	/boot
/dev/sda2	481G	266M	456G	1%	/mnt/syncdata
/dev/sda3	97G	569M	91G	1%	/var/log/imoslog

```
# iscsiadm -m node -U all
Logging out of session [sid: 1, target: iqn.com:storage.bff80f.target2, portal: 191.168.16.15,3260]
Logout of [sid: 1, target: iqn.com:storage.bff80f.target2, portal: 191.168.16.15,3260] successful.
# fdisk -l
```

Disk /dev/sda: 1000.2 GB, 1000204886016 bytes
 255 heads, 63 sectors/track, 121601 cylinders
 Units = cylinders of 16065 * 512 = 8225280 bytes
 Sector size (logical/physical): 512 bytes / 512 bytes
 I/O size (minimum/optimal): 512 bytes / 512 bytes
 Disk identifier: 0x0008162a

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	1	26	204800	83	Linux

Partition 1 does not end on cylinder boundary.

/dev/sda2		26	63767	512000000	83	Linux
/dev/sda3		63767	76515	102400000	83	Linux
/dev/sda4		76515	121602	362156760	5	Extended
/dev/sda5		76516	76770	2048000	82	Linux swap / Solaris
/dev/sda6		76771	121602	360105984	83	Linux

#

13 Information Collection

13.1 Save the System Configuration

Notes:

- Always keep the saved configuration files.

After the completion of system installation and debugging, we shall be sure to save the system configuration for ease of future maintenance and upgrade. Follow the following steps:

- (1) Left click the storage controller of login in the catalogue tree, and then select **[File > Save Configuration]**, as shown in the Figure 14-1:
- (2) From the popup dialogue box, select the save path and file name for the configuration file, and click **[Save]**, as shown in the Figure 14-2.

