How-To Guide

Cloud Data Protection Service by MSP

Version: 3.0, 2016.04.21

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1. Introduction - overview of the solution, what are the benefits for both MSPs and for end-users

1. Introduction - overview of the solution, what are the benefits for both MSPs and for end-users

The Cloud Data Protection Service is a solution for MSPs, System Builders and suppliers of MSPs. It is aimed at any kind of SMB and SME customers, and allowing them to take full advantage of copying data to private clouds and retrieving them when it's required – without dedicated and costly IT staff.

The concept is simple: The MSP deploys a set of powerful servers powered by Open-E DSS V7 Data Storage Software as a cluster with an additional failover feature pack. This ensures that in case of a hardware failure one node can take over the tasks of the other without interruption. Single servers installed on the customers' premises securely transmit data to the MSP cluster on a regular basis (e.g. hourly) where it is continuously saved and backed up. Customers also have the option to configure additional local backups which adds another layer of security and convenience.

For data recovery, the Cloud Data Protection Service offers customers several options as well. If local backups have been configured, MSP engineers can assist in recovering the files remotely by using an encrypted connection. If anything prevents that from happening, the MSP can also restore the lost files by sending copies via the internet or – in case of a hardware failure or a slow internet connection – the data can be transported physically, on a disk or a replacement server, to the customer's location.

With this how-to guide we would like to assist you with the initial setup and configuration of the cluster with Active-Active NFS Failover.

1.1. Terminology used in the document

CDPS (Cloud Data Protection Service)
Cloud Data Protection Service offers MSP partners the opportunity to keep their customer's data safe in the fastest, most reliable and cost-effective way.

MSP (Managed Service Provider)
An Open-E Partner company which provides Customers with Cloud Data Protection Service.

MSP nodes
MSP's data servers which store data backups from Customer nodes.

Monitoring node
MSP's server running OMD software responsible for monitoring services on MSP and Customer nodes.

Customer node
Customer's server from which data is backed up to MSP nodes.

VIP (Virtual IP address)
An IP address that does not correspond to physical network interface, thus it eliminates a host's dependency upon individual network interfaces.

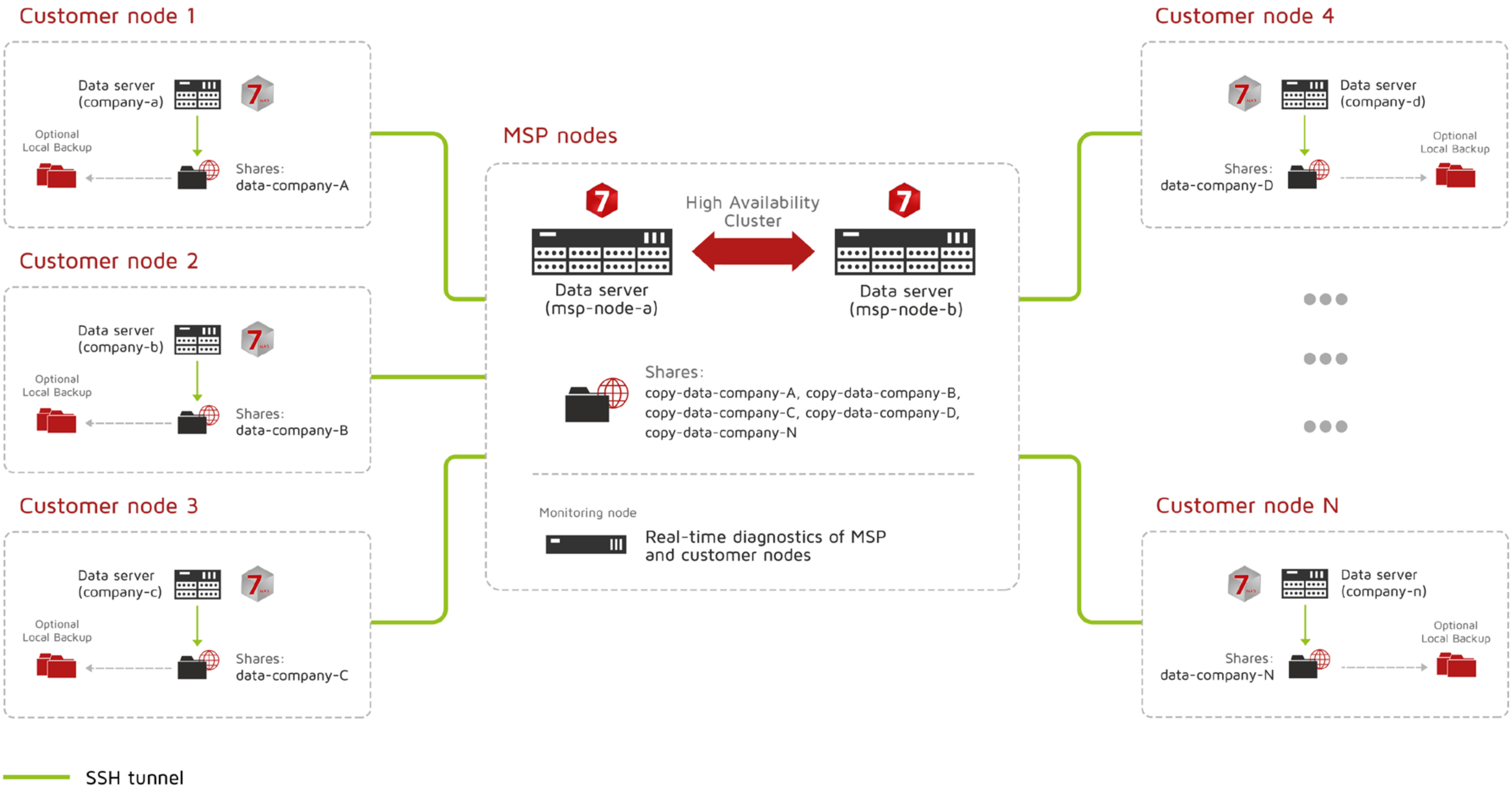
Host binding
Functionality that allows connecting two servers to exchange data between each other. In Cloud Data Protection Service it is used for volume replication between MSP nodes.

Failover
Functionality which allows a secondary server to take over the work of the primary one as soon as primary becomes unavailable through either failure or a downtime.

Auxiliary paths
Interfaces on which the failover sends a UDP unicast traffic. The auxiliary path will be used to send periodic „heartbeat" packages to the remote node with the interval equal to keep-alive time, which is set in Failover trigger policy section.

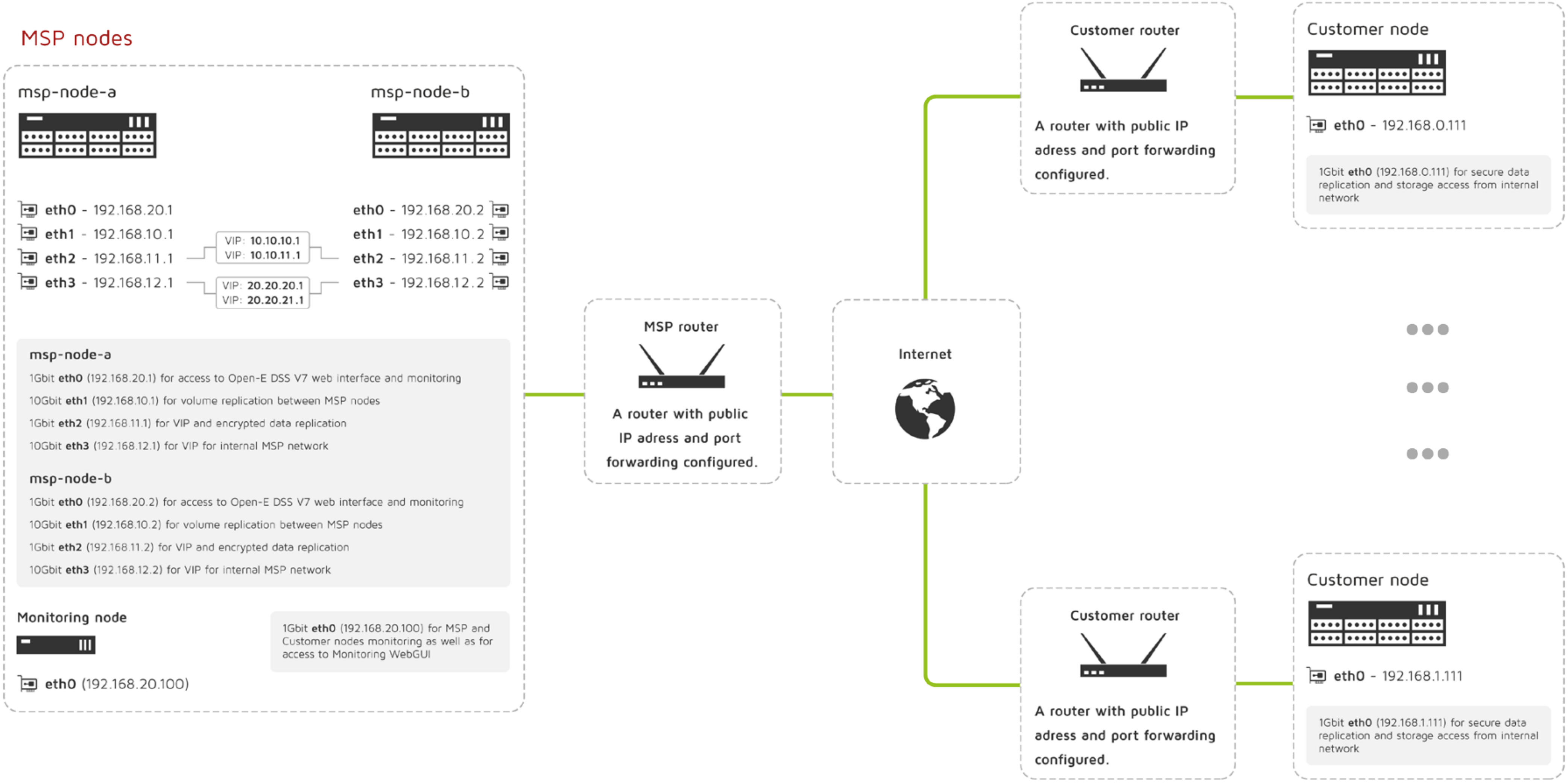
2. Solution diagram / network topology

2. Solution diagram / network topology



3. Network configuration scheme

3. Network configuration scheme



msp-node-a

1Gbit **eth0** (192.168.20.1) for access to Open-E DSS V7 web interface and monitoring

10Gbit **eth1** (192.168.10.1) for volume replication between MSP nodes

1Gbit **eth2** (192.168.11.1) for VIP and encrypted data replication

10Gbit **eth3** (192.168.12.1) for VIP for internal MSP network

msp-node-b

1Gbit **eth0** (192.168.20.2) for access to Open-E DSS V7 web interface and monitoring

10Gbit **eth1** (192.168.10.2) for volume replication between MSP nodes

1Gbit **eth2** (192.168.11.2) for VIP and encrypted data replication

10Gbit **eth3** (192.168.12.2) for VIP for internal MSP network

1Gbit **eth0** (192.168.20.100) for MSP and Customer nodes monitoring as well as for access to Monitoring WebGUI

A router with public IP adress and port forwarding configured.

A router with public IP adress and port forwarding configured.

1Gbit **eth0** (192.168.0.111) for secure data replication and storage access from internal network

A router with public IP adress and port forwarding configured.

1Gbit **eth0** (192.168.1.111) for secure data replication and storage access from internal network

4. Minimum hardware requirements

4. Minimum hardware requirements

4.1. MSP nodes

Hardware specification	
Processor	Intel® Xeon® processors of the E5-2600 v2 family or better
RAM	16GB DDR3 base memory and 350MB additionally for each Customer node
Hard disk drive	2x RAID 5 (alternatively, RAID 6 or RAID 10) disk arrays, 8 hard drives each
Ethernet	2 x 10GbE 2 x 1GbE

Note: Although running MSP Server with minimum hardware requirements allow to fully utilize all CDPS functionalities, we recommend **Fujitsu PRIMERGY SX350 S8** which is tested by Open-E and proved to be highly reliable and efficient when used for CDPS service.

4.2. Customer node

Hardware specification	
Processor	Intel® Core™ i3-4330 CPU family or better
RAM	8GB DDR3 1600 MHz
Hard disk drive	RAID 5 disk array with Open-E DSS V7 installed or software RAID with Open-E DSS V7 installed on dedicated HDD, SSD or SATA DOM
RAID Controller	RAID Controller 4i (optionally)
Ethernet	1 x 10GbE (Optionally, only for systems with hardware RAID controller) 2 x 1GbE

Note: Although running MSP Server with minimum hardware requirements allow to fully utilize all CDPS functionalities, we recommend **Fujitsu PRIMERGY TX1310M1** which is tested by Open-E and proved to be highly reliable and efficient when used for CDPS service.

4.3. Monitoring node

Server	
PC running Ubuntu 14.04 LTS with the following hardware	
Hardware specification	
Processor	4-core 2.5 GHz or better
RAM	4GB with ECC support or more
Hard disk drive	2-disk RAID 1 array
Ethernet	1 x 1GbE network interface

Note: Although our recommendations don't indicate a specific server or vendor, please make sure your monitoring server is able to work 24/7, and is reliable enough to handle that kind of load.

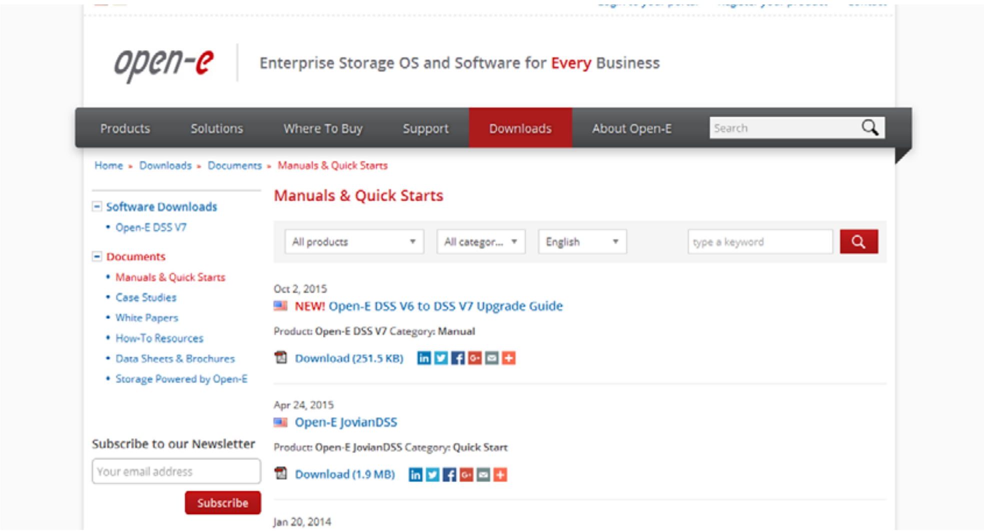
5. Configuration how-to’s

5. Configuration how-to's

In this chapter, you will learn how to configure Cloud Data Protection Service by MSP, according to Solution diagram introduced in **Chapter 2** of this manual. You will be given instructions on how to set up:

- MSP nodes
- Customer node
- Monitoring node
- Encrypted connection between MSP nodes and Customer node

5.1. Installing DSS V7



Manuals & Quick Starts

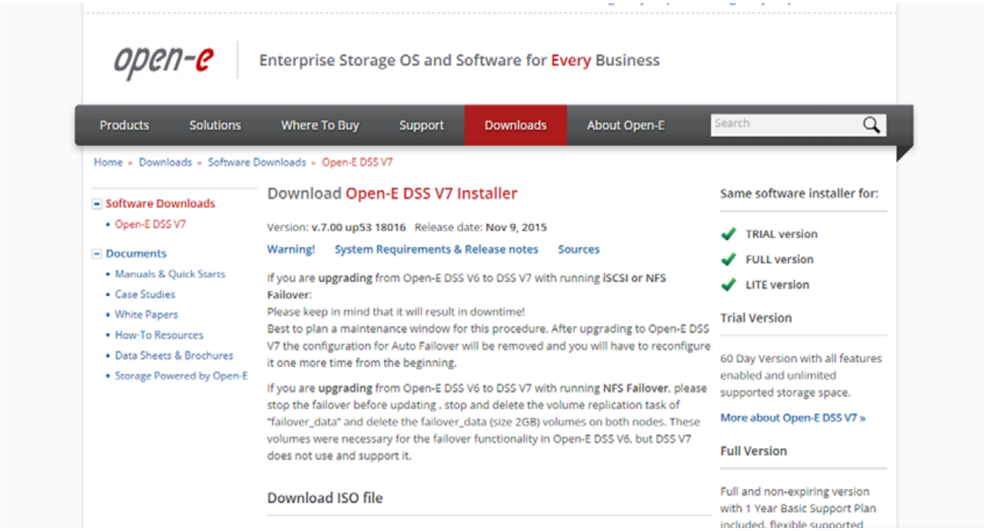
Oct 2, 2015
NEW! Open-E DSS V6 to DSS V7 Upgrade Guide
Product: Open-E DSS V7 Category: Manual
Download (251.5 KB)

Apr 24, 2015
Open-E JovianDSS
Product: Open-E JovianDSS Category: Quick Start
Download (1.9 MB)

Jan 20, 2014

Please note that each MSP node as well as Customer node is running on Open-E DSS V7. As this manual will not guide you through DSS V7 installation process, we encourage you to follow:

- **DSS V7 Manual** available on http://www.open-e.com/download/manuals-and-quickstarts/?preview=manualopen-e-dss-v7-en
- **DSS V7 Quick Start** available on http://www.open-e.com/download/manuals-and-quickstarts/?preview=open-e-dss-v7



Download Open-E DSS V7 Installer

Version: **v.7.00 up53 18016** Release date: **Nov 9, 2015**

If you are **upgrading** from Open-E DSS V6 to DSS V7 with running **iSCSI or NFS Failover**:
Please keep in mind that it will result in downtime!
Best to plan a maintenance window for this procedure. After upgrading to Open-E DSS V7 the configuration for Auto Failover will be removed and you will have to reconfigure it one more time from the beginning.

If you are **upgrading** from Open-E DSS V6 to DSS V7 with running **NFS Failover**, please stop the failover before updating , stop and delete the volume replication task of "failover_data" and delete the failover_data (size 2GB) volumes on both nodes. These volumes were necessary for the failover functionality in Open-E DSS V6, but DSS V7 does not use and support it.

Download ISO file

Same software installer for:

✓ TRIAL version
✓ FULL version
✓ LITE version

Trial Version

60 Day Version with all features enabled and unlimited supported storage space.

More about Open-E DSS V7 »

Full Version

Full and non-expiring version with 1 Year Basic Support Plan included, flexible supported

It is highly recommended to install the latest version of Open-E DSS V7 software which can be found on http://www.open-e.com/download/open-e-data-storage-software-v7/

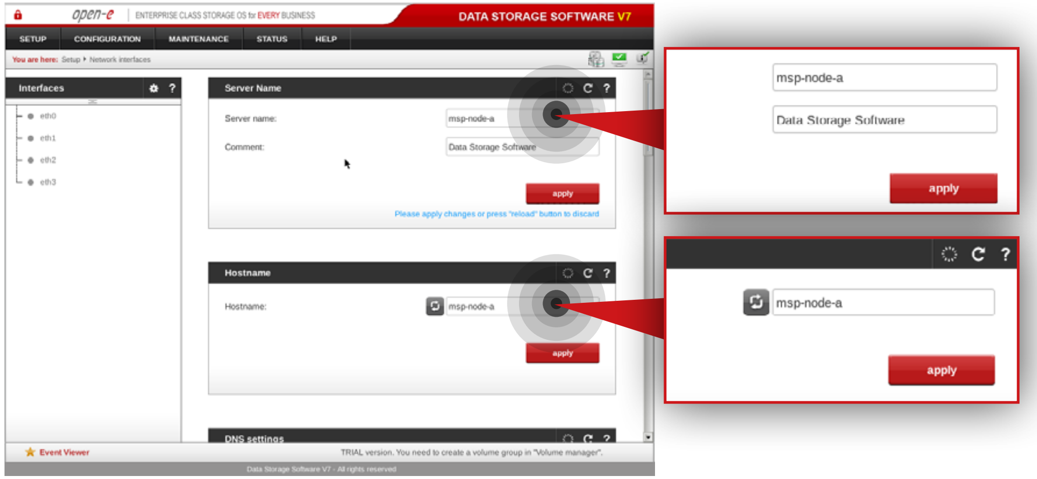
5.2. Detailed procedure of setting up MSP nodes

Prerequisites

Please complete the following prerequisites.

- Two servers meet the hardware requirements for MSP nodes introduced in Chapter 4 – Minimum hardware requirements
- Open-E DSS V7 up56 build 19059 installed on both servers
- A router with multiple-subnet support

If all the prerequisites have been met, you're now ready to start MSP nodes configuration.


open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Network interfaces
Interfaces
eth0
eth1
eth2
eth3
apply
Please apply changes or press "reload" button to discard
apply
DNS settings
Event Viewer
TRIAL version. You need to create a volume group in "Volume manager".
Data Storage Software V7 - All rights reserved
apply
apply

Server Name

Server name: msp-node-a

Comment: Data Storage Software

Hostname

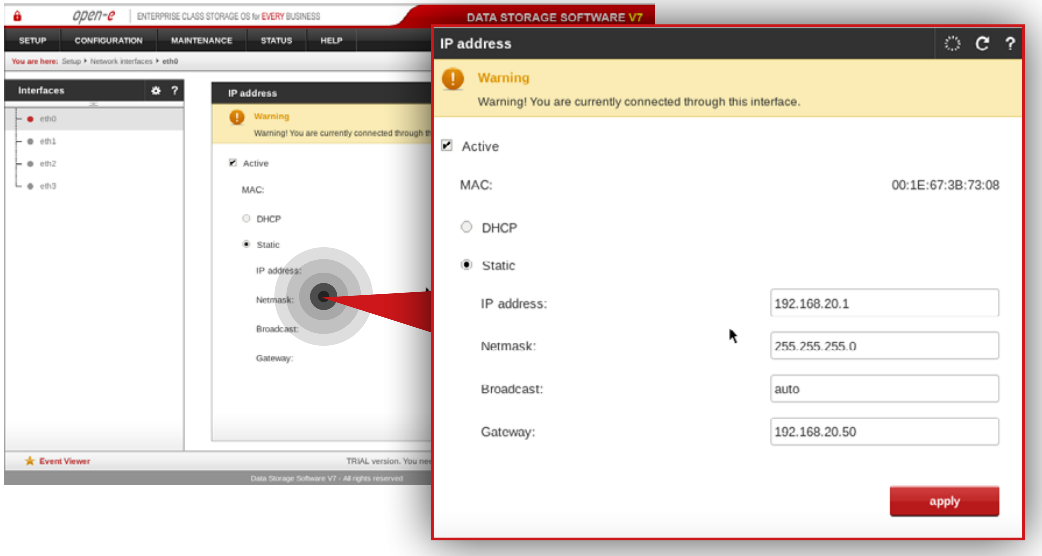
Hostname: msp-node-a

5.2.1. MSP first node configuration

Step 1.

Go to **Setup » Network interfaces** and change the server name and hostname to **msp-node-a**. Click **apply** to confirm the changes.

Note: Changing the hostname requires a reboot of the system.



IP address

Warning

Warning! You are currently connected through this interface.

☑ Active

MAC: 00:1E:67:3B:73:08

○ DHCP

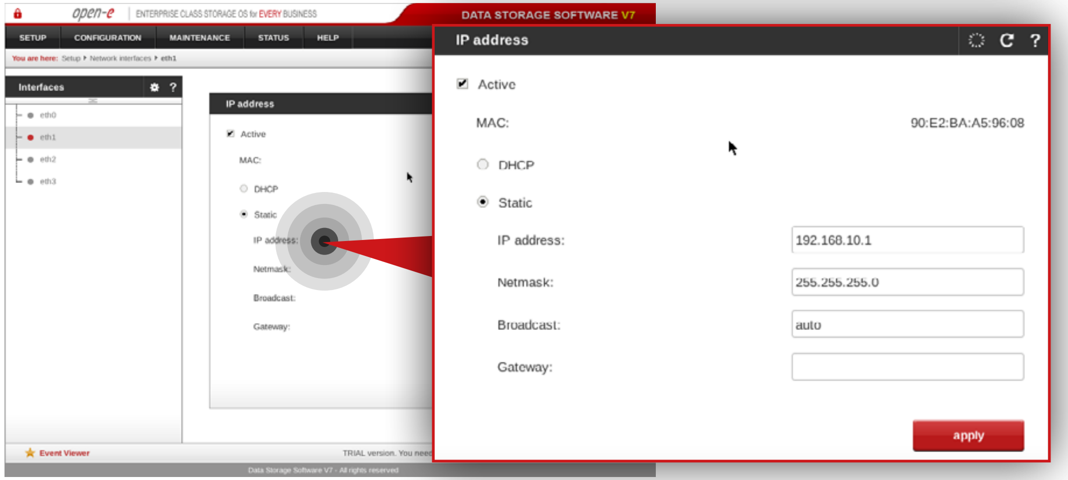
● Static

IP address: 192.168.20.1

Netmask: 255.255.255.0

Broadcast: auto

Gateway: 192.168.20.50



IP address

☑ Active

MAC: 90:E2:BA:A5:96:08

○ DHCP

● Static

IP address: 192.168.10.1

Netmask: 255.255.255.0

Broadcast: auto

Gateway:

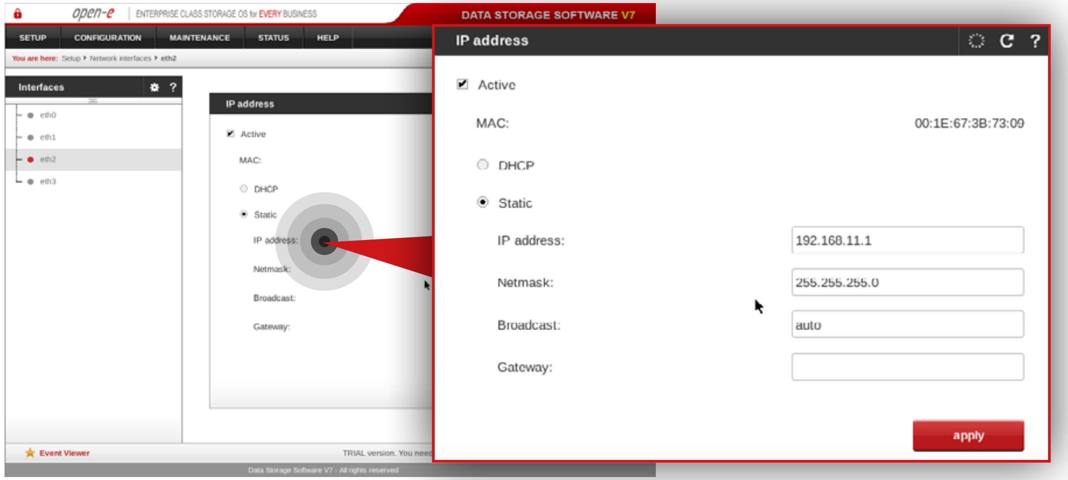
Step 2.

Go to **Setup » Network interfaces** and configure Ethernet ports. Click **apply** to confirm the changes.

In this example **we recommend** configuring four Ethernet ports as follow:

- 1Gbit **eth0** (192.168.20.1) for access to Open-E DSS V7 web interface
- 10Gbit **eth1** (192.168.10.1) for volume replication between MSP nodes
- 1Gbit **eth2** (192.168.11.1) for VIP and encrypted data replication
- 10Gbit **eth3** (192.168.12.1) for VIP for internal MSP network

Note: Changing network interface IP address will restart the network configuration on this node.



You are here: Setup ▸ Network interfaces ▸ eth2

IP address

☑ Active

MAC: 00:1E:67:3B:73:09

○ DHCP

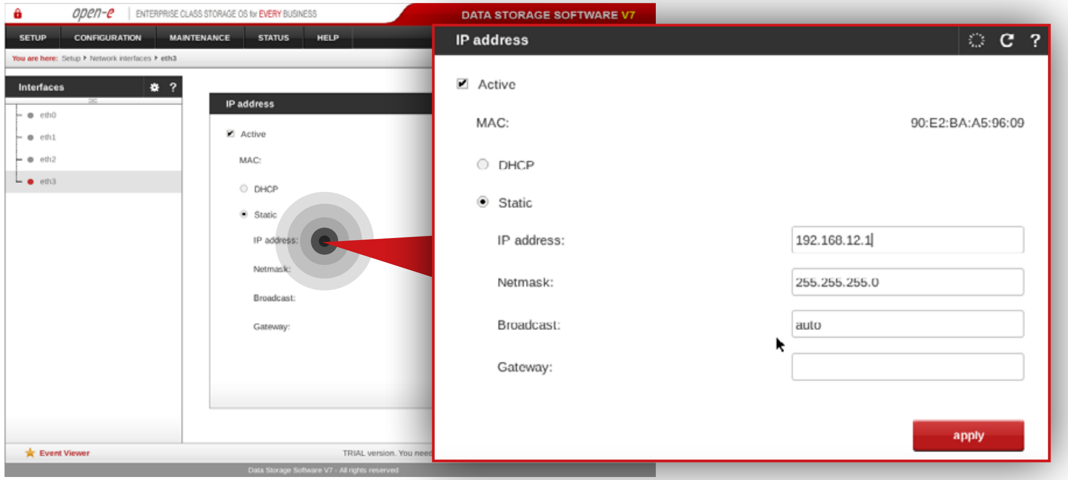
● Static

IP address: 192.168.11.1

Netmask: 255.255.255.0

Broadcast: auto

Gateway:



You are here: Setup ▸ Network interfaces ▸ eth3

IP address

☑ Active

MAC: 90:E2:BA:A5:96:09

○ DHCP

● Static

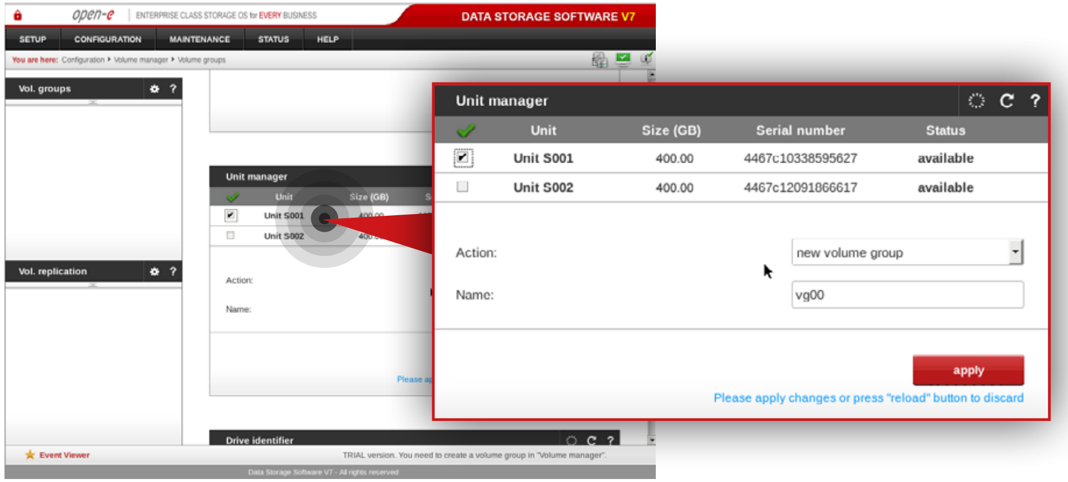
IP address: 192.168.12.1

Netmask: 255.255.255.0

Broadcast: auto

Gateway:

Note: The IP addresses used in this example are for the purpose of this manual only. You should configure your Ethernet ports according to your network topology.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups
Vol. groups
Vol. replication
Drive identifier
Event Viewer
Data Storage Software V7 - All rights reserved

Unit manager

✓	Unit	Size (GB)	Serial number	Status
☑	Unit S001	400.00	4467c10338595627	available
□	Unit S002	400.00	4467c12091866617	available

Action: new volume group

Name: vg00

apply

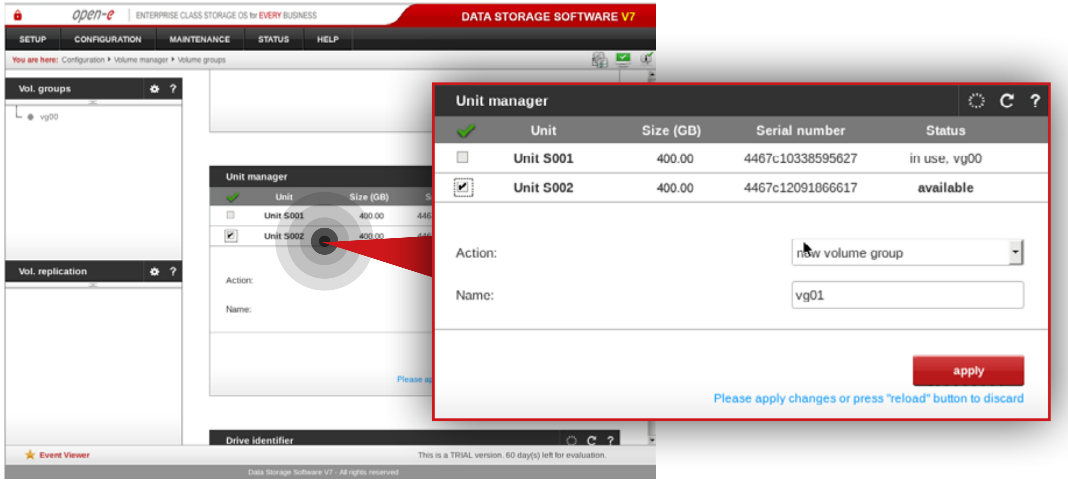
Please apply changes or press "reload" button to discard

TRIAL version. You need to create a volume group in "Volume manager".

Step 3.

Go to **Configuration » Volume manager » Volume groups**.

a. From the Unit manager, select a disk to create the volume group.
b. Enter a name for the volume group (in this example, the volume name is **vg00**).
c. Click the **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups
Vol. groups
vg00
Vol. replication
Drive identifier
Event Viewer
Data Storage Software V7 - All rights reserved

Unit manager

✓	Unit	Size (GB)	Serial number	Status
□	Unit S001	400.00	4467c10338595627	in use, vg00
☑	Unit S002	400.00	4467c12091866617	available

Action: new volume group

Name: vg01

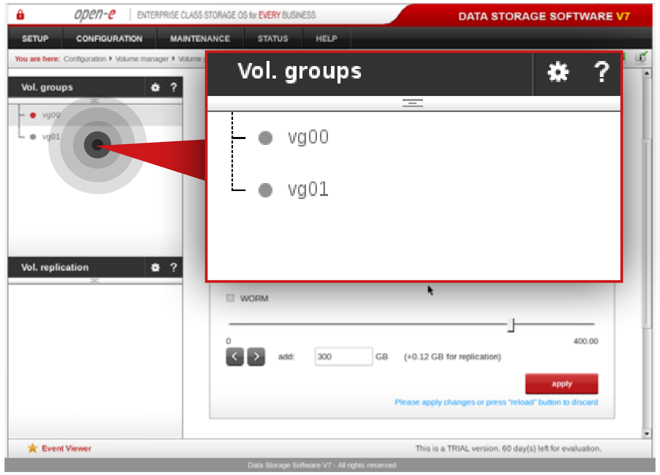
apply

Please apply changes or press "reload" button to discard

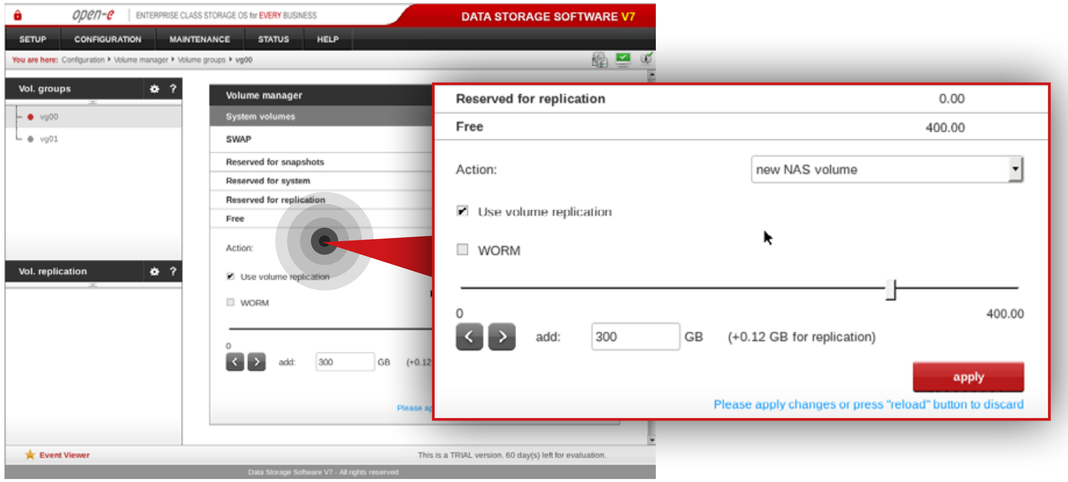
This is a TRIAL version. 60 day(s) left for evaluation.

Step 4.

Repeat the previous step in order to create the second volume group (in this example, the volume name is **vg01**).


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ Volume manager ▸ Volume
Vol. groups
vg00
vg01
Vol. replication
WORM
0
400.00
add:
300
GB
(+0.12 GB for replication)
apply
Please apply changes or press "reload" button to discard
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

After volume groups are created you can see them listed in the volume groups menu on the left side.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups ▸ vg00
Vol. groups
vg00
vg01
Vol. replication
Volume manager
System volumes
SWAP
Reserved for snapshots
Reserved for system
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Reserved for replication	0.00
Free	400.00

Action: new NAS volume

☑ Use volume replication

□ WORM

0 400.00

add: 300 GB (+0.12 GB for replication)

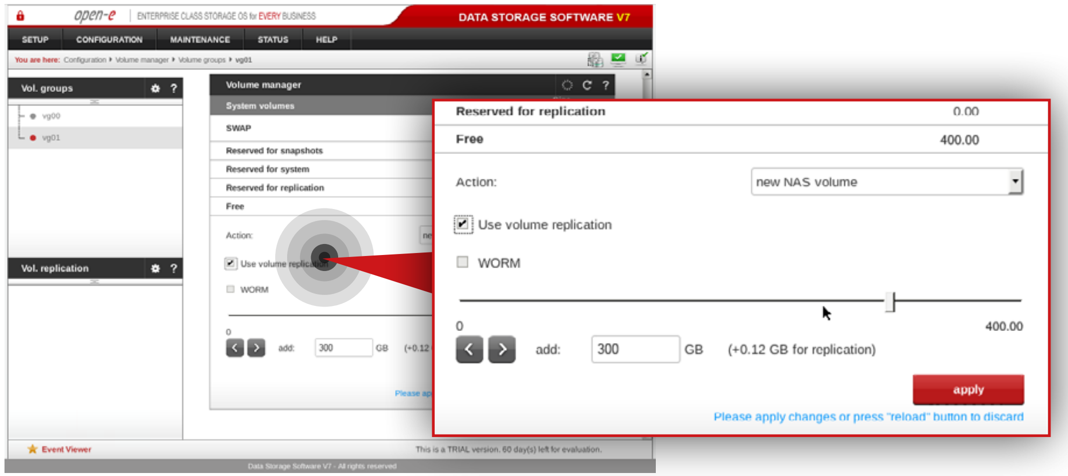
Please apply changes or press "reload" button to discard

Step 5.

Select **vg00** from the list on the left side. Next, create new NAS volume of size that is appropriate for the data set (in this example, the volume name is **lv0000**).

a. Make sure that **Use volume replication** option is checked.
b. Set a size for the volume.
c. Click **apply** button.

Please note that the size of the volume in this example is for only this manual. Your volumes size should be always tailored to the size of data set.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups ▸ vg01
Vol. groups
vg00
vg01
Vol. replication
Volume manager
System volumes
SWAP
Reserved for snapshots
Reserved for system
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Reserved for replication	0.00
Free	400.00

Action: new NAS volume

☑ Use volume replication

☐ WORM

0 400.00

add: 300 GB (+0.12 GB for replication)

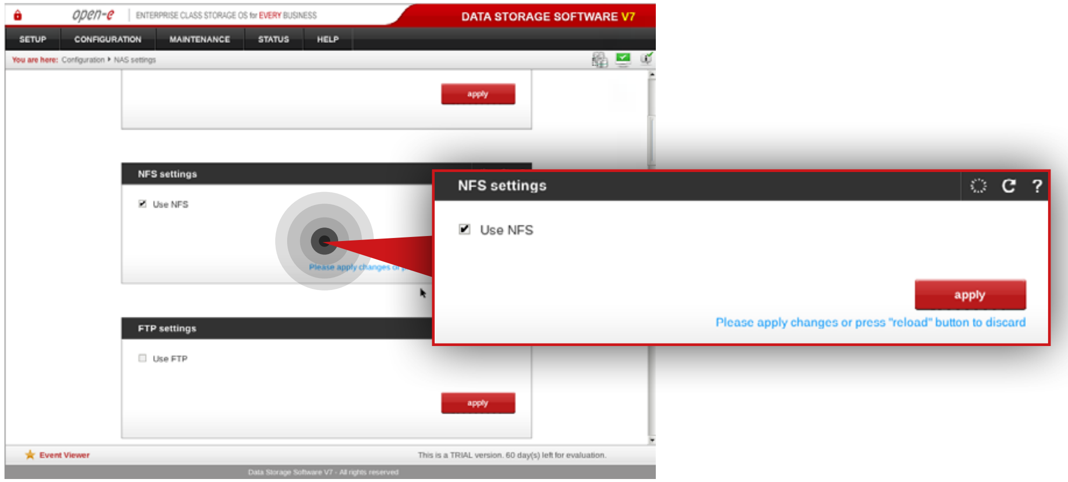
apply

Please apply changes or press "reload" button to discard

Step 6.

Select **vg01** from the list on the left side. Next, create new NAS volume of size that is appropriate for the data set (in this example, the volume name is **lv0100**).

a. Make sure that **Use Volume replication** option is checked.
b. Set a size for the volume.
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS settings
apply
FTP settings
☐ Use FTP
apply
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

NFS settings

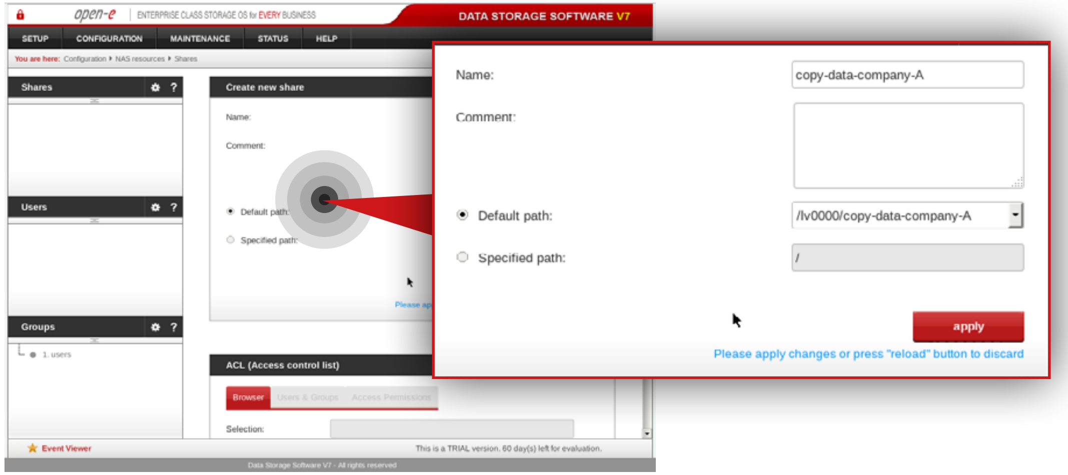
☑ Use NFS

apply

Please apply changes or press "reload" button to discard

Step 7.

