

SANBlaze Software-Only Configuration and Quick Start Guide

pn400-000003 Rev 22

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Certified Systems SANBlaze Runs On

The SANBlaze VirtuaLUN Software product is designed to run on a variety of hardware platforms. SANBlaze recommends using a system that has been tested and certified; reference certified systems listing below.

	R710	R805	M910		
Dell	R720	R820	M620		
	R730	T5400			
	DL360G6	585G6	DL380G6		
HP	DL360G8		DL380G7		
	DL370G5		DP380G8		
	DL370G6		DL380G9		
	x3650	x3650M2	x3650M3		
IBM		x3650M4	x3850		
	C250M	220M3	220M4		
Cisco		C210M2	C460M4		
	R2000GZ				
Intel					
		I			
SuperMicro	6017R-N3RF4+				
	H12SSW-NT				
	(GEN4 AMD platform	with 7402p			
	processor) is the curre	ently supported			
	PCIe Gen4 configurati	on. Other			
	configurations may be	configurations may be added as			
	additional qualificatio	n is completed.			

SANBlaze Certified Adapter Cards

The software requires Fibre Channel, Ethernet, or SAS HBAs to use for emulation. The following cards are supported and **must be used** for the various protocols.

64G Fibre Channel	Emulex	LPe36002-M64
64G Fibre Channel	QLogic	2800 series
32G Fibre Channel	Qlogic	QLE2694U
		QLE2742
	Emulex	LPe32000
		LPe32002
16G Fibre Channel	Brocade	1860
	Emulex	LPe16000B
		LPe16002B
8GFibre Channel	Emulex	LPe12000
		LPe12002
		LPe12004
4G Fibre Channel	Emulex	LPe1100
		LPe11002
		LPe11004
200/100/50/25G iSCSI	Mellanox	ConnectX-4 family
		ConnectX-5 family
		ConnectX-6 family
25GbE and 100GbE	Qlogic	45000 series
iSCSI		
40G FCoE/iSCSI	Emulex	OCe14401
40G iSCSI	Intel	XL710
10G FCoE/iSCSI	Intel	E10G42BFSR (X520)
		X540-T2 (RJ45 Copper)
SAS	LSI/Broadcom	LSISAS9200-8e (6 G)
		LSISAS92-7-8e (6 G)
	Broadcom 24G	LSISAS9300-8e (12 G)
	Broadcom 64G	LSISAS9400-16e (12 G)

Optional system configurations

In the event a customer would like to use a system other than those listed above, the following minimum requirements must be met to support the SANBlaze software.

Processor: x86 Intel Xeon or AMD Opteron processor. We recommend at least 2 processor cores per physical emulation port in the system. Optimal performance will be attained when all processor sockets are populated.

Memory: 2 GB minimum. At least 2GB of memory per physical emulation port are required in the system. Optimal performance will be attained when all memory slots are populated.

HDD: Single SAS/SATA HDD in the chassis. Larger sized HDD's allow for more emulation configurations to be saved. (**NOTE**: The system HDD will be overwritten during the SANBlaze software load).

CDROM: IDE/USB CDROM. The software is installed via a bootable DVD and requires an IDE or USB CDROM to boot from.

USB port: The software is licensed by USB dongle. System must have a USB port dedicated to the dongle for proper operation.

BIOS: The software needs Legacy bios mode to be installed. UEFI is NOT supported.

Software Installation Procedure

Insert USB License Dongle into USB port on target system. Software will not properly function without a valid Licensed Dongle.

Connect monitor and keyboard to target system.

Insert installation CD into target system and power on. When the CD loads a menu with the following options will be presented:

- 0) Boot from the Hard Disk (No changes to system)
- 1) Install SANBlaze Software (Destructive to all files!)

Select option '1' to install to target system. As indicated, this will destroy any data on the HDD in the target system.

Once the software is finished installing, the system will return to the # prompt. Type 'reboot -f' to reset the machine.

Eject the CD as the system is powering up. VirtuaLUN software will then automatically load.

Once the system is booted, proceed to network configuration below.

Network Quick Start

Configuring the SANBlaze VirtuaLUN[™] can be done via a web browser or Telnet session, using the Ethernet port (10/100/1000 auto sensing) on the front panel. The software uses the 'eth0' interface provided under Linux. Please connect to the 'eth0' interface of your target machine.

To connect via a Web Browser:

IP Address: **192.168.1.222** Default Gateway: **192.168.1.1**

Requires Java version 6u26 or newer running on the client web browser.

User Name: system Password: SANBlaze (case sensitive)

Changing the IP address

Once the VirtuaLUN system has been accessed, the IP address, system name, and gateway can be changed, using the main web page.

To connect via Telnet:

Telnet 192.168.1.222

Note: If your host is not in the VLUN's /etc/hosts file, the system will take a few seconds to reply.

User Name: vlun

Password: SANBlaze (case sensitive)

Upon successful log-in, issue the **su** command to get superuser access.

su

Password: SANBlaze

To connect via Command Line:

In addition to the Ethernet based connectivity methods, the VirtuaLUN can be accessed via the command line if desired. Connecting a monitor and keyboard to the product will allow direct access to the command line.

Once booted, the system will prompt for user name/password:

User Name: vlun Password: SANBlaze (case sensitive)

Upon successful log-in, issue the **su** command to get superuser access.

#su

Password: SANBlaze

To Change IP address at the command line:

Run the network config script:

#/virtualun/scripts/config_network.sh

The script will then prompt you for all the necessary network settings.

To change the graphical mapping of ports in the GUI

This will allow you to map the physical ports in your system to reflect properly within the GUI. The GUI can then be setup to show ports in the same order as they are physically laid out. Instructions for mapping out the physical layout of VLUN system ports:

You will need:

- 1) Physical access to the VLUN system.
- 2) A switch or loop back connector that can bring a port online.
- 3) Console or ssh access to the VLUN system.

Steps:

- 1) Open an ssh session or login from the console to the VLUN.
- 2) At the command prompt, type [root@virtualun ~]# config_portmap
- 3) Follow the instructions, enter Slot orientation, number of slots and number of ports in each slot.
- 4) Then use a connection to a switch or loopback connector to bring each port online, one by one.
- 5) When the command finishes, you will have mapped out the ports. You can then go back to the GUI and the port order and graphics should reflect the physical map of the chassis.

Disable BIOS on SAS adapters

If using SAS adapters, the card BIOS needs to be disabled for proper operation. A script is provided on the system to do this. First make sure all cables are disconnected from the cards you wish to use. Then ssh into the system or login via the console and execute the following command and follow the instructions:

[root@virtualun ~] # lsi_sas_disable_bios.sh

SANBlaze Quick Configuration Guide

This document describes how to quickly configure the VirtuaLUN product to enable specific protocols. Complete the three sections to configure the system:

- 1. Reset to Factory Configuration
- 2. Protocol Configuration
- 3. Port Mode Configuration

Reset to Factory Configuration

If the state of the current system is unknown, it is best to reset back to factory defaults. This can be done via the 'Poweroff/Reset' link the left-hand menu. Once that is clicked you will be presented with a 'Reboot with Factory Defaults' button. Clicking that will clear the configuration and reboot the system. Once it has rebooted, you can continue on with your configuration.

SANBlaze			
Z SANBlaze VirtuaLUN	S	ANBlaze VirtuaLUN System Re	eset
Z Multi-System Manager	If the IP Address, Netmask or Gateway Addres	sses or the Hostname have been chang	ged, be sure to use the new values after reboot.
윶 Multi-System Targ Setup	Reboot the VLUN node		Reboot
🔗 Multi-System Init Setup	Shutdown the VLUN node		Shutdown
🞸 Multi-System Init Start	Report the VILIN node with Eastony D	ofaulte	Report with factory defaults
	Rebot the VEON hole with actory b		Reboot with factory defaults
Multi-System Status		Startun / Chutdaum Ontiona	Reboot the VirtuaLUN and restore the factory default configuration.
Test Manager Configuration		Startup / Shutdown Options	granthy increases the time serviced to shutdown
∃ 192.168.110.253 sfstest3	Save Data on Shutdown/Reboot	Note. This can	greatly increase the time required to shutdown.
A Treast Quick Setup	Restore Data on Boot	Note: This ca	an greatly increase the time required to boot.
A Initiator Quick Start			
Targ NVMe-oF TCP:0			
Init(0-1) FCoE:1 VLAN:10			
Targ FC:2			
E- Thit FC:3			
□- Test Init NVMe:4			
- III Tracing			
🖃 🛄 User Management			
💸 Maintenance (S01428)			
- O Poweroff/Reset			
E User Guide (targ)			
Et outlier Guide (targ)			
El Deleses Nates			
P			

Figure 1: Reset the VirtuaLUN System

Protocol Configuration

Configuring for NVMe-oF Operation

Select the Port you want to configure, and then select the NVMe-oF protocol as shown below.