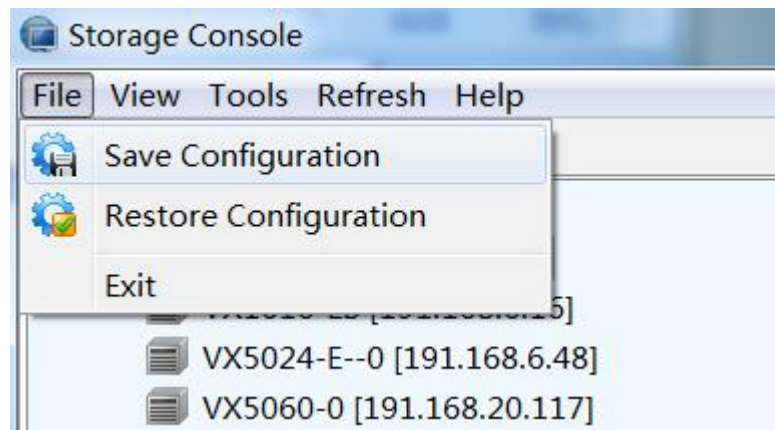


Figure 14-1 Save the configuration 1

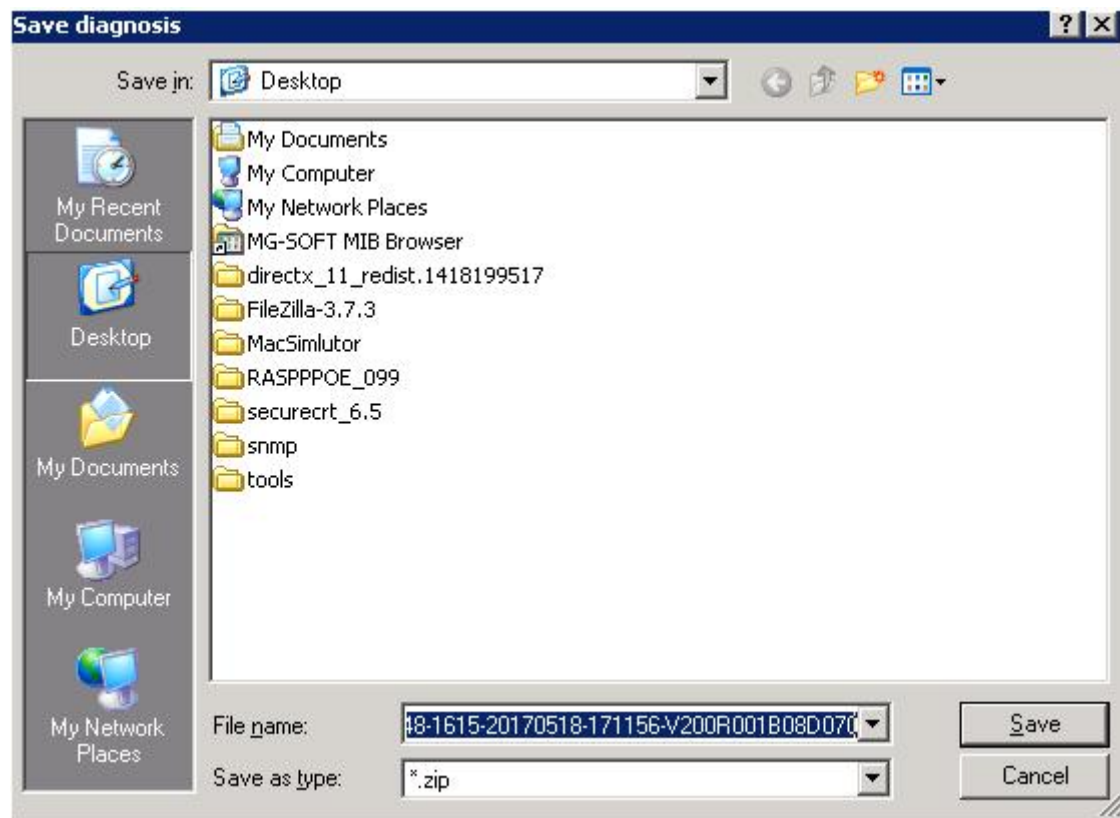


Figure 14-2 Saving configuration 2

13.2 Collecting Event Logs

- (1) Right click the storage controller node in the catalogue tree and select **[Event Log]**;
- (2) From the popup dialogue box, you can review and export event logs, as shown in the Figure 14-4:

