

# Preparing the boot media/installer with the ISO file:

Download and extract the ISO file with your favorite uncompressing/extracting software (for example: 7zip or WinZip® 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 with USB Flash Drive.

#### **NOTE**

The prepared USB Flash Drive will run the software installer by default. If you desire to test or for non-mission critical or non-production usage, the USB Flash Drive can boot Open-E JovianDSS instead of running the software installer to install other boot media. 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.

## **Booting Open-E JovianDSS:**

#### **General Hardware requirements**

- The minimum size for the JovianDSS boot medium is 16GB. A recommended JovianDSS boot medium uses a 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-Cluster setup require 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.

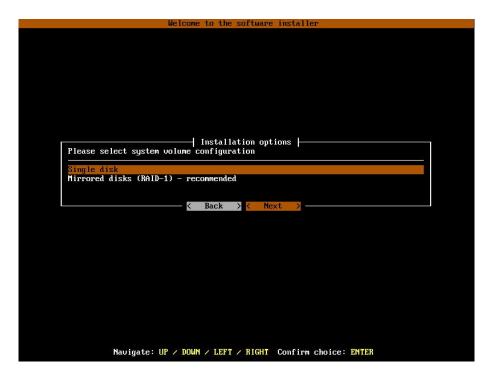
Plug your installer media (USB Flash Drive) into the storage appliance.

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.



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).

#### **NOTE**

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.

You will see an option to run a memory test on the system by choosing "Run Memtest utility" in the first menu.

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.

### **Storage Configuration:**

#### **Step 1.** 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.

### **Step 2.** 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".

### Step 3. 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:

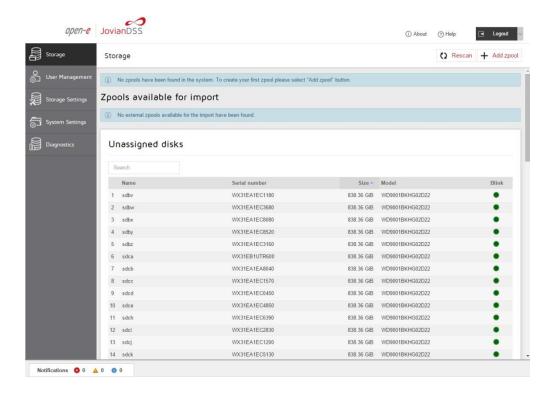
https://192.168.0.220

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.

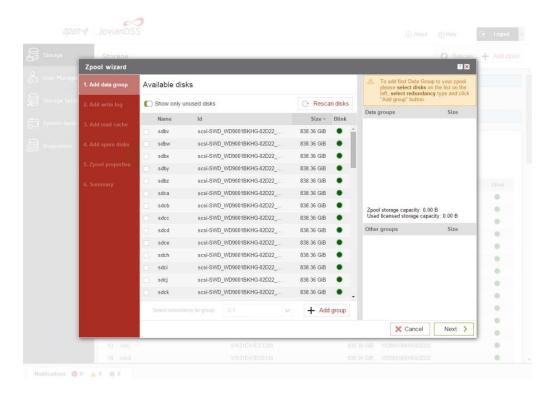
**NOTE**: Be aware that the password is case-sensitive.

### Step 4. Create zpools

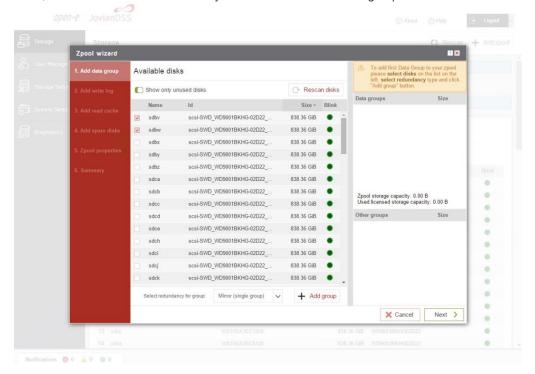
• To create a new zpool, please go to the "Storage" menu then Click the "Add zpool" button in the upper right corner to run the "Zpool wizard".



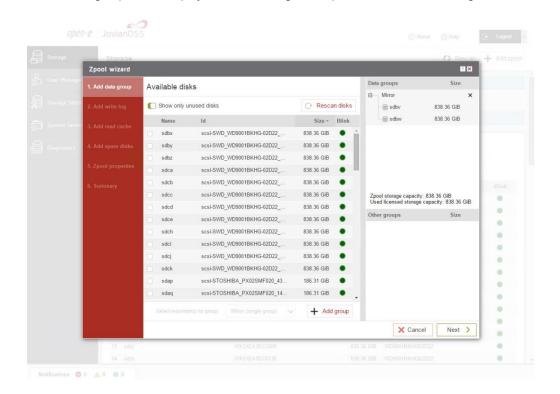
After starting the "Zpool wizard" all available disks will be listed.



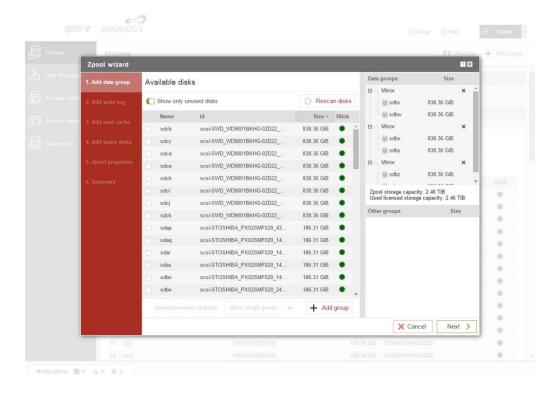
Next, select the disks and redundancy level and click on the "Add group" button.



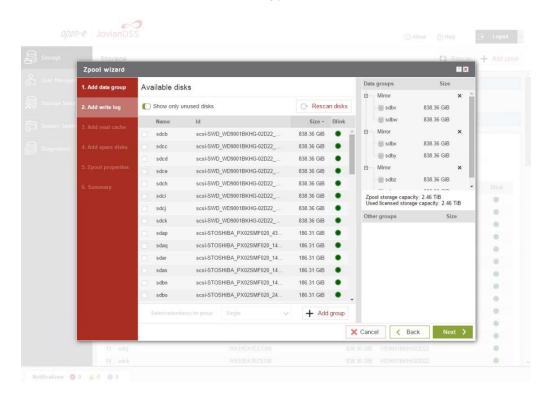
The created group will be displayed in the "Configuration preview" window on the right side.



