# How to expand iSCSI for Linux NVR

**Application Notes** 

Version <1.0>



### Preface

In this application guide, we are going to introduce how to setup the iSCSI storage device and how to add iSCSI device into Linux NVR

Our agenda is as below:

- 1. How to connect iSCSI storage and Linux NVR
- 2. Setting in iSCSI storage
- 3. Add on iSCSI storage into Linux NVR

# 1. How to connect iSCSI storage and Linux NVR

■ This is iSCSI storage's back board.



This is iSCSI storage's LAN port and it is based on for configuration purpose.



These are iSCSI storage's Channel ports. One channel (one logical volume) will assign one IP address.



X All the network cable must connect GigaLAN Port from core switch.

# 2. Setting in iSCSI storage

- 2.1 Install SANWatch and log in.
- 2.2 Add new storage device.
- 2.3 Create new logical volume.
- 2.4 Create new partitions.
- 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>
- Download the software and Unzip it.



■ 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	IFTNative.dll	2001/7/2 下午 01:51 2012/11/12 下午 0	Application Application extens	28 KB 50 KB		
Libraries	) 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		[
Music	<ul> <li>jre1.6.0_25-i586</li> <li>jre1.6.0_25-x64</li> <li>linux sh</li> </ul>	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 🦷 島 Videos	linuxCmd.sh	2015/9/30下午 02 2010/12/23下午 0	SH File Compressed (zipp	4 KB 16 KB		
Computer	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		
<ul> <li>Local Disk (D:)</li> <li>CD Drive (E:) RTL_</li> </ul>	policy.jav random.pem	2001/9/28 上午 11 2003/10/3 下午 05	JAV File PEM File	1 KB 2 KB		
🥪 Removable Disk (	setup	2003/1/28 上十 02 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		

#### ■ Press "OK".

Information 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 <b>administrator</b> or <b>root</b> . Click Cancel to stop the installation, or click Next to continue.
	Back Next Cancel

In this step, you can press "Browse..." to select the path where you want to save it.



#### Press "Next".

	Select Single or R Centralized Mana Single	edundancy Mode of gement
	Redundancy:	Master Host
$\times$	Master-host IP:	192.168.88.122
Mar I	Slave-host IP:	Please input slave-host IP here.
-	Redundancy:	Slave Host
	Master-host IP:	Please input master-host IP here.
	Slave-host IP:	192.168.88.122

After finished, it will show the information, close all the program and restart PC.



■ After restart, press "SANWatch" on desktop.



Enter SANWatch device (default password is root).

The http://127.001.8818/login.html/pessonid=1pi9ilaumupt/2ea7gv45o46o	,Q → C @ SANWatch ×	<b>n</b> ★ ©
	Qinfortrend	
	Connect	
	Management Host	
	Password	
	Remember Password	
	SSL Login	

### 2.2 Add new storage device.

User can press "Auto Discovery" to search your iSCSI device or choice "Add Device" to manually add on the iSCSI device.

System Settings Language Abo	put			Carlo Manager	() Help	O Data Reload
Evice Device	Device Status					
Device List Default Grou	P Name -	😏 Status 🗝		System Performance	Capacity	
	Add Device Add Device using its IP address or host rat Add Devices Add Devices	ne.	Rence Xino Deco	DAY DONCE on a device from the list.	et p ward.	
	Edit Group Group devices together to simplify device m	anagement.				
	Add a divisor wing its IP address or host na Add a divisor wing its IP address or host na Construction Add a divisor wing its IP address or host na Add a dits IP address or host na Add a divisor wing i	ne. Is server via in band of out-of-band connections. Inagoment.	Remo Remo X	ove Danks ve a denote from the list. Setting for Henry Danks ver and configure a new device through this step-by-step to	ebup wizard.	

