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.



X 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: <u>https://www.dropbox.com/home/Surveon/Public/Tool?preview=SANWatch_3.</u> <u>0.j.27.zip</u>
- Click SANWatch after you download and unzip it.



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

Organize 🔹 📄 Open	Share with New folder				H • 🚺	0
Favorites	Name	Date modified 2003/1/28 上午 02 2016/7/7 下午 12:07	Type PEM File Compressed (zipp	Size 2 KB 293,821 KB		
Recent Places	getkey IFTNative.dll	2001/7/2 下午 01:51 2012/11/12 下午 0	Application Application extens	28 KB 50 KB		
Libraries Documents Music Pictures) installshield.jar j2pi.sh	2016/7/7 下午 12:04 2001/7/2 下午 01:48	JAR File SH File	3,815 KB 12,970 KB		Γ
	jre1.6.0_25-i586 jre1.6.0_25-x64 linux.sh	2011/5/5 下午 02:19 2011/5/5 下午 02:19 2015/10/19 下午 0	VLC media file (.bi VLC media file (.bi SH File	21,075 KB 20,684 KB 5 KB		
🥌 PPTV视频 🌱 JUDE Videos	linuxCmd.sh	2015/9/30 下午 02 2010/12/23 下午 0	SH File Compressed (zipp	4 KB 16 KB		
Computer Local Disk (C:) Local Disk (D:) CD Drive (E:) RTL Removable Disk (mac.root mac.sw3_link.tar	2004/10/8 上午 10 2013/7/17 下午 11	Compressed (zipp TAR File	2 KB 135 KB		
	policy.jav random.pem rootca.pem	2001/9/28 上午 11 2003/10/3 下午 05 2003/1/28 上午 02	JAV File PEM File PEM File	1 KB 2 KB 1 KB		
	😼 setup	2007/10/12 上午 0	Application	140 KB		
Network	unix.sh	2008/12/29 下午 0 2010/9/30 上午 11	SH File SH File	2 KB 3 KB		

Click OK.

Information
To ensure a successful installation, It is strongly recommended that you quit all windows programs and log in as an administrator or root.

■ Install it step by step.

Infortrend SANWatch S	etup
	Welcome to the SANWatch Setup program. This program will install SANWatch on your computer or subsystem. To ensure a successful installation, It is strongly recommended that you quit all windows programs and log in as an administrator or root . Click Cancel to stop the installation, or click Next to continue.
	Back Next Cancel

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



Click Next.

Infortrend SANWatch	Setup	X
	Select Single or Redundancy Mode of Centralized Management	
	🔘 Redundancy: Master Host	
	Master-host IP: 192.168.88.122	
	Slave-host IP: Please input slave-host IP here	e.
	Redundancy: Slave Host	
	Master-host IP: Please input master-host IP he	ere.
	Slave-host IP: 192.168.88.122	
	Back Next Can	cel

■ Wait for SANWatch installation to finish.

Installing Infortrend SANWatch Program	
Olnfortrend	AND NO
InstallShield is copying files to your system. Click Cancel to stop the installation	
SANWatch	
13%	
Name:gui/helpDiskP/en/contents/JavaHelpSearch/compacted	l, Size:26624, Time:8/5/0
	Cancel

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").

		- 0 - X
Network With State St	J + C @ SANWatch ×	n * °
	O Infortrend'	
	Connect	
	Management Host	
	Password	
	Remember Password	

- 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.

							- 0 - X-
🧲 😔 🙆 http://1	127.0.0.1:8818/.	sessionid=luv4aoptIsat3x68pczpjewd	D + C 😨 SANWat	ch ×			↑ ★♀
System Settings L	anguage Abou	t			👔 Replication Manager	() Help	G Data Reload
Device	_	Device Status					
Device List	Default Group	Name -	😲 Status -		System Performance	Capacity	
							^
							~
		Tasks					
		Add Device		Remove Devi	ce ex from the first		
		Auto Discourse	ane.	Nemove a dev	ne hom die sp.		
		Discover all devices that are connected to	this server via in-band or out-of-band connections.	Discover and c	onfigure a new device through this step-by-step s	etup wizard.	
		Edit Group Group devices together to simplify device	management				
		9					

Please specify the IP addre	ess and scan range fo	or device discov	very.	
IP Address Range from	172.30.10.1	to 172.30	.10.254	
Assign Group	Default Group	~	Create Group	

■ 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.

