

# **Table of contents**

1.	Install JovianDSS on physical server	2
	1.1. Booting Open-E JovianDSS Installer	2
	1.2. Initialize hardware	3
2.	Install JovianDSS as virtual machine	4
3.	Storage Configuration	8
	3.1. Preparing for the WebGUI administration	8
	3.2. Entering the product key and logging into Open-E JovianDSS	8
	3.3. Create zpools	8
	3.4. Creating iSCSI targets	16
	3.5. Exploring targets	20
	3.6. Creating Fibre Channel targets	21
	3.7. Creating SMB shares	28
	3.8. Using local Users and Groups with build-in Lightweight Directory Access Protocol (LDAP)	34
	3.9. Auto-Snapshots and Access to Previous versions	41
	3.10. Creating NFS shares	49

# 1. Install JovianDSS on physical server

Download and extract the ISO file with your favorite uncompressing/extracting software (for example: 7zip or WinZip<sup>®</sup> programs) to an empty USB Flash Drive. The ISO can be obtained from here: https://www.open-e.com/download/open-e-jovian-data-storage-software/

After extracting the ISO file on your USB Flash Drive, the root directory must contain ONLY the following directories: bxxxx, boot, and file mmenu\_upd.sh where the xxxx is the software build number.

- To make your USB Flash Drive bootable, enter the "boot" directory and run the "bootinst.exe" (For Windows) or "bootinst.sh" (For Linux). Follow the prompt then remove the USB Flash Drive.
- You can now boot your storage server installer with USB Flash Drive.

**NOTE** The prepared USB Flash Drive will run the software installer by default. If you desire to test or for nonmission critical or non-production usage, the USB Flash Drive can boot Open-E JovianDSS instead of running the software installer. To make this default change, run the "config.exe" from the boot directory and select "r" to remove the default boot of the software installer.

# 1.1. Booting Open-E JovianDSS Installer

#### **General Hardware requirements**

- The minimum size for the JovianDSS boot medium is 16GB. A recommended JovianDSS boot medium uses an HDD or SSD device. The USB Flash Drive can be used as a JovianDSS boot medium for testing purposes or non-mission critical applications.
- It is necessary to use ECC RAM modules in the system.
- Single node supports SATA hard disk drives, but SAS disks are recommended for performance.
- HA shared-storage cluster setup requires SAS-hard disks.
- Minimum of 8GB RAM plus 1GB per 1TB of pool space.
- Mirrored "Write Log" is recommended.
- Uninterruptible Power Supply (UPS) is strongly recommended.

Plug your installer media (USB Flash Drive) into the storage appliance.

The first boot menu will show the software version. You can press enter or it will skip and continue automatically within 5 seconds.

The second menu allows you to select to boot Open-E JovianDSS or to install the software on a writable boot media in your system using the interactive installer utility. Select "Run software installer" to install Open-E JovianDSS on a writable boot media in your system.

Please follow the instructions while running the installer. The installer optionally can install the system on a single disk or on mirrored disks (RAID1). If single disk is selected, it is still creating



degraded RAID1 on the single disk but system will not create error events about degraded RAID1. It will be possible to add a second disk and get redundant RAID1 anytime in the future. Once the boot media become redundant RAID1 the system will generate errors events if any disk of the mirror is failed.

Welcome to the software installer
Installation options Please select system volume configuration
Single disk Mirrored disks (RAID-1) - recommended
< Back > < Next >
Navigate: UP / DOWN / LEFT / RIGHT Confirm choice: ENTER

Finally, reboot your storage server from the new boot media (set your BIOS boot options back from USB to the medium where you installed the software).

NOTES: Open-E JovianDSS can be used for evaluation up to 60 days with the trial product key. The Trial Key can be downloaded after registration from:

https://www.open-e.com/partner-portal/partner-area/warehouse/jovian/

When you decide to purchase the full version, you can continue to use the software and all your data and settings will remain intact.

In order to convert the trial version to the full version, please enter your Open-E JovianDSS product key and storage capacity key in the WebGUI menu "about" section.

During boot-up, you have an option to run a memory test on the system by choosing "Run Memtest utility" in the first menu.

## 1.2. Initialize hardware

Before using Open-E JovianDSS you should have the hard disk drives connected to the SATA and SAS ports on the motherboard or SAS HBA, and the LAN Card and other NICs already in your server.

Connect the keyboard and monitor (they will be needed for setup only). Later you can run the server in "headless mode" (without keyboard and monitor).

**NOTE:** Please check the motherboard BIOS if the "headless mode" is enabled. In some cases, systems will not boot if the keyboard is not connected. You'll find more about the headless mode in the motherboard's BIOS manual.



# 2. Install JovianDSS as virtual machine

- In ESX host menu, select: New Virtual Machine and in the wizard click on "Next" button.
- Enter the VM name. In this example we have: JovianDSS TEST

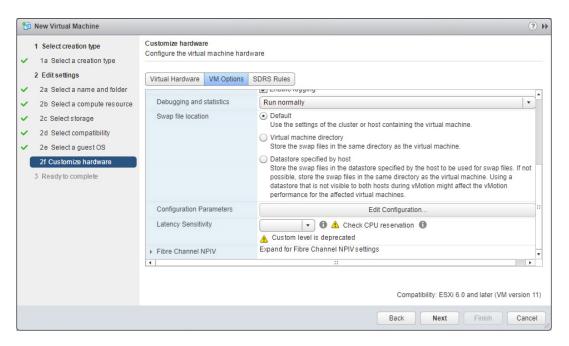
脅	New Virtual Machine		? <b>}</b>
~	1 Select creation type 1a Select a creation type	Select a name and folder Specify a unique name and target location	
	2 Edit settings	Enter a name for the virtual machine.	
~	2a Select a name and folder	JovianDSS TEST	
~	2b Select a compute resource	Virtual machine names can contain up to 80 characters and they must be unique within each vCenter Server VM folder.	
	2c Select storage	Select a location for the virtual machine.	
	2d Select compatibility	Q Search	
	2e Select a guest OS	vcenter-it.lan	
	2f Customize hardware	D 📓 JB OECE	
	3 Ready to complete	Select a datacenter or VM folder to create the new virtual machine in.	
		Back Next Finish Ca	ancel

- Next, select destination host and next select the datastore for the VM.
- Next, confirm the compatibility with ESXi 6.0 or later.
- In guest OS step, please select Linux and Debian 7 (64bit)
- In the customize step (screenshot below), please use 2 CPU, enter 12 GB or more for Memory and 16GB or more for New Hard disk.

🔁 New Virtual Machine						(4 (S
<ol> <li>Select creation type</li> <li>1a Select a creation type</li> <li>Edit settings</li> </ol>	Customize hardware Configure the virtual machin					
<ul> <li>2a Select a name and folder</li> <li>2b Select a compute resource</li> <li>2c Select storage</li> </ul>	Green and the second seco	2 12 16	•	GB GB	•	
2d Select compatibility     2e Select a guest OS     2f Customize hardware	Rew Hard disk      New SCSI controller      Mew Network	VMware Paravirtual	•	OB		Connect
3 Ready to complete	Mew CD/DVD Drive     Rew Floppy drive	Client Device			T	Connect
	<ul> <li>▶ Wideo card</li> <li>&gt; WMCI device</li> </ul>	Specify custom settin	gs		•	
	Other Devices					
	New device:	Select			-	Add Compatibility: ESXI 6.0 and later (VM version 11)
						Back Next Finish Cancel



In VM Options -> Advanced -> Configuration Parameters, click on Edit Configuration



• Add Name: disk.EnableUUID and Value: TRUE

1	New Virtual Mach	Configura	ation Parameter	s					(	8 (3 H)
~	1 Select creation		fy or add configu s will be remove			ental features or	as instructe	d by technical s	upport. Empty	
	2 Edit settings	Name			Val	ue				
~	2a Select a nam									
~	2b Select a com									
~	2c Select storag									
~	2d Select comp									
~	2e Select a gue									
1	2f Customize ha									r swap files. If not
	3 Ready to compl									e Using a e vMotion
		Name:	disk.EnableUU	IID	Value:	TRUE		ОК	Add Cancel	ater (VM version 11)
								Back	Next	Finish Cancel

Click on Add. Next click OK and click on the Next button. Next it move to: Ready to complete section.



• Click on the Finish button.

1 Select cre 1a Select 2 Edit settin	ation type	Provisionin		
		1 10415101111	g type:	Create a new virtual machine
2 Edit settin	a creation type	Virtual mad	chine name:	JovianDSS TEST
	gs	Folder:		JB OECE
2a Select	a name and folder	Host:		192.168.0.30
2b Select	a compute resource	Datastore:		WEBINAR-00
2c Select	storage	Guest OS	name:	Debian GNU/Linux 7 (64-bit)
2d Select	compatibility	CPUs:		2
2e Select	a guest OS	Memory:		12 GB
2f Custom	iize hardware	NICs:		1
3 Ready to o	complete	NIC 1 netw	ork:	NO CONNECTION
		NIC 1 type		VMXNET 3
		SCSI contr	oller 1:	VMware Paravirtual
		Create har	d disk 1:	New virtual disk
			Capacity:	16.00 GB
			Datastore:	WEBINAR-00
		node:	Virtual device	SCSI(0:0)
			Mode:	Dependent
				Compatibility: ESXi 6.0 and later (VM version 1

- Next, select Edit Settings at just created JovianDSS TEST Virtual Machine.
- Browse and select JovianDSS ISO image downloaded from the WEB.
- Next, enable the check-box "Connect At Power On" and click on OK button.

IB ▼ 3B ▼ Connect ▼ Browse	Virtual Hardware VM Opti	ions SDRS Rules vApp Options	
Browse ▼ DE(1:0) ▼ Connect	CPU	2 🗸	
▼   Browse   ▼   DE(1:0)   ▼   Connect	Memory	12288 V MB V	
Image: state	Hard disk 1	16 GB 👻	
Image: state	SCSI controller 0	VMware Paravirtual	
Browse	Network adapter 1	NO CONNECTION	
▼       DE(1:0)       ▼       □ Connect	🕫 🍥 *CD/DVD drive 1	Datastore ISO File	
DE(1:0)	Status	Connect At Power On	
DE(1:0)	CD/DVD Media	[local.boot]/jdss1.0up28_b2 Browse	
Connect	Device Mode	Passthrough CD-ROM	
	Virtual Device Node	IDE 1         ▼         IDE(1:0)         ▼	
	Floppy drive 1	Client Device	
	Video card	Specify custom settings	
	WMCI device		
	Other Devices		
	Video card		
	New device:	Select Add	

• Next, power on the JovianDSS TEST VM and please follow the instructions while running the installer.



- Next steps are exactly the same as described in the <u>Booting Open-E JovianDSS installer</u> section.
- Once the JovianDSS TEST VM is up and running, you need to add drives for data storage as during the virtual machine creation only single boot-disk was configured.
- In Virtual machine Edit Settings, click on New device -> Select, select New Hard Disk and click on Add button.
- Here 4 disks are inserted. To confirm it, click on OK button.

2 12288 16 //Wware Paravirtual NO CONNECTION Datastore ISO File	<ul> <li></li> &lt;</ul>	MB GB	<b>•</b>		
16 /Mware Paravirtual NO CONNECTION Datastore ISO File		1997 - C	F		
/Mware Paravirtual NO CONNECTION Datastore ISO File	•	GB			
NO CONNECTION Datastore ISO File					
Datastore ISO File					
				Connected	
			-	Connected	
Client Device			-	Connected	
Specify custom setting	IS		-		
16	* *	GB	-		
16	•	GB	-		
16	•	GB	-		
16	*	GB	-		
	10				
	6 6 6		6 • GB 6 • GB 6 • GB 6 • GB	6 • • GB • 6 • • GB • 6 • • GB • 6 • • GB • 6 • • GB •	6 • • GB • 6 • • GB • 6 • • GB • 6 • • GB • 6 • • GB •

• Now the JovianDSS TEST must be ready for pool create.

# 3. Storage Configuration

## 3.1. Preparing for the WebGUI administration

After the boot process has finished, Open-E JovianDSS will show you information about all its network settings. The standard IP Address setting for Open-E JovianDSS is: IP address 192.168.0.220 and Netmask 255.255.255.0. This setting can be changed manually by entering the following key sequence: left "Ctrl" + left "Alt" + "N".

# 3.2. Entering the product key and logging into Open-E JovianDSS

Connect to Open-E JovianDSS via the network using any standard browser, and type the IP address to the URL entry line:

#### https://192.168.0.220

Next, a window for entering the product key will appear. If you already have one, please enter it and click the apply button. Log into Open-E JovianDSS by using the default password: "*admin*". Now you will be able to set all server parameters to get started.