Figure 2: Protocol Configuration for NVMe-oF

Next, select the RDMA Mode. It displays the current selection, so you can select "No Change" or TCP, RoCE or iWARP. In the Supported RoCE Mode field chose RoCE v1, RoCE v2 or both RoCE v1 & v2.

Configuring for FCoE Operation

Click the 'Network Port Quick Setup' link in the left hand menu of the GUI. On the right hand side select the ports you want to change to FCoE mode, set the protocol to FcoE and then select the desired mode (initiator or target). Then hit 'Apply'.

ANBlaze VirtuaLUN		Netv	vork Port Quick Setup	3		
Multi-System Manager	Network Port Configuration					
Multi-System Init Setup		IP Address	Network Mask	Jumbo Frame	Protocol	Mode
Multi-System Overview	[eth2 - fe80::21b:21ff:fe43:4b74]	1.1.253.10	255.255.255.0	Enable	O FCoE O iSCSI	O Initiator Target
Multi-System Status	[eth3 - fe80::21b:21ff:fe43:4b75]			Enable	● FCoE O iSCSI	Initiator O Target
Test Manager Configuration						
192.168.110.253 sfstest3			Apply Reset			
S Network Port Quick Setup			COPPA CORES			
A Target Quick Setup						
V larger duick Setup						
A Initiator Quick Setup						
P minutor auton octup						
Initiator Quick Start						
A Initiator Quick Start Q System Overview						
Initiator Quick Start System Overview System Devices						
Initiator duick Start System Overview System Devices Turce NML are 5 (70.0)					•	
mitator Culick Start System Overview System Devices Targ IVVMe-oF_TCP:0					•	
Initiator Quick Start Q system Doverview System Doveroes ♦ Targ NVMe-oF_TCP0 至 Init(0-1) FC0E1 VLAN:10 至 Init(0-1) FC0E1 VLAN:10 至 Init(0-1) FC0E1 VLAN:10					<u>ا</u>	
					1	
					•	
					1	
Initiator Quick Start System Overview System Devices Targ IV/Me-oF_TCP:0 Start Decise Targ IV/Me-oF_TCP:0 Start DFC:3 Start DFC:3 Start DFC:3 Start DFC:3 Start DFC:4 Tracege Tracege Start DFC:4						
Initiator Quick Start System Overview System Devices Tray FIVILe-of_TCP:0 System Devices Tray FIVILe-of_TCP:0 Start FIV					`	
Initiator Quick Start System Overview System Devices Tray IfVXHeoF_TCP.0 Sint(0-1) FCoE:1 VLAN:10 Start FC:2 Sub R1NWAe4 Imin						
Initiator Quick Start System Overview System Devices Targ IIVMe-oF_TCP:0 Entir(0-1) FCcF: VLAN:10 Targ IIVMe-oF_TCP:0 Init FC:3 Init FC:3						
Initiator Quick Start System Overview System Overview System Overvies Tray It/ViE-of_TCP 0 Start FC-3 Simit C-1 FC-8 Simit C-1 FC-8 Simit C-1 S						
Initato Cuck Start System Overview System Overview Targ NVMe.oF_TCP:0 Start PC2:2 Start PC2 Start PC2 Start PC2 Start PC3 Mint NVMe.4 Traceg User Management Maintenance (S01428) OverofitReset User Guide (mt)						
Initiator Quick Start System Overview System Overview System Overvies Strate Process Tray FC2 Sint(0-1) FCeE1 VLAN:10 Sint(0-1) FCEE1 Sint(0-1) FCEE1 Sint(0-1) FCEE1 Sint(0-1) FCEE1 Sint(0-1) FCEE1 Sin						
Initiator Quick Start System Overview System Overview Targ IV/Me-oF_TCP:0 Think-01/FCdF:TVLAN:10 Targ FC:2 Targ FC:2 Maintenance (S01428) Wer Guide (carg) User Guide (carg) CLU Ber Guide (carg)						
Initiator Quick Start System Overview System Overview System Overvies Start Provide Start System Overview Targ FC2 Shift(-1) FC6E: VLAN:10 Start FC3 Shift(-1) FC6E: VLAN:10 Shift(-1) FC6E: VLAN:1					•	

Figure 3: Protocol Configuration for FCoE

Configuring for iSCSI Operation

Click the 'Network Port Quick Setup' link in the left hand menu of the GUI. On the right hand side select the ports you want to change to iSCSI mode, set the protocol to iSCSI, set IP addresses if needed and select the desired mode (initiator or target). Then hit 'Apply'.