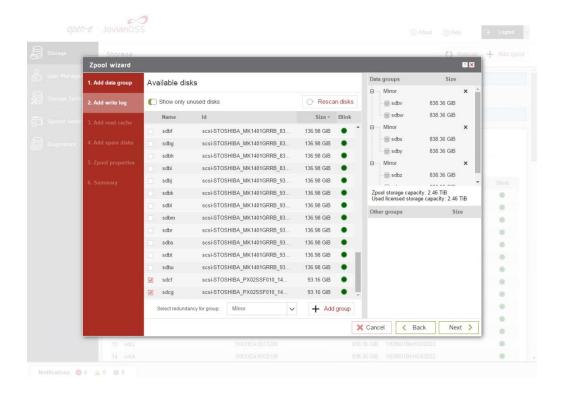
- In this example we have 3 mirror groups added.
- The created 3 mirror groups will be displayed in the "Configuration preview" on the right side. After adding all groups click the "Next" button.



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.



• 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.



Data groups Available disks Show only unused disks Rescan disks - 🗐 sdbv 838.36 GiB m sdbw 838.36 GiB Size - Blink Mirror scsi-SWD WD9001BKHG-02D22 838.36 GiB sdcb . 838.36 GiB scsi-SWD\_WD9001BKHG-02D22\_ 838.36 GiB scsi-SWD\_WD9001BKHG-02D22\_.. ■ sdby 838.36 GiB 838.36 GiB □ Mirror scsi-SWD WD9001BKHG-02D22 838.36 GiB sdce ■ sdbz 838.36 GiB scsi-SWD WD9001BKHG-02D22 838 36 GIB scsi-SWD\_WD9001BKHG-02D22\_. 838.36 GiB Zpool storage capacity: 2.46 TiB Used licensed storage capacity: 2.46 TiB scsi-SWD\_WD9001BKHG-02D22\_. 838.36 GiB sdcj Other groups sdck scsi-SWD WD9001BKHG-02D22 838.36 GiB Mirrored write loc scsi-STOSHIBA\_PX02SMF020\_43. 186.31 GiB sdcf 93 16 GiB scsi-STOSHIBA\_PX02SMF020\_14... 186.31 GiB sdcg scsi-STOSHIBA PX02SMF020 14. 186.31 GiB scsi-STOSHIBA\_PX02SMF020\_14... 186.31 GiB scsi-STOSHIBA\_PX02SMF020\_14...

scsi-STOSHIBA PX02SMF020 24.

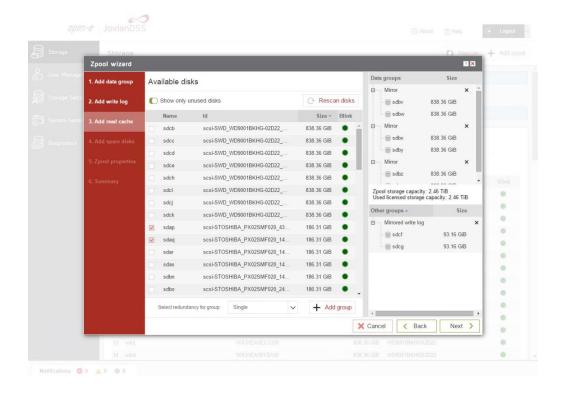
sdbo

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

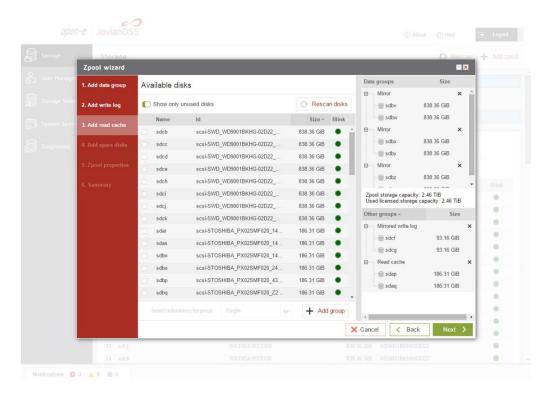
 In the next step you will want to create the read cache. Select the disks from the list on the left and select redundancy "Read Cache", type and click "Add group", and then the "Next" button.
 NOTE: For fast random read IOPS it is recommended to use SSD disks.

186.31 GiB

+ Add group

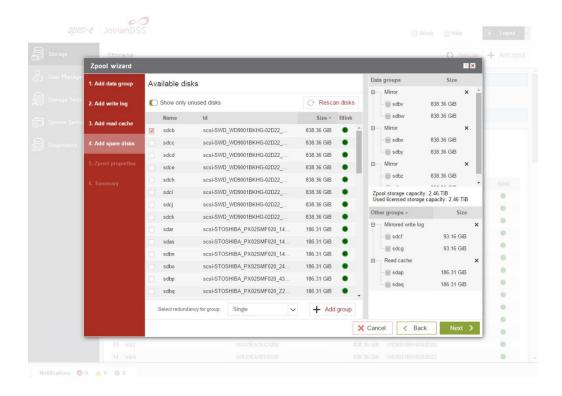


• The created "read cache" will be displayed in the "Configuration preview" on the right side.



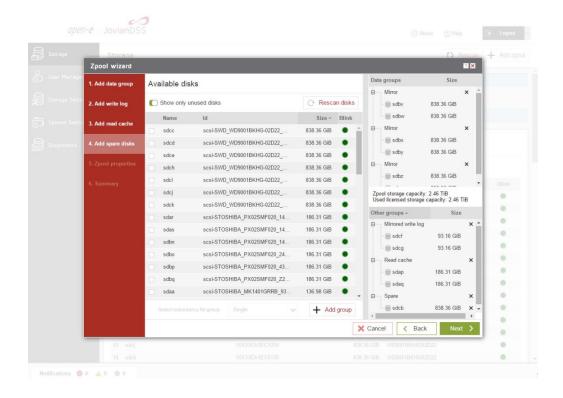
 In the "Add spare disks" please select the disk from the available disks" list, click "Add group", and the "Next" button.

**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".

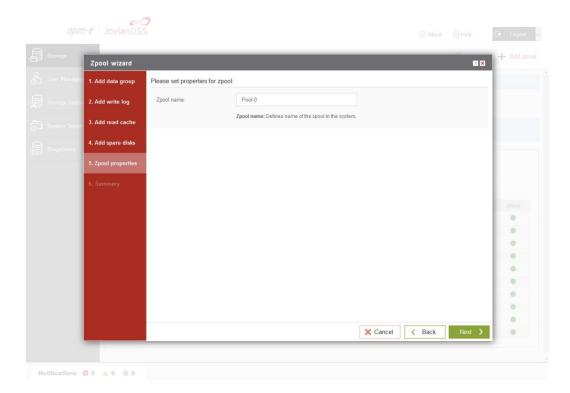




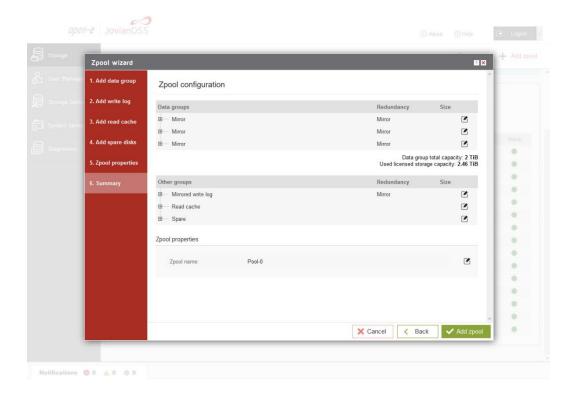
 The created "spare disks" will be displayed in the "Configuration preview" on the right side. Now click the "Next" button.



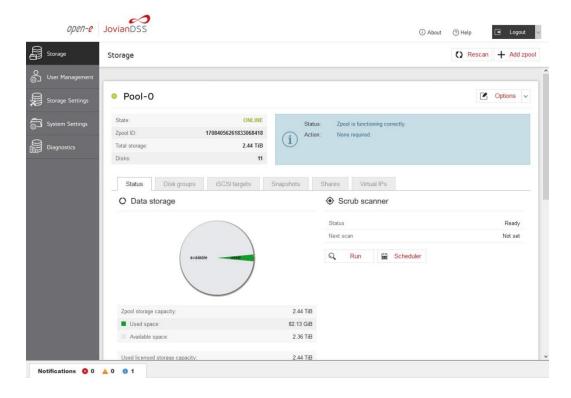
• In the next step, enter the zpool name and click the "Next" button.



 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".

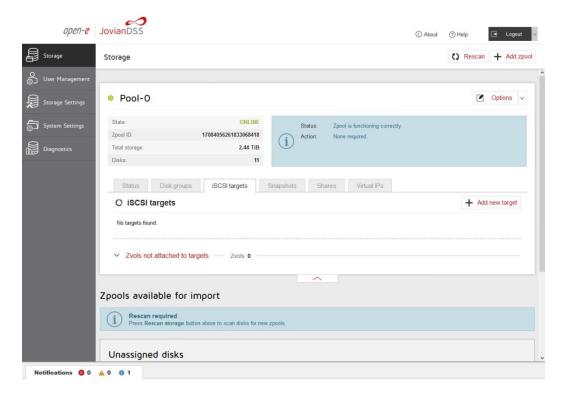


At this point you have configured a new zpool (you can add more zpools if required).

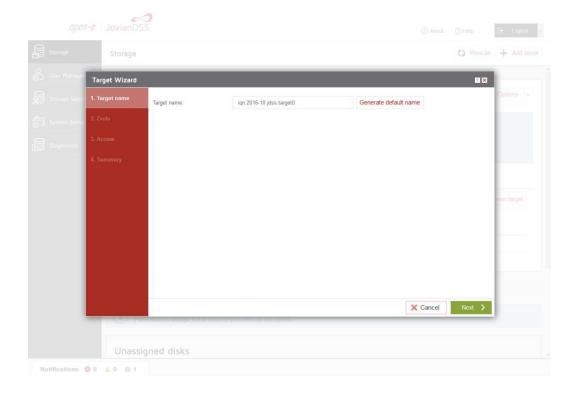


# **Step 5.** Creating iSCSI targets

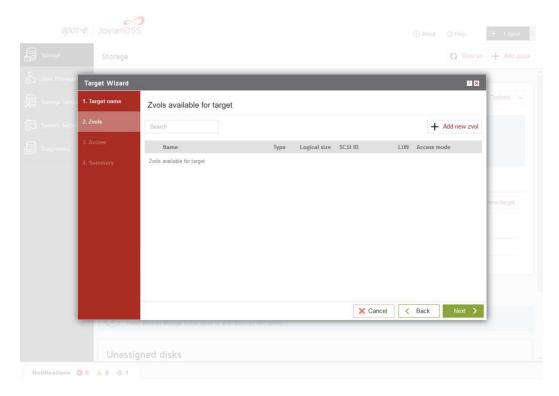
- After creating a zpool, the GUI shows pool status of just created zpool. In order to access pool **setup menu** click on down arrow button in the middle bottom of the pool status section.
- Next, select "iSCSI targets" and click the "Add new target" button.



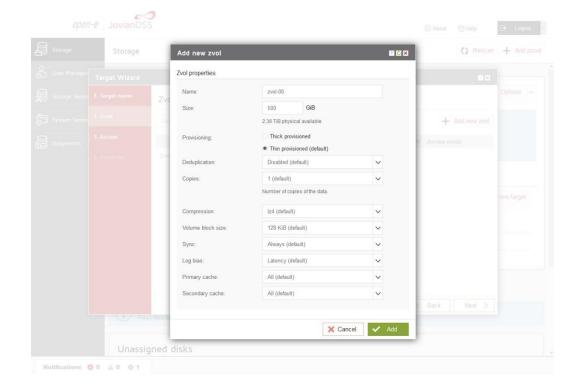
 In the "Target Wizard", you can enter a new "Target name". If the default target name is OK, click the "Next" button only.



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

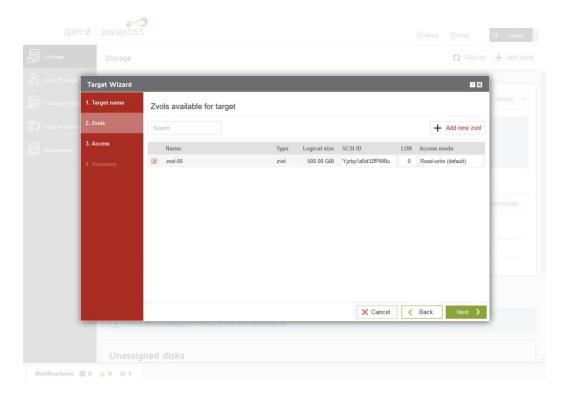


• In "Zvol properties" enter the name of a new Zvol and the appropriate size and click "Add" button.