Go to **Configuration » NAS settings** and check **Use NFS** option in NFS settings box. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
Users
Groups
1. users
Create new share
ACL (Access control list)
Browser
Users & Groups
Access Permissions
Selection:
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
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Name: copy-data-company-A

Comment:

● Default path: /lv0000/copy-data-company-A

○ Specified path: /

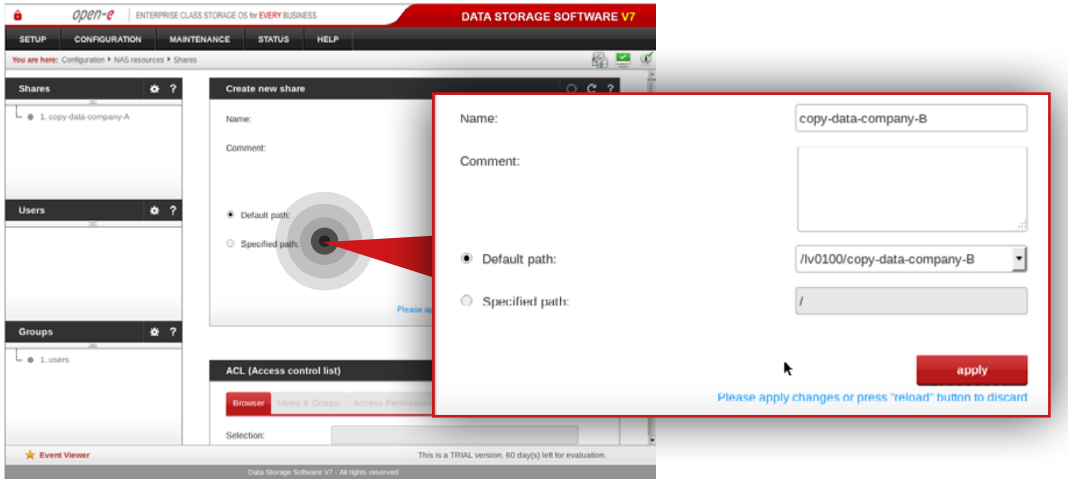
apply

Please apply changes or press "reload" button to discard

Step 8.

Go to **Configuration » NAS resources » Shares** and create a share for data to be replicated from a Customer node.

a. Enter a name for the share (in this example, the share name is **copy-data-company-A**).
b. Select **lv0000** as a default path for the share.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
1. copy-data-company-A
Users
Groups
1. users
Create new share
ACL (Access control list)
Browser
Users & Groups
Access Permissions
Selection:
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
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Name: copy-data-company-B

Comment:

● Default path: /lv0100/copy-data-company-B

○ Specified path: /

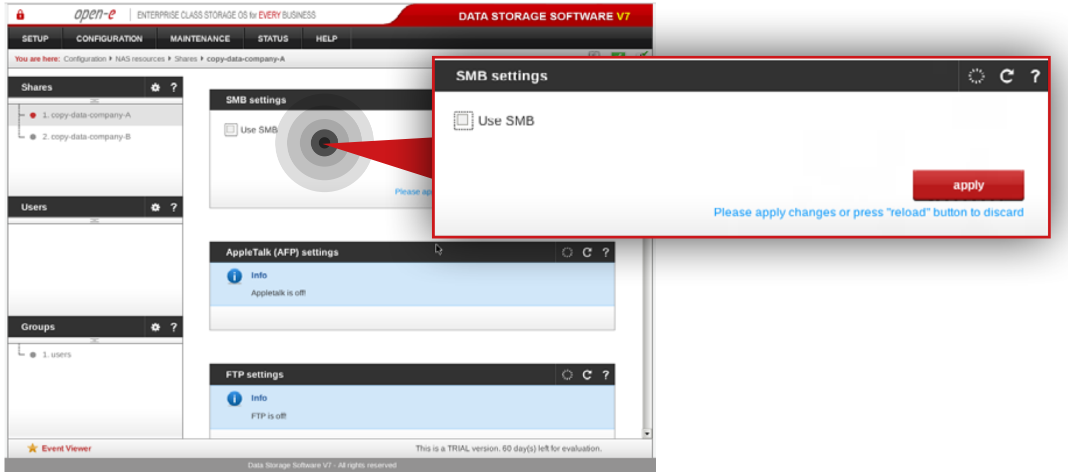
apply

Please apply changes or press "reload" button to discard

Step 9.

Create a share for data to be replicated from another Customer node (**Note:** This step is required only in case you have more than one Customer node from which data will be replicated).

a. Enter a name for the share (in this example, the share name is **copy-data-company-B**).
b. Select **lv0100** as a default path for the share.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-A
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
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SMB settings

☐ Use SMB

apply

Please apply changes or press "reload" button to discard

AppleTalk (AFP) settings

Info
Appletalk is off!

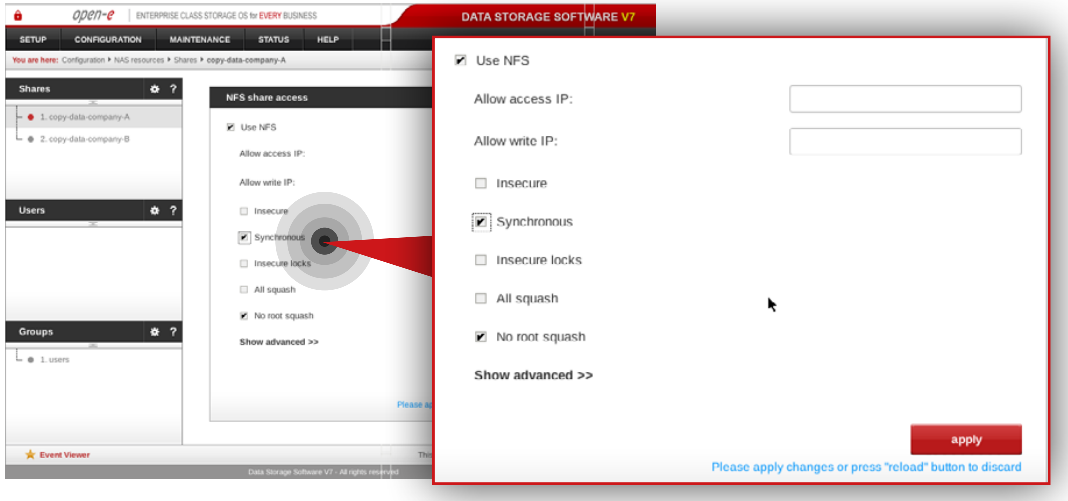
FTP settings

Info
FTP is off!

Step 10.

Select **copy-data-company-A** share from the list on the left side.

a. Navigate to SMB settings.
b. Uncheck **Use SMB** option.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-A
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
Event Viewer
Data Storage Software V7 - All rights reserved

NFS share access

☑ Use NFS

Allow access IP:

Allow write IP:

☐ Insecure

☑ Synchronous

☐ Insecure locks

☐ All squash

☑ No root squash

Show advanced >>

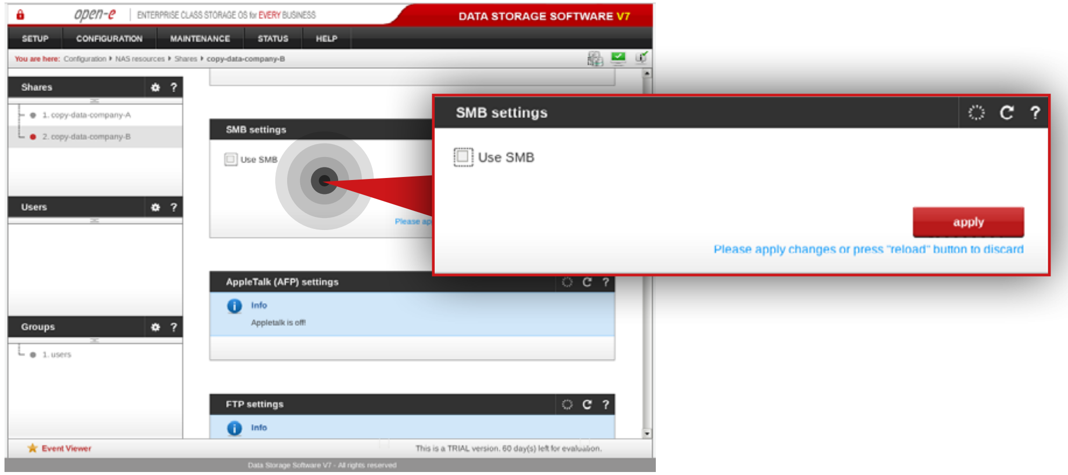
apply

Please apply changes or press "reload" button to discard

Step 11.

Next, navigate to the NFS share access box.

a. Check **Use NFS** option.
b. Make sure **Synchronous** option is checked.
c. Click **apply** button.



You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-B

1. copy-data-company-A
2. copy-data-company-B

1. users

SMB settings

☐ Use SMB

apply

Please apply changes or press "reload" button to discard

AppleTalk (AFP) settings

Info
Appletalk is off!

FTP settings

Info

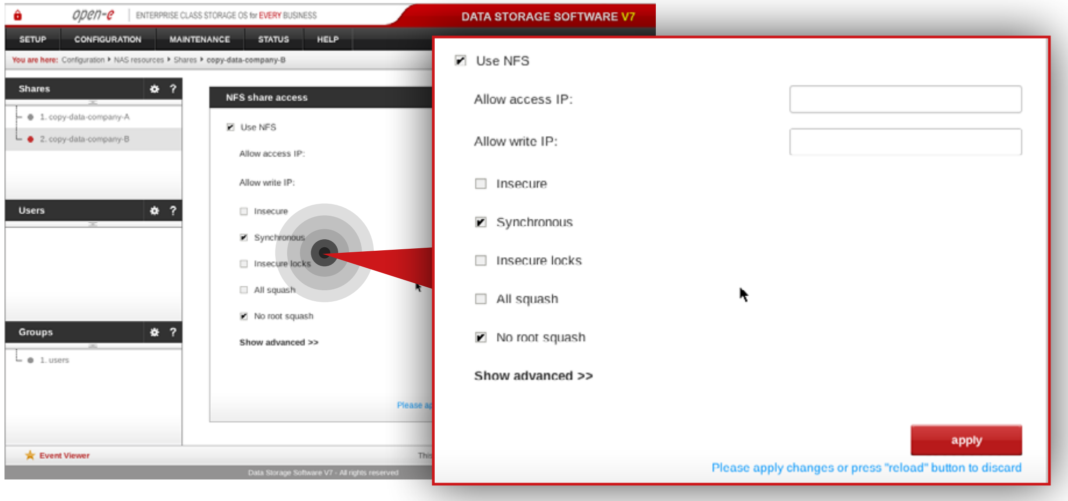
This is a TRIAL version. 60 day(s) left for evaluation.

Data Storage Software V7 - All rights reserved

Step 12.

Select **copy-data-company-B** share from the menu on the left side.

a. Navigate to SMB settings.
b. Uncheck **Use SMB** option.
c. Click **apply** button.



You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-B

1. copy-data-company-A
2. copy-data-company-B

1. users

NFS share access

☑ Use NFS

Allow access IP:

Allow write IP:

☐ Insecure

☑ Synchronous

☐ Insecure locks

☐ All squash

☑ No root squash

Show advanced >>

apply

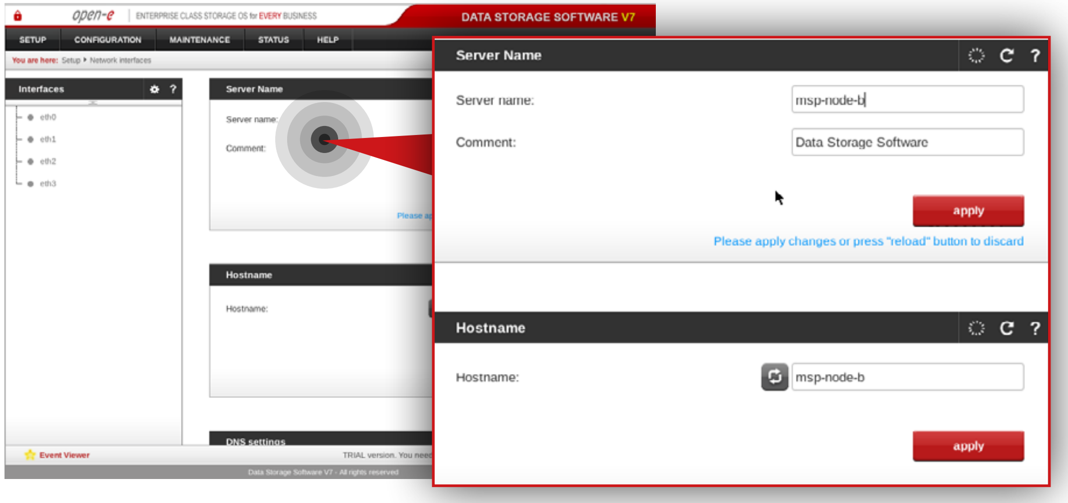
Please apply changes or press "reload" button to discard

Data Storage Software V7 - All rights reserved

Step 13.

Next, navigate to NFS share access box.

a. Check **Use NFS** option.
b. Make sure **Synchronous** option is checked.
c. Click **apply** button.



Server Name

Server name: msp-node-b

Comment: Data Storage Software

apply

Please apply changes or press "reload" button to discard

Hostname

Hostname: msp-node-b

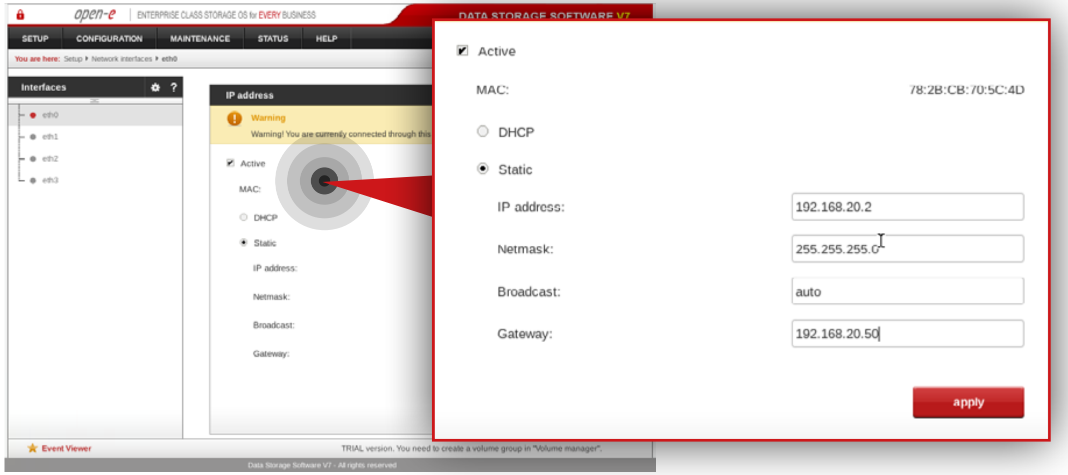
apply

5.2.2. MSP second node configuration

Step 1.

Go to **Setup » Network interfaces** and change server name and hostname to **msp-node-b**. Click **apply** to confirm the changes.

Note: Changing the hostname requires a system reboot.



☑ Active

MAC: 78:2B:CB:70:5C:4D

○ DHCP

● Static

IP address: 192.168.20.2

Netmask: 255.255.255.0

Broadcast: auto

Gateway: 192.168.20.50

apply

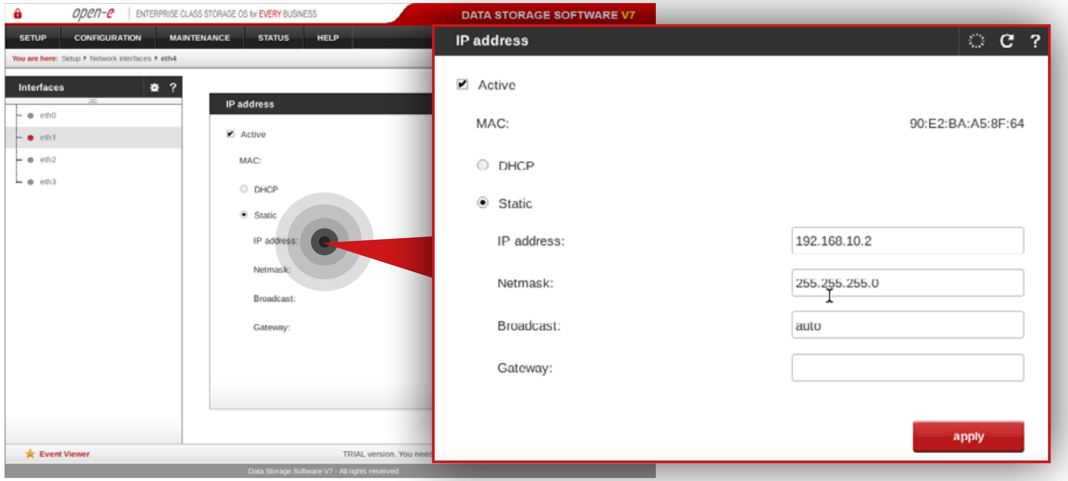
Step 2.

Go to **Setup » Network interfaces** and configure Ethernet ports. Click **apply** to confirm the changes.

In this example we recommend configuring four Ethernet ports as follow:

- 1Gbit **eth0** (192.168.20.2) for access to Open-E DSS V7 web interface
- 10Gbit **eth1** (192.168.10.2) for volume replication between MSP nodes
- 1Gbit **eth2** (192.168.11.2) for VIP and encrypted data replication
- 10Gbit **eth3** (192.168.12.2) for VIP for internal MSP network

Note: Changing network interface IP address will restart the network configuration on this node.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Network interfaces ▸ eth4
Interfaces
eth0
eth1
eth2
eth3
Event Viewer
Data Storage Software V7 - All rights reserved

IP address

☑ Active

MAC: 90:E2:BA:A5:8F:64

○ DHCP

● Static

IP address: 192.168.10.2

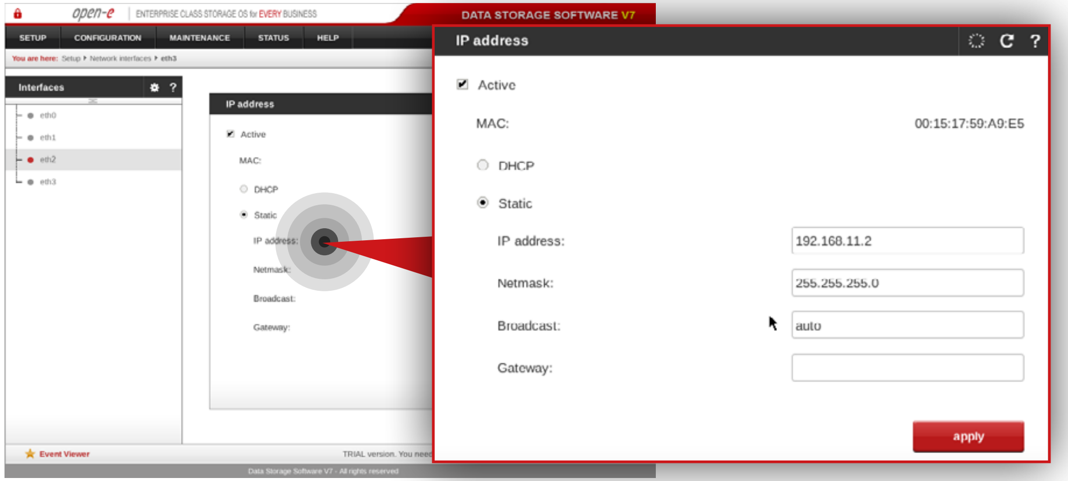
Netmask: 255.255.255.0

Broadcast: auto

Gateway:

apply

Note: The IP addresses used in this example are for the purpose of this manual only. You should configure your Ethernet ports according to your network topology.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Network interfaces ▸ eth3
Interfaces
eth0
eth1
eth2
eth3
Event Viewer
Data Storage Software V7 - All rights reserved

IP address

☑ Active

MAC: 00:15:17:59:A9:E5

○ DHCP

● Static

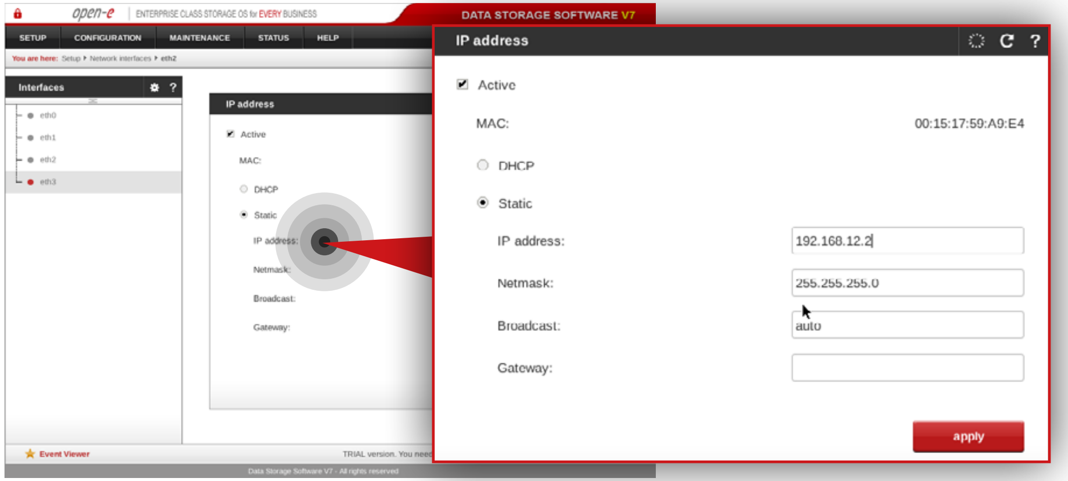
IP address: 192.168.11.2

Netmask: 255.255.255.0

Broadcast: auto

Gateway:

apply



IP address

☑ Active

MAC: 00:15:17:59:A9:E4

○ DHCP

● Static

IP address: 192.168.12.2

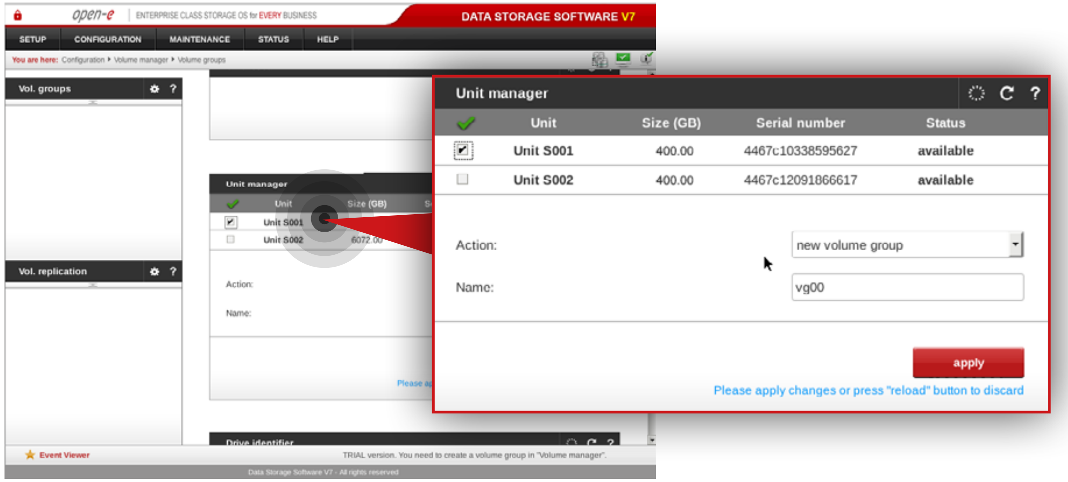
Netmask: 255.255.255.0

Broadcast: auto

Gateway:

TRIAL version. You need

Data Storage Software V7 - All rights reserved



Unit manager

✓	Unit	Size (GB)	Serial number	Status
☑	Unit S001	400.00	4467c10338595627	available
□	Unit S002	400.00	4467c12091866617	available

Action: new volume group

Name: vg00

Please apply changes or press "reload" button to discard

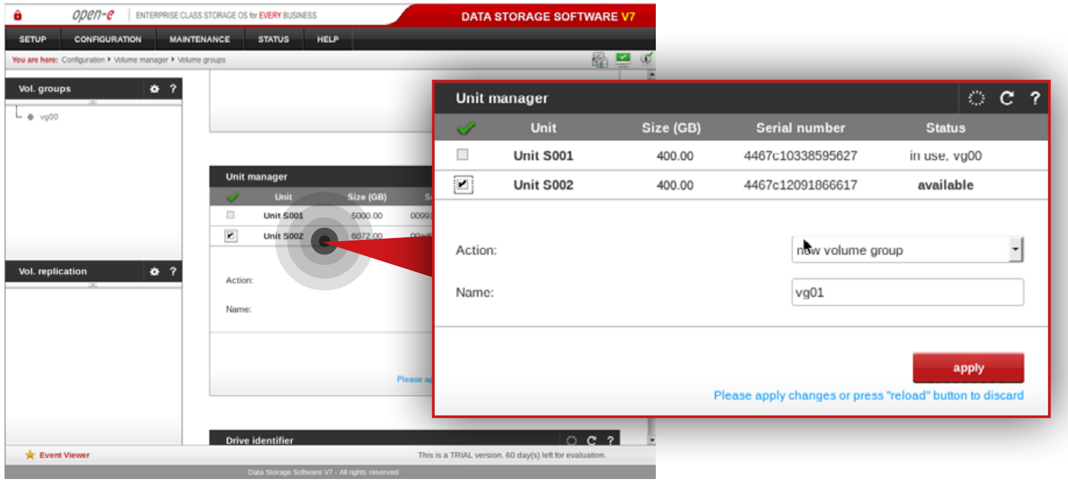
TRIAL version. You need to create a volume group in "Volume manager".

Data Storage Software V7 - All rights reserved

Step 3.

Go to **Configuration » Volume manager » Volume groups**.

a. From the Unit manager, select a disk to create the volume group.
b. Enter a name for the volume group (in this example, the volume name is **vg00**).
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups
Vol. groups
Vol. replication
Drive identifier
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Unit manager

✓	Unit	Size (GB)	Serial number	Status
□	Unit S001	400.00	4467c10338595627	in use, vg00
☑	Unit S002	400.00	4467c12091866617	available

Action: new volume group

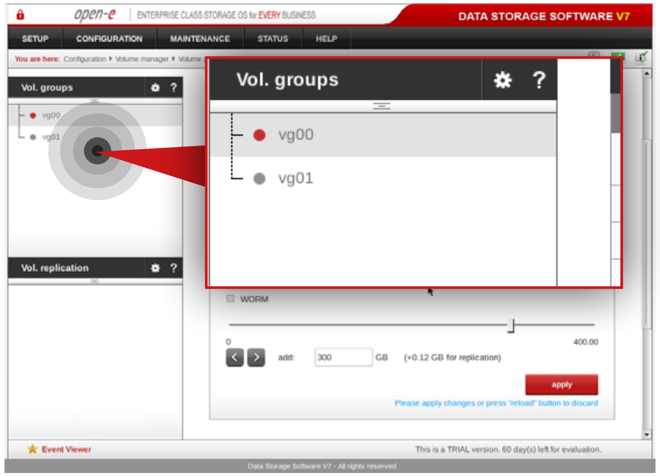
Name: vg01

apply

Please apply changes or press "reload" button to discard

Step 4.

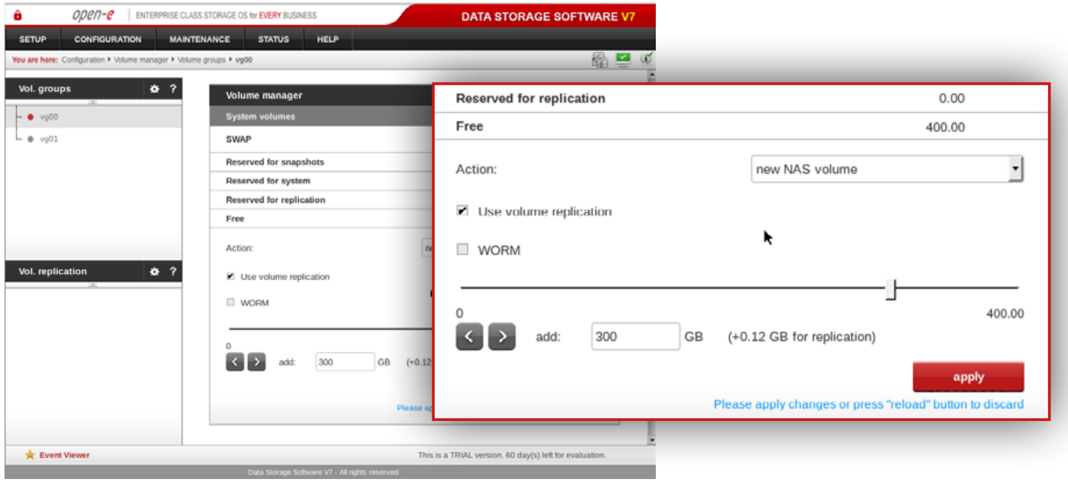
Repeat the previous step in order to create the second volume group (in this example, the volume name is **vg01**).


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
Vol. replication
WORM
add:
300
GB
(+0.12 GB for replication)
apply
Please apply changes or press "reload" button to discard
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Vol. groups

- vg00
- vg01

After volume groups are created you can see them listed in the volume groups menu on the left side.



Reserved for replication 0.00

Free 400.00

Action: new NAS volume

☑ Use volume replication

□ WORM

0 400.00

add: 300 GB (+0.12 GB for replication)

apply

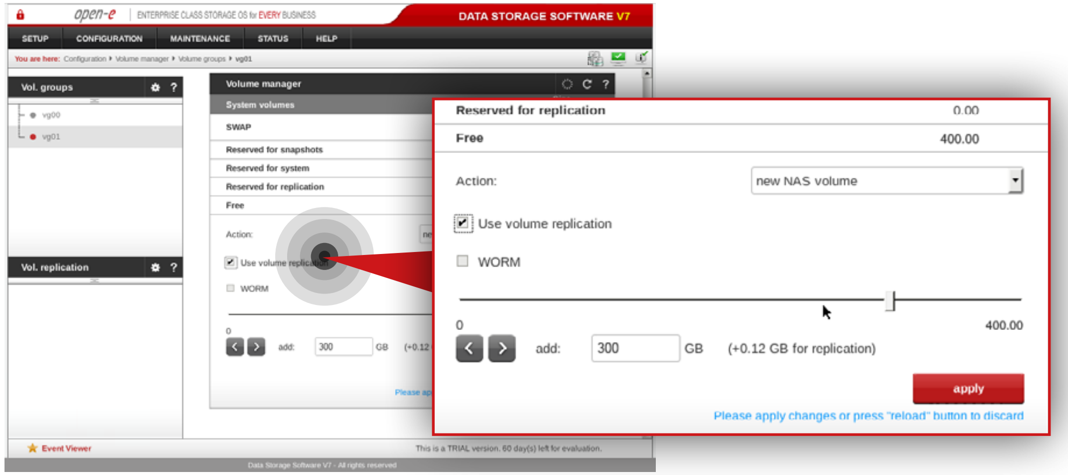
Please apply changes or press "reload" button to discard

Step 5.

Select **vg00** from the list on the left side. Next, create new NAS volume of size that is appropriate for the data set (in this example, the volume name is **lv0000**).

a. Make sure that **Use Volume replication** option is checked.
b. Set a size for the volume.
c. Click **apply** button.

Please note that the size of the volume in this example is for purpose of this manual. Your volumes size should be always tailored to the size of data set.



Reserved for replication 0.00

Free 400.00

Action: new NAS volume

☑ Use volume replication

□ WORM

0 400.00

add: 300 GB (+0.12 GB for replication)

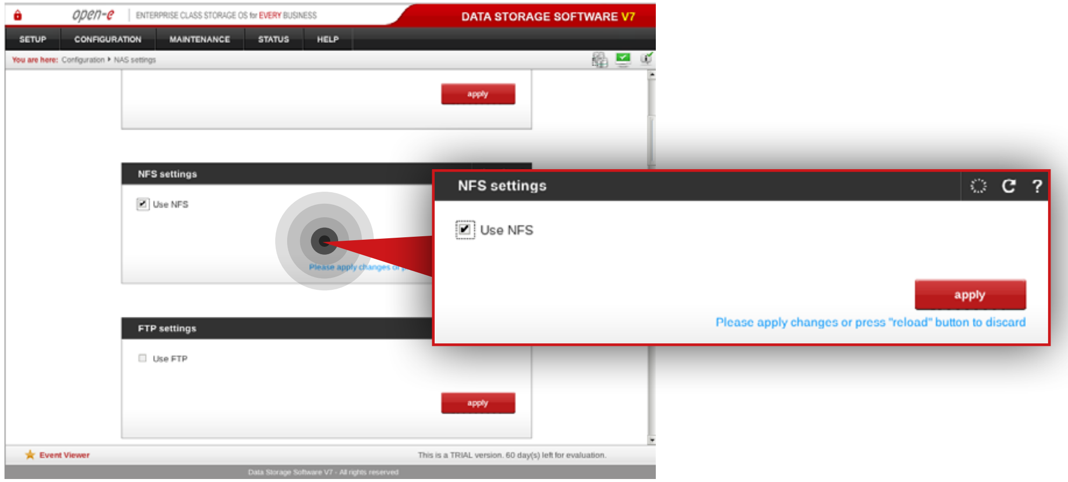
apply

Please apply changes or press "reload" button to discard

Step 6.

Select **vg01** from the list on the left side. Next, create new NAS volume of size that is appropriate for the data set (in this example, the volume name is **lv0100**).

a. Make sure that **Use Volume replication** option is checked.
b. Set a size for the volume.
c. Click **apply** button.


open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ NAS settings
apply
NFS settings
FTP settings
☐ Use FTP
apply
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

NFS settings

☑ Use NFS

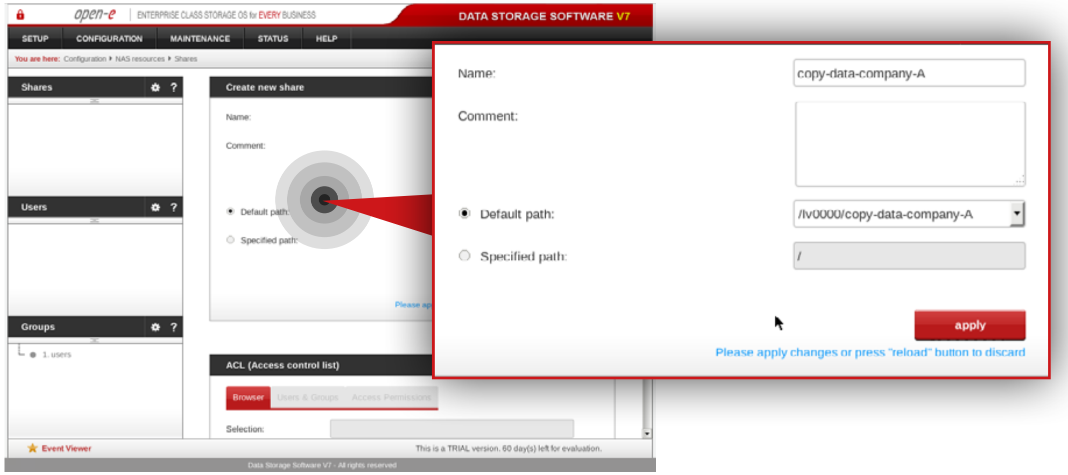
apply

Please apply changes or press "reload" button to discard

Step 7.

Go to **Configuration » NAS settings**.

a. Check **Use NFS** option in NFS settings box.
b. Click **apply** button.


open-e | ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
Users
Groups
1. users
Create new share
ACL (Access control list)
Browser Users & Groups Access Permissions
Selection:
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Name: copy-data-company-A

Comment:

● Default path: /lv0000/copy-data-company-A

○ Specified path: /

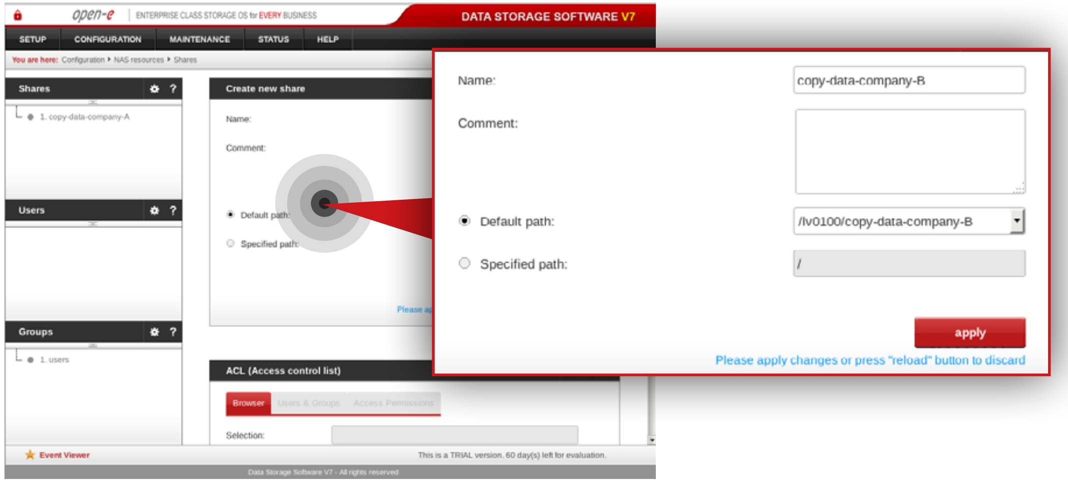
apply

Please apply changes or press "reload" button to discard

Step 8.

Go to **Configuration » NAS resources » Shares** and create a share for data to be replicated from the Customer node.

a. Enter a name for the share (in this example, the share name is **copy-data-company-A**).
b. Select **lv0000** as a default path for the share.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
1. copy-data-company-A
Users
Groups
1. users
Create new share
ACL (Access control list)
Browser
Users & Groups
Access Permissions
Selection:
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Name: copy-data-company-B

Comment:

● Default path: /lv0100/copy-data-company-B

○ Specified path: /

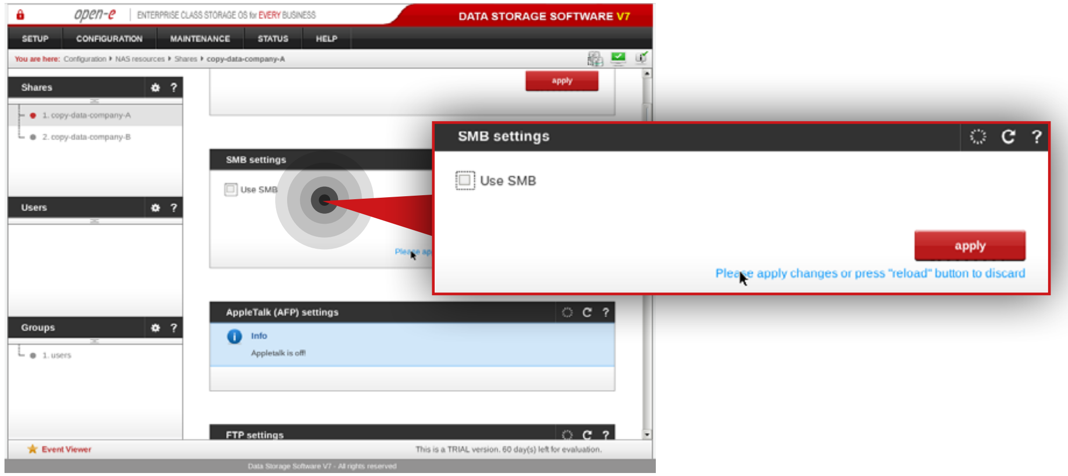
apply

Please apply changes or press "reload" button to discard

Step 9.

Create a share for the data to be replicated from the another Customer node (**Note:** This step is required only in case you have more than one Customer node from which data will be replicated).

a. Enter a name for the share (in this example, the share name is **copy-data-company-B**).
b. Select **lv0100** as a default path for the share.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-A
apply
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
AppleTalk (AFP) settings
Info
Appletalk is off
FTP settings
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

SMB settings

□ Use SMB

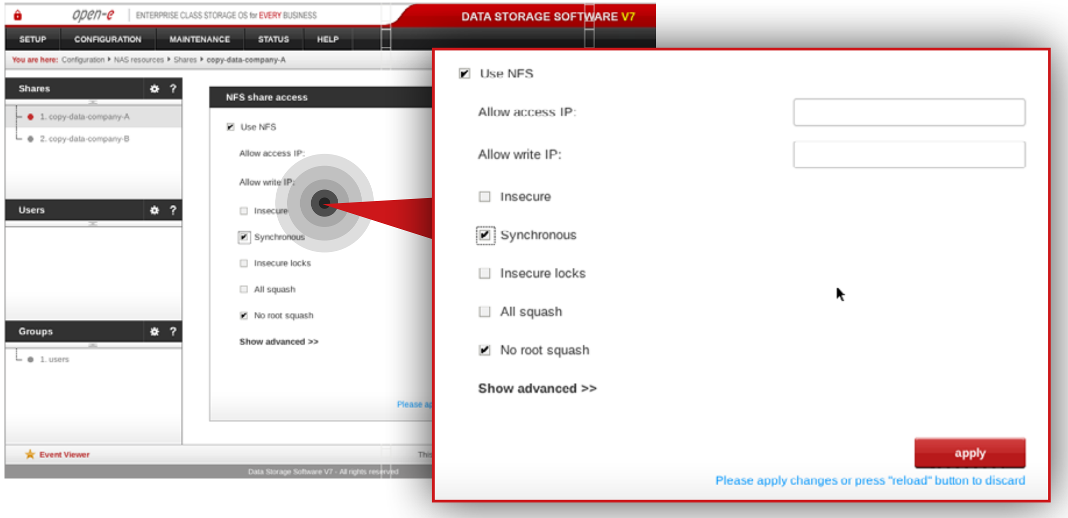
apply

Please apply changes or press "reload" button to discard

Step 10.

Select **copy-data-company-A** share from the list on the left side.

a. Navigate to SMB settings.
b. Uncheck **Use SMB** option.
c. Click **apply** button.



☑ Use NFS

Allow access IP:

Allow write IP:

□ Insecure

☑ Synchronous

□ Insecure locks

□ All squash

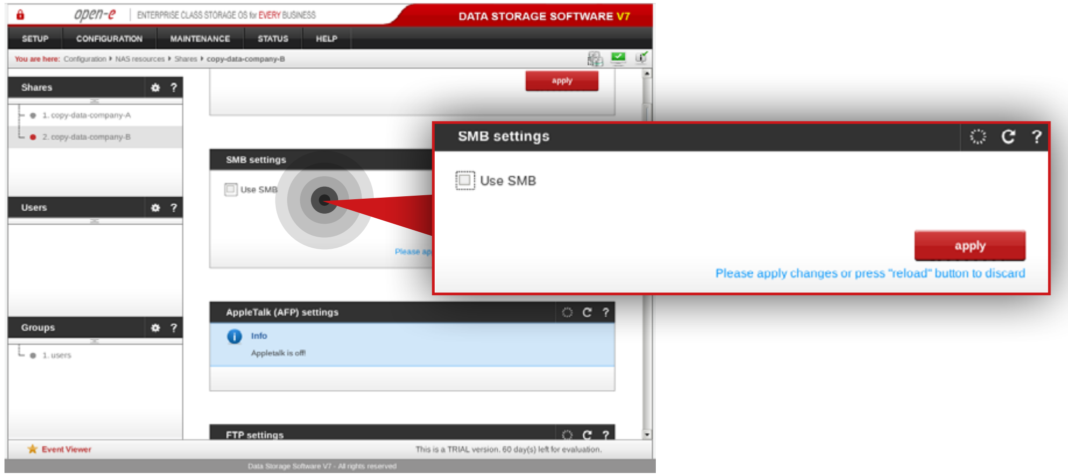
☑ No root squash

Show advanced >>

Step 11.

Next, navigate to NFS share access box.

a. Check **Use NFS** option.
b. Make sure **Synchronous** option is checked.
c. Click **apply** button.



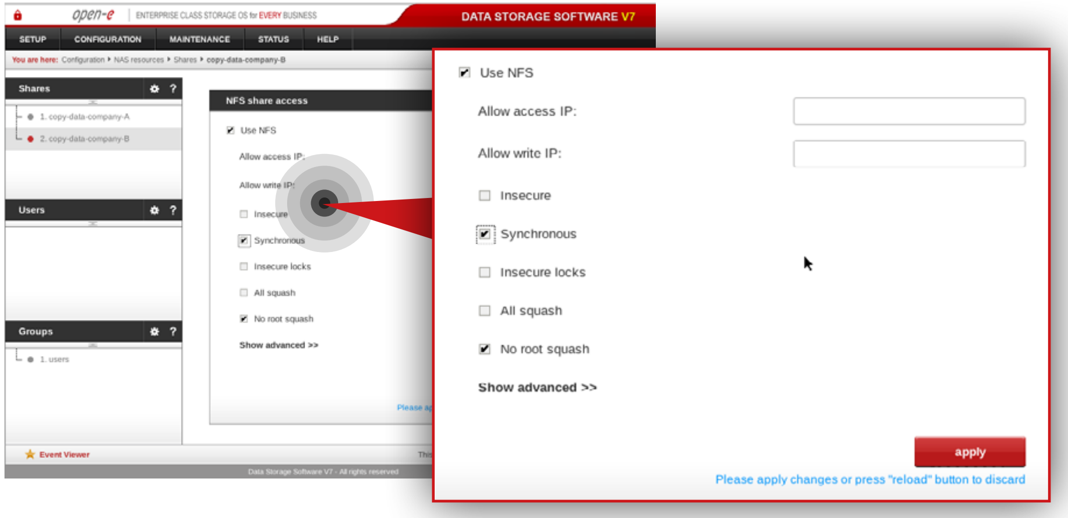
SMB settings

□ Use SMB

Step 12.