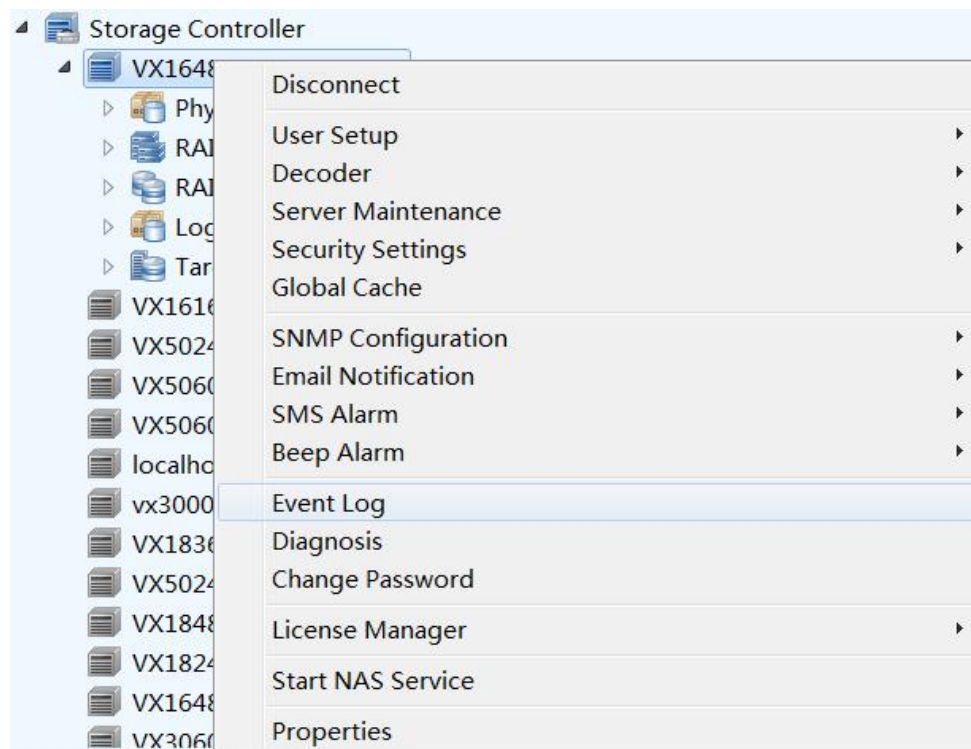
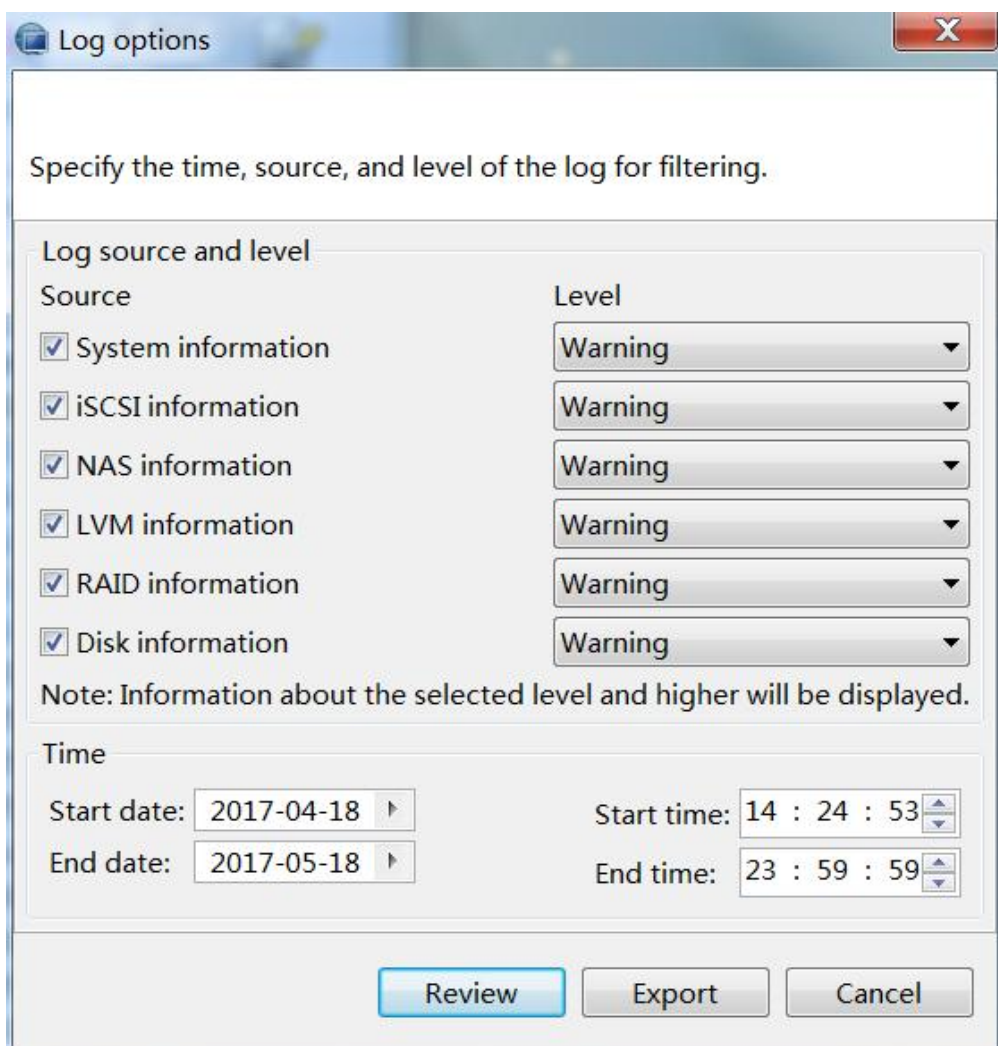


Figure 14-3 Selecting event logs



Log options

Specify the time, source, and level of the log for filtering.

Log source and level	
Source	Level
☒ System information	Warning
☒ iSCSI information	Warning
☒ NAS information	Warning
☒ LVM information	Warning
☒ RAID information	Warning
☒ Disk information	Warning

Note: Information about the selected level and higher will be displayed.

Time

Start date: 2017-04-18 Start time: 14 : 24 : 53

End date: 2017-05-18 End time: 23 : 59 : 59

Review Export Cancel

Figure 14-4 Reviewing system logs

13.3 Collecting Diagnosis Logs

(1) Right click a controller name and then select the **[Diagnosis]** option.

