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# How to expand iSCSI for NVR5416

Application Notes

Version <1.0>

## 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

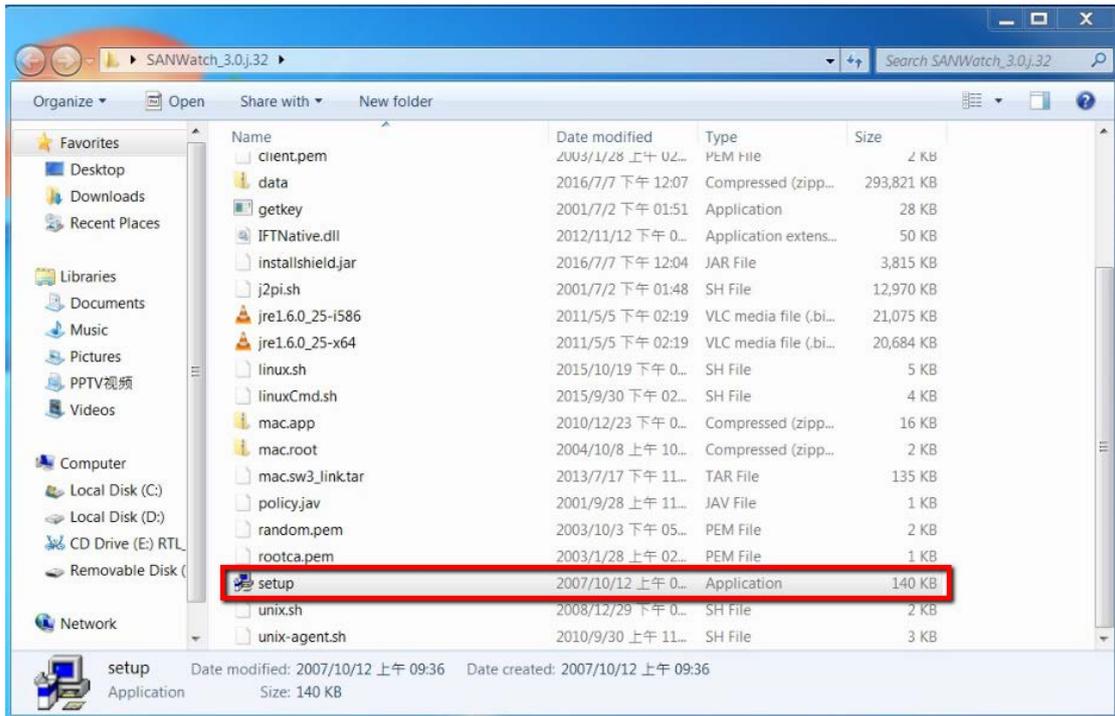
### 2.1 Install SANWatch and log in

- SANWatch download link:  
[https://www.dropbox.com/home/Surveon/Public/Tool?preview=SANWatch\\_3.0.j.27.zip](https://www.dropbox.com/home/Surveon/Public/Tool?preview=SANWatch_3.0.j.27.zip)

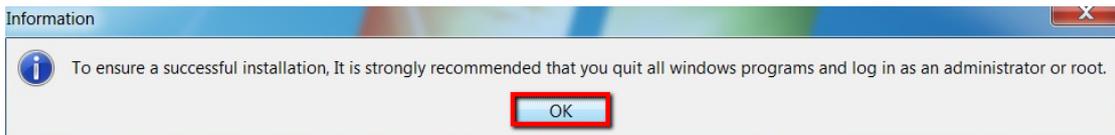
- Click SANWatch after you download and unzip it.



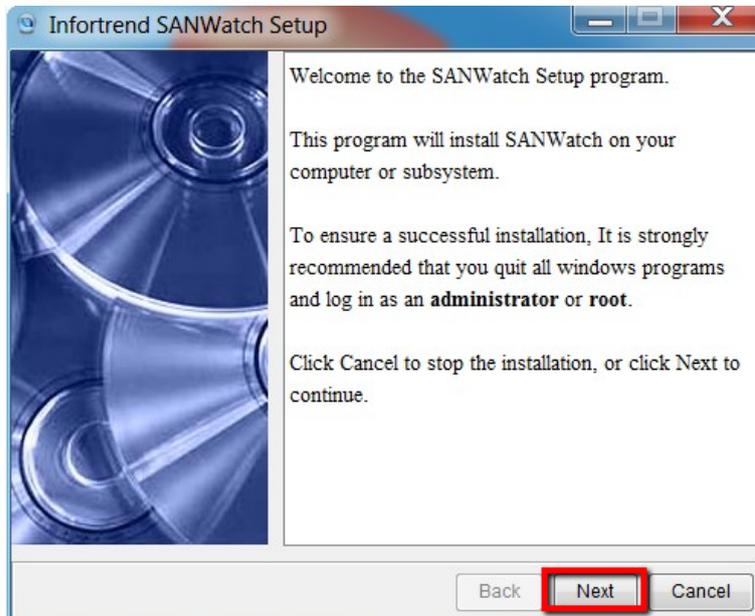
- Open the file folder and double-click **setup** to install it.



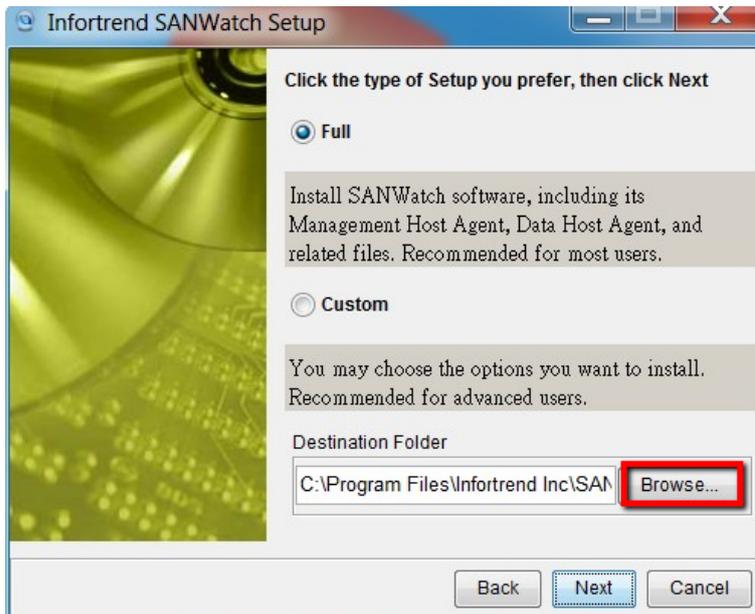
- Click OK.



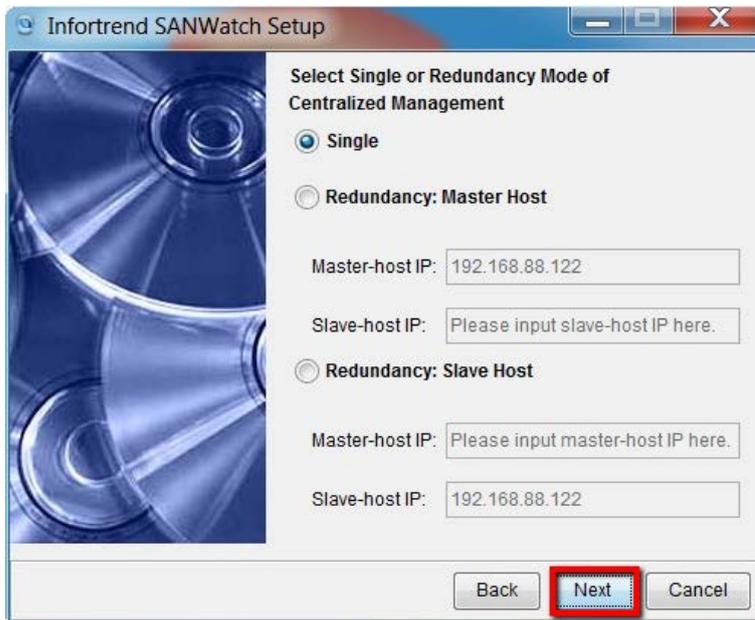
- Install it step by step.



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



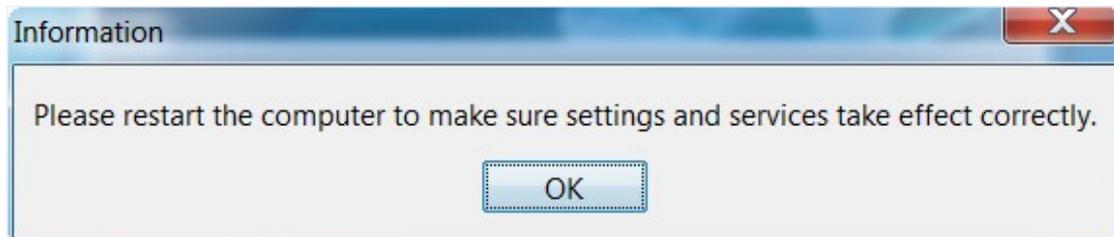
- Click **Next**.



- Wait for SANWatch installation to finish.



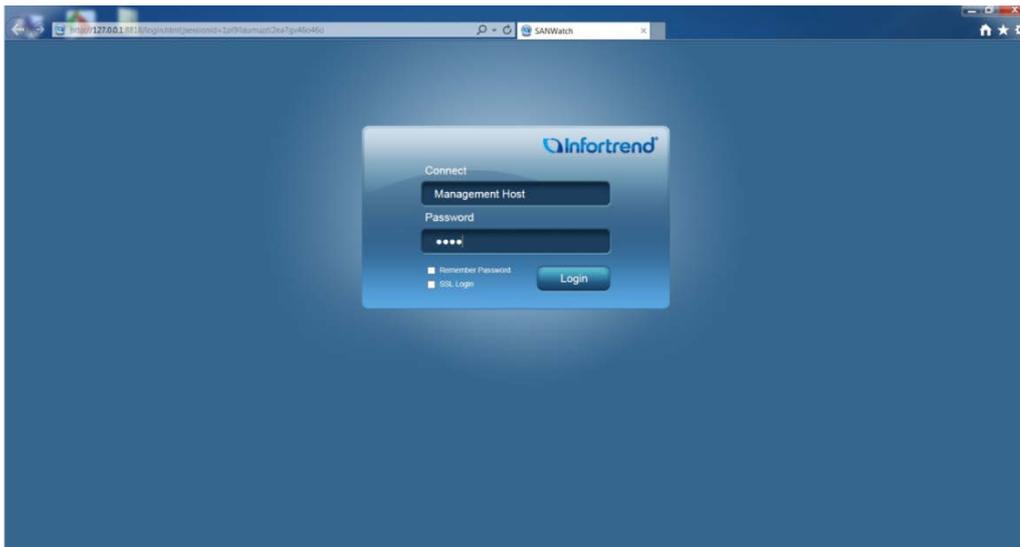
- You will see the following message after the installation is completed successfully. Close all programs and restart your PC.



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

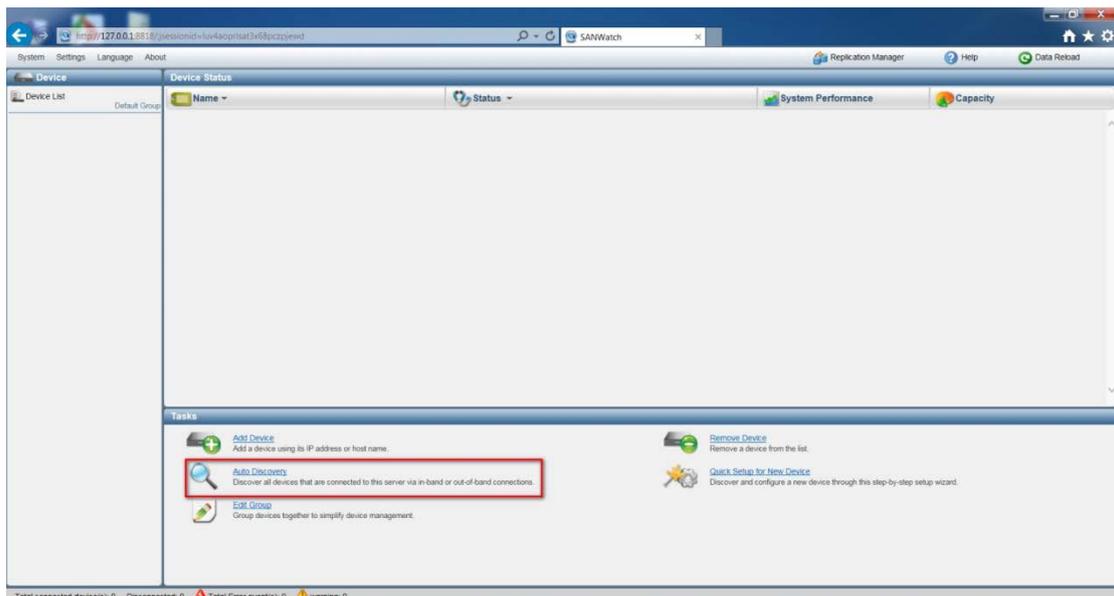


- Log onto SANWatch (the default password is "root").