Select **copy-data-company-B** from the menu on the left side.

a. Navigate to SMB settings.
b. Uncheck **Use SMB** option.
c. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-B
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
NFS share access
Event Viewer
Data Storage Software V7 - All rights reserved

☑ Use NFS

Allow access IP:

Allow write IP:

□ Insecure

☑ Synchronous

□ Insecure locks

□ All squash

☑ No root squash

Show advanced >>

apply

Please apply changes or press "reload" button to discard

Step 13.

Next, Navigate to NFS share access box.

a. Check **Use NFS** option.
b. Make sure **Synchronous** option is checked.
c. Click **apply** button.

Port forwarding for:	External IP address	External port number	Internal IP address	Internal port number	Protocol
company-a	MSP public IP	41001	10.10.10.1	40000	TCP
company-b	MSP public IP	41002	10.10.11.1	40000	TCP

5.2.3. MSP router configuration

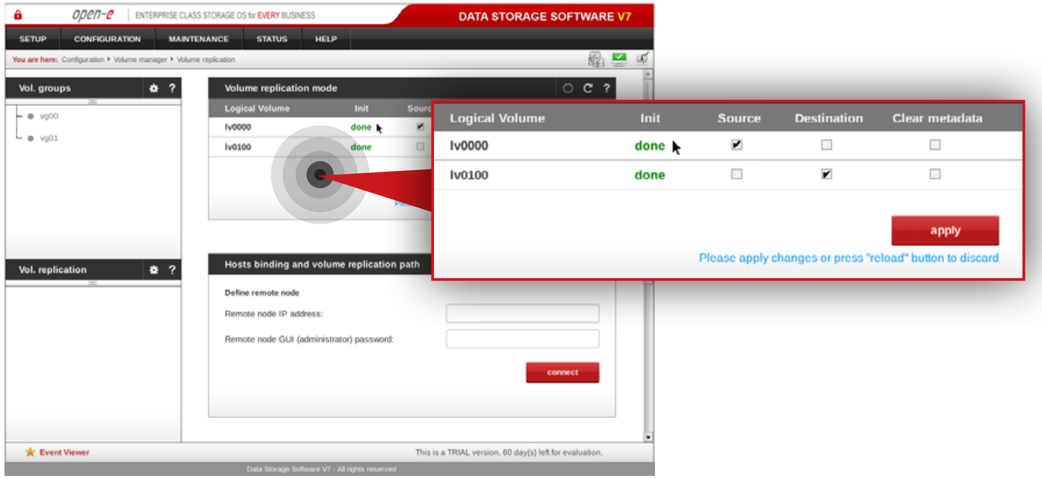
Step 1.

Configure port forwarding on the router in order to allow a connection request from Customer nodes.

Exemplary port forwarding configuration of MSP's router is shown in the table on the left.

Note: You need a router with multiple-subnet support.

Note: The IP addresses and port numbers used in this example are for the purpose of this manual only. You should configure your Ethernet ports according to your network topology.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
Vol. replication
Event Viewer
Data Storage Software V7 - All rights reserved

Volume replication mode

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	☑	□	□
lv0100	done	□	☑	□

apply

Please apply changes or press "reload" button to discard

Hosts binding and volume replication path

Define remote node

Remote node IP address:

Remote node GUI (administrator) password:

connect

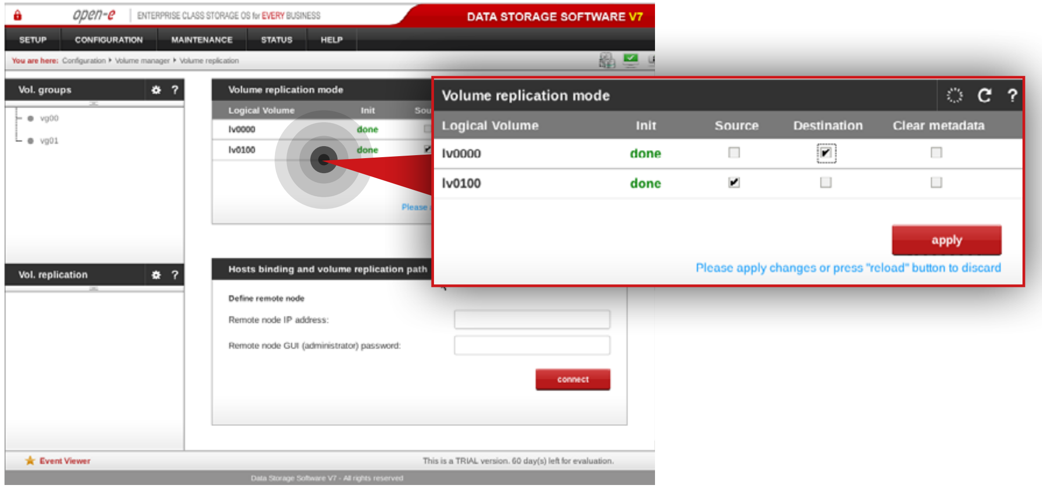
This is a TRIAL version. 60 day(s) left for evaluation.

5.2.4. Setting up volume replication between MSP nodes

Step 1.

On the **msp-node-a**, go to **Configuration » Volume manager » Volume replication**.

a. Set a **source** Volume replication mode for **lv0000** and **destination** volume replication mode for **lv0100**.
b. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
Vol. replication
Event Viewer
Data Storage Software V7 - All rights reserved

Volume replication mode

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	□	☑	□
lv0100	done	☑	□	□

apply

Please apply changes or press "reload" button to discard

Hosts binding and volume replication path

Define remote node

Remote node IP address:

Remote node GUI (administrator) password:

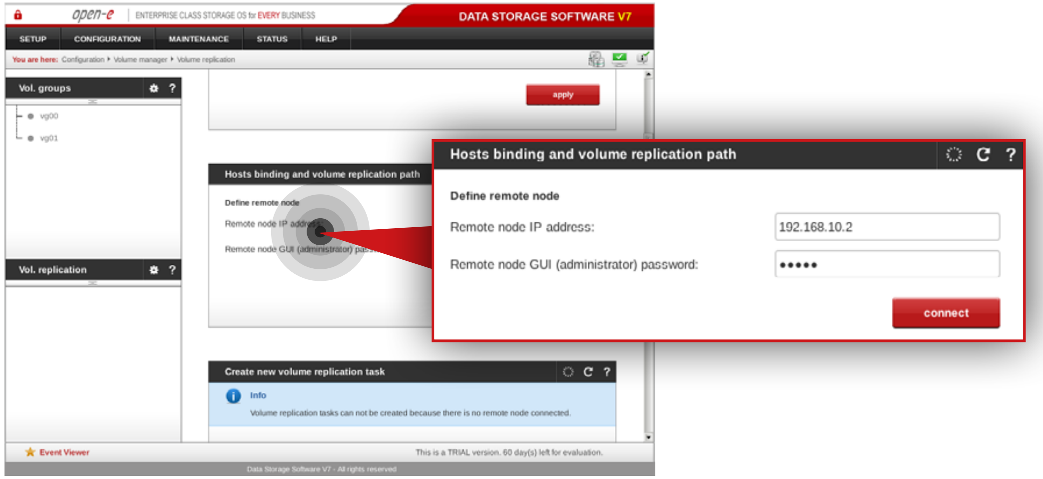
connect

This is a TRIAL version. 60 day(s) left for evaluation.

Step 2.

On **msp-node-b**, go to **Configuration » Volume manager » Volume replication.**

a. Set **source** volume replication mode for **lv0100** and **destination** volume replication mode for **lv0000**.
b. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
Vol. replication
apply
Event Viewer
Data Storage Software V7 - All rights reserved

Hosts binding and volume replication path

Define remote node

Remote node IP address: 192.168.10.2

Remote node GUI (administrator) password: •••••

connect

Create new volume replication task

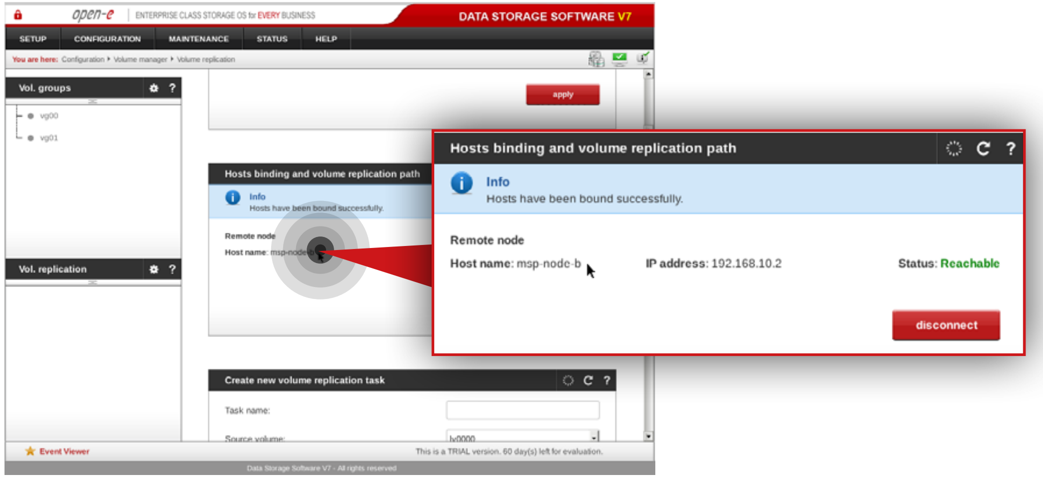
Info

Volume replication tasks can not be created because there is no remote node connected.

This is a TRIAL version. 60 day(s) left for evaluation.

Step 3.

Go back to **msp-node-a** and configure host binding and volume replication path between MSP nodes (in this example **msp-node-a** is bound with **msp-node-b**).


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
Vol. replication
apply
Event Viewer
Data Storage Software V7 - All rights reserved

Hosts binding and volume replication path

Info

Hosts have been bound successfully.

Remote node

Host name: msp-node-b IP address: 192.168.10.2 Status: Reachable

disconnect

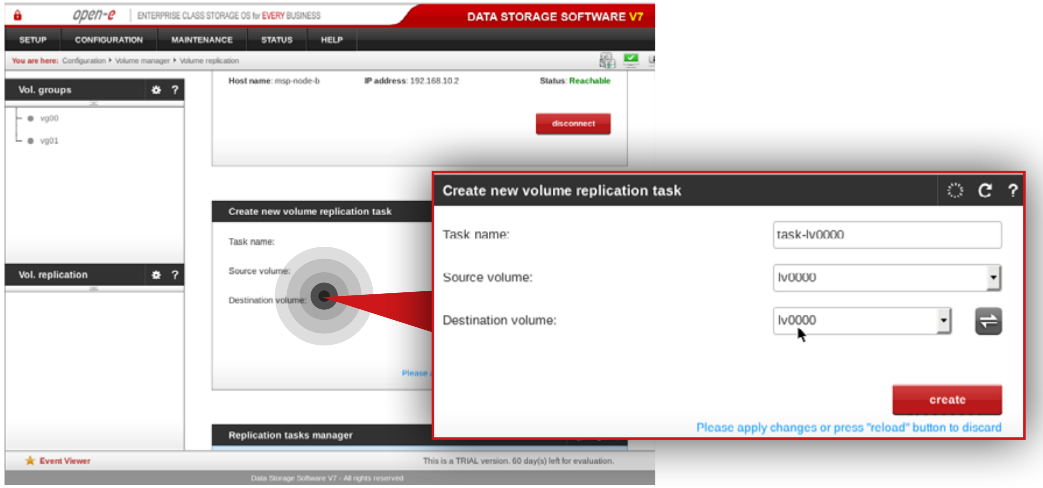
Create new volume replication task

Task name:

Source volume: lv0000

This is a TRIAL version. 60 day(s) left for evaluation.

After both nodes are bound, you will see binding status like on the screenshot on the left.



Host name: msp-node-b IP address: 192.168.10.2 Status: Reachable

Create new volume replication task

Task name: task-lv0000

Source volume: lv0000

Destination volume: lv0000

create

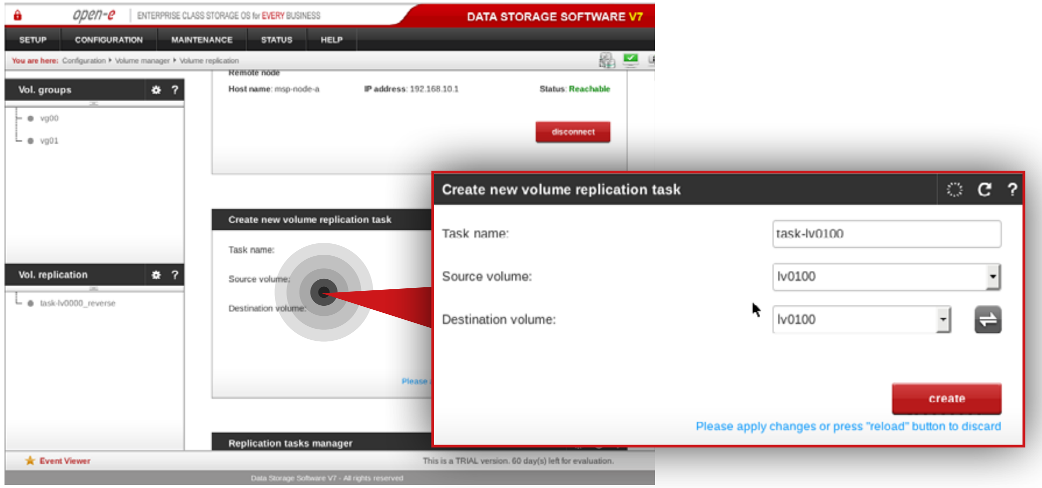
Please apply changes or press "reload" button to discard

This is a TRIAL version. 60 day(s) left for evaluation.

Step 4.

On **msp-node-a** navigate to Create new volume replication task box and create new volume replication task.

a. Enter task name (in this example, the task name is **task-lv0000**).
b. Select source volume (in this example, source volume is **lv0000**).
c. Select destination volume on MSP second node (in this example, destination volume is **lv0000**).
d. Click **create** button.



Host name: msp-node-a IP address: 192.168.10.1 Status: Reachable

Create new volume replication task

Task name: task-lv0100

Source volume: lv0100

Destination volume: lv0100

create

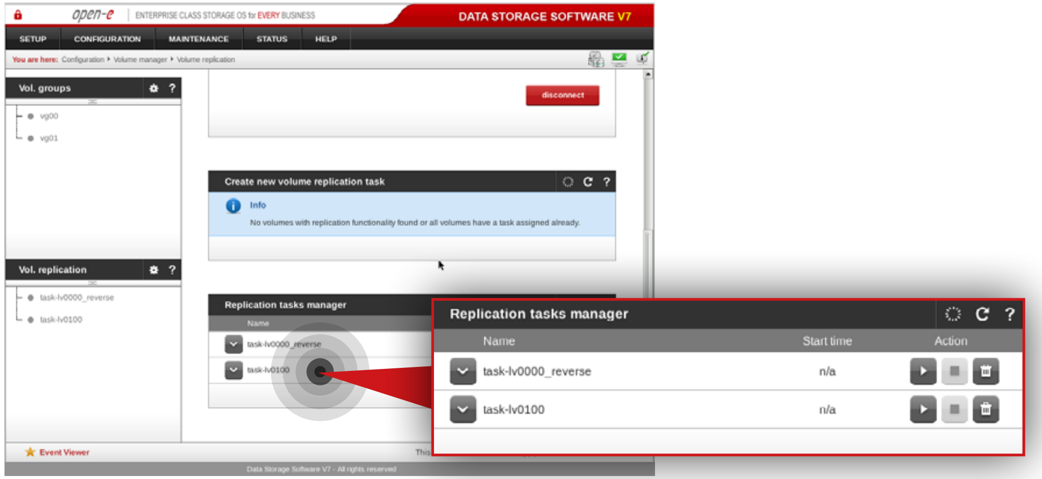
Please apply changes or press "reload" button to discard

This is a TRIAL version. 60 day(s) left for evaluation.

Step 5.

On **msp-node-b** navigate to Create new volume replication task and create new volume replication task.

a. Enter task name (in this example, the task name is **task-lv0100**).
b. Select source volume (in this example, source volume is **lv0100**).
c. Select destination volume on MSP second node (in this example, destination volume is **lv0100**).
d. Click **create** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
disconnect
Vol. replication
task-lv0000_reverse
task-lv0100
Event Viewer
Data Storage Software V7 - All rights reserved

Create new volume replication task

Info

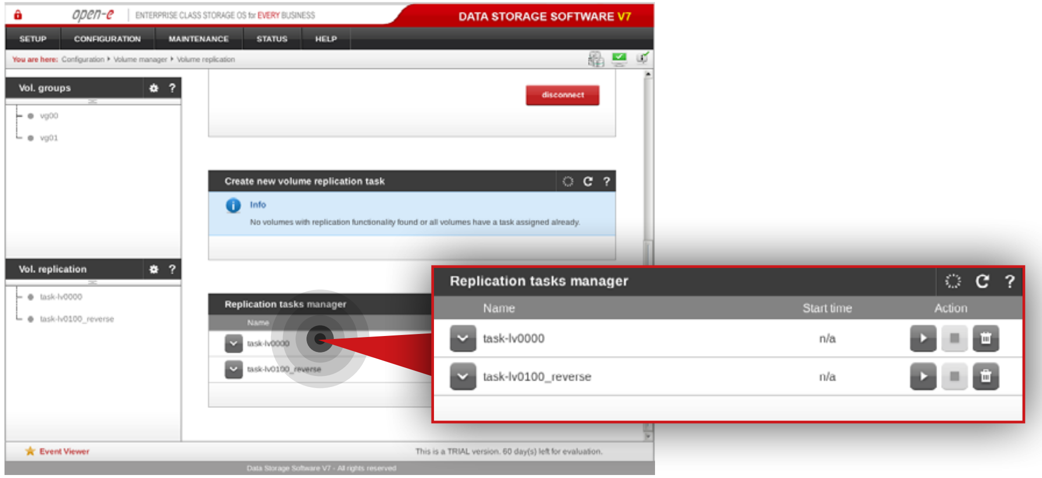
No volumes with replication functionality found or all volumes have a task assigned already.

Replication tasks manager

Name	Start time	Action
task-lv0000_reverse	n/a	▶ ■ 🗑
task-lv0100	n/a	▶ ■ 🗑

Step 6.

Next, run replication task **task-lv0100**.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume replication
Vol. groups
vg00
vg01
disconnect
Vol. replication
task-lv0000
task-lv0100_reverse
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Create new volume replication task

Info

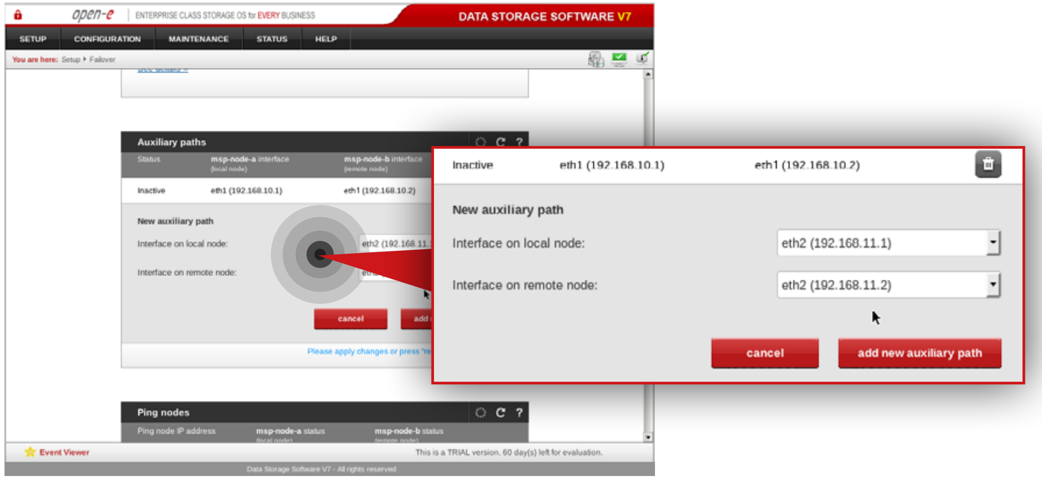
No volumes with replication functionality found or all volumes have a task assigned already.

Replication tasks manager

Name	Start time	Action
task-lv0000	n/a	▶ ■ 🗑
task-lv0100_reverse	n/a	▶ ■ 🗑

Step 7.

Go to the **msp-node-a** and run replication task **task-lv0000**.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Failover
Auxiliary paths
Ping nodes
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
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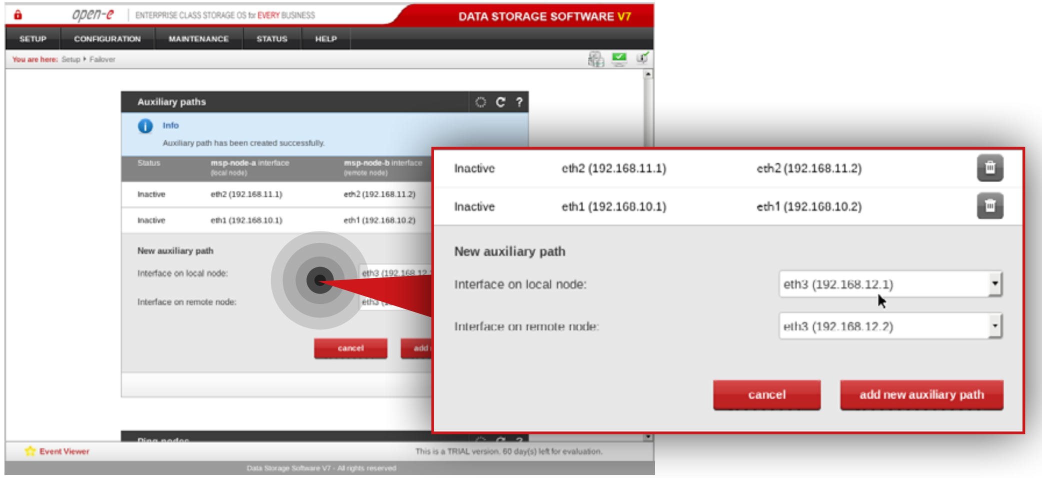
Status	msp-node-a interface (local node)	msp-node-b interface (remote node)
Inactive	eth1 (192.168.10.1)	eth1 (192.168.10.2)

New auxiliary path

Interface on local node: eth2 (192.168.11.1)

Interface on remote node: eth2 (192.168.11.2)

cancel
add new auxiliary path


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Failover
Auxiliary paths
Ping nodes
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
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Info

Auxiliary path has been created successfully.

Status	msp-node-a interface (local node)	msp-node-b interface (remote node)
Inactive	eth2 (192.168.11.1)	eth2 (192.168.11.2)
Inactive	eth1 (192.168.10.1)	eth1 (192.168.10.2)

New auxiliary path

Interface on local node: eth3 (192.168.12.1)

Interface on remote node: eth3 (192.168.12.2)

cancel
add new auxiliary path

5.2.5. Setting up and running Failover service

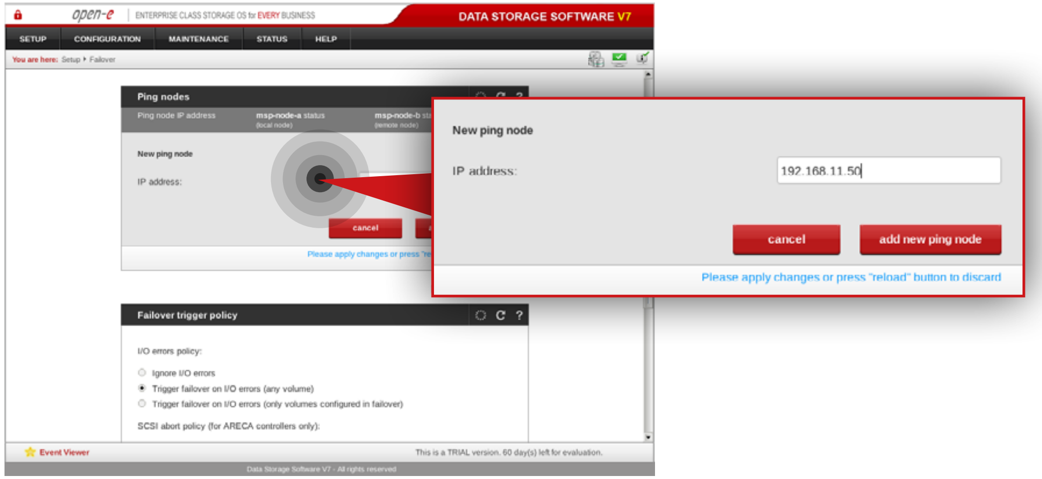
On **msp-node-a** go to **Setup » Failover.**

Step 1.

Add two auxiliary paths.

Note: The interface on both local and remote node has to be on the same network subnet.

a. Select interface on local and remote node for the first new auxiliary path (in this example eth2 on local node and eth2 on remote node).
b. Click **add new auxiliary** path button.
c. Select interface on local and remote node for the second new auxiliary path (in this example eth3 on local node and eth3 on remote node).
d. Click **add new auxiliary path** button.



You are here: Setup ▸ Failover

Ping nodes

Ping node IP address	msp-node-a status (local node)	msp-node-b status (remote node)

New ping node

IP address: 192.168.11.50

Please apply changes or press "reload" button to discard

Failover trigger policy

I/O errors policy:

○ Ignore I/O errors
● Trigger failover on I/O errors (any volume)
○ Trigger failover on I/O errors (only volumes configured in failover)

SCSI abort policy (for ARECA controllers only):

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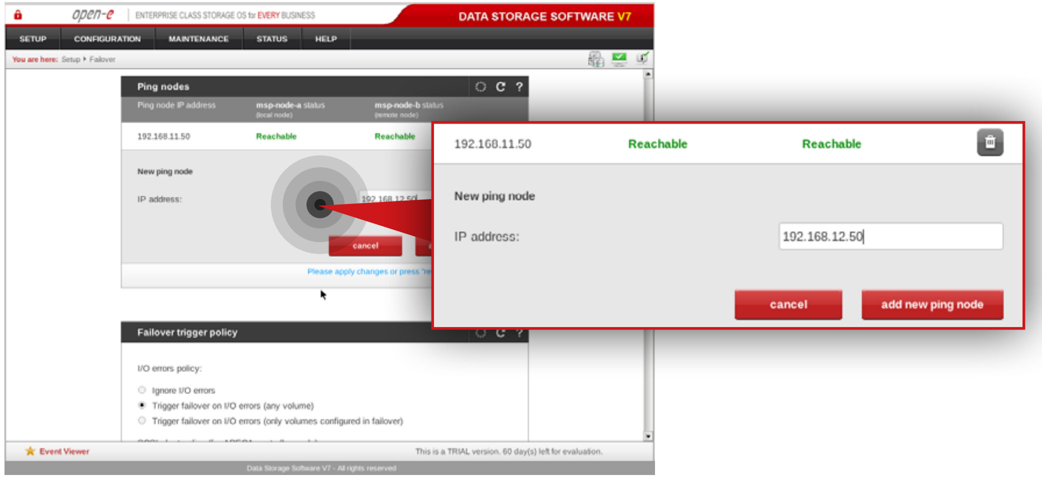
Step 2.

Add two ping nodes.

a. Add first ping node (in this example, the ping node is **192.168.11.50**).
b. Click **add new ping node** button.
c. Add second ping node (in this example, the ping node is **192.168.12.50**).
d. Click **add new ping node** button.



You are here: Setup ▸ Failover

Ping nodes

Ping node IP address	msp-node-a status (local node)	msp-node-b status (remote node)
192.168.11.50	Reachable	Reachable

New ping node

IP address: 192.168.12.50

Please apply changes or press "reload" button to discard

Failover trigger policy

I/O errors policy:

○ Ignore I/O errors
● Trigger failover on I/O errors (any volume)
○ Trigger failover on I/O errors (only volumes configured in failover)

This is a TRIAL version. 60 day(s) left for evaluation.

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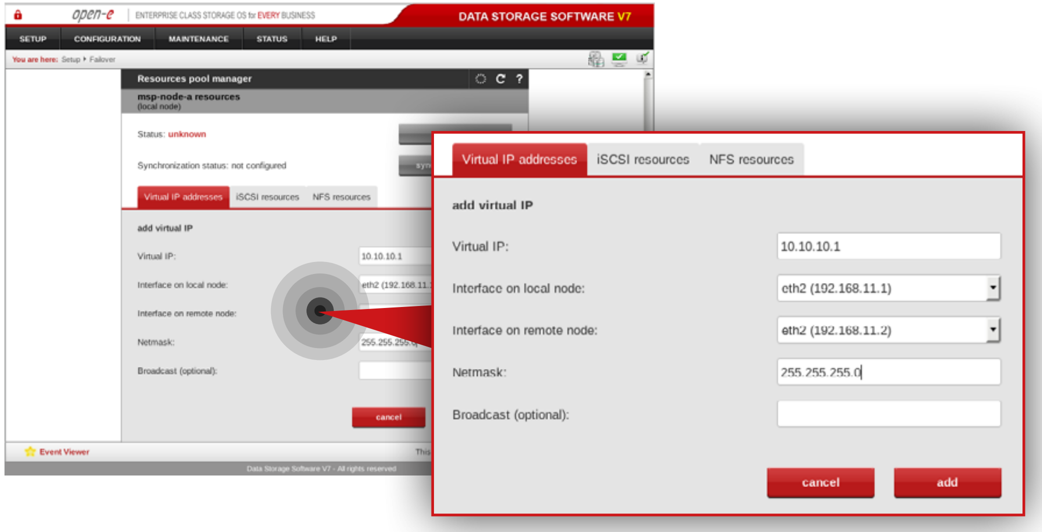


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Failover
Event Viewer
Data Storage Software V7 - All rights reserved

Resources pool manager

msp-node-a resources
(local node)

Status: unknown

Synchronization status: not configured

Virtual IP addresses | iSCSI resources | NFS resources

add virtual IP

Virtual IP: 10.10.10.1

Interface on local node: eth2 (192.168.11.1)

Interface on remote node: eth2 (192.168.11.2)

Netmask: 255.255.255.0

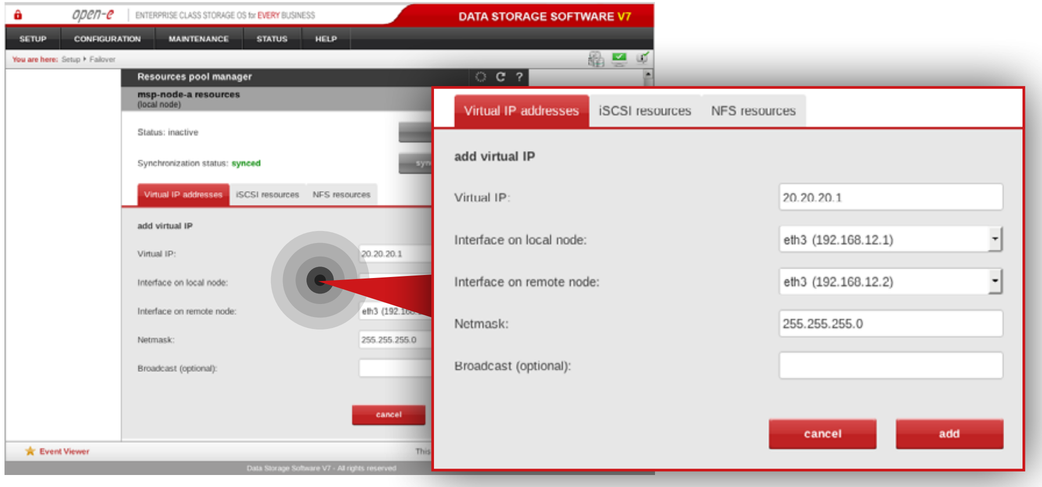
Broadcast (optional):

cancel | add

Step 3.

Go to the **Resources Pool Manager** and add a virtual IP address in **msp-node-a-resources** section.

a. Enter virtual IP address appropriate for your network configuration (in this example virtual IP address is **10.10.10.1**).
b. Select interface on local node for virtual IP address (in this example, **eth2 192.168.11.1**).
c. Select interface on remote node for virtual IP address (in this example, **eth2 192.168.11.2**).
d. Enter netmask (in this example, netmask is **255.255.255.0**).
e. Click **add** button.



open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Failover
Event Viewer
Data Storage Software V7 - All rights reserved

Resources pool manager

msp-node-a resources
(local node)

Status: inactive

Synchronization status: synced

Virtual IP addresses | iSCSI resources | NFS resources

add virtual IP

Virtual IP: 20.20.20.1

Interface on local node: eth3 (192.168.12.1)

Interface on remote node: eth3 (192.168.12.2)

Netmask: 255.255.255.0

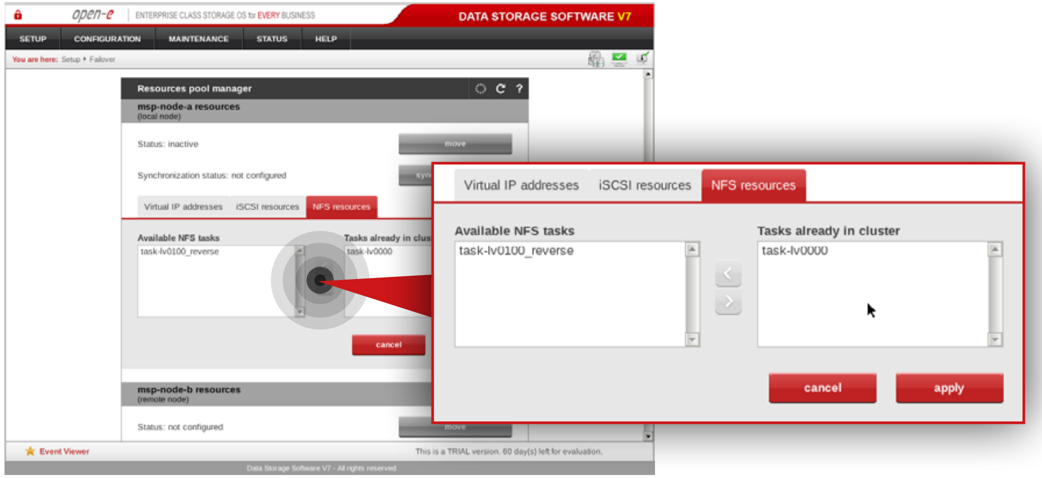
Broadcast (optional):

cancel | add

Step 4.

Next, Add another virtual IP address in **msp-node-a-resources** section.

a. Enter virtual IP address appropriate for your network configuration (in this example virtual IP address is **20.20.20.1**).
b. Select interface on local node for virtual IP address (in this example, **eth3 192.168.12.1**).
c. Select interface on remote node for virtual IP address (in this example, **eth3 192.168.12.2**).
d. Enter netmask (in this example, netmask is **255.255.255.0**).
e. Click **add** button.



Status: inactive

Synchronization status: not configured

Available NFS tasks: task-lv0100_reverse

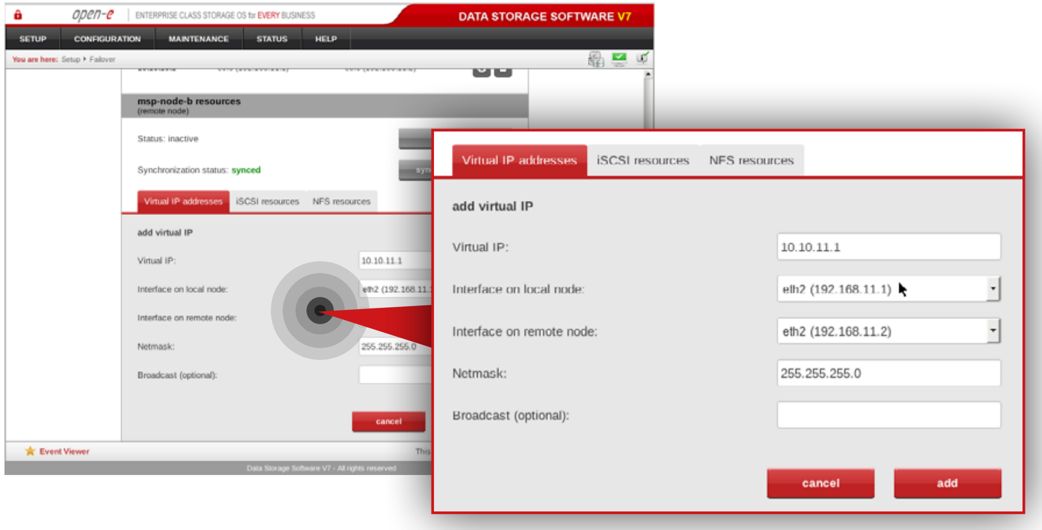
Tasks already in cluster: task-lv0000

Status: not configured

Step 5.

Next, navigate to **NFS resources tab** in **msp-node-a-resources** section.

a. Move **task-lv0000** from Available NFS tasks to Tasks already in cluster.
b. Click **apply** button.



Status: inactive

Synchronization status: synced

Virtual IP: 10.10.11.1

Interface on local node: eth2 (192.168.11.1)

Interface on remote node: eth2 (192.168.11.2)

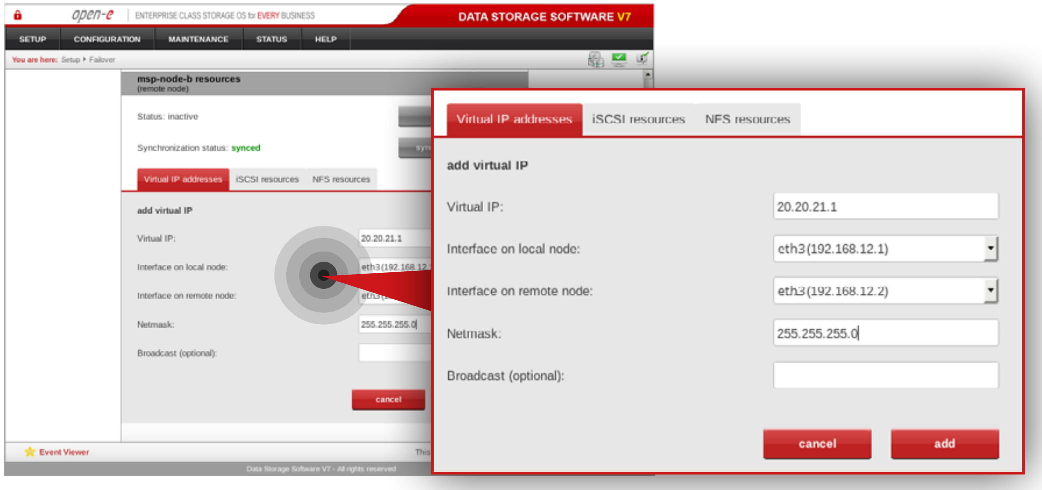
Netmask: 255.255.255.0

Broadcast (optional):

Step 6.

Navigate to the **Resources Pool Manager** and add a virtual IP address in **msp-node-b-resources** section.

a. Enter virtual IP address appropriate for your network configuration (in this example virtual IP address is **10.10.11.1**).
b. Select interface on local node for virtual IP address (in this example, **eth2 192.168.11.1**).
c. Select interface on remote node for virtual IP address (in this example, **eth2 192.168.11.2**).
d. Enter netmask (in this example, netmask is **255.255.255.0**).
e. Click **add** button.



msp-node-b resources (remote node)

Status: inactive

Synchronization status: synced

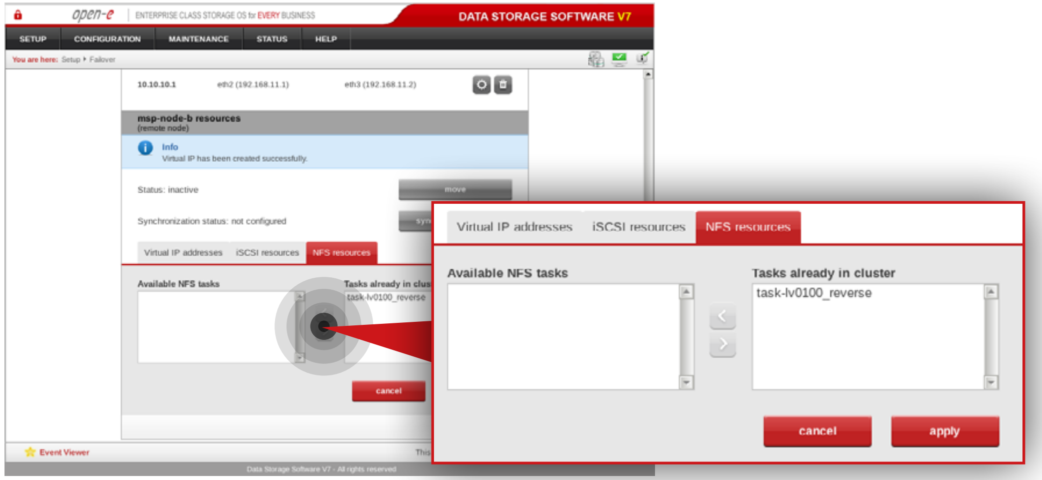
add virtual IP

Virtual IP:	20.20.21.1
Interface on local node:	eth3(192.168.12.1)
Interface on remote node:	eth3(192.168.12.2)
Netmask:	255.255.255.0
Broadcast (optional):	

Step 7.

Next, Add another virtual IP address in **msp-node-b-resources** section.

a. Enter virtual IP address appropriate for your network configuration (in this example virtual IP address is **20.20.21.1**).
b. Select interface on local node for virtual IP address (in this example, **eth3 192.168.12.1**).
c. Select interface on remote node for virtual IP address (in this example, **eth3 192.168.12.2**).
d. Enter netmask (in this example, netmask is **255.255.255.0**).
e. Click **add** button.



10.10.10.1 eth2 (192.168.11.1) eth3 (192.168.11.2)

msp-node-b resources (remote node)

Info
Virtual IP has been created successfully.

Status: inactive

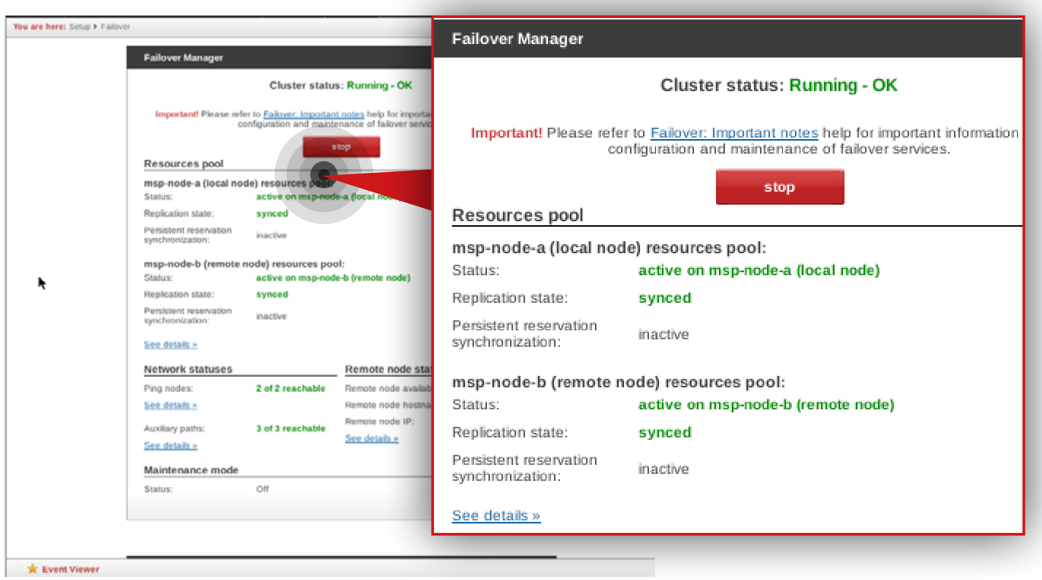
Synchronization status: not configured

Available NFS tasks	Tasks already in cluster
	task-lv0100_reverse

Step 8.

Navigate to **NFS resources tab**.

a. Move **task-lv0100_reverse** from Available NFS tasks to Tasks already in cluster.
b. Click **apply** button.



You are here: Setup ▸ Failover

Failover Manager

Cluster status: Running - OK

Important! Please refer to Failover: Important notes help for important information configuration and maintenance of failover services.

stop

Resources pool

msp-node-a (local node) resources pool:

Status:	active on msp-node-a (local node)
Replication state:	synced
Persistent reservation synchronization:	inactive

msp-node-b (remote node) resources pool:

Status:	active on msp-node-b (remote node)
Replication state:	synced
Persistent reservation synchronization:	inactive

See details »

Network statuses

Ping nodes:	2 of 2 reachable
See details »	
Auxiliary paths:	3 of 3 reachable
See details »	

Remote node stat

Remote node availab

Remote node hostna

Remote node IP:

See details »

Maintenance mode

Status:	Off

Event Viewer

Step 10.

Go to **Failover manager** and click **start** button in order to run the Failover service.

5.3. Detailed procedure of setting up monitoring for MSP

MSP node and Customer node monitoring is carried out by the Monitoring node (see Chapter 2 - Solution diagram / Network topology). The Monitoring node is a single node running Ubuntu Server 14.04 LTS with OMD (Open Monitoring Distribution) software installed.