Description:

- Unless otherwise specified, always collect diagnosis logs.

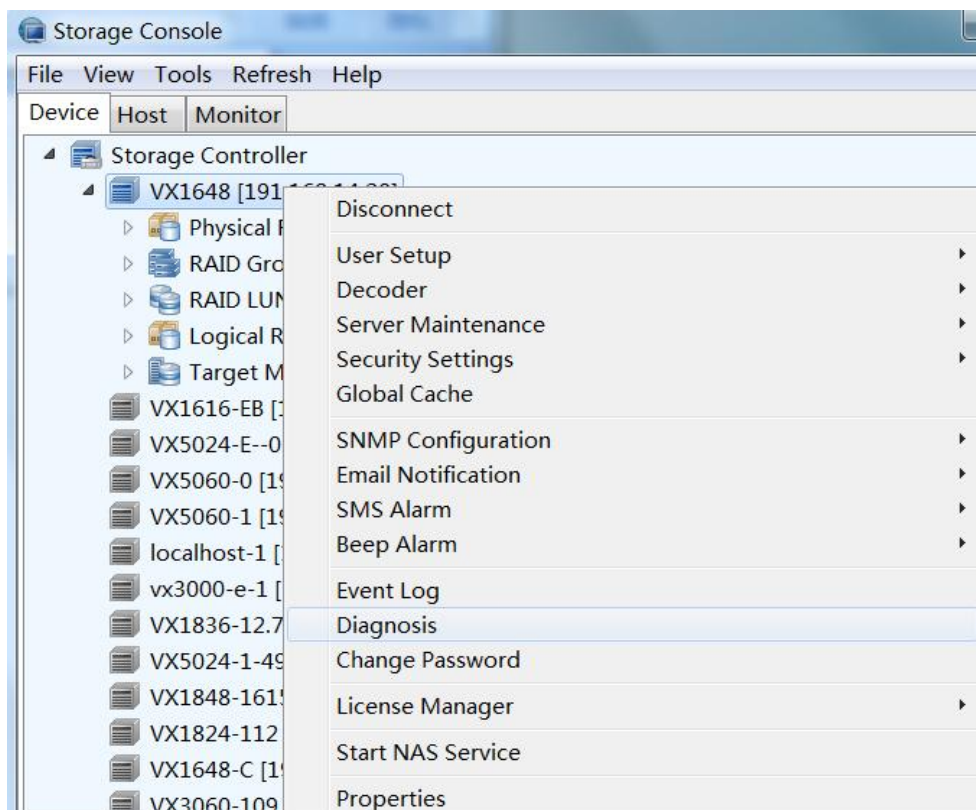


Figure 14-5 Selecting diagnosis options

(2) From the popup diagnosis box, select the start and end dates for the data to be exported, and then click **[OK]** button, as shown in the Figure 14-6:

(3) After clicking **[OK]** button, set the save path on the new dialogue box and click **[Save]**, as shown in the Figure 14-7.