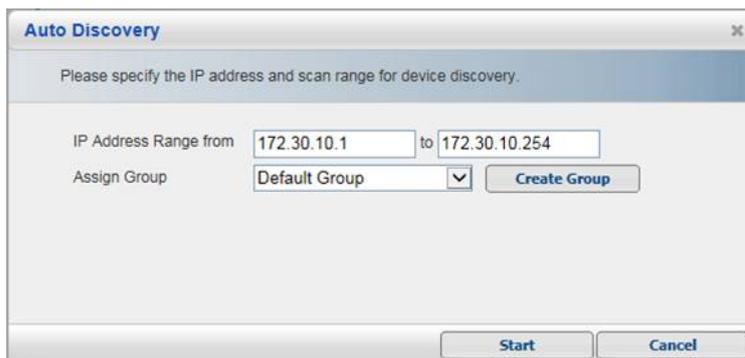


## 2.2 Add a new storage device

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

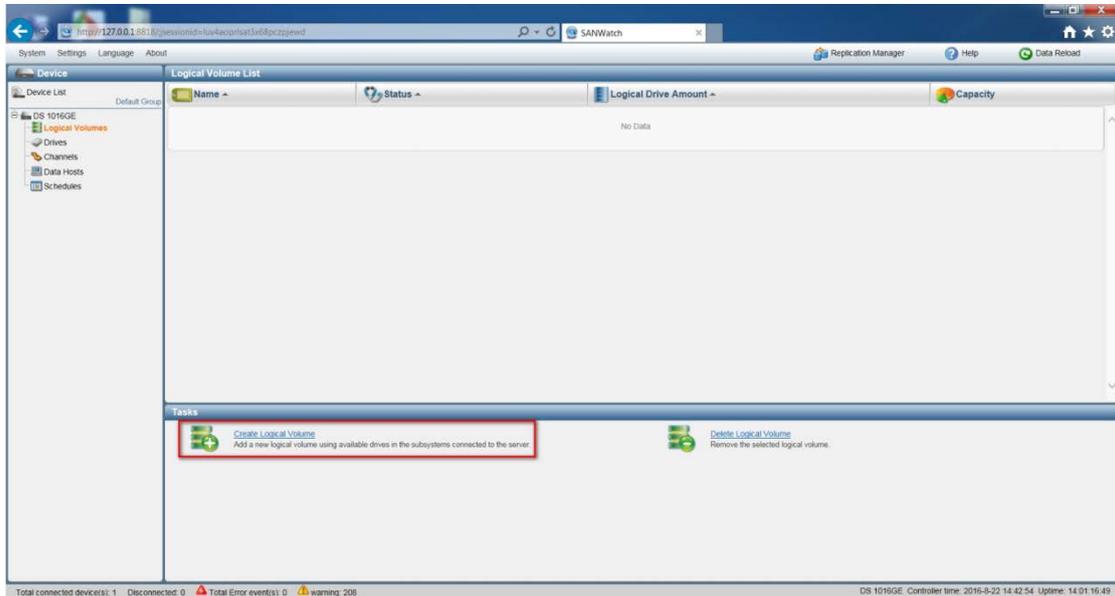


- For **Auto Discovery**, assign the scan range of IP address.

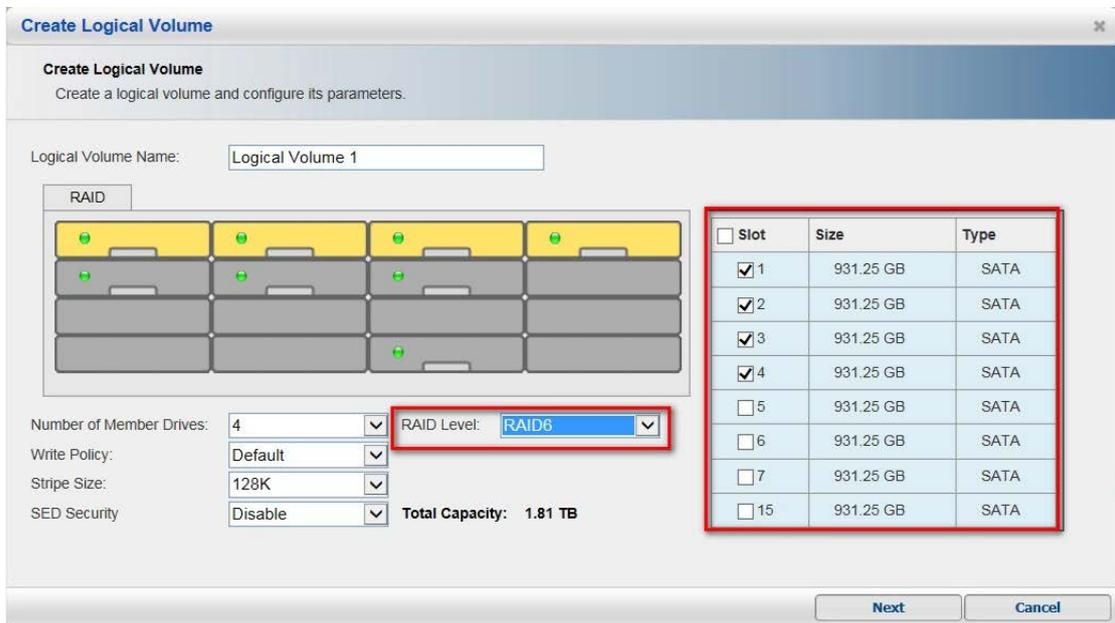


## 2.3 Create a new logical volume

- 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**.

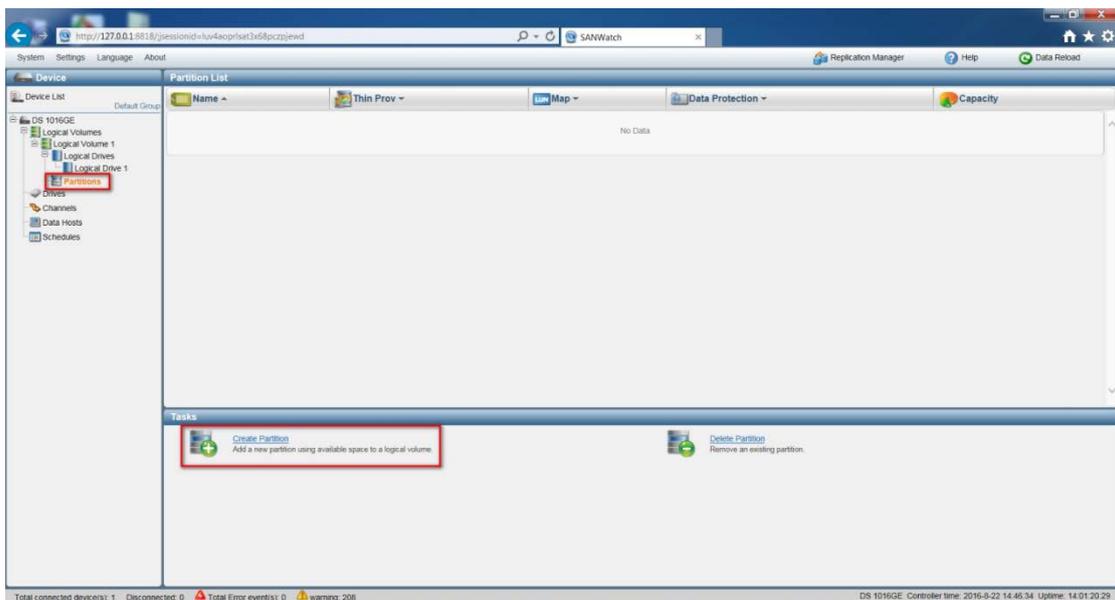


- Check the summary and click **OK** to close it.

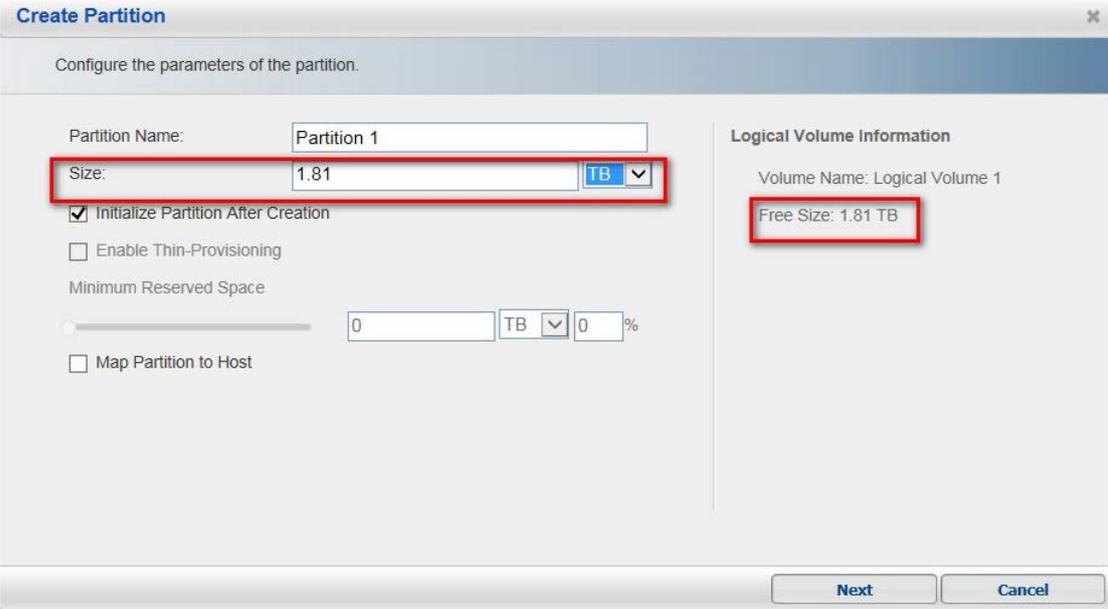


## 2.4 Create a new partition

- 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 with the following configuration:

- Partition Name: Partition 1
- Size: 1.81 TB (highlighted with a red box)
- Initialize Partition After Creation
- Enable Thin-Provisioning
- Minimum Reserved Space: 0 TB 0 %
- Map Partition to Host

Logical Volume Information:

- Volume Name: Logical Volume 1
- Free Size: 1.81 TB (highlighted with a red box)

Buttons: Next, Cancel

- Click Yes.

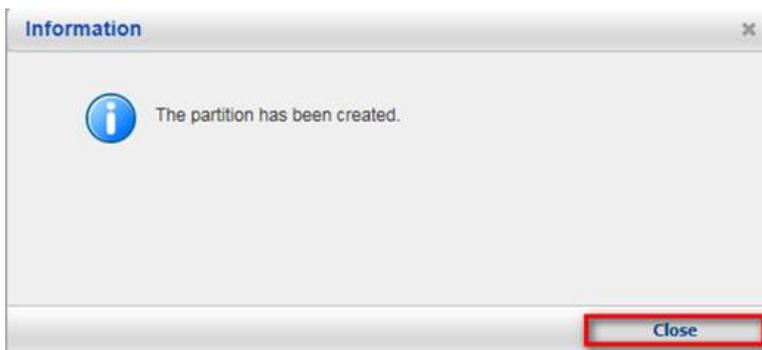
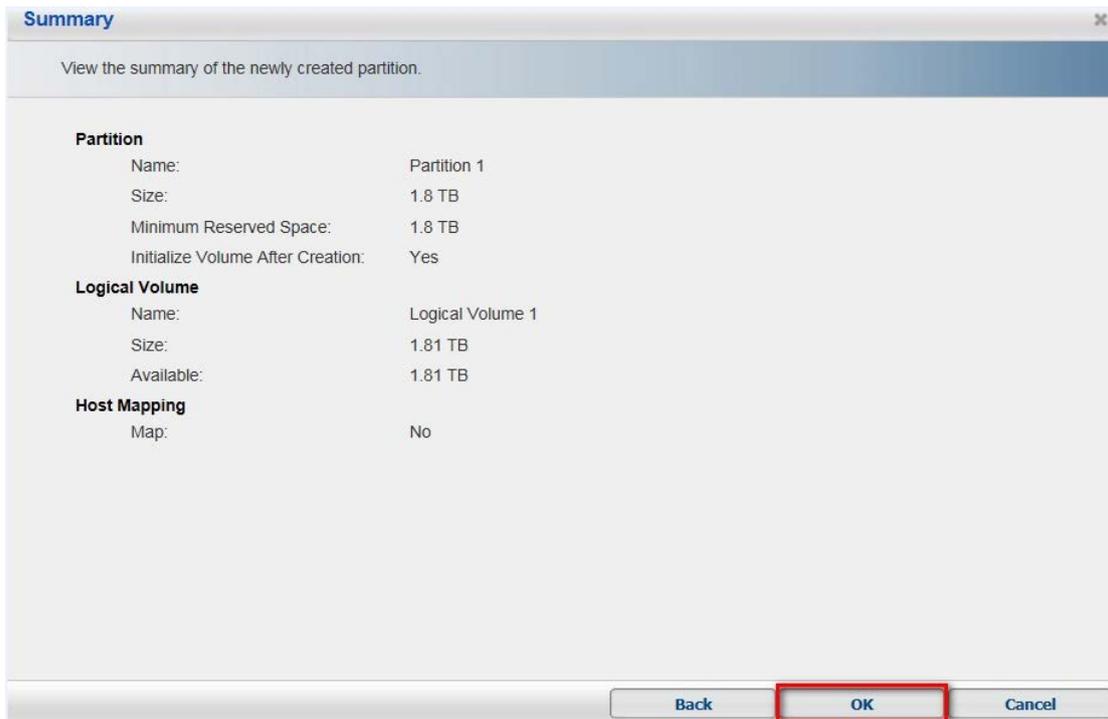


The 'Warning' dialog box contains the following text:

 The logical volume may not contain enough space for data service afterward. Are you sure you want to create the partition?

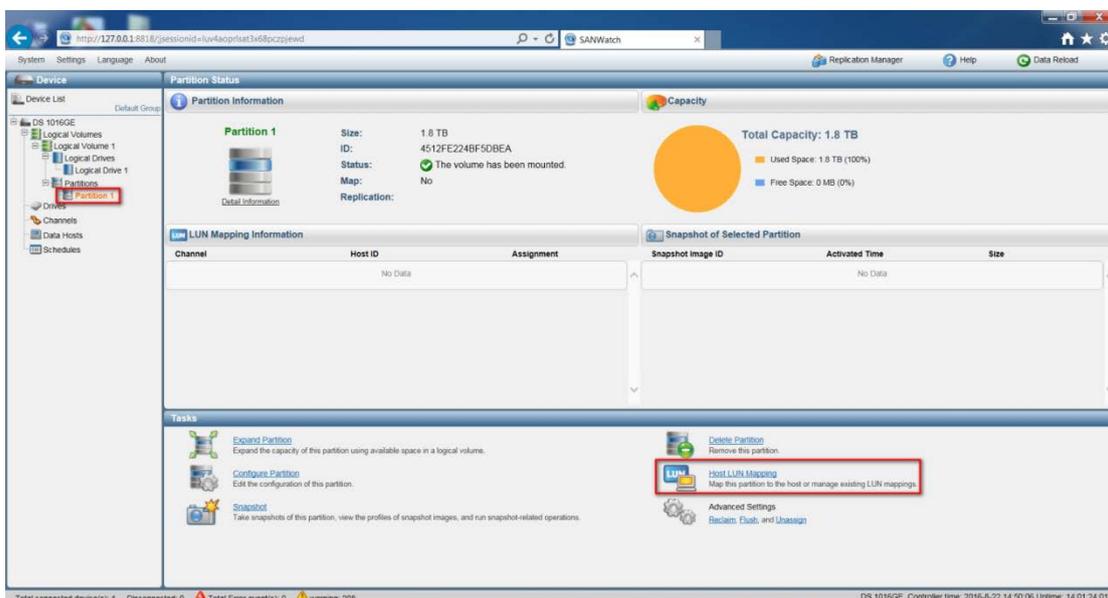
Buttons: Yes (highlighted with a red box), No

- Click OK to finish creating the new partition.

