IPSAN Series
Network Storage System
Quick Guide

Manual Version: V1.02-20150320

Thank you for purchasing our product. If there are any questions, or requests, please do not hesitate to contact the dealer.

Notice

- The contents of this document are subject to change without prior notice. Updates will be added to the new version of this manual. We will readily improve or update the products or procedures described in the manual.
- Best effort has been made to verify the integrity and correctness of the contents in this document, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual.
- The product appearance shown in this manual is for reference only and may be different from the actual appearance of your device.
- The illustrations in this manual are for reference only and may vary depending on the version or model. So please see the actual display on your device.
- This manual is a guide for multiple product models and so it is not intended for any specific product.
- Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual. The ultimate right to interpretation resides in our company.
- Use of this document and the subsequent results shall be entirely on the user's own responsibility.

Environmental Protection

This product has been designed to comply with the environmental protection requirements. The storage, use, and disposal of this product must meet the applicable national laws and regulations.

Preface

Audience

This document is intended for:

- Administrators in charge of installing the system and configuring services
- Onsite technical support and maintenance personnel
- Users in charge of product service operations

Conventions

Document Conventions

Convention	Description
Boldface font	Commands, keywords, parameters and GUI elements such as window, tab, dialog box, menu, button, etc.
Italic font	Variables for which you supply values.
>	Separate a series of menu items, for example, **Device Management** > **Add Device**.

Symbols

Symbol	Description
WARNING!	Contains important safety instructions and indicates situations that could cause bodily injury.
CAUTION!	Means reader be careful and improper operations may cause damage or malfunction to product.
NOTE!	Means useful or supplemental information about the use of product.

Safety and Compliance Information

Conventions Used Symbol

The symbols in this chapter are shown in the following table. They are used to remind the reader of the safety precautions during equipment installation and maintenance.

Safety Symbol	Description
	Generic alarm symbol: To suggest a general safety concern.
	ESD protection symbol: To suggest electrostatic-sensitive equipment.
	Electric shock symbol: To suggest a danger of high voltage.

Safety Information

WARNING!

Installation and removal of the unit and its accessories must be carried out by qualified personnel. You must read all of the Safety Instructions supplied with your equipment before installation and operation.

Warnings:

- If the product does not work properly, please contact your dealer. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)
- To reduce the risk of fire or electrical shock, do not expose this product to rain or moisture.
- This installation should be made by a qualified service person and should conform to all the local codes.
- Please install blackouts equipment into the power supply circuit for convenient supply interruption.
- The separate grounding terminal must be permanently connected to earth.
- For AC supplied model: The plug-socket combination must be accessible at all times as it serves as the main disconnecting device.
- Before the power cable is installed or removed, the power must be turned off.
- To avoid heat accumulation, good ventilation is required for a proper operating environment.
- Improper use or replacement of the battery may result in hazard of explosion. Please use the manufacturer recommended battery type.

Caution: Fiber optic ports – optical safety.

Never look at the transmit laser while the power is on. Never look directly at the fiber ports and the fiber cable ends when they are powered on.

Caution: Use of controls or adjustments to the performance or procedures other than those specified herein may result in hazardous laser emissions.

Regulatory Compliance

FCC Part 15

This equipment has been tested and found to comply with the limits for digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

LVD/EMC Directive

CE

This product complies with the European Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC.

WEEE Directive–2002/96/EC

The product this manual refers to is covered by the Waste Electrical & Electronic Equipment (WEEE) Directive and must be disposed of in a responsible manner.

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1 Product Introduction

Based on storage control units (SCUs), IP SAN series storage products include the following five types: single controller with 16 disk slots, 24 disk slots, 36 disk slots and 48 disk slots, and dual controller with 24 disk slots.

The storage products support three types of disk expansion units (DEUs): 24 disk slots and 48 disk slots for single controller products and 24 disk slots for dual controller products.

For details about the supported DEUs, see the table below.

Table 1-1 DEUs Supported

Series	SCU Disk Slot	DEU Disk Slot Supported
IP SAN Series	16 disk slots (single controller)	24 disk slots (single controller)
	24 disk slots (single controller)	24 disk slots (single controller)
	36 disk slots (single controller)	24 disk slots (single controller)
	48 disk slots (single controller)	24 and 48 disk slots (single controller)
	24 disk slots (dual controller)	24 disk slots (dual controller)

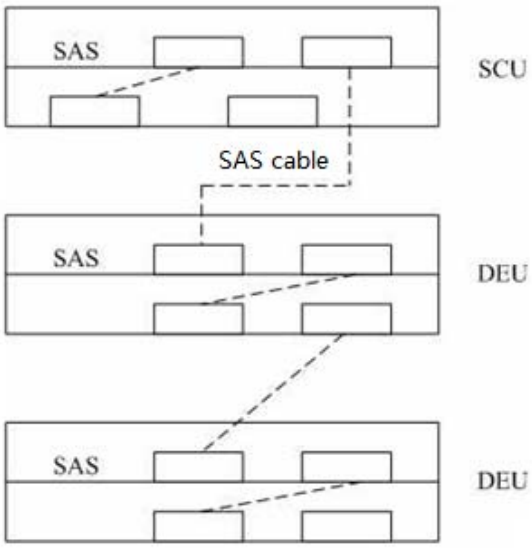
NOTE!

This manual takes single-controller storage products with 24 disk slots as an example. For more details, see the Online Help released with the software. To obtain the Online Help: click **Help** on the GUI.

The following illustrations are only for your reference. The latest version shall prevail in the actual situation.

A 0.3m SAS cable is delivered with storage products that have 48 disk slots. The cable is used to connect the upper frame and the lower frame. See the chart below.

Chart for connecting the DEU (48 disk slots):



2 Hardware Installation

Tool Reference

Environment Requirements

Temperature	Requirement
Operating temperature	0°C to 40°C (32°F to 104°F) Recommended: 10°C to 35°C (50°F to 95°F)
Storage temperature	Excluding battery modules: –20°C to +60°C (–4°F to +140°F) Including battery modules: –15°C to +40°C (5°F to 104°F) (storage within 1 month); 10°C to 35°C (50°F to 95°F) (storage over 1 month)
Humidity	**Requirement**
Operating humidity	20% to 80% (non-condensing)
Storage humidity	10% to 90% (non-condensing)

NOTE!

Corrosive gases and dust can cause damage to hard disks. For detailed requirements about the equipment room environment, please refer to Checking the Installation Environments section in Online Help delivered with the product.

Incorrect Installation Manner

CAUTION!

When installing a device, ensure that the device and the mark line on the square hole strip on the cabinet are properly aligned in 1U. Otherwise, you are not allowed to install the rack-mounting ear screws.

If the rack-mounting ear screws are forcibly installed without the aligning procedure, a gap exists between the device and the tray and the device is hanging over the square hole strip. Consequently, the device is unstable, thereby affecting stability of the hard disks. If the hard disks are running for a long time in such situation, many problems, such as a high read-and-write error rate and a high damage rate, will arise.

Besides, the depth of the equipment cabinet should be greater than 0.8m and less than 1m.

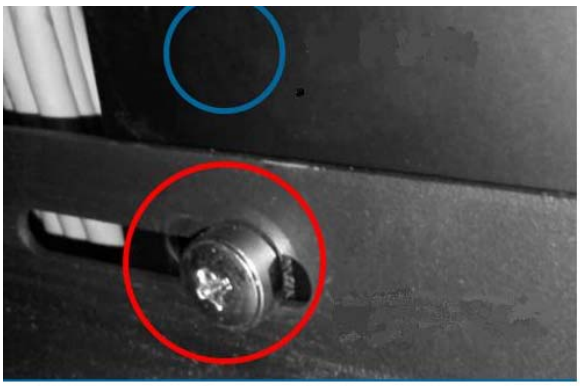


Figure 1

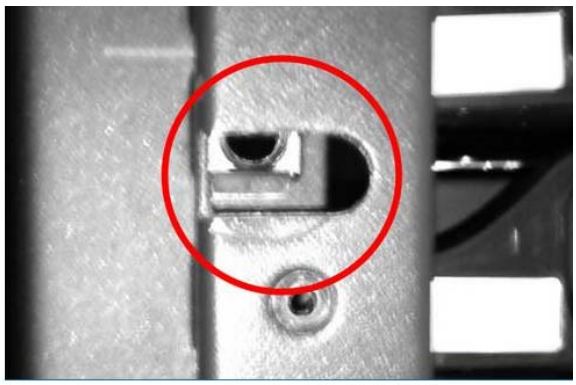


Figure 2

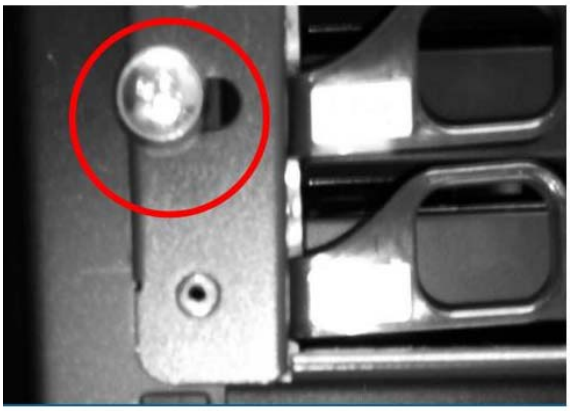


Figure 3

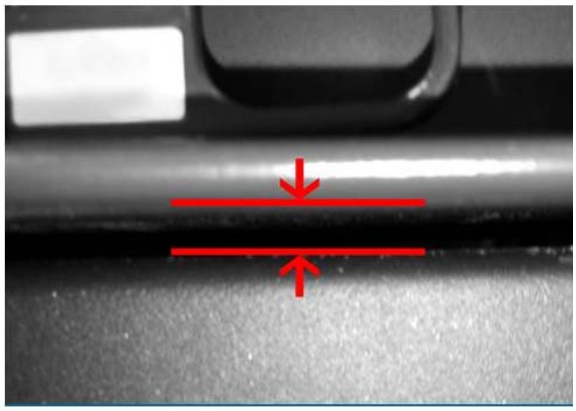


Figure 4

Figure 1: The tray is installed half-U downward.

