

Step-by-Step Guide to Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster

(without bonding)

Software Version: DSS ver. 7.00 up10

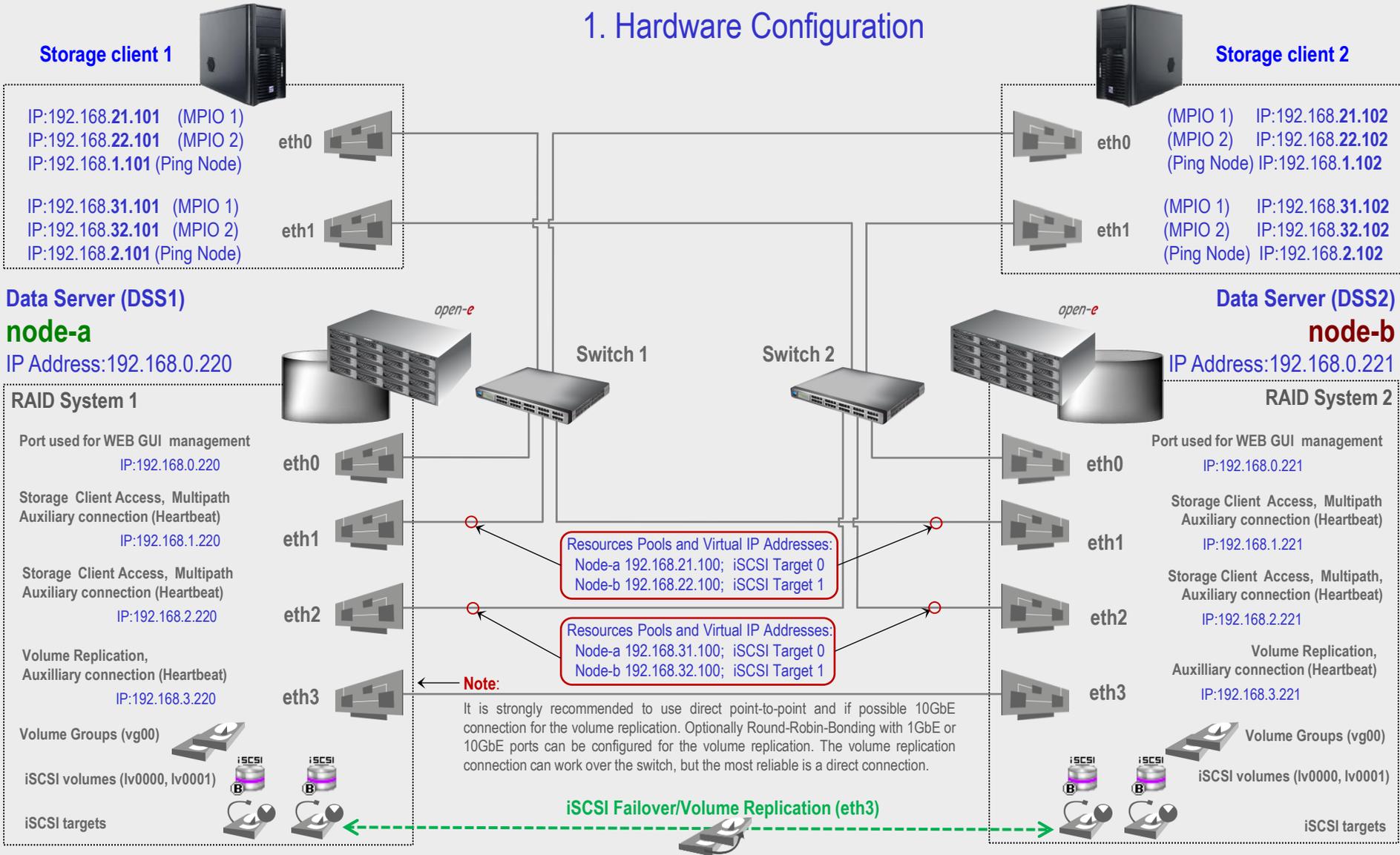
Presentation updated: May 2013

TO SET UP ACTIVE-ACTIVE iSCSI FAILOVER, PERFORM THE FOLLOWING STEPS:

1. Hardware configuration
2. Network Configuration
 - Set server hostnames and ethernet ports on both nodes (node-a, node-b)
3. Configure the node-b:
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (destination and source mode) – define remote mode of binding , create Volume Replication task and start the replication task
4. Configure the node-a
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (source and destination mode), create Volume Replication task and start the replication task.
5. Create targets (node-a and node-b)
6. Configure Cluster (node-a and node-b)
7. Start Failover Service
8. Test Failover Function
9. Run Failback Function

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*

1. Hardware Configuration



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

After logging on to the Open-E DSS V7 (node-b), please go to **SETUP** and choose the „**Network interfaces**” option. In the **Hostname** box, replace the "dss" letters in front of the numbers with „node-b” server, in this example „**node-b-59979144**” and click the **apply** button (this will require a reboot).

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Network interfaces'. The 'Server Name' section has a text input field containing 'dss2' and a comment field containing 'Data Storage Software'. The 'Hostname' section has a text input field containing 'node-b-59979144'. The 'DNS settings' section has a text input field containing '194.204.152.34;194.204.159.1'. The 'Interfaces' section shows a list of network interfaces: eth0, eth1, eth2, and eth3. The 'apply' button is highlighted in red. A blue box on the left contains instructions on how to modify the hostname field.

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Data Server (DSS2)

node-b

IP Address: 192.168.0.221

1. Hardware Configuration

Next, select **eth0** interface and in the **IP address field**, change the IP address from 192.168.0.220 to 192.168.0.221
Then click **apply** (this will restart network configuration).

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces > eth0'. On the left, under 'Interfaces', 'eth0' is selected with a red dot. The 'Interface info' section shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' section has a yellow warning banner: 'Warning! You are currently connected through this interface.' Below this, 'Active' is checked, and 'Static' is selected. The IP address field is set to '192.168.0.221', Netmask to '255.255.255.0', Broadcast to 'auto', and Gateway to '192.168.0.1'. An 'apply' button is at the bottom right. The footer shows 'Event Viewer' and 'Data Storage Software V7 - All rights reserved.'

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Data Server (DSS2)

node-b

IP Address: 192.168.0.221

1. Hardware Configuration

Afterwards, select **eth1** interface and change the IP address from 192.168.1.220 to 192.168.1.221 in the field **IP address** and click the **apply** button.

Next, change the IP addresses in **eth2** and **eth3** interfaces accordingly.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces > eth1'. On the left, a list of interfaces shows 'eth1' selected. The main content area is divided into two panels: 'Interface info' and 'IP address'. The 'Interface info' panel shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' panel has the following settings: 'Active' is checked, 'MAC' is '00:04:23:B9:86:FB', 'DHCP' is unselected, 'Static' is selected, 'IP address' is '192.168.1.221', 'Netmask' is '255.255.255.0', 'Broadcast' is 'auto', and 'Gateway' is empