
How to expand iSCSI for NVR5416

Application Notes

Version <1.0>



Technical Support Team

Preface

This application guide introduces how to set up an iSCSI storage device and how to add an iSCSI device into Linux NVR.

The document illustrates the following topics.

1. How to connect an iSCSI storage and NVR5416
2. Setting an iSCSI storage
3. Adding an iSCSI storage to Linux NVR

1. How to connect an iSCSI storage and NVR5416

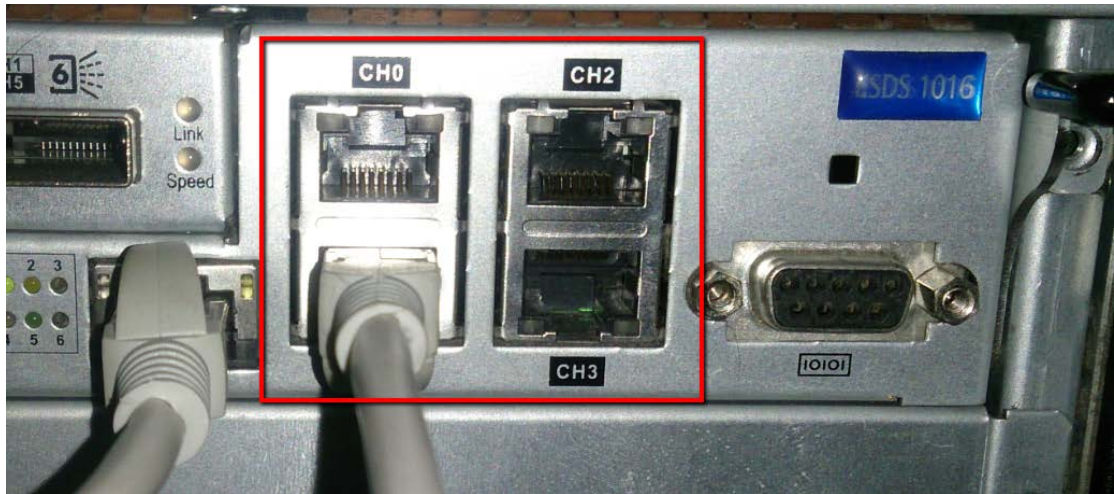
- This is an iSCSI storage's back board.



- The red box indicates an iSCSI storage's LAN port and it is for configuration purposes.



- In the red box below are the iSCSI storage's channel ports. One channel (one logical volume) will be assigned with one IP address.



- ✂ All the network cables must connect to the GigaLAN ports from the core switch.

2. Setting an iSCSI storage

- 2.1 Install SANWatch and log in
- 2.2 Add a new storage device
- 2.3 Create a new logical volume
- 2.4 Create a new partition
- 2.5 Host LUN Mapping

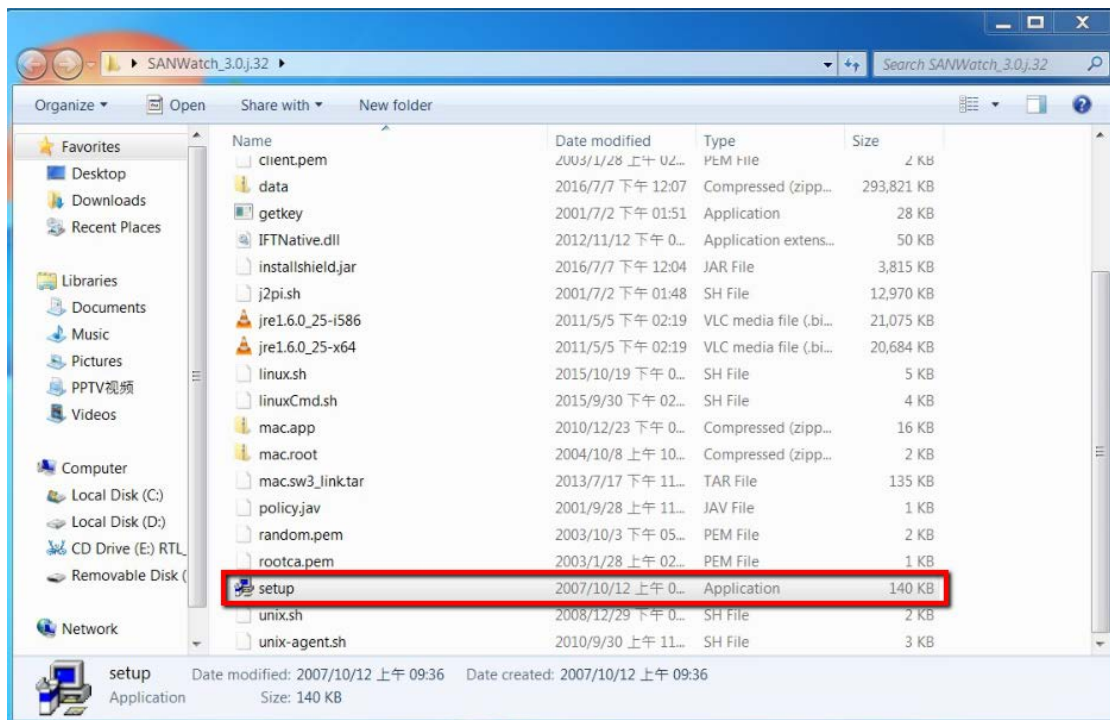
2.1 Install SANWatch and log in

- SANWatch download link:
https://www.dropbox.com/home/Surveon/Public/Tool?preview=SANWatch_3.0.j.27.zip

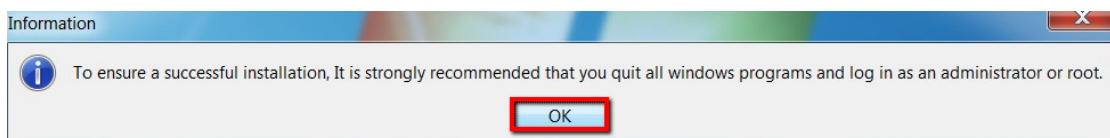
- Click SANWatch after you download and unzip it.



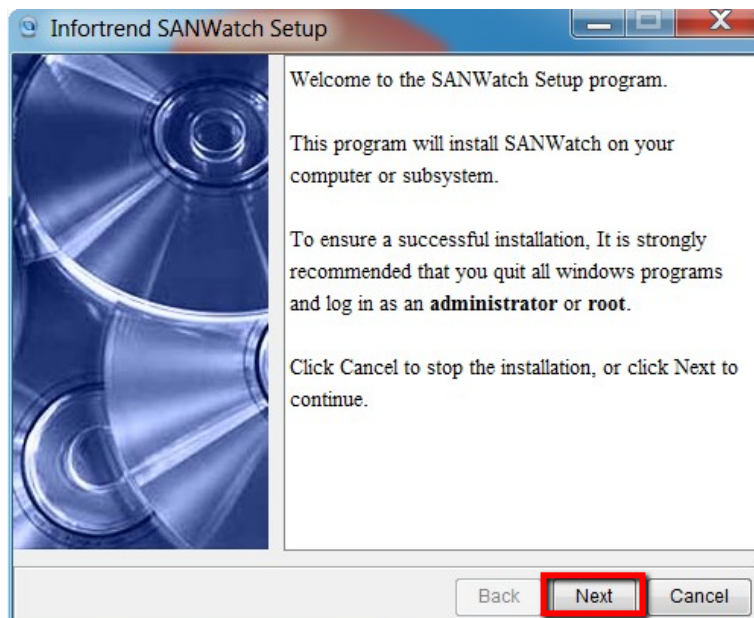
- Open the file folder and double-click **setup** to install it.



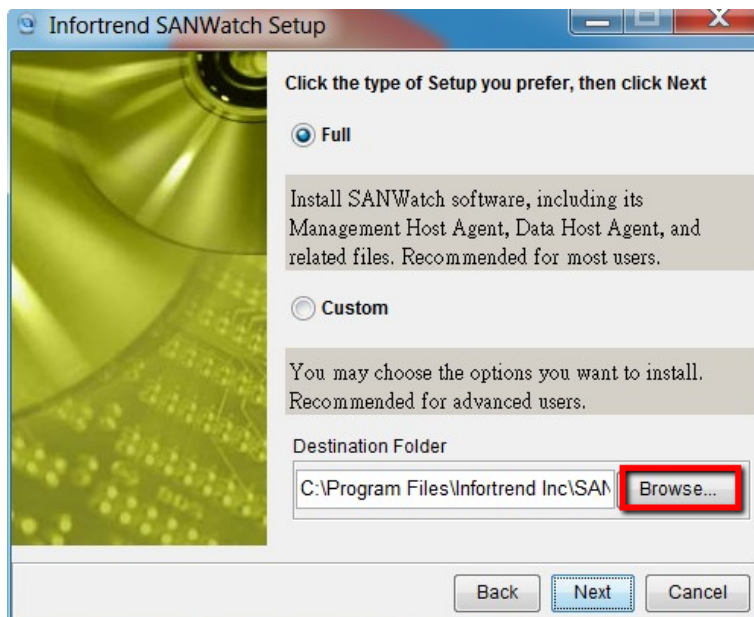
■ Click OK.



■ Install it step by step.



- At this step, you can click **Browse** to select the folder to save SANWatch program files.



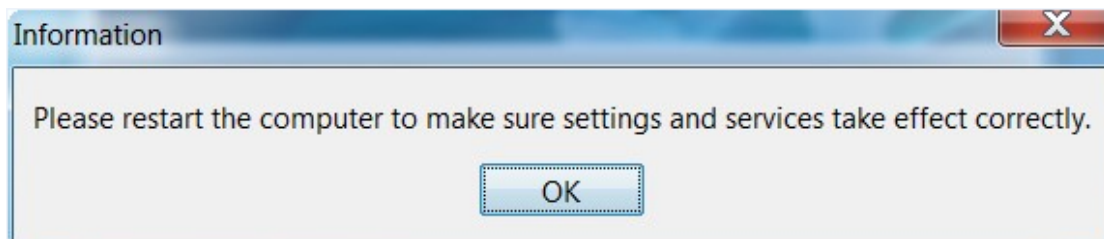
- Click **Next**.



- Wait for SANWatch installation to finish.



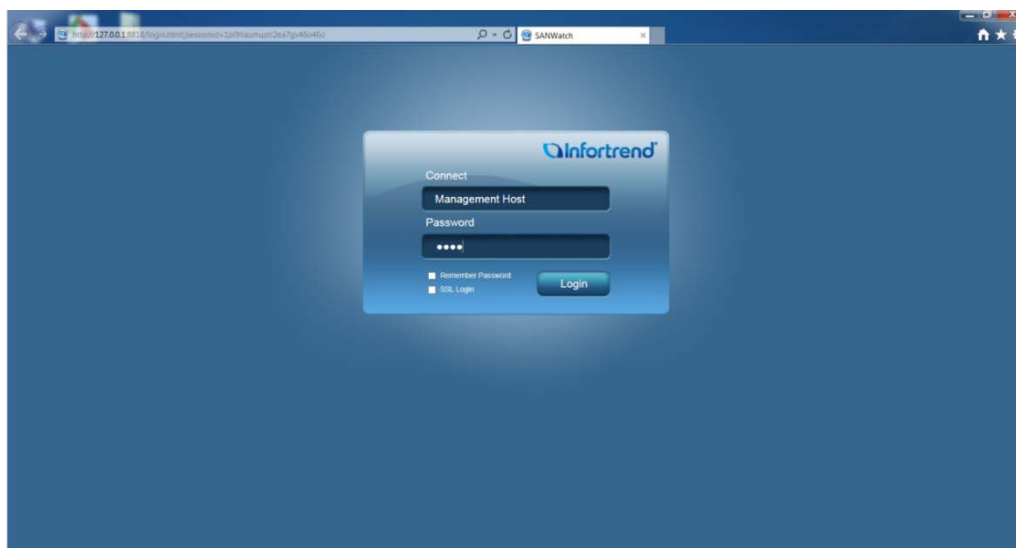
- You will see the following message after the installation is completed successfully. Close all programs and restart your PC.



- After restart, click **SANWatch** on your desktop.

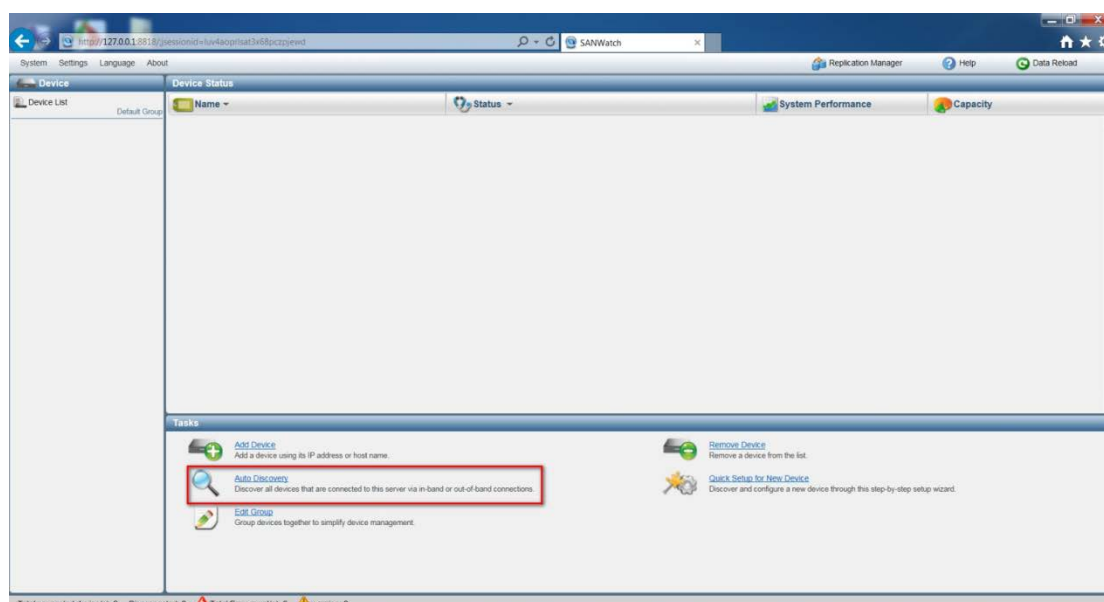


- Log onto SANWatch (the default password is "root").

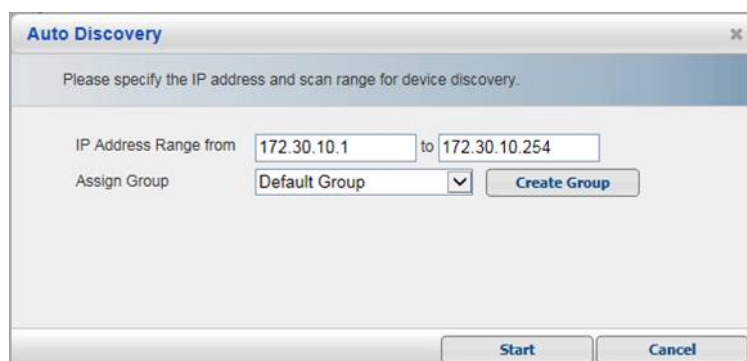


2.2 Add a new storage device

- Click **Auto Discovery** to search for your iSCSI device or click **Add Device** to manually add the iSCSI device.

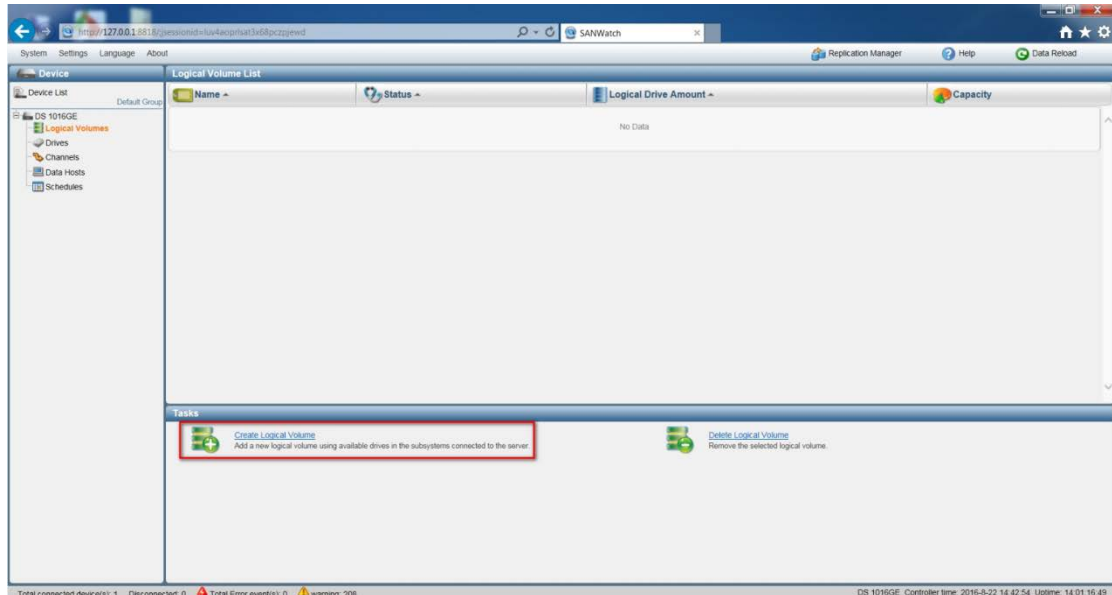


- For **Auto Discovery**, assign the scan range of IP address.



2.3 Create a new logical volume

- After adding the new storage device, select the storage device and click **Logical Volume** to create a logical volume.



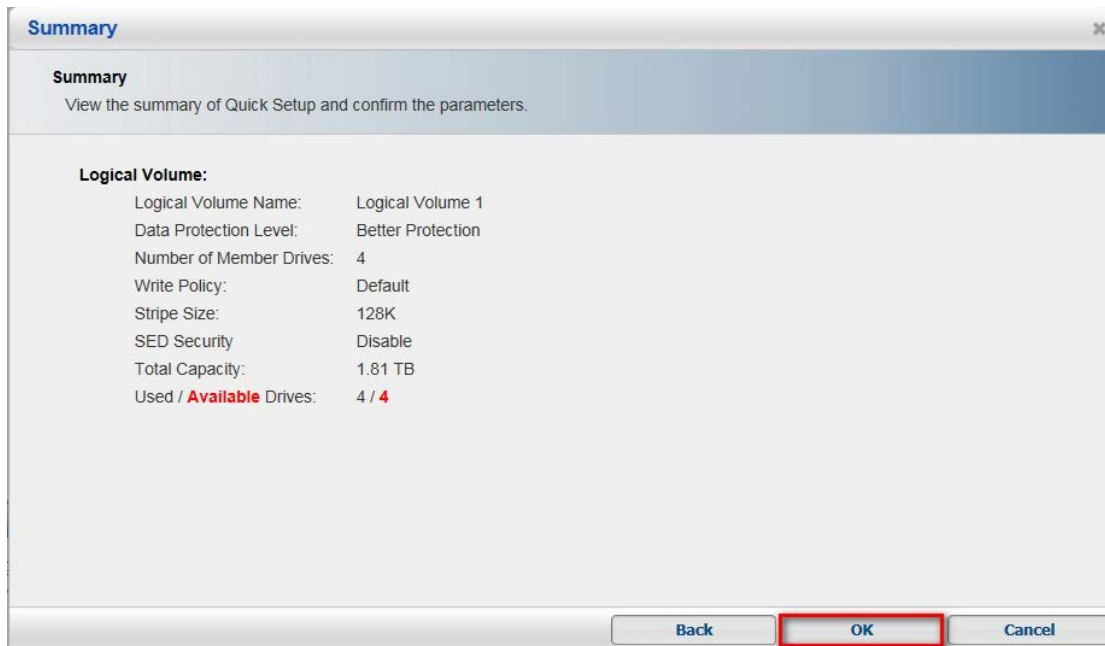
- Select the HDD and RAID level for this new logical volume and then click **Next**.

The 'Create Logical Volume' dialog box is shown. It has a title bar and a subtitle 'Create Logical Volume' with the instruction 'Create a logical volume and configure its parameters.' Below this, the 'Logical Volume Name' is set to 'Logical Volume 1'. There are four tabs: 'RAID' (selected), 'HDD', 'SSD', and 'Other'. The 'RAID' tab shows a grid of drive slots. Below the grid, the 'Number of Member Drives' is set to 4, 'Write Policy' is 'Default', 'Stripe Size' is '128K', and 'SED Security' is 'Disable'. The 'RAID Level' is set to 'RAID6' (highlighted with a red box). The 'Total Capacity' is '1.81 TB'. On the right, a table lists the selected drives:

| Slot | Size | Type |
|---------------------------------------|-----------|------|
| <input checked="" type="checkbox"/> 1 | 931.25 GB | SATA |
| <input checked="" type="checkbox"/> 2 | 931.25 GB | SATA |
| <input checked="" type="checkbox"/> 3 | 931.25 GB | SATA |
| <input checked="" type="checkbox"/> 4 | 931.25 GB | SATA |
| <input type="checkbox"/> 5 | 931.25 GB | SATA |
| <input type="checkbox"/> 6 | 931.25 GB | SATA |
| <input type="checkbox"/> 7 | 931.25 GB | SATA |
| <input type="checkbox"/> 15 | 931.25 GB | SATA |

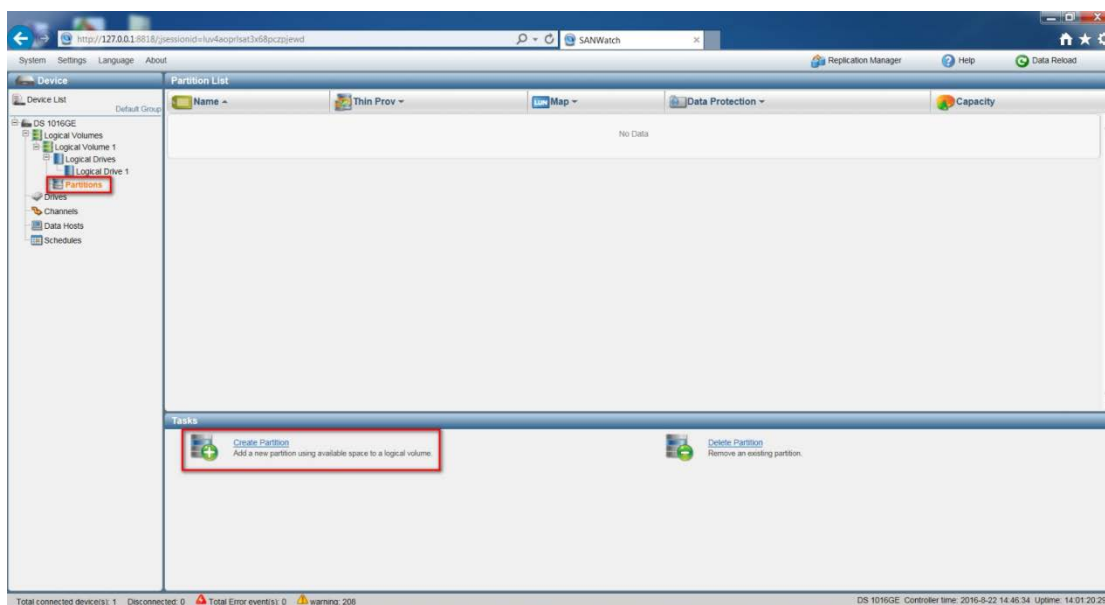
At the bottom right, there are 'Next' and 'Cancel' buttons.

- Check the summary and click **OK** to close it.

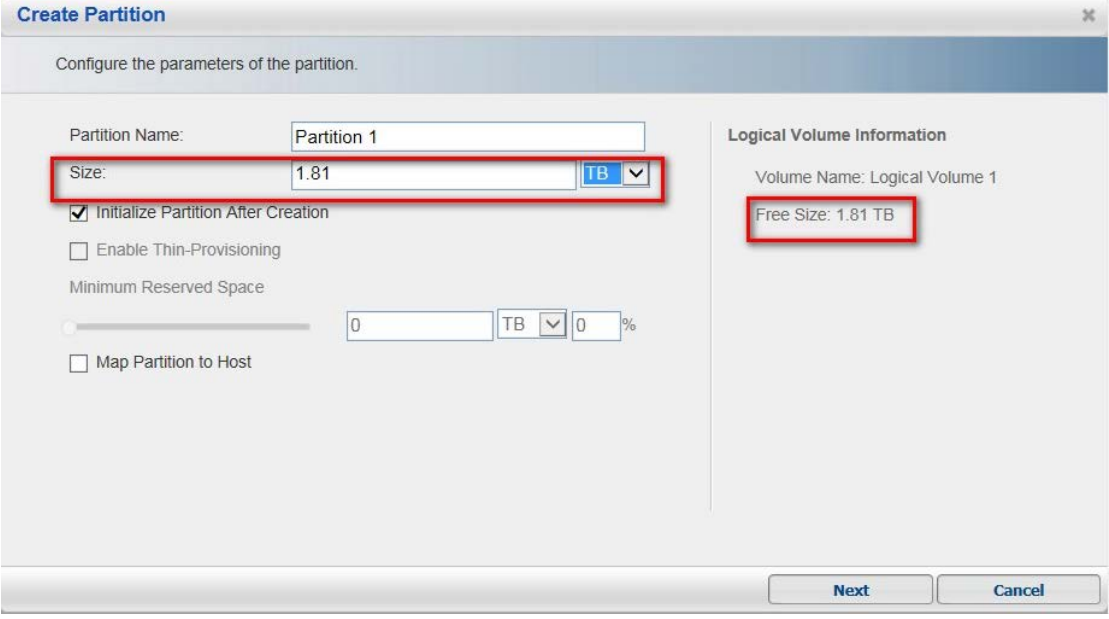


2.4 Create a new partition

- In the new logical volume, click **Partition** to create a partition.



- Create a new partition and assign the whole size to it.



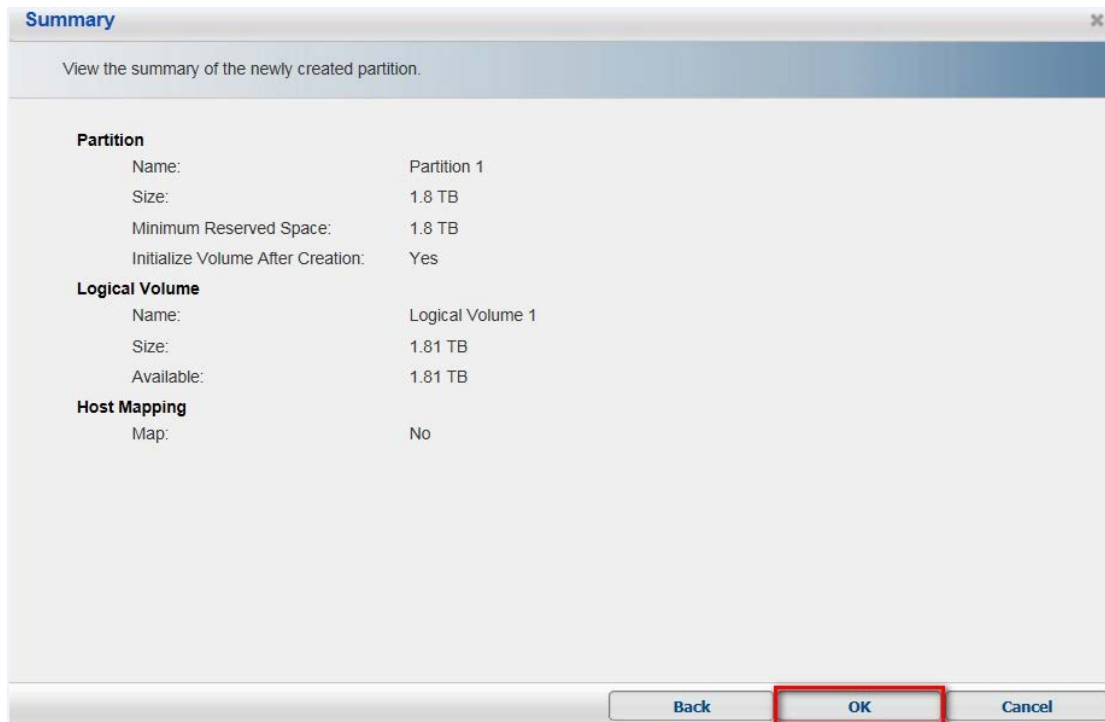
The 'Create Partition' dialog box is shown. It has a title bar with 'Create Partition' and a close button. Below the title bar is a subtitle 'Configure the parameters of the partition.' The main area is divided into two sections. The left section contains fields for 'Partition Name' (set to 'Partition 1'), 'Size' (set to '1.81' with a unit dropdown set to 'TB'), and checkboxes for 'Initialize Partition After Creation' (checked), 'Enable Thin-Provisioning' (unchecked), and 'Map Partition to Host' (unchecked). There is also a 'Minimum Reserved Space' slider and input fields (set to '0' TB and '0' %). The right section, titled 'Logical Volume Information', shows 'Volume Name: Logical Volume 1' and 'Free Size: 1.81 TB'. At the bottom right are 'Next' and 'Cancel' buttons. Red boxes highlight the 'Size' field and the 'Free Size' field.

- Click **Yes**.



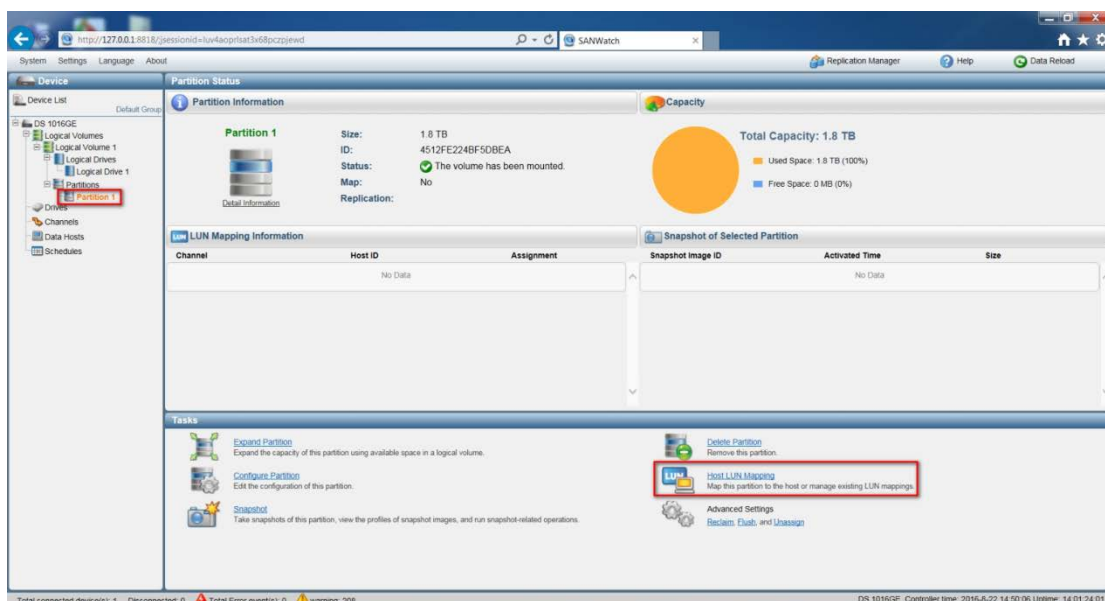
A 'Warning' dialog box is shown. It has a title bar with 'Warning' and a close button. The main area contains a yellow warning triangle icon and the text: 'The logical volume may not contain enough space for data service afterward. Are you sure you want to create the partition?'. At the bottom are 'Yes' and 'No' buttons. The 'Yes' button is highlighted with a red box.

- Click **OK** to finish creating the new partition.

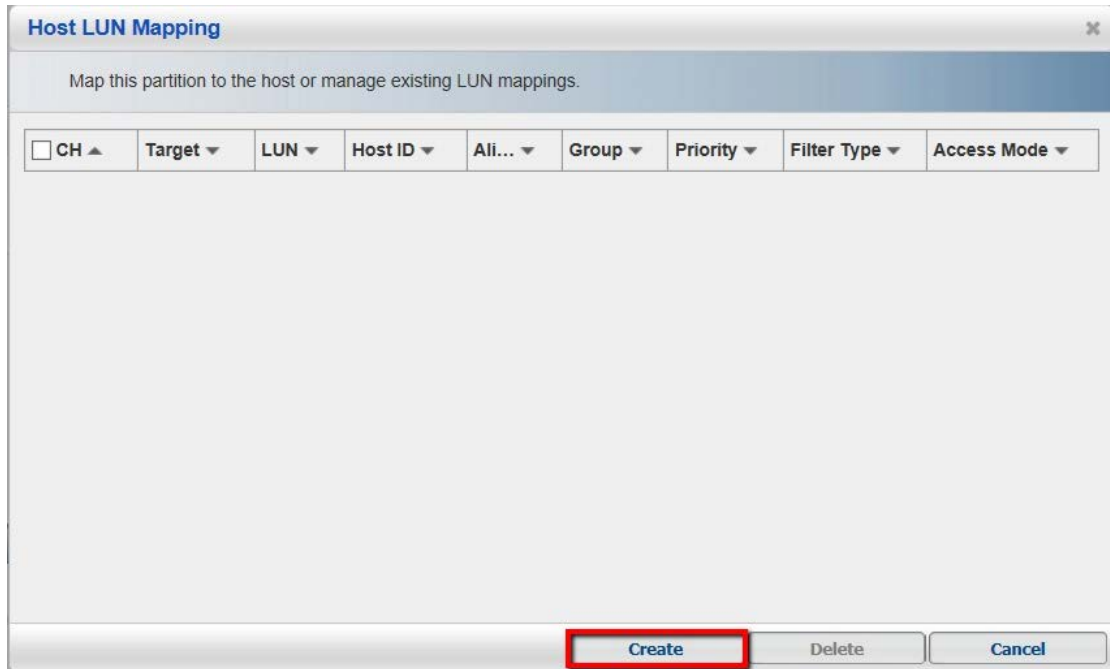


2.5 Host LUN Mapping

- Select the new partition and enter **Host LUN Mapping**.

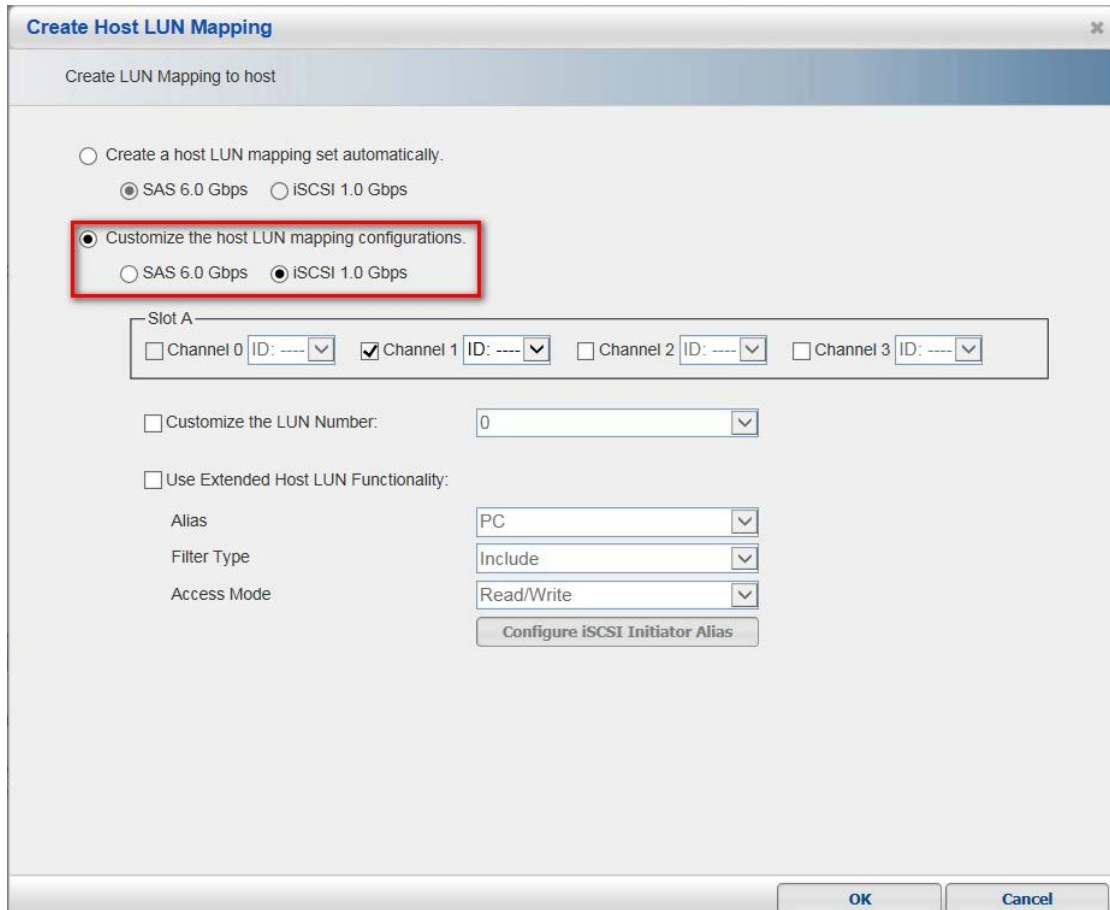


- Click **Create** to create LUN mapping.

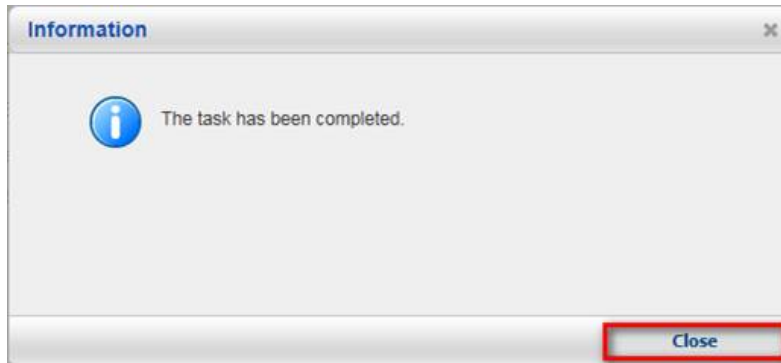


The **Host LUN Mapping** dialog box is shown. It has a title bar with a close button. Below the title bar is a blue header bar with the text "Map this partition to the host or manage existing LUN mappings." Below the header bar is a table with columns: CH, Target, LUN, Host ID, Ali..., Group, Priority, Filter Type, and Access Mode. The table is currently empty. At the bottom of the dialog box are three buttons: **Create**, **Delete**, and **Cancel**. The **Create** button is highlighted with a red rectangle.