Figure 2: The rack-mounting ear is not alligned properly.

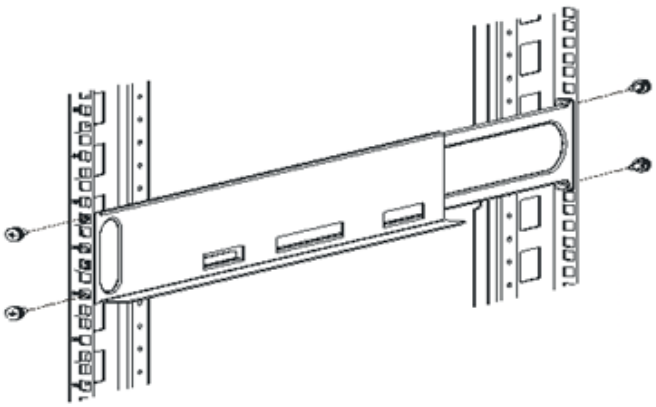
Figure 3: The device is not alligned in one U and is hanging over the rack-mounting ear after the screws are installed.

Figure 4: A gap exists between the device and the tray.

Correct Installation Steps

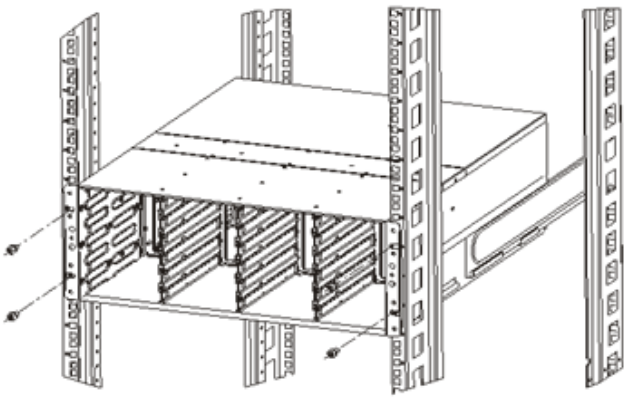
1 [Installing the guide rail on the cabinet](Optional)

Place the guide rail between the front and rear mounting holes of the cabinet, align the screw holes with holes on the cabinet, and tighten the thumb screws.



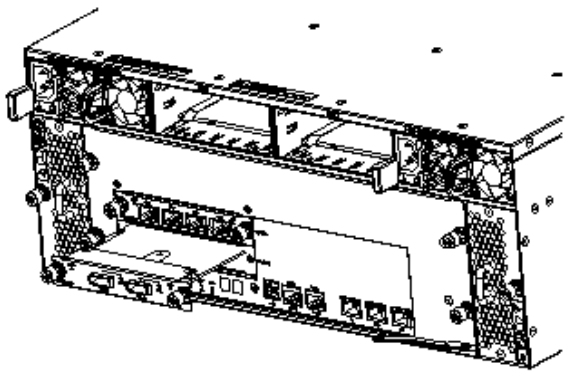
2 [Installing the chassis on the guide rail]

Slowly push the main cabinet along the guide rail until the suspension loop is onto the front mounting hole, and use screws to secure the suspension loop to the front mounting bar.



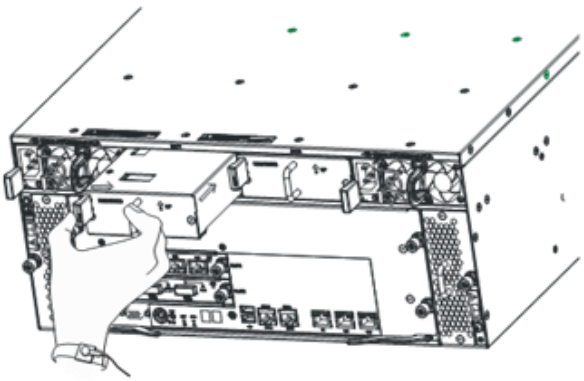
3 [Installing the expansion module]

Face silkscreen of the expansion board forward, hold the middle of the expansion board, slowly insert the expansion board, and tighten the captive screws.



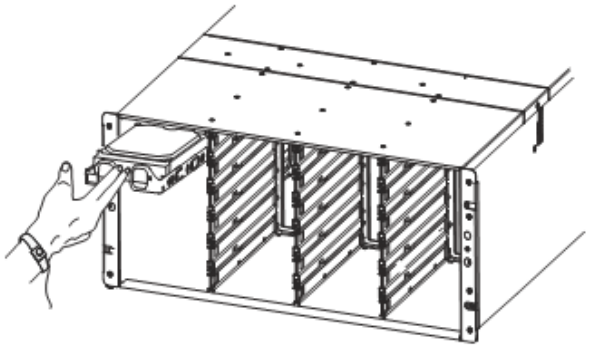
4 [Installing the battery module]

Determine the direction of the battery case, insert the battery case slowly along the guide rail, until the lock spring piece is buckled.



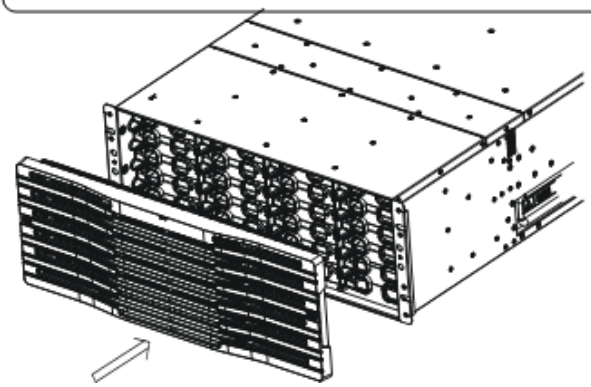
5 [Installing a disk]

Hold the middle of the disk, but do not hold the handle bar. Slowly push the disk into the slot, until a clatter sound is heard, indicating that the disk is installed in position.



6 [Installing the front panels]

Install the front panels of the storage controller and DEU1124, as shown in the following figure (DEU1124 is used as an example).