#### **NOTE:** Be aware that the password is case-sensitive.

## 3.3. Create zpools

• To create a new zpool, please go to the "Storage" menu then Click the "Add zpool" button in the upper right corner to run the "Zpool wizard".

JovianDSS				(i) About	() Help	🖃 Logout
Storage	Storage				() Rescan	+ Add zpoo
) User Management	() No imported zpools have been found in the	he system. Import a zpool (if there are zpools av	ailable for import) or create	a new zpool by clicking	"Add zpool" buttor	1.
Failover Settings	Zpools available for impo	rt				
Storage Settings	No external zpools available for the impo	rt have been found.				
Backup & Recovery	Unassigned disks					
System Settings	Local disks Remote disks					
Diagnostics	Search					
	Name	Serial number	Size	Model		Blink
	1 sdb	83O0A001FS44	136.98 GiB	MK1401GRRB		•
	2 sdc	2320A037FTR6	838.36 GiB	AL13SEB900		•
	3 sdd	13R0A0X9FTR6	838.36 GiB	AL13SEB900		•
	4 sde	2320A035FTR6	838.36 GiB	AL13SEB900		•
	5 sdf	2320A04JFTR6	838.36 GiB	AL13SEB900		•
	6 sdg	43G0A063TVL6	186.31 GiB	PX02SMF020		•
	7 sdh	84S0A00ETZQ1	186.31 GiB	PX03SNF020		•
	8 sdi	BTTV33120CVC100FGN	93.16 GiB	INTEL SSDSC2BA10		•
	9 sdj	BTTV2514044D100FGN	93.16 GiB	INTEL SSDSC2BA10		•
	10 sdk	83S0A01HFS44	136.98 GiB	MK1401GRRB		•
	11 sdl	9350A003FS44	136.98 GiB	MK1401GRRB		•
	10 adm	0270500// 5244	126 00 CiP	MI/1401CDDB		



- open-e JovianDSS ? 🗙 Available disks olease select disks on the list on the eft, select redundancy type and clic C Show only unused disks Rescan disks Data groups Size Name Id Size Blink wwn-0x50000394f82b7660 136.98 GiB sdb wwn-0x50000394f82b7660 wwn-0x500003949800ae90 sdc 838.36 GiB sdd wwn-0x5000039488303270 838.36 GiB 🛛 🌒 838.36 GiB . sde wwn-0x500003949800ae88 838.36 GiB sdf wwn-0x500003949800af60 sdg wwn-0x50000394bc888608 186.31 GiB sdh wwn-0x50000395bc8b3f74 186.31 GiB 🛛 🌒 Zpool storage capacity: 0.00 B Used licensed storage capacity: 0.00 B sdi wwn-0x55cd2e404b41a4a2 93.16 GiB 🌒 . sdj wwn-0x50015178f35a8666 93.16 GiB Other groups Size . sdk wwn-0x50000394f838713c 136.98 GiB 🌑 0 sdl wwn-0x5000039508086c2c 136.98 GiB 0 136.98 GiB 🌑 sdm wwn-0x500003950809e87c . sdn wwn-0x50000395080a232c 136.98 GiB 0 • + Add group . • X Cancel Next > • ٠ Notifications 🔕 0 🛕 0 🕕 0
- After starting the "Zpool wizard" all available disks will be listed.

Next, select the disks and redundancy level and click on the "Add group" button.

Zpool wizard					_	? 🗙	
1. Add data group	Available o	disks			A To add first Data G please select disk	s on the list on the	
2. Add write log	C Show only	ly unused disks	O Rescan	disks	"Add group" button	lancy type and click	
3. Add read cache	Name	ld	Size	Blink	Data groups	Size	
3. Add read cache	sdb	wwn-0x50000394f82b7660	136.98 GiB	٠			
4. Add spare disks	sdc	wwn-0x500003949800ae90	838.36 GiB	•			
	🖌 sdd	wwn-0x5000039488303270	838.36 GiB	•			
5. Zpool properties	sde sde	wwn-0x500003949800ae88	838.36 GiB	•			
6. Summary	sdf	wwn-0x500003949800af60	838.36 GiB	•			
	sdg	wwn-0x50000394bc888608	186.31 GiB	•			
	sdh	wwn-0x50000395bc8b3f74	186.31 GiB	•	Zpool storage capacity:	0.00 B	
	🗌 sdi	wwn-0x55cd2e404b41a4a2	93.16 GiB	•	Used licensed storage ca		
	🗌 sdj	wwn-0x50015178f35a8666	93.16 GiB	•	Other groups	Size	
	sdk	wwn-0x50000394f838713c	136.98 GiB	•			
	sdl	wwn-0x5000039508086c2c	136.98 GiB	•			
	sdm	wwn-0x500003950809e87c	136.98 GiB	•			
	sdn	wwn-0x50000395080a232c	136.98 GiB	•			
	Select redu	indancy for group: Mirror (single group)	✓ + Add gr	nun			
	Contention	manor (angle group)	- Hud gi	oup			
					× Cancel	Next >	
11 sdi		9350A003FS44		136,9	8 GiB MK1401GRRB		



• The created group will be displayed in the "Configuration preview" window on the right side.

	Zpool wizard							<b>*</b>	+ Add
r Manager 1	I. Add data group	Availa	able disks				Data groups	Size	
over Settin 2	2. Add write log	C Sh	low only unused of	lisks	🔿 Rescan	disks	Mirror     Sdc	× 838.36 GiB	
		N	lame Id		Size	Blink	- 🗑 sdd	838.36 GiB	
age Settir		s	db wv	n-0x50000394f82b7660	136.98 GiB	•			
4		. s	de wv	m-0x500003949800ae88	838.36 GiB	٠			
overy		s	df wv	n-0x500003949800af60	838.36 GiB	•			
		s	dg wv	m-0x50000394bc888608	186.31 GiB	٠			
em Settini		S	dh wv	m-0x50000395bc8b3f74	186.31 GiB	٠			
nostics		s	di wv	m-0x55cd2e404b41a4a2	93.16 GiB	٠	Zpool storage capacity	r: 838.36 GiB	
		. s	dj wv	m-0x50015178f35a8666	93.16 GiB	•	Used licensed storage	capacity: 838.36 GiB	
		s	dk wv	m-0x50000394f838713c	136.98 GiB	•	Other groups	Size	
		s	dl wv	m-0x5000039508086c2c	136.98 GiB	•			
		s	dm wv	m-0x500003950809e87c	136.98 GiB	٠			
		s	dn wv	m-0x50000395080a232c	136.98 GiB	•			
		Sel			✓ + Add g	roup			
							× Canc	el Next >	

- In this example we have 2 mirror groups added.
- The created 2 mirror groups will be displayed in the "Configuration preview" on the right side. After adding all groups click the "Next" button.

-								
Zpool wizard							2 2	Add
1. Add data group	Availa	able disks				Data groups	Size	
2. Add write log	C) Sh	ow only unused disks		O Resca	n disks	Mirror     sdc	838.36 GiB	×
	N	ame Id		Size	Blink	- 🗑 sdd	838.36 GiB	
3. Add read cache	S S	db wwn-0x5	0000394f82b7660	136.98 GiE	•	Mirror	;	×
4. Add spare disks	s	dg wwn-0x5	0000394bc888608	186.31 GiE	•	- 🗑 sde	838.36 GiB	
	S	dh wwn-0x5	0000395bc8b3f74	186.31 GiE	•	- 🗑 sdf	838.36 GiB	
5. Zpool properties	S	di wwn-0x5	5cd2e404b41a4a2	93.16 GiE				
6. Summary	S	dj wwn-0x5	0015178f35a8666	93.16 GiE	•			
	<b>S</b>	dk wwn-0x5	0000394f838713c	136.98 GiE	•	Zpool storage ca		
	S S	dl wwn-0x5	000039508086c2c	136.98 GiE	•		orage capacity: 1.64 TiB	Blink
	S S	dm wwn-0x5	00003950809e87c	136.98 GiE	•	Other groups	Size	
	s	dn wwn-0x5	0000395080a232c	136.98 GiE	•			
	Sele			✓ + Add	group			
						×	Cancel Next >	- ·
						^		
								•

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In the next step you can create a write log (ZIL on SLOG).
 NOTE: Mirrored and fast SSD disks are strongly recommended for the random writes IOPS.

-	_					+ Add a
Zpool wizard						
1. Add data group	Available of	lisks		Data groups	Size	
2. Add write log	C Show onl	y unused disks	O Rescan disks	Mirror     Sdc	× 838.36 GiB	
3. Add read cache	Name	ld	Size Blink	- 🗑 sdd	838.36 GiB	
J. Aud lead cache	sdb	wwn-0x50000394f82b7660	136.98 GiB	Mirror	×	
4. Add spare disks	sdg	wwn-0x50000394bc888608	186.31 GiB	- 🗑 sde	838.36 GiB	
	sdh	wwn-0x50000395bc8b3f74	186.31 GiB	- 🗑 sdf	838.36 GiB	
5. Zpool properties	sdi	wwn-0x55cd2e404b41a4a2	93.16 GiB 🛛 🌑			
6. Summary	sdj	wwn-0x50015178f35a8666	93.16 GiB 🌑			
	sdk	wwn-0x50000394f838713c	136.98 GiB 🌒	Zpool storage capac	ity: 1.64 TiB	
	sdl	wwn-0x5000039508086c2c	136.98 GiB 🛛 🌒		ge capacity: 1.64 TiB	
	sdm	wwn-0x500003950809e87c	136.98 GiB	Other groups	Size	
	sdn	wwn-0x50000395080a232c	136.98 GiB			
	Select redu		✓ + Add group			
					_	
			×	Cancel < Ba	ack Next >	

• Select the fastest disks from the list on the left and create a mirror set for the redundancy level, then click the "Add group", and then the "Next" button.

1. Add data group       Available disks         2. Add write log       Show only unused disks         3. Add read cache       Show only unused disks         3. Add read cache       sdb         sdb       wwn-0x5000039482b7660       136.98 GB         4. Add spare disks       sdg         sdh       wwn-0x50000394bc886008       166.31 GB         5. Zpool properties       sdi       wwn-0x50000394bc886666         6. Sammary       sdj       wwn-0x5000394B88713c         sdk       wwn-0x50000394B8713c       136.98 GB	a groups Mirror dc 838.3 dd 838.3 Mirror sde 838.3 sd 838.3 sd 838.3 blacks a starter	6 GiB ×
2. Add write log       C show only unused disks       C Rescan disks         a Sarta       3. Add read cache       add wrwn-0x50000394/82b7660       136.98 GB         a Sarta       4. Add spare disks       add wrwn-0x50000394/82b7660       136.98 GB         5. Zpool properties       add wrwn-0x50000395bc8b3774       186.31 GB       Image: Comparison of the com	sdc 838.3     sdd 838.3     Mirror     sde 838.3     sdf 838.3     sdf 838.3	6 GiB 6 GiB × 6 GiB
S. Add trad cache         Intime         Win-0x5000394f82b7660         136.6 GB         Imme           a. Add spare diaka         a. dg         wwn-0x5000394f82b7660         136.8 GB         Imme         Imme           b. Zpool properties         a. dd         wwn-0x50000394f82b7660         136.8 GB         Imme         Imme<	Mirror sde 838.3 sdf 838.3 Hol storage capacity: 1.64 TiB	K GiB
a sdb         wwn-0x50000394f82b7660         136.96 G.B         B         M           a Add spare dials         sdg         wwn-0x5000039468b8608         186.31 G.B         Image: Comparison of the	Sde 838.3	6 GiB
4. Add spare daks       s sg       wwn-bx5000335bc8b3774       166.31 GB         5. Zpool properties       s sd       wwn-bx5000335bc8b3774       186.31 GB         6. Summary       s sd       wwn-bx50015178155a6666       93.16 GB         9. sdk       wwn-bx500151781732       136.98 GB       Used i         9. sdk       wwn-bx50003946387132       136.98 GB       Used i         9. sdm       wwn-bx500039508086c2c       136.98 GB       Other g	Sdf 838.3	
By a sch         www.ob.s0000395bc8b3f74         186.31 GB         www.ob.s0000395bc8b3f74           S. Zpool properties         www.ob.s5cd2e404b41a4a2         93.16 GB         www.ob.s5cd2e404b41a4a2         93.16 GB           S. Summary         sdi         www.ob.s5000395bc8b3f74         186.38 GB         zpool         zpool           Status         sdi         www.ob.s5000395bc8b3f74         136.98 GB         zpool         zpool           Status         sdi         www.ob.s5000395bc8b3f74         136.98 GB         zpool         zpool           Status         adl         www.ob.s500039508086c2c         136.98 GB         zpool         used if           Status         sdm         www.ob.s50003950809687c         136.98 GB         www.ob.s50003950809687c         136.98 GB         pool	ol storage capacity: 1.64 TiB	6 GiB
Setting         Setting <t< td=""><td>ol storage capacity: 1.64 TiB rd licensed storage capacity: 1</td><td></td></t<>	ol storage capacity: 1.64 TiB rd licensed storage capacity: 1	
6. Summary         sdj         wwwn-0x501517875a6666         93.16 GB         Zpool           sdk         wwwn-0x5000394838713c         136.98 GB         Zpool         Used II           sdl         wwwn-0x500003960806c2c         136.98 GB         Other g           sdm         wwwn-0x50000396080867c         136.98 GB         Other g	ol storage capacity: 1.64 TiB td licensed storage capacity: 1	
sdl         wwm-0x5000039508086c2c         136.98 GiB         Used I           sdm         wwm-0x50000395080987c         136.98 GiB         Other g	ol storage capacity: 1.64 TiB ad licensed storage capacity: 1	
sdl www-0x500039508086c2c 136.98 GB Otto	ed licensed storage capacity:	
sdm wwn-0x5000003950809e87c 136.98 GiB		
sdn www-0x50000395080a232c 136.98 GiB	er groups	Size
Select redundancy for group: Mirror V + Add group		
X Cancel	el < Back	Next >