C 100 0 http://127.0.0.18818	Vgsessionid=luv4aoprisat3x68pczpje	Q by	SANWatch ×	A	0	n * 9
System Settings Language At	To any second se			Replication Manager	у нер	G Data Reload
Device	Logical Volume List	0				
Detault Gro	III Name A	Status -	Logical Drive Amount ~		Capacity	
Construction of the second sec	Tasks Control Logical Value	Arme	No Data	tine Ingrat volume.		

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

gical Volume Name:	Logical Volur	me 1			
RAID					
	•		Slot	Size	Туре
•	0	•		931.25 GB	SATA
			- 2	931.25 GB	SATA
i			- 23	931.25 GB	SATA
				931.25 GB	SATA
nhar of Mombar Drives			1 5	931.25 GB	SATA
te Policy:	4 Default		6	931.25 GB	SATA
pe Size:	128K		7	931.25 GB	SATA
D Security	Disable	Total Capacity: 1.81 TB	15	931.25 GB	SATA

• 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.

http://127.0.0.1.88	118/;jsessionid=luv4aoprisat3x68pcz	pjewd	D + C 💽 SANWatch	×			<u>^</u>
m Settings Language	About				Can Replication Manager	Help	O Data Reload
evice	Partition List						_
ce List Default G	Name -	Thin Prov -	Map 👻	Data Protection -		Capacity	
1016GE Logical Volume 1 Logical Volume 1 Logical Drives Partitions Otives Channels Data Hosts Schedules			N	o Data			
	Create Partitik Add a new part	20 Intron using available space to a logical volume.		Delete Partition Remove an existing	ng partition.		

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

Configure the parameters	of the partition.	
Partition Name: Size:	Partition 1	
Initialize Partition All Enable Thin-Provisic Minimum Reserved Spa Map Partition to Hos	oning ice 0 TB V C)%

Click Yes.



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



2.5 Host LUN Mapping

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

			0.4					
System Settings Language Abou	t t			watch	~	A Replication Manager	Help	C Data Reload
Contraction Device	Partition Status							
Device List Default Group	Partition Information				Capacity			
Concel Volume Concel	Partition 1	Size: ID: Status: Map: Replication:	1.8 TB 4512FE224BF5DBEA The volume has been mounted. No			Total Capacity: 1.8 TB Used Space: 1.8 TB (100%) Free Space: 0 MB (0%)		
	LUN Mapping Information			C Snanshot of Selected Partition				
	Channel	Host ID	Assignment		Snapshot Image ID	Activated Time	Size	
	Tasks							
	Exand Partice Expand the capacity of Edit the configuration Edit the configuration Take snapshots of the	of this partition using available s of this partition. Is partition, view the profiles of s	sace in a logical volume.		Remov Hostil Map th Reclar	Partition B is particle. 2012 Alexandro 2013 Settings 2013 Settings 2013 Settings 2013 Settings		

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

Map this	s partition to th	he host or m	anage existing	LUN mappi	nas			
CH 🔺	Target 🕶				igo.			
		LUN 🕶	Host ID 🔻	Ali 🔻	Group 🔻	Priority -	Filter Type 🕶	Access Mode -

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

Create Host LUN Mapping			ж
Create LUN Mapping to host			
 Create a host LUN mapping set automatically. SAS 6.0 Gbps O ISCSI 1.0 Gbps Customize the host LUN mapping configurations. SAS 6.0 Gbps O ISCSI 1.0 Gbps 			
Customize the LUN Number:			
Use Extended Host LUN Functionality:			
Alias	PC 🗸		
Filter Type	Include		
Access Mode	Read/Write		
	Configure iSCSI Initiator Alias		
		ок	Cancel



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

Host LUN	Mapping							3
Map th	is partition to t	he host or m	nanage existing	LUN mappi	ngs.			
СН 🔺	Target 🕶	LUN 🕶	Host ID 🔻	Al *	Group 🔻	Priority 🕶	Filter Type 🕶	Access Mode 🕶
1	0	0					-	

■ Click Channel and Host Channel Settings.