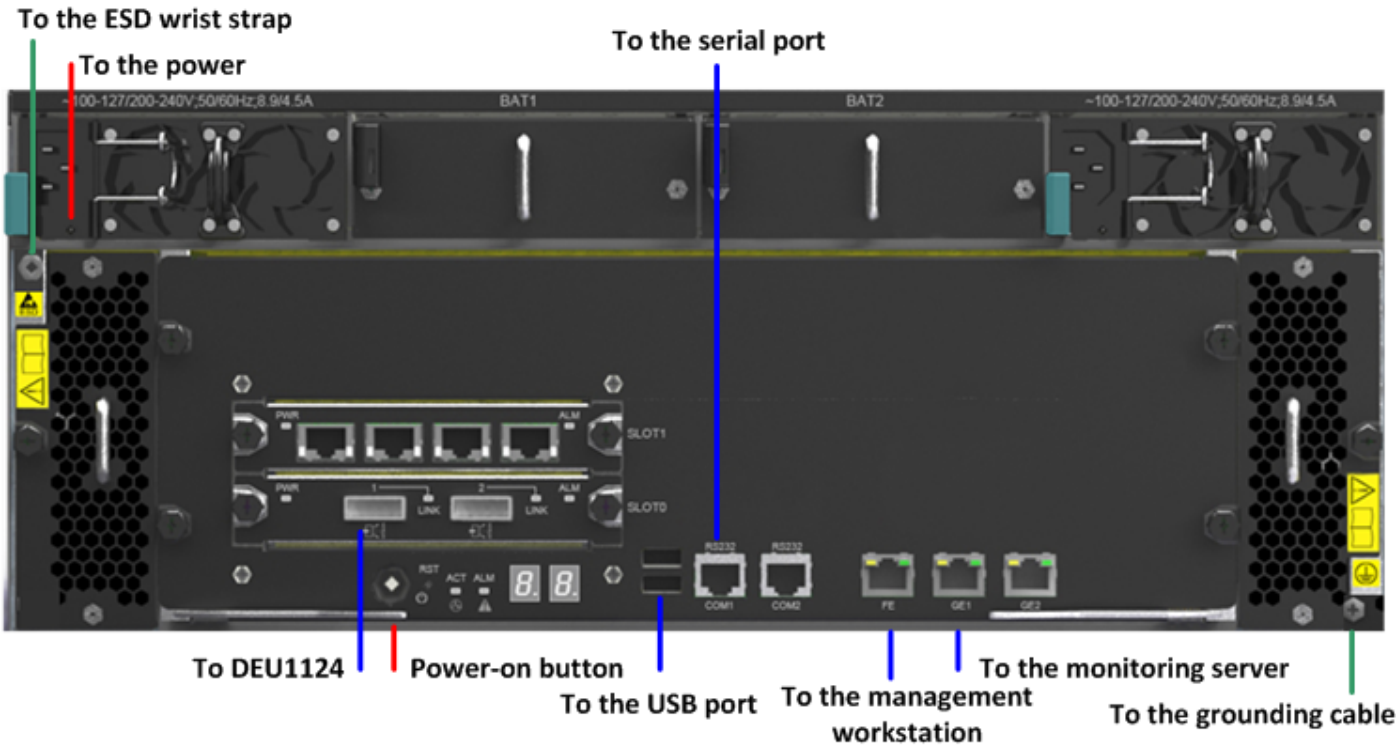
Cable Connection and Checking

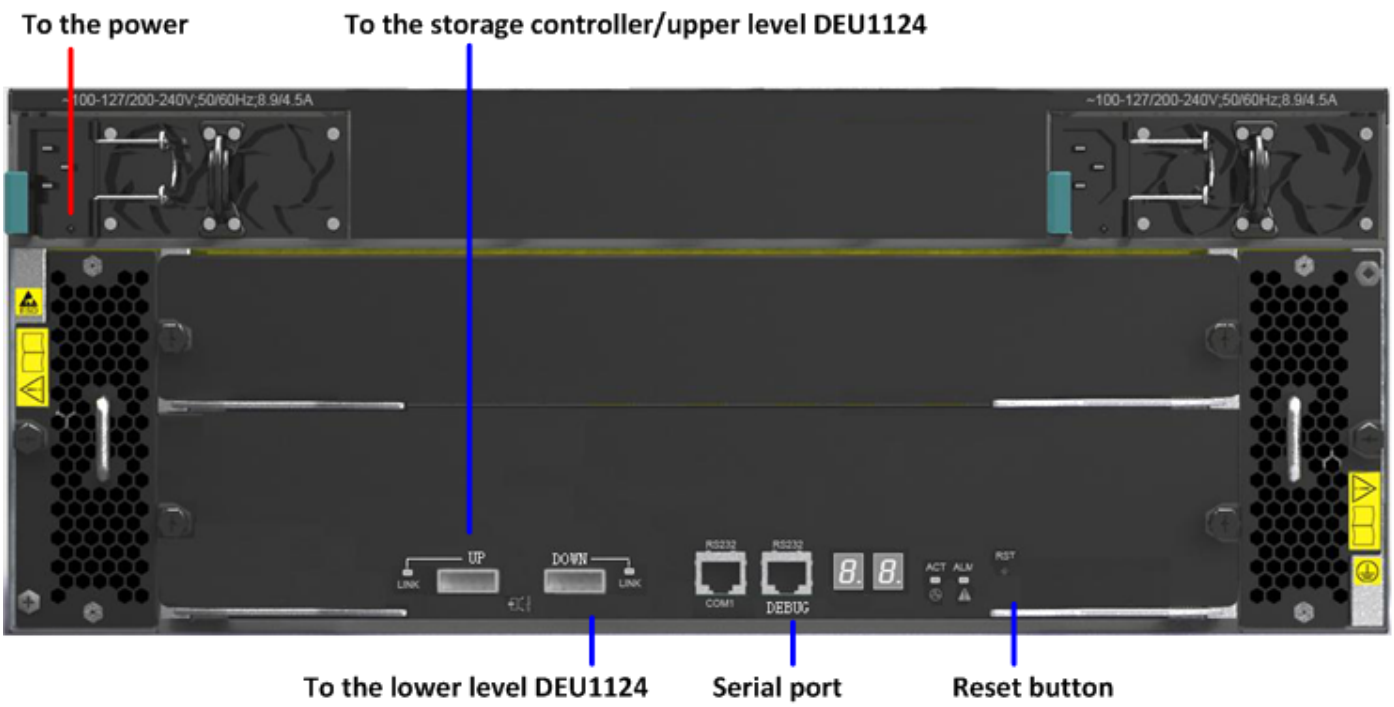
[Cable Connection]

(1) Connect cables for the storage controller and DEU1124, as shown in the following figure.

(2) Power on the storage controller and DEU1124.

(3) Switch on the storage controller.





2

[Check]

(1) Check the rear panel LED of the storage controller and DEU1124.

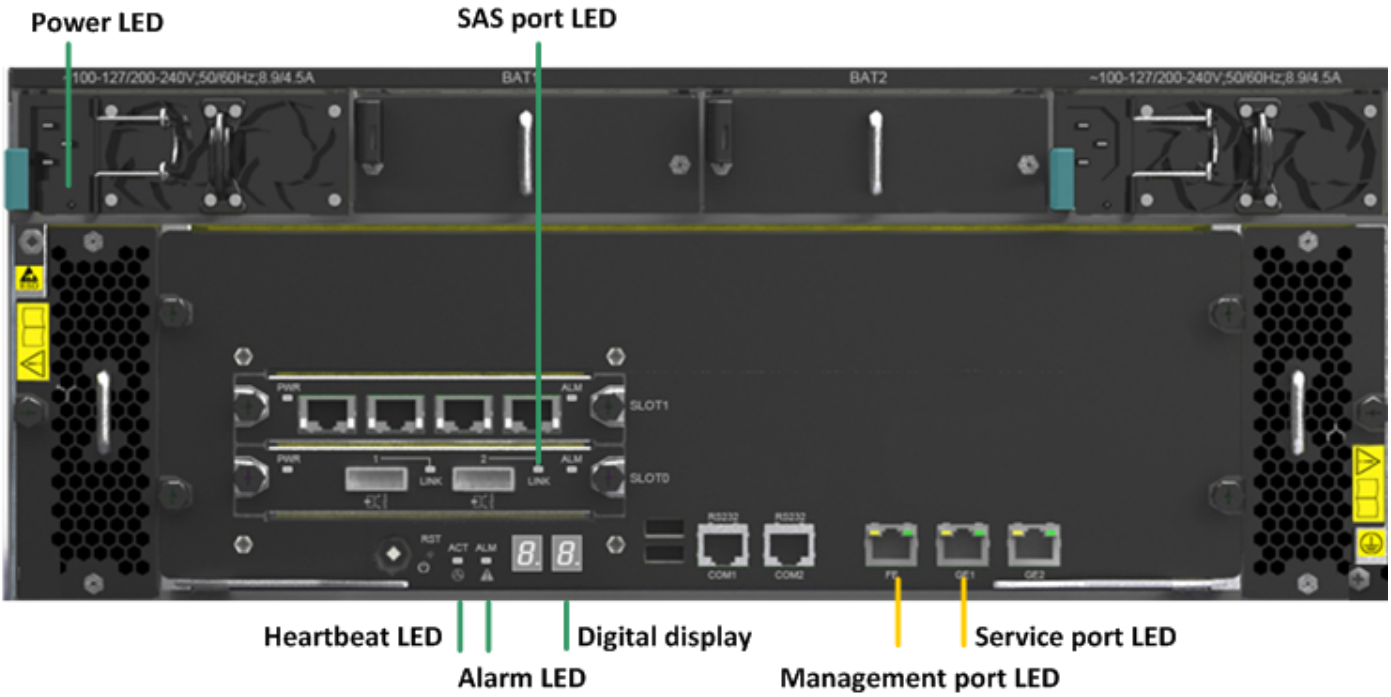
Management port LED: green on and yellow on

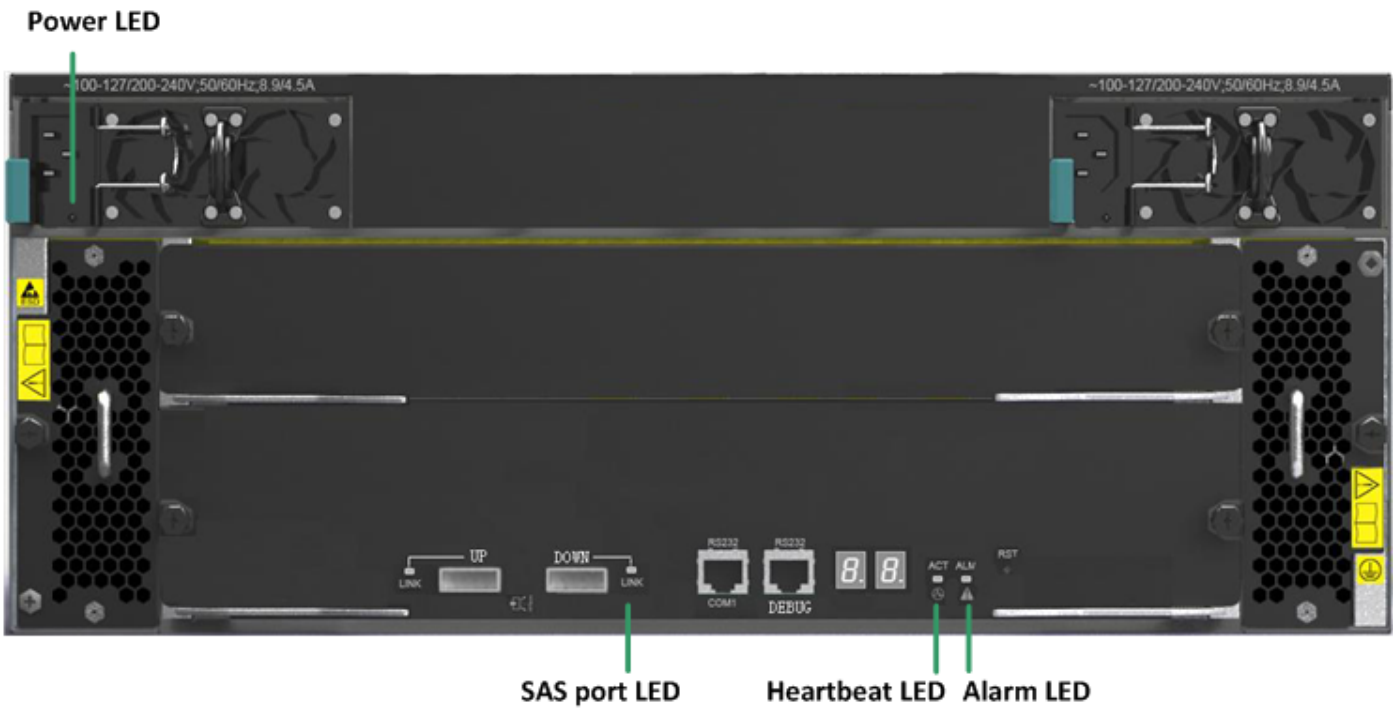
Service port LED: Green or yellow on

Alarm LED: off; Other LEDs: green

(2) Check the front panel LED of the storage controller and DEU1124 (the illustration is omitted).