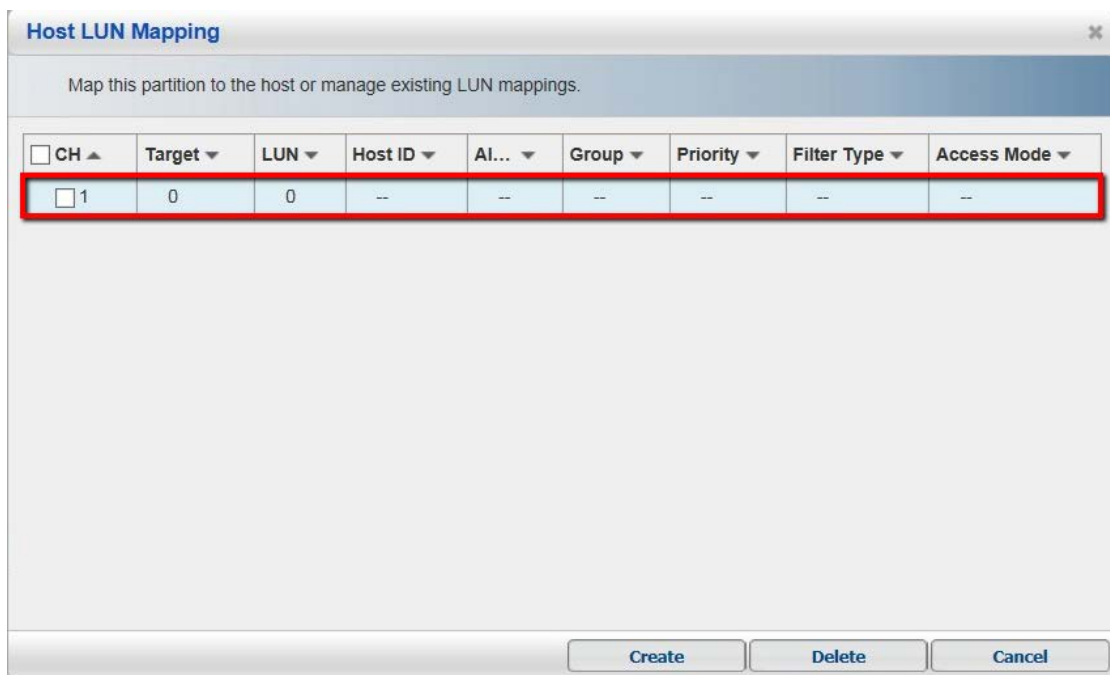
- Choose **Customize the host LUN mapping configurations** and then select the channel. Click **OK** and **Close**.



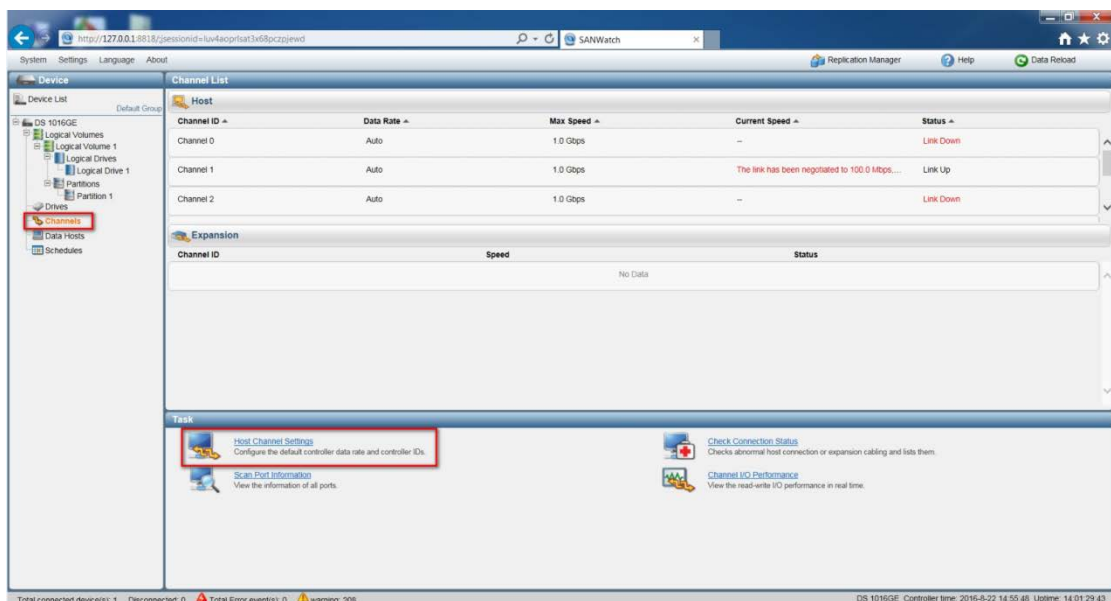
The **Create Host LUN Mapping** dialog box is shown. It has a title bar with a close button. Below the title bar is a blue header bar with the text "Create LUN Mapping to host". Below the header bar are two radio buttons: "Create a host LUN mapping set automatically." and "Customize the host LUN mapping configurations." The second radio button is selected and highlighted with a red rectangle. Below the radio buttons are two sub-radio buttons: "SAS 6.0 Gbps" and "iSCSI 1.0 Gbps". The "iSCSI 1.0 Gbps" radio button is selected. Below the radio buttons is a section labeled "Slot A" with four checkboxes: "Channel 0", "Channel 1", "Channel 2", and "Channel 3". The "Channel 1" checkbox is checked. Below the "Slot A" section are three checkboxes: "Customize the LUN Number:", "Use Extended Host LUN Functionality:", and "Configure iSCSI Initiator Alias". The "Customize the LUN Number:" checkbox is checked, and the "LUN Number" is set to 0. The "Use Extended Host LUN Functionality:" checkbox is checked, and the "Alias" is set to "PC", "Filter Type" is set to "Include", and "Access Mode" is set to "Read/Write". The "Configure iSCSI Initiator Alias" button is disabled. At the bottom of the dialog box are two buttons: **OK** and **Cancel**.



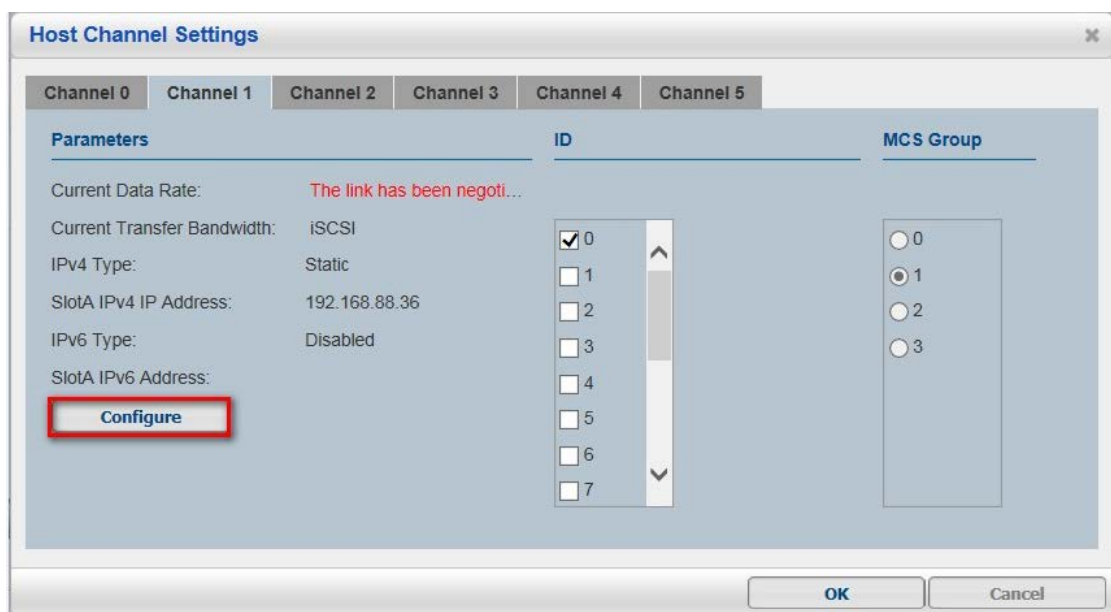
- In the table, you will see the channel that has just been created. Click **Cancel** to exit.