• The created "write log" will be displayed in the "Configuration preview" on the right side.

ge Zpool wiz	brd					<b>*</b>	+ Add
Manager 1. Add data	roup Available di	sks			Data groups	Size	
ver Settin 2. Add write	og 🚺 Show only	unused disks	🔿 Rescan	disks	Mirror  sdc	× 838.36 GiB	
	Name	Id	Size	Blink	- 🗑 sdd	838.36 GiB	
ige Settin 3. Add read	ache sdb	wwn-0x50000394f82b7660	136.98 GiB	٠	Mirror	×	
4. Add spare	disks 🔲 sdg	wwn-0x50000394bc888608	186.31 GiB	٠	- 🗑 sde	838.36 GiB	
up & 4. Add spare very	sdh	wwn-0x50000395bc8b3f74	186.31 GiB	٠	- 🗑 sdf	838.36 GiB	
5. Zpool proj m Settin	erties sdk	wwn-0x50000394f838713c	136.98 GiB	٠			
6. Summary	sdl	wwn-0x5000039508086c2c	136.98 GiB	٠			
nostics	sdm	wwn-0x500003950809e87c	136.98 GiB	٠	Zpool storage capac	ty: 1.64 TiB	
_	sdn	wwn-0x50000395080a232c	136.98 GiB	•	Used licensed storage		Blin
					Other groups	Size	
					Mirrored write lo	93.16 GiB	
					- (ii) sdj	93.16 GIB	
					soj	53.16 GID	
	Select redun		V + Add gr	oup			
				×	Cancel < Ba	ck Next >	

• In the next step you will want to create the read cache. Select the disks from the list on the left and select redundancy "Read Cache", type and click "Add group", and then the "Next" button.

NOTE: For fast random read IOPS it is recommended to use SSD disks.

Zpool wizard											? ×	+ Add
1. Add data group	Ava	ailable dis	sks					Data g	Iroups		Size	
2. Add write log	C	Show only u	inused disks			O Rescan	disks		Mirror Sdc	838.36	<b>X</b> GiB	
		Name	Id			Size	Blink	-	🗑 sdd	838.36	GiB	
3. Add read cache		sdb	wwn-0x50	000394f82b7660		136.98 GiB	٠	0 1	Airror		×	
4. Add spare disks		sdg	wwn-0x50	000394bc888608		186.31 GiB	٠	-(	🗑 sde	838.36	GiB	
		sdh	wwn-0x50	000395bc8b3f74		186.31 GiB	•	(	🗑 sdf	838.36	GiB	
5. Zpool properties		sdk	wwn-0x50	000394f838713c		136.98 GiB	٠					
6. Summary		sdl	wwn-0x50	00039508086c2c		136.98 GiB	٠					
		sdm	wwn-0x50	0003950809e87c		136.98 GiB	٠	Zpool	storage capaci	ity: 1.64 TiB		
		sdn	wwn-0x50	000395080a232c		136.98 GiB	٠		licensed storag	ge capacity: 1		
									groups		Size	
									Airrored write Ic	-		
									🗑 sdi		93.16 GiB	
								han (	🗑 sdj		93.16 GiB	
		Select redund	ancy for group:	Single	$\sim$	+ Add g	roup	<				
							×	Cancel	K Ba	ack I	Next >	
11 sdi				9350A003FS44				98 GiB	MK1401GRRE			



• The created "read cache" will be displayed in the "Configuration preview" on the right side.

Zpool wizard					- Ad
1. Add data group	Available dis	sks		Data groups	Size
2. Add write log	C Show only	unused disks	O Rescan disks	Mirror	838.36 GiB
3. Add read cache	Name	Id	Size Blink	- 🗑 sdd	838.36 GiB
J. Aud lead cache	sdb	wwn-0x50000394f82b7660	136.98 GiB	Mirror	×
	sdk	wwn-0x50000394f838713c	136.98 GiB	- 🗑 sde	838.36 GiB
	sdl	wwn-0x5000039508086c2c	136.98 GiB	l sdf	838.36 GiB
	sdm	wwn-0x500003950809e87c	136.98 GiB 🌑		
	sdn	wwn-0x50000395080a232c	136.98 GiB 🛛 ●		
				Zpool storage capacity Used licensed storage	/: 1.64 TiB capacity: 1.64 TiB
				Other groups	Size
				<ul> <li>Mirrored write log</li> <li>sdi</li> <li>sdj</li> <li>Read cache</li> <li>sdg</li> <li>sdg</li> <li>sdh</li> </ul>	93.16 GiB 93.16 GiB 186.31 GiB 186.31 GiB
	Select redund		Add group	< Cancel < Bac	k Next >
11 sd		9350A003FS44	136	.98 GiB MK1401GRRB	

• In the "Add spare disks" please select the disk from the available disks" list, click "Add group", and the "Next" button.

**NOTE:** "Spare disks" are optional. If no disks are tagged as spare disk, it is still possible to replace a faulty disk with any unassigned disk. You can skip this step clicking "Next".

accuracy Series <ul> <li>Add read cache</li> <li>S sb</li> <li>wwn-0x50000394f827660</li> <li>S sb</li> <li>S s</li></ul>							? ×	+ Ad
Schwarz Sere       2. Add write log       Image Id       Size Black         Schwarz Sere       3. Add read cache       image Id       Size Black         Schwarz Sere       4. Add spare diak       image Id       Size Black         Schwarz Sere       5. Zpool proporties       image Id       image Id       Size Black         Schwarz Sere       5. Zpool proporties       image Id       image Id       Size Black         Schwarz Sere       5. Zpool proporties       image Id       image Id       Size Black         Schwarz Sere       5. Zpool proporties       image Id       image Id       Size Black         Schwarz Sere       5. Summary       image Id       image Id       Size Black       Size Black         Schwarz Sere       5. Summary       image Id       image Id       Size Black       Size Black         Schwarz Sere       5. Summary       image Id       image Id       Size Black       Size Black         Schwarz Sere       5. Summary       image Id       Size Black       Size Black       Size Black         Schwarz Sere       image Id       image Id       Size Black       Size Black <t< th=""><th>Jser Manager 1. Add data gro</th><th>P Available d</th><th>lisks</th><th></th><th></th><th>Data groups</th><th>Size</th><th></th></t<>	Jser Manager 1. Add data gro	P Available d	lisks			Data groups	Size	
intradue       intradue <td< th=""><th>Failover Settin 2. Add write lo</th><th>C Show only</th><th>y unused disks</th><th>🔿 Rescan</th><th>ı disks</th><th></th><th></th><th></th></td<>	Failover Settin 2. Add write lo	C Show only	y unused disks	🔿 Rescan	ı disks			
A. Add spare disks   Sack up 6   Sack up 6 <	2 Address of an		Id	Size	Blink	- 🗑 sdd	838.36 GiB	
A. Add spare disk       Bak       wm-dx500003950806c2c       156.96 GB       Image: Set of the set	Storage Settin		wwn-0x50000394f82b7660	136.98 GiB	٠	Mirror	×	
According to the set       sdl       www-0x500003950806c2c       136.96 GB       Image: sdl	A. Add spare d	ks sdk	wwn-0x50000394f838713c	136.98 GiB	٠		838.36 GiB	
igreen Seten igreen Seten C. Summary Setent redundancy for group: Setent redundancy for group: Setent redundancy for group: Setent redundancy for group: Single Variable	Recovery		wwn-0x5000039508086c2c	136.98 GiB	•	- 🗑 sdf	838.36 GiB	
c. Summary       sdn       wwn-0x50000395080a232c       136.98 GB       Zool storage capacity: 1.64 TB         Used icensed storage capacity: 1.64 TB       Used icensed storage capacity: 1.64 TB       Used icensed storage capacity: 1.64 TB         Other groups       Size       Size       Size       Size         Mirrored write lo       X       Size       Size       Size         Select redundancy for group:       Single       + Add group       Size       Size		es sdm	wwn-0x500003950809e87c	136.98 GiB	٠			
Used licensed storage capacity: 1.64 TB Other groups Size Mirrored write lo X Size Mirrored write lo X Size Size Mirrored write lo X Size Siz		sdn	wwn-0x50000395080a232c	136.98 GiB	•			
Other groups     Size       Mirrored write lo     ×       Station     Size       Station     Size       Select redundancy for group:     Single       V     Add group	Diagnostics					Zpool storage capacity: Used licensed storage	: 1.64 TiB capacity: 1.64 TiB	
B     Minored write is     X       Image: Select redundancy for group:     Single     Image: Add group						Other groups	Size	
		Select redur	ndancy for group: Single	V + Add g		- 🐨 sdi - 🐨 sdj - Read cache - 🐨 sdg - 🐨 sdh	93.16 GiB 93.16 GiB X 186.31 GiB 186.31 GiB	



• The created "spare disks" will be displayed in the "Configuration preview" on the right side. Now click the "Next" button.

torage Zpool wi	73/4				Add zp
Jser Manager 1. Add data		ieke		Data groups Si:	
ailover Settin 2. Add write			C Rescan disks	Mirror     Sdc 838.36 G	iB
3. Add read	sdk	Id wwn-0x50000394f838713c wwn-0x5000039508086c2c	Size Blink 136.98 GiB • 136.98 GiB •		×
And spar Recovery 5. Zpool pro system Settin	sdm	wwn-0x500003950809e87c wwn-0x50000395080a232c	136.98 GiB ● 136.98 GiB ●	🗑 sdf 838.36 G	iB
Asymptotics	Select rodur		✓ + Add group	Zpool storage capacity: 1.64 TB Used licensed storage capacity: 1.64 Other groups Si sidies sidies and side side side side side side side sid	zze Blink
	sdi	9350A003FS44		Cancel C Back Net	xt >

• In the next step, enter the zpool name and click the "Next" button.

n-e 🦰 vianDSS					🖻 Logout
	Zpool wizard				Add zpo
	1. Add data group	Please set properties	for zpool:		
	2. Add write log	Zpool name:	Pool-0		
	3. Add read cache		Zpool name: Defines name of the zpool in the system	L	
	4. Add spare disks				
	5. Zpool properties				
	6. Summary				
					Blink
				X Cancel X Back Next X	
	11 sd		9350A003FS44	136.98 GiB MK1401GRRB	



• In "Summary" you are able to see an overview of the zpool configuration. If the settings need to be modified, click the "Back" button and make the required changes. If it is correct click the "Add zpool".