Normally, the front panel LED is green.





3 Software Configuration

Basic Concepts

Basic Concept	Description
Console	Indicates the Graphical User Interface (GUI) used for configuration and management.
Server	Indicates an IP SAN series host in the console.
Management workstation	Indicates the PC where the console is installed.
RAID Group	Indicates a logical entity that consists of multiple physical hard disks. In addition, the logical entity possesses RAID level features. RAID indicates redundant array of independent disks. The logical entity is used to form the RAID of a specified level and provide physical resources for RAID Logical Unit Numbers (LUNs).
RAID LUN	Compared with a LUN, a RAID LUN indicates a smaller logical entity created in a RAID group. After a RAID LUN is created in a RAID group, the RAID LUN directly inherits the RAID level of the RAID group.
Logical resource	Indicates a logical entity that is created on a RAID LUN for direct access from a client. A client can access a logical resource after it is created on basis of a RAID LUN and assigned to a target.
Initiator	Indicates an entity that initiates an Internet Small Computer System Port (iSCSI) request.
Target	Indicates an entity that responds to an iSCSI request. An initiator can initiate a request to a target only after it is associated with the target.
Management network port	100-Mbit/s port for configuring and managing devices.
Service port	1000-Mbit/s port for transferring data.

Configuration Procedure

To complete most basic configurations, perform the following operations on the storage device software GUI:

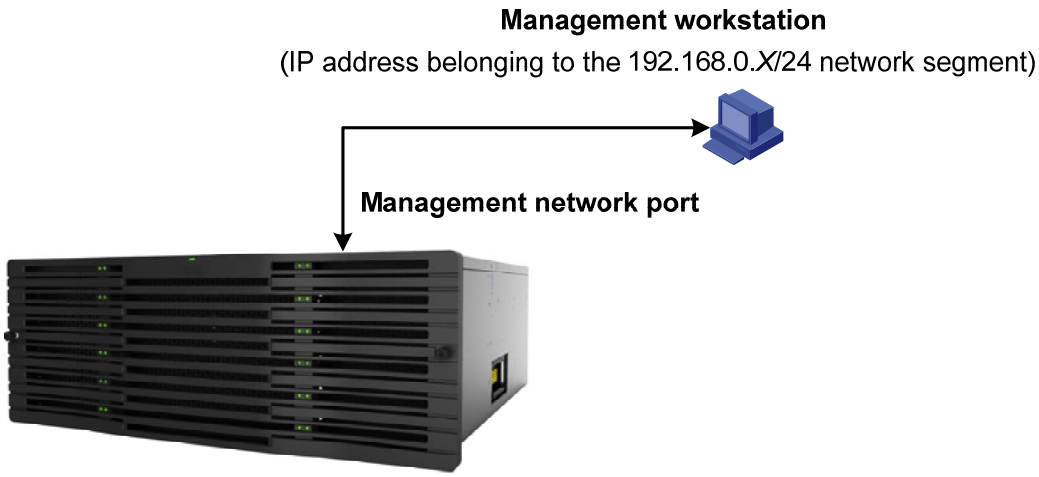
1. Log in to the device through the management network port.
2. Set the IP address of the service port.
3. Create a RAID group.
4. Create a RAID LUN.
5. Create logical resources.

6. Create a target and add an initiator.
7. Assign Storage Area Network (SAN) resources.
8. Configure the initiator (using Windows client as an example).
9. View disks assigned (using Windows XP as an example)

Log In to the Device Through the Management Network Port

Enter **http://192.168.0.1** in the browser address bar of the management workstation, download the console, and log in to the console. By default, the user name is **admin**, the password is **123456**, and the server IP address **192.168.0.1.**

Figure 3-1



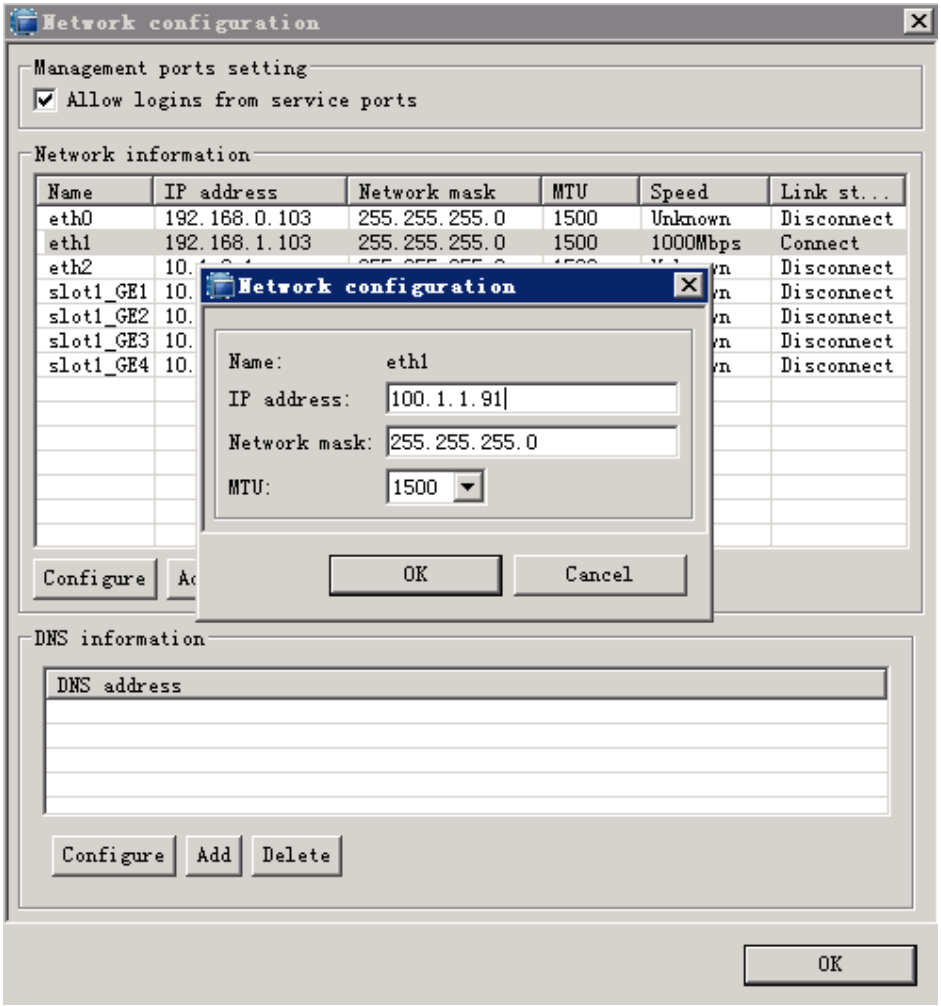
Set the IP Address of the Service Port

1. On the **Device** tab, right-click the ***hostname*** and choose **Server Maintenance** > **Configure Network**.
2. Under **Network information** in the dialog box that appears, select the desired service port and click **Configure** in the lower part.
3. In the dialog box that appears, change the IP address to **100.1.1.91**..

The default IP addresses of the service ports are **10.1.1.1** and **10.1.2.1**.

If expansion boards are inserted, the corresponding default IP addresses are **10.1.3.1**, **10.1.4.1**, **10.1.5.1** and **10.1.6.1**.

Figure 3-2 Set the IP address



4. Click **OK**.

Create a RAID Group

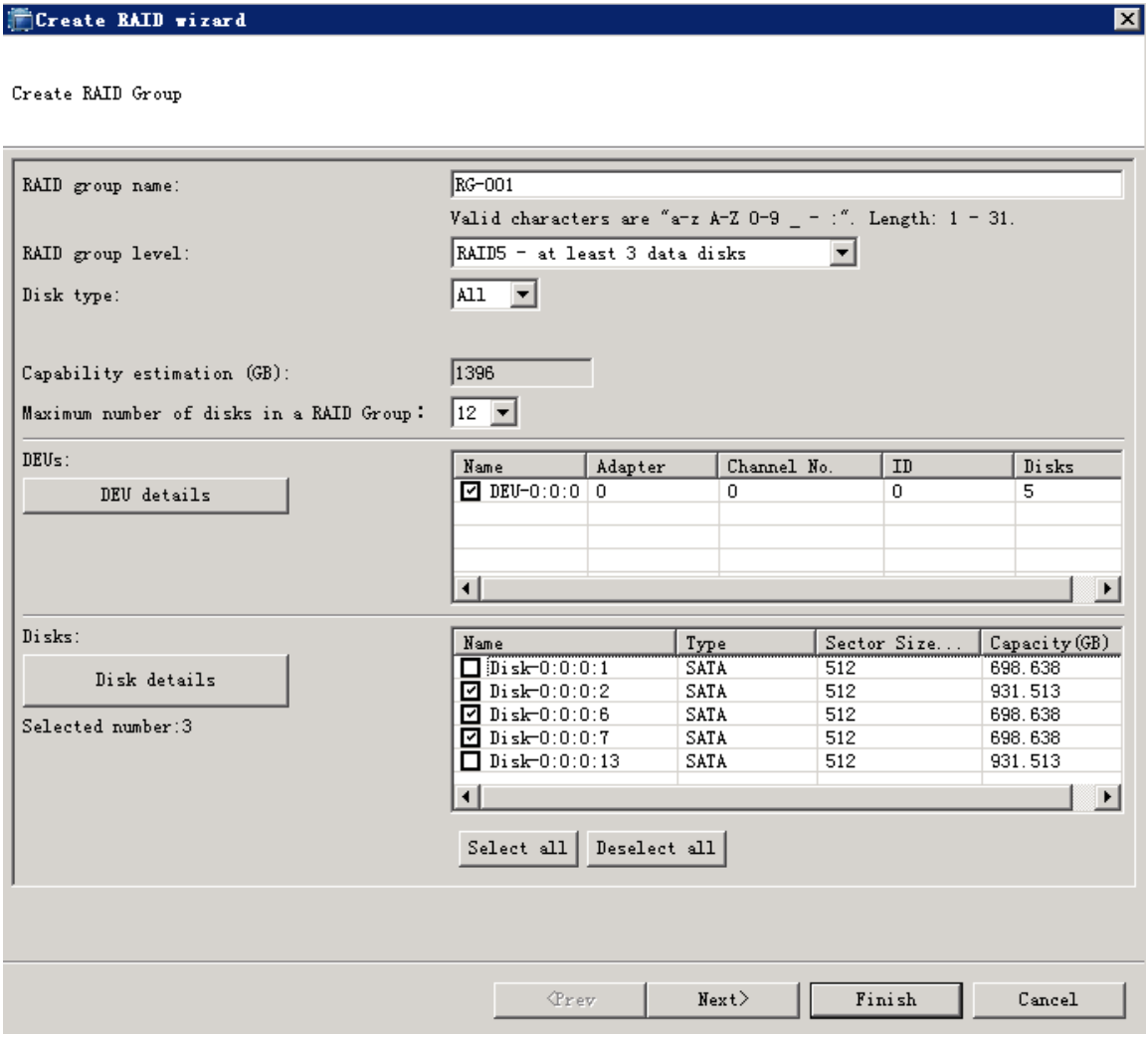
1. On the **Device** tab, expand ***hostname*** > **RAID Group Resources** > **Local RAID Groups**.
2. Right-click **Local RAID Groups** and choose **Create**.
3. In the dialog box that appears, create a RAID group.