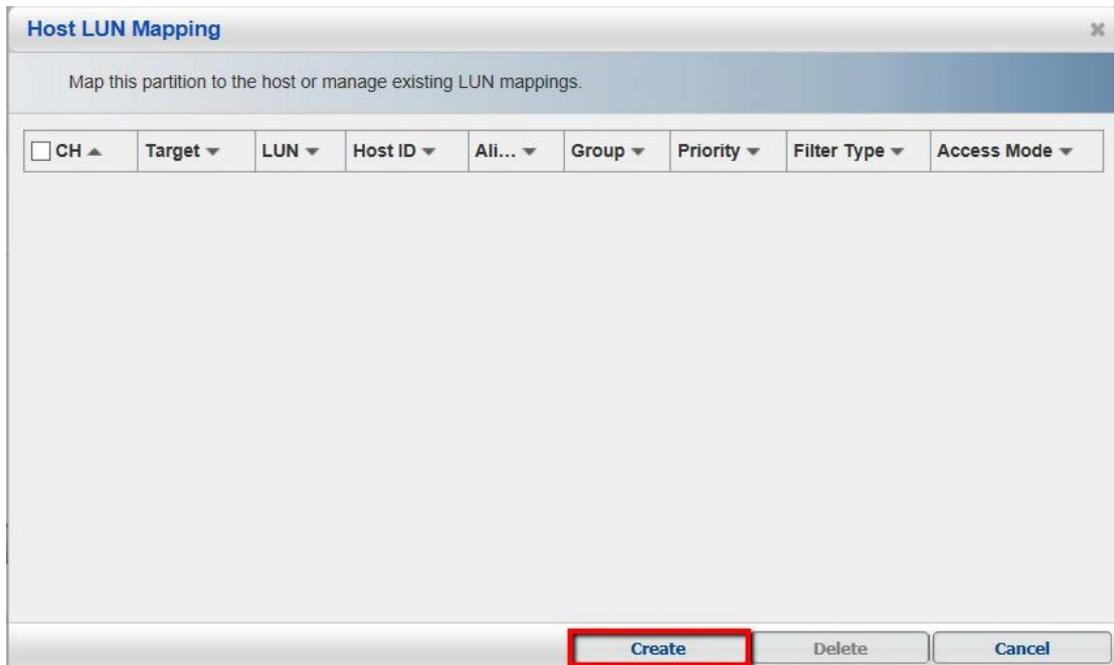


## 2.5 Host LUN Mapping

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

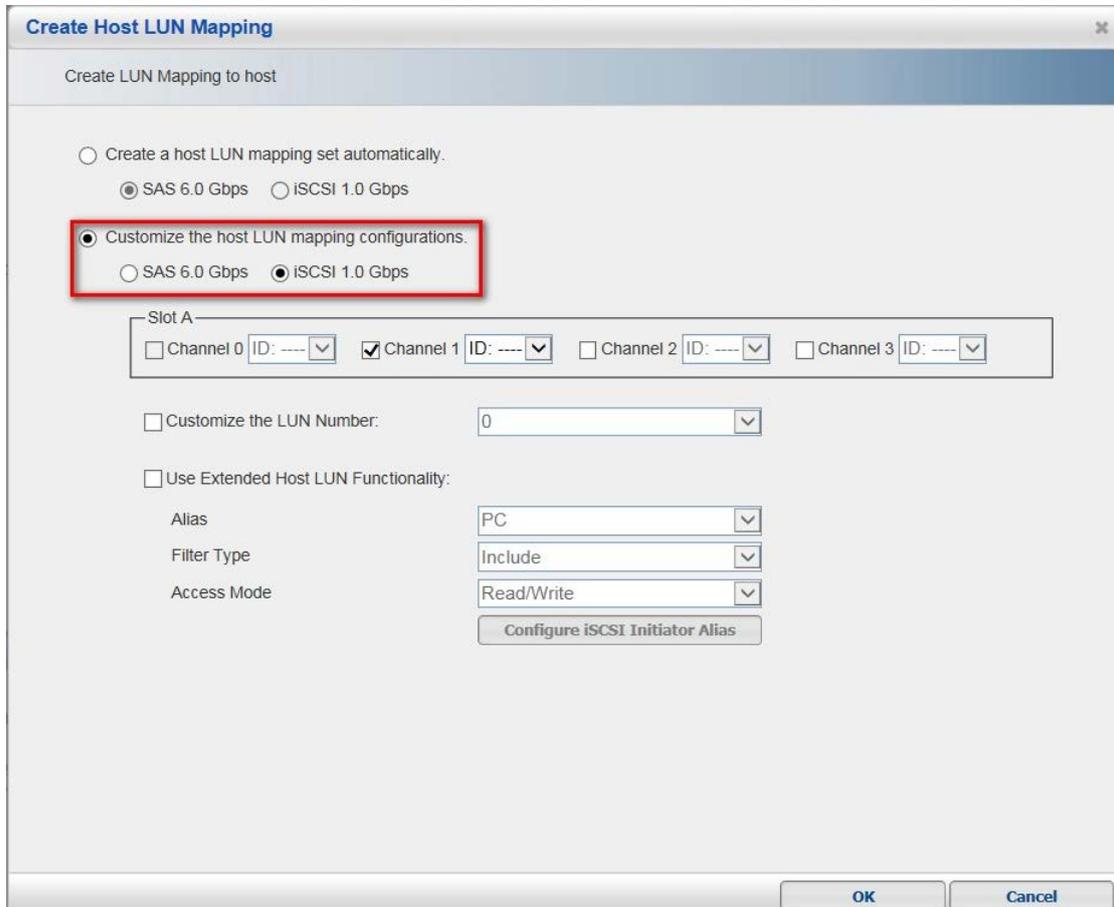


- Click **Create** to create LUN mapping.



The image shows a dialog box titled "Host LUN Mapping" with a close button (X) in the top right corner. Below the title bar is a blue header with the text "Map this partition to the host or manage existing LUN mappings." Below the header is a table with columns: CH (checkbox), Target (dropdown), LUN (dropdown), Host ID (dropdown), Ali... (dropdown), Group (dropdown), Priority (dropdown), Filter Type (dropdown), and Access Mode (dropdown). The table is currently empty. At the bottom of the dialog, there are three buttons: "Create" (highlighted with a red box), "Delete", and "Cancel".

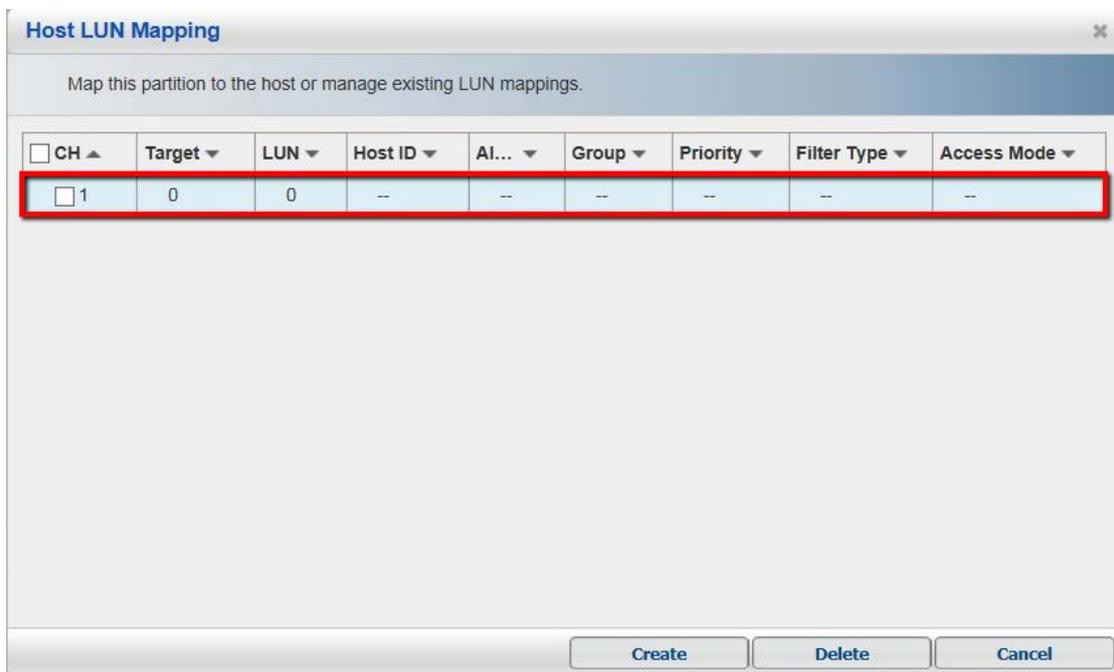
- Choose **Customize the host LUN mapping configurations** and then select the channel. Click **OK** and **Close**.



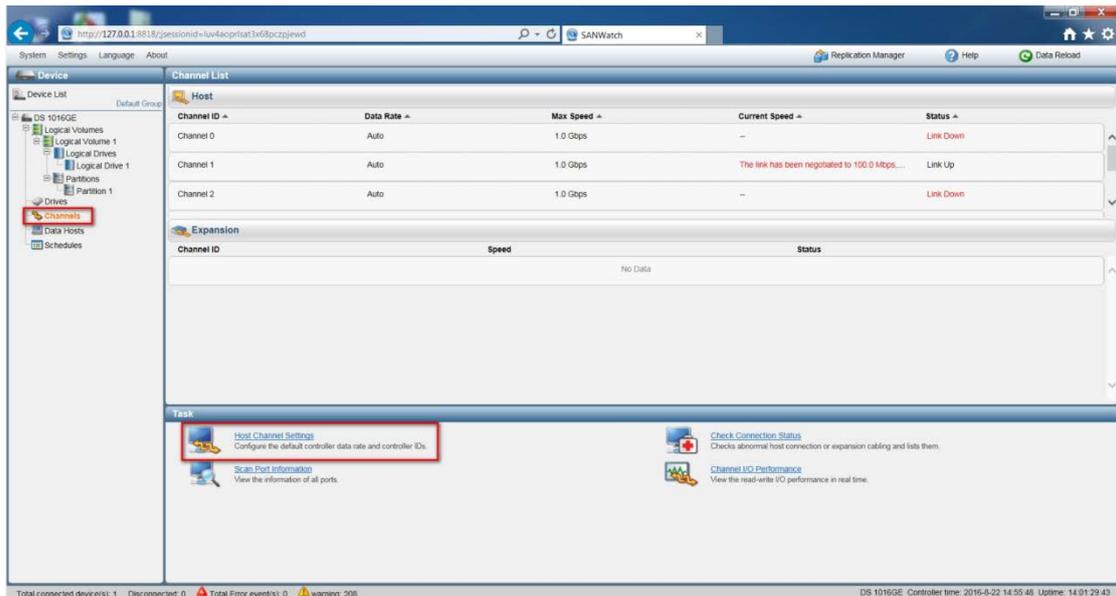
The image shows a dialog box titled "Create Host LUN Mapping" with a close button (X) in the top right corner. Below the title bar is a blue header with the text "Create LUN Mapping to host". Below the header are two radio button options: "Create a host LUN mapping set automatically." (with sub-options "SAS 6.0 Gbps" and "iSCSI 1.0 Gbps") and "Customize the host LUN mapping configurations." (with sub-options "SAS 6.0 Gbps" and "iSCSI 1.0 Gbps"). The "Customize the host LUN mapping configurations." option is selected and highlighted with a red box. Below this is a "Slot A" section with four channel options: "Channel 0 ID: ----" (checkbox), "Channel 1 ID: ----" (checkbox checked), "Channel 2 ID: ----" (checkbox), and "Channel 3 ID: ----" (checkbox). Below the channels are three checkboxes: "Customize the LUN Number:" (checkbox) with a dropdown set to "0", "Use Extended Host LUN Functionality:" (checkbox), and "Alias" (checkbox) with a dropdown set to "PC". Below these are three dropdown menus: "Filter Type" (set to "Include"), "Access Mode" (set to "Read/Write"), and a "Configure iSCSI Initiator Alias" button. At the bottom of the dialog, there are two buttons: "OK" and "Cancel".



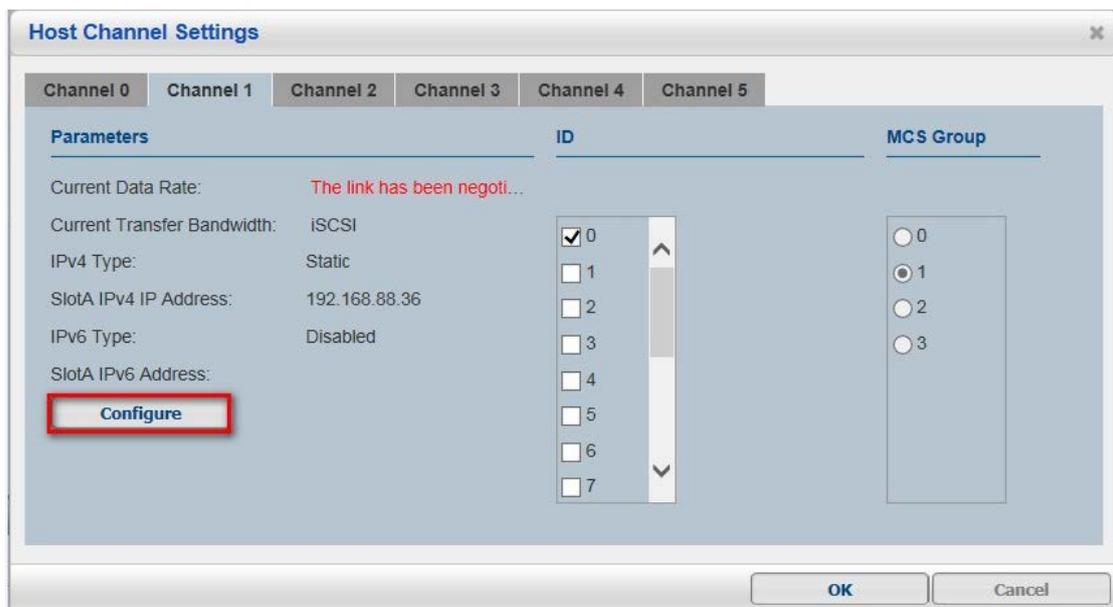
- In the table, you will see the channel that has just been created. Click **Cancel** to exit.



- 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** ✕

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:

Subnet Mask:

Default Gateway:  ✕

IPv6

Type:  Static  Auto  Disable

IPv6 Address:

Subnet Prefix Length:

Route:

**OK** Cancel

**Modify IP Address** ✕

 Do you want to apply the changes?