Prerequisites
Please complete the following prerequisites.

- Server meets requirements for Monitoring node introduced in Chapter 4 – Minimum hardware requirements
- Ubuntu Server 14.04 LTS installed on the server
- Ubuntu standard user account with sudo privileges
- MSP nodes configured according to procedure introduced in Chapter 5.2 – Detailed procedure of setting up MSP nodes

If all the prerequisites have been met, you're now ready to start Monitoring node configuration.

The following steps show how to configure monitored node (in this example, the monitored node is MSP node), install OMD package on Monitoring node and finally, access and use the monitoring interface.

5.3.1. Installing and configuring OMD on MSP Monitoring node

In order to install OMD package on MSP Monitoring node please follow the steps below:

Step 1.

From a root level (use "sudo -i" in order to login as root), update repositories index and upgrade system software using the following commands:

```
apt-get update
```

```
apt-get upgrade
```

In order to install OMD package, in the next steps we will follow instructions from https://labs.consol.de/repo/stable/.

Step 2.

Install the relevant GPG key in Ubuntu.

```
gpg --keyserver keys.gnupg.net --recv-keys F8C1CA08A57B9ED7
```

```
gpg --armor --export F8C1CA08A57B9ED7 | apt-key add -
```

Step 3.

Next, enable the stable release repository (in our case, it is the one dedicated to Ubuntu Trusty 14.04):

```
echo 'deb http://labs.consol.de/repo/stable/ubuntu trusty main' >> /etc/apt/sources.list
```

Step 4.

Run apt-get update to refresh our distribution repositories.

```
apt-get update
```

Step 5.

Install the OMD.

```
apt-get install omd
```

Step 6.

Create a new site (in this example it is "dssmonitor").

```
omd create dssmonitor
```

What you get is:

- a site directory with preconfigured configuration files
- a new user "dssmonitor" and a new group "dssmonitor" (identical with the name of your site). The new user is also a member of the group omd, which is created during installation

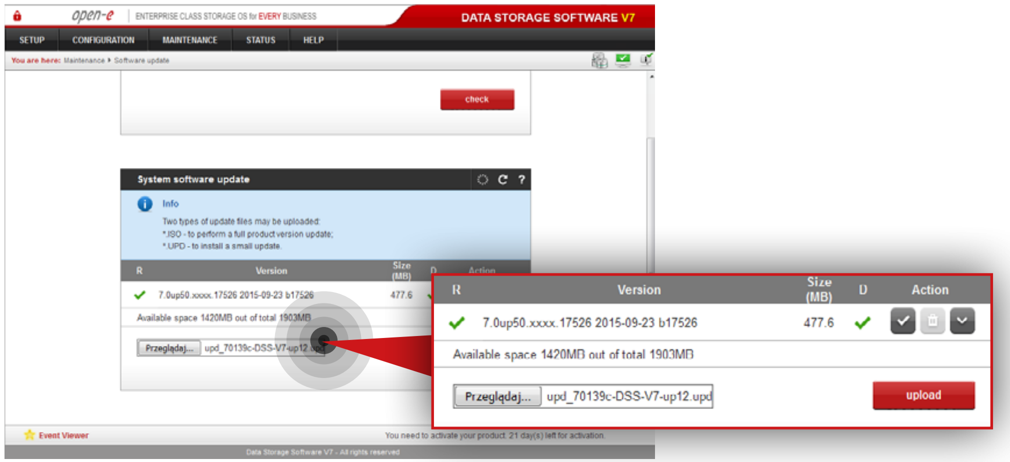
5.3.2. Configuring monitored node

Applying the small update to monitored node

Note: Applying small update is not required if you are using Open-E DSS V7 version v7.0up56 or above.

Click: http://kb.open-e.com/How-can-I-obtain-and-apply-a-small-update-to-my--Open-E-software_63.html, to find out how to obtain small updates. Please note, it is always best to confirm it with our technical support, before installing any updates to your system.

Go to the node you want to monitor (in our example, the node is **msp-node-a**) and perform the following steps:


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Software update
check
System software update
Event Viewer
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Info

Two types of update files may be uploaded:
*.ISO - to perform a full product version update;
*.UPD - to install a small update.

R	Version	Size (MB)	D	Action
✓	7.0up50.xxxx.17526 2015-09-23 b17526	477.6	✓	

Available space 1420MB out of total 1903MB

Przeglądaj... upd_70139c-DSS-V7-up12.upd

upload

You need to activate your product. 21 day(s) left for activation.

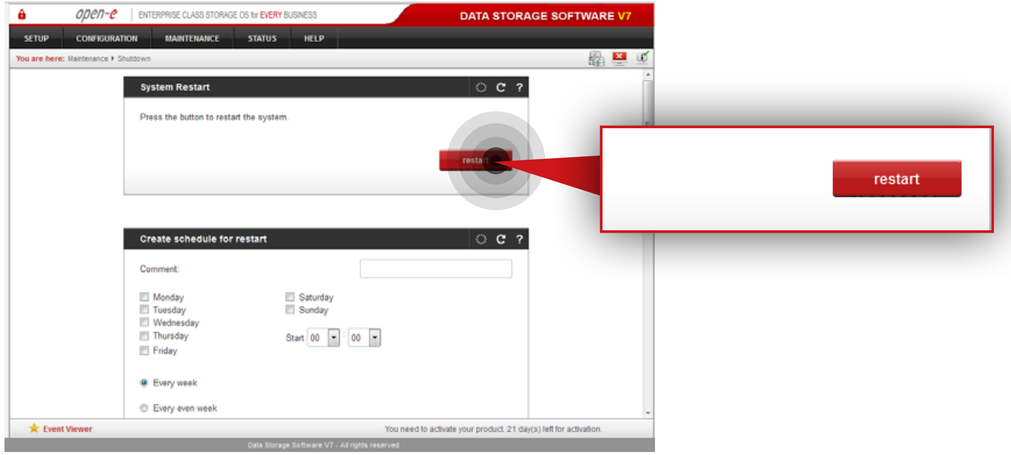
Step 1.

Go to **Maintenance » Software update** and navigate to System software update.

Step 2.

Click **Choose File** to pick the small update *upd_70139-DSS-V7.upd*, then click on **upload** and **accept**.

You will then need to manually restart the system.



You are here: Maintenance ▸ Shutdown

System Restart

Press the button to restart the system.

Create schedule for restart

Comment:

□ Monday
□ Tuesday
□ Wednesday
□ Thursday
□ Friday

□ Saturday
□ Sunday

Start 00 : 00

● Every week

○ Every even week

You need to activate your product. 21 day(s) left for activation.

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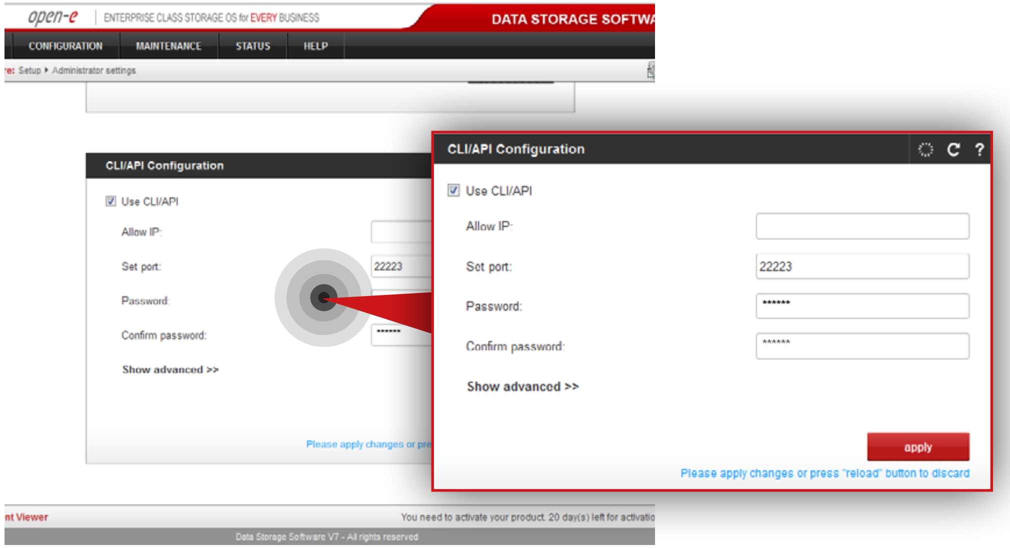
Step 3.

Go to **Maintenance » Shutdown » System Restart** and click the **restart** button in order to reboot the server.

After installation, the small update will be visible in the System software update menu (it can be removed by clicking on the trash bin).

5.3. Detailed procedure of setting up monitoring for MSP


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWA
CONFIGURATION
MAINTENANCE
STATUS
HELP
Setup ▸ Administrator settings
nt Viewer

CLI/API Configuration

☑ Use CLI/API

Allow IP:

Set port: 22223

Password: ******

Confirm password: ******

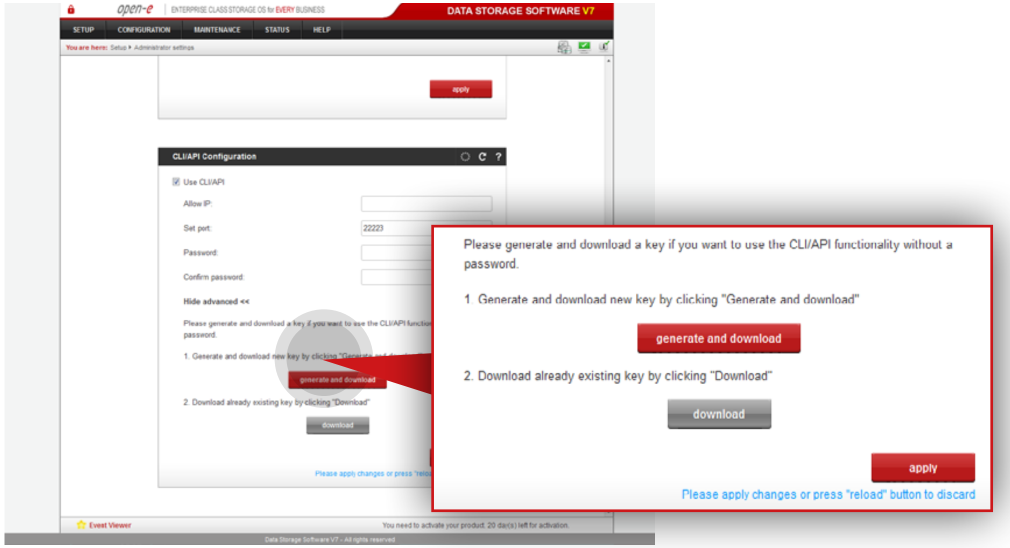
Show advanced >>

apply

Please apply changes or press "reload" button to discard

You need to activate your product. 20 day(s) left for activatio

Data Storage Software V7 - All rights reserved


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Administrator settings
Event Viewer

CLI/API Configuration

☑ Use CLI/API

Allow IP:

Set port: 22223

Password:

Confirm password:

Hide advanced <<

Please generate and download a key if you want to use the CLI/API functionality without a password.

1. Generate and download new key by clicking "Generate and download"

generate and download

2. Download already existing key by clicking "Download"

download

apply

Please apply changes or press "reload" button to discard

You need to activate your product. 20 day(s) left for activation.

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Enabling API on monitored node

Go to a node you want to monitor (in our example, the node is MSP primary node) and perform the following steps:

Step 4.

Go to **Setup » Administrator settings** then navigate to **CLI/API Configuration**.

Step 5.

Enable CLI/API, then specify port – 22223 and password.

Step 6.

Click **apply** button.

Step 7.

In order to use the CLI/API functionality without password, you need to generate ssh key. You can do it by expanding **show advanced** menu and clicking on the **generate and download** button.

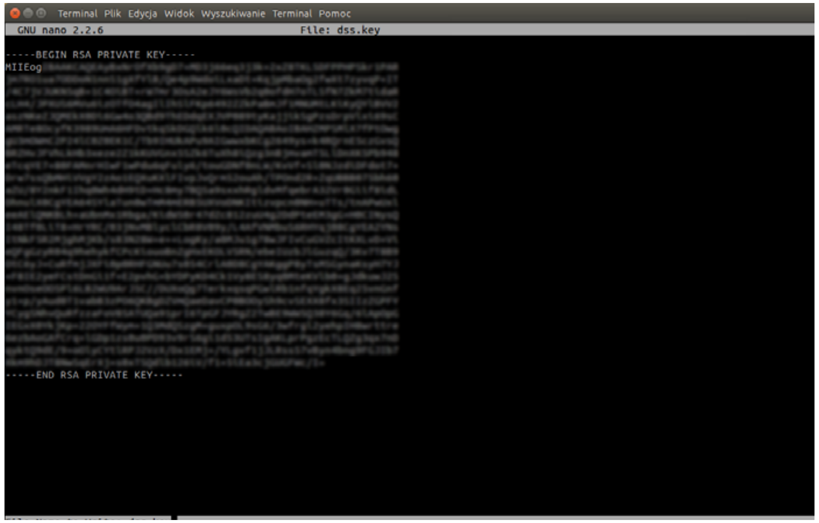
5.3.3. Adding a monitored node to OMD

Step 1.

On the Monitoring node, create a file with an ssh key (downloaded while enabling CLI/API functionality on monitored node) in the omd directory.

Note: We use a **nano** editor to create and edit the key file (in this example, the key file name is dss.key).

```
cd /omd
nano dss.key
```



```
  GNU nano 2.2.6                    File: dss.key

-----BEGIN RSA PRIVATE KEY-----
MIIEog[redacted]
-----END RSA PRIVATE KEY-----
```

Next, copy the ssh key from the downloaded file and paste it to the **dss.key** file.

After the ssh key is copied, use **Ctrl+O**. Next, click Enter to save the dss.key file and then **Ctrl+X** to close nano editor.

Tip: in order to check whether the dss.key file was created type ls. You should see the dss.key listed under the omd directory.

Step 2.

The important part is to ensure the correct ownership is set (our OMD user) and access permission (read and execute for owner only) for our ssh key.
To change the owner of our ssh key file, we use the following command:

```
chown dssmonitor /omd/dss.key
```

Step 3.

To change access permission, so only the owner has read and execute rights, we use:

```
chmod 500 /omd/dss.key
```

Step 4.

Then, we log to OMD as dssmonitor using "su" command:

```
su dssmonitor
```

Step 5.

In order to add monitored server (192.168.20.1) to Check_MK list of known hosts, run the following ssh command (type **yes** and press **Enter** when asked):

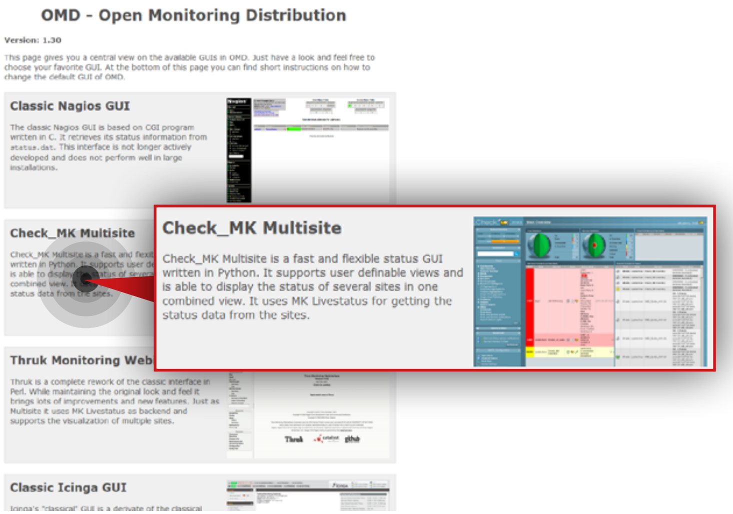
```
ssh -p 22223 -i /omd/dss.key -l api 192.168.20.1 check_mk_agent
```

Note: In case you want to add Customer node to Check_MK list of known hosts, the port number in the command should be set according to Customer's node port forwarding configuration and IP address should be Customer's router public IP address.

Step 6.

Log out from dssmonitor account (Ctrl + D). **From root level** (use "sudo -i" in order to login as root), start the omd on newly created site.

```
omd start dssmonitor
```



OMD - Open Monitoring Distribution

Version: 1.30

This page gives you a central view on the available GUIs in OMD. Just have a look and feel free to choose your favorite GUI. At the bottom of this page you can find short instructions on how to change the default GUI of OMD.

Classic Nagios GUI

The classic Nagios GUI is based on CGI program written in C. It retrieves its status information from `status.dat`. This interface is not longer actively developed and does not perform well in large installations.

Check_MK Multisite

Check_MK Multisite is a fast and flexible status GUI written in Python. It supports user definable views and is able to display the status of several sites in one combined view. It uses MK Livestatus for getting the status data from the sites.

Thruk Monitoring Web

Thruk is a complete rework of the classic interface in Perl. While maintaining the original look and feel it brings lots of improvements and new features. Just as Multisite it uses MK Livestatus as backend and supports the visualization of multiple sites.

Classic Icinga GUI

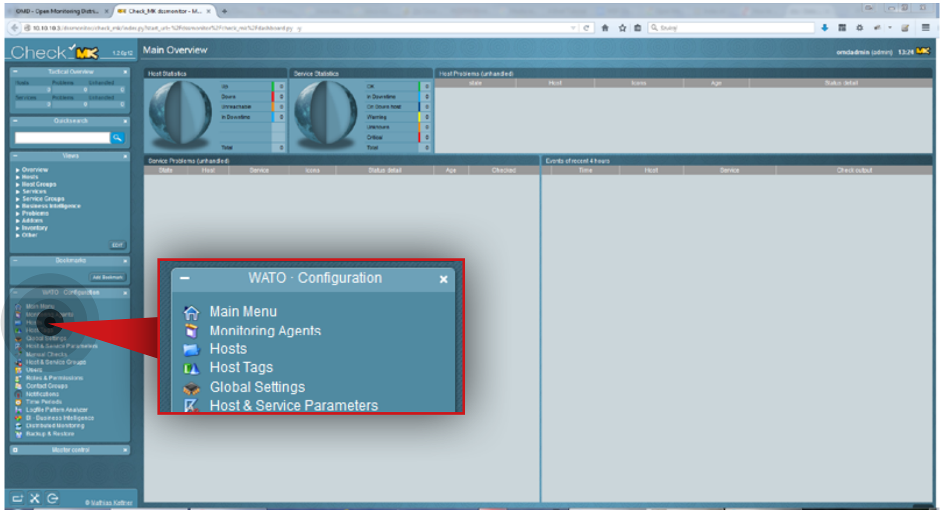
Icinga's "classical" GUI is a derivate of the classical

Step 7.

Go to your internet browser and log in to the OMD web interface by typing ***monitoring_server_ip_address/dssmonitor/*** (in this example, the Monitoring node ip address is 192.168.20.100).
Use **omdadmin** as username and **omd** as your password.

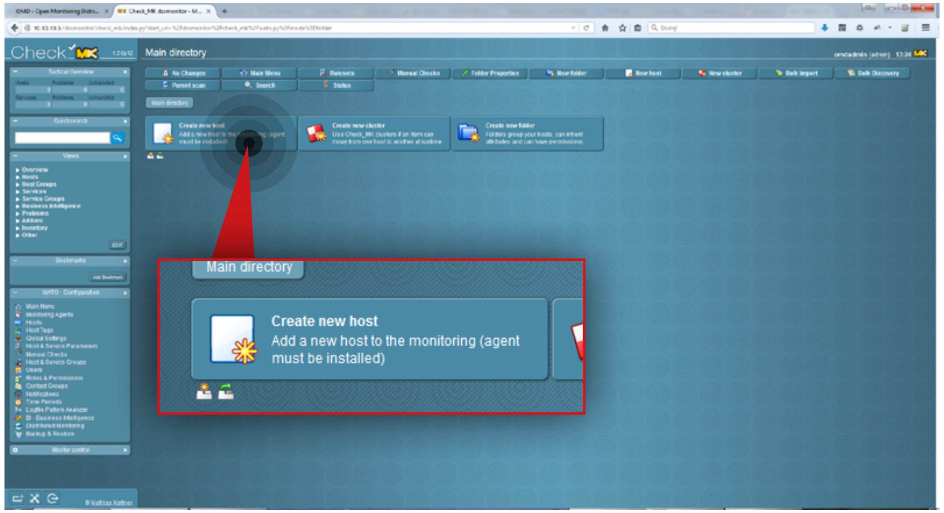
Step 8.

From the available web interfaces, choose **Check_MK Multisite**.



Step 9.

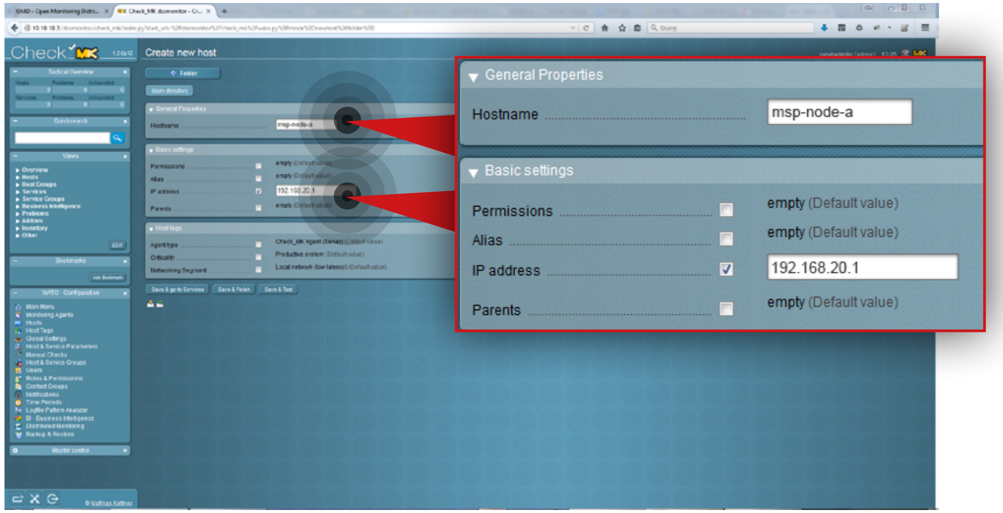
Go to **Hosts** in the WATO Configuration section on the left side.


Main directory

Create new host
Add a new host to the monitoring (agent must be installed)

Step 10.

In order to create a new host (server to be monitored) click the **Create new host** button.


General Properties

Hostname msp-node-a

Basic settings

Permissions □ empty (Default value)

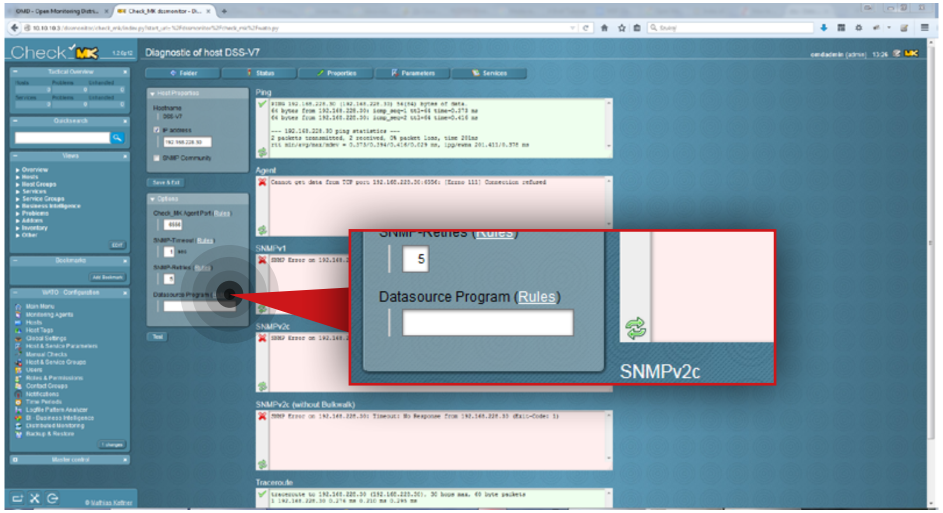
Alias □ empty (Default value)

IP address ☑ 192.168.20.1

Parents □ empty (Default value)

Step 11.

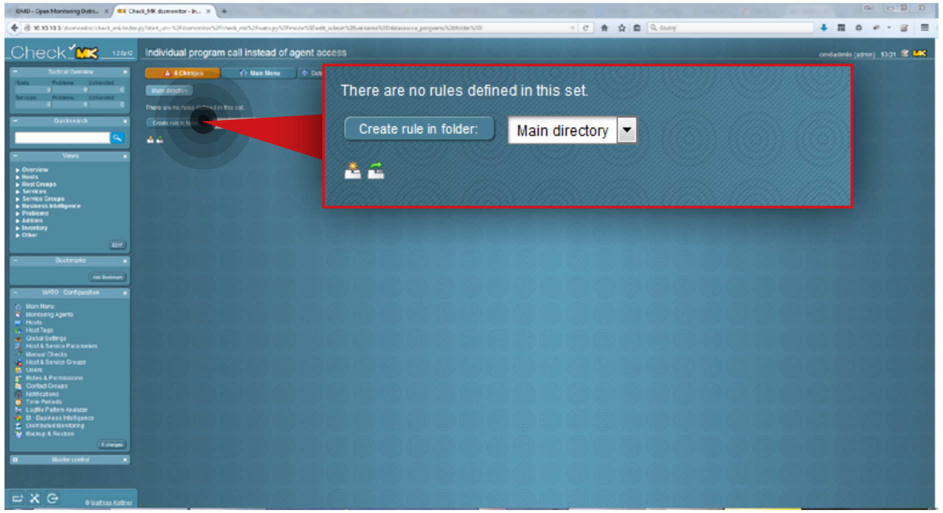
a. Enter a name for the host (in this example, the hostname is **msp-node-a**).
b. Enter host IP address (in this example, IP address is **192.168.20.1**).
c. Make sure that Agent type is Check_MK Agent (Server).
d. Click the **Save&Test** button.



Step 12.

Go to **Datasource Program rules** by clicking the **Rules** link in the Options panel on the left side.

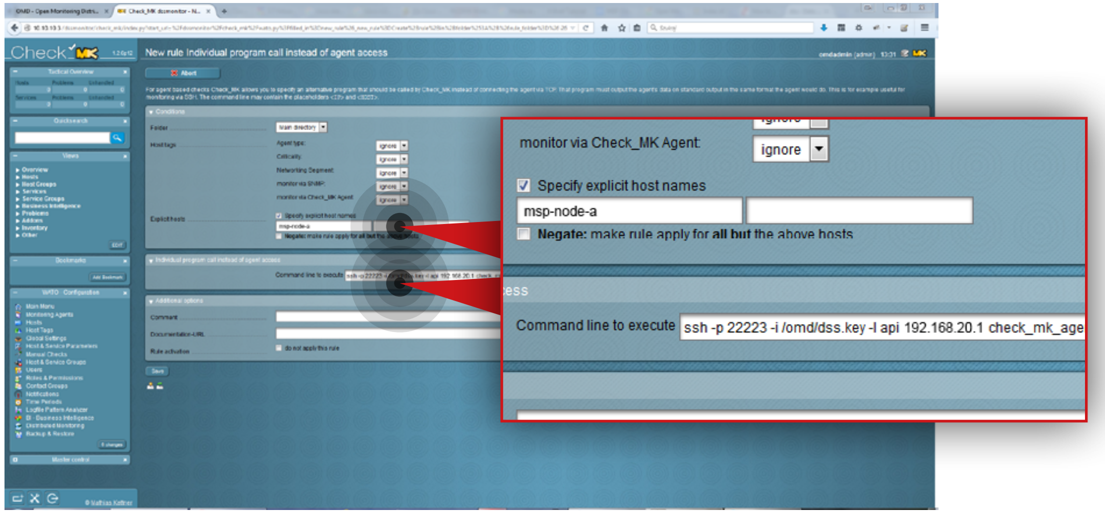
If you don't see a screen like the one on the left, click **Hosts** in **WATO Configuration** section on the left side. Next, click the relevant **hostname** and then the **Diagnostic** button.



There are no rules defined in this set.

Step 13.

Click **Create rule in folder** button.



monitor via Check_MK Agent: ignore

☑ Specify explicit host names

msp-node-a

□ **Negate:** make rule apply for **all but** the above hosts

Command line to execute: ssh -p 22223 -i /omd/dss.key -l api 192.168.20.1 check_mk_age

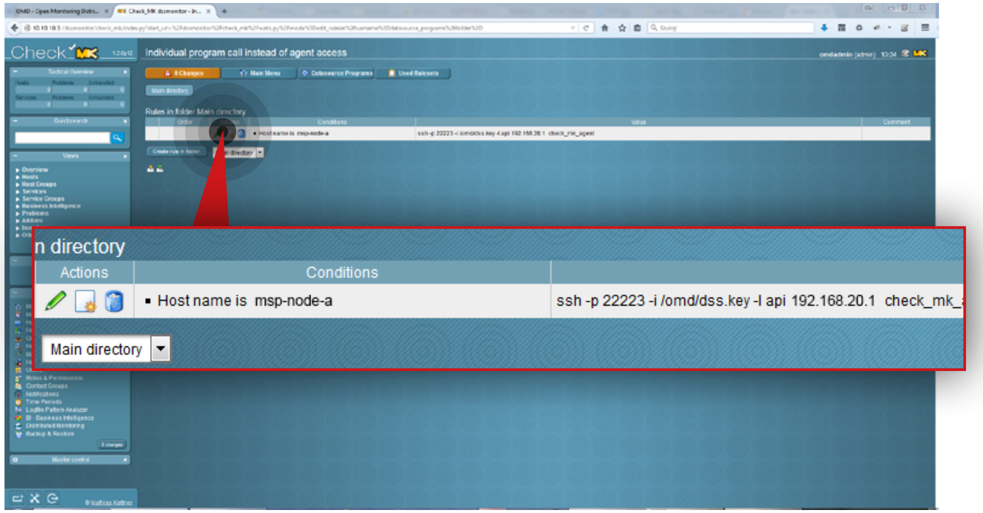
Step 14.

a. In **Conditions** section mark the **Specify explicit host names** checkbox and enter a name for the host you want to create the rule for (in this example, the hostname is a **msp-node-a**).

b. Next, enter the command for the rule to execute (in this example, the command is as follow:
ssh -p 22223 -i /omd/dss.key -l api 192.168.20.1 check_mk_agent).

Note: In case you want to add Customer node to Check_MK list of known hosts, the port number in the command should be set according to Customer's node port forwarding configuration and IP address should be Customer's router public IP address.

c. Click **Save** button.

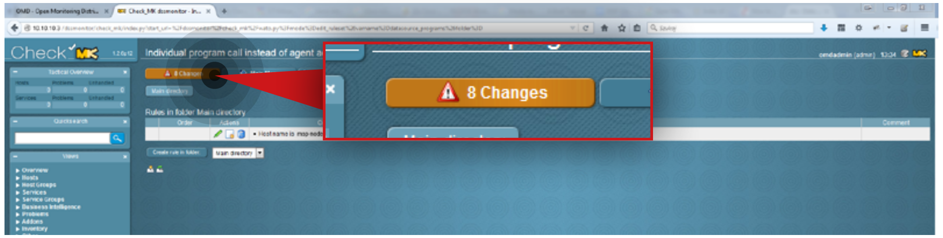


n directory

Actions	Conditions	
	▪ Host name is msp-node-a	ssh -p 22223 -i /omd/dss.key -l api 192.168.20.1 check_mk_

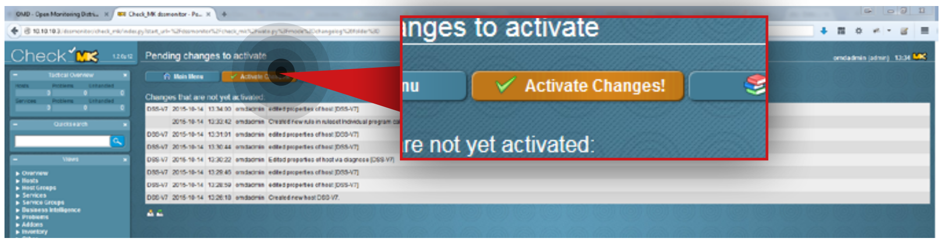
Main directory

After the rule is created you will see it listed in a **Rules in folder Main directory** table.

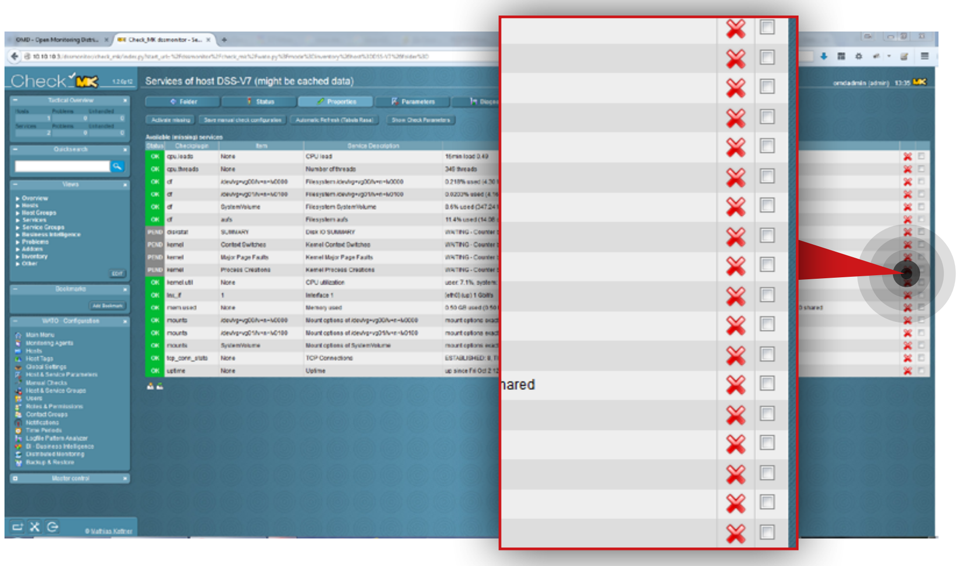

Check_MK
8 Changes
Individual program call instead of agent a
Rules in folder Main directory

Step 15.

Activate the changes in the configuration. Click the **Changes** button at the top.

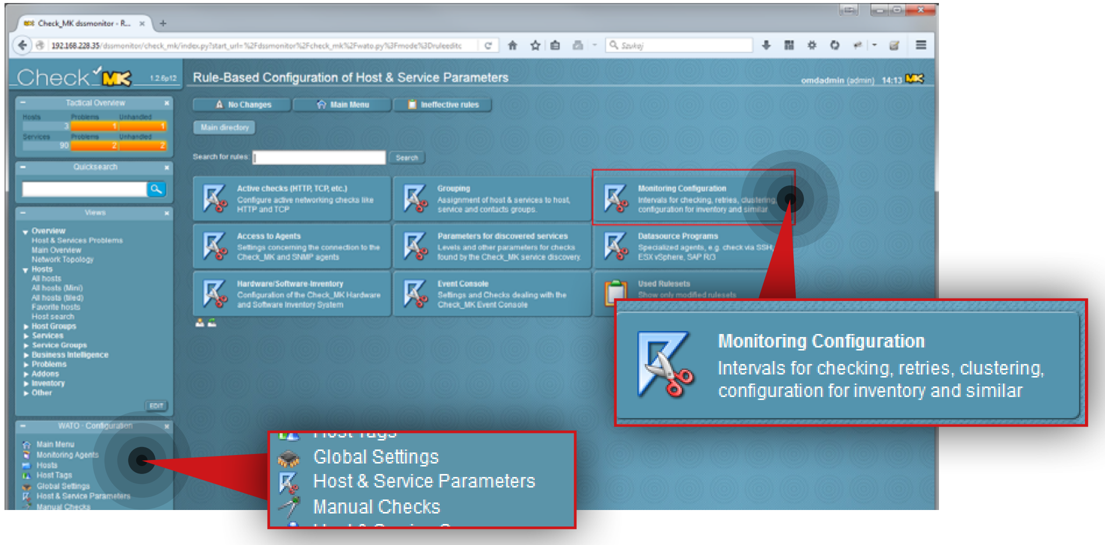


Click **Activate changes** button.



Step 16.

Click the **Hosts** in the **WATO Configuration** section on the left side. Next, click the relevant hostname and then click the **Services** button. Enable services you want to monitor by marking the respective checkboxes. In order to select all services at once, click the **Activate Missing** button above the services list.



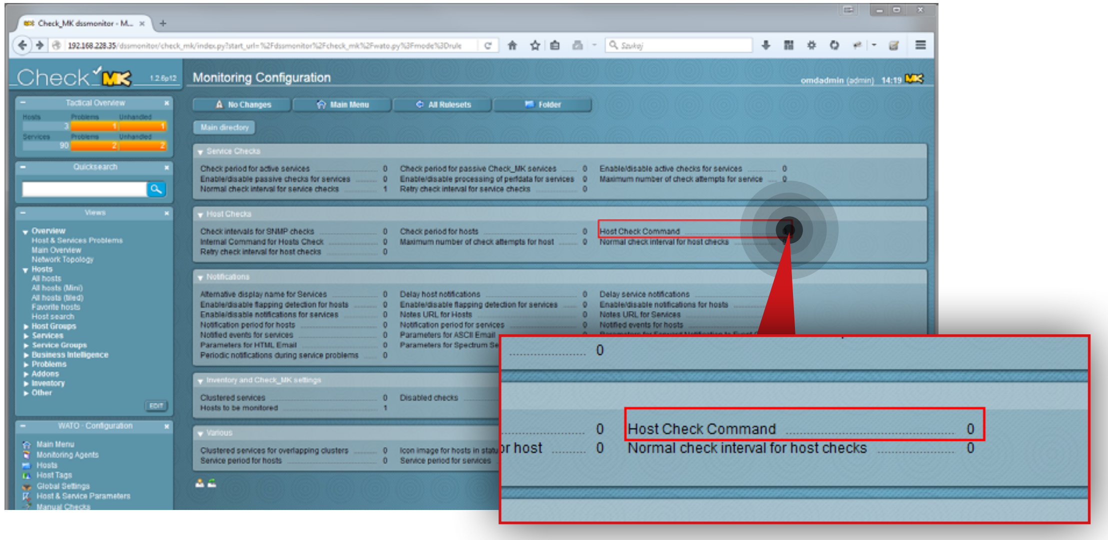
Monitoring Configuration
Intervals for checking, retries, clustering, configuration for inventory and similar

Rule-Based Configuration of Host & Service Parameters
Global Settings
Host & Service Parameters
Manual Checks

Usually Check_MK uses a series of PING (ICMP echo request) in order to determine whether a host is up. In some cases this is not possible, however. The following steps show how to create a rule to make the Host Check Command use the status of the Check_MK Agent instead of ping for the monitored node.

Step 17.

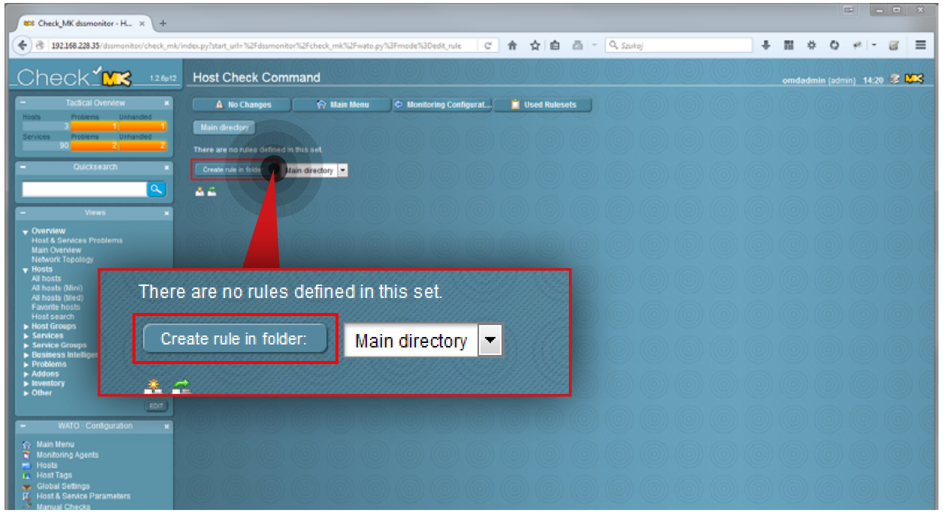
Click the **Hosts&Service Parameters** in the **WATO configuration** section on the left side. Next, click **Monitoring Configuration** button.



Monitoring Configuration
Host Check Command 0
Normal check interval for host checks 0

Step 18.

Navigate to **Host Checks** section and click **Host Check Command**.

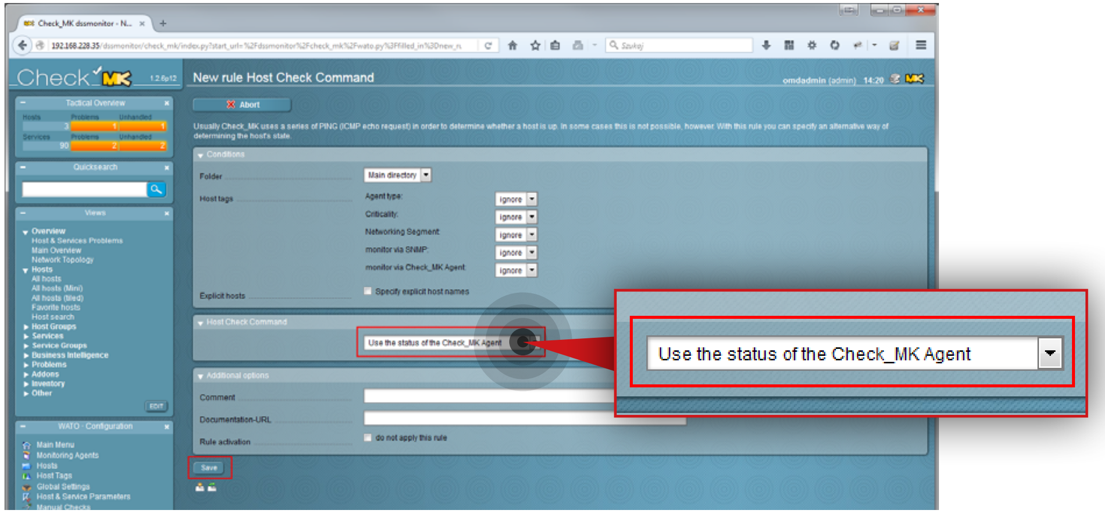


Host Check Command

There are no rules defined in this set.

Step 19.

Click **Create rule in folder** button.



New rule Host Check Command

Usually Check_MK uses a series of PING (ICMP echo request) in order to determine whether a host is up. In some cases this is not possible, however. With this rule you can specify an alternative way of determining the host's state.

Conditions

Folder: Main directory

Host tags: Agent type: ignore; Criticality: ignore; Networking Segment: ignore; monitor via SNMP: ignore; monitor via Check_MK Agent: ignore

Explicit hosts: □ Specify explicit host names

Host Check Command: Use the status of the Check_MK Agent

Additional options

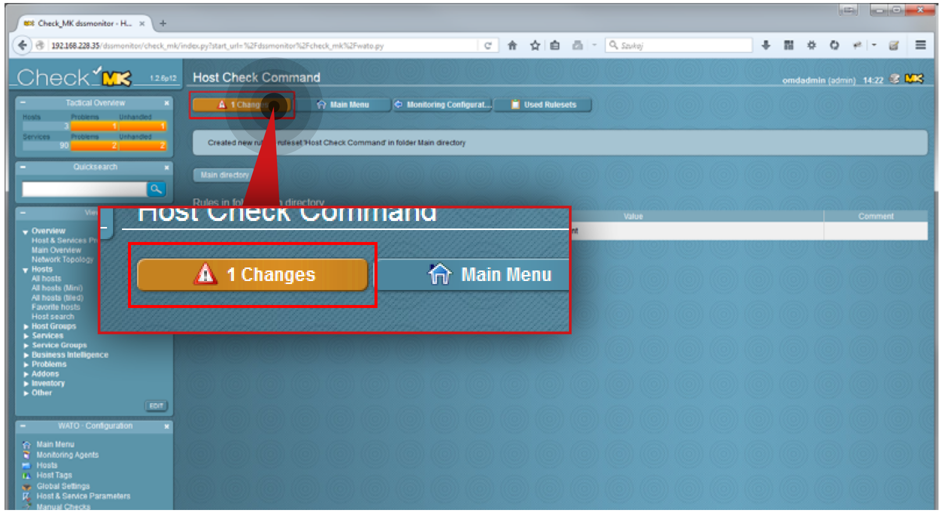
Comment

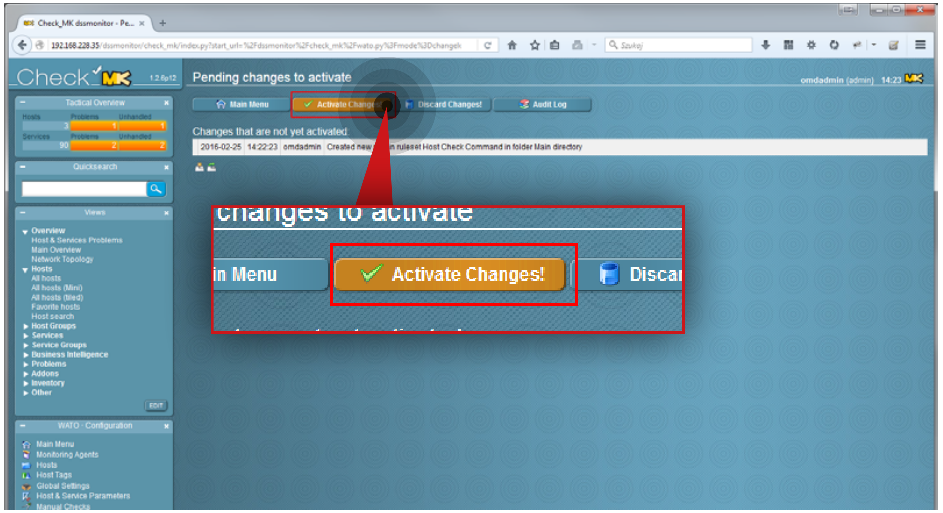
Documentation-URL

Rule activation: □ do not apply this rule

Step 20.