- 10 http://127.0.0.1:881	8/jsessionid=luv4aoprIsat3x68pczpjev	id	Q + C SANWatch			
System Settings Language A	toout			Peplication Manager	🕜 Help	G Data Reload
Device	Channel List					
Device List	No Kost					
DS 1016GE	Channel ID +	Data Rate 🛎	Max Speed 🔺	Current Speed +	Status +	
E Logical Volumes	Channel 0	Auto	1.0 Gbps	-	Link Down	
Logical Drives Logical Drive 1 Dattitions	Channel 1	Auto	1.0 Gbps	The link has been negotiated to 100.0 Mbps	Link Up	
Partition 1	Channel 2	Auto	1.0 Gbps		Link Down),
Channels	Expansion					
Schedules	Channel ID	s	speed	Status		

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

hannel 0	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	
Parameters	5					MCS Group
Current Dat	a Rate:	The link ha	as been negoti			
Current Tra	nsfer Bandwidth	iscsi		v 0		0
Pv4 Type:		Static		1		0 1
SlotA IPv4 I	P Address:	192.168.88	.36	2		02
Pv6 Type:		Disabled		3		○3
SlotA IPv6 /	Address:			4		
Confi	gure			5		
				6		
				7		

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

Configure IP Address	х
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: 255.255.0 Default Gateway: 172.30.10 254	
Type: O Static O Auto O Disable IPV6 Address:	
Subnet Prefix Length: Route:	
ОК Сан	xel
Modify IP Address * Do you want to apply the changes?	
Yes No	

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

Channel 0 Channel 1	Channel 2	Channel 3	Channel 4	Channel 5		
Parameters					MCS Group	_
Current Data Rate:	The link ha	is been negoti				
Current Transfer Bandwidth:	iscsi		• 0		0	
IPv4 Type:	Static	_	1		• 1	
SlotA IPv4 IP Address:	172.30.10.	211	2		○2	
IPv6 Type:	Disabled		3		○3	
SlotA IPv6 Address:			4			
Configure			5			
			6			
			7	~		

3. Adding an iSCSI storage into Linux NVR

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

VMS Setup Camera Here	1/3 👐 👀 🖾 🗲 🖒			2016-08-26 14:22	2:11 💄 admin	G⇒	1	*	ወ
Image: System Image: System	NVR5416	VMS Setup Schedule Schedule	PreiPost Recording	×	D	rag Camera Here		1	
Marra Arra Account Notwork System X Maintenance	1 1 1 1 1								
	Record Alarm Account Account Retwork System Maintenance				D	rag Camera Here			
Drag Camera Hero				799	D	irag Camera Here			

Click Setting.

				Storag	e Manager				×
Storage	Usage								
						_	_		1
Used(14.53%) 402	.42(GB),total 277	'0.60(GB)						
Details									
	Disk Type	Logical Drive	RAID Level	Drive Size(GB)	Available Size(GB)	Online	Data Type	Enable/Disable	
1	SAS	E	RAID 5	2770.6	2368.18	Yes	LOG, VIDEO	Enable	
)-	Information	Edit	Delete	•
							Low		
Advance	ed Settings								
Disk d	letection: Joir	NVR Server dis	k allocation					Setting	
								Close	

■ Select IP Storage → Add.

	Advanced Setting	5
General IP Storage N	IAS	
nitiator Name		
iqn.1993-08.org.debian:01:a6	e04c73cd8	
o authenticate targets using	CHAP, click CHAP to speci	Ity a CHAP CHAP
ecret.		
Farget Partols		
Host Address	Address	Port
Add	elete Refre	esh Targets
		Olerer.

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 Ta	rget Portal		×
Type the Host Address to config your ISCSI			
172.30.10.241			
Data Address	Port		
172.30.10.211	3260		
		ОК	Cancel

Choose Targets.

	Advanced Setting	5 ×
General IP Storage	NAS	
Initiator Name		
iqn.1993-08.org.debian:01:a	6e04c73cd8	
To authenticate targets using secret.	CHAP, click CHAP to specif	y a CHAP CHAP
Target Partols		
Host Address	Address	Port
Add	Delete Refre	sh Targets
		Close

Click Connect. After connecting, the status will become "Connected." Then, click Close.