NBlaze VirtuaLUN	Net	work Port Quick Setup)		
Multi-System Manager	N	etwork Port Configuration			
Muti-System Int Setup	IP Address	Network Mask	Jumbo	Protocol	Mode
Multi-System Init Start Multi-System Overview Port-0 [eth2 _ fe80::21h:21ff:fe43:4h74]	1 1 253 10	255 255 255 0	Enable		O Initiator Target
Multi-System Status			Enable	OFCoE OiSCSI	Initiator O Target
Q System Overview ■ System Devices Targ IV/Ne=0_TCP:0 至 Targ IV/Ne=0_TCP:0 至 Targ FC:2 ■ Int IV:Ne=4 ■ Tracing				1	



Configuring for FC/SAS Operation

There is no protocol to set for FC/SAS ports but you can quickly change the port mode (initiator or target) via the 'Multi-System Manager' page. Select the option you want and click **Apply**.

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SANBlaze	and the second se			
Z SANBlaze VirtuaLUN	SANBlaze VirtuaLUN M	ulti-System Manag	ger 🕜	
Z Multi-System Manager				
- 🔗 Multi-System Targ Setup	Built	In Tests		
- 🖇 Multi-System Init Setup	Maximum Data Throughput	Read	Write	Start Max Throughput Test
S Multi-System Init Start	Maximum Number of I/Os	Read	Write	Start Max I/Os Test
Q Multi-System Overview	Bandom I/O Siza/Black Test			Charl Dandam UO Taat
Multi-System Status	Random I/O Size/Block Test	≥ Read	LI vvrite	Start Random I/O Test
Test Manager Configuration				
192.168.110.253 sfstest3	1/0	Tests		
- 🛠 Network Port Quick Setup	Test Type		Read	Only 🗸
- 🖇 Target Quick Setup	I/O Size		256KE	3
- 🖇 Initiator Quick Setup	Test Pattern		Dandom	
- 🐓 Initiator Quick Start	Test Fattern		Kanuom	~
Q System Overview	Start	tTests		
- System Devices				
Targ NVMe-oF_TCP.0	All Syste	ms Actions		
- 5 Init(0-1) FCoE:1 VLAN:10	OfflineAllPorts OnlineAllPorts	LinkResetAllPorts	ReprobeAllPorts	
Targ FC:2	LogoutAlliSCSITargets LoginAlliSCSITargets	LogoutAutoiSCSITa	rgets LoginAutoiSCSITa	argets
E-Selnit FC:3				The European M
E- Init NVMe:4	All Sustame	Configuration		
[#] Tracing	All Systems	conngulation		
- 4 ⁵ Configuration			OA OA	II Initiator
User Management	Port Mode		O A	All Target
Maintenance (S01428)			OEven	Ports Target
- O Poweroff/Reset			O Doi	n't Change
User Guide (targ)	A	pply		
User Guide (init)				
E CLI User Guide (targ)				
ELI User Guide (init)				
Release Notes				
User Guide PDFs				



Port Mode Configuration

Configuring Target Ports

Once a port is in target mode you can quickly configure the number of targets and LUNs on each port via the 'Target Quick Setup' page from the left-hand menu. Select how many targets and LUNs you want on each port and click **Apply**.