**Yes** No

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

**Host Channel Settings** ✕

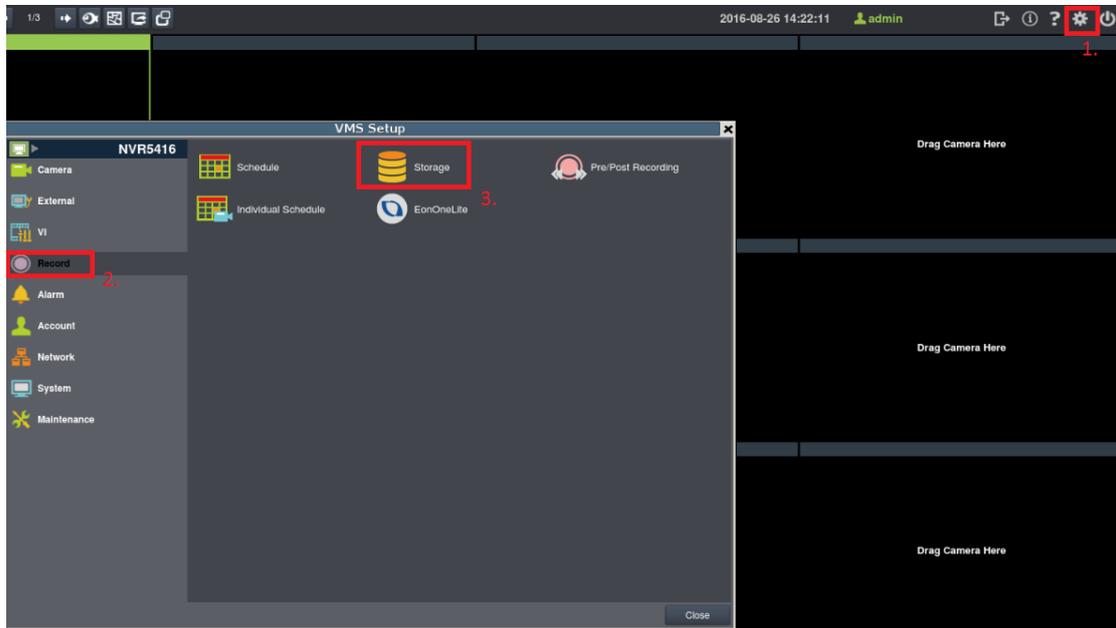
Channel 0 Channel 1 Channel 2 Channel 3 Channel 4 Channel 5

Parameters	ID	MCS Group
Current Data Rate: <span style="color: red;">The link has been negoti...</span>		
Current Transfer Bandwidth: iSCSI	<input checked="" type="checkbox"/> 0	<input type="radio"/> 0
IPv4 Type: Static	<input type="checkbox"/> 1	<input checked="" type="radio"/> 1
<b>SlotA IPv4 IP Address: 172.30.10.211</b>	<input type="checkbox"/> 2	<input type="radio"/> 2
IPv6 Type: Disabled	<input type="checkbox"/> 3	<input type="radio"/> 3
SlotA IPv6 Address:	<input type="checkbox"/> 4	
<input type="button" value="Configure"/>	<input type="checkbox"/> 5	
	<input type="checkbox"/> 6	
	<input type="checkbox"/> 7	

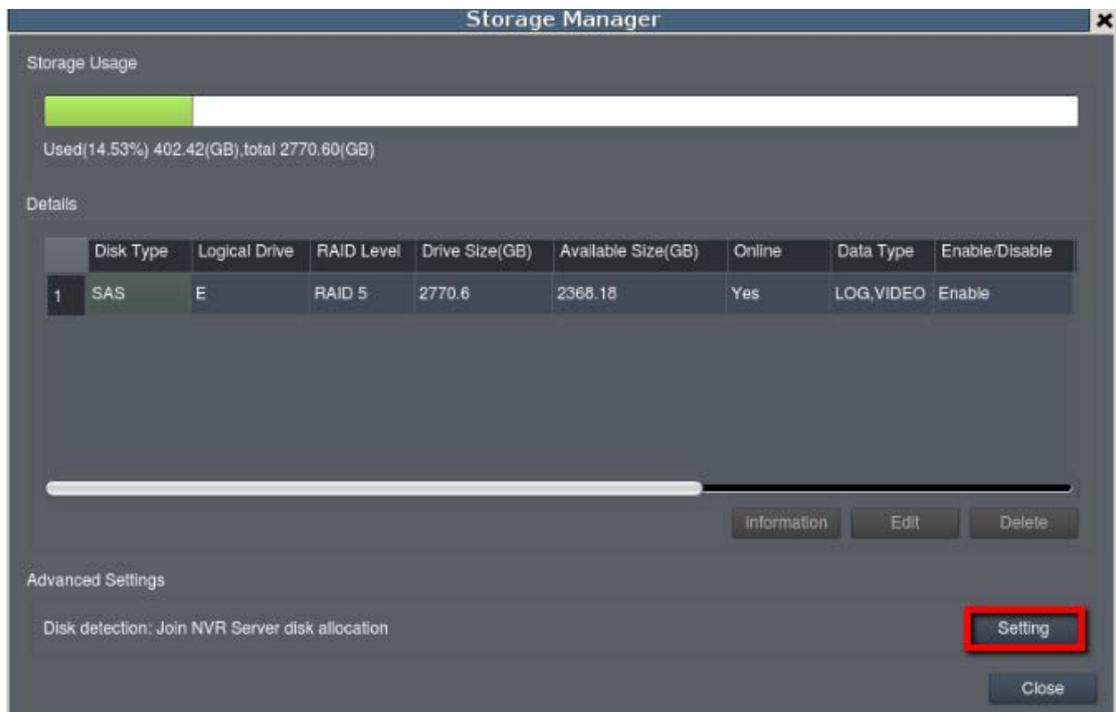
**OK** Cancel

### 3. Adding an iSCSI storage into Linux NVR

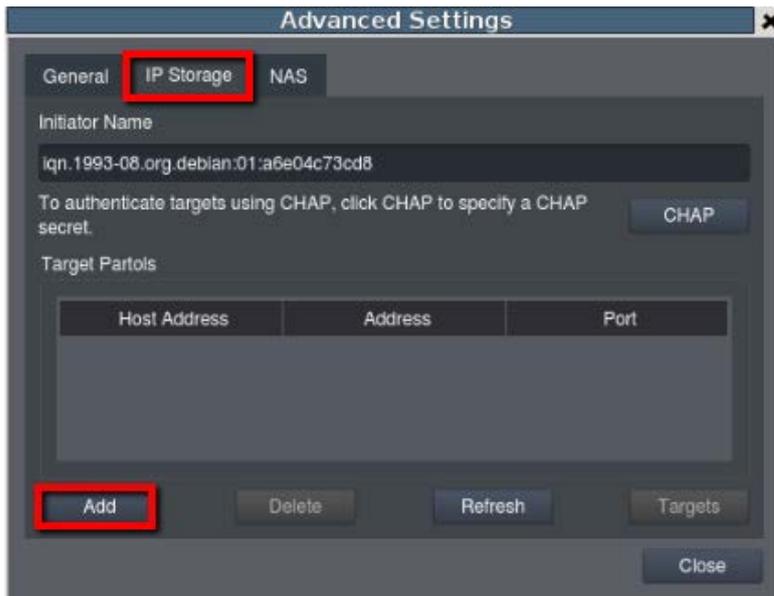
- Go to local NVR server → Setup → Record → Storage.



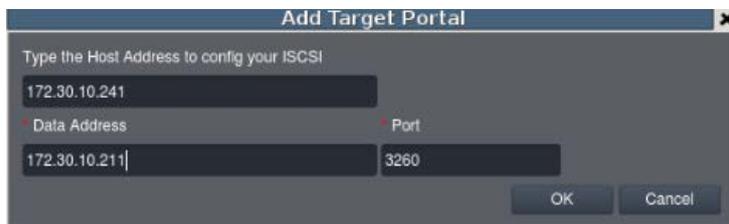
- Click **Setting**.