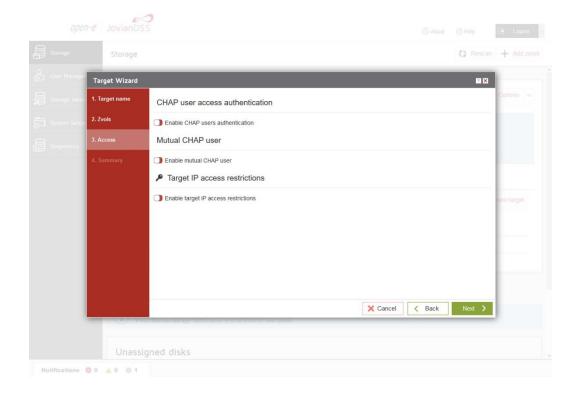


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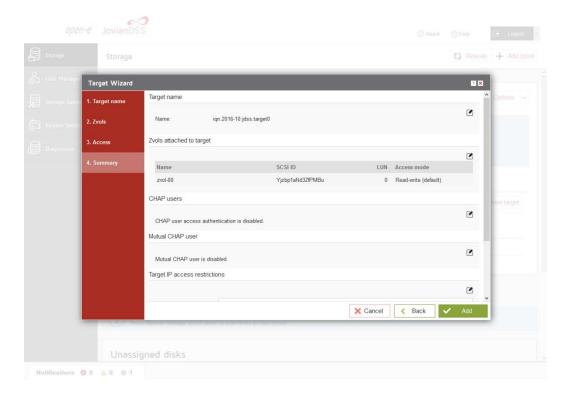
After creating the new Zvols, click the "Next" button.



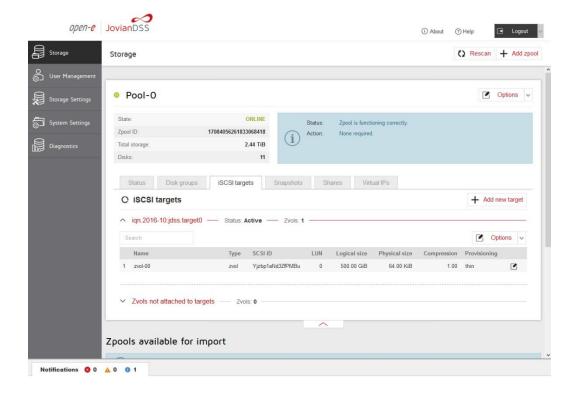
• In the "Access" step, you can change the security options of the targets. After making these changes click the "Next" button.



• 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".



 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.



# **Step 6.** Exploring targets

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

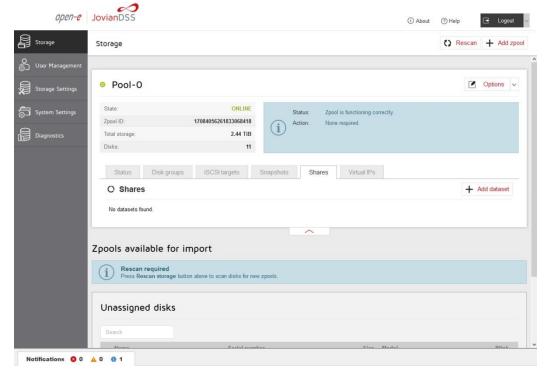
Example (Microsoft Windows environment).

Run the Microsoft iSCSI Initiator and follow the instructions:

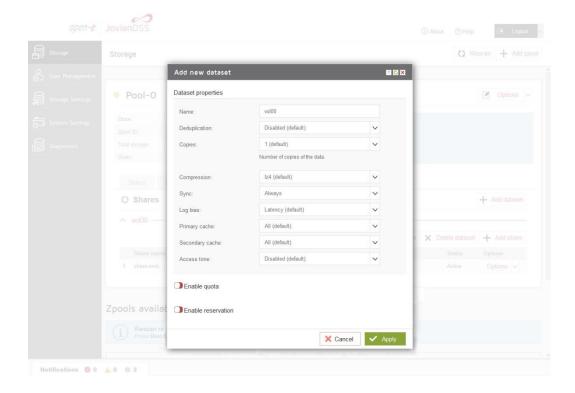
- Start the software, add the targets in the "Discovery" menu and enter the IP Address of Open-E JovianDSS and Port (default 3260).
- From the "Targets" menu "Log on" to a target.
- Now access the Windows "Computer Management" feature and start the Disk Manager function, where you will be able to partition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

# Step 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".

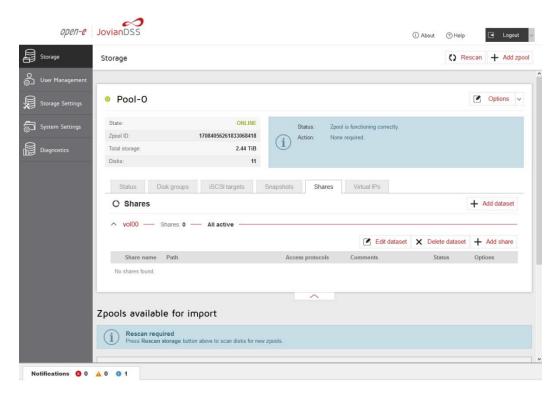


• In the "Add new dataset" window, enter the dataset (volume) name and click on "Apply" button.

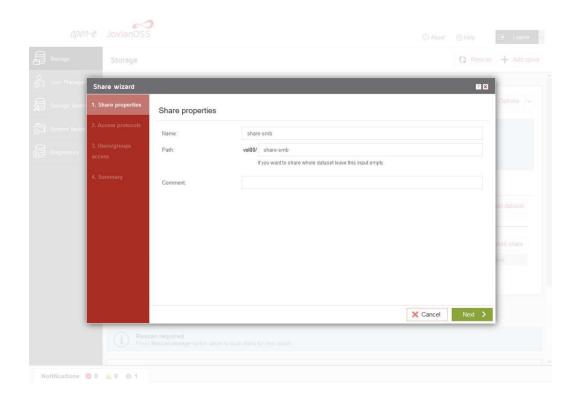




• Select the created dataset and click on the "Add share" button.



• 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".