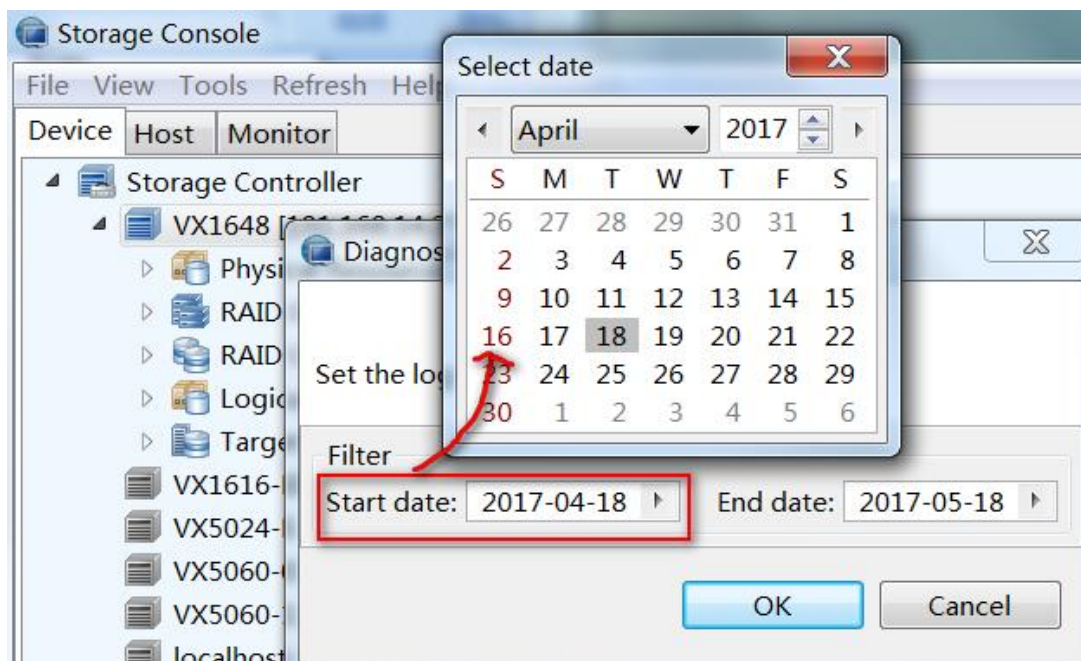


Figure 14-6 Selecting the date for diagnosis collection

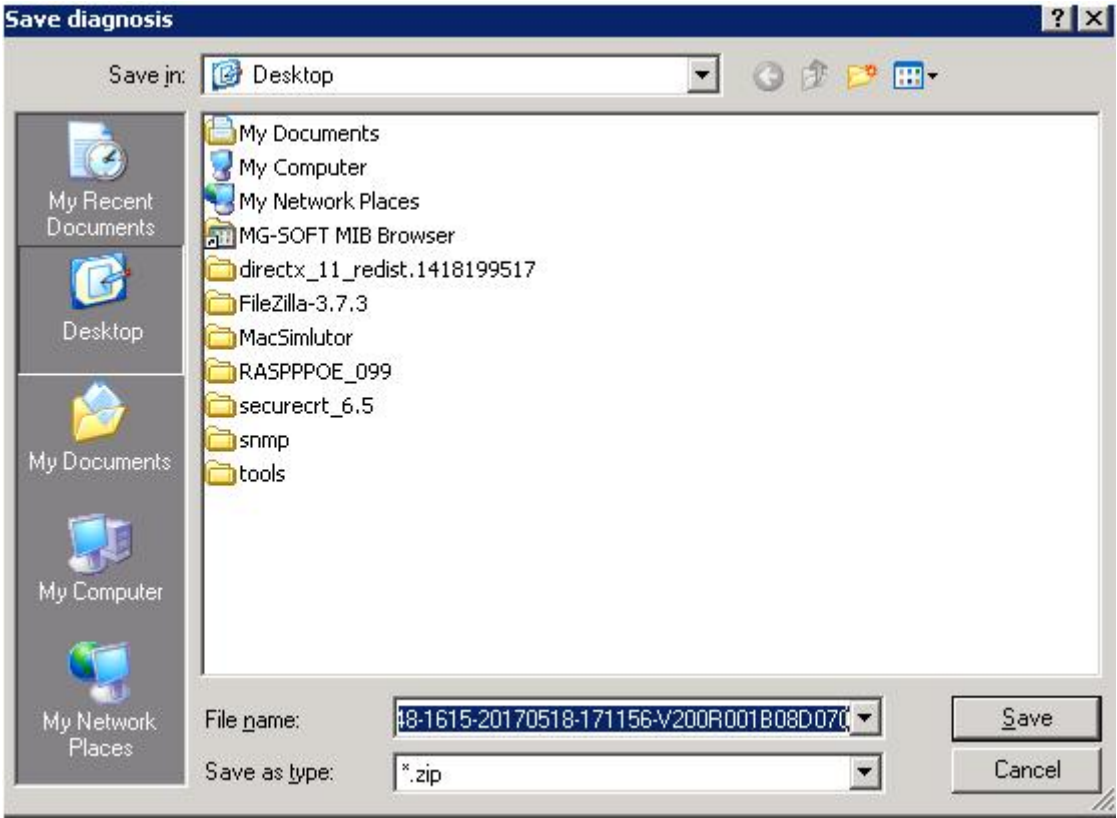


Figure 14-7 Saving Diagnosis