- Click **Channel** and **Host Channel Settings**.



- Select the channel that was just created and then click **Configure**.



- Configure this channel's IP address and then click **OK** and **Yes**.

Configure IP Address [X]

Select the type of the IP address and related settings for the network interface.

IPv4

Type: ☒ Static ☐ DHCP
(MAC Address: 00:D0:23:42:BB:94)

IP Address: 172.30.10.211

Subnet Mask: 255.255.255.0

Default Gateway: 172.30.10.254 [X]

IPv6

Type: ☐ Static ☐ Auto ☒ Disable


IPv6 Address:

Subnet Prefix Length:

Route:

[OK] [Cancel]

Modify IP Address [X]

 Do you want to apply the changes?

[Yes] [No]

- Then, you will see the IP has been assigned.

Host Channel Settings [X]

Channel 0 Channel 1 Channel 2 Channel 3 Channel 4 Channel 5

Parameters ID MCS Group

Current Data Rate: The link has been negoti...

Current Transfer Bandwidth: iSCSI

IPv4 Type: Static

SlotA IPv4 IP Address: 172.30.10.211

IPv6 Type: Disabled

SlotA IPv6 Address:

[Configure]

ID

☒ 0
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7

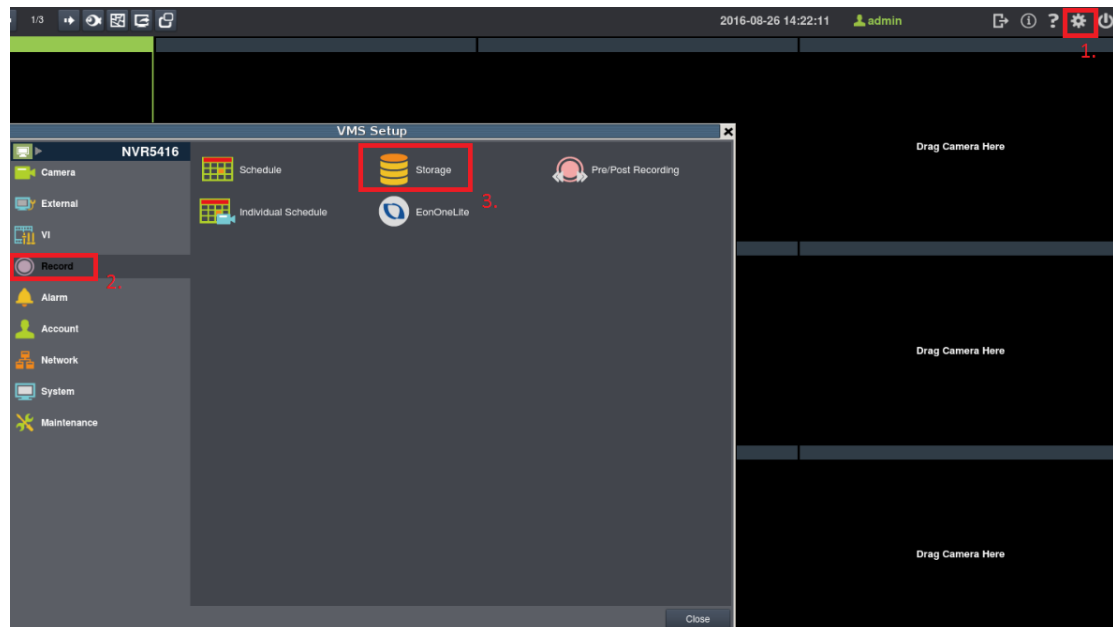
MCS Group

☐ 0
☒ 1
☐ 2
☐ 3

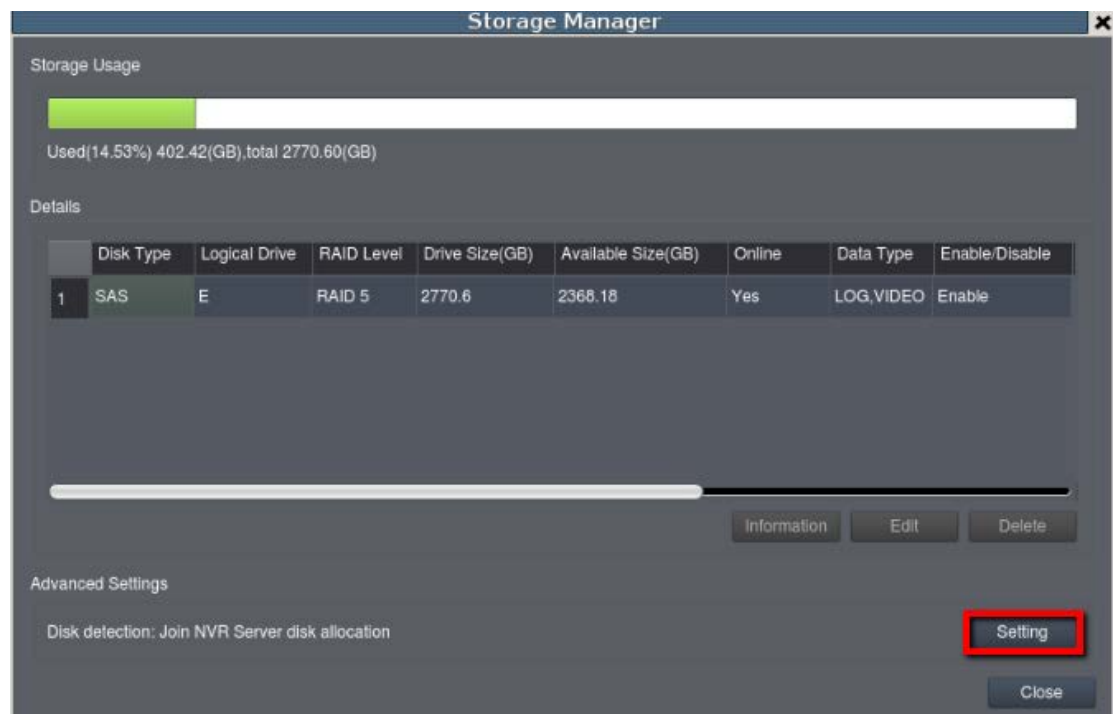
[OK] [Cancel]

3. Adding an iSCSI storage into Linux NVR

- Go to local NVR server → Setup → Record → Storage.



- Click **Setting**.



- Select IP Storage → Add.

Advanced Settings

General **IP Storage** NAS

Initiator Name
iqn.1993-08.org.debian:01:a6e04c73cd8

To authenticate targets using CHAP, click CHAP to specify a CHAP secret. CHAP

Target Portals

| Host Address | Address | Port |
|--------------|---------|------|
|--------------|---------|------|

Add Delete Refresh Targets

Close

■ Enter the iSCSI IP.

Type the Host Address to config your iSCSI: enter the storage device's LAN IP here. (e.g., we set the IP as 172.30.10.241 in this document)

Data Address: enter the storage device's Channel IP here. (e.g., we set the IP as 172.30.10.211 in this document)

Add Target Portal

Type the Host Address to config your iSCSI

172.30.10.241

Data Address: 172.30.10.211 Port: 3260

OK Cancel

■ Choose **Targets**.