Zpool wizard   Quer Manag   1 Add data group   2 Add write log   Data groups   1 Add spare disks   2 Add read cache   2 Add spare disks   3 Spraen Setti   3 Spraen Setti   3 Deprestas     1 Morre     2 Dool properties     2 pool name:     Pool-0     2 manage     2 manage   <	JovianDSS		🛈 About 💿 Help 🖃 Logout
2. Add write log Data groups Redundancy Size   3. Add read cache	Storage Zpool wi	tard	+ Add zpod
Stocage Sate 3. Add read cache   Bickup A   Bickup A   System Sate   System Sate   Cher groups   Redundancy   Size   Bickup A   System Sate   System Sate   Cher groups   Redundancy   Size   System Sate	User Manager 1. Add data	Zpool configuration	^
Storage Sett:       Immor       Mirror       Immor       Data group total capacity: 2.118         Beskup A       Add spare diaks       Immore       Mirror       Immore         System Setti       Summary       Immore       Mirror       Immore         Degrocitics       Other groups       Redundancy       Size       Immore       Immore         Degrocitics       Other groups       Redundancy       Size       Immore       Immore       Immore         Degrocitics       Other groups       Redundancy       Size       Immore       Immore       Immore         Degrocitics       Other groups       Reducache       Immore       Immore       Immore       Immore         Zpool properties       Immore       Pool-0       Immore       Immore       Immore       Immore         Zpool name:       Pool-0       Immore       Immore       Immore       Immore       Immore         Mirror       Immore       Immore       Immore       Immore       Immore       Immore       Immore         Mirror       Immore       Immore       Immore       Immore       Immore       Immore       Immore         Zpool name:       Pool-0       Immore       Immore       Immore	Failover Settin 2. Add write	log Data groups	Redundancy Size
Bedcugt Bedcugt Setter Setter Deproteite       4. Add spare disk Setter Setter Deproteites       4. Add spare disk Deproteites         Deproteite       Other groups dual capacity: 1.64 THE Deproteite       Mirror         Deproteite       Image: Deproteite         Zpool properties       Zpool name:       Pool-0         Image: Deproteite       Image: Deproteite         Zpool name:       Pool-0         Image: Deproteite       Image: Deproteite         Zpool name:       Pool-0         Image: Deproteite       Image: Deproteite         Image: Deproteite <t< td=""><td>Storage Settin 3. Add read</td><td>cacito</td><td></td></t<>	Storage Settin 3. Add read	cacito	
System Setting       0. Summary       Other groups       Redundancy       Size         Dorgrossice       Image: Size       Image: Size       Image: Size       Image: Size         Dorgrossice       Image: Size       Image: Size       Image: Size       Image: Size       Image: Size         Dorgrossice       Image: Size	Backup & 4. Add spare		Data group total capacity: 2 TiB
6. Summary     Image: Image	5. Zpool pro		
E Spare Zpool properties Zpool name: Pool-0	6. Summary		
Zpool name: Pool-0  Zpool name: Pool-0  C Cancel C Back Add zpool  1 ed 9350.003F584 136 98 GB MK1401GRRB	Diagnostics		<b>P</b>
Zpool name: Pool-0 Cancel Cancel C Add zpool 11 sdl 9350A003F544 136 58 G/B MK1401GR78B		Zpool properties	
X Cancel         ✓ Add zpool           11         sdl         9350A003F544         136 56 GB         MK1401GRRB		Zpool name: Pool-0	
X Cancel         ✓ Add zpool           11         add         9350A003F544         136 58 G/B         MK1401GRRB			
Cancel         ✓ Add zpool           11 sdl         9350A003F844         135.98 G/B         MK1401GRRB			•
11 ad 9350A003F844 136.98 G/B MK1401GRRB			Cancel C Back Add mod
	11	sdl 9350A003FS44	

• At this point you have configured a new zpool (you can add more zpools if required).

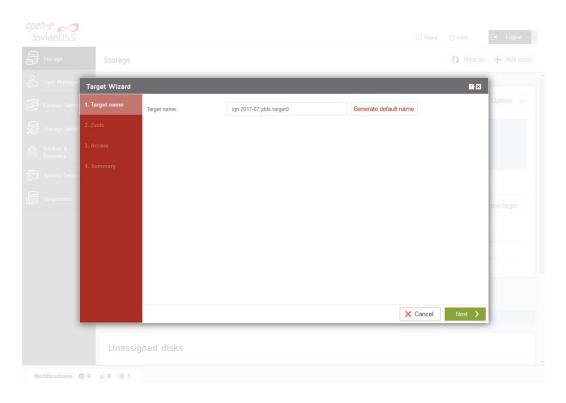
2					
Storage	Storage			Rescan	+ Add zpo
User Management	-				
Failover Settings	Pool-O				Options v
Storage Settings	State: Zpool ID: 142488191	ONLINE Status: Zpool is functioning co 11874998222 Action: None required.	orrectly.		
Backup & Recovery	Total storage: Disks:	1.63 TIB 9			
System Settings	Status Disk groups iSCSI	targets Snapshots Shares Virtual IPs			
Diagnostics	C Data storage	Scrub scanner			
		Status		F	Ready to run
		Next scan			Not set
	avalable	Q Run 🔛	Scheduler		
	Zpool storage capacity:	1.63 TiB			
	Used space:	56.13 GiB			
	Available space:	1.57 TiB			
	Used licensed storage capacity:	1.63 TiB			

# 3.4. Creating iSCSI targets

- After creating a zpool, the GUI shows pool status of just created zpool. In order to access pool **setup menu**, click on down arrow button in the middle bottom of the pool status section.
- Next, select "iSCSI targets" and click the "Add new target" button.

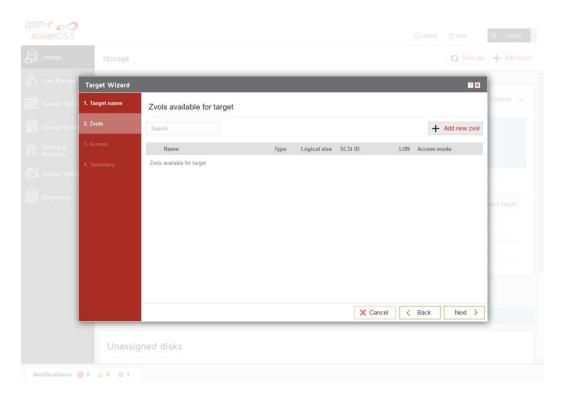
JovianDSS		() About	Help	🖻 Logout 🗸
Storage	Storage		() Rescan	+ Add zpool
OUser Management				^
Failover Settings	• Pool-O			Options v
Storage Settings	State:         OHLINE         Status:         Zpool is functioning correctly.           Zpool ID:         14248819111874998222         (i)         Action:         None required.			
Backup &	Total storage: 1.63 TIB Disks: 9			
System Settings				
Diagnostics	Status         Disk groups         iSCSI targets         Snapshots         Shares         Virtual IPs           O         iSCSI targets		+ Add	I new target
	No targets found.			
	Zpools available for import			
	① No external zpools available for the import have been found.			
	Unassigned disks			
Notifications 🔕 0	0 0 1			

• In the "Target Wizard", you can enter a new "Target name". If the default target name is OK, click the "Next" button only.

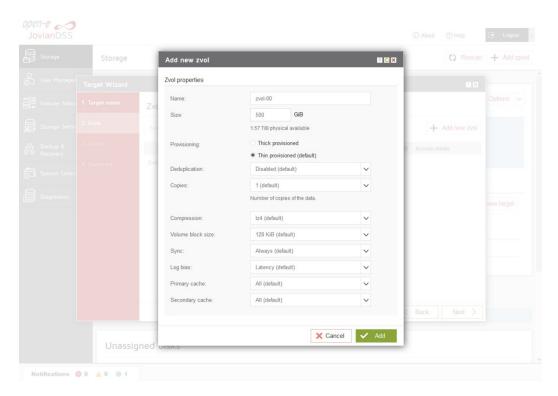




• In the Zvols step, click "Add new zvol". iSCSI Volumes are called zvols.



 In "Zvol properties" enter the name of a new Zvol and the appropriate size and click "Add" button.

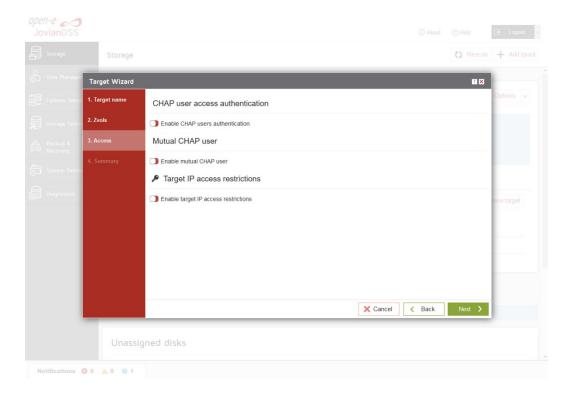




• After creating the new Zvols, click the "Next" button.

								🖻 Logout
Storage							() Rescan	+ Add zpoo
Target Wizard								- I
1. Target name	Zvols available for target							Options v
2. Zvols	Search					+	Add new zvol	
3. Access	Name	Туре	Logical size	SC SI ID	LUN	Access me	ode	
4. Summary	✓ zvol-00	zvol	500.00 GiB	HsMPNw6KzBn	0	Read-write	(default)	
								new target
								new target
				× Cancel	<	Back	Next 💙	
Unassi	gned disks							

• In the "Access" step, you can change the security options of the targets. After making these changes click the "Next" button.





• In "Summary" you are able to see an overview of the configuration of the target. If the settings need to be modified, click the "Back" button and make the required changes. If it is correct, click "Add".

JovianDSS	_							🖻 Logout 🗸
	Storage						() Rescan	+ Add zpool
S User Manager	Target Wizard						? ×	-
Failover Settin	1. Target name	Target name					^	Options v
Storage Settin	2. Zvols	Name:	iqn.2017-07:jdds.target0					
A Backup &	3. Access	Zvols attached to targe	et					
System Setting	4. Summary	Name		SCSI ID	LUN	Access mode		
		zvol-00		HsMPNw6KzBnWVGi4	0	Read-write (default)		
Diagnostics		CHAP users						new target
		CHAP user access au	thentication is disabled.					
		Mutual CHAP user					_	
		Mutual CHAP user is	disabled.					
		Target IP access restr	ictions					
							2	
		-			X Cancel	K Back	Add	
	Unassig	ned disks						
Notifications (	0 1							

• After completion of the "Target wizard" return to the "Storage". Below you will see the "iSCSI targets" you are able to see and overview of the configuration targets.

open-e 🦰 JovianDSS				(i) About	() Help	🕒 Logout 🗸
Storage	Storage				() Rescan	+ Add zpool
O User Management						
Failover Settings	Pool-0					Options v
Storage Settings	State: Zpool ID:	ONLINE 14248819111874998222	Status: Zpool is functi Action: None required	oning correctly.		
Backup & Recovery	Total storage: Disks:	1.63 TIB				
👼 System Settings						
Diagnostics	Status         Disk groups           O         iSCSI targets           ^         iqn.2017-07;jdds.target0	Status: Active — Zvols:		ual IPs	+ Ad	d new target
	Search					Options v
	Name 1 zvol-00	Type SCSLID zvol HsMPNw6KzBnW	LUN Logical size	Physical size Compress	sion Provisioni	ng
	<ul> <li>✓ Zvols not attached to targ</li> </ul>					
	Zpools available for im	port	~			
	(i) No external zpools available for the					

## 3.5. Exploring targets

It is now time for you to connect with your iSCSI initiator and use your targets.

Example (Microsoft Windows environment).

Run the Microsoft iSCSI Initiator and follow the instructions:

- Start the software, add the targets in the "Discovery" menu and enter the IP Address of Open-E JovianDSS and Port (default 3260).
- From the "Targets" menu "Log on" to a target.
- Now access the Windows "Computer Management" feature and start the Disk Manager function, where you will be able to partition and format the new iSCSI drives for your operating system.

### 3.6. Creating Fibre Channel targets

Fibre Channel HA Cluster uses Asymmetric Logical Unit Access (ALUA) to configure the paired targets. LUNs are visible on both configured targets by the initiator that has access to those LUNs by paths. Depending on the path status, the initiator knows which path should be used to access LUNs. The initiator accesses LUNs by using an active path, while standby path is used for a target that does not have access to LUNs. An active path is set for a target when the pool is present on the same node where the target is. A standby path is used for a target when a pool is present on the other node.

It is required to register SCST devices with VMW\_SATP\_DEFAULT\_AP plugin in ESX root console.

Login to ESX console and add new rules for SCST file I/O and block I/O devices:

esxcli storage nmp satp rule add -s VMW\_SATP\_DEFAULT\_AP -V "SCST\_FIO" -M "Storage" -c tpgs\_on -P VMW\_PSP\_MRU -e "SCST\_FIO Storage Device" -o enable\_action\_OnRetryErrors

esxcli storage nmp satp rule add -s VMW\_SATP\_DEFAULT\_AP -V "SCST\_BIO" -M "Storage" -c tpgs\_on -P VMW\_PSP\_MRU -e "SCST\_BIO Storage Device" -o enable\_action\_OnRetryErrors

- execute:
   esxcli storage core claimrule load
- check if new rule is listed in: esxcli storage nmp satp rule list
- reboot the VMware server
- check if correct plugin is used for SCST devices: esxcli storage nmp satp rule list | grep SCST The Storage Array Type should be set to VMW\_SATP\_DEFAULT\_AP

#### Setting Fibre Channel target as single node for ESX:

 Go to menu Storage Settings. In the Options drop-down menu select Properties and enter Alias name. In this example aliases are dd-40 and dd-41.