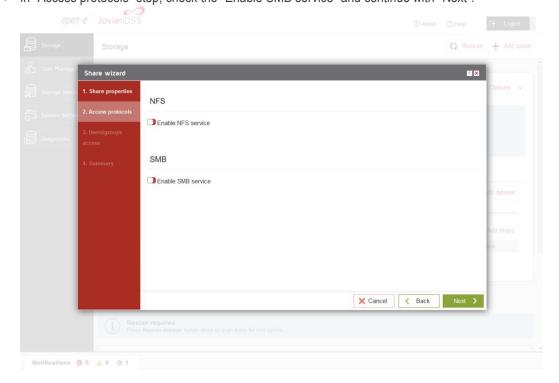


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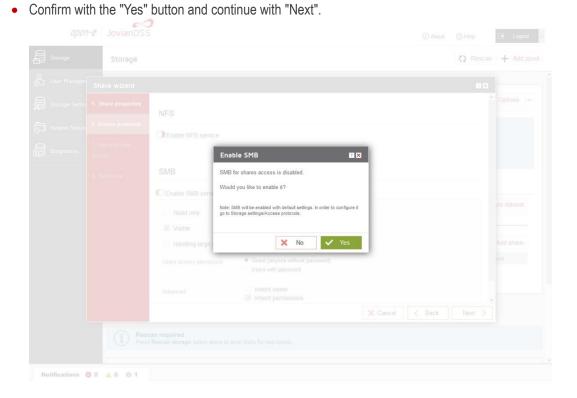
X No ✓ Yes

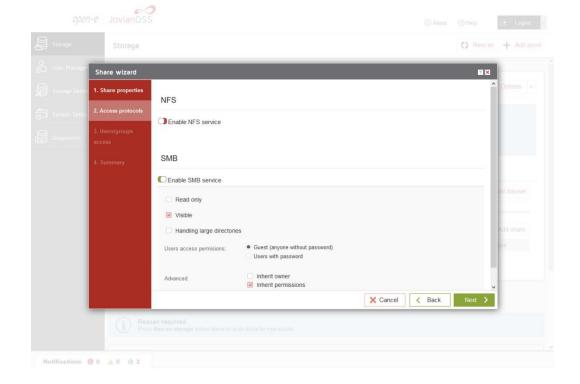
• In order to create the share confirm with "Yes".

• In "Access protocols" step, check the "Enable SMB service" and continue with "Next".



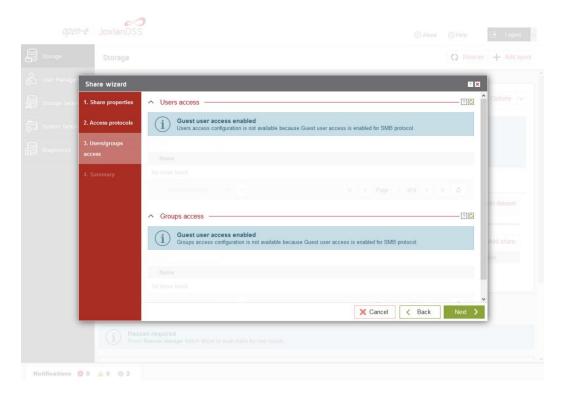
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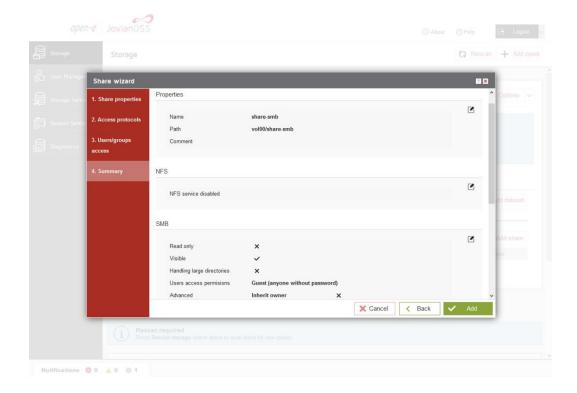


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• In the "Users/groups access" step continue with the "Next" button.

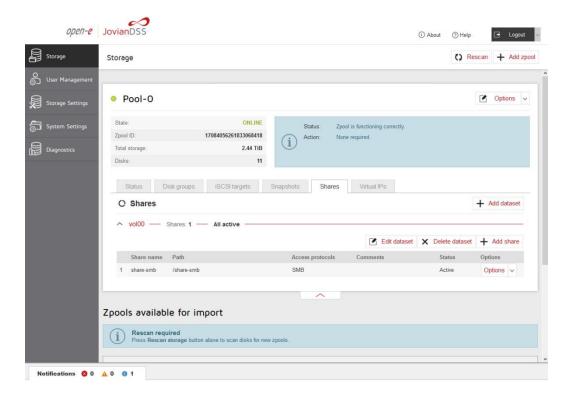


• In the "Summary" step click the "Add" button. Now the SMB share is ready to use.



• In order to change the SMB share settings, click on the "Options" drop-down menu and select "Edit". In order to change the dataset setting click on the "Edit dataset" button.

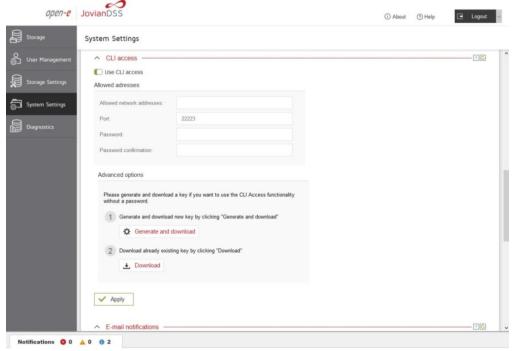
Open-E JovianDSS



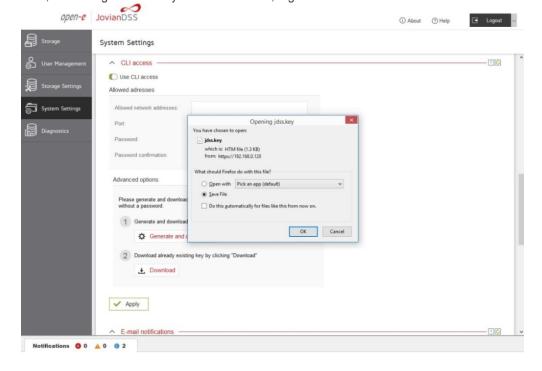
### Step 8. Auto-Snapshots and Access to Previous versions

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 CLI (command-line-interface). The CLI requires the password or SSH key.