Before creation, check whether the number of disks under **Physical Resources** is consistent with the actual number.

Recommended number of disks: 11 (RAID5) + 1 (hot spare) + 11 (RAID5) + 1 (hot spare)

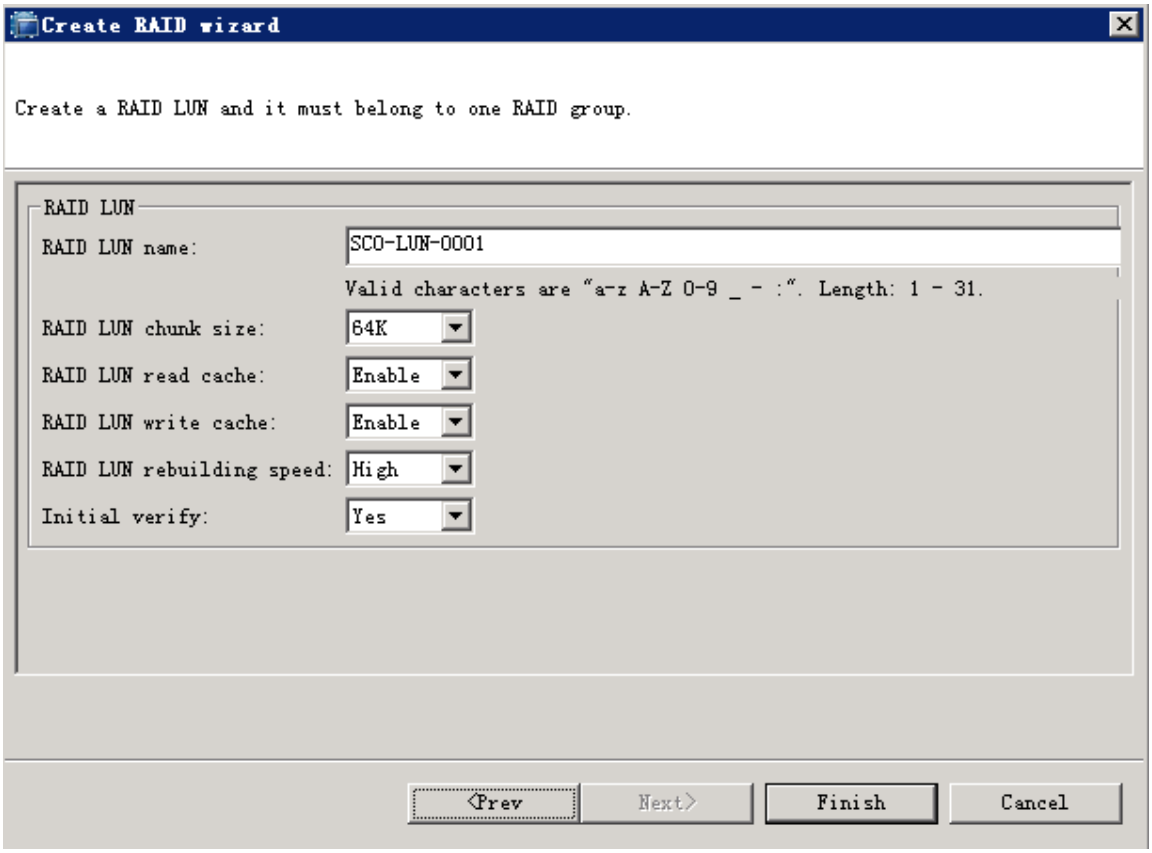
Or: 11 (RAID5) + 12 (RAID5) + 1 (hot spare).

Figure 3-3 Create a RAID Group



4. (Optional) Click **Next** and confirm the information of the RAID Group.

Figure 3-4 RAID LUN information



5. Click **Finish**.

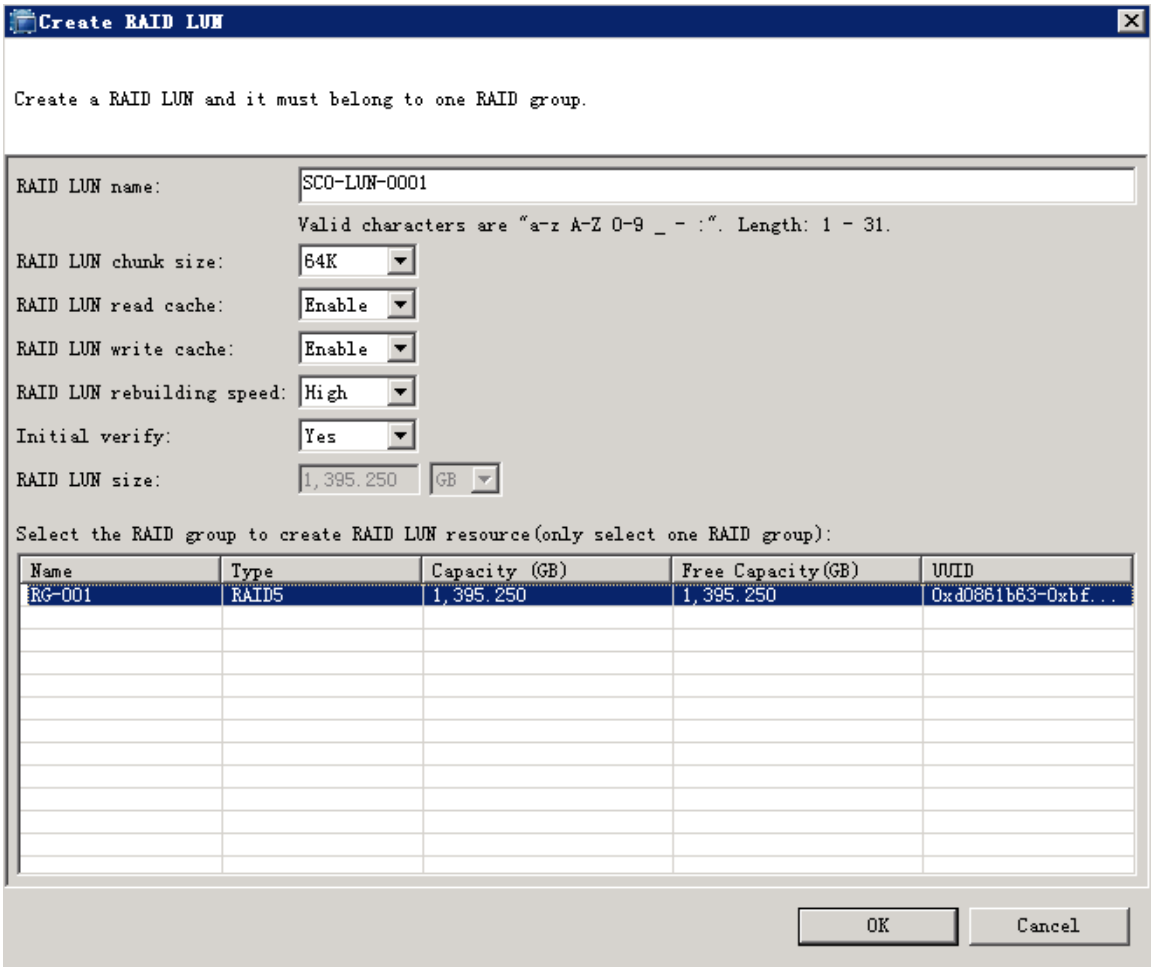
Create a RAID LUN

If no RAID LUN has been created when you start to create a RAID Group, follow these steps to create one.

1. On the **Device** tab, expand ***hostname*** > **RAID LUN Resources > Local RAID LUNs**.
2. Right-click **Local RAID LUNs** and choose **Create**.
3. In the dialog box that appears, enter the RAID LUN name, and select a RAID group.

The system automatically displays the size of the RAID LUN.