Storage	Storage Settings					
User Management						
⊐ ⊐ Failover Settings	Access protocols Discover	y CHAP user access	Fibre Channel			
Storage Settings	Fibre Channel ports					? 🖒
3 Storage Settings	WWN	Alias	Mode	Туре	Status	Options
Backup &	21:00:00:0e:1e:2c:dd:40	dd-40	Target	Physical	ОК	Options 🗸
Recovery	21:00:00:0e:1e:2c:dd:41	dd-41	Target	Physical	OK	Options 🗸
System Settings						
Diagnostics						



• From Storage Adapters in VMware please select the text, and then use the pop-up menu to copy the selected text to the clipboard.

▼ Storage ▲	Storage Ada	oters						
Storage Adapters Storage Devices	+ Add Software Adap	ter 🗟 Refresh 🛙	n Q Rescan Storage	e   🗟 Rescan Adapter				
Host Cache Configur.	Adapter y	Туре 🔻	Status 🔻	Identifier	Ŧ	Targets 🔻	Devic 🔻	Paths 🔻
Protocol Endpoints	Model: 2600 Serie	es 16Gb Fibre Channe	el to PCI Express	HBA				
I/O Filters	🚱 vmhba3	Fibre Channel	Online	20:00:00:0e:1e:2a:81:e0 21:00:00:0	e 1e:2a:81:e0	0	0	0
<ul> <li>Networking</li> <li>Virtual switches</li> </ul>	🚱 vmhba4	Fibre Channel	Online	20:00:00:0e:1e:2a:81:e1 21:00:00:	Сору			Ctrl+C
VMkernel adapters	A Model: Fusion-MP	T 12GSAS SAS3008	PCI-Express		Search Google for	r "21:00:00:0e:	1e:2a:81:e0"	
Physical adapters	G vmhba2	SAS	Unknown	-	Print			Ctrl+I
TCP/IP configuration	<ul> <li>Model: Patsburg 6</li> </ul>	Port SATA AHCI Cor	troller		Inspect			Ctrl+Shift+

• In Add Initiator please paste the previously saved text from the clipboard into the Initiator WWN field, and enter the Alias initiator. Next, click the Apply button.

Storage			O R	escan + Add zpool
	Add initiator		? 🗙	
	Add new initiato	r		
	Initiator WWN:	21:00:00:0e:1e:2a:81:e0		
	Alias:	vmhba3		
O Fibre			X Cancel V Apply	+ Add group
	)roup — Targets: 0	Zvols: 0 Status: Active		

• Initiators have been added.

	Storage	Storage					() Rescan	+ Add z
ŝ	User Management	State:	ONLINE	Status:	Zpool is functioning correctly.			
	Failover Settings	Zpool ID:	12199181236699342582	(i) Action:	None required.			
37	ranover settings	Total storage:	544.00 GiB					
	Storage Settings	Disks:	10					
	Backup & Recovery	Status Disk gro	ups iSCSI targets	Fibre Channel	Shares Snapshots	Virtual IPs		
-	•	O Fibre Channel g	jroups				+	Add group
	System Settings	Y Public group	Targets: 0 — Zvols: 0 —	Status: Active				70
	Diagnostics		e assigned to Fibre Channel					?¢
		<ul> <li>Fibre Channel targe</li> </ul>						70
		<ul> <li>Fibre Channel initial</li> </ul>	ors					?0
		Search					+ 4	dd initiator
		Alias		WWN			Op	tions
		vmhba3		21:00:00:	le:1e:2a:81:e0		C	ptions 🗸
		vmhba4		21:00:00:	le:1e:2a:81:e1		C	ptions 🗸
				~				



• In Add Fibre Channel group wizard, in Properties step, please enter the name of Group alias. To confirm this name, click the Next button.

Add Fibre Chann	el group		<b>2</b> X	d zr
1. Properties	Group alias:	Group1		ŀ
2. Targets				
3. Initiators WWN				
4. Zvols				L
5. Summary				p
				٥
				0
				L
				0
				Ó
			X Cancel Next >	or
Allas		WWN	Options	1

• In the Targets step please Select proper WWNs and click the Next button.

Storage	Add Fibre Chann	el group				P 🗙	d zpo
User Management	1. Properties	Select targets					
Fallover Settings	2. Targets	WWN	Alias	Mode	Туре	Status	
9		21:00:00:0e:1e:2c:dd:40	dd-40	Target	Physical	OK	
Storage Settings		21:00:00:0e:1e:2c:dd:41	dd-41	Target	Physical	OK	
Recovery							
Recovery							0
System Settings							
							2
Diagnostics							0
							0
			0000	🗙 Ca	ncel < Ba		



• In the Initiators WWN step please select proper Aliases and click the Next button.

Add Fibre Chann	nel group		? 🗙
1. Properties	Select WWN initiators		
2. Targets	Search		+ Add initiator
3. Initiators WWN	Alias	WWN	Options
4. Zvols	✓ vmhba3	21:00:00:0e:1e:2a:81:e0	Options v
5. Summary	✓ vmhba4	21:00:00:0e:1e:2a:81:e1	Options 🗸
		X Cancel	Back Next >
Alias		WWN	Options

• In Zvols step please click the Add zvol button.

Add Fibre Chann	iel group						? ×	6
1. Properties	Select Zvo	ls						l
2. Targets	Search						Add zvol	l
3. Initiators WWN	Name	Туре	Logical size	SC SI ID	LUN	Access mode		l
4. Zvols	No zvols found							L
5. Summary								p
								5
								0
								Ĩ
								L
								Ċ
								6
					× Cancel	< Back	Next >	or
Alias				WWN			Options	ł.



• In Add new zvol, enter the name of a new Zvol and the appropriate size and click Add button.

	Add new zvol				
	Zvol properties				
	Name:	zvol00		+ Add zvol	
	Size:	1024 GiB		Access mode	
		522.87 GiB physical available			
	Provisioning:	O Thick provisioned			
		<ul> <li>Thin provisioned (default)</li> </ul>			
	Deduplication:	Disabled (default)	$\sim$		
	Number of the data copies:	1 (default)	~		
	Compression:	Iz4 (default)	$\sim$		
	Volume block size:	128 KiB (default)	$\sim$		
	Write cache logging (Sync):	Always (default)	$\sim$		
	Write cache logging (Log bias):	Write log device (Latency)	$\sim$		
	Primary cache:	All (default)	$\sim$		
	Secondary cache:	All (default)	~	el < Back Next >	
				Options	
				Options	
		🗙 Ca	ancel 🗸 Add	Options	
				e	

• After creating new Zvols click the Next button.

Add Fibre Chann	el group						<b>?</b> ×
1. Properties	Select Zvo	ols					
2. Targets	Search					1	Add zvol
3. Initiators WWN	Name	Туре	Logical size	SCSI ID	LUN	Access mode	Add 2001
4. Zvols	✓ zvol00	zvol	1.00 TiB	Auto	Auto	Write-through (de	efault)
5. Summary							
					× Cancel	< Back	Next >
Alias				WWN	~ Cancer	Dack	Options



• In Summary you are able to see an overview of the configuration of the Fibre Channel Group. If the settings need to be modified, click the Back button and make the required changes. If it is correct, click Add.

Add Fibre Chan	nel group								7 🗙
1. Properties	WWN		Alias		Mode	Тур	e	Status	
	21:00:00:	)e:1e:2c:dd:4	40 dd-41	)	Targel	Phy	sical	OK	
2. Targets	21:00:00:0	)e:1e:2c:dd:4	41 dd-4	1	Target	Phy	sical	OK	
3. Initiators WWN	WWN Initia	itors							
4. Zvols									
5. Summary	WWN				Alias				
	21:00:00:0	De:1e:2a:81:e	e0		vmhba3				
	21:00:00:0	De:1e:2a:81:e	91		vmhba4				
	Zvols								
	Name	Туре	Logical size	SCSI ID	LUN		Access m	ode	
	zvol00	zvol	1.00 TiB	Auto	Auto		Write-throu	igh (default)	
						🗙 Cancel	< Back	×	Add
Alias				WWN					Options

• In Storage Adapters, you can check the connection of both remote ports for rescan.

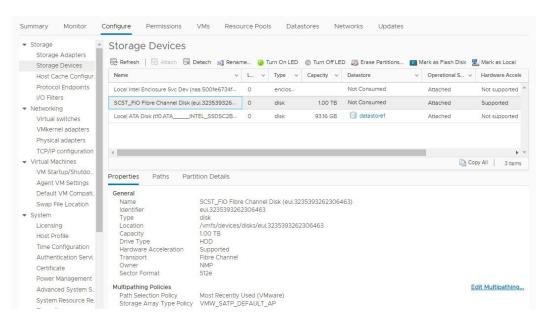
Storage	Storage Adap	otors					
Storage Adapters	Storage Addp						
Storage Devices	+ Add Software Adapt	er 🗟 Refresh 🚦	Rescan Storag	ge   🗟 Rescan Adapter			
Host Cache Configur.	Adapter 🔻	Туре 🔻	Status 1	Rescans all storage adapters on the host to discover new	ly added stor	age devices a	nd/or VMFS volum
Protocol Endpoints	A Model: 2600 Series	s 16Gb Fibre Channe	el to PCI Express	HBA		-	4
I/O Filters	🚱 vmhba3	Fibre Channel	Online	20:00:00:0e:1e:2a:81:e0 21:00:00:0e:1e:2a:81:e0	4	1	4
<ul> <li>Networking</li> <li>Virtual switches</li> </ul>	🚱 vmhba4	Fibre Channel	Online	20:00:00:0e:1e:2a:81:e1 21:00:00:0e:1e:2a:81:e1	4	1	4
VMkernel adapters	Model: Fusion-MPT	12GSAS SAS3008 F	CI-Express				

• After the rescan, the new device (SCST\_FIO) is listed below.

Storage Adapters     Storage Devices	Storage Adap + Add Software Adapte		Rescan Store	ige	🖏 Rescan Ada	pter				
Host Cache Configur.	Adapter 🔫	Туре 👻	Status	Identi	fier		т	Targets 👻	Devic 🔻	Paths 👻
Protocol Endpoints	Model: 2600 Series 16Gb Fibre Channel to PCI Express HBA									
I/O Filters	🚱 vmhba3	Fibre Channel	Online	20:0	0:00:0e:1e:2a:8	1:e0 21:00:00:0e:1e:	2a:81:e0	4	1	4
<ul> <li>Networking</li> <li>Virtual switches</li> </ul>	🚱 vmhba4	Fibre Channel	Online	20:0	0:00:0e:1e:2a:8	1:e1 21:00:00:0e:1e:	2a:81:e1	4	1	4
VMkernel adapters	Model: Fusion-MPT 12GSAS SAS3008 PCI-Express									
Physical adapters	🚱 vmhba2	SAS	Unknown					1	1	1
TCP/IP configuration Virtual Machines	Model: Patsburg 6 P	Port SATA AHCI Contr	roller							
VM Startup/Shutdo									🏠 Сору А	All 5 Items
Agent VM Settings	Properties Devices	s Paths								
Default VM Compati Swap File Location	Refresh   🗟 Attac	h 民 Detach 📷	Rename (	👌 Turn Oi	LED 🔘 Turr	n Off LED 🛛 🖉 Eras	e Partitions 🕫	Mark as Flash	Disk 🛃 N	Mark as Local
System	Name	~	LUN ~	Type ~	Capacity ~	Datastore ~	Hardware Accel	era v Dri	ve T 🗸	Transport
Licensing Host Profile	SCST_FIO Fibre Channe	el Disk (eui.32353	0	disk	1.00 TB	Not Consumed	Supported	н	D	Fibre Channe



• Next, go to Storage Devices and please click Edit Multipath.



• In Edit Multipathing Policies select Round Robin (VMware) and click the OK button.