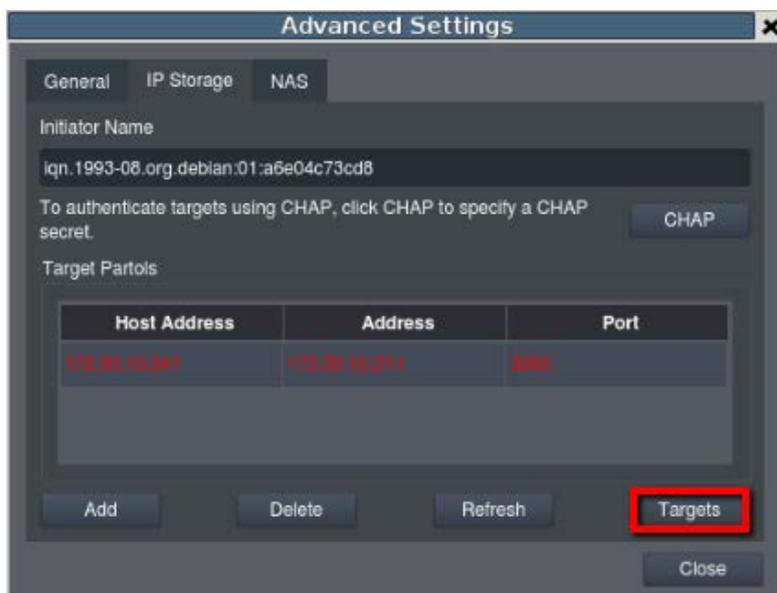
- Select IP Storage → Add.



- 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)



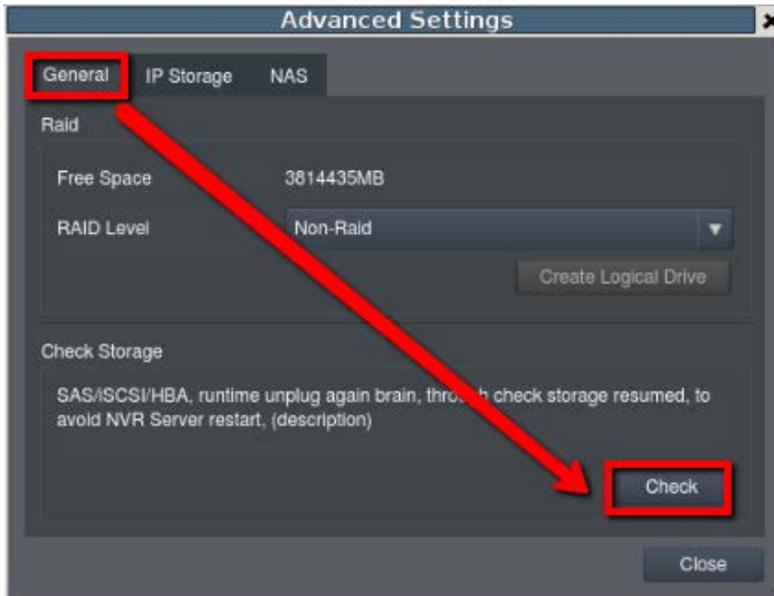
- Choose **Targets**.



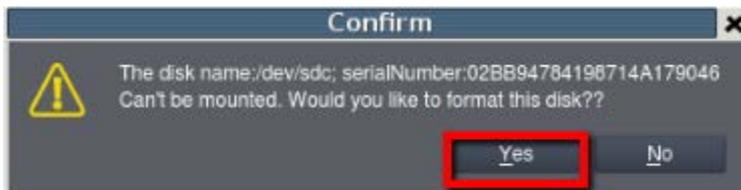
- Click **Connect**. After connecting, the status will become “Connected.” Then, click **Close**.



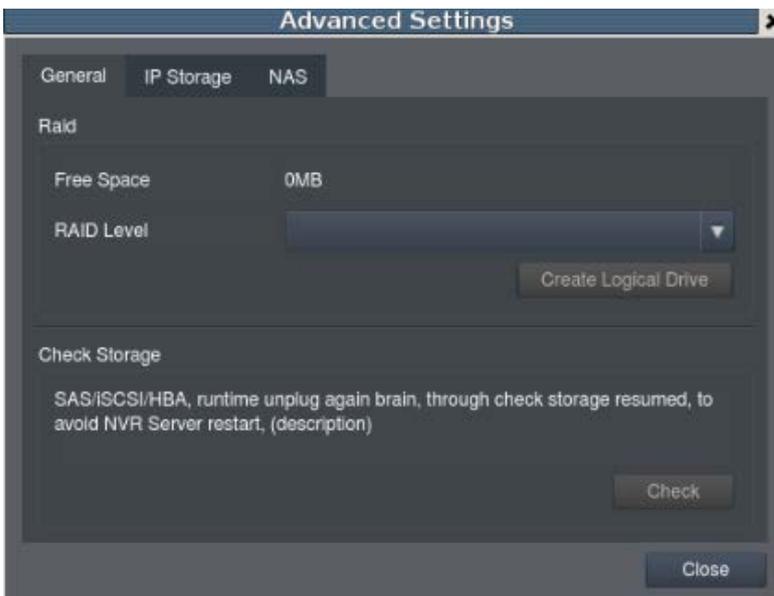
- Enter General → Check.



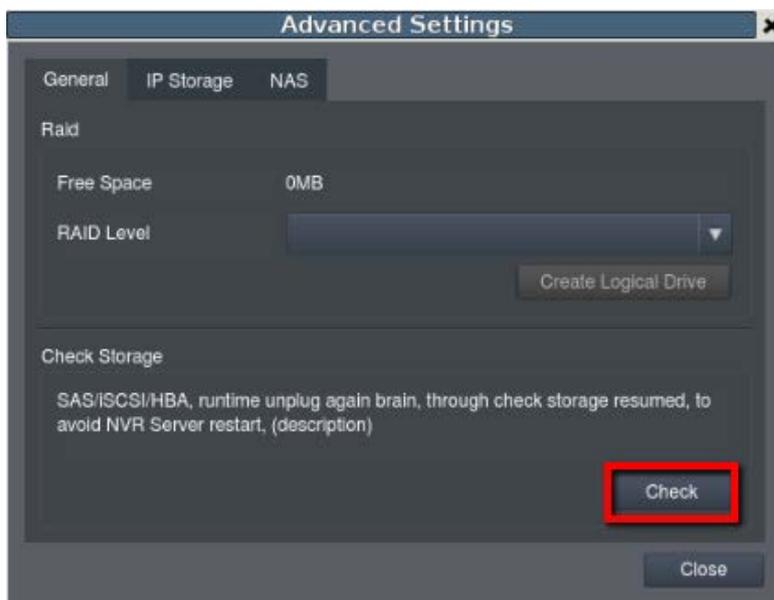
- NVR will show the message to ask whether to format the disk. Click **Yes** to format the disk.



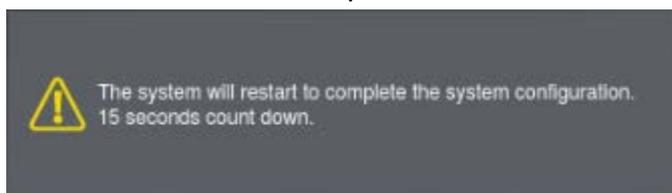
- When NVR is formatting the disk, the **Check** button will become gray.



- 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.