Figure 3-5 Create a RAID LUN

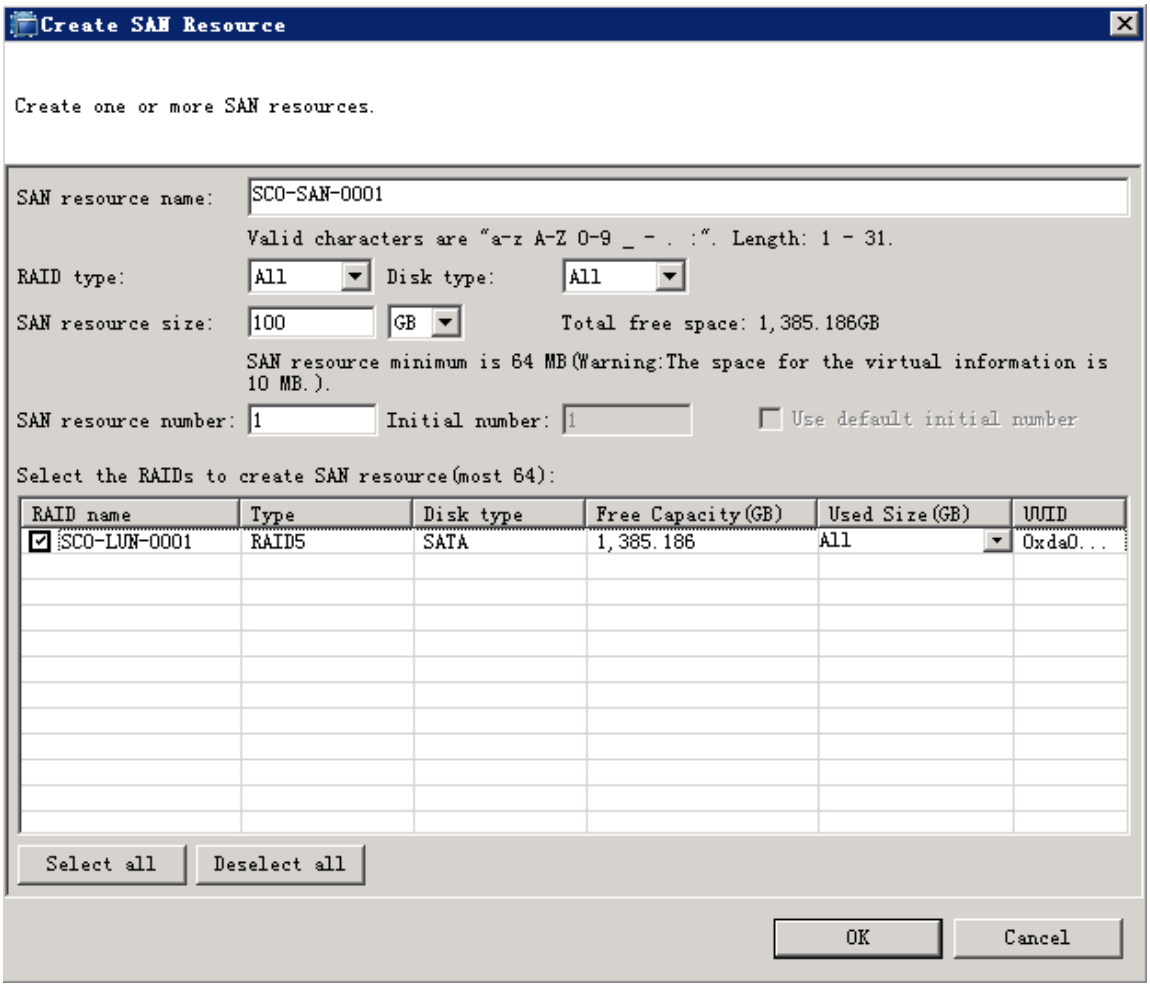


4. Click **OK**.

Create Logical Resources

1. On the **Device** tab, expand ***hostname*** > **Logical Resources** > **SAN Resources**.
2. Right-click **SAN Resources** and choose **Create**.
3. In the dialog box that appears, set the SAN resource name and size, and select RAID LUNs.

Figure 3-6 Create the SAN Resource

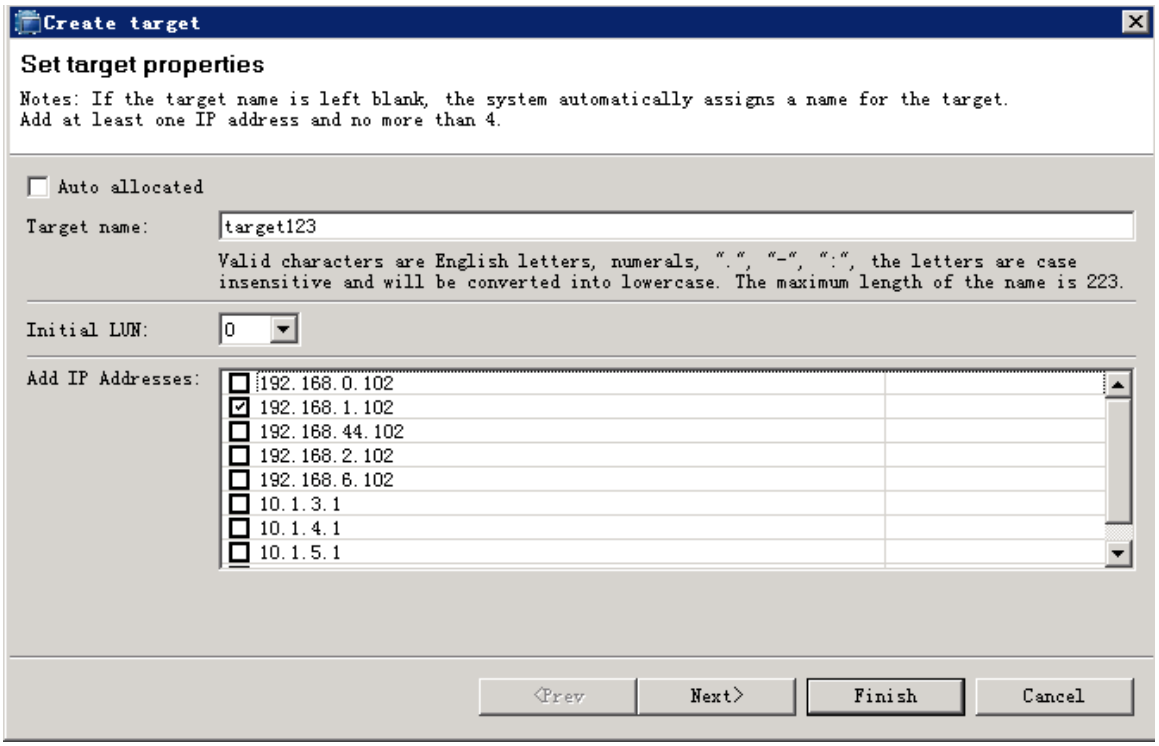


4. Click **OK**.

Create a Target and Add an Initiator

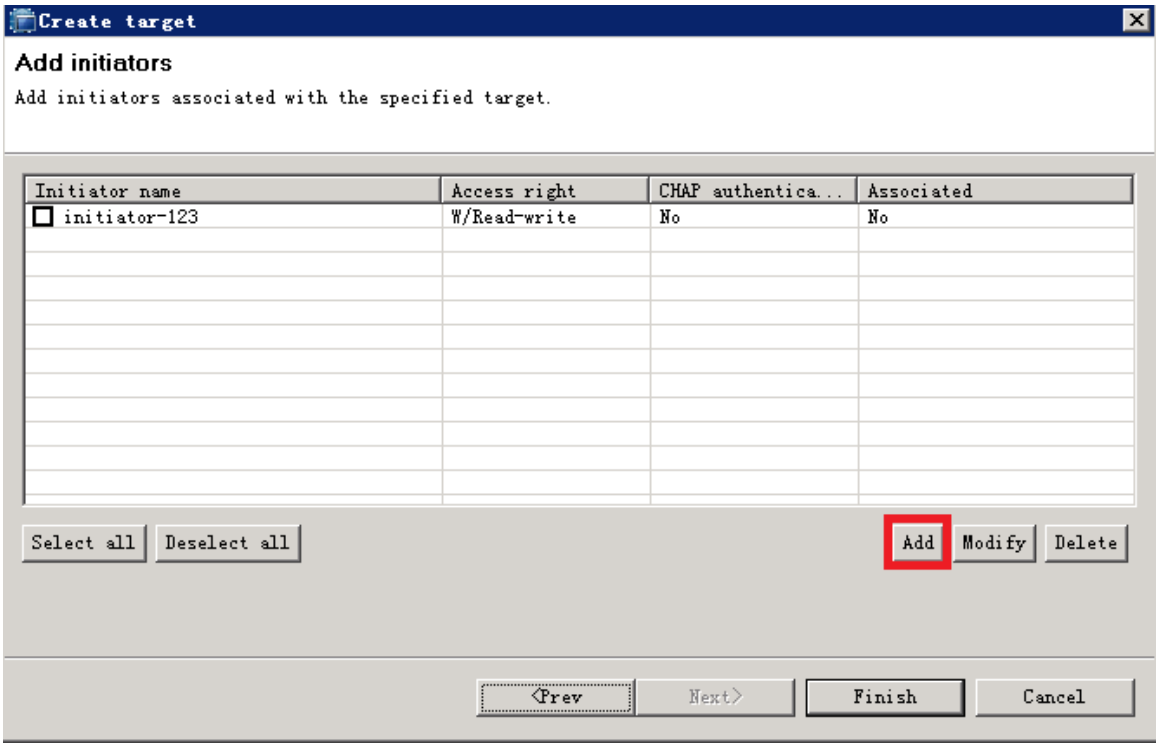
1. On the **Device** tab, expand ***hostname*** > **Target Resources**.
2. Right-click **Target Resources** and choose **Create**.
3. In the dialog box that appears, deselect **Auto Allocated**, and customize the name (for example, taget123). Select an IP address for the target, and then click **Next**.