Storage Devices Host Cache Configur.	Name	Attach 🐼 Detach 📷 Rename	<ul> <li>Type</li> <li>Capacity</li> </ul>	Turner as		Operational S v	
Protocol Endpoints	Local Intel Enclo	osure Svc Dev (naa.5001e6734f 0	enclos	Not Consumed		Attached	Not support
						Attached	Supported
Edit Multipa	thing Polici	eui.3235393262306463			×	Attached	Not support
					- 11		
Path selection policy					. 8		
Most Recently Used	(VMware)						
Most Recently Use							
Round Robin (VMw	are)						oyAll   3 na
Fixed (VMware)	Status 🗸	Target	LUN v Preferred				
vmhba4:C0:T0:L0	<ul> <li>Standby</li> </ul>	20:00:00:0e:1e:28:c4:e0 21:00:00:					
	Active	20:00:00:0e:1e:2c:dd:40 21:00:00:					
vmhba3:C0:T1:L0							
		20:00:00:0e:1e:28:c4:e0 21:00:00:					
vmhba3:C0:T0:L0	<ul> <li>Standby</li> </ul>	20:00:00:0e:1e:28:c4:e0 21:00:00:					
	<ul> <li>Standby</li> <li>Standby</li> </ul>	20:00:00:0e:1e:28:c4:e0 21:00:00: 20:00:00:0e:1e:28:c4:e1 21:00:00:	0				
vmhba3:C0:T0:L0							

Now, the FC target configuration is completed.

# 3.7. Creating SMB shares

• In the Pool menu select the "Shares" tab. Click on the "Add dataset" button in order to create a new NAS-volume. NAS-volumes are called "datasets".

open-e 🦰 JovianDSS		(i) About	() Help	🕒 Logout 🗸
Storage	Storage		() Rescan	+ Add zpool
O User Management				^
Failover Settings	Pool-0			Options v
Storage Settings	State:         ONLINE         Status:         Zpool is functioning correctly.           Zpool ID:         14248819111874998222 <ul></ul>			
Backup & Backup & Recovery	Total storage: 1.63 TIB Disks: 9			
System Settings				
	Status         Disk groups         iSCSI targets         Snapshots         Shares         Virtual IPs           O         Shares         Virtual IPs         Shares         Virtual IPs		+ /	Add dataset
	No datasets found.			
	Zpools available for import  No external zpools available for the import have been found.			
	Unassigned disks Local disks Remote disks Search			
Notifications 😣 0	🛕 0 🛛 0			

 In the "Add new dataset" window, enter the dataset (volume) name and click on "Apply" button.

Storage	Add new dataset			0	) Rescan + Add zpo
	Dataset properties				
Pool-O	Name:	vo100			C Options v
State:	Deduplication:	Disabled (default)	~		
Zpool ID:	Copies:	1 (default)	$\sim$		
Total storage:		Number of copies of the data.			
Disks:	Compression:	Iz4 (default)	~		
Status	Sync:	Always	~		
O Shares	Log bias:	Latency (default)	~		+ Add dataset
No datasets found	Primary cache:	All (default)	$\sim$		
	Secondary cache:	All (default)	~		
	Access time:	Disabled (default)	~		
Zpools availat					
<ol> <li>No external zpools</li> </ol>	Enable quota				
Unservice and	Enable reservation				
Unassigned		× Ca	maal Annhu		
Local disks		× Ca	ncel 🗸 Apply		



• Next select the created dataset. Next click on "Option" button and from drop-down menu click on the "Add share" button.

JovianDSS		(i) About	⑦ Help I Logout ∨	
Storage	Storage		C Rescan + Add zpool	
O User Management				
← → Failover Settings	Pool-0		Options v	
Storage Settings	State:         ONLINE         Status:         Zpool is functioning correctly.           Zpool ID:         14248819111874998222 <ul></ul>			
Backup & Recovery	Total storage: 1.63 TiB Disks: 9			
👼 System Settings				
Diagnostics	Status Disk groups iSCSI targets Snapshots Shares Virtual IPs O Shares		+ Add dataset	
	∧ vol00 — Shares: 0 — All active		Coptions V	
	Share name         Path         Access protocr Comments           No shares found.         Image: Comment State Stat	<ul> <li>Add share</li> <li>Edit dataset</li> <li>Delete dataset</li> </ul>		
	Zpools available for import		Set snapshot retention-interval' Add to Backup&Recovery task	
	① No external zpools available for the import have been found.			
	Unassigned disks			
Notifications 😣 0	🛦 0 🕐 1			

• In the "Share wizard" as a first step, enter the share name. Optionally you can enter the subdirectory name in the dataset. If the subdirectory is not entered, the share will be pointed directly to the dataset. The comment field is also optional. Continue with "Next".

open-e 🦰 JovianDSS						🕒 Logout 🗸
	Storage				() Rescan	+ Add zpool
	Share wizard					^ ^
	1. Share properties	Share properties				
	2. Access protocols	Name:	share-smb			
	3. User/group access	Path:	vol00/ share-smb If you want to share whole dataset leave this input empty.			
	4. Summary	Comment:	n jaa manna anara maaa aanaa isana ana angara angag			
						dd dataset
						ptions 🗸
						ons
			×	Cancel	Next >	
	① No external					
	Unassign	ned disks				
Notifications	0 40 01					



• In order to create the share, confirm with "Yes".

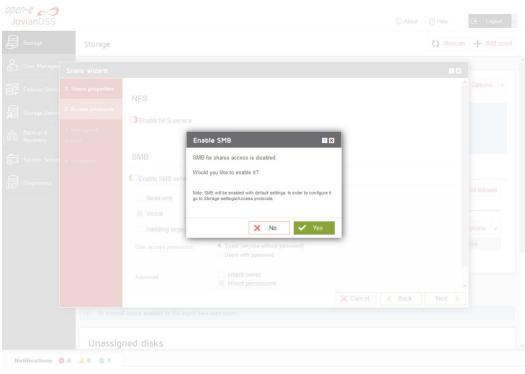
Storage		() Rescan	+ Add zpool
	vol00/ share-smb		
	Add share Specified path: vol00/share-smb does not exist. Would you like to create it?		
	× No Ves		

• In "Access protocols" step, check the "Enable SMB service".

open-e JovianDSS			telp	🕒 Logout 🗸
	Storage	0		+ Add zpool
Our User Manager	Share wizard			-
Failover Settin	1. Share properties	NFS		
Storage Settin	2. Access protocols 3. User/group	Enable NFS service		
Backup & Recovery	access 4. Summary	SMB		
Disgnostics		Enable SMB service		dd dataset
		Cancel Cancel N	lext >	
	No external	zpods analable for the import have been found.		
	Unassign	ned disks		
Notifications	0 🛕 0 👩 1			



• Confirm with the "Yes" button and continue with "Next".



	Charlosa			① About ⑦	) Help C Logout
	Storage				Auguna - Auguna
User Manager	Share wizard				
Failover Settin	1. Share properties	NFS			▲ Options V
Storage Settin	2. Access protocols	Enable NFS service			
Backup & Recovery					
System Settin		SMB			
Diagnostics		Enable SMB service			
		Read only			dd dataset
		Visible			
		Handling large directorie	es		ptions v
		User access permisions:	Guest (anyone without password)     Users with password		ons
		Advanced:	<ul> <li>Inherit owner</li> <li>Inherit permissions</li> </ul>		,
				X Cancel < Back	Next 🗲
	① No externa	I zpools available for the import have	) been found.		
	Unassig	ned disks			
	<b>0 A</b> 0 <b>0</b> 2				



• In the "Users/groups access" step continue with the "Next" button.

<i>ben-e "</i> JovianDSS				🕒 Logout
	Storage		() Res	can 🕂 Add zpoo
	Share wizard			×
	1. Share properties	∧ User access ——————————————————————————————————	1	Options V
	2. Access protocols	Guest user access enabled User access configuration is not available beca	use Guest user access is enabled for SMB protocol.	
	3. User/group access	Name		
	4. Summary	Résults per page: 10 🔍		
		Group access     Guest user access enabled     Group access configuration is not available be	ause Guest user access is enabled for SMB protocol.	C dd dataset
				ptions 🗸
		Name		ons
		Results per page: 10 🐱		
			Cancel C Back Next	>
	① No extern	al zpools available for the import have been found.		
	Unassig	ned disks		
Notifications	0 4 0 0 2			

• In the "Summary" step click the "Add" button. Now the SMB share is ready to use.

Storage					() Rest	an 🕂 Add zpo
Share wizard						X
1. Share properties	Properties					▲ Options ∨
2. Access protocols						
3. User/group access	Name Path Comment	share-smb vol00/share-smb				
<sup>0</sup> 4. Summary						
	NFS service disabled					dd dataset
	SMB					ptions 🗸
	Read only Visible Handling large directories User access permisions	X X Guest (anyone without password)			Ľ	ons.
	User access permisions	suest tanvone without password)	X Cancel	< Back	🗸 Add	
① No externa	al zpools available for the import have	been found.				-



• In order to change the SMB share settings, click on the "Options" drop-down menu of sharesmb and select "Protocols".

JovianDSS	① About   ⑦ Help	🕒 Logout 🗸
Storage	Storage () Resca	in 🕂 Add zpool
O JUser Management		
Failover Settings	Pool-0	Options v
Storage Settings	State:         ONLINE         Status:         Zpool is functioning correctly.           Zpool ID:         14248819111874998222         Action:         None required.	
Backup & Recovery	Total storage: 1.63 TiB 1	
System Settings		
Diagnostics	Status         Disk groups         iSCSI targets         Fibre Channel         Shares         Snapshots         Virtual IPs           O         Shares         Shares	+ Add dataset
	vol00 — Shares: 1 — All active — Search	Options v
	Share name Path Access protocol: Comments Status	Options
	1 share-smb /share-smb SMB Active	Options 🗸
	Results per page: 10 V K K Page 1 of 1	- Edit share
		Properties
		Protocols User/group acce
	Zpools available for import	Deactivate
	Rescan required     Click Rescan button above to scan disks for new zpools.	× Delete
	Unassigned disks	
Notifications 🔞 0	▲ 0 <b>0</b> 2	

# 3.8. Using local Users and Groups with build-in Lightweight Directory Access Protocol (LDAP)

• In order to enabling local Users and Groups, please go to "User Management" menu and in Lightweight Directory Access Protocol (LDAP) please click on "Enable protocol"

O User Management			j					
Failover Settings	Share users/groups	CHAP users	1					
Authorization protocols								
Storage Settings	attings Only one authorization protocol can be enabled in the same time. Changing the protocol will result in the loss of saved data.							
Backup &	Active Directory (AD) server authentication							
System Settings	Enable protocol     Apply		I					
Diagnostics	• прри		1					
	<ul> <li>Lightweight Directory</li> </ul>	Access Protocol (LDAP)						
	Enable protocol							
	LDAP settings							
	LDAP domain name:	dc=internal,dc=lan	Ľ					
	Password:							
	Password confirmation:							
	Apply							
	Share users and grou	ıps						
Notifications 😣 0 🔺	1 0 3							

• Next, confirm this action by clicking the "Yes" button.

User Management	
Enable protocol  LDAP settings	
EDAP domain no Enable Lightweight Directory Access Protocol (LDAP)	
Plassword Password confin SMB restart required	
Password contine  Apply Do you want to continue?  Do you want to continue?	
Share users a Yes	



• Next, in "Share users" click on the "Add user" button in order to create a new user. Please enter name of new user and password, then click Apply button.

User Management Reset to defaults	
Add user	
User settings	
Name: Administrator	
Password confirmation:	
∧ User groups I Ø	+ Add user
Search	Options
> Name  Domain Users	Options ✓
Results per page: 10 V K < Page 1 of 1 > X Q	
X Cancel V Apply	+ Add group
Reality Davis Davis	Options

• After this action new user is already added.

Storage	User Management	
O User Management	✓ Apply	
Failover Settings	Reset to defaults	
Storage Settings	To restore default settings and delete current database from local node use the "Reset" button below. It will also remove user and group assigments with shares.	
Backup &	Reset	
System Settings	Share users and groups	
Diagnostics	∧ Share users ———————————————————————————————————	
	Search	+ Add user
	Name	Options
	Administrator	Options 🗸
	Results per page: 10 🗸	> × ¢
	Share groups	70
	Search	+ Add group
	Name	Options
	Domain Users	Options 🗸
	Results per page: 10 🗸 file of 1	> > ©



• In the Pool menu select the "Shares" tab. On the required share, (in this example" data") click on the "Option" button.

**NOTE**: How to create a new share is described in subsection 3.7 "Creating SMB shares" in this document.

 Next click on "Option" button and from drop-down menu and next click on the "Protocols" button.

Storage	Storage			() F	Rescan + Add zpool		
O User Management							
Failover Settings	Pool-O				Options V		
Storage Settings	State: Zpool ID:	ONLINE 8994287197033934590	Status: Zpool is functioning correct Action: None required.				
- Backup & ■■ Recovery	Total storage: 272.00 GIB			h 0 errors on 5.02.2019, 08	.019, 08:52:36.		
System Settings	Disks:	5					
	Status         Disk groups           O         Shares           ^         vol00         Shares: 1	iSCSI targets All active	Fibre Channel Shares Snapshots	Virtual IPs	+ Add dataset		
	Search				Options 🗸		
	Share name Path		Access pro Comments SMB	Status	Options		
	Results per page: 10	~	Þ	< < Page 1 of			
			~		Protocols		
	Pool-1				User/group access		
	State:	ONLINE	Status: Zpool is functioning correct	ly.	X Delete		

• In "Edit share protocols, please click "Enable SMB service", and in User access permissions, change option "Guest (anyone without password) to "Users with password". Next, click Apply button.