Navigate to **Host Check Command** section and select **Use the status of the Check_MK Agent** option from the droplist. Next click **Save** button.




Pending changes to activate
Main Menu
Activate Changes!
Discard Changes!
Audit Log
Changes that are not yet activated

Step 21.

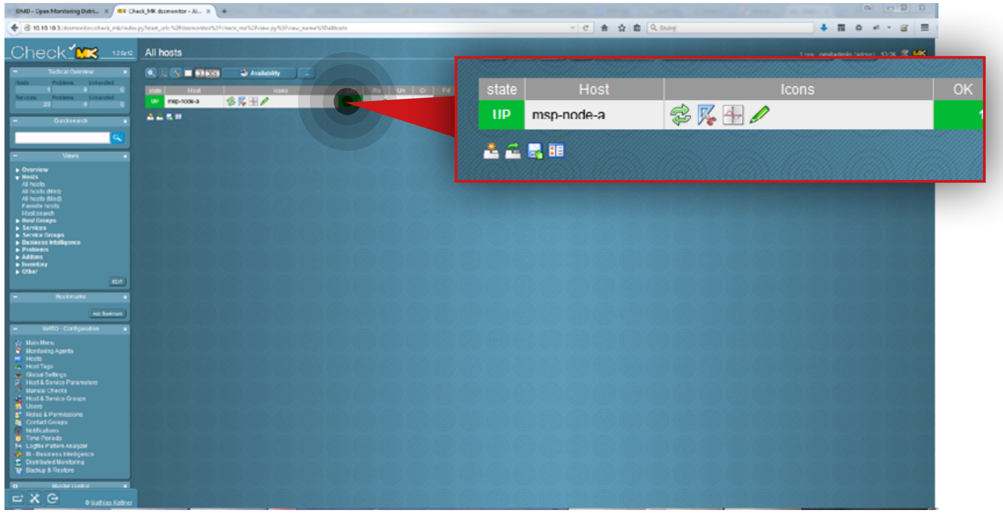
Activate the changes made in configuration.

a. Click **Changes** button at the top.
b. Click **Activate changes** button.

5.3.4. Monitoring a node

Step 1.

Go to **Hosts » All Hosts** in **Views** section on the left side.



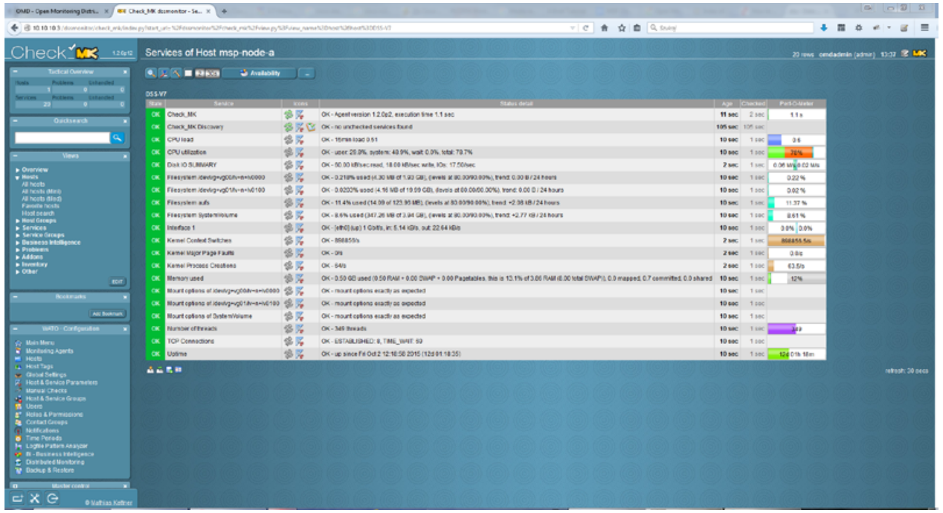
All hosts

state	Host	Icons	OK
UP	msp-node-a		

Step 2.

Select host you want to monitor (in this example, the host is **msp-node-a**).

You will then see the statuses of all available services (that are being monitored by the tool). Wait until all statuses are up-to-date. If you want to refresh a particular status immediately use refresh icon:



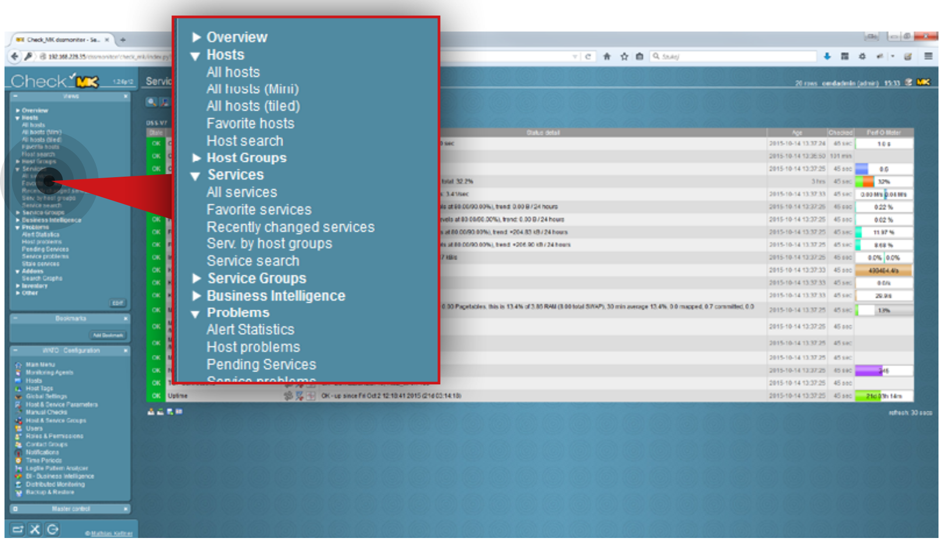
Services of Host msp-node-a

20 rows omdadmin (admin)

DSS-V7

State	Service	Icons	Status detail	Age	Checked	Perf-O-Meter
OK	Check_MK		OK - Agent version 1.2.0p2, execution time 1.1 sec	11 sec	2 sec	1.1 s
OK	Check_MK Discovery		OK - no unchecked services found	105 sec	105 sec	
OK	CPU load		OK - 15min load 0.61	10 sec	1 sec	3.6
OK	CPU utilization		OK - user: 29.9%, system: 48.9%, wait: 0.0%, total: 79.7%	10 sec	1 sec	78%
OK	Disk IO SUMMARY		OK - 50.00 kB/sec read, 18.00 kB/sec write, IOs: 17.50/sec	2 sec	1 sec	0.06 MB/s 0.02 MB/s
OK	Filesystem /dev/vg+vg00/lv+a+lv0000		OK - 0.218% used (4.30 MB of 1.93 GB), (levels at 80.00/90.00%), trend: 0.00 B / 24 hours	10 sec	1 sec	0.22 %
OK	Filesystem /dev/vg+vg01/lv+a+lv0100		OK - 0.0200% used (4.16 MB of 19.99 GB), (levels at 80.00/90.00%), trend: 0.00 B / 24 hours	10 sec	1 sec	0.02 %
OK	Filesystem aufs		OK - 11.4% used (14.09 of 123.96 MB), (levels at 80.00/90.00%), trend: +2.98 kB / 24 hours	10 sec	1 sec	11.37 %
OK	Filesystem SystemVolume		OK - 8.6% used (347.26 MB of 3.94 GB), (levels at 80.00/90.00%), trend: +2.77 kB / 24 hours	10 sec	1 sec	8.61 %
OK	Interface 1		OK - [eth0] (up) 1 Gbit/s, in: 5.14 kB/s, out: 22.64 kB/s	10 sec	1 sec	0.0% 0.0%
OK	Kernel Context Switches		OK - 868855/s	2 sec	1 sec	868855.5/s
OK	Kernel Major Page Faults		OK - 0/s	2 sec	1 sec	0.0/s
OK	Kernel Process Creations		OK - 64/s	2 sec	1 sec	63.5/s
OK	Memory used		OK - 0.50 GB used (0.50 RAM + 0.00 SWAP + 0.00 Pagetables, this is 13.1% of 3.86 RAM (0.00 total SWAP)), 0.0 mapped, 0.7 committed, 0.0 shared	10 sec	1 sec	12%
OK	Mount options of /dev/vg+vg00/lv+a+lv0000		OK - mount options exactly as expected	10 sec	1 sec	
OK	Mount options of /dev/vg+vg01/lv+a+lv0100		OK - mount options exactly as expected	10 sec	1 sec	
OK	Mount options of SystemVolume		OK - mount options exactly as expected	10 sec	1 sec	
OK	Number of threads		OK - 349 threads	10 sec	1 sec	349
OK	TCP Connections		OK - ESTABLISHED: 8, TIME_WAIT: 60	10 sec	1 sec	
OK	Uptime		OK - up since Fri Oct 2 12:18:58 2015 (12d 01:18:35)	10 sec	1 sec	12d 01h 18m

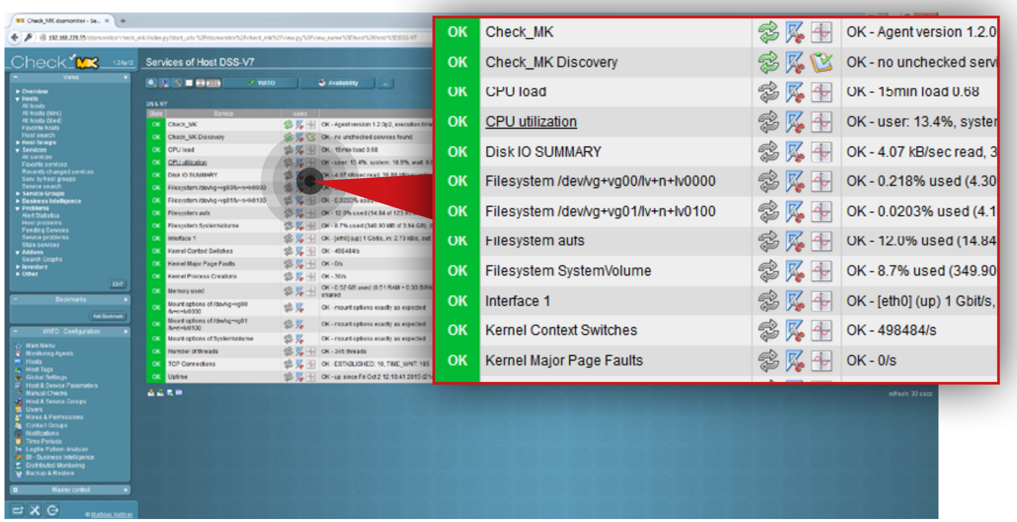
In order to monitor both replication and backup tasks running we highly recommend configuring email notifications in Open-E DSS V7. In order to configure email notifications, go to Open-E DSS V7 web interface, navigate to **Setup » Administrator settings** and enable the **Send errors** option in the E-mail notification box.



5.3.5. Setting up warning and critical levels for monitored parameters

Step 1.

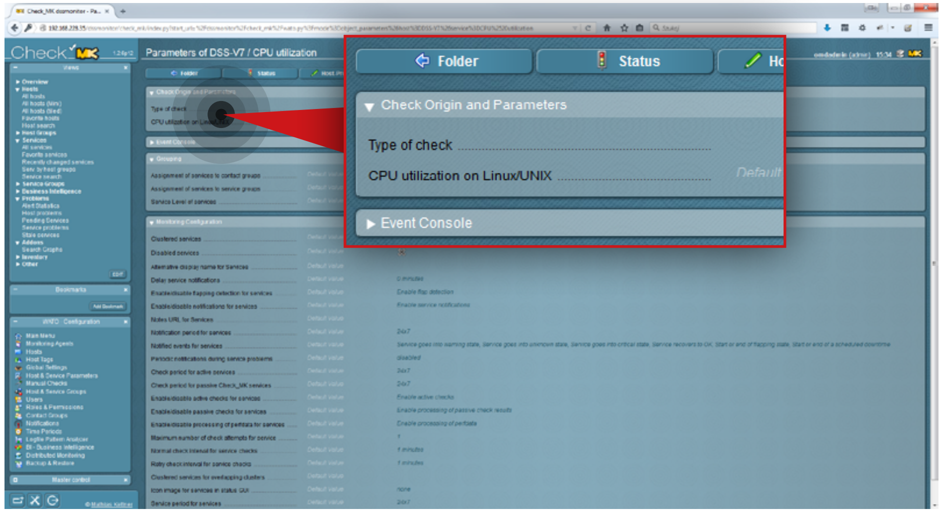
Go to **Services » All services** in the **Views** section on the left side.



OK	Check_MK	OK - Agent version 1.2.0
OK	Check_MK Discovery	OK - no unchecked servi
OK	CPU load	OK - 15min load 0.68
OK	CPU utilization	OK - user: 13.4%, syster
OK	Disk IO SUMMARY	OK - 4.07 kB/sec read, 3
OK	Filesystem /dev/vg+vg00/lv+n+lv0000	OK - 0.218% used (4.30
OK	Filesystem /dev/vg+vg01/lv+n+lv0100	OK - 0.0203% used (4.1
OK	Filesystem auts	OK - 12.0% used (14.84
OK	Filesystem SystemVolume	OK - 8.7% used (349.90
OK	Interface 1	OK - [eth0] (up) 1 Gbit/s,
OK	Kernel Context Switches	OK - 498484/s
OK	Kernel Major Page Faults	OK - 0/s

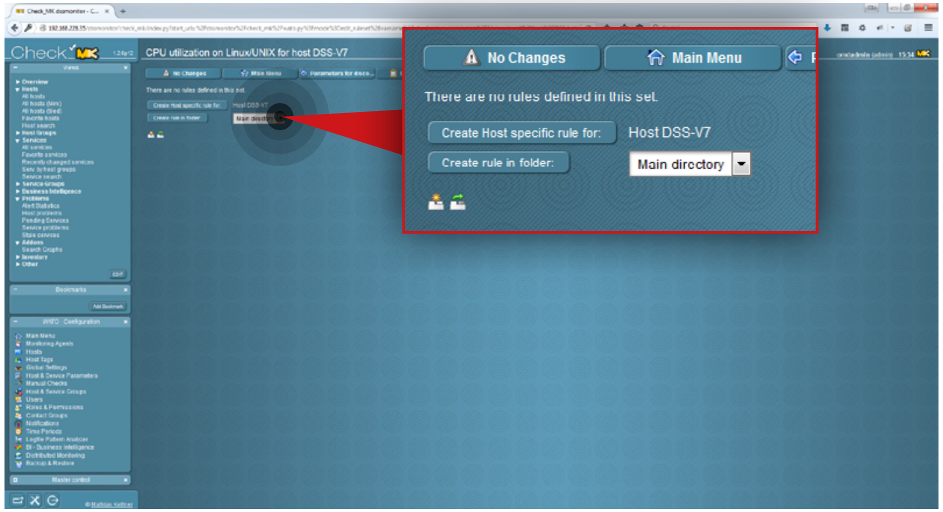
Step 2.

Click the icon to edit parameters for the selected service (in this example, we will set edit parameters for **CPU utilization**).



Step 3.

Click **CPU utilization on Linux/UNIX**.

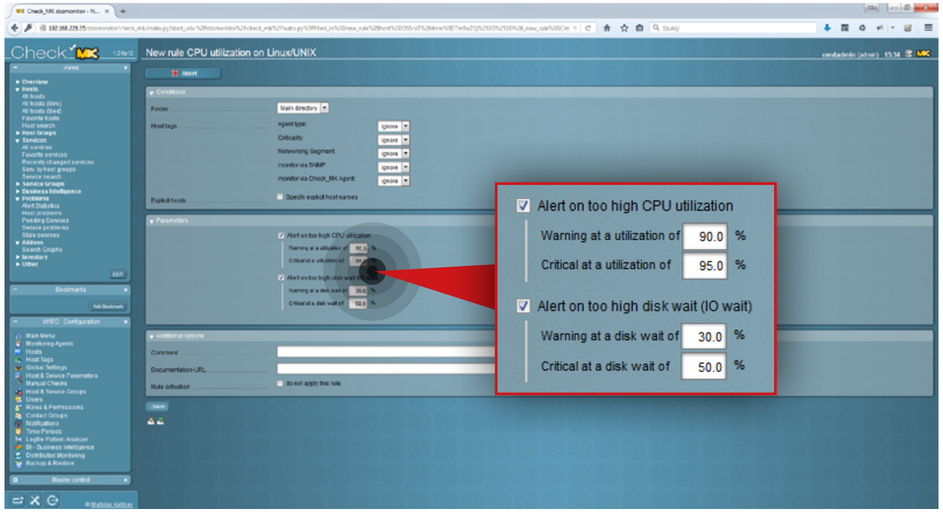


There are no rules defined in this set.

Step 4.

Create a rule for CPU utilization on Linux/UNIX. From this screen you can create a rule for a single host (**Create host specific rule for**) or for all monitored hosts (**Create rule in folder**). In this example we create a rule for all hosts.

1. Select a directory for the rule (in this example, directory in **Main directory**).
2. Click **Create rule in folder** button.



☑ Alert on too high CPU utilization

Warning at a utilization of 90.0 %

Critical at a utilization of 95.0 %

☑ Alert on too high disk wait (IO wait)

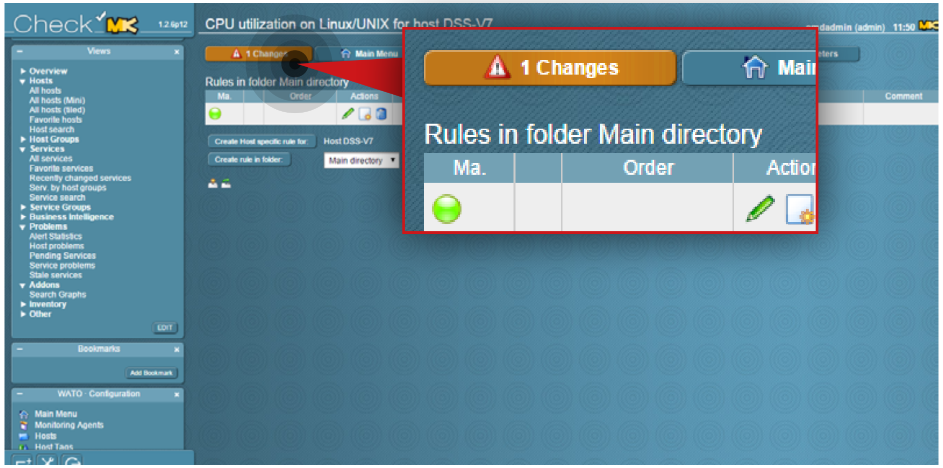
Warning at a disk wait of 30.0 %

Critical at a disk wait of 50.0 %

Step 5.

Set the levels for parameters.

1. Navigate to the **Parameters** box.
2. Select which parameters you want to monitor.
3. Set the levels for your selected parameters.
4. Click the **Save** button.



Check_MK
CPU utilization on Linux/UNIX for host DSS-V7
1 Changes
Main
Rules in folder Main directory
Ma.
Order
Action
Create Host specific rule for: Host DSS-V7
Create rule in folder: Main directory

Step 6.

Activate the changes made in your configuration.
Click the **Changes** button at the top and then click **Activate changes**.
From now on, Check_MK will monitor all selected parameters according to the set levels.

Parameters recommended to be checked on DSS V7 nodes			
Monitored parameter	**Description**	**Warning**	**Critical**
CPU utilization	Percentage of CPU used with graphs	70%	90%
CPU load	Linux 'load average' parameter, last 1, 5, 15 minutes (with graphs)	2 per core	3 per core
Memory	Percentage of RAM used with graphs	80%	90%
Disk (partition) and shares usage	Separate monitoring for each disk (partition) including swap utilization as well as all shares available with graphs for each one monitored	80%	90%
Disk IO summary	Disk IO in MB/s with graphs (warning and critical depend on system, adjust after observing it's normal behaviour)	n/a	n/a
RAID status	RAID controller status information (warning and critical depend on controller type and plugin used)	n/a	n/a
RAID BBU Status	RAID Backup Battery Unit status (Operation mode, Charged percent)	< 100%	< 95%
Network utilization	Each network interface utilization with graphs	70%	90%
CPU cores temperature	Each CPU core temperature with graphs (exact warning and critical values depend on server). Values for Intel E5-2630 v2.	60 C	74 C
TCP connections	With graphs	400	800
Uptime	With graphs	n/a	n/a
Replication to MSP	Replication to MSP server status (**small update** required)	n/a	n/a

5.3.6. Both Provider and Client side monitoring parameters

5.3.7. Configuring OMD email notifications

The following steps 1-4 are not mandatory, however, we recommend to change the hostname as most of email providers block emails from host domain names that don't match the IP address used to send a message. If you don't want to change the hostname, proceed to step 5.

Step 1.

From the root level (use "sudo -i" in order to login as root), edit ***/etc/hosts*** file.

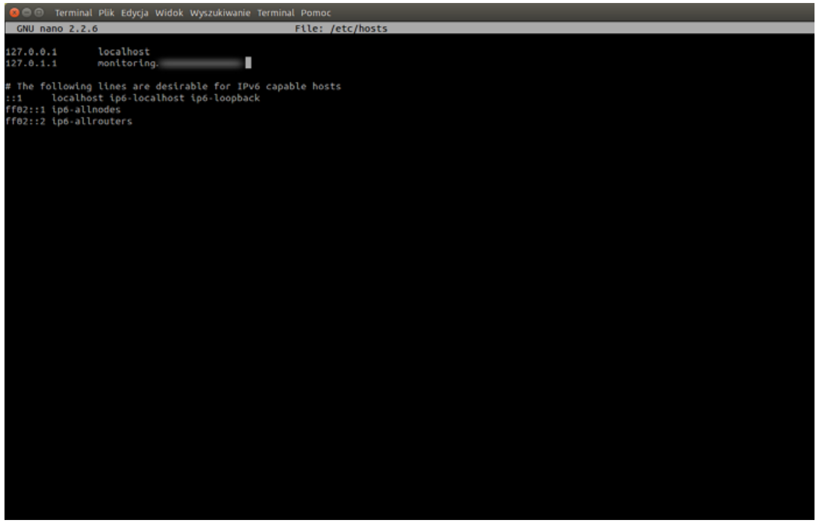
```
nano /etc/hosts
```

Note: We use a nano editor to edit the file.

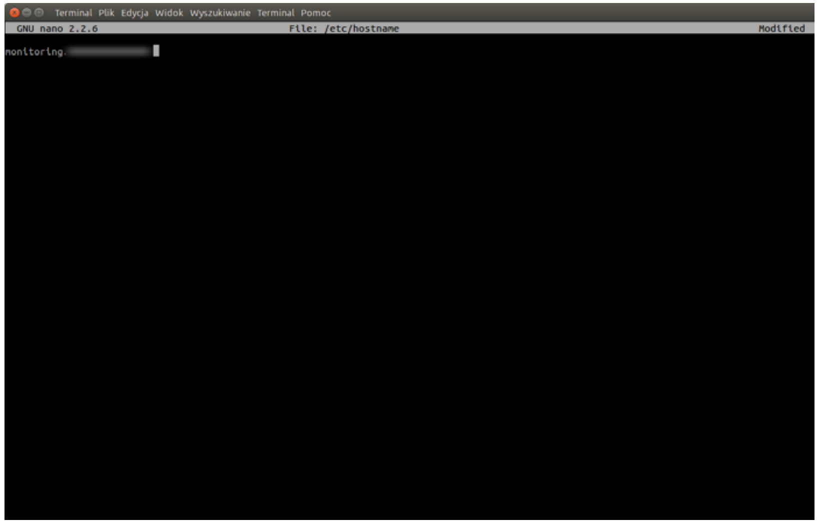
Step 2.

Change the Ubuntu default hostname to Fully Qualified Domain Name (FQDN) pointing to the WAN IP address of the router which the mailserver is using. It's necessary to avoid mail being rejected by some mail servers.

Use **Ctrl+O** and click **Enter** to save the file. Then **Ctrl+X** to close the nano editor.



```
  GNU nano 2.2.6                         File: /etc/hosts

127.0.0.1       localhost
127.0.1.1       monitoring.[redacted]

# The following lines are desirable for IPv6 capable hosts
::1     localhost ip6-localhost ip6-loopback
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```



```
  GNU nano 2.2.6                 File: /etc/hostname                    Modified

monitoring.[redacted]
```

Step 3.

Edit ***/etc/hostname*** and change the Ubuntu default hostname to Fully Qualified Domain Name (FQDN) entered in the previous step.

```
nano /etc/hostname
```

Use **Ctrl+O** and click **Enter** to save the file. Then **Ctrl+X** to close nano editor.

Step 4.

Reboot the system.

```
reboot
```

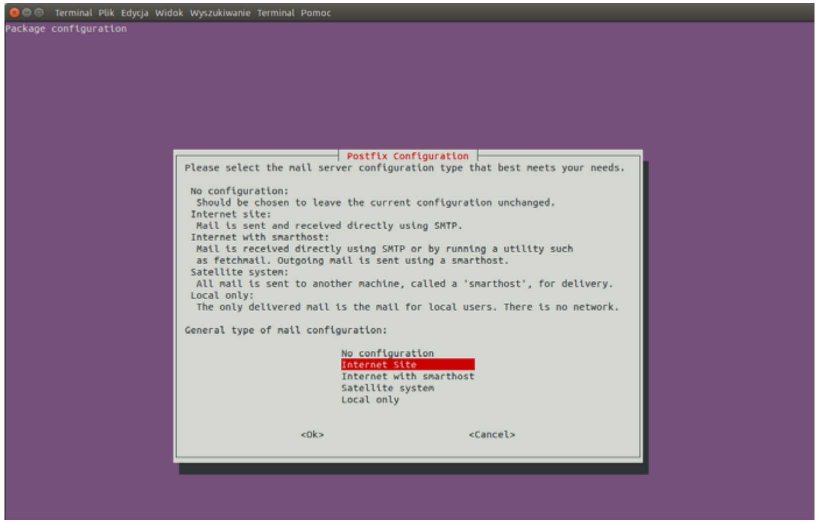
Step 5.

Install a software for handling emails (in this example, **mailutils** package is used). Installing mailtuils will cause Postfix to be installed, as well as a few other programs needed for Postfix to work.

```
apt-get install mailutils
```

Step 6.

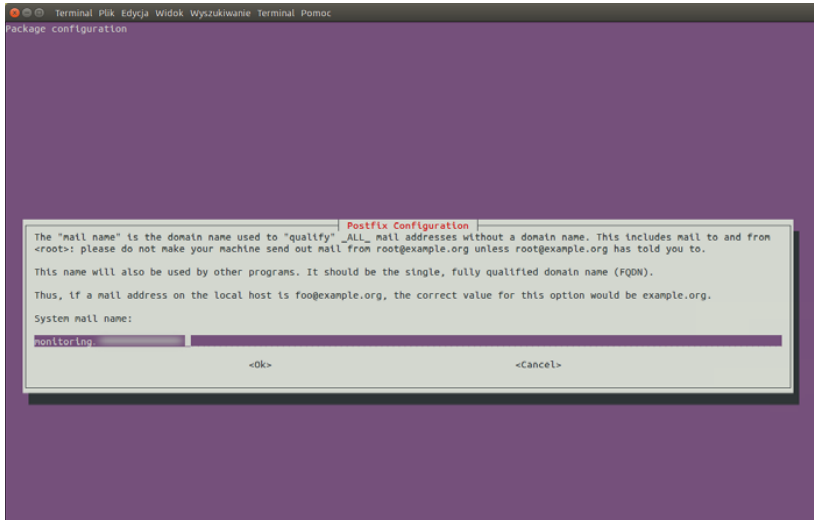
Near the end of the installation process, you will be asked to select the mail server configuration type. Select **Internet Site**.



```
Package configuration

                       ┤ Postfix Configuration ├
 Please select the mail server configuration type that best meets your needs.

  No configuration:
   Should be chosen to leave the current configuration unchanged.
  Internet site:
   Mail is sent and received directly using SMTP.
  Internet with smarthost:
   Mail is received directly using SMTP or by running a utility such
   as fetchmail. Outgoing mail is sent using a smarthost.
  Satellite system:
   All mail is sent to another machine, called a 'smarthost', for delivery.
  Local only:
   The only delivered mail is the mail for local users. There is no network.

 General type of mail configuration:

                           No configuration
                           Internet Site
                           Internet with smarthost
                           Satellite system
                           Local only


                  <Ok>                         <Cancel>
```

Step 7.

Accept the System mail name unless you didn't specify it in the previous steps.



```
Package configuration

                              ┤ Postfix Configuration ├
 The "mail name" is the domain name used to "qualify" _ALL_ mail addresses without a domain name. This includes mail to and from
 <root>: please do not make your machine send out mail from root@example.org unless root@example.org has told you to.

 This name will also be used by other programs. It should be the single, fully qualified domain name (FQDN).

 Thus, if a mail address on the local host is foo@example.org, the correct value for this option would be example.org.

 System mail name:

 monitoring.[redacted]

                 <Ok>                                         <Cancel>
```

Step 8.

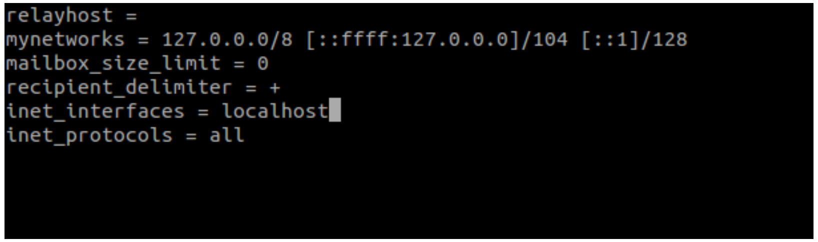
Edit the Postfix configuration file.

```
nano /etc/postfix/main.cf
```

Step 9.

Scroll down and change the line **inet_interfaces = all** to **inet_interfaces = localhost**.

The edited section of the file should now read as shown below. Use **Ctrl+O** and click **Enter** to save the file. Then **Ctrl+X** to close the nano editor.



```
relayhost =
mynetworks = 127.0.0.0/8 [::ffff:127.0.0.0]/104 [::1]/128
mailbox_size_limit = 0
recipient_delimiter = +
inet_interfaces = localhost
inet_protocols = all
```

Step 10.

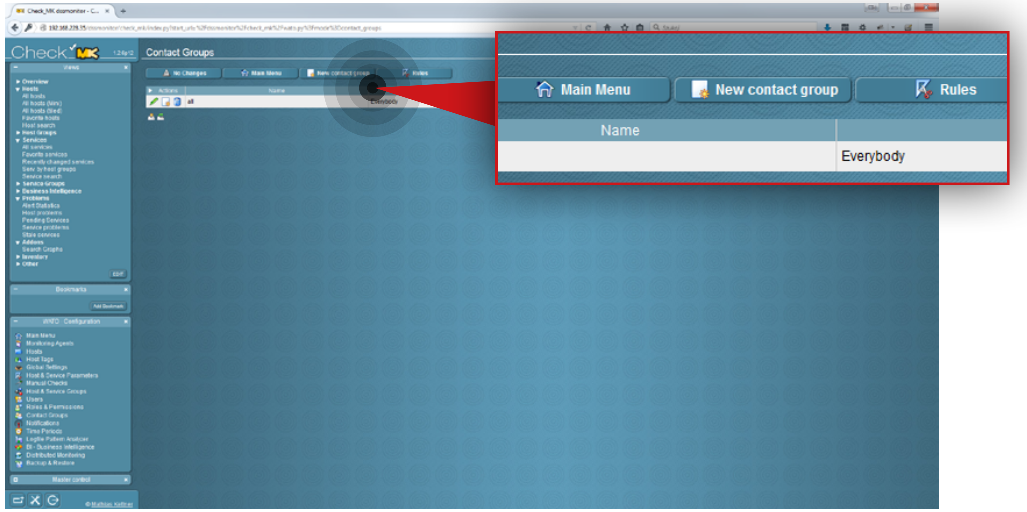
Restart Postfix.

```
service postfix restart
```

Step 11.

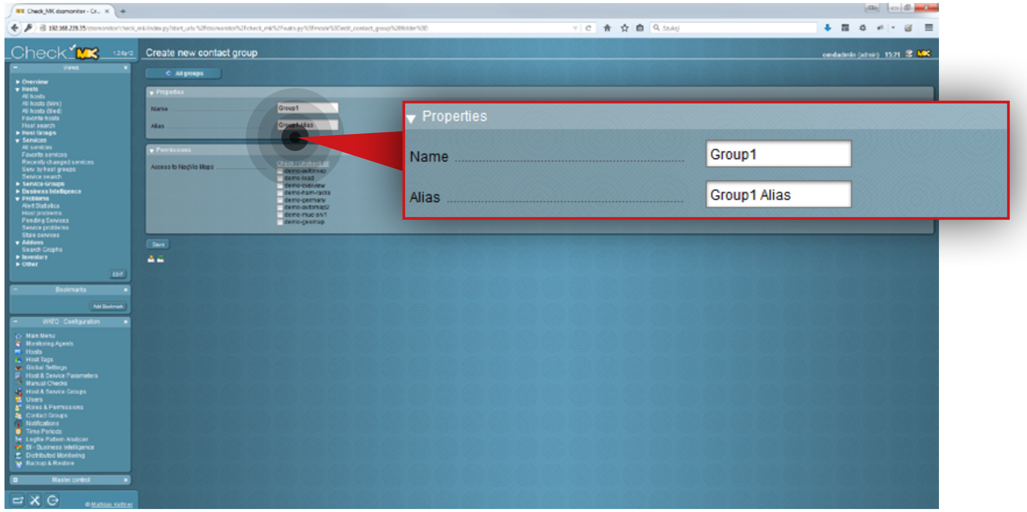
Check whether Postfix can send emails to any external email account. To send a test email, type:

```
echo "Mailbody" | mail -s "Test email subject" test@example.com
```



Step 12.

Go to the Check_MK web interface and navigate to **Contact Groups** in the **WATO Configuration** section on the left side. Then, click the **New contact group** button.

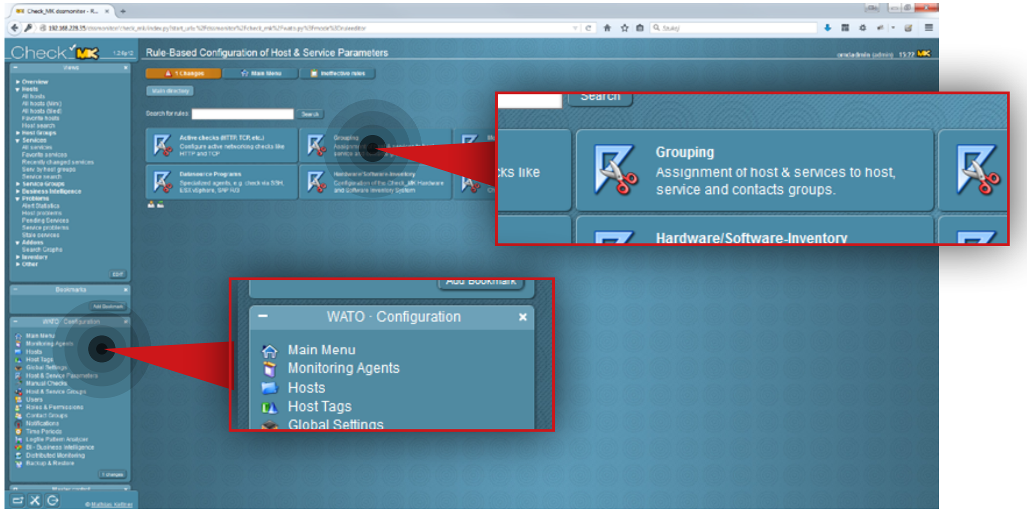


Name: Group1

Alias: Group1 Alias

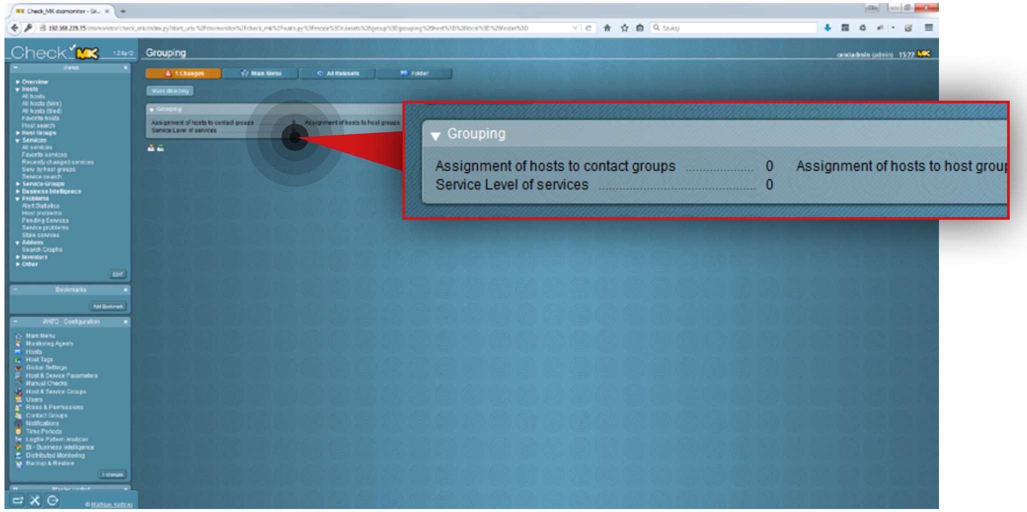
Step 13.

Navigate to the **Properties** box and specify **name** and **alias** for the group (in this example the group name is **Group 1** and the alias is **Group 1 alias**).


Rule-Based Configuration of Host & Service Parameters
Search
ks like
Grouping
Assignment of host & services to host, service and contacts groups.
Hardware/Software-Inventory
Add Bookmark
WATO · Configuration
Main Menu
Monitoring Agents
Hosts
Host Tags
Global Settings

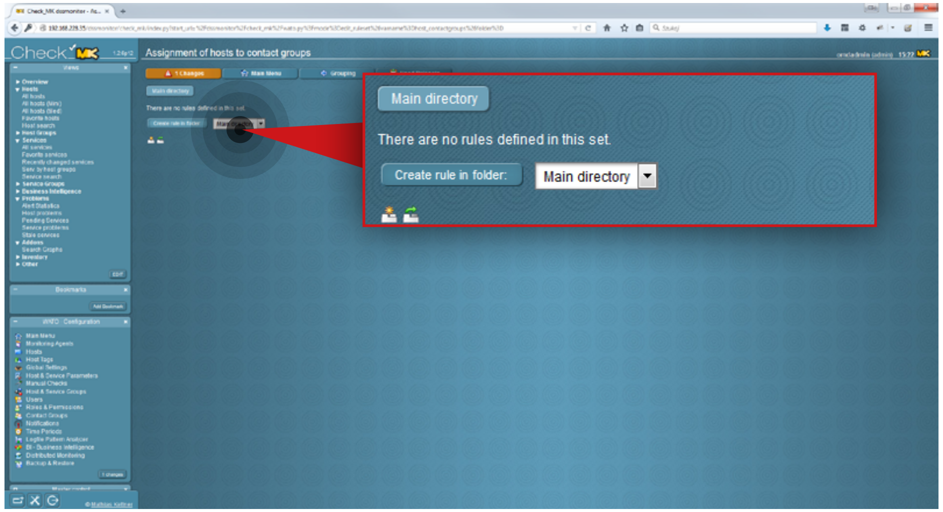
Step 14.

After the group is created, go to **Host&Service Parameters** in the **WATO Configuration** section on the left side and click the **Grouping** button.


Grouping
Grouping
Assignment of hosts to contact groups 0
Service Level of services 0
Assignment of hosts to host group

Step 15.

Click the **Assigment of hosts to contact groups**.

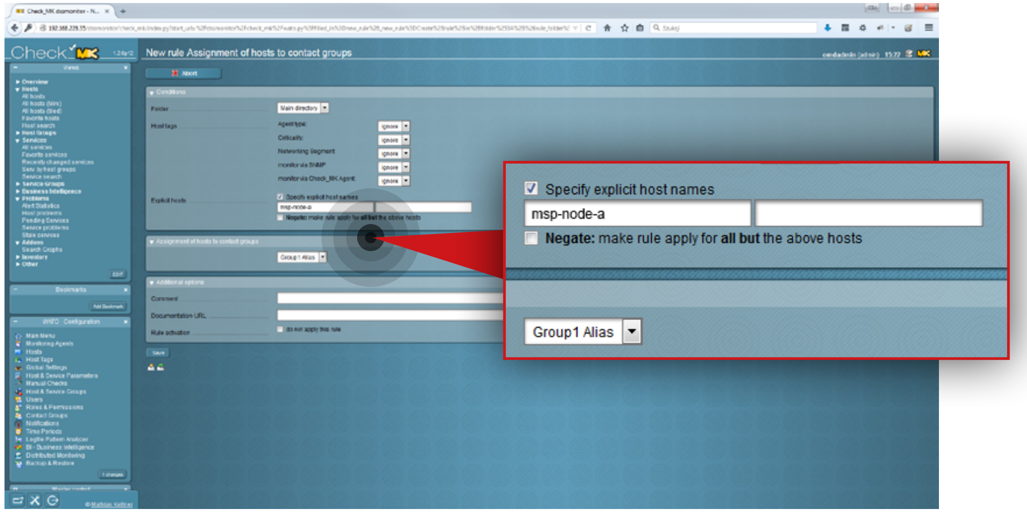


There are no rules defined in this set.

Create rule in folder: Main directory

Step 16.

Click **Create rule in folder** button.



☑ Specify explicit host names

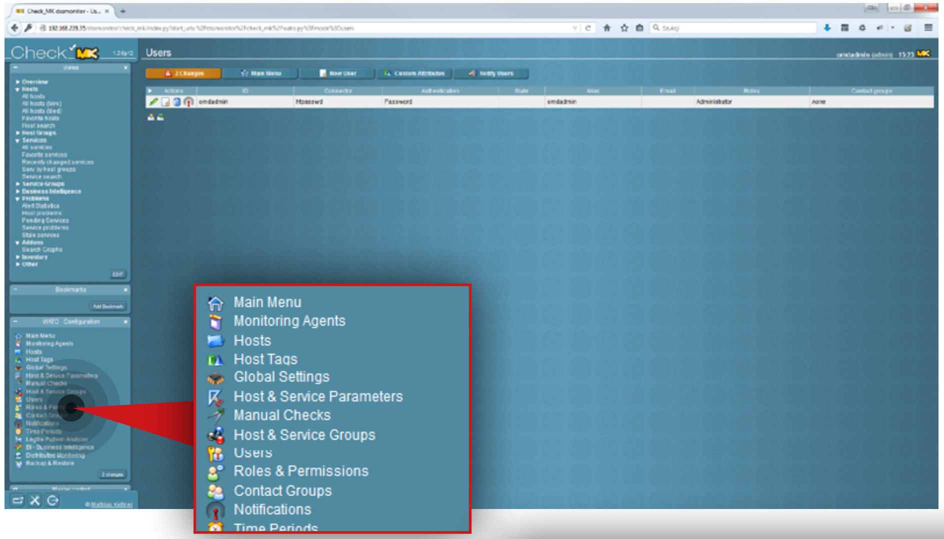
msp-node-a

□ **Negate:** make rule apply for **all but** the above hosts

Group1 Alias

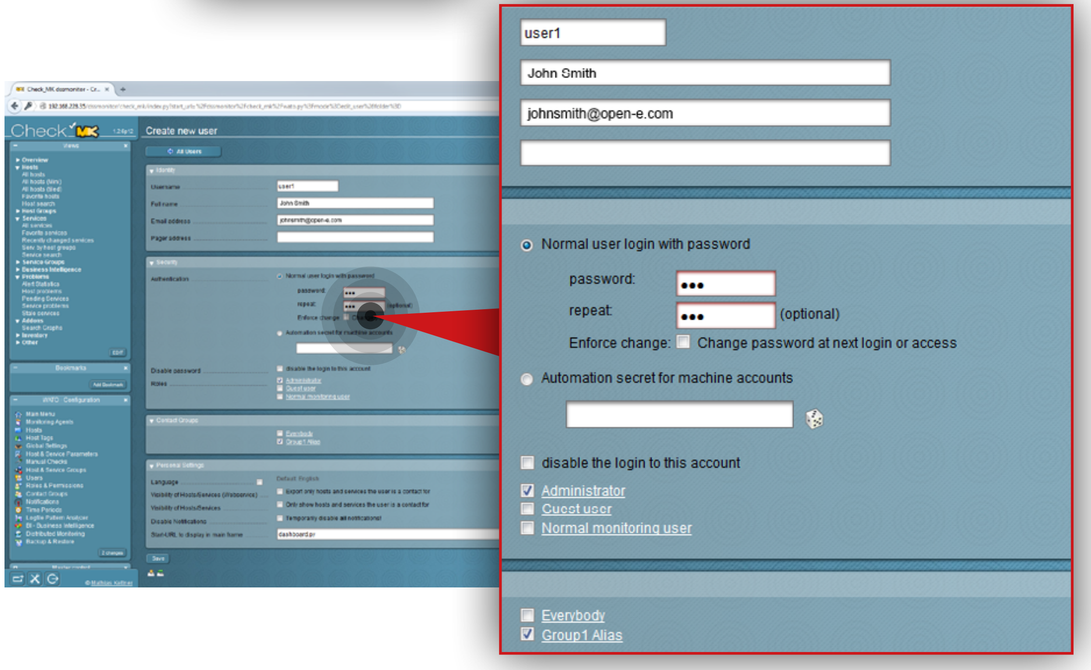
Step 17.

Specify the host name for the rule and assign a host to the contact group (in this example the hostname is **msp-node-a** and the contact group is **Group 1 Alias**).



Step 18.

Go to **Users** in the **WATO Configuration** section on the left side.



user1

John Smith

johnsmith@open-e.com

● Normal user login with password

password: •••

repeat: ••• (optional)

Enforce change: □ Change password at next login or access

○ Automation secret for machine accounts

□ disable the login to this account

☑ Administrator

□ Guest user

□ Normal monitoring user

□ Everybody

☑ Group1 Alias

Step 19.

Create a new user:

a. Enter a username (in this example the username is **user1**).

b. Enter full name for the user (in this example, it is **John Smith**).

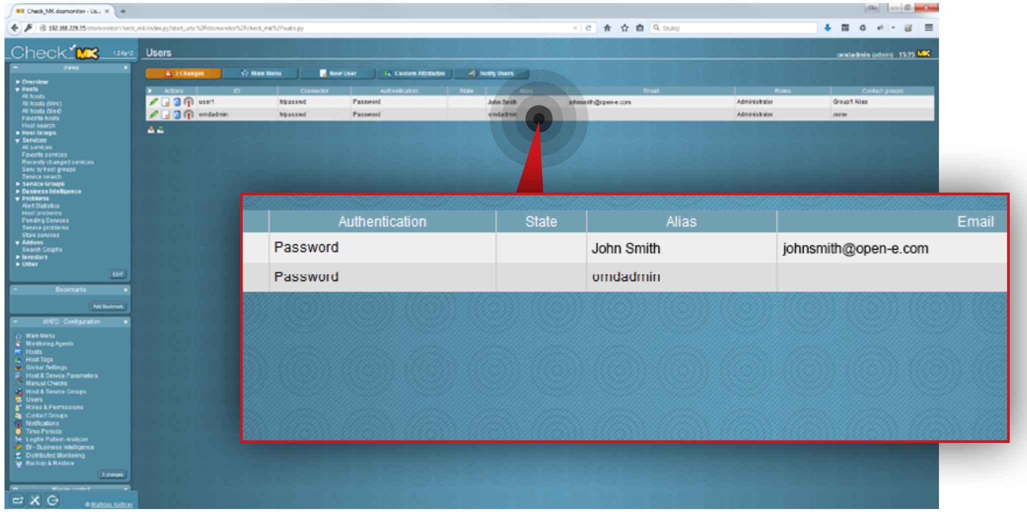
c. Enter a user email address (in this example, email is **johnsmith@open-e.com**).

d. Select the type of authentication (in this example, **Normal user login with password** is selected) and set a password.

e. Select a role for the user (in this example, **Administrator** is selected).

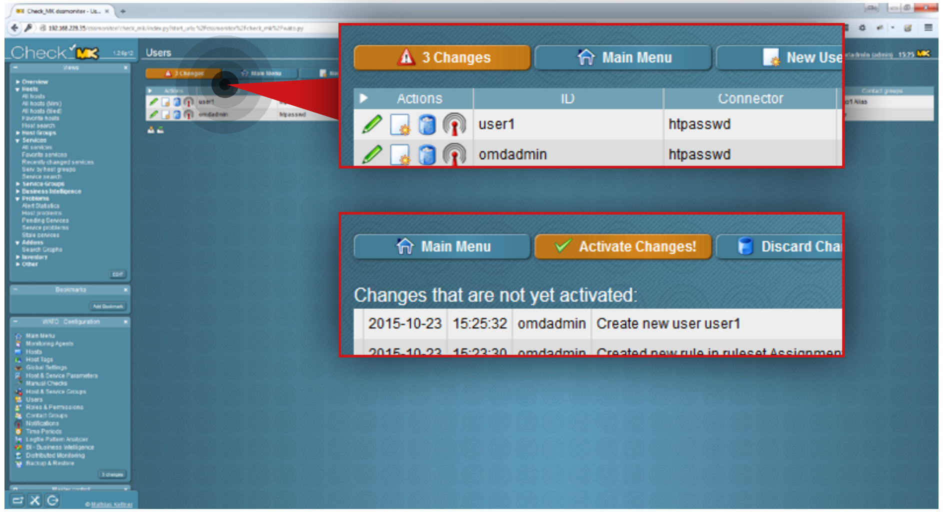
f. Assign the user to a contact group (in this example a user is assigned to **Group1 Alias**).

g. Click the **Save** button.



Authentication	State	Alias	Email
Password		John Smith	johnsmith@open-e.com
Password		omdadmin	

After the user is added, you will see it listed on the Users list.



Actions	ID	Connector
	user1	htpasswd
	omdadmin	htpasswd

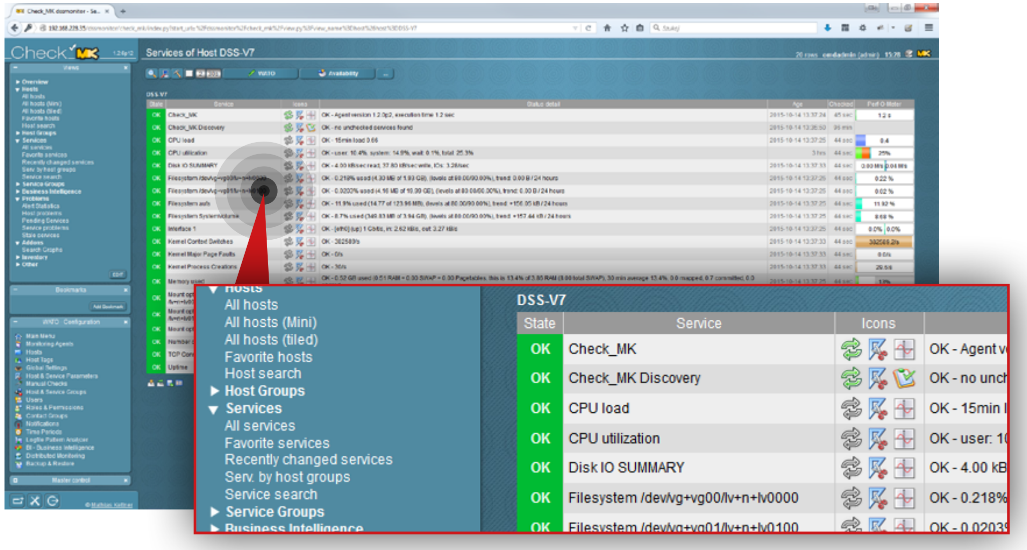
Changes that are not yet activated:

2015-10-23	15:25:32	omdadmin	Create new user user1
2015-10-23	15:23:30	omdadmin	Created new rule in ruleset Assignmen

Step 20.

Activate the changes made in the configuration. Click the **Changes** button at the top.

Then click the **Activate changes** button.



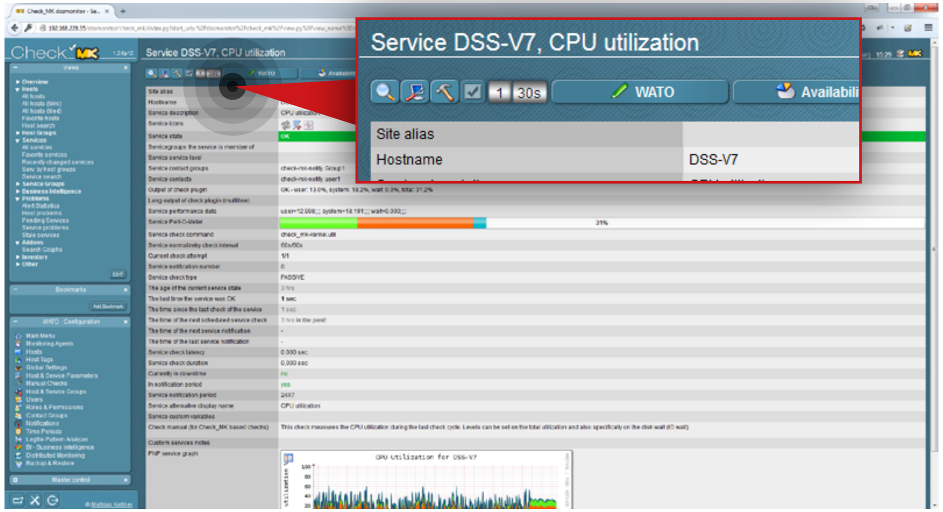
Hosts
All hosts
All hosts (Mini)
All hosts (tiled)
Favorite hosts
Host search
Host Groups
Services
All services
Favorite services
Recently changed services
Serv. by host groups
Service search
Service Groups
Business Intelligence

DSS-V7

State	Service	Icons	
OK	Check_MK		OK - Agent v
OK	Check_MK Discovery		OK - no unch
OK	CPU load		OK - 15min l
OK	CPU utilization		OK - user: 1(
OK	Disk IO SUMMARY		OK - 4.00 kB
OK	Filesystem /dev/vg+vg00/lv+n+lv0000		OK - 0.218%
OK	Filesystem /dev/vg+vg01/lv+n+lv0100		OK - 0.0203

Step 21.

Go to **All services** in the **Views** section on the left side and select a service you want to send with notifications (in this example, the service is **CPU utilization**).

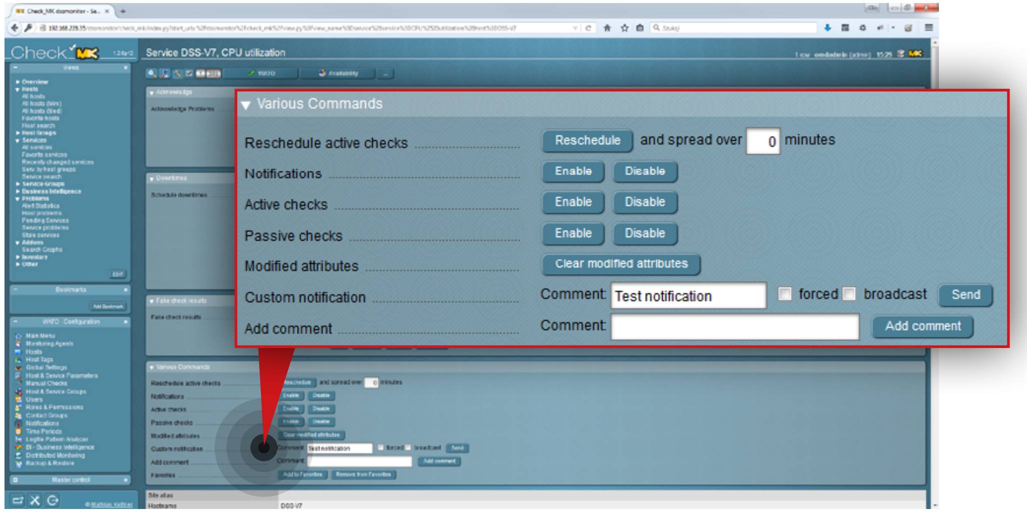


Service DSS-V7, CPU utilization

Site alias	
Hostname	DSS-V7

Step 22.

Click the hammer icon on the top.



Comment: Test notification

Comment:

Step 23.

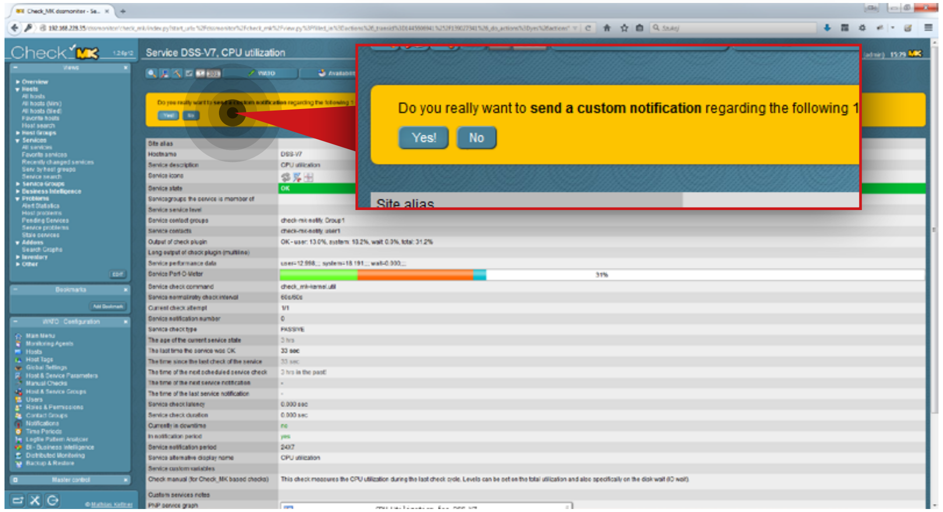
Scroll down to the **Various Commands** section:

a. Enter a comment for Custom notification (in this example, the comment is **Test notification**).

b. Click **Send** button.

Step 24.

Confirm that you want to send a test notification.



Do you really want to **send a custom notification** regarding the following 1

Step 25.

Check the Check_MK log files in order to verify if email notifications are being delivered. To do so, execute the following commands:

```
tail /omd/sites/dssmonitor/var/log/notify.log
```

```
tail /omd/sites/dssmonitor/var/log/nagios.log
```

If the log files don't record that a test notification was sent, check your mailserver configuration.

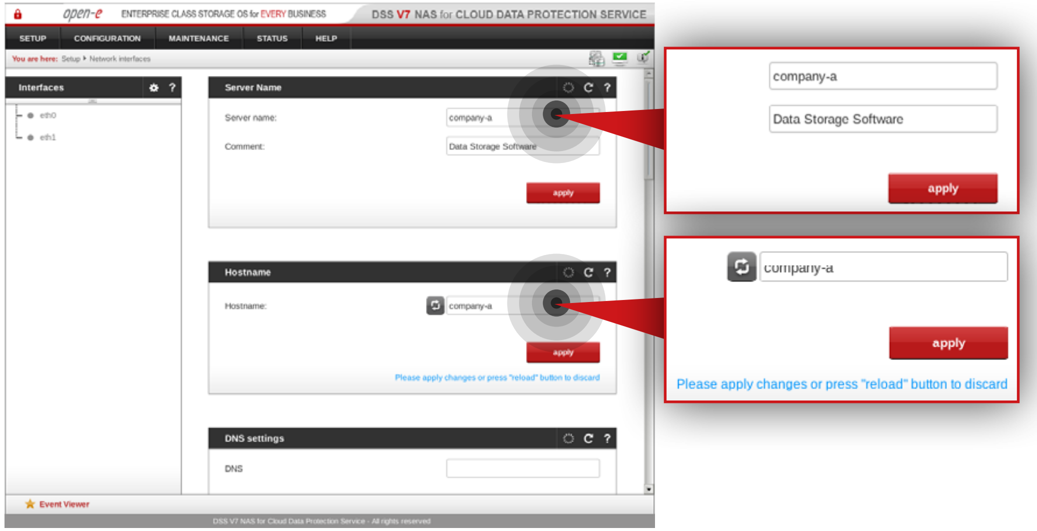
5.4. Detailed procedure of setting up Customer node

Prerequisites

Please complete the following prerequisites.

- Server meets requirements for Customer node introduced in Chapter 4 – Minimum hardware requirements
- Open-E DSS V7 NAS for CDPS installed on the node
- MSP nodes configured according to procedure introduced in Chapter 5.2 – Detailed procedure of setting up MSP nodes

If all the prerequisites have been met, you're now ready to start the Customer node configuration.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Setup ▸ Network interfaces
Interfaces
eth0
eth1
Server Name
Hostname
DNS settings
apply
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved

Server name: company-a

Comment: Data Storage Software

Hostname: company-a

Please apply changes or press "reload" button to discard

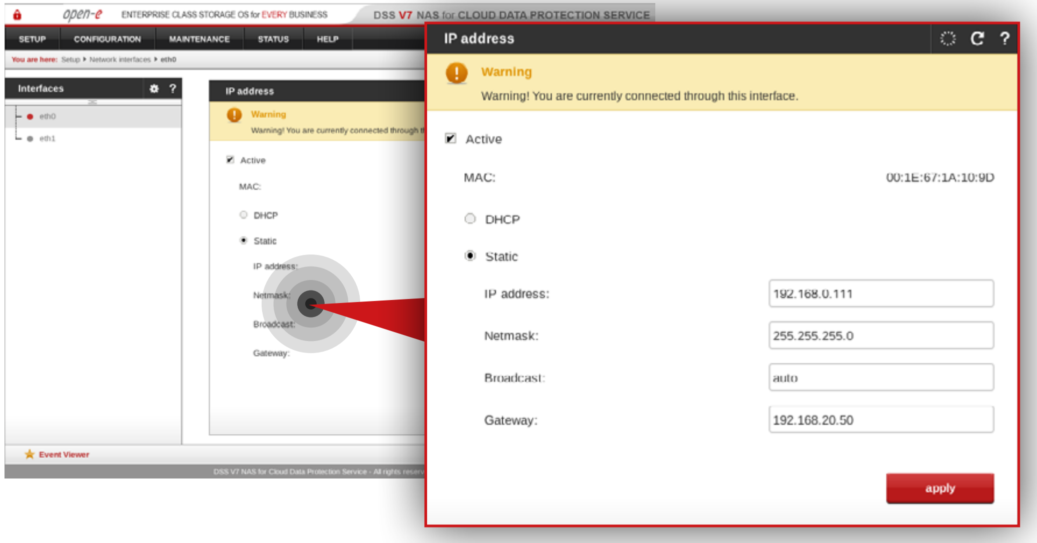
DNS

Step 1.

Go to **Setup » Network interfaces** and change server name and hostname to **company-a**.

Click **apply** to confirm the changes.

Note: Changing the hostname requires the system to reboot.



IP address

Warning

Warning! You are currently connected through this interface.

☑ Active

MAC: 00:1E:67:1A:10:9D

○ DHCP

● Static

IP address:	192.168.0.111
Netmask:	255.255.255.0
Broadcast:	auto
Gateway:	192.168.20.50

Step 2.

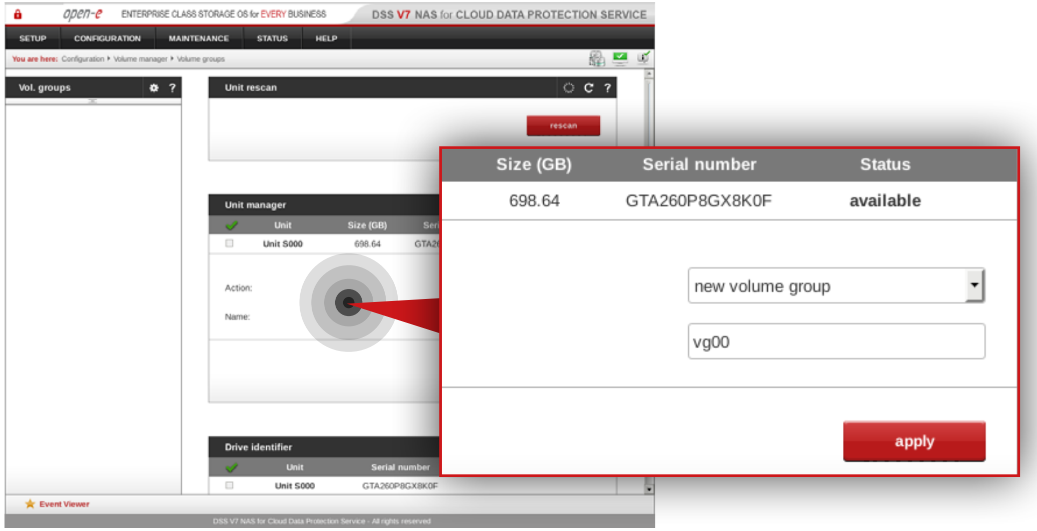
Go to **Setup » Network interfaces** and configure the Ethernet ports. Click **apply** to confirm the changes.

It is recommended to configure one interface:

- 1Gbit (eth0) interface for:
  - access to Open-E DSS V7 web interface
  - encrypted data replication
  - storage access

Note: Changing the network interface IP address will restart the network configuration on this node.

Note: The IP addresses used in this example are for the purpose of this manual only. You should configure your Ethernet ports according to your network topology.



Size (GB)	Serial number	Status
698.64	GTA260P8GX8K0F	available

new volume group

vg00

Step 3.

Go to **Configuration » Volume manager » Volume groups**.

a. To create a volume group, select a disk from the Unit manager.

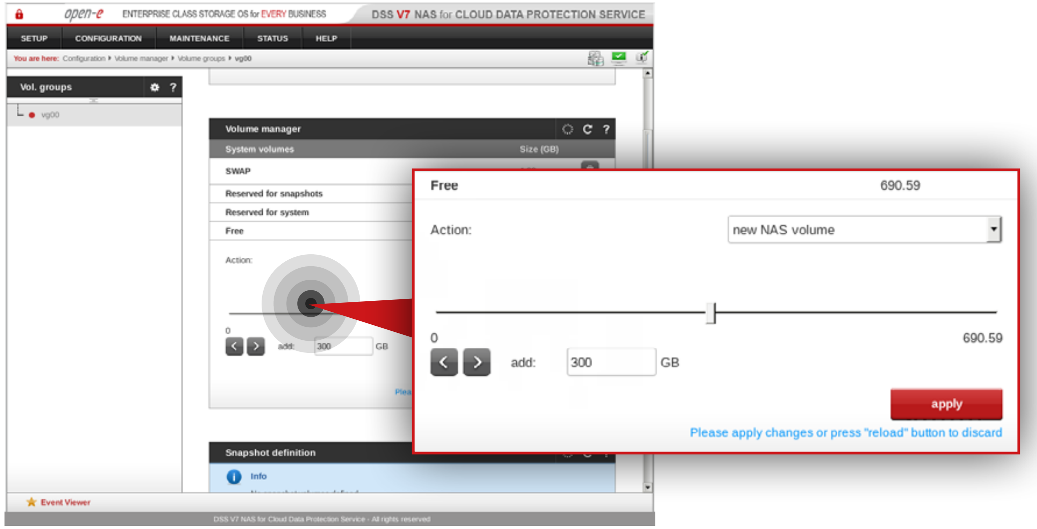
b. Enter a name for the volume group (in this example, the volume name is **vg00**).

c. Click **apply** button.

Step 4.

Select **vg00** from the menu on the left side.

a. Create new NAS volume (in this example, the volume name is **lv0000**).
b. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups ▸ vg00
Vol. groups
vg00
Volume manager
System volumes
Size (GB)
SWAP
Reserved for snapshots
Reserved for system
Free
Snapshot definition
Info
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved
apply

Free 690.59

Action: new NAS volume

0 690.59

add: 300 GB

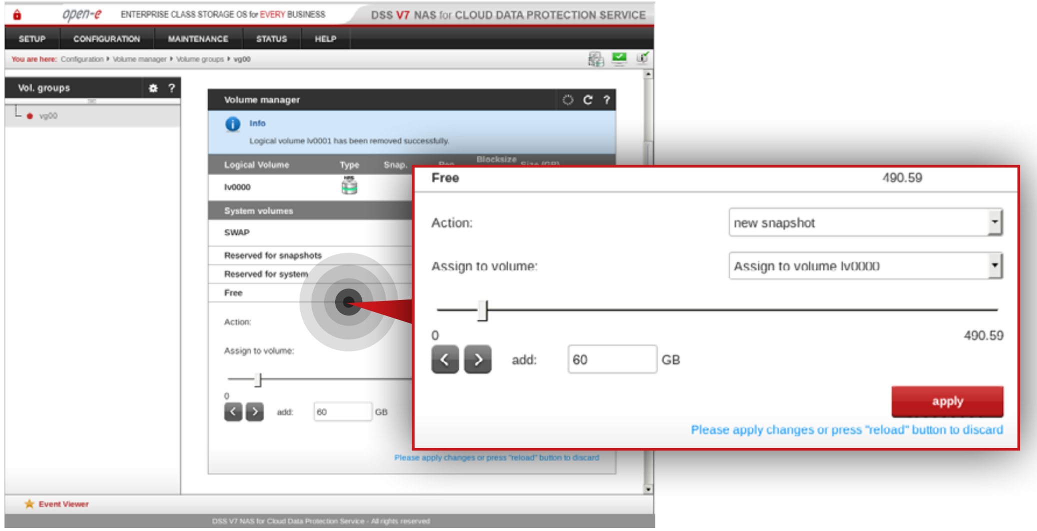
Please apply changes or press "reload" button to discard

Step 5.

Create snapshots assigned to the NAS volume lv0000 created in step 5.

It is recommended to create snapshots of a size that is at least 20% of the NAS volume size to which it is assigned.

It is highly recommended to monitor snapshot use. If the snapshot capacity is exceeded the system may become unstable.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ Volume manager ▸ Volume groups ▸ vg00
Vol. groups
vg00
Volume manager
Logical Volume
Type
Snap.
Blocksize
Size (GB)
lv0000
System volumes
SWAP
Reserved for snapshots
Reserved for system
Free
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved
apply

Info

Logical volume lv0001 has been removed successfully.

Free 490.59

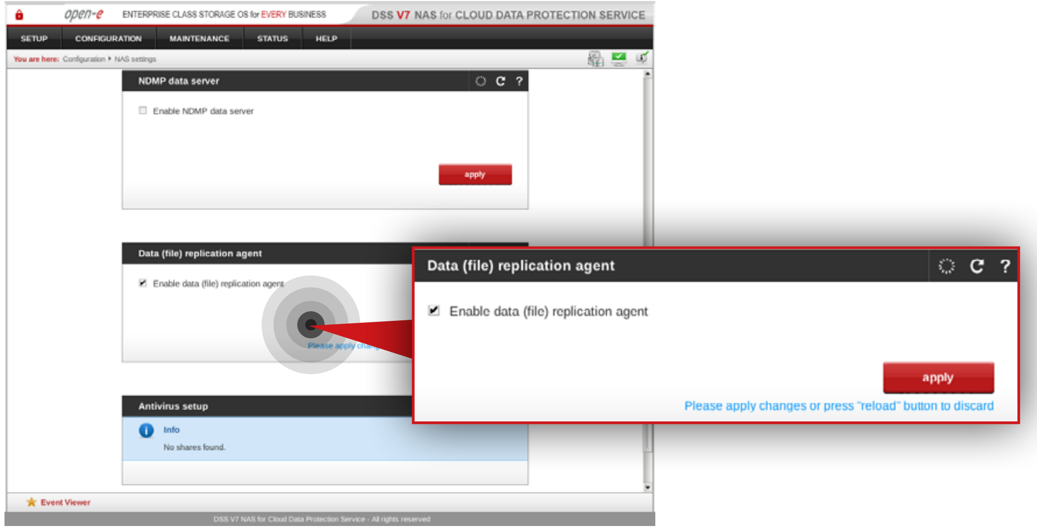
Action: new snapshot

Assign to volume: Assign to volume lv0000

0 490.59

add: 60 GB

Please apply changes or press "reload" button to discard


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS settings
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved

NDMP data server

☐ Enable NDMP data server

apply

Data (file) replication agent

☑ Enable data (file) replication agent

apply

Please apply changes or press "reload" button to discard

Antivirus setup

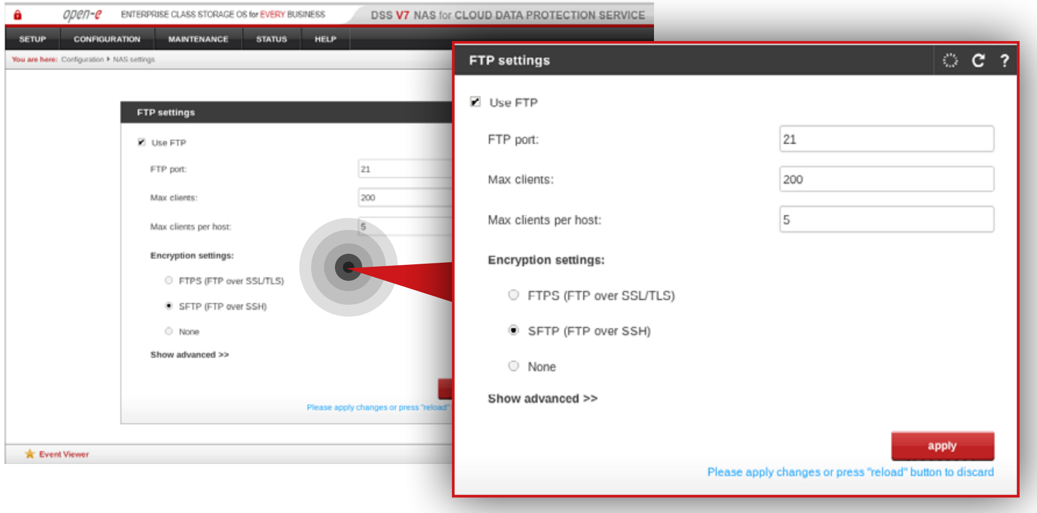
Info

No shares found.

Step 6.

Go to **Configuration » NAS settings**.

a. Check the **Enable Data (file) replication agent**.
b. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS settings
Event Viewer

FTP settings

☑ Use FTP

FTP port: 21

Max clients: 200

Max clients per host: 5

Encryption settings:

○ FTPS (FTP over SSL/TLS)

● SFTP (FTP over SSH)

○ None

Show advanced >>

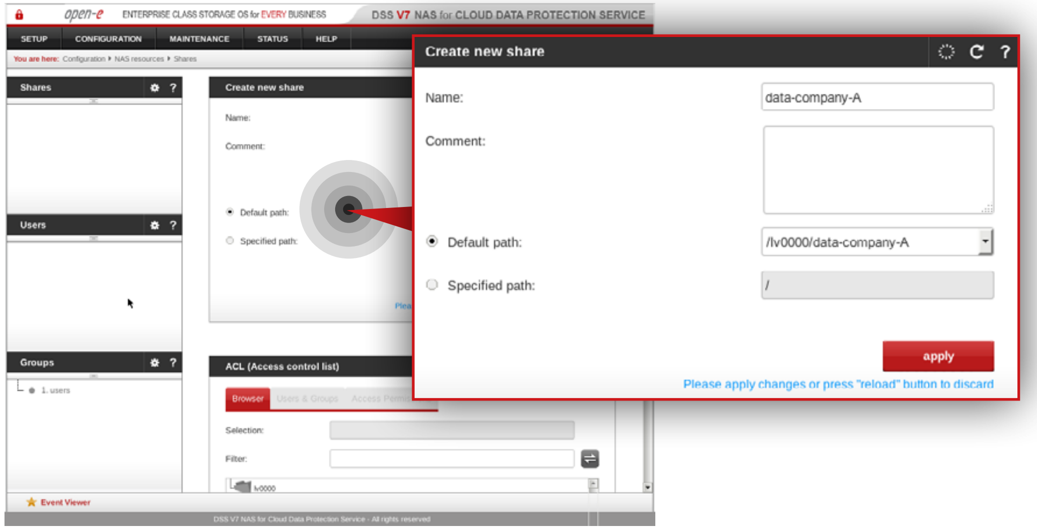
apply

Please apply changes or press "reload" button to discard

Step 7.

Next, navigate to **FTP settings**.

a. Check **Use FTP**.
b. Set FTP port, Max clients and Max. clients per host options.
c. Make sure **SFTP** is set as a encryption method.
d. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
Users
Groups
1. users
ACL (Access control list)
Browser
Users & Groups
Access Permissions
Selection:
Filter:
lv0000
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved

Create new share

Name: data-company-A

Comment:

● Default path: /lv0000/data-company-A

○ Specified path: /

apply

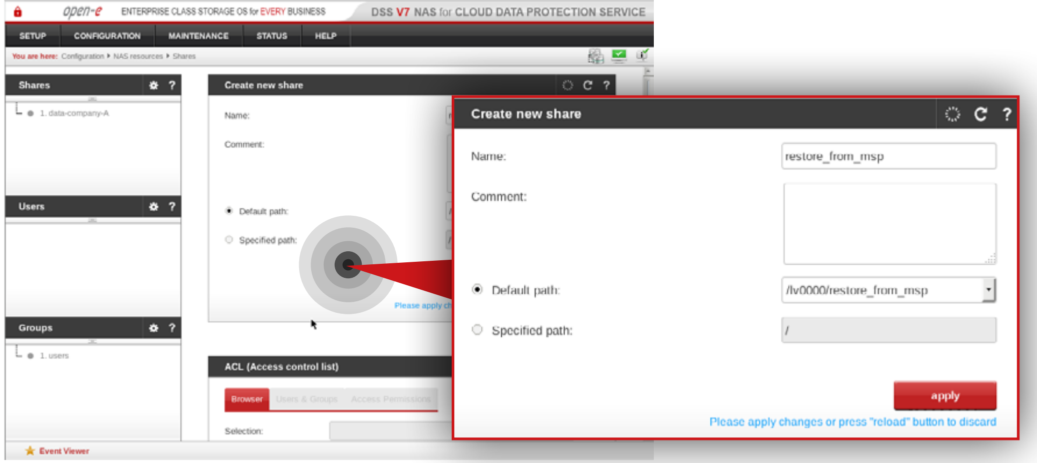
Please apply changes or press "reload" button to discard

Step 8.

Go to **Configuration » NAS resources » Shares** and create a share for data that will be replicated from the Customer node to the MSP node.

a. Enter a name for the share (in this example, the share name is **data-company-A**).
b. Select **/lv0000/data-company-A** as a default path for the share.
c. Click **apply** button.

Note: There is an option to configure a local backup for the Customer node. For more details proceed to Chapter 5.7 - Optional procedure for setting up local backup for Customer node.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
1. data-company-A
Users
Groups
1. users
ACL (Access control list)
Browser
Users & Groups
Access Permissions
Selection:
Event Viewer

Create new share

Name: restore_from_msp

Comment:

● Default path: /lv0000/restore_from_msp

○ Specified path: /

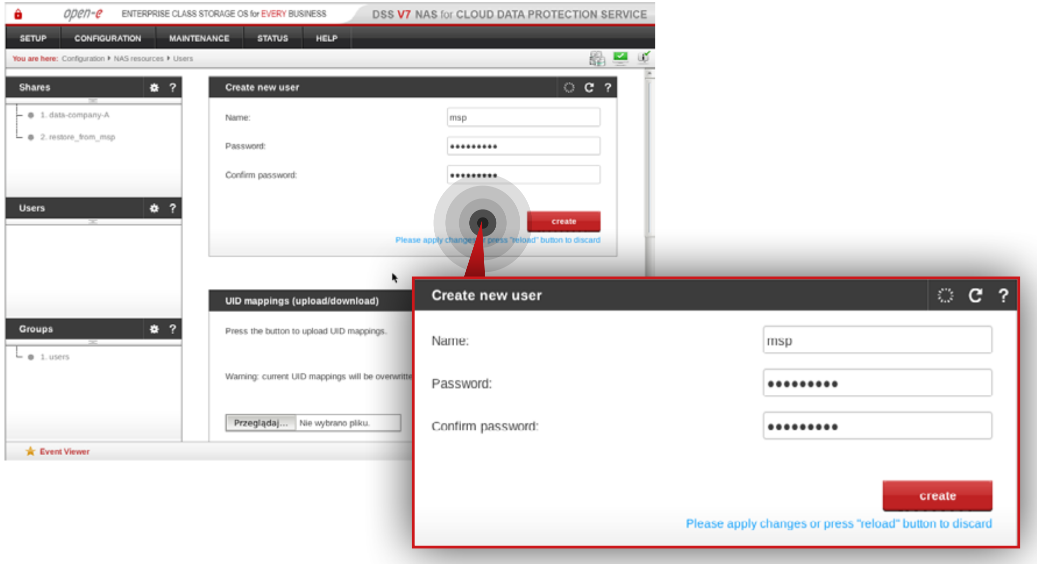
apply

Please apply changes or press "reload" button to discard

Step 9.

Next, create share for restored data.

a. Enter a name for the share (in this example, the share name is **restore_from_msp**).
b. Select **/lv0000/retore_from_msp** as a default path for the share.
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Users
Shares
1. data-company-A
2. restore_from_msp
Users
Groups
1. users
UID mappings (upload/download)
Press the button to upload UID mappings.
Warning: current UID mappings will be overwritten
Przeglądaj... Nie wybrano pliku.
Event Viewer

Create new user

Name: msp

Password: •••••••••

Confirm password: •••••••••

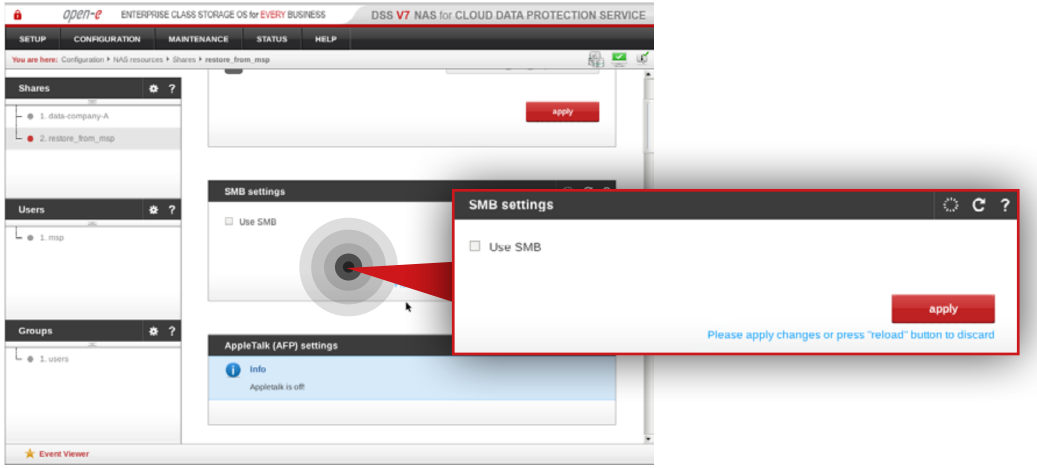
create

Please apply changes or press "reload" button to discard

Step 10.

Go to **Configuration » NAS resource » Users** and create a new user.

a. Set a name for the user.
b. Set a password for the user.
c. Click **create** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ restore_from_msp
Shares
1. data-company-A
2. restore_from_msp
Users
1. msp
Groups
1. users
apply
AppleTalk (AFP) settings
Info
Appletalk is off
Event Viewer

SMB settings

☐ Use SMB

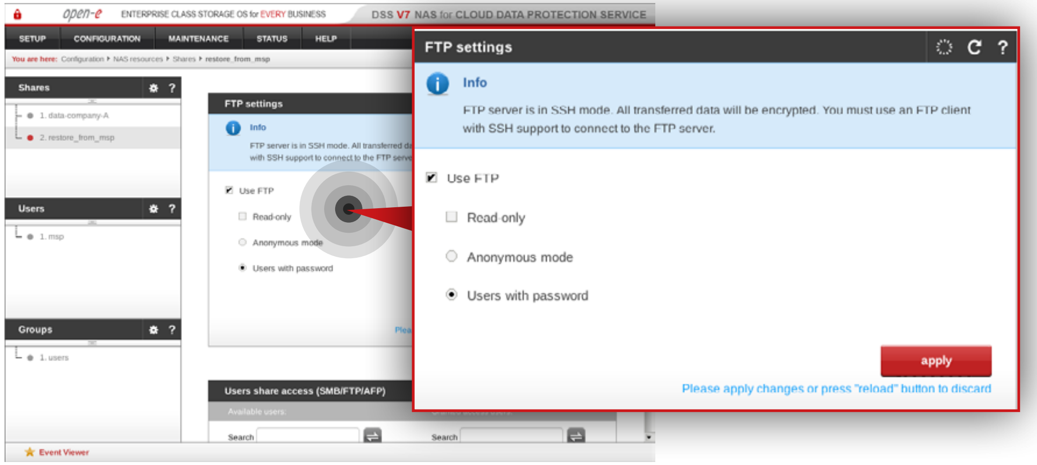
apply

Please apply changes or press "reload" button to discard

Step 11.

Select restore_from_msp share from the menu on the left side.

a. Navigate to **SMB** settings.
b. Uncheck **Use SMB**.
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ restore_from_msp
Shares
1. data-company-A
2. restore_from_msp
Users
1. msp
Groups
1. users
Users share access (SMB/FTP/AFP)
Event Viewer

FTP settings

Info

FTP server is in SSH mode. All transferred data will be encrypted. You must use an FTP client with SSH support to connect to the FTP server.

☑ Use FTP

□ Read only

○ Anonymous mode

● Users with password

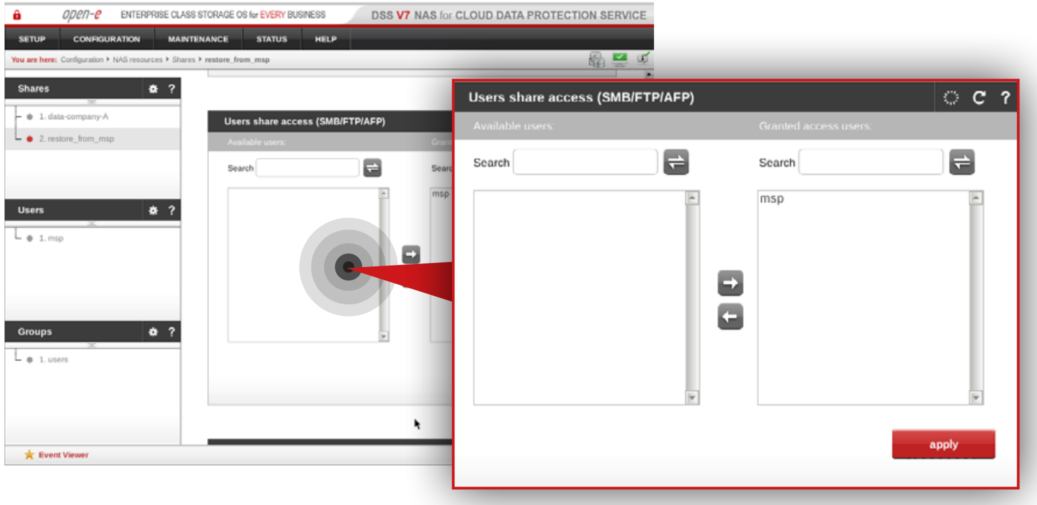
apply

Please apply changes or press "reload" button to discard

Step 12.

Next, navigate to **FTP settings**.

a. Check **Use FTP**.
b. Make sure **Users with password** option is selected
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ restore_from_msp
Shares
1. data-company-A
2. restore_from_msp
Users
1. msp
Groups
1. users
Event Viewer

Users share access (SMB/FTP/AFP)

Available users	Granted access users
Search	Search
	msp

apply

Step 13.

Next, navigate to **Users share access (SMB/FTP/AFP)**.

a. Move the newly created user (in this example, the user is **msp**) from Available users to Granted access users.
b. Click **apply** button.

5.5. Customer router configuration

Service	External IP address	External port number	Internal IP address	Internal port number	Protocol
DSS V7 SSH RSYNC	Customer public IP	40000	192.168.0.111	40000	TCP
DSS V7 TUI	Customer public IP	40001	192.168.0.111	22222	TCP
DSS V7 CLI/API	Customer public IP	40002	192.168.0.111	22223	TCP
DSS V7 SFTP	Customer public IP	40003	192.168.0.111	21	TCP

Step 1.

Configure port forwarding on the router in order to allow a connection request from MSP nodes.
Exemplary port forwarding configuration of Customer's router is shown in the table on the left.

Note: The IP addresses and port numbers used in this example are for the purpose of this manual only. You should configure your Ethernet ports according to your network topology.

- **DSS SSH RSYNC** is used for encrypted data replication from MSP node to Customer node
- **DSS TUI** is used for secure access to DSS V7's Terminal User Interface on Customer's node
- **DSS CLI/API** is used for the secure connection between Monitoring node and Customer node
- **DSS SFTP** is used for SFTP connection

5.6. Setting up replication between Customer node and MSP node

Prerequisites

Please complete the following prerequisites.

- MSP nodes configured according to procedure introduced in Chapter 5.2 – Detailed procedure of setting up MSP nodes
- Customer node configured according to procedure introduced in Chapter 5.4 – Detailed procedure for setting up Customer node

If all the prerequisites have been met, you’re now ready to start the Customer node configuration.

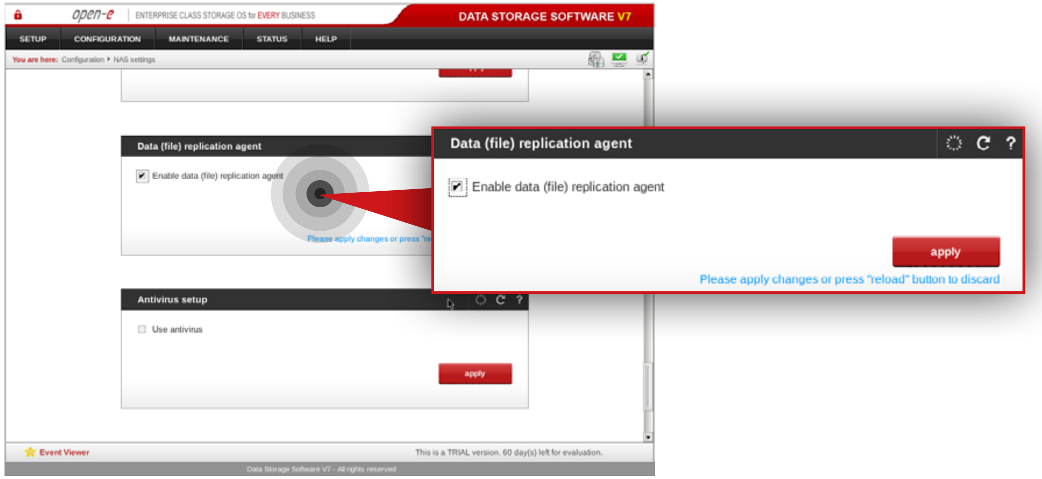
5.6.1. MSP node configuration

Step 1.

On **msp-node-a**, go to **Configuration » NAS settings.**

a. Navigate to the **Data (file) replication agent** and check **Enable data (file) replication agent.**

b. Click **apply** button.



You are here: Configuration ▸ NAS settings

Data (file) replication agent

☑ Enable data (file) replication agent

Please apply changes or press "reload" button to discard

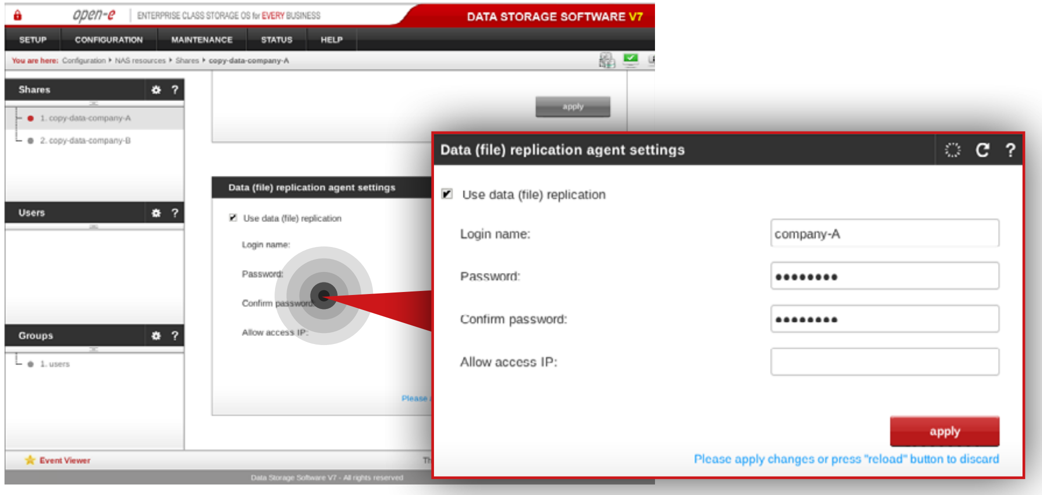
Antivirus setup

☐ Use antivirus

This is a TRIAL version. 60 day(s) left for evaluation.

Data Storage Software V7 - All rights reserved

5.6. Setting up replication between Customer node and MSP node


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-A
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
Event Viewer
Data Storage Software V7 - All rights reserved

Data (file) replication agent settings

☑ Use data (file) replication

Login name: company-A

Password: ••••••••

Confirm password: ••••••••

Allow access IP:

apply

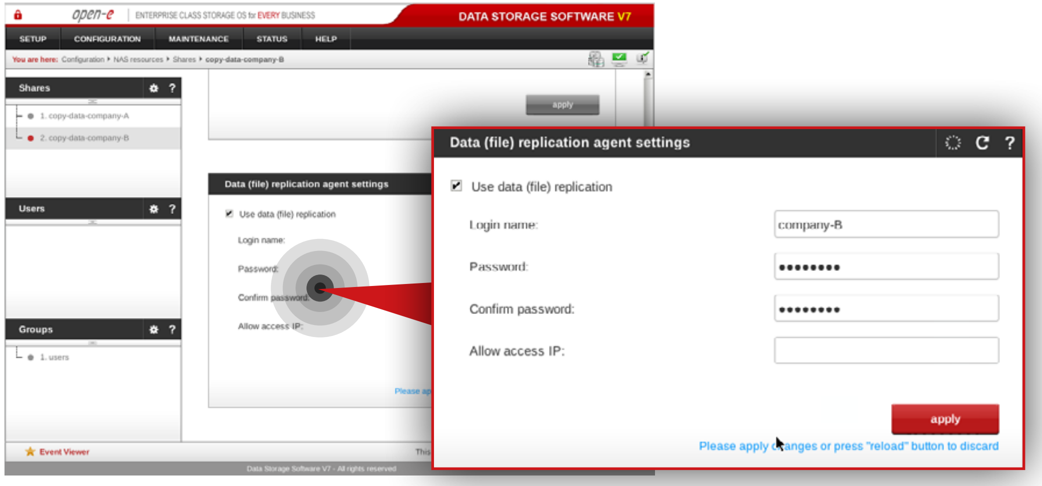
Please apply changes or press "reload" button to discard

Step 2.

Still on **msp-node-a**, go to **Configuration » NAS resources » Shares** and select **copy-data-company-A** share from the list on the left side.

a. Navigate to the **Data (file) replication agent settings**.
b. Check **Use data (file) replication**.
c. Enter a login name for the data replication agent (in this example, the login name is **company-A**).
d. Set a password for the replication agent.
e. Click **apply** button.

Note: "Allow access IP" is not required as the function does not work in case of encrypted connection between MSP nodes and Customer node.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-B
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
Event Viewer
Data Storage Software V7 - All rights reserved

Data (file) replication agent settings

☑ Use data (file) replication

Login name: company-B

Password: ••••••••

Confirm password: ••••••••

Allow access IP:

apply

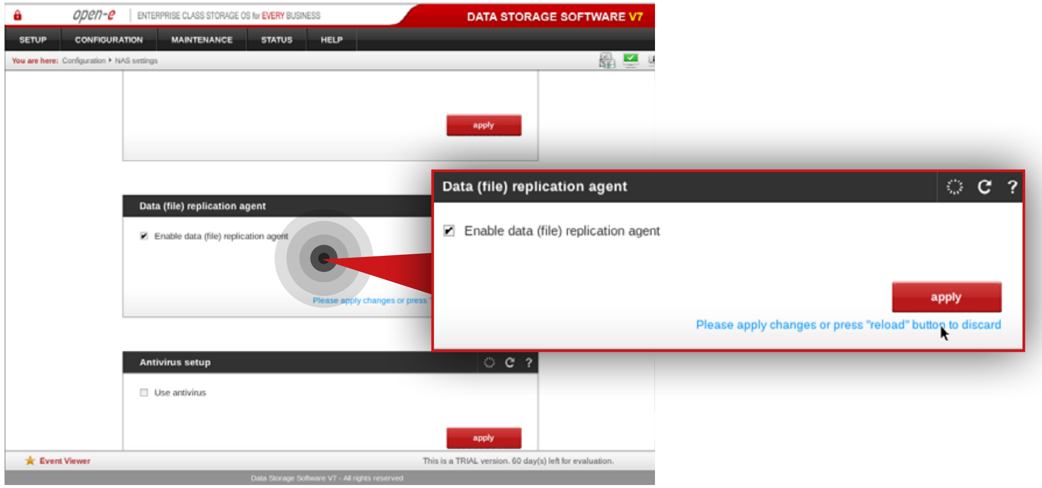
Please apply changes or press "reload" button to discard

Step 3.

Next, select **copy-data-company-B** share from the list on the left side.

a. Navigate to the **Data (file) replication agent settings**.
b. Check **Use data (file) replication**.
c. Enter a login name for the data replication agent (in this example, the login name is **company-B**).
d. Set a password for the replication agent.
e. Click **apply** button.

Note: "Allow access IP" is not required as the function does not work in case of encrypted connection between MSP nodes and Customer node.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS settings
apply
Antivirus setup
Use antivirus
Event Viewer
This is a TRIAL version. 60 day(s) left for evaluation.
Data Storage Software V7 - All rights reserved

Data (file) replication agent

☑ Enable data (file) replication agent

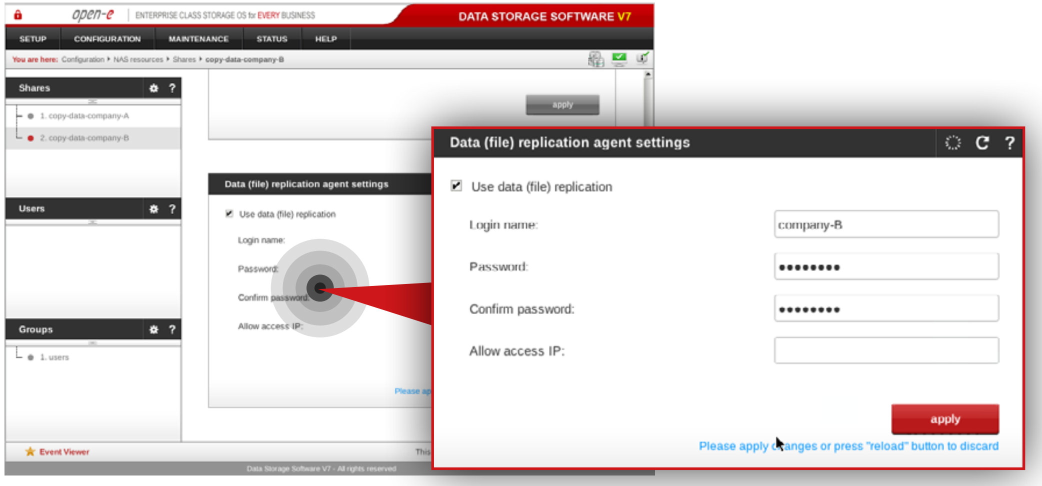
apply

Please apply changes or press "reload" button to discard

Step 4.

On **msp-node-b**, go to **Configuration » NAS settings**.

a. Navigate to **Data (file) replication agent** and check **Enable data (file) replication agent**.
b. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-B
Shares
1. copy-data-company-A
2. copy-data-company-B
Users
Groups
1. users
apply
Event Viewer
Data Storage Software V7 - All rights reserved

Data (file) replication agent settings

☑ Use data (file) replication

Login name: company-B

Password: ••••••••

Confirm password: ••••••••

Allow access IP:

apply

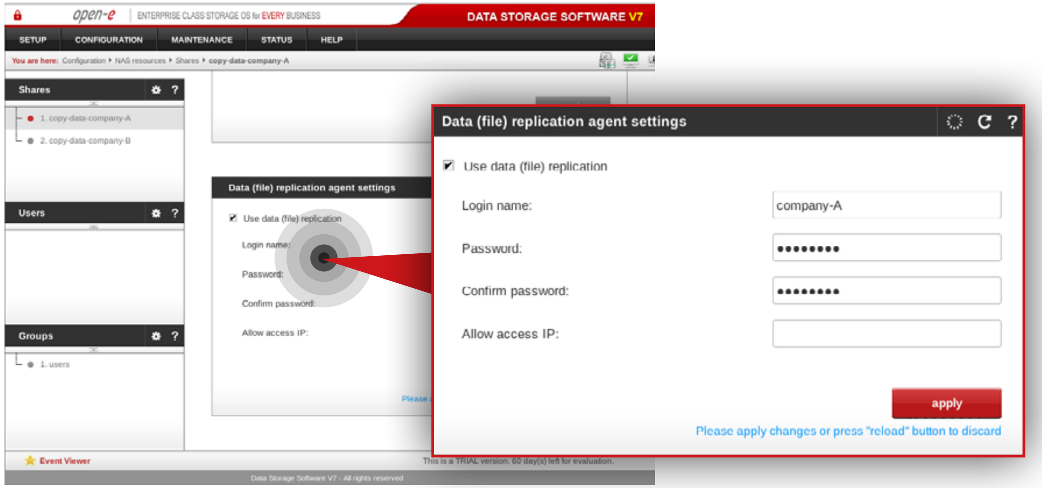
Please apply changes or press "reload" button to discard

Step 5.

Still on **msp-node-b**, go to **Configuration » NAS resources » Shares** and select **copy-data-company-B** from the list on the left side.

a. Navigate to **Data (file) replication agent settings**.
b. Check **Use data (file) replication.**
c. Enter a login name for the data replication agent (in this example, the login name is **company-B**).
d. Set a password for the replication agent.
e. Click **apply** button.

Note: "Allow access IP" is not required as the function does not work in case of encrypted connection between MSP nodes and Customer node.



You are here: Configuration ▸ NAS resources ▸ Shares ▸ copy-data-company-A

1. copy-data-company-A
2. copy-data-company-B

1. users

Data (file) replication agent settings

☑ Use data (file) replication

Login name: company-A

Password: ●●●●●●●●

Confirm password: ●●●●●●●●

Allow access IP:

Please apply changes or press "reload" button to discard

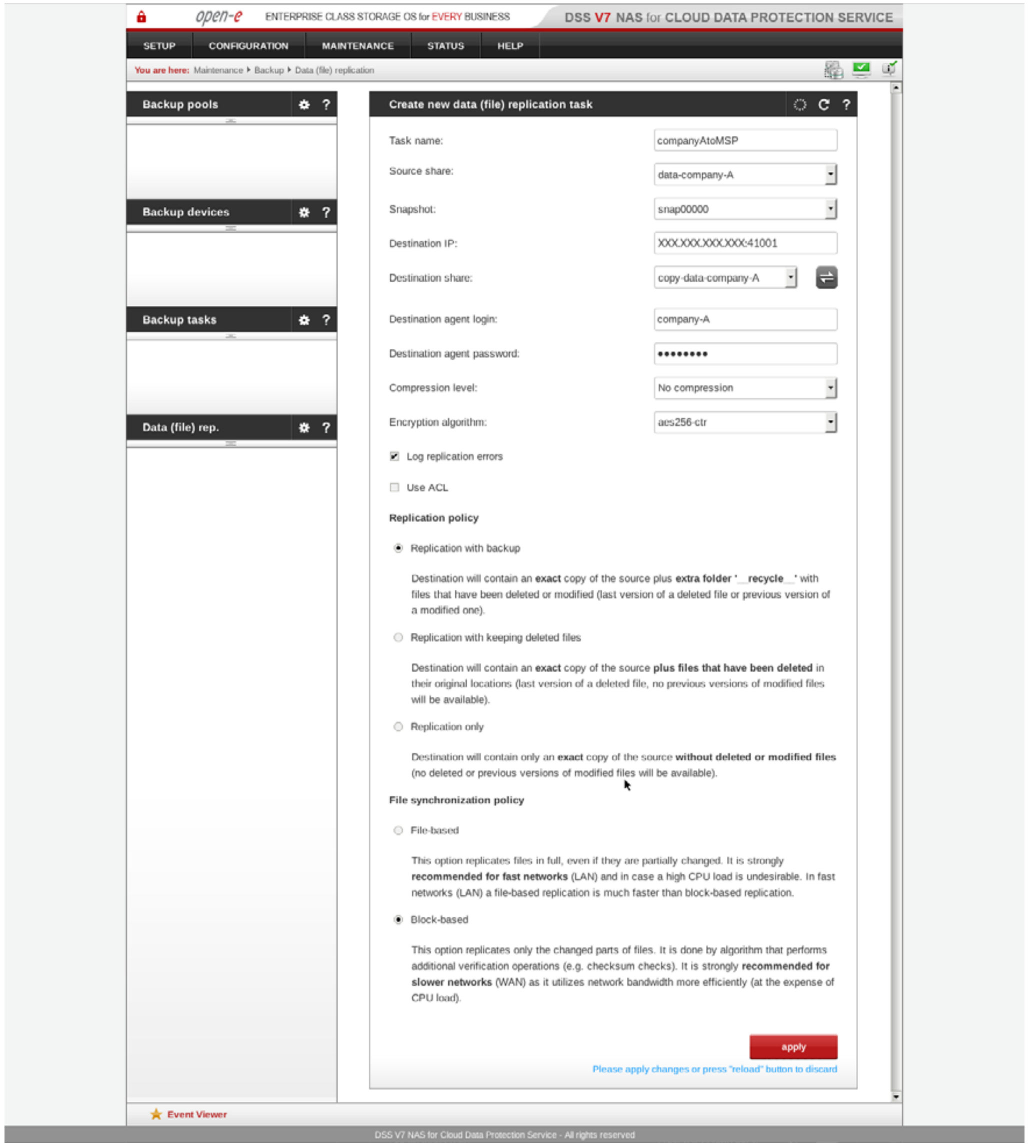
This is a TRIAL version. 60 day(s) left for evaluation.

Step 6.

Next, select **copy-data-company-A** from the list on the left side.

a. Navigate to **Data (file) replication agent settings**.
b. Check **Use data (file) replication.**
c. Enter a login name for the data replication agent (in this example, the login name is **company-A**).
d. Set a password for the replication agent.
e. Click **apply** button.

Note: "Allow access IP" is not required as the function does not work in case of encrypted connection between MSP nodes and Customer node.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Data (file) replication
Backup pools
Backup devices
Backup tasks
Data (file) rep.
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved

Create new data (file) replication task

Task name:	companyAtoMSP
Source share:	data-company-A
Snapshot:	snap00000
Destination IP:	XXX.XXX.XXX.XXX:41001
Destination share:	copy-data-company-A
Destination agent login:	company-A
Destination agent password:	••••••••
Compression level:	No compression
Encryption algorithm:	aes256-ctr

☑ Log replication errors

□ Use ACL

Replication policy

● Replication with backup

Destination will contain an **exact** copy of the source plus **extra folder '__recycle__'** with files that have been deleted or modified (last version of a deleted file or previous version of a modified one).

○ Replication with keeping deleted files

Destination will contain an **exact** copy of the source **plus files that have been deleted** in their original locations (last version of a deleted file, no previous versions of modified files will be available).

○ Replication only

Destination will contain only an **exact** copy of the source **without deleted or modified files** (no deleted or previous versions of modified files will be available).

File synchronization policy

○ File-based

This option replicates files in full, even if they are partially changed. It is strongly **recommended for fast networks** (LAN) and in case a high CPU load is undesirable. In fast networks (LAN) a file-based replication is much faster than block-based replication.

● Block-based

This option replicates only the changed parts of files. It is done by algorithm that performs additional verification operations (e.g. checksum checks). It is strongly **recommended for slower networks** (WAN) as it utilizes network bandwidth more efficiently (at the expense of CPU load).

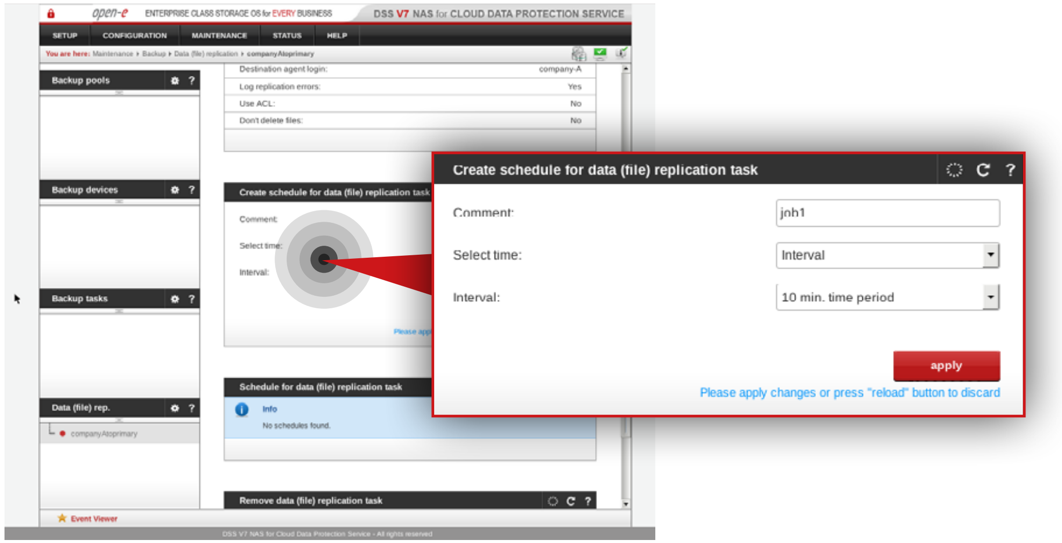
Please apply changes or press "reload" button to discard

5.6.2. Customer node configuration

Step 1.

On Customer node, navigate to **Maintenance » Backup » Data (file) replication** and create a new replication task to replicate data from the Customer node to the MSP node.

a. Enter a name for the task (in this example, the task name is **companyAtoMSP**).
b. Select the source share containing data to be replicated (in this example, the source share is **data-company-A**).
c. Select a snapshot used for data replication (in this example, the snapshot is **snap00000**).
d. Specify a public destination IP address and port number of the MSP node.
e. Click refresh button ⇄ and select a destination share on the MSP node to which you want to replicate data (in this example the share name is **copy-data-company-A**).
f. Enter agent login and password.
g. Select desired compression level (in this example the compression is disabled).
h. Select encrytption alghorithm (in this example the encryption algorith is aes256-ctr).
i. Make sure "Log replication errors" is checked.
j. Select desired replication policy (in this example **replication with backup** is selected).
k. Select desired file synchronization policy (in this example block-based synchronization is selected).
l. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Data (file) replication ▸ companyAtoprimary
Backup pools
Backup devices
Backup tasks
Data (file) rep.
companyAtoprimary
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved
apply

Destination agent login: company-A
Log replication errors: Yes
Use ACL: No
Don't delete files: No

Create schedule for data (file) replication task

Comment: job1
Select time: Interval
Interval: 10 min. time period

Please apply changes or press "reload" button to discard

Schedule for data (file) replication task

Info
No schedules found.

Remove data (file) replication task

Step 2.

Select the task from the menu on the left side, configure the task schedule recurrence and click **apply** button.

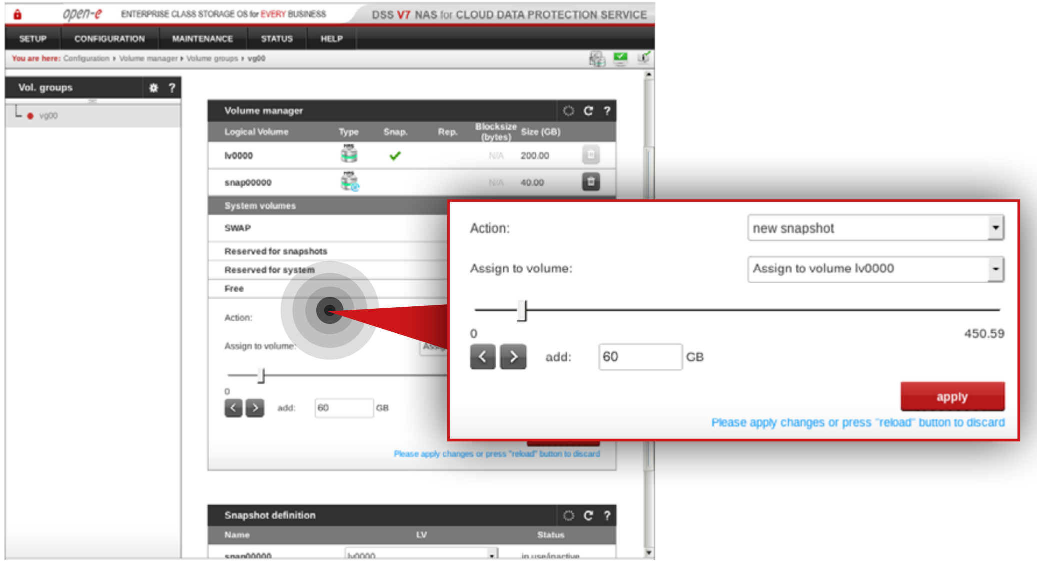
Tip: If you want to check whether your task is running properly, go to **Status » Tasks** where all tasks statuses are listed.

5.7. Optional procedure for setting up local backup for Customer node

Prerequisites
Please complete the following prerequisites.

- Customer node configured according to procedure introduced in Chapter 5.4 – Detailed procedure for setting up Customer node
- Open-E DSS V7 NAS for CDPS installed on the Customer node

If all the prerequisites have been met, you’re now ready to start **Customer node configuration**.



You are here: Configuration ▸ Volume manager ▸ Volume groups ▸ vg00

Logical Volume	Type	Snap.	Rep.	Blocksize (bytes)	Size (GB)
lv0000	NAS	✓		N/A	200.00
snap00000	NAS			N/A	40.00

Action: new snapshot

Assign to volume: Assign to volume lv0000

0 450.59

add: 60 GB

Please apply changes or press "reload" button to discard

Name	LV	Status
snap00000	lv0000	in use/inactive

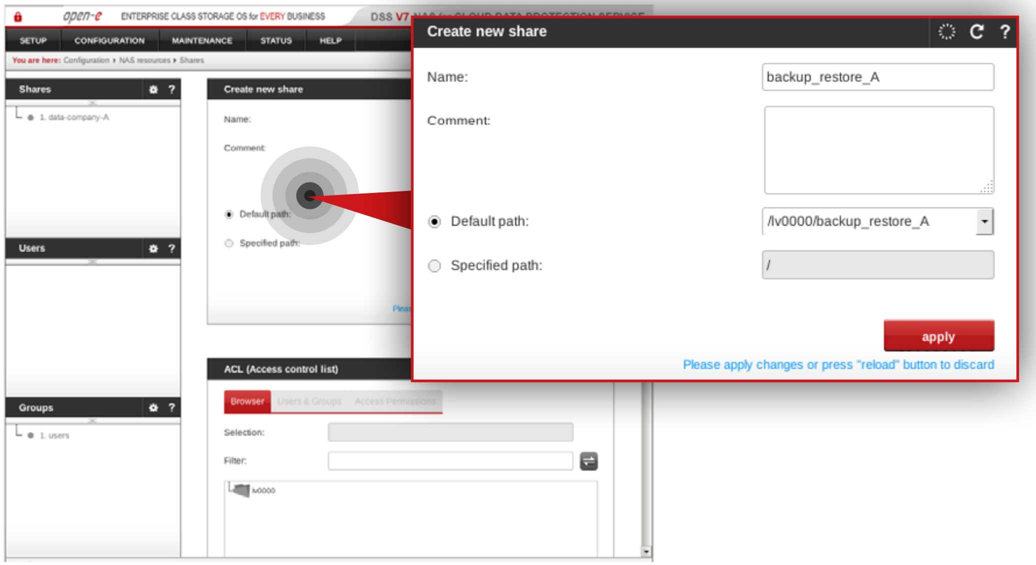
Step 1.

Go to **Configuration » Volume manager » Volume groups**.

a. Select vg00 from the list on the left side.
b. Create a snapshot assigned to the NAS volume lv0000 (in this example the snapshot name is snap0001).
c. Click **apply** button.

It is recommended to create snapshots of a size that is at least 20% of the NAS volume size to which it is assigned.

It is highly recommended to monitor snapshot use. If the snapshot capacity is exceeded the system may become unstable.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
1. data-company-A
Users
Groups
1. users
ACL (Access control list)
Browser Users & Groups Access Permissions
Selection:
Filter:
lv0000

Create new share

Name: backup_restore_A

Comment:

● Default path: /lv0000/backup_restore_A

○ Specified path: /

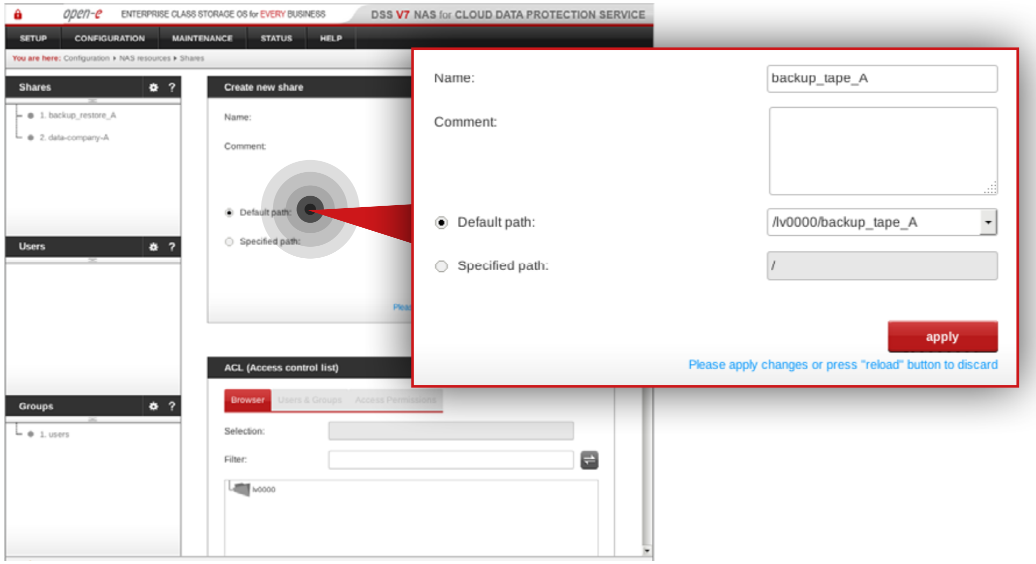
apply

Please apply changes or press "reload" button to discard

Step 2.

Create a share for data restored from the backup.

a. Enter a name for the share (in this example, the share name is **backup_restore_A**).
b. Select **lv0000** as a default path for the share.
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP CONFIGURATION MAINTENANCE STATUS HELP
You are here: Configuration ▸ NAS resources ▸ Shares
Shares
1. backup_restore_A
2. data-company-A
Create new share
Users
Groups
1. users
ACL (Access control list)
Browser Users & Groups Access Permissions
Selection:
Filter:
lv0000

Name: backup_tape_A

Comment:

● Default path: /lv0000/backup_tape_A

○ Specified path: /

apply

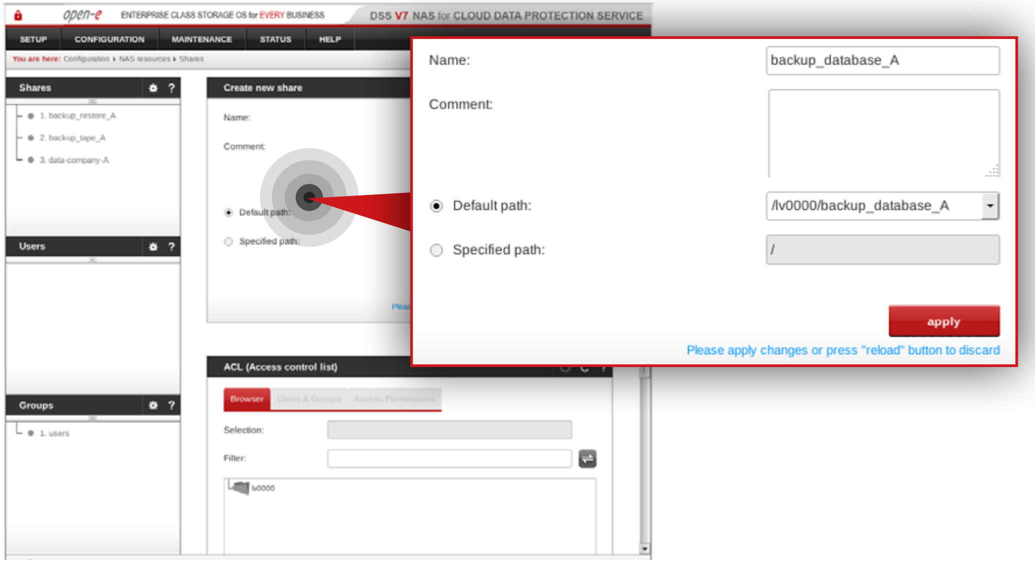
Please apply changes or press "reload" button to discard

Step 3.

Create a share for the virtual backup device.

a. Enter a name for the share (in this example, the share name is **backup_tape_A**).
b. Select **lv0000** as a default path for the share.
c. Click **apply** button.

5.7. Optional procedure for setting up local backup for Customer node



Name: backup_database_A

Comment:

● Default path: /lv0000/backup_database_A

○ Specified path: /

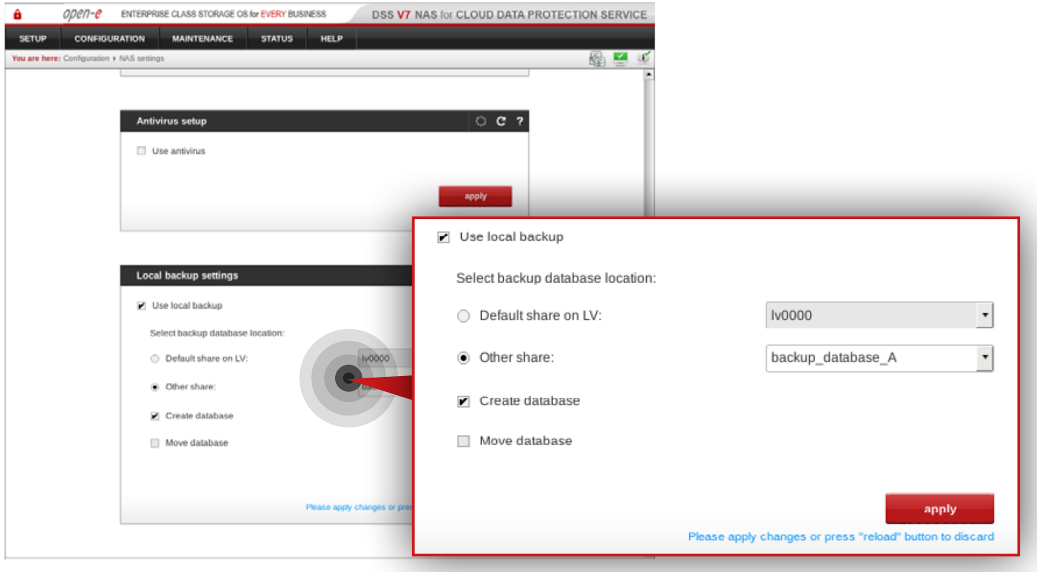
apply

Please apply changes or press "reload" button to discard

Step 4.

Go to **Configuration » NAS resources » Shares** and create a share for the backup database.

a. Enter a name for the share (in this example, the share name is **backup_database_A**).
b. Select **lv0000** as a default path for the share.
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration › NAS settings
Antivirus setup
□ Use antivirus
apply
Local backup settings

☑ Use local backup

Select backup database location:

○ Default share on LV: lv0000

● Other share: backup_database_A

☑ Create database

□ Move database

apply

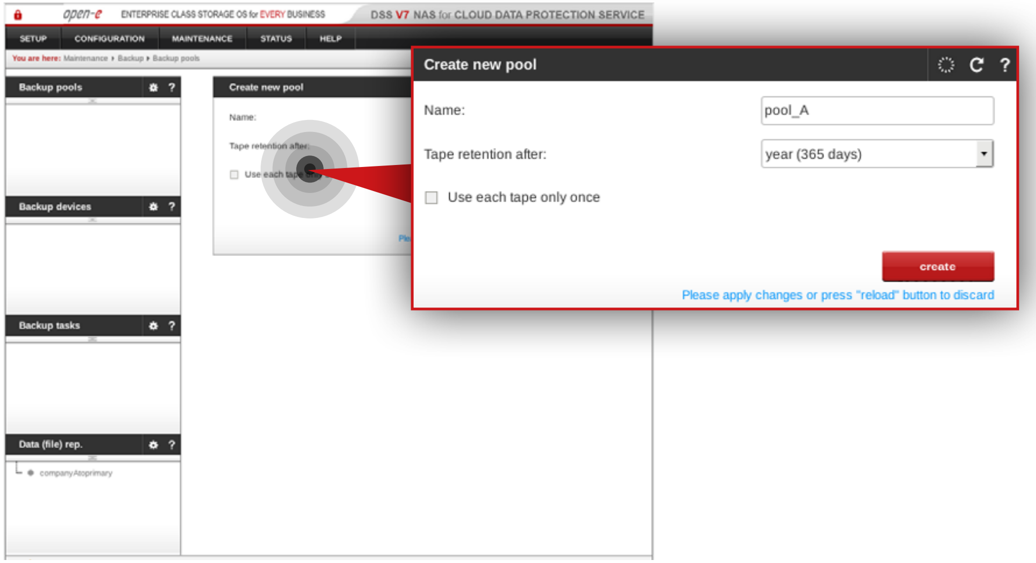
Please apply changes or press "reload" button to discard

Step 5.

Go to **Configuration » NAS settings** and enable local backup.

a. Select share for your backup database location (in this example, it is **backup_database_A**).
b. Make sure the "Create database" option is checked.
c. Click **apply** button.

5.7. Optional procedure for setting up local backup for Customer node


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Backup pools
Backup pools
Backup devices
Backup tasks
Data (file) rep.
companyAtoprimary

Create new pool

Name: pool_A

Tape retention after: year (365 days)

□ Use each tape only once

create

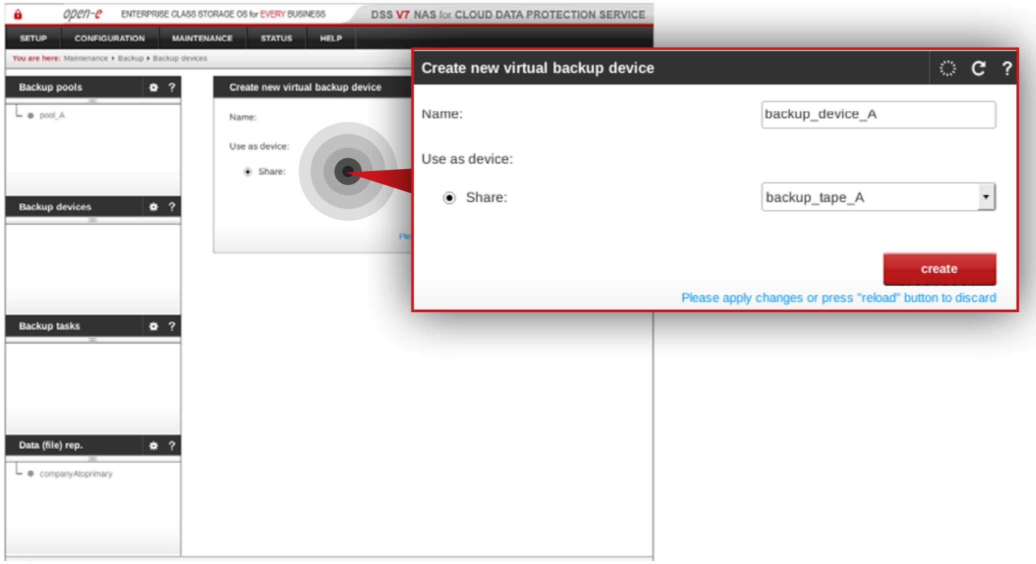
Please apply changes or press "reload" button to discard

Step 6.

Go to **Maintenance » Backup » Backup pools** and create a new backup pool.

a. Enter a name for the pool (in this example, the backup pool name is **pool_A**).
b. Click **apply** button.

Note: You may configure tape retention. By default it is 365 days.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Backup devices
Backup pools
pool_A
Backup devices
Backup tasks
Data (file) rep.
companyAtoprimary

Create new virtual backup device

Name: backup_device_A

Use as device:

● Share: backup_tape_A

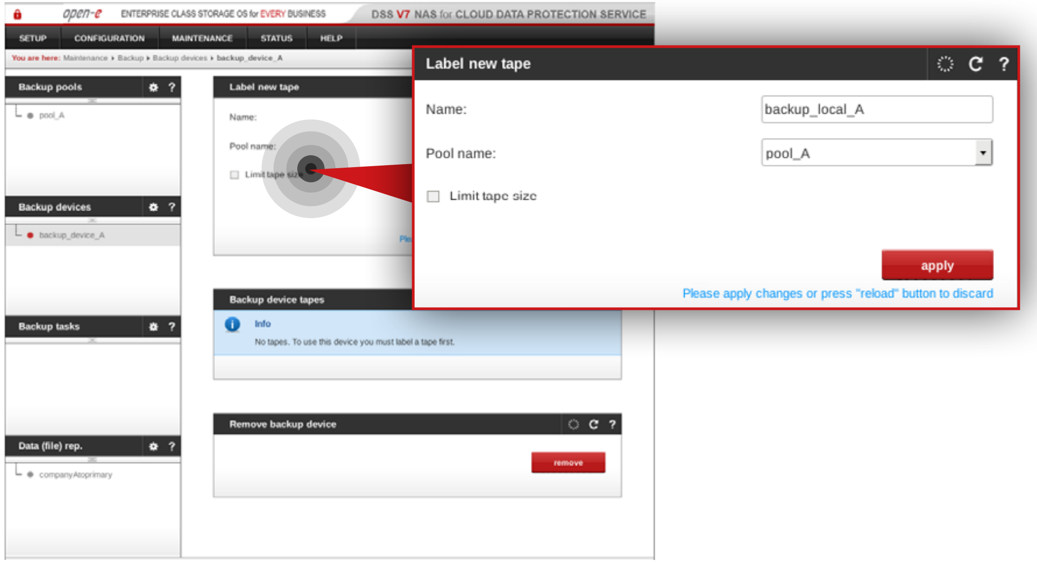
create

Please apply changes or press "reload" button to discard

Step 7.

Go to **Maintenance » Backup » Backup devices**.

a. Set a name for your virtual backup device (in this example, the backup device name is **backup_device_A**).
b. Select the share you want to use as a virtual device (in this example, selected share is **backup_tape_A**).
c. Click **create** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Backup devices ▸ backup_device_A
Backup pools
pool_A
Backup devices
backup_device_A
Backup tasks
Data (file) rep.
companyAtoprimary
Remove backup device
remove

Label new tape

Name: backup_local_A

Pool name: pool_A

□ Limit tape size

apply

Please apply changes or press "reload" button to discard

Backup device tapes

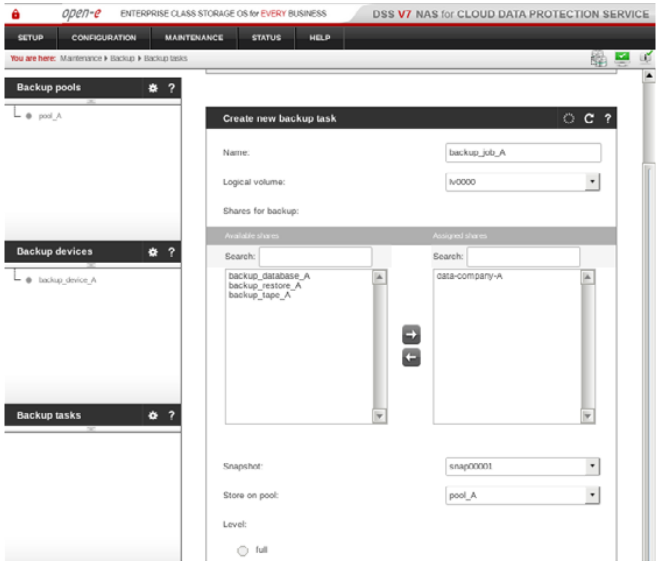
Info

No tapes. To use this device you must label a tape first.

Step 8.

Select the backup device (in this example, it is **backup_device_A**) from the menu on the left side.

a. Label a new tape (in this example, the tape label is **backup_local_A**).
b. As a pool name select the pool created in step 6 (in this example, the selected pool is **pool_A**).
c. Click **apply** button.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Backup tasks
Backup pools
pool_A
Backup devices
backup_device_A
Backup tasks

Create new backup task

Name: backup_job_A

Logical volume: lv0000

Shares for backup:

Available shares

Search:

backup_database_A
backup_restore_A
backup_tape_A

Assigned shares

Search:

data-company-A

Snapshot: snap00001

Store on pool: pool_A

Level:

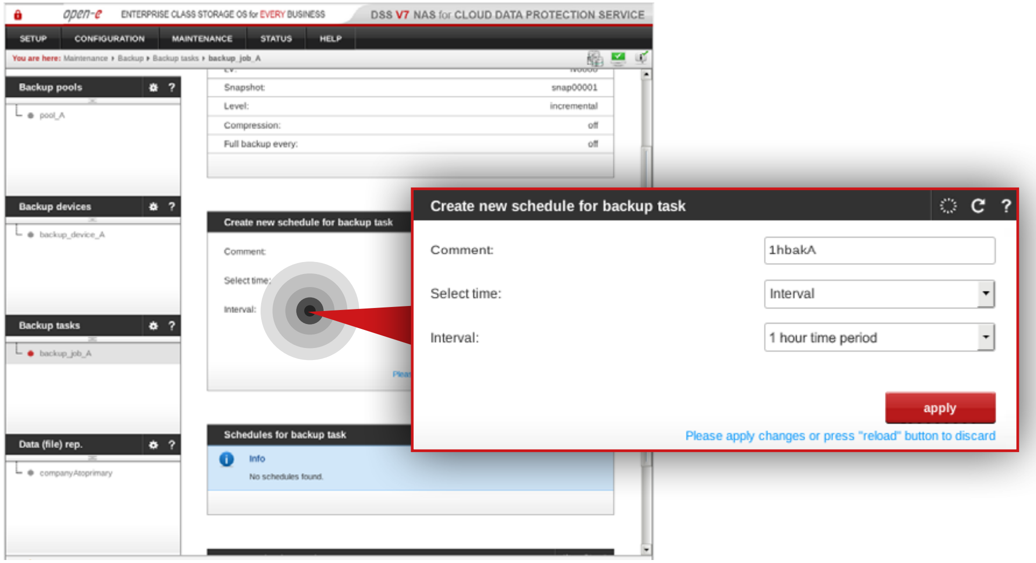
○ full

Step 9.

Go to **Maintenance » Backup » Backup task** and create a backup task for the local data backup.

a. Enter a name for the task (in this example, the task name is **backup_job_A**).
b. Select a logical volume (in this example, the volume is **lv0000**).
c. Select a share for backup (in this example, the share is **data-company-A**).
d. Select a snapshot (in this example, the snapshot is **snap00001**).
e. Select a pool to store data on (in this example, the pool is **pool_A**).
f. Make sure **incremental** is checked as a backup level (type).
g. Click **apply** button.

Note: A snapshot used for the local backup has to be different from the one used in the **Data (file) replication** task.



You are here: Maintenance ▸ Backup ▸ Backup tasks ▸ backup_job_A

Snapshot:	snap00001
Level:	incremental
Compression:	off
Full backup every:	off

Create new schedule for backup task

Comment: 1hbakA

Select time: Interval

Interval: 1 hour time period

Please apply changes or press "reload" button to discard

Schedules for backup task

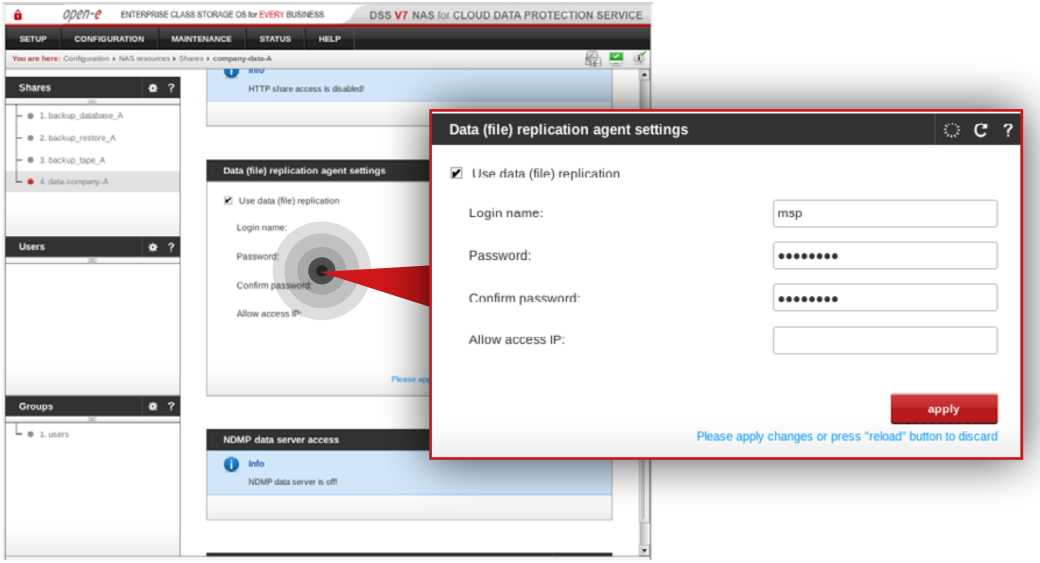
Info
No schedules found.

Step 10.

Select the backup task name from the list on the left side (in this example, the task name is **backup_job_A**).

a. Configure task schedule recurrence.
b. Add comment to help you identify the task (in this example, the comment is **1hbakA**).
c. Click **apply** button.

6. Disaster recovery & data restore


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Configuration ▸ NAS resources ▸ Shares ▸ company-data-A
Shares
1. backup_database_A
2. backup_restore_A
3. backup_tape_A
4. data-company-A
Users
Groups
1. users
HTTP share access is disabled!
NDMP data server access
Info
NDMP data server is off!

Data (file) replication agent settings

☑ Use data (file) replication

Login name: msp

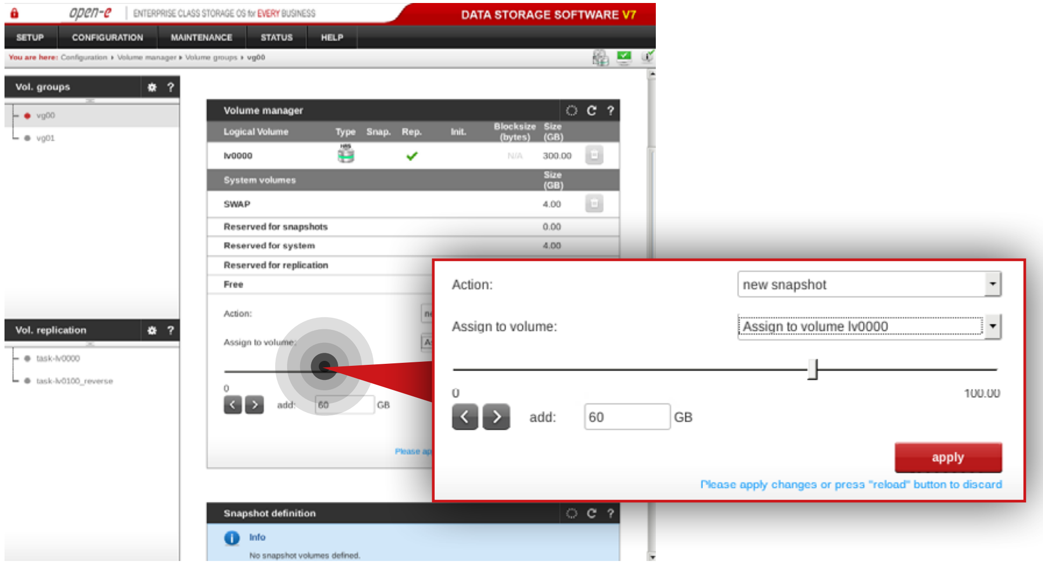
Password: ••••••••

Confirm password: ••••••••

Allow access IP:

apply

Please apply changes or press "reload" button to discard



Volume manager

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000			✓		N/A	300.00

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	
Free	

Action: new snapshot

Assign to volume: Assign to volume lv0000

0 100.00

add: 60 GB

apply

Please apply changes or press "reload" button to discard

6.1.1. Without hardware replacement (remote)

Step 1.

On the Customer node, go to **Configuration » NAS resources » Shares**.

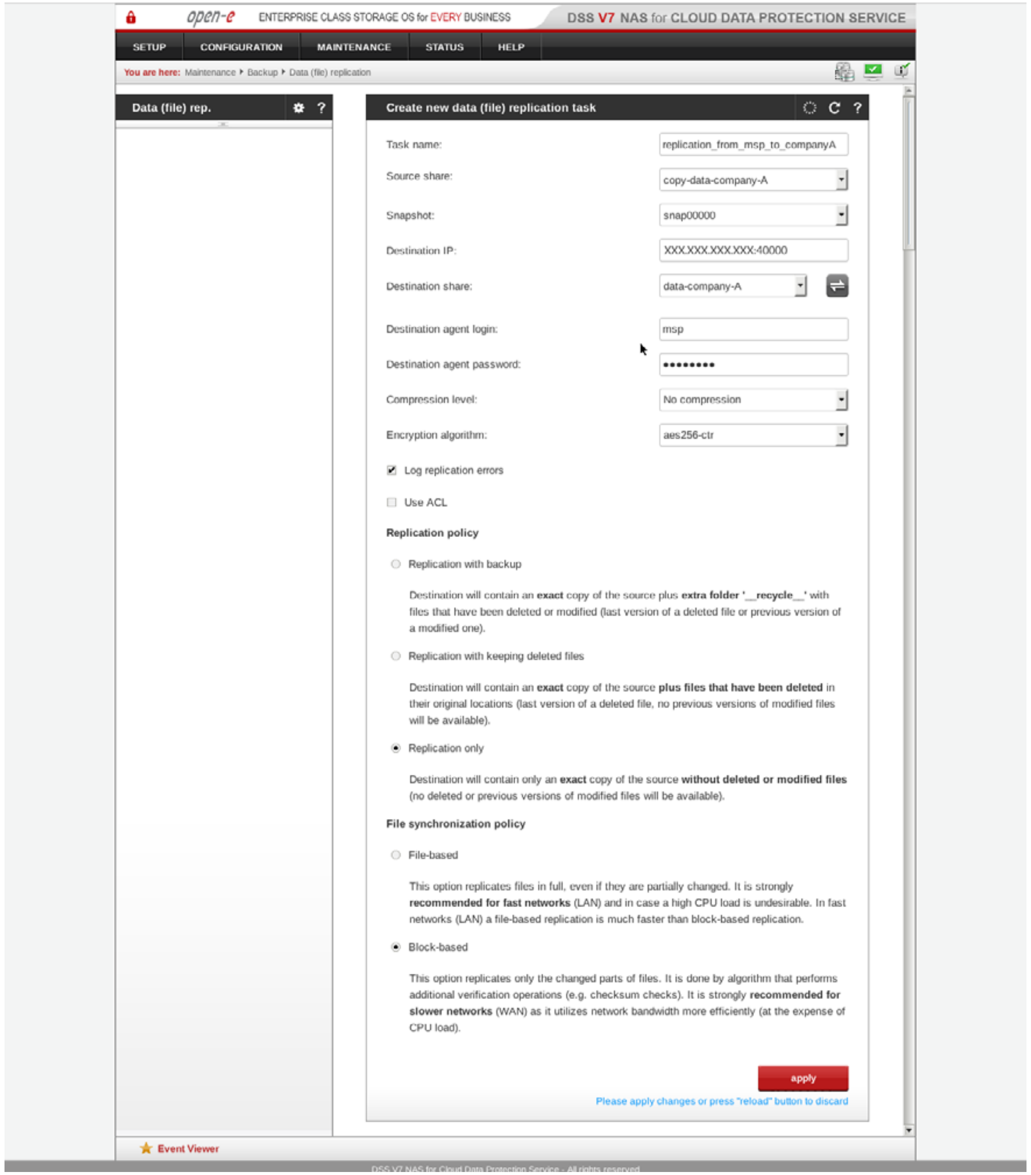
a. Select the **data-company-A** share from the list on the left side.
b. Navigate to the **Data (file) replication agent** and check **Use data (file) replication agent**.
c. Click **apply** button.
d. Enter the login name for the data replication agent (in this example, login name is msp).
e. Set a password for the replication agent.
f. Click **apply** button.

Note: "Allow access IP" is not required as the function does not work in case of encrypted connection between MSP nodes and Customer node.

Step 2.

Go to the MSP node on which the resources (in this example, lv0000) are active on. Navigate to **Configuration » Volume manager » Volume groups**.

a. Select vg00 from the list on the left side.
b. Create the snapshot assigned to the logical volume where the Customer data copy is stored (in this example, **lv0000**).
c. Assign the snapshot to the volume lv0000.
d. Set a size for the snapshot.
e. Click **apply** button.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
Data (file) rep.
Event Viewer
DSS V7 NAS for Cloud Data Protection Service - All rights reserved

You are here: Maintenance ▸ Backup ▸ Data (file) replication

Create new data (file) replication task

Task name:	replication_from_msp_to_companyA
Source share:	copy-data-company-A
Snapshot:	snap00000
Destination IP:	XXX.XXX.XXX.XXX:40000
Destination share:	data-company-A
Destination agent login:	msp
Destination agent password:	••••••••
Compression level:	No compression
Encryption algorithm:	aes256-ctr

☑ Log replication errors

□ Use ACL

Replication policy

○ Replication with backup

Destination will contain an **exact** copy of the source plus **extra folder '__recycle__'** with files that have been deleted or modified (last version of a deleted file or previous version of a modified one).

○ Replication with keeping deleted files

Destination will contain an **exact** copy of the source **plus files that have been deleted** in their original locations (last version of a deleted file, no previous versions of modified files will be available).

● Replication only

Destination will contain only an **exact** copy of the source **without deleted or modified files** (no deleted or previous versions of modified files will be available).

File synchronization policy

○ File-based

This option replicates files in full, even if they are partially changed. It is strongly **recommended for fast networks** (LAN) and in case a high CPU load is undesirable. In fast networks (LAN) a file-based replication is much faster than block-based replication.

● Block-based

This option replicates only the changed parts of files. It is done by algorithm that performs additional verification operations (e.g. checksum checks). It is strongly **recommended for slower networks** (WAN) as it utilizes network bandwidth more efficiently (at the expense of CPU load).

apply

Please apply changes or press "reload" button to discard

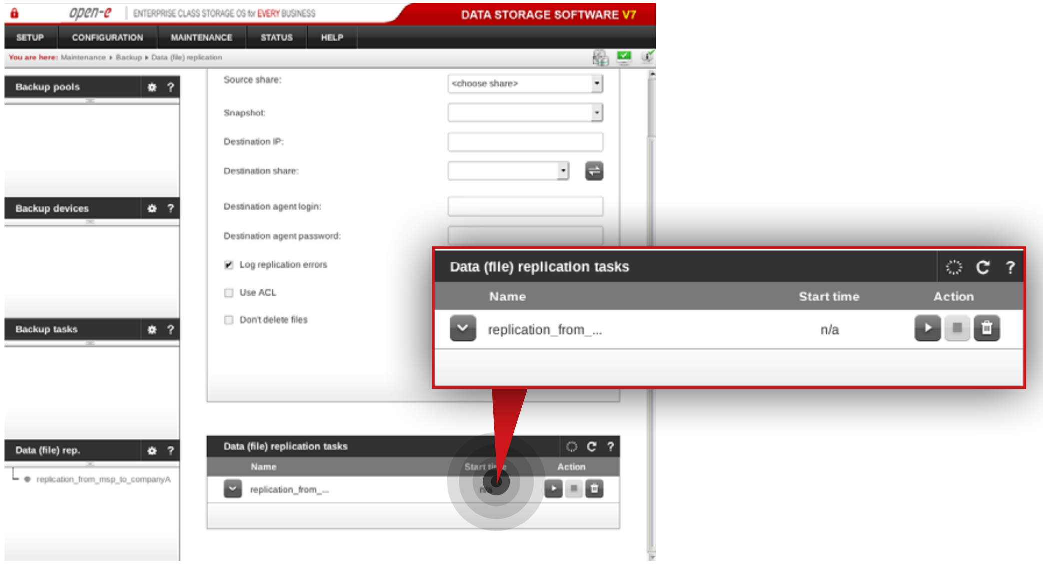
Step 3.

Still, on the **msp-node-a** go to **Maintenance » Backup » Data (file) replication** and create a new **Data (file) replication** task.

a. Enter a name for the task (in this example, the task name is **replication_from_msp_to_companyA**).
b. Select source share which contains the restored data (in this example, the source share is **copy-data-company-A**).
c. Select a snapshot used for data replication (in this example, the snapshot is **snap00000**).
d. Specify the public destination IP address and port number of the Customer node.
e. Click refresh button and select the destination share on Customer node to which you want to replicate the data (in this example the share name is **data-company-A**).
f. Enter the agent login and password set in step 8 (in this example the login is **msp**).
g. Select desired compression level (in this example the compression is disabled).
h. Select encrytption alghorithm (in this example the encryption algorith is **aes256-ctr**).
i. Make sure “Log replication errors” is checked.
j. Select desired replication policy (in this example **replication only** is selected).
k. Select desired file synchronization policy (in this example **block-based** synchronization is selected).
l. Click **apply** button.

Step 4.

Run the replication task **replication_from_msp_to_companyA**.


open-e
ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DATA STORAGE SOFTWARE V7
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Backup ▸ Data (file) replication
Backup pools
Backup devices
Backup tasks
Data (file) rep.
replication_from_msp_to_companyA

Source share: <choose share>

Snapshot:

Destination IP:

Destination share:

Destination agent login:

Destination agent password:

☑ Log replication errors

☐ Use ACL

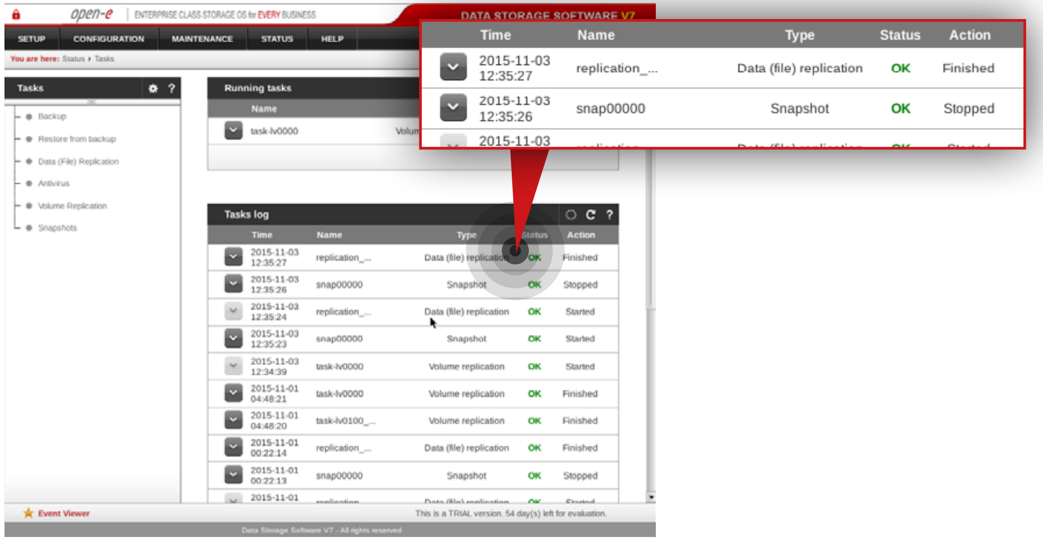
☐ Don't delete files

Data (file) replication tasks

Name	Start time	Action
replication_from_...	n/a	▶ ■ 🗑

Step 5.

Go to **Status » Tasks** and check whether the task is finished. After the task is executed properly, data on the Customer node should be restored.



Running tasks

Name	
task-lv0000	Volum

Time	Name	Type	Status	Action
2015-11-03 12:35:27	replication_...	Data (file) replication	OK	Finished
2015-11-03 12:35:26	snap00000	Snapshot	OK	Stopped
2015-11-03				

Tasks log

Time	Name	Type	Status	Action
2015-11-03 12:35:27	replication_...	Data (file) replication	OK	Finished
2015-11-03 12:35:26	snap00000	Snapshot	OK	Stopped
2015-11-03 12:35:24	replication_...	Data (file) replication	OK	Started
2015-11-03 12:35:23	snap00000	Snapshot	OK	Started
2015-11-03 12:34:39	task-lv0000	Volume replication	OK	Started
2015-11-01 04:48:21	task-lv0000	Volume replication	OK	Finished
2015-11-01 04:48:20	task-lv0100_...	Volume replication	OK	Finished
2015-11-01 00:22:14	replication_...	Data (file) replication	OK	Finished
2015-11-01 00:22:13	snap00000	Snapshot	OK	Stopped
2015-11-01	replication	Data (file) replication	OK	Started

This is a TRIAL version. 54 day(s) left for evaluation.

Data Storage Software V7 - All rights reserved

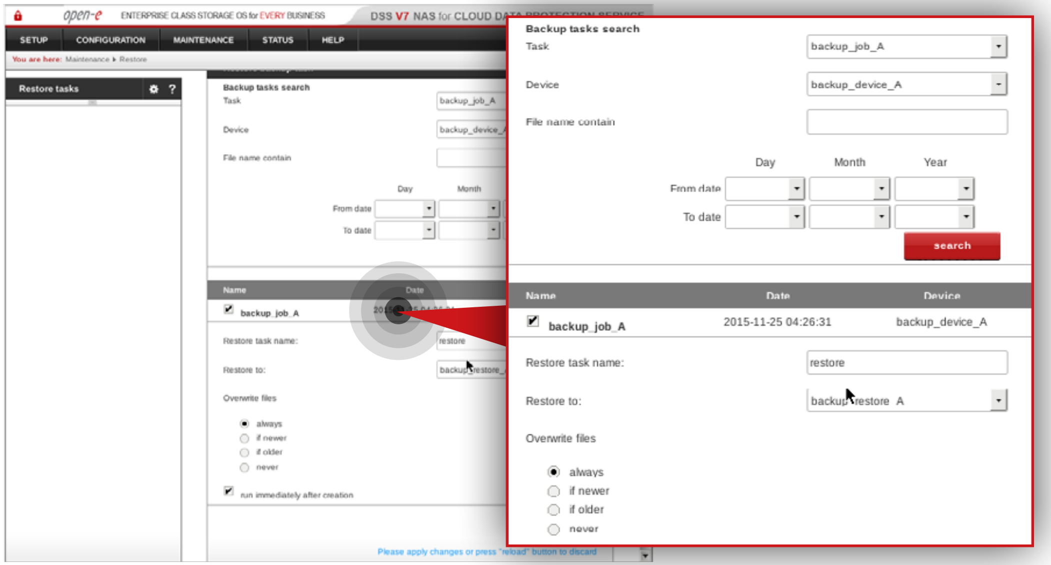
6.1.2. With hardware replacement (on-site)

Step 1.

Configure the Customer node according to the procedure introduced in Chapter 5.4 – Detailed procedure of setting up Customer node.

Step 2.

After the customer node is configured, follow steps 1 to 5 from Chapter 6.1 – Disaster recovery in order to restore data on the Customer node.


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Restore
Restore tasks

Backup tasks search

Task	backup_job_A
Device	backup_device_A
File name contain	

	Day	Month	Year
From date			
To date			

search

Name	Date	Device
☑ backup_job_A	2015-11-25 04:26:31	backup_device_A

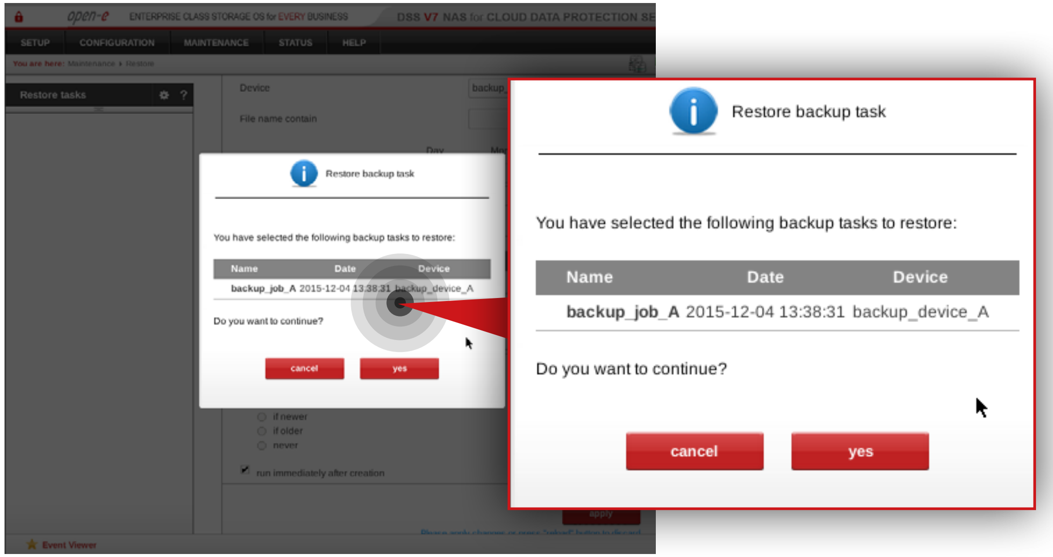
Restore task name:	restore
Restore to:	backup_restore_A

Overwrite files

● always
○ if newer
○ if older
○ never

☑ run immediately after creation

Please apply changes or press "reload" button to discard


open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS
DSS V7 NAS for CLOUD DATA PROTECTION SERVICE
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
You are here: Maintenance ▸ Restore
Restore tasks
Event Viewer
apply

Restore backup task

You have selected the following backup tasks to restore:

Name	Date	Device
backup_job_A	2015-12-04 13:38:31	backup_device_A

Do you want to continue?

cancel yes

6.2.1. Restoring data set from end-user's local backup

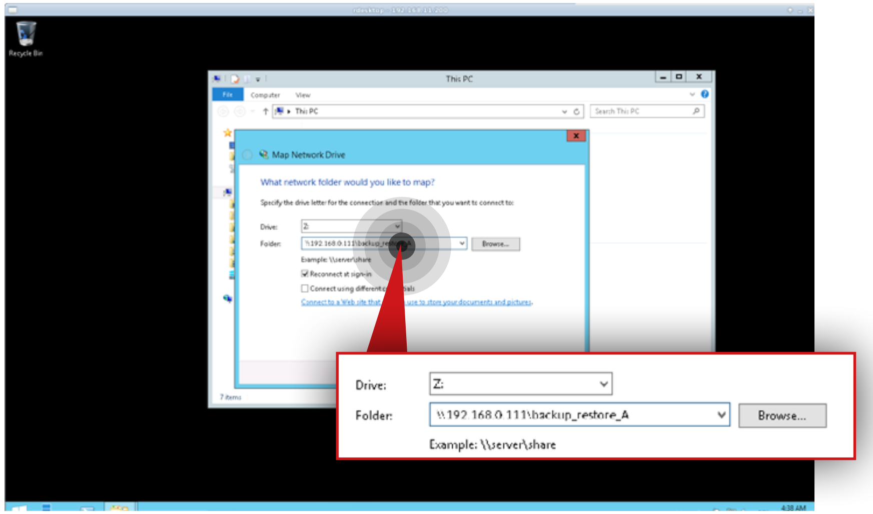
Step 1.

Note: In order to connect remotly to Customer's share you need a remote access and control tool (e.g. teamViewer).

Go to **Customer node**, navigate to **Maintenance » Restore** and create restore task.

a. Find and select the backup you want to restore (in this example it is **backup_job_A**).
b. Select the appropriate backup device (in this example it is **backup_device_A**).
c. Enter a name for the restore task (in this example, the restore task name is **restore**).
d. Select a share to which you want to restore data (in this example, the share name is **backup_restore_A**).
e. Make sure **always** is checked as an option for overwriting files.
f. Make sure that "run immediately after creation" option is checked (if you want to restore data immediately).
g. Click **apply** button.
h. When the system asks whether to continue, click **yes**.

6.2. Restoring data from backup



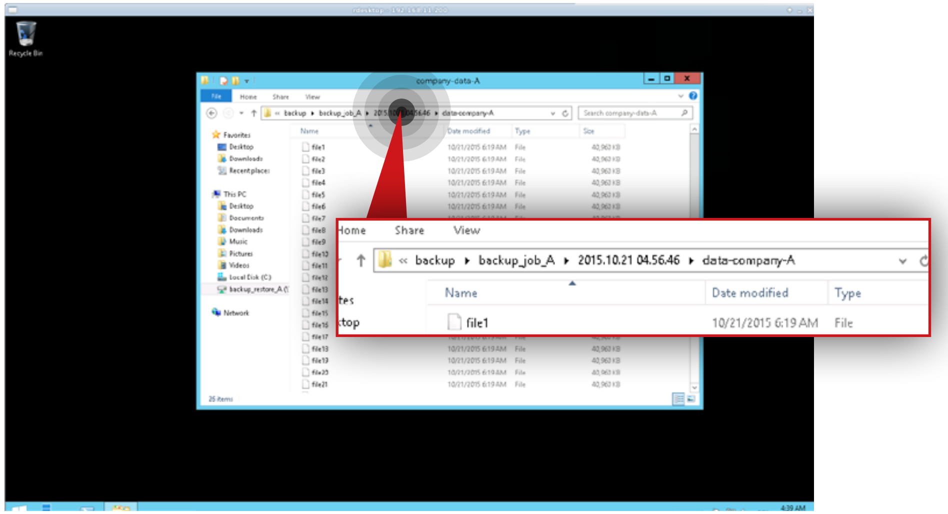
Drive: Z:

Folder: \\192.168.0.111\backup_restore_A

Example: \\server\share

Step 2.

After the task is finished connect to the share which contains the restored data (in this example, the share is **backup_restore_A**).

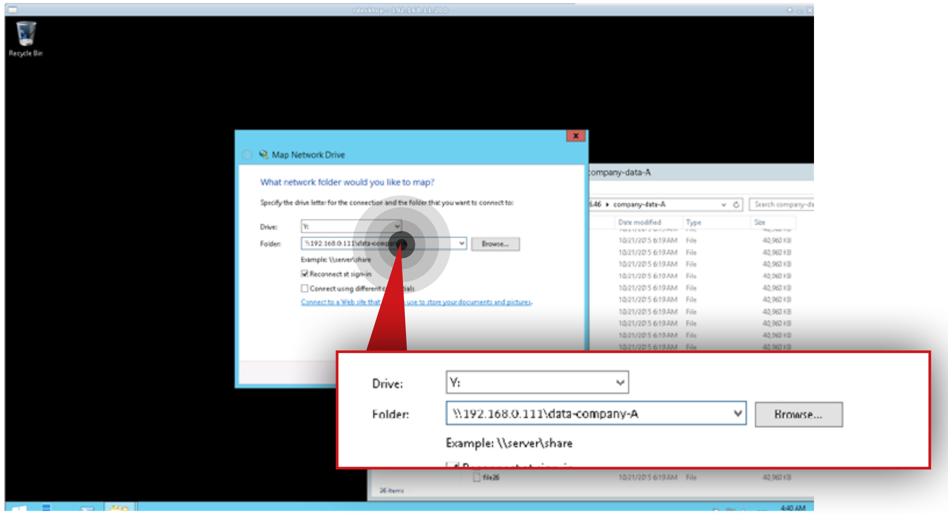


« backup ▸ backup_job_A ▸ 2015.10.21 04.56.46 ▸ data-company-A

Name	Date modified	Type
file1	10/21/2015 6:19 AM	File

Step 3.

Go to **backup\backup_job_A** directory and find the data you want to restore (in this example we will restore data from the **\backup_restore_A\backup\backup_job_A\2015-10-21 04.56.465\data-company-A\** directory).



Map Network Drive

What network folder would you like to map?

Specify the drive letter for the connection and the folder that you want to connect to:

Drive: Y:

Folder: \\192.168.0.111\data-company-A

Browse...

Example: \\server\share

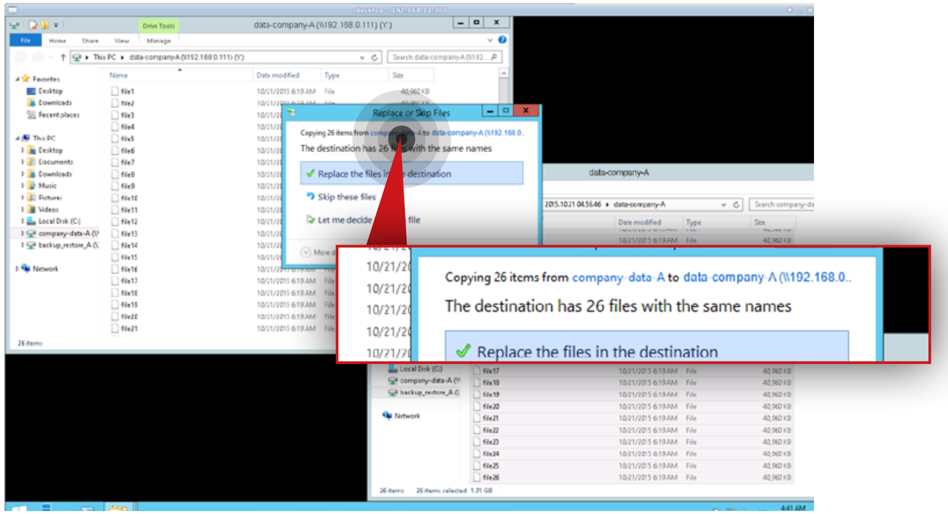
☑ Reconnect at sign-in

□ Connect using different credentials

Connect to a Web site that you can use to store your documents and pictures.

Step 4.

Connect to the share which contains the customer data (in this example, the share name is **data-company-A**).



Replace or Skip Files

Copying 26 items from company-data-A to data-company-A (\\192.168.0...

The destination has 26 files with the same names

✓ Replace the files in the destination

Skip these files

Let me decide for each file

Step 5.

Move restored files to the share which contains the customer data (in this example, we copy data from **\\192.168.0.111\backup_restore_A\backup\backup_job_A\2015-10-21 04.56.465\data-company-A** to **\\192.168.0.111\data-company-A)**.

Note: In case you restore data from more than one backup you need to merge data from all backup folders (starting from the oldest one) to a single data set.

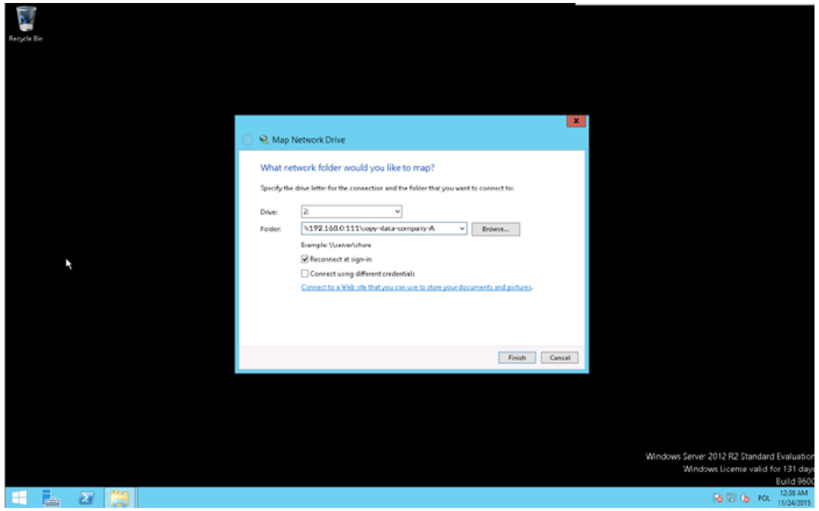
Step 6.

Remove the restore task created in step 1 (in this example, the task name is restore) as well as the folder to which the data was restored (in this example, the folder is **backup_job_A** in **\backup_restore_A\backup\**).

6.2.2. Restoring a single file from MSP backup

Note: In order to restore the file that has been modified or deleted on the Customer node, the replication policy for the replication task on the node has to be set to "Replication with backup".

Note: The following procedure allows you to restore only the last version of a deleted file or previous version of a modified file, according to the "Replication with backup" policy.



Map Network Drive

What network folder would you like to map?

Specify the drive letter for the connection and the folder that you want to connect to:

Drive: Z:

Folder: \\192.168.0.111\copy-data-company-A

Example: \\server\share

☑ Reconnect at sign-in

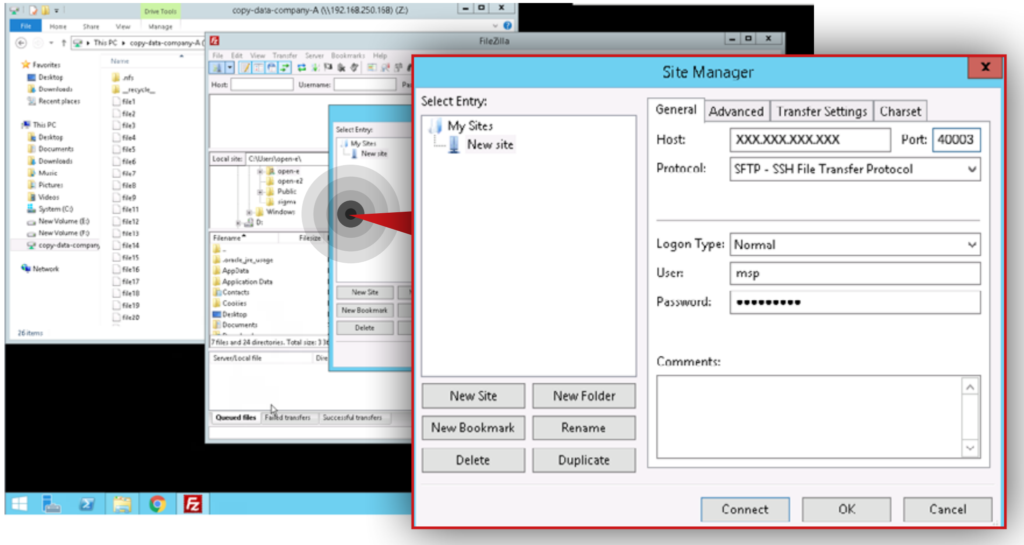
□ Connect using different credentials

Connect to a Web site that you can use to store your documents and pictures.

Recycle Bin
Browse...
Finish
Cancel
Windows Server 2012 R2 Standard Evaluation
Windows License valid for 131 days
Build 9600
POL
12:38 AM
11/24/2015

Step 1.

Connect to the share which contains the copy of Customer data on the MSP node (in this example, the share is **copy-data-company-A**).



Site Manager

Select Entry:

My Sites

New site

Host: XXX.XXX.XXX.XXX Port: 40003

Protocol: SFTP - SSH File Transfer Protocol

Logon Type: Normal

User: msp

Password: ●●●●●●●●●

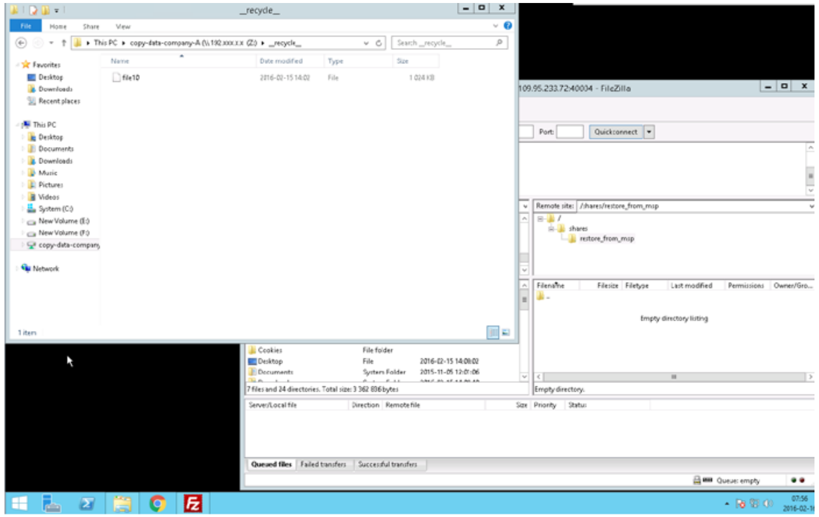
Comments:

Step 2.

Next, connect to the share with enabled FTP on the Customer node (in this example, share name is restore_from_smp).

Note: We use Filezilla as a FTP client application.

a. Enter Host IP address which is Customer node public IP address.
b. Enter a valid port number (in this example, the port number is 40003).
c. Select **SFTP-SSH File Transfer Protocol** from the list of available ftp protocols.
d. Select **Normal** as login type.
e. Enter user and password.
f. Click **Connect** button.



recycle

This PC ▸ copy-data-company-A ▸ _recycle_

file10 2016-02-15 14:02 File 1 024 KB

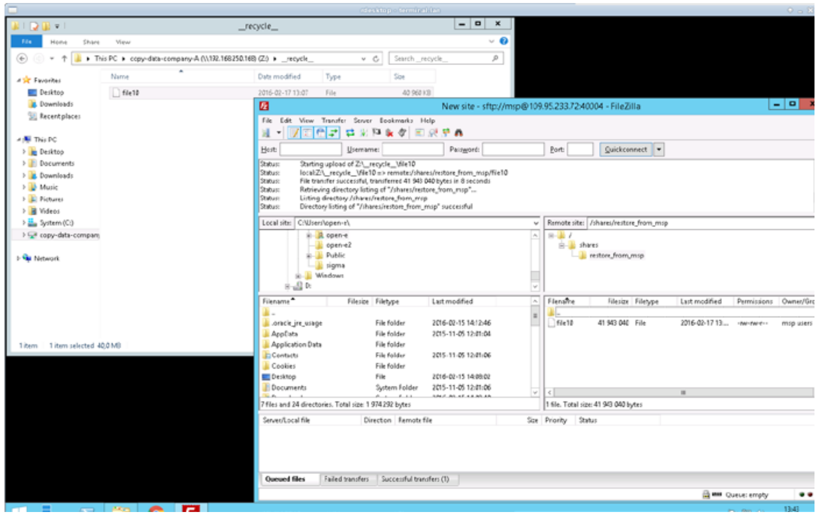
Remote site: /shares/restore_from_msp

Empty directory listing

Step 3.

Go to **copy-data-company-A\_recycle_** and find the file you want to restore (in this example, the file is **file10**).

Note: In this example we will restore the file **file10** which was deleted from the Customer node.



New site - sftp://msp@109.95.233.72:40004 - FileZilla