■ For "Auto Discovery", assign the scan range of IP address.

to Discovery				_
Please specify the IP addre	ess and scan range for	device discov	very.	
IP Address Range from	172.30.10.1	to 172.30	.10.254	
Assign Group	Default Group	~	Create Group	
	Default Group	◄ (	Create Group	

#### 2.3 Create new logical volume.

After add on the new storage device, click the storage and click Logical Volume to Create Logical Volume.

						and a firm
http://127.0.0.1 8	8818/jsessionid=luv4aoprisat3x68pczpje	d Q+O	SANWatch ×			<u>n</u> 1
ystem Settings Language	About			Peplication Manager	Help	G Data Reload
E Device	Logical Volume List					
Device List Default	Group Name -	👽 Status -	Logical Drive Amount -		Capacity	
OS 1016GE     Logical Volumes     Drives     Channels     Data Hosts     Schedules			No Dista			
	-					
	Create Logical V Add a new logical	time plane using available drives in the subsystems connected to the server	Delete Logical Remove the set	Volume ected logical volume.		
connected device(s): 1 Dis	connected: 0 A Total Error event(s): 0	A warning: 208		DS 1016GE 0	Controller time: 2016-8-22	14.42.54 Uptime: 14:01

Select the HDD and RAID Level for this new logical volume, and then choice "Next".

reate Logical Volume					
Create Logical Volume Create a logical volume a	and configure its	parameters.			
ogical Volume Name:	Logical Volur	ne 1			
RAID	θ	· · · · ·	Slot	Size	Туре
•	0			931.25 GB	SATA
			2	931,25 GB	SATA
├}			- 23	931.25 GB	SATA
				931.25 GB	SATA
			5	931.25 GB	SATA
mber of Member Drives.	4 Default	RAID Level: RAID6	6	931.25 GB	SATA
ipe Size:	128K		7	931.25 GB	SATA
ED Security	Disable	Total Capacity: 1.81 TB	15	931.25 GB	SATA
				Next	Cancel

■ Check the summary and press "OK" to close it.

Summary				×
Summary View the summary of Quick Setup and	d confirm the parameters.			
Logical Volume:				
Logical Volume Name	Logical Volume 1			
Data Protection Level:	Better Protection			
Number of Member Drives:	4			
Write Policy:	Default			
Stripe Size:	128K			
SED Security	Disable			
Total Capacity:	1.81 TB			
Used / Available Drives:	4 / <mark>4</mark>			
		Back	ОК	Cancel
Information		×		
The logical drive has been	n created.			

### 2.4 Create new partitions.

■ In the new logical volume, choice "Partition" to Create Partition.

(2) → (0) http://127.0.0.1.8818/is	essionid=luv4aoprisat3x68oczpia	evel	Q + C SANWatch	×			
System Settings Language About	t.				a Replication Manager	🕜 Help	O Data Reload
Sevice	Partition List						
Device List	Name -	Thin Prov -	Lux Map 👻	Data Protection -		Capacity	
Carl David Carl Logical Volumes Carl Logic	Tosks Tosks Creare Partition Add a new partition	n uang avalable space to a kojcal valume.	20	o Delas	) partition		
_							

# Create a new partition and assign whole size for it.

inigare are parameter	s of the partition.	
Partition Name:	Partition 1	Logical Volume Information
Size:	1.81 TB 🗸	Volume Name: Logical Volume 1
Initialize Partition A	fter Creation	Free Size: 1.81 TB
Enable Thin-Provis	ioning	
Minimum Reserved Sp	ace	
	0 TB 🗸 0 %	
Map Partition to Ho	ost	

Press "Yes".



### ■ Press "Ok" to finish creating the new partition.

View the summary of the newly created part	tition.			
Partition				
Name:	Partition 1			
Size:	1.8 TB			
Minimum Reserved Space:	1.8 TB			
Initialize Volume After Creation:	Yes			
Logical Volume				
Name:	Logical Volume 1			
Size:	1.81 TB			
Available:	1.81 TB			
Host Mapping				
Map:	No			
		Back	ок	Cancel
ormation		Back	ОК	Cancel
ormation The partition has been create	d.	Back	ок	Cancel

#### 2.5 Host LUN Mapping

■ Select new partition and enter "Host LUN Mapping".