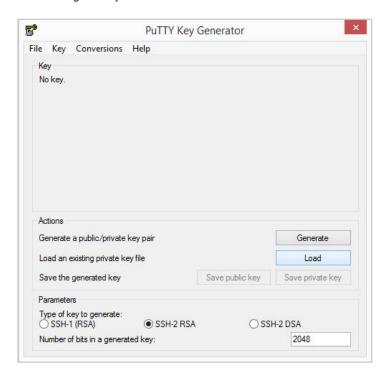
- In order to generate and download the SSH key, go to "System Settings" and the "Administrator" tab.
   In "CLI access" function, check "Use CLI access" and in field "Password", enter the new Password and retype the password. In order to confirm click "Apply" button.
- Next, generate and download the new key by clicking "Generate and download" button.



Next, save the generated key into a local folder, e.g. C:\CLI

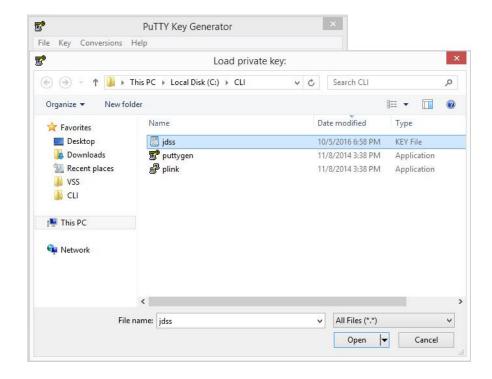


- The original download key can work with standard SSH Client. But it is strongly recommended to use plink.exe and puttygen.exe from <a href="http://www.putty.org">http://www.putty.org</a>
   The plink.exe uses different "private key" formats and it is required to convert the downloaded key with puttygen.exe.
- Convert the key with PuTTY Key Generator. Please run puttygen.exe and select "load" button and find the original key from JovianDSS.

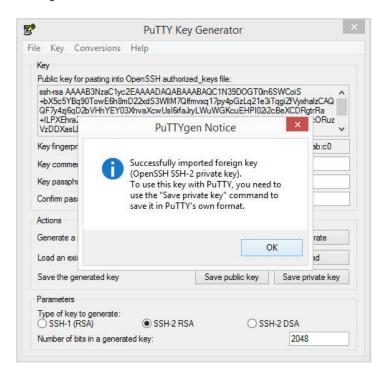


• Next, load the original key from e.g. C:\CLI.

**NOTE:** The default file filter must be set to "All Files (\*.\*)"

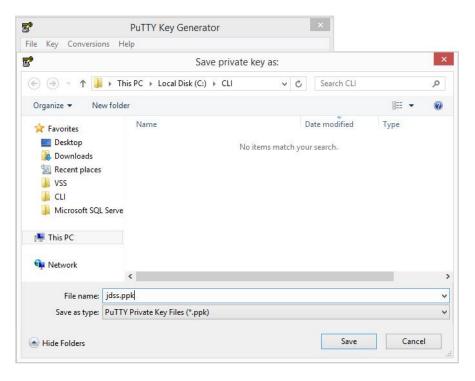


 Then, click on the "Save private key" button and next, click on "OK" and confirm this action by clicking the "Yes" button.





Now save the new "jdss.ppk" in C:\CLI folder.



Run the "Command prompt" (cmd.exe) and use plink to issue JovianDSS CLI. Syntax examples for the plink command using the key:

#### plink -i path to the downloaded key -P 22223 -l cli ip address command

- option: -i sets the path to the private key file,
- option: -pw login with specified password,
- option: **-P** sets the connection port (default: 22223),
- option: -I sets the user (the user must be cli),
- option: ip\_address sets the IP address of the JovianDSS server you want to connect to,
- option: command; the command consist of the command name and optional parameters and optional object names.

**NOTE:** Plink uses capital "P" and the ssh use small "p" in the command line.

In order to list the full command set, please issue the 'help' command. If you enter a command with missing parameters or missing object name, the system will prompt with full syntax of the command. Once complete command is entered, it will run at once and non-interactive. A user script with CLI commands must be executed first on a testing system, not on a production system.

For training purposes it is recommended to use specified password option: -pw, instead of the SSH private key file -i option. It is also possible to omit file -i option or -pw option. In such case, user will be prompted to enter the password.

#### **USAGE EXAMPLES:**

plink -P 22223 -I cli 192.168.0.220 [user will be prompted to enter the password] [syntax with @ instead of -l option] plink -P 22223 cli@192.168.0.220 plink -pw admin -P 22223 -l cli 192.168.0.220 [-pw option, it is NOT available with ssh] plink -i jdss220.ppk -P 22223 -l cli 192.168.0.220 [with -i key-file option ] ssh -p 22223 -l cli 192.168.0.220 [user will be prompted to enter the password] ssh -p 22223 cli@192.168.0.220 [syntax with @ instead of -l option] [with -i key-file option ] ssh -i jdss220.ppk -p 22223 -l cli 192.168.0.220

 Now run the "Command prompt" (cmd.exe) and change directory to the directory where you have saved the key, e.g.: C:\CLI

```
Administrator: Command Prompt

- □ ×

C:\CLI>plink.exe -i jdss.ppk -P 22223 -l cli 192.168.0.120 odps create-task source=Pool-0/vol00 plan=10min_every_1min,1w_every_1h

C:\CLI>_

C:\CLI>_
```

You can check the snapshot status with the following CLI command with option "set".

```
Administrator: Command Prompt

C:\CLI>plink.exe -i jdss.ppk -P 22223 -l cli 192.168.0.120 odps create-task source=Pool-0/vol00 plan=10min_every_lmin,lw_every_lh fask has been successfully created.

C:\CLI>plink.exe -i jdss.ppk -P 22223 -l cli 192.168.0.120 odps set

Current ODPS settings:

Backup nodes:

No backup nodes attached.

Task defaults:

Default retention plan: lh_every_lomin,3d_every_lh,lm_every_ld

Tasks:

Source: Pool-0/vol00

Falled: yes

Retention plan: 10minutes_every_lminute,lweek_every_lhour

Mbuffer: off
Mbuffer size: 16

C:\CLI>_

C:\CLI>_
```