NBlaze VirtuaLUN	Target Quick Configuration Settings 👩								
Multi-System Targ Setup	Default Ll	JN Size 16 MB 🔽 🤇	Cust	om Size 1 O		Maximum Availab	le Memory O	Mir	nimum Allowed Size
Multi-System Init Setup									
Multi-System Init Start	AH D. 4		7 440	Quick Configuration Settings					
Multi-System Overview	All Ports	All Ports Max Memory 6617 v MB		B Number of Targets 1 v		Active LUNs Per Target 1			Apply To All Ports
Test Manager Configuration	Port[0]	Port[0] Max Memory 6617 VI		MB Number of Targets 3		Active LUNs Per Target 2			Change Port
192.168.110.253 sfstest3	Port[2]	Max Memory 661	7 🗸 MB	Number of Targets 1	1	Active LU	Ns Per Target	1 🗸	Change Port
S Network Port Quick Setup						Number of Targets Port 0			
S Target Quick Setup		Global Ta et Settings							
S Initiator Quick Setup	Use NAA	Use NAA5 in VPD Page 83h					O Enable		
Sinitiator Quick Start	Check Una	ligned Reads (512e)		Don't Check	~	Key= 00h - No Sense	~ ASC=00	ASCQ=00	Deferred
System Overview	Check Una	ligned Writes (512e)		Don't Check	~	Key= 00h - No Sense	✓ ASC=00	ASCQ=00	Deferred
Targ NVMe-oF_TCP:0	Change M	Change Mapped Port Names							
Init(0-1) FCoE:1 VLAN:10	Underrun/Over	Underrun/Overrun Asve Valid Reciduals							
Targ FC:2	User-Crea	User-Created Bad Blocks are Permanent OEnable Disable							
Init NVMe:4						10725002750			_
Configuration		Ap	pply or Discard ch	anges on this page		Apply	(Cancel	
User Management		Link Rese	et After Changes	Link Reset		Clear Selected Port Configurations	ClearC	onfiguration	
Maintenance (S01428)		Virtual	LUN Memory	Total=6617MB		Allocated=18MB	Remain	ing=6599MB	
User Guide (targ)					_				
User Guide (init)									
CLUUser Guide (taro)									

Figure 6: Configuring Target Ports

Configuring Initiator Ports

Once a port is in initiator mode you can quickly configure the number of initiators on each port via the 'Initiator Quick Setup' page from the left-hand menu. Select how many initiators you want on each port and click **Apply**.

ANDIAZE						
ANBlaze VirtuaLUN	SANBlaze VirtuaLU	I Multi-System Mana	ger 🕜			
Multi-System Manager						
Multi-System Targ Setup	Bu	ilt In Tests				
Multi-System Init Setup	Maximum Data Throughput	Read	Write	Start Max Throughput Test		
Multi-System Init Start	Maximum Number of I/Os	Read	Write	Start Max I/Os Test		
Multi-System Overview	Pandom I/O Size/Block Test			Start Bandom I/O Test		
Multi-System Status	Kalidolii ilo Size/Diock Test	≥ Read	L vvrite	start Random Do Test		
Test Manager Configuration						
192.168.110.253 sfstest3		/O lests				
- & Network Port Quick Setup	Test Type		Rea	d Only 🗸		
- 🔗 Target Quick Setup	I/O Size		256K	3B 🗸		
4 Initiator Quick Setup	Test Pattern	Bandom				
- 4 Initiator Quick Start		rest Pattern				
System Overview		tart lests				
System Devices						
Targ NVMe-oF_TCP:0	All Sy	stems Actions				
B- thit(0-1) FCoE:1 VLAN:10	OfflineAllPorts OnlineAllPorts	LinkResetAllPorts	ReprobeAllPorts			
larg FC:2	LogoutAlliSCSITargets LoginAlliSCSITargets	s LogoutAutoiSCSITargets LoginAutoiSCSITargets				
Init FC:3						
	All Syste	ns Configuration				
A configuration		9		All Initiator		
Configuration				All Target		
Son using and the second secon	Port Mode		0-	All larger		
Maintenance (S01426)			OEve	1 Ports larget		
User Cuide (tere)			UD	on't Change		
User Guide (talg)		Apply				
GLUIess Quide (tars)						
CLIOSER Guide (targ)						
FICLIUSEF GUIDE (INE)						

Figure 7: Configuring Initiator Ports

This concludes the set-up of SANBlaze's software only solution. For more information or if you have any questions, please contact SANBlaze support (details below).

Contact Support

STORAGE TESTING SUPPORT

If you need technical support, please click on the SANBlaze Help Center or email us by clicking Email Support below.

SANBlaze Help Center | Email Support

For additional information on SANBlaze Storage Emulation Testing solutions, please access the areas listed below. If you need additional information that you cannot find here, please <u>contact us</u> via phone @ (978) 679-1400.

Additional information on storage testing products:

Data Sheets – A list of all of the data sheets available for SANBlaze products.

<u>Video Training Library</u> – The videos provide training on a number of tasks associated with the setup and deployment of SANBlaze storage emulation systems and software.

<u>White Papers</u> – A list of all white papers available for SANBlaze products.