Storage	() Rescan + Add zpool
O Edit share protocols ■⊠	🕑 Options 🗸
Star Access protocols	
Zo- Ten Ten	019, 08.52:36.
Die CEnable SMB service	
C Read only	+ Add dataset
Handling large directories User access permisions:     Guest (anyone without password)	
Great (any an initial position)     Great (any an initial position)     Great (any an initial position)	Options
Advanced Inherit owner	ve Options v
	1 of 1 × × Q
Close V Apply	1
Pool-1	C Options v



• Again in "Option" drop-down menu, please select "User/group access"

Storage	Storage			0	Rescan 🕂 Add zpool
O User Management					
Failover Settings	Pool-0				Options v
Storage Settings	State: Zpool ID:	ONLINE 8994287197033934590	Status: Zpool is functioning correctly Action: None required.		
Backup &	Total storage: Disks:	272.00 GiB 5	(1) Resilvering: Last resilvering finished with	0 errors on 5.02.2019,	08:52:36.
System Settings					_
Diagnostics	Status Disk groups O Shares  Vol00 — Shares: 1 — Search	ISCSI targets     All active	Fibre Channel Shares Snapshots	Virtual IPs	+ Add dataset
	Share name Path		Access pro Comments	Status	Options
	1 data /		SMB	Active	Options v
	Results per page: 10	~	к	< Page 1	Properties
					Protocols User/group access
	Pool-1				V Deactivate
	State:	ONLINE	Status: Zpool is functioning correctly		X Delete

• In "User access" ", please check the box with user name (in this example Administrator), and click Apply button.

Storage	() Rescan + Add zpool
Edit share user/group access	
User/group access	Options 🗸
Su Zp ^ User access	019. 08.52.36
Search Users with granted access	- TO, BUILDER
Name	
Results per page: 10 V K < Page 1 of 1 > X S	+ Add dataset
Group access	
Search Groups with granted access	Options v
Name Domain Users	ve Options
Results per page: 10 V K < Page 1 of 1 > X S	1 0f1 > > Q
X Close V Apply	
• Pool-1	Options V



• In "File explorer" in Windows system, please open Share folder window.

	Storage	Storage						() Rescan	+ Add zpool
<u>لي</u>	User Manag	ment ∰   💽 🖟 ∓		10.15.0.51		_	×		Í
	Failover Set	File Home Share	View etwork > 10.15.0.51 >			✓ C Search 10.15.0.51	<b>9</b> ×		Options 🗸
	Storage Seti	🔆 Favorites	data						
8	Backup & Recovery	Downloads Recent places						2019, 08:52:36.	
<sup>2</sup>	System Sett	PC Desktop							
<u>E</u>	Diagnostics	Documents Downloads Music Pictures Videos Local Disk (C:)						5 <b>+</b> A	dd dataset
		🙀 Network						Opti atus Opti	
									tions v
								1 of 1 >	Q K
		1 item 1 item selected							Options v
		State:	(	DNLINE	Status:	Zpool is functioning correctly.			

• Next, please check if there is access to the share (e.g. by creating a new folder)

	Storage	Storage								() Rescan	+ Add zpool
ං	User Manager				data				- • ×		Í
	Failover Set	File Home Sha	are View Network + 10.15.0.51 + data	•			× ¢	Search data	<b>9</b> ۷ م		Options v
	Storage Seti Backup & Recovery	☆ Favorites ■ Desktop ₩ Downloads ₩ Recent places	Name		Date modified 2/6/2019 8:29 AM	Type File fol	Size			.2019, 08:52:36.	
in <sup>o</sup>	System Sett Diagnostics	<ul> <li>₱ This PC</li> <li>₱ Desktop</li> <li>₱ Documents</li> <li>₱ Documents</li> <li>₱ Documents</li> <li>₱ Music</li> <li>₱ Pictures</li> <li>₱ Videos</li> <li>■ Local Disk (C:)</li> <li>♥ Network</li> </ul>		View Sort by Group by Refresh Customize th Paste Paste shortcu Undo New		* *				S + A Opt	
		1 item		New Properties			Folder Shortcut Bitmap image Contact Iometer Configura Rich Text Documen Text Document Compressed (zippe	nt		1 of 1 >	tions 🗸
		State:		ONL	INE	Status	: Zpool is	functioning corre			



• Then, go back to the "Pool" menu in "Storage". Click on "Shares" tab.

Storage	Storage				() Rescan + Add zpool
O @ User Management					Î
← □□□ Failover Settings	Pool-O				Coptions V
Storage Settings	State: Zpool ID:	ONLINE 8994287197033934590	Status: Zpool is functioning Action: None required.		0.00.02.00
<ul> <li>Backup &amp;</li> <li>Recovery</li> </ul>	Total storage:	272.00 GiB	(1) Resilvering: Last resilvering finis	hed with 0 errors on 5.02.20	19, 00.52.36.
👼 System Settings	Disks:	5			
Diagnostics	Status Disk groups		Fibre Channel Shares Snaps	hots Virtual IPs	+ Add dataset
	vol00 — Shares: 1 -     Search     Share name Path	All active			Options V
	Share name Path 1 data /		Access pro Comment SMB	s Statu Activ	
	Results per page: 10	~		K < Page	1 of 1 - Edit share
			^		Protocols
	Pool-1				User/group access
	State:	ONLINE	Status: Zpool is functioning	correctly.	X Delete

• In "Options" drop-down menu, select "Users/group access", and in "User access" uncheck the check the box with "Administrator" user, and confirm by clicking the Apply button.

Storage	() Rescan + Add zpool
Edit share user/group access	
User/group access	🗹 Options 🗸
Ste 200 ~ User access	
Ton Search Users with granted access	
Administrator	
Results per page: 10 V K < Page 1 of 1 > X Q	+ Add dataset
Group access	
Search Groups with granted access	
Name Domain Users	
Results per page: 10 V K < Page 1 of 1 > X Q	
🗙 Close 🗸 Apply	
Pool-1	🕑 Options 🗸



• Next, go back to the Windows system and check if you still have access to Share data. As shown below, access to the share "data" is disabled because the Windows Security prompts for user credentials.

	Storage	Storage		C Rescan + Add zpool
<b>_</b>	User Manage	mont	data 🔄 🗖 🗴	Í
	Failover Set	File     Home     Sha       €       ↑	re View	C Options V
	Storage Set	☆ Favorites ■ Desktop ▶ Downloads	Name Date modified Type Size This folder is empty.	.2019, 08:52:36.
-	Backup & Recovery	Recent places	Windows Security	
	System Sett	Desktop	Enter network credentials Enter your credentials to connect to: 10.15.0.51	s
<u>ann</u>	Diagnostics	<ul> <li>Downloads</li> <li>Music</li> <li>Pictures</li> <li>Videos</li> <li>Local Disk (C:)</li> </ul>	User name Password	+ Add dataset
		🗣 Network	Domain: LAB  Remember my credentials	Options v
				ctive Options V
			🐼 Access is denied.	1 of 1 > >  \$
			OK Cancel	C Options v
		0 items State:	ONLINE Status: Zpool is functioning correctly.	

# 3.9. Auto-Snapshots and Access to Previous versions

Use Windows Previous Versions to go back in time and access or restore previous versions of files and folders. Windows allows restoring previous versions of a file that was modified or even deleted. Anyone who has ever changed a file and realizes that the previous content was better as it was before, will appreciate the value of being able to retrieve a previous version of a file. Previous versions need auto-snapshot. The auto-snapshot can be set via the GUI.

 To create new auto-snapshots plan, please go to the "Backup & Recovery" menu then Click the "Add replication task" button in the bottom right corner to run the "Backup task wizard".

open-e JovianDSS	🛈 About 🕥 Help 🖃 Logout
Storage	Backup & Recovery
OUser Management	
Failover Settings	Tasks         Destination servers         vCenter / vSphere server           Search         + Add replication task
Storage Settings	Source Source retention Destination path Destination retentio Description VII/ware int. Status
Backup & Recovery	No tasks found. Results perpage: 10 🗸
System Settings	
Diagnostics	
Notifications 😣 0	<u><u>A</u>002</u>

 After starting the "Backup task wizard" will be listed default "Retention-Interval plan for source".

Backup task wiz	ard									1 🗙	
1. Source configuration	Source										
coninguration	Resource path:					Bro	owse				cation task
2. Destination configuration											
	Retention-Interval plan	for so	urce								X O
3. vCenter / vSphere server integration	Snapshols from source t										
4. Task properties	Retention rules:										
4. task properties	A snapshot taken every			$\sim$				$\sim$			
5. Summary	A snapshot taken every			~				$\sim$	×		
	A snapshot taken every			~				$\sim$	×		
	+ Add another r	ule									
								Ĵ	Resto	re to default	
								¥ 0	and a	New X	1
								×c	ancel	Next >	



• In the "Source configuration" click "Browse".

open-e 🦰 JovianDSS			🖃 Logout 🗸
	Backup & F	Recovery	
Storage Settin		Resource path: Browse	
Backup & Recovery		Ro Zvols Datasets	
		Search	
		Resource name No zvols found	
		Results per page: 10 v K < Page 0 of 0 > x 爻 ×	
		X Cancel Apply	
		Restore to default	
Notifications (	30 🔺 0 0 2		

• In the "Browse" please select "Datasets" tab, and choose a resource name. Next click on "Apply" button.

open-e JovianDSS					🖃 Logout 🗸
	Backup & F		ery		
		R	source path: Browse		
		Re	Browse 🖬 🖾		
			Zvols Datasets Search		
			Resource name Pool-0/vol00 •		
			Results per page: 10 V K < Page 1 of 1 > X Q	×	
		l	Cancel 🗸 Apply	×	
Notifications (	0 🔺 0 🛛 2				



• After the end selecting "Resource path" please click on "Next" button.

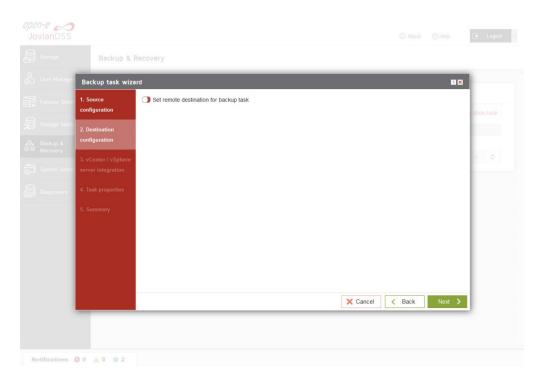
Backup task wiz	ard										?	×
1. Source	Source											
configuration	Resource path:		F	001-0/vol00				Bro	wse			cation task
2. Destination configuration	Retention-Interval plan	for so	urce									
3. vCenter / vSphere server integration	Snapshots from source			ery 5 minutes (i.	e. the	shortest interval from	the sou	urce rete	ention rules)			0 K
4. Task properties	Retention rules:											
4. Task properties	A snapshot taken every	5	~	minute(s)	~	should be kept for	1	^ ~	hour(s)	$\sim$		
5. Summary	A snapshot taken every	15	^	minute(s)	~	should be kept for	3	^	day(s)	~	×	
	A snapshot taken every	1	^	hour(s)	~	should be kept for	2	^ ~	week(s)	$\sim$	×	
	+ Add another r	ule										
										Ċ	Restore to default	
										×c	ancel Next	
		-	-		-		-	-				

In "Destination configuration" please disable "Set remote destination for backup task" option.
 NOTE: If backup need to be configured, you can just continue with the wizard and provide destination volume accordingly.

Backup task wiza	ırd										? 🗙	
1. Source configuration	<ul> <li>Set remote destination</li> <li>Destination 1 —</li> </ul>	ion for ba	ickup task									cation task
2. Destination configuration	Destination server and	resource	nath					×	Remo	ve resourc	e	
3. vCenter / vSphere server integration	Destination server:	resource	puur		~							9 8
4. Task properties	Resource path:					Brows	e					
5. Summary	Retention-Interval plan	for destin	ation									
	Snapshots from source											
	Retention rules:											
	A snapshot taken every A snapshot taken every							~	×			~
						🗙 Ca	ncel	< E	lack	Nex	t >	



• Next, please click on "Next" button.