Advanced Settings

General IP Storage **NAS**

Initiator Name
iqn.1993-08.org.debian:01:a6e04c73cd8

To authenticate targets using CHAP, click CHAP to specify a CHAP secret. CHAP

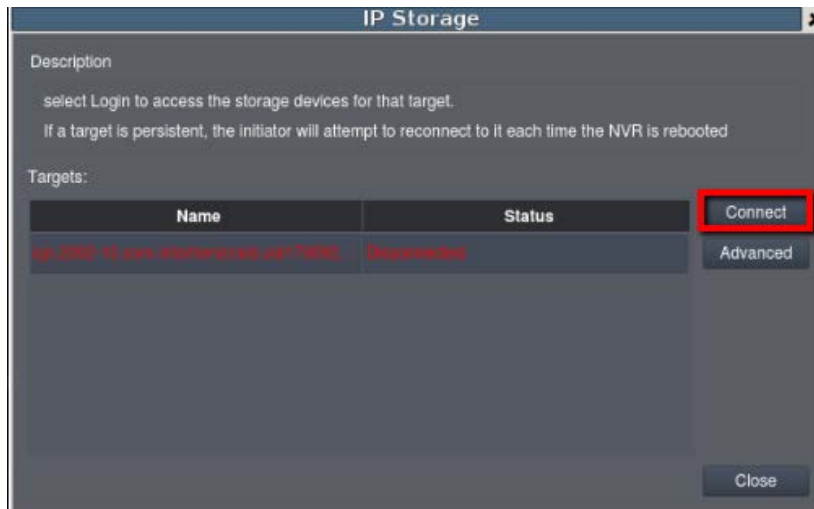
Target Portals

| Host Address | Address | Port |
|---------------|---------------|------|
| 172.30.10.241 | 172.30.10.211 | 3260 |

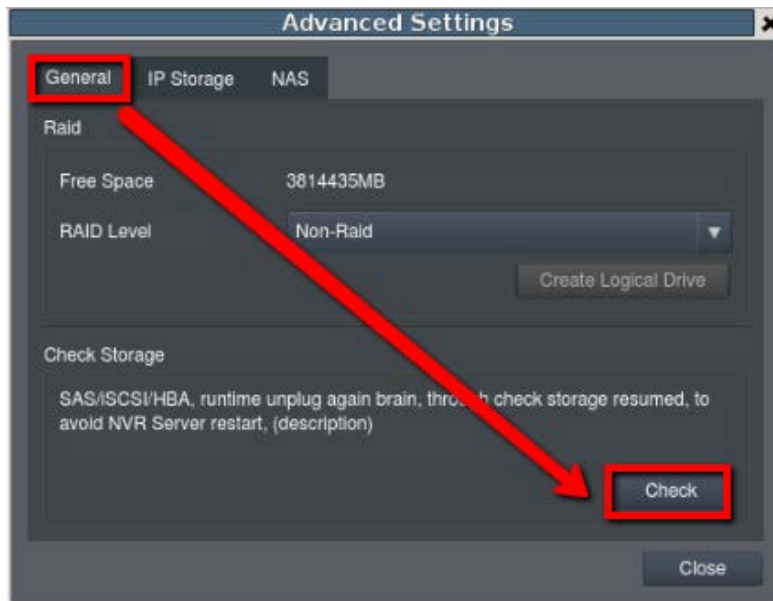
Add Delete Refresh **Targets**

Close

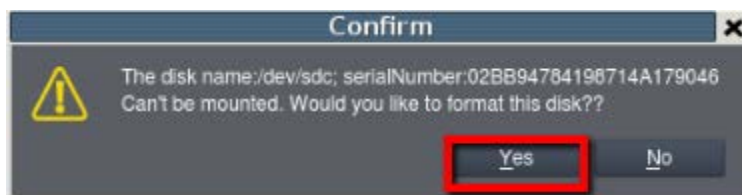
- Click **Connect**. After connecting, the status will become “Connected.” Then, click **Close**.



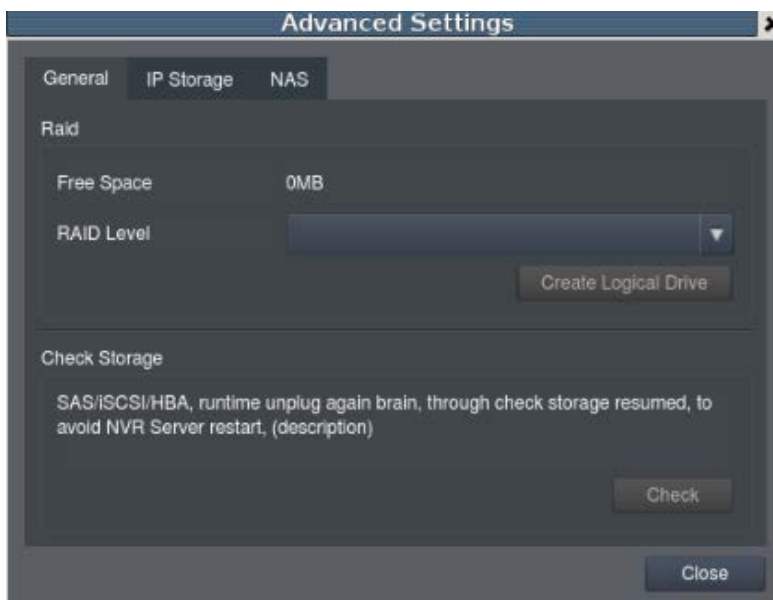
- Enter General ➔ Check.



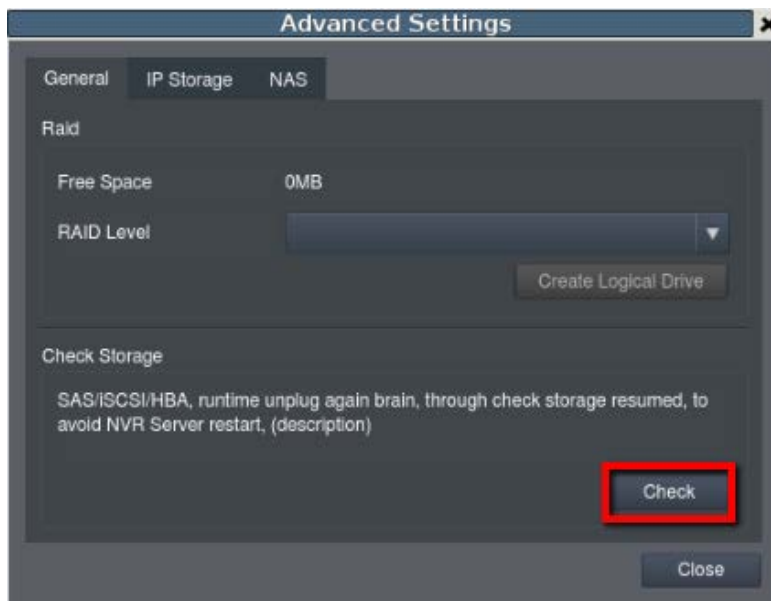
- NVR will show the message to ask whether to format the disk. Click **Yes** to format the disk.



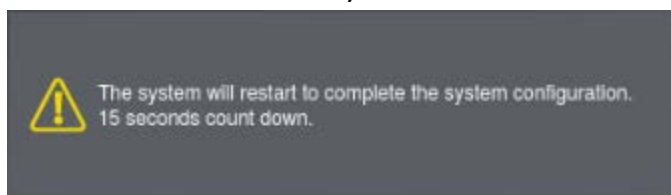
- When NVR is formatting the disk, the **Check** button will become gray.



- When it is finished, the **Check** button will become available. Click **Check** again.



- NVR will automatically restart in 15 seconds.



- After NVR starts up, go to Setup → Record → Storage and you will see the iSCSI storage has been added to NVR.