```
Status:    Starting upload of Z:\__recycle__\file10
Status:    local:Z:\__recycle__\file10 => remote:/shares/restore_from_msp/file10
Status:    File transfer successful, transferred 41 943 040 bytes in 8 seconds
Status:    Retrieving directory listing of "/shares/restore_from_msp"...
Status:    Listing directory /shares/restore_from_msp
Status:    Directory listing of "/shares/restore_from_msp" successful
```

Local site: C:\Users\open-e\

Filename	Filesize	Filetype	Last modified
..			
.oracle_jre_usage		File folder	2016-02-15 14:12:46
AppData		File folder	2015-11-05 12:01:04
Application Data		File folder	
Contacts		File folder	2015-11-05 12:01:06
Cookies		File folder	
Desktop		File	2016-02-15 14:08:02
Documents		System Folder	2015-11-05 12:01:06

7 files and 24 directories. Total size: 1 974 292 bytes

Remote site: /shares/restore_from_msp

Filename	Filesize	Filetype	Last modified	Permissions	Owner/Gro
..					
file10	41 943 040	File	2016-02-17 13...	-rw-rw-r--	msp users

1 file. Total size: 41 943 040 bytes

Step 4.

Copy the file from **copy-data-company-A** on the MSP node to **restore_from_msp** on the Customer node.

Step 5.

Copy the restored file from **restore_from_msp** to **data-company-A** on the Customer node.

High network interface usage

In case of such situations make sure that data replication tasks are balanced in your schedule. If there are many tasks at the same time, try to reorganize your schedule so replication tasks do not interfere with each other.
If there is a constant high usage, try to add more network interfaces and create bonding.

High load

If the system reports high load most of the time, consider upgrading your hardware. Monitor CPU usage and disks I/O. If the CPU usage falls within acceptable limits, try to upgrade your RAID configuration (better RAID controller, better or more drives in array).

Monitoring with graphs

Each service monitored should have graphs with different scopes, for example: last 4 hours, last 24 hours, last week, last month, last year. Monitoring configured with instructions from Chapter 5.3 does that by default. When using different monitoring solutions we highly recommend to implement graphs as they are a priceless source of information in case of troubles.

Slow replication rate

Make sure that the Internet connection between nodes works with good performance. Try to measure the connection speed between nodes to estimate the maximum performance that could be achieved. To do that, you can use iperf from some live system to exclude software problems or even connect a different machine to same link to exclude hardware issues. You can also check system performance (load, CPU usage, disks I/O). If any of these parameters is high most of the time, please try to eliminate it.

Open-E software version

All configurations were conducted using Open-E DSS V7 up56 build 19059.

8. Open-E Technical Support – Contact information

You have issues with the setup or need help with configuring the cluster or a customer server? Depending on the support level you are using, please open a ticket for your registered Open-E DSS V7 licenses:	**https://www.open-e.com/partner-portal/technical-support/new/**
Your product isn't registered yet? Please follow the link to the registration form:	**https://www.open-e.com/partner-portal/partner-area/products/commercial/**
For more information on Open-E's support services, please read our Support Policy:	**http://www.open-e.com/support/general-information/**

If you have any additional questions please call +1 (678) 666 2880 for US / +49 (89) 800777 0 for Europe or send an e-mail to info@open-e.com