	About				Replication Manager	Help 🕒 Data Ri
_	Partition Status					
Detaul	r Group Partition Information			Capacit	У	
/olumes al Volume 1 gical Drives Logical Drive 1 rtitions Partition 1	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%)	
Channels Data Hosts	I UN Mapping Information			(a) Spanshr	nt of Selected Partition	
hedules	Channel	Host ID	Assignment	Snapshot Ima	age ID Activated Time	Size
				~		
	Tasks	f this partition using available s of this partition.	pace in a logical volume.		Debte Partition Remove this partition. Host LLIN Mapping Map this partition to the host or manage existing LUN mapping Advanced Settings Backetim Facha and Dasawa	

# Press "Create" to create LUN Mapping.

Host LUN	I Mapping							
Map th	iis partition to t	he host or m	anage existing	LUN mappi	ngs.			
CH 🔺	Target 🕶	LUN 👻	Host ID 🔻	Ali 🕶	Group 🔻	Priority -	Filter Type 🕶	Access Mode -
					Cre	ate	Delete	Cancel

Switch to "Customize the host LUN mapping configurations", then select the Channel, press "OK" and "Close".

Create Host LUN Mapping			х
Create LUN Mapping to host			
<ul> <li>Create a host LUN mapping set automatically.</li> <li>SAS 6.0 Gbps</li> <li>iSCSI 1.0 Gbps</li> <li>Customize the host LUN mapping configurations.</li> <li>SAS 6.0 Gbps</li> <li>iSCSI 1.0 Gbps</li> </ul>	]		
Slot A	ID: Channel 2 ID: V	Channel 3 ID:	- 🗸
Customize the LUN Number:	0		
Use Extended Host LUN Functionality: Alias Filter Type Access Mode	PC V Include V Read/Write V Configure iSCSI Initiator Alias		
	l	OK	Cancel
Information The task has been completed.	×		
	Close		

■ In the table, we can see the CH we just created, press "Cancel" to exit.

H	lost LUN	Mapping							2	
	Map th	is partition to th	he host or m	nanage existing	LUN mappir	ngs.				
	CH 🔺	Target 👻	LUN 🕶	Host ID 👻	Al 🔻	Group 🔻	Priority •	Filter Type 👻	Access Mode -	
	1	0	0						-	
						Cre	ate	Delete	Cancel	

Press Channel and Host Channel Settings.

						- 0 - X-
	jsessionid=luv4aoprIsat3x68pczpj	ewd	오 + ඊ 💁 SANWatch	×		<b>↑</b> ★₽
System Settings Language Abo	tot			🎒 Replication Manager	🕜 Help	🕒 Data Reload
Contraction Contraction	Channel List					
Device List	Rest Host					
B	Channel ID 🔺	Data Rate 🔺	Max Speed 🔺	Current Speed *	Status 🔺	
El Logical Volumes	Channel 0	Auto	1.0 Gbps	<u></u>	Link Down	^
E Logical Drive 1	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	NT/	Link Down	~
Data Hosts	Expansion					
Schedules	Channel ID		Speed	Status		
						~
	Task Hot Channel S Configure the eff Scan Port Inform Vew the informat	ntrace wait controller data rate and controller IDs ablico en of all ports.	i E	Check Connection Status Decks adverse hast connection or expansion cabling and i Chemical Content LiO Performance in real time.	ists them.	
	1					

■ Select the channel we just created, and then press "Configure".

hannel 0 Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	
Parameters			ID		MCS Group
Current Data Rate:	The link ha	as been negoti			
Current Transfer Bandwidth	iscsi		✓ 0		00
Pv4 Type:	Static		1		<b>0</b> 1
lotA IPv4 IP Address:	192.168.88	.36	2		02
Pv6 Type:	Disabled		3		<u></u> 3
lotA IPv6 Address:			4		
Configure			5		
			6	22	
			7	×	

■ Setup this Channel's IP address and then press "OK" and "Yes".

Configure IP Address			×
Select the type of the IP a	ddress and related settings for the network inte	rface.	
- 1 <u>Pv4</u>			
Type:  Static ( (MAC Address: 00 IP Address: Subnet Mask: Default Gateway: IPv6 Type: Static ( IPv6 Address: Subnet Prefix Len Subnet Prefix Len	DHCP DO:23:42:BB:94) 172.30.10.211 255.255.255.0 172.30.10 254 × Auto O Disable		
		ОК	Cancel
Modify IP Address		×	
Do you war	t to apply the changes? Yes	No	

■ After finished, you will see the IP has been assigned.