IP.	Storage	×
Description		
select Login to access the storage devices for the	at larget.	
If a target is persistent, the initiator will attempt to	reconnect to it each time the NVR is re	booted
Targets:		
Name	Status	Connect
the state of the interferences are based. But		Advanced
		Close
IP •	Storage	
IP :	Storage	×
IP : Description	Storage	×
IP : Description select Login to access the storage devices for the	Storage	×
IP : Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to	Storage at larget. reconnect to it each time the NVR is rel	× booted
IP : Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to Targets:	Storage at target. reconnect to it each time the NVR is rel	× booted
IP : Description select Login to access the storage devices for the If a target is persistent, the initiator will attempt to Targets: Name	Storage at target. reconnect to it each time the NVR is rel Status	booted Disconnect
IP : Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to Targets: Name In LINC 19 (and if content upp) (a) (1970)	Storage at larget. reconnect to it each time the NVR is rel Status	booted Disconnect Advanced
IP : Description select Login to access the storage devices for the If a target is persistent, the initiator will attempt to Targets: Name an ENR 19 (are a concerption on the process)	Storage at target. reconnect to it each time the NVR is rel	booted Disconnect Advanced
IP : Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to Targets: Name	Storage at target. reconnect to it each time the NVR is rel	booted Disconnect Advanced
Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to Targets: Name	Storage at larget. reconnect to it each time the NVR is ref Status	booted Disconnect Advanced
Description select Login to access the storage devices for the If a target is persistent, the initiator will attempt to Targets: Name or PRO (1) concerning the approximately for the storage devices for the second second	Storage at target. reconnect to it each time the NVR is rel Status	booted Disconnect Advanced
IP : Description select Login to access the storage devices for that If a target is persistent, the initiator will attempt to Targets: Name an EDD (1) and it connect and it connects)	Storage at target. reconnect to it each time the NVR is rel	Dooted Disconnect Advanced
Description select Login to access the storage devices for tha If a target is persistent, the initiator will attempt to Targets: Name	Storage at larget. reconnect to it each time the NVR is rel	booted Disconnect Advanced

■ Enter General → Check.

	Advanced Se	ttings	×
General IP Storage	NAS		
Raid			
Free Space	3814435MB		
RAID Level	Non-Raid	•	
		Create Logical Drive	
Check Storage			
SAS/ISCSI/HBA, runtin avoid NVR Server rest	ne unplug again brain, th art, (description)	ro. h check storage resumed, to	
		Check	
		Close	1

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

8	Confirm		×
\triangle	The disk name:/dev/sdc; serialNumber:02 Can't be mounted. Would you like to forma	BB947841 at this disk'	98714A179046 ??
		Yes	<u>N</u> o

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

		Advanced	Settings	
General	IP Storage	NAS		
Raid				
Free Sp	ace	0MB		
RAID Le	vel			Ŧ
			Crea	ate Logical Drive
Check Sto	rage			
SAS/iSC avoid N	SI/HBA, runtim /R Server resta	e unplug again bra rt, (description)	n, through check sto	rage resumed, to
				Check

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

		Advanced	Settings	l i
General	IP Storage	NAS		
Raid				
Free Sp	ace	OMB		
RAID Le	ivel			T
			Crea	ite Logical Drive
Check Sto SAS/ISC avoid N	orage CSI/HBA, runtim VR Server resta	e unplug again brai rt, (description)	in, through check stor	age resumed, to Check
				Close

■ 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.

	Storage Manager									
S	orag	e Usage								
	Used(11.72%) 541.01(GB),total 4616.55(GB)									
D	etails									
		Disk Type	Logical Drive	RAID Level	Drive Size(GB)	Available Size(GB)	Online	Data Type	Enable/Disable	
	1	SAS	E	RAID 5	2770.6	2368.18	Yes	LOG, VIDEO	Enable	
	2	ISCSI	F	RAID 6	1845.95	1707.36	Yes	NO	Enable	
	-					,	Informatio	n Edit	Delete	
A	Advanced Settings									
	Disk detection: Join NVR Server disk allocation Setting									
									Close	