**NOTE:** In the CLI, any spaces before or after "=" and "," are NOT allowed!

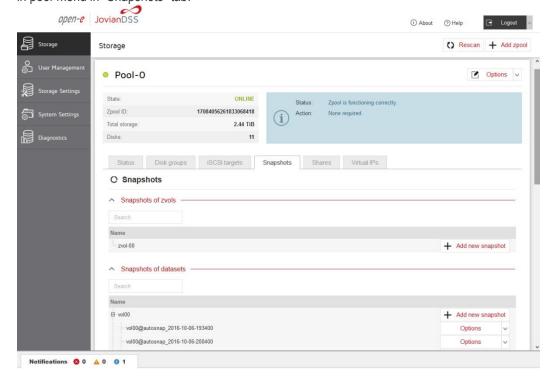
• You can check the snapshot status with the following CLI command with option "status".

```
Tasks:

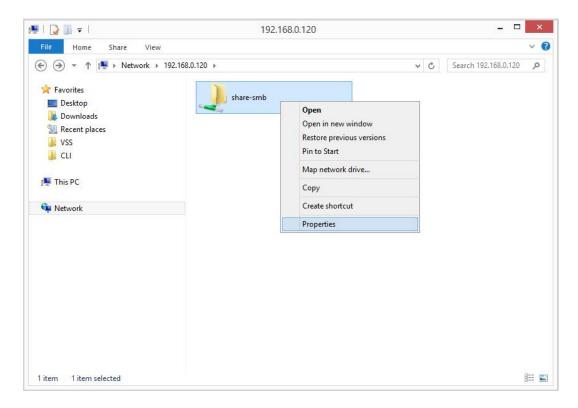
Source: Pool-0/vol00
Enabled: yes
Retention plan: 10minutes_every_lminute, 1week_every_lhour
Mbuffer: off
Mbuffer: off
Mbuffer size: 1G

C:\CLIsplink.exe -i jdss.ppk -P 22223 -l cli 192.168.0.120 odps status
Service running: Yes
Last service logs:
[Thu Oct 6 20:07:01 2016] [info] done with backupset Pool-0/vol00 in 0 seconds
[Thu Oct 6 20:07:01 2016] [debug] send/receive worker for Pool-0/vol00 done (11225)
[Thu Oct 6 20:08:00 2016] [info] creating snapshot or Pool-0/vol00 spawned (14766)
[Thu Oct 6 20:08:00 2016] [info] running post snapshot command on Pool-0/vol00
[Thu Oct 6 20:08:00 2016] [info] running post snapshot command on Pool-0/vol00
[Thu Oct 6 20:08:00 2016] [info] running post snapshot command on Pool-0/vol00
[Thu Oct 6 20:08:00 2016] [info] starting work on backupset Pool-0/vol00 spawned (14775)
[Thu Oct 6 20:08:00 2016] [info] starting work on backupset Pool-0/vol00
[Thu Oct 6 20:08:00 2016] [info] done with backupset Pool-0/vol00
[Thu Oct 6 20:08:00 2016] [info] done with beackupset Pool-0/vol00 spawned (14775)
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[Thu Oct 6 20:09:00 2016] [info] done with beackupset Pool-0/vol00 spawned (18559)
[Thu Oct 6 20:09:00 2016] [info] creating snapshot on Pool-0/vol00 spawned (18559)
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[Thu Oct 6 20:09:00 2016] [info] creating snapshot son Pool-0/vol00 spawned (18559)
[Thu Oct 6 20:09:00 2016] [info] creating snapshot son Pool-0/vol00 spawned (18559)
[Thu Oct 6 20:09:00 2016] [info] creating snapshot son Pool-0/vol00 spawned (18559)
[Thu Oct 6 20:09:00 2016] [info] creating snapshot son Pool-0/vol00 spawned (18559)
[Thu Oct 6 20:09:00 2016] [info] creating snapshot son Pool-0/vol00 spawned (10
```

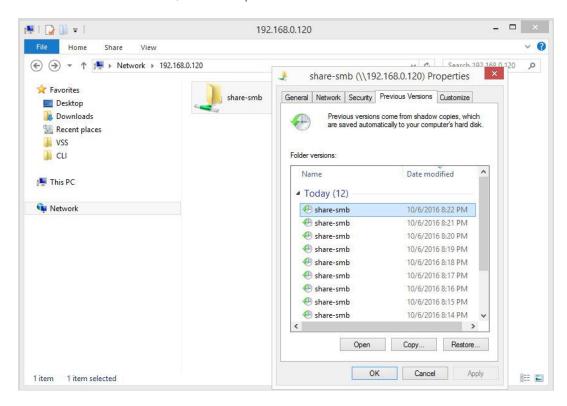
Now auto-snapshots are created accordingly to a provided retention-interval plan and can be viewed in pool-menu in "Snapshots" tab.



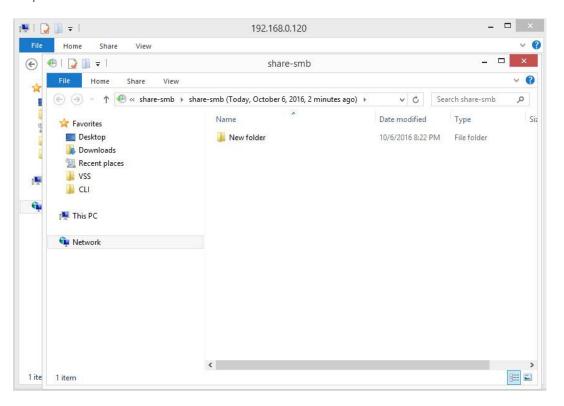
In the event of a file being renamed or deleted, you can view the previous version of the containing folder. Just right-click on some white space in the folder and select the "Properties" option. You can also right-click on the folder itself and select the "Properties" option as shown on the screenshot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



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

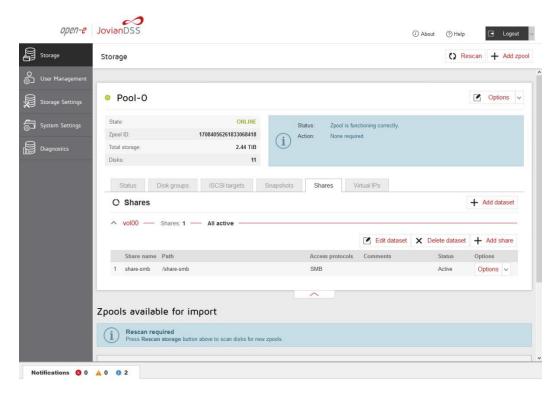


 By double-clicking on a folder in the list, it will show the contents of the folder at the time the snapshot was made.