nannel 0 Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	
arameters					MCS Group
urrent Data Rate:	The link h	as been negoti.			
urrent Transfer Bandwidth	n: iSCSI		<b>V</b> 0		0
v4 Type:	Static	_	1		1
lotA IPv4 IP Address:	172.30.10.	211	2		02
Pv6 Type:	Disabled		3		○3
lotA IPv6 Address:			4		
Configure			5		
			6	~	

# 3. Add on iSCSI storage into Linux NVR.

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

		2016-08-22 14:57:26	🚨 admin	G+ (i	) <b>?</b>	¥	ወ
						1.	
	VMS Set	up		×			
▶ NVR7316							
Camera	Schedule	Storage	Pre/Post Recording				
External		3.					
	Individual Schedule						
VI VI							
Record							
🔔 Alarm 2.							
🔔 Account							
💑 Network							
📃 System							
X Maintenance							
			C	Close			



					Storag	e Manager				×
Sto	rage	Usage								
L	lsed	(77.07%) 284	9.92(GB),total 36	98.64(GB)						
Det	alls									
		Disk Type	Logical Drive	RAID Level	Drive Size(GB)	Available Size(GB)	Online	Data Type	Enable/Disable	
	t	SAS	E	RAID 6	3698.64	848.724	Yes	LOG,VIDEO	Enable	
		_	_	_			( and the second second second			ą.
							Information		Delete	
Adv	anc	ed Settings								
D	lisk (	detection: Joir	n NVR Server dis	k allocation					Setting	
									Close	
										- 1

■ Choice IP Storage > Add.

	Advanced Settings	3	×
General IP Storage N	IAS		
Initiator Name			
iqn.1993-08.org.debian:01:a6	3e04c73cd8		
To authenticate targets using secret.	CHAP, click CHAP to specif	y a CHAP CHAP	
Target Partols			
Host Address	Address	Port	
Add	Pelete Refre	sh Targets	
		Close	

Enter the iSCSI IP.

Type the Host Address to setup your ISCSI : Enter the storage LAN IP. (EX: we set IP as 172.30.10.241 in this document)

Data Address : Enter the storage Channel IP. (EX: we set IP as 172.30.10.211 in this document)

Add Ta	×		
Type the Host Address to config your ISCSI			
172.30.10.241			
Data Address	Port		
172.30.10.211	3260		
		ок	Cancel

# ■ Choice "Targets".

Advanced Settings						
General IP Storage N	IAS					
Initiator Name						
iqn.1993-08.org.debian:01:a6	6e04c73cd8					
To authenticate targets using secret.	CHAP, click CHAP to speci	ify a CHAP CHAP				
Target Partols						
Host Address	Address	Port	Close			
Add D	Delete Refre	esh Targets				
		Close				

Press "Connect". After connected, the status will become Connected, then press "Close".

IP	Storage	×
Description		
select Login to access the storage devices for th	iat target.	
If a target is persistent, the initiator will attempt to	o reconnect to it each time the NVH	i is rebooted
Targets:		_
Name	Status	Connect
sg-2000-15 per electories and 20090 De		Advanced
		Close

	P Storage	
Description		
select Login to access the storage devices for	that target.	
If a target is persistent, the initiator will attemp	t to reconnect to it each time the NVF	R is rebooted
Targets:		
Name	Status	Disconnect
Ign 2000-10 years in Commercial State (APT 70080)	lawiested	Advanced
		Close

## ■ Enter General > Check.

	Advanced Se	ttings	×
General IP Storage	NAS		
Raid			1
Free Space	3814435MB		
RAID Level	Non-Raid	•	
		Create Logical Drive	
Check Storage			
SAS/ISCSI/HBA, runtim avold NVR Server resta	e unplug again brain, tr rt, (description)	ro. h check storage resumed, to Check	
		Close	1

■ After finish all steps close the window and you will see iSCSI did add on NVR.

				Storage	e Manager			
torag	e Usage							
Use	d(54.74%) 303	4.92(GB),total 55	44.60(GB)					
etails								
	Disk Type	Logical Drive	RAID Level	Drive Size(GB)	Available Size(GB)	Online	Data Type	Enable/Disable
1								
2	ISCSI		RAID 6	1845.95	1660.96	Yes	NO	Enable
						Information	n Edit	Delete
tvan	ced Settings							
Disk	detection: Joir	n NVR Server dis	k allocation					Setting
								Close