Figure 3-7 Create a target



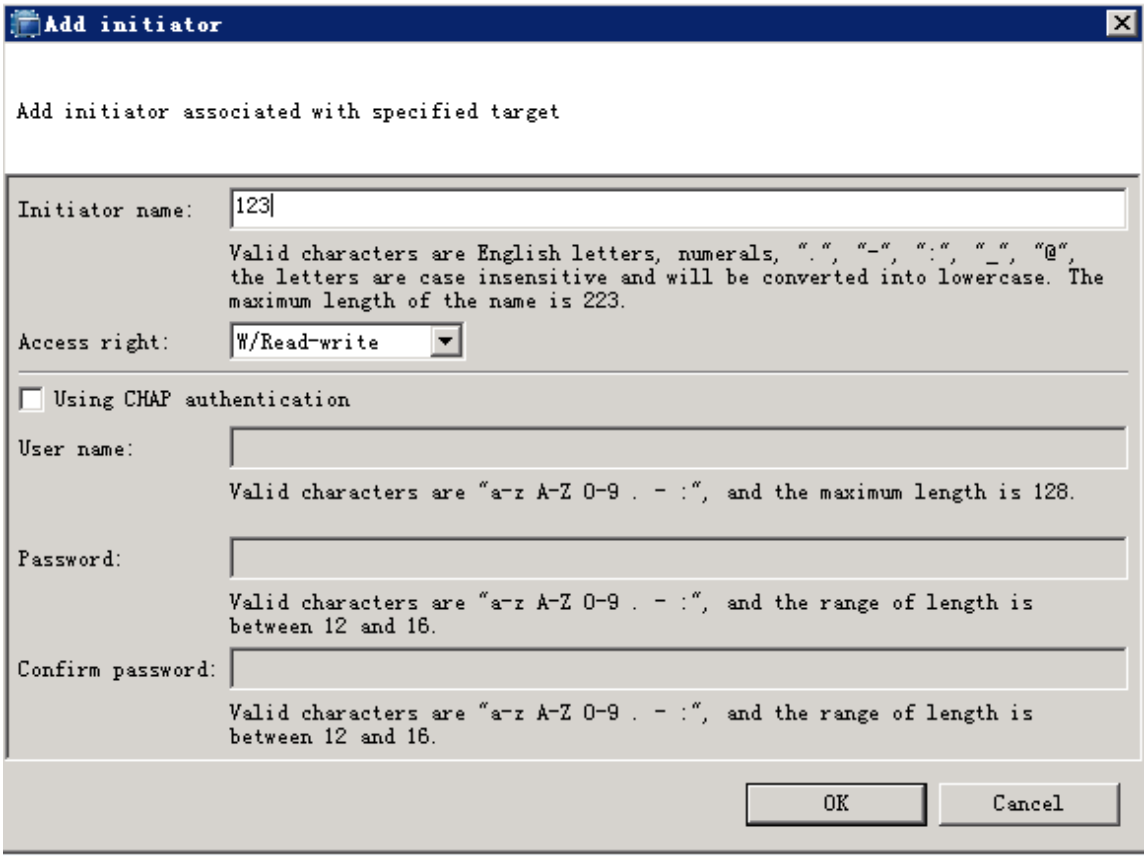
4. In the dialog box that appears, click **Add**.

Figure 3-8 Add an initiator



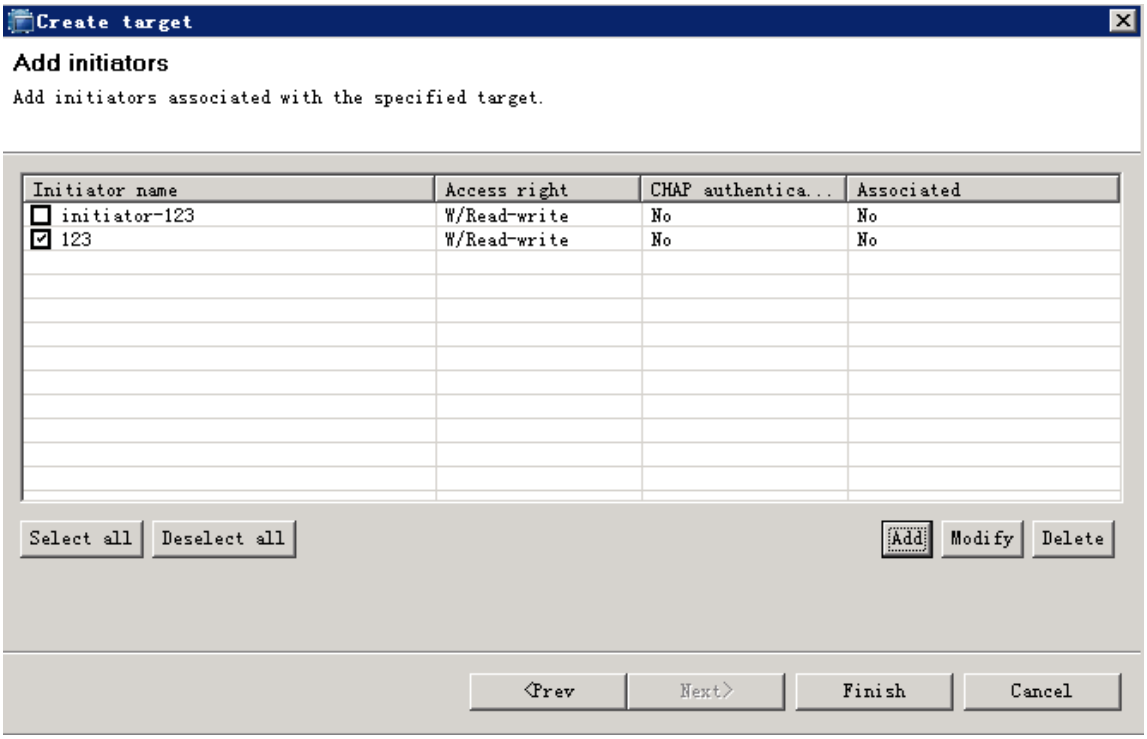
5. In the dialog box that appears, set the name of the initiator, and click **OK**.

Figure 3-9 Set the name of the initiator



6. Confirm the result, and click **Finish**.

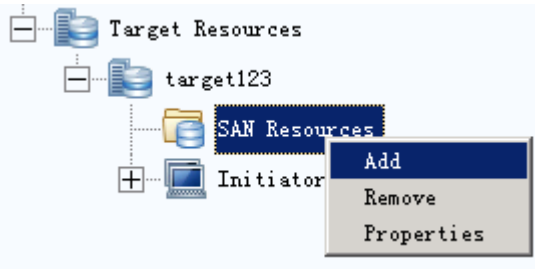
Figure 3-10 Confirm



Assign SAN Resources

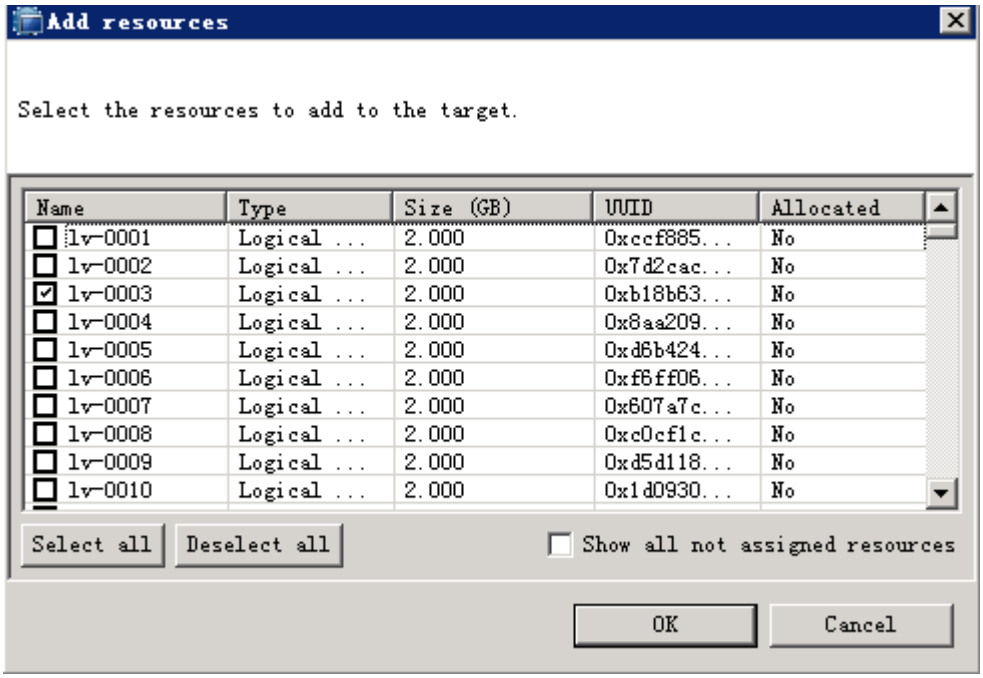
1. On the **Device** tab, expand ***hostname*** > **Target Resources >** ***target name*** > **SAN Resources**.
2. Right-click **SAN Resources** and choose **Add**.