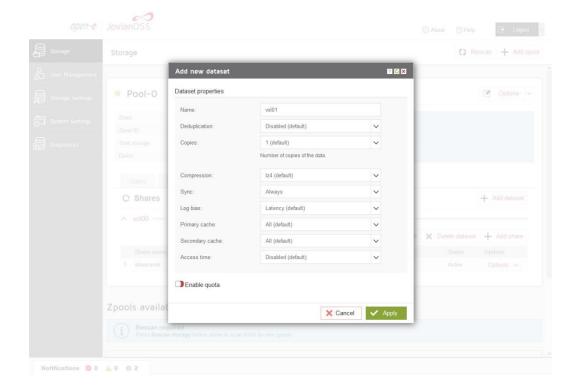


# Step 9. Creating NFS shares

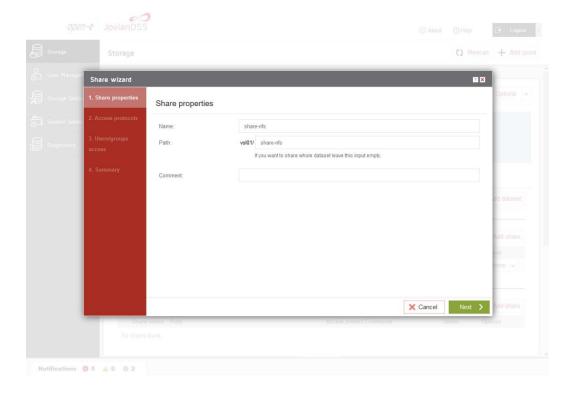
• In the Pool menu select "Shares" tab. Click on the "Add dataset" button in order to create new NAS-volume.

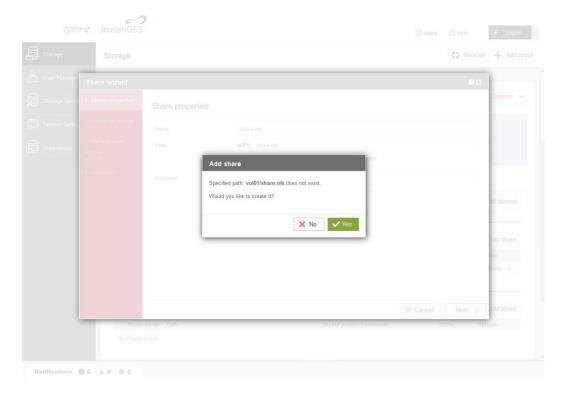


• In the "Add new dataset" window enter the dataset name and click on "Apply" button.

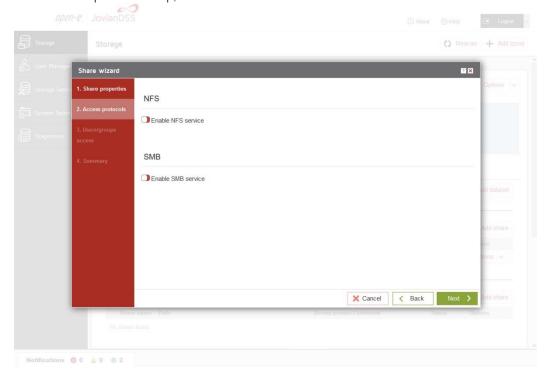


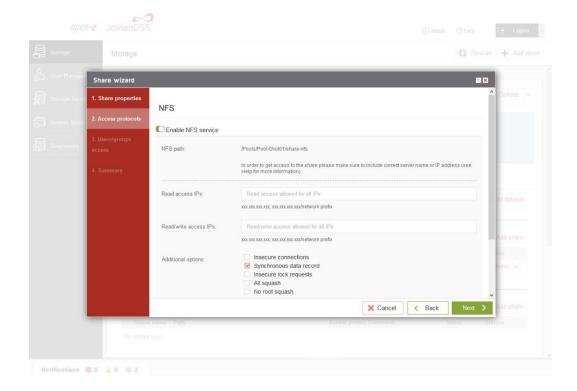
Next, select the created dataset and click on the "Add share" button. Enter the share name.
 Optionally you can enter the subdirectory name in the dataset. If the subdirectory is not entered the share will be pointed directly to the dataset. In order create share click "Next" and confirm this action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





In the "Access protocols" step, click on "Enable NFS service" and "Next" button.

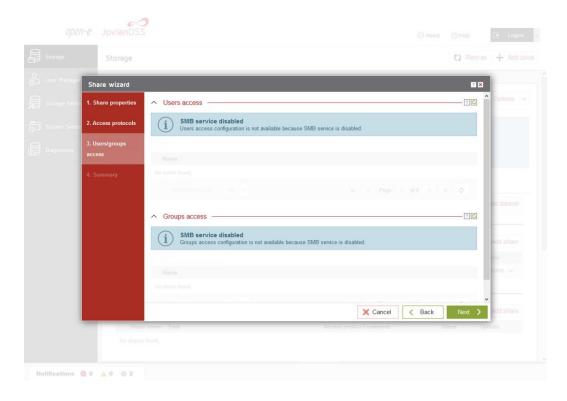




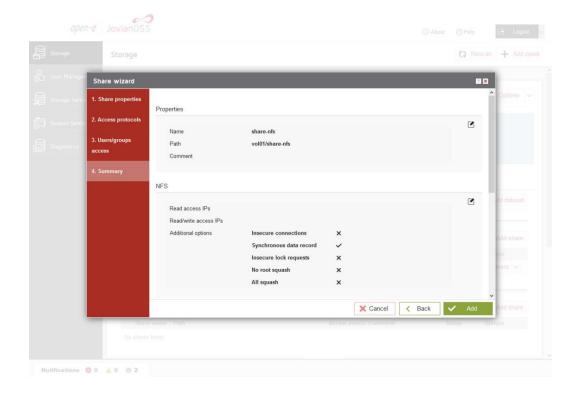
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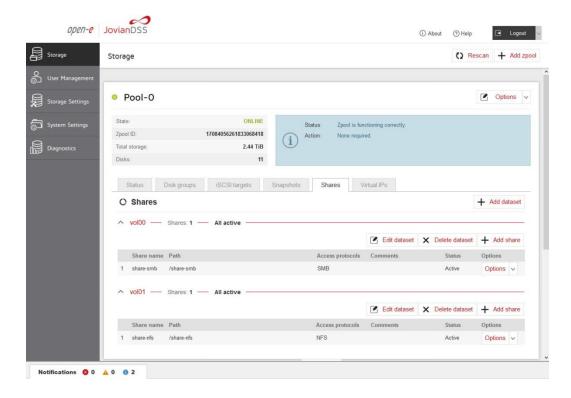
In the "Users/groups access" step, continue with "Next" button.



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



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



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