• In "vCenter / vSphere server integration" please click on "Next" button

open-e JovianDSS						🗈 Logout 🗸
	Backup & I	Recovery				
	Backup task wiza	rd			? 🗙	
	1. Source configuration	Integrate vCenter / vSphere server				cation task
	2. Destination configuration					
	3. vCenter / vSphere					ж о
	server integration 4. Task properties					
			X Cancel	Back	Next >	
Notifications (	<b>8</b> 0 🔺 0 0 2					



• In "Task properties" please enter task description, and click on "Next" button.

Backup task wiza	rd	2 🗙
1. Source configuration	Task description	cation task
2. Destination	Description: auto-snap	
configuration	mbuffer	
3. vCenter / vSphere server integration	Enable mbuffer	у ф
4. Task properties		
5. Summary		

• Next, in "Summary" please click on the "Add" button

<i>ben-e </i> JovianDSS					() Help 💽 Logout
	Backup & F	lecovery			
	Backup task wiza	rd			
	1. Source configuration 2. Destination configuration 3. vCenter / vSphere	Properties Resource path: Source retention:	Pool-0/vol00 1h every 5min 3d every 15min 2w every 1h		cation task
	server integration 4. Task properties 5. Summary	vCenter / vSphere server int vCenter / vSphere:	egration disabled		2
		Task properties Description: mbuffer size:	auto-snap disabled		2
				X Cancel C Back	' Add
Notifications (	<b>3</b> 0 <b>A</b> 0 <b>0</b> 2				



• After completion of the "Backup task wizard" return to the "Backup & Recovery". Below you will see the "Task" you are able to see that is "Enabled".

JovianDSS	🛈 About 🕥 Help 💽 Logout 🗸
Storage	Backup & Recovery
O の User Management	^ ^
Failover Settings	Tasks         Destination servers         vCenter / vSphere server
Storage Settings	Search + Add replication task Source Source retention Destination path Destination retentic Description VII/ware int. Status
Backup &	Pool-0/vol00 1h every 5min auto-snap Enabled Options v 3d every 15min
👼 System Settings	2w every th Results per page 10 ✓ K < Page 1 of 1 > X 文
Diagnostics	reasons yen yenge. Ity V
	*
Notifications 80	▲ 0 0 2

• Next, go to the "Storage" menu. Now auto-snapshots are created accordingly to a provided retention-interval plan and can be viewed in pool-menu in "Snapshots" tab.

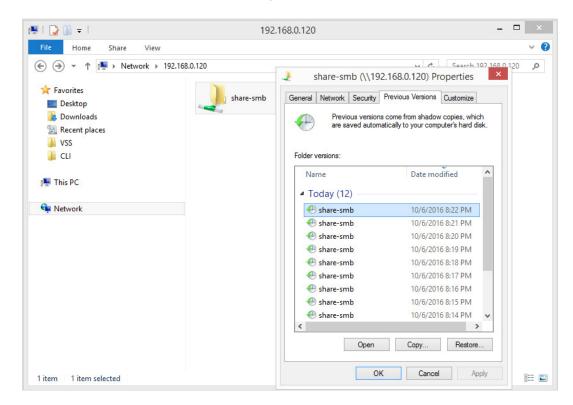
JovianDSS		(i) About	() Help	🕒 Logout 🗸
Storage	Storage		() Rescan	+ Add zpool
O	Total storage: 143.00 GIB Disks: 9			1
Failover Settings	Status Disk groups iSCSI targets Snapshots Shares Virtual IPs			
Storage Settings	O Snapshots			
Backup & Recovery	Snapshots of zvols			
System Settings	Search Name			
Diagnostics	No snapshots found.			
	Snapshots of datasets     Search			_
	Name			
	A 0000 A		Options	~
	vol00@autosnap_2017-08-14-184500		Options	~
	Zpools available for import			
	Rescan required     Cick Rescan button above to scan disks for new zpools.			
Notifications 😣 0	🛕 0 🛛 0 2			



 In the event of a file being renamed or deleted, you can view the previous version of the containing folder. Just right-click on some white space in the folder and select the "Properties" option. You can also right-click on the folder itself and select the "Properties" option as shown on the screenshot below.

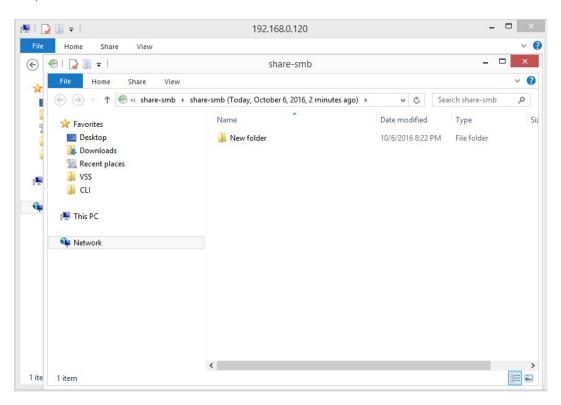
🖳   🛃 📗 =	192.168.0.120 – 🗆	×
File Home Share View		~ 😮
	88.0.120 ►	Q,
Favorites Desktop Downloads Recent places VSS CLI This PC	share-smb Open in new window Restore previous versions Pin to Start Map network drive Copy	
👊 Network	Create shortcut	
	Properties	
1 item 1 item selected		:== 🔛

• In the "Previous Versions" tab, all auto-snapshots are listed.





• By double-clicking on a folder in the list, it will show the contents of the folder at the time the snapshot was made.



# 3.10. Creating NFS shares

• In the Pool menu select "Shares" tab. Click on the "Add dataset" button in order to create new NAS-volume.

vianDSS				(i) About (7) H	lelp (	∃ Logout
Storage	Storage			0	Rescan	+ Add zpoo
User Management						
Failover Settings	Pool-0					Options v
Storage Settings	State:	ONLINE	Status: Zpool is functioning correctly			
	Zpool ID:	14248819111874998222	Action: None required.			
Backup & Recovery	Total storage:	1.63 TiB	Ū			
System Settings	Disks:	9				
	Status Disk groups	iSCSI targets S	inapshots Shares Virtual IPs			
Diagnostics	O Shares				+ Ad	d dataset
	∧ vol00 — Shares: 1	All active				
					С Ор	tions 🗸
	Share name Path		Access protoct Comments	Status	Option	15
	1 share-smb /share-smb		SMB	Active	Optio	ons v
			~			
	Zpools available for i	mport				
	(i) Rescan required Click Rescan button above	to scan disks for new zpools.				

• In the "Add new dataset" window enter the dataset name and click on "Apply" button.

Storage	Add new dataset		2 C X	0	Rescan + Add zpo
	Dataset properties				
Pool-0	Name:	vol01			C Options v
	Deduplication:	Disabled (default)	~		
	Copies:	1 (default)	$\sim$		
		Number of copies of the data.			
	Compression:	lz4 (default)	~		
	Sync:	Always	~		
O Shares	Log bias:	Latency (default)	$\sim$		+ Add dataset
	Primary cache:	All (default)	~		
	Secondary cache:	All (default)	~		-
	Access time:	Disabled (default)	~		C Options V
	Enable quota				
Zpools availa	Enable reservation				
		× Cancel	✓ Apply		



 Next, select the created dataset and click on the "Add share" button. Enter the share name. Optionally you can enter the subdirectory name in the dataset. If the subdirectory is not entered the share will be pointed directly to the dataset. In order create share click "Next" and confirm this action by clicking the "Yes" button.

	n-e						🕒 Logout 🗸
		Storage				() Rescan	+ Add zpool
		Share wizard				7 🗙	î î
		1. Share properties	Share properties				Options 🗸
		2. Access protocols	Name:	share-nfs			
		3. User/group access	Path:	vol01/ share-nfs If you want to share whole dataset leave this input empty.			
		4. Summary	Comment:				
				X	Cancel		dd dataset
N	otifications (	<b>3</b> 0 ▲0 <b>0</b> 2					

Storage	🗘 Res	can 🕂 Add zpool
	voli01/ share-rifs	
	Add share Specified path: vol01/share-rifs does not exist.	
	Would you like to create it?	
	X No Ves	



• In the "Access protocols" step, click on "Enable NFS service" confirm this action by clicking the "Yes" button and continue with "Next" button.

JovianDSS			elp 🕒 Logout
	Storage	0	Rescan + Add zpool
S User Manager	Share wizard		
Failover Settin	1. Share properties	NFS	Options 🗸
Storage Settin	2. Access protocols	Enable NFS service	-
Backup & Recovery	3. User/group access		
System Settine	4. Summary	SMB	
Diagnostics		Enable SMB service	cd dataset ptions v
		Cancel Cancel Ne	ext >
Notifications	<b>3</b> 0 <u>A</u> 0 <b>0</b> 2		

• Confirm this action by clicking the "Yes" button and continue with "Next" button.

			<ol> <li>About</li> <li>Help</li> </ol>	🖻 Logout
Storage			Q Rescar	+ Add zpoo
	NFS			
		Enable NFS	×	
		NFS service for shares access is disabled. Would you like to enable it?	clude correct server name or IP address (see	
		Viouid you like to enable it r Note: NFS service will be enabled with default settings. In order to configure it go to Storage settings/Share access.		
		🗙 No 🗸 Yes		
		Insecure connections Synchronous data record Insecure lock requests All squash No root squash	_	



Storage				() Rescan	+ Add zp
Share wizard				? ×	
1. Share properties	NFS			^	Options V
2. Access protocols	C Enable NFS service				
3. User/group access	NFS path:	/Pools/Pool-0/vol01/share-nfs			
4. Summary		In order to get access to the share please make Help for more information)	sure to include correct server name or IP ac	ldress (see	
	Read access IPs:	Read access allowed for all IPs			dd dataset
		x00.x00.x00; x00.x00.x00/network prefix			
	Read/write access IPs:	Read/write access allowed for all IPs x00.000.000; x00.000.000/network prefix			ptions 🗸
	Additional options:	Insecure connections Synchronous data record Insecure lock requests All squash No root squash			tions 🗸
			X Cancel K Back	Next >	ptions v
No shares	found.	Access.	la carre e guinnerne	annia ish	

• In the "Users/groups access" step, continue with "Next" button.

open-e JovianDSS							🕞 Logout 🗸	
	Storage					() Rescan	+ Add zpool	
	Share wizard					<b>?</b> ×	L	
	1. Share properties	<ul> <li>User access</li> </ul>				? 0	Options v	
	2. Access protocols	SMB service User access co	disabled	use SMB service is disabled.				
	3. User/group access							
	4. Summary							
		∧ Group access —				? 🗸	dd dataset	
		i SMB service Group access of	disabled configuration is not available bec	ause SMB service is disabled.				
		Smarth					ptions 🗸	
							ons	
							tions v	
		citurie i dui		× Cancel	Back	Next 💙	ptions 🗸	
Notifications	<b>3</b> 0 🗛 0 🗿 3							



• In the "Summary" step, to complete click the "Add" button. Now the NFS share is ready to mount.

JovianDSS						🕒 Logout 🗸
	Storage				() R	escan 🕂 Add zpool
S User Manager	Share wizard					2 ×
Failover Settin	1. Share properties	Properties				▲ Options V
Storage Settin	2. Access protocols	Name	share-nfs			
Backup & Recovery	3. User/group access	Path Comment	vol01/share-nfs			
	4. Summary					
Degrantics		NFS Read access IPs Read/write access IPs Additional options	Insecure connections Synchronous data record Insecure lock requests No root squash All squash	× × × × × ×	ack 🗸 Add	dd dafaset ptions v ins v ptions v ins v
Notifications (	<b>0</b> 0 0 3					

• In order to change the NFS share settings, click on the share "Options" drop-down menu. In order to change the dataset setting, click on the "Edit dataset" in dataset "Options" drop-down menu.

lovianDSS			(i) About (?) He	lp 🕒 Logout
Storage	Storage		0	Rescan 🕂 Add zpool
) User Management				
Failover Settings	Pool-0			Options v
Storage Settings	State: Zpool ID: 1424881911187	ONLINE Status: Zpool is functioning correctly. 4998222 Action: None required.		
Backup & Recovery		1.63 TiB		
System Settings	Disks:	9		
Diagnostics	Status Disk groups iSCSI targ	ets Snapshots Shares Virtual IPs		+ Add dataset
	∧ vol00 — Shares: 1 — All active			Options v
	Share name Path	Access protocc Comments	Status	Options
	1 share-smb /share-smb	SMB	Active	Options 🗸
	∧ vol01 — Shares: 1 — All active			
				Options v
	Share name Path	Access protocc Comments	Status	Options
	1 share-nfs /share-nfs	NFS	Active	Options v
	I	^		



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