Figure 3-11 Add



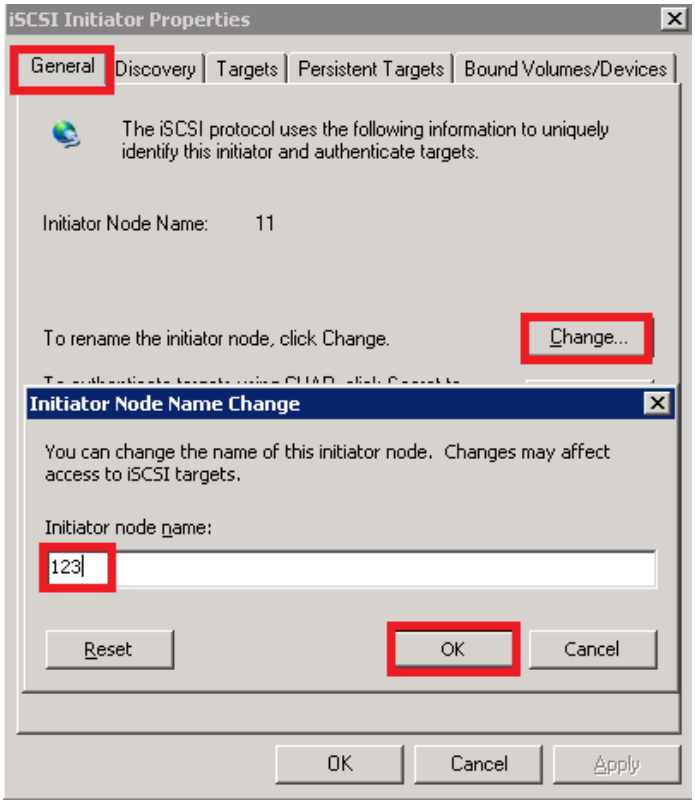
3. In the dialog box that appears, select the resources to be assigned to the target, and click **OK**.

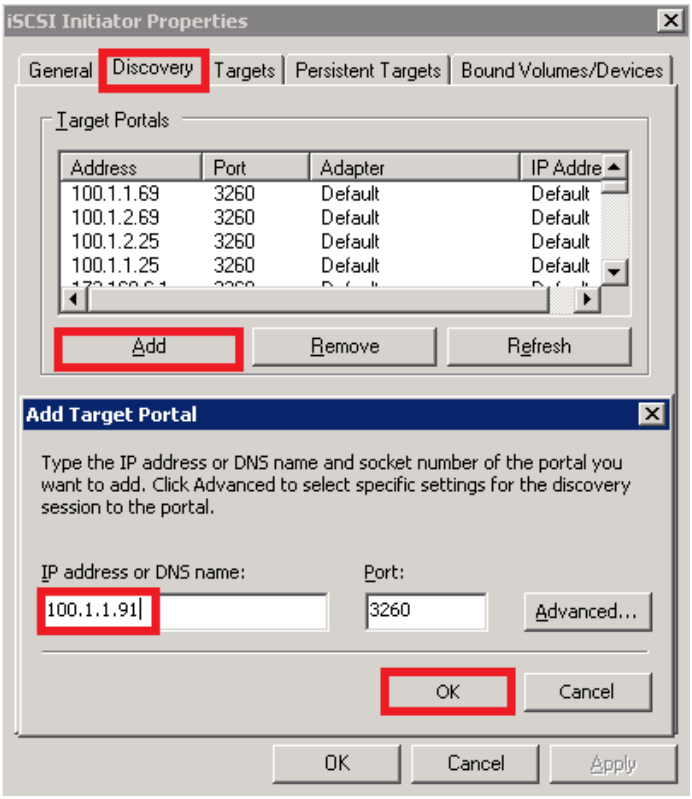
Figure 3-12 Add a resource

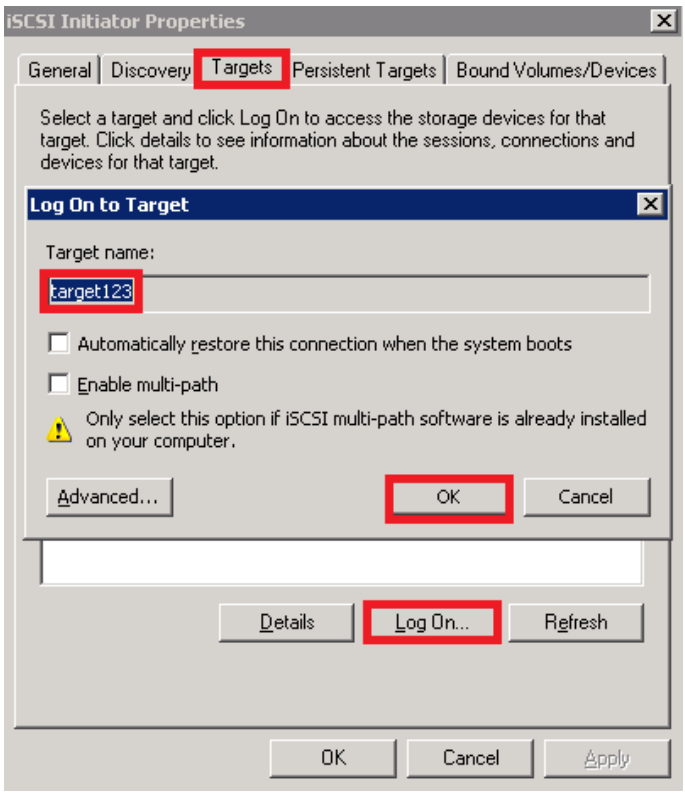


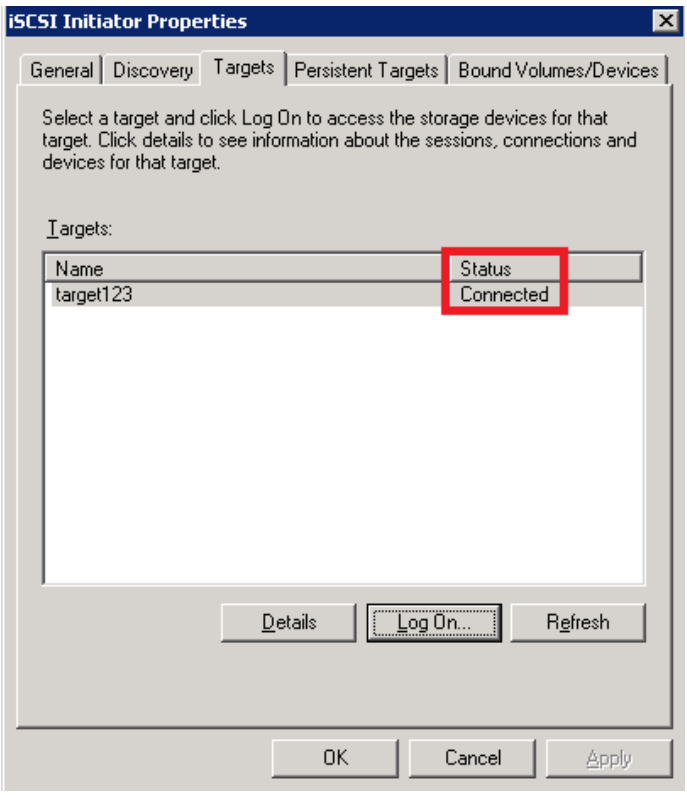
Configure the Initiator (Windows Client)

To configure the initiator on a Windows-based client, follow the instructions shown in the figures below.



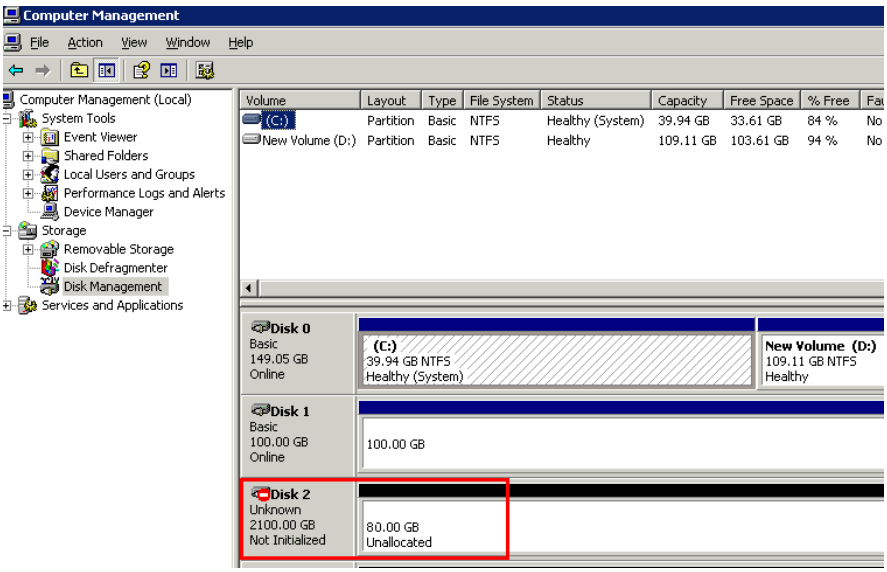






View Disks Allocated (Windows XP)

1. Right-click **My Computer** and choose **Computer Management**.
2. In the **Computer Management** dialog box, check the added disk space, as shown in the red box in the figure below.


Computer Management
File Action View Window Help
Computer Management (Local)
System Tools
Event Viewer
Shared Folders
Local Users and Groups
Performance Logs and Alerts
Device Manager
Storage
Removable Storage
Disk Defragmenter
Disk Management
Services and Applications
Volume Layout Type File System Status Capacity Free Space % Free
(C:) Partition Basic NTFS Healthy (System) 39.94 GB 33.61 GB 84 %
New Volume (D:) Partition Basic NTFS Healthy 109.11 GB 103.61 GB 94 %
Disk 0
Basic
149.05 GB
Online
(C:)
39.94 GB NTFS
Healthy (System)
New Volume (D:)
109.11 GB NTFS
Healthy
Disk 1
Basic
100.00 GB
Online
100.00 GB
Disk 2
Unknown
2100.00 GB
Not Initialized
80.00 GB
Unallocated

BOM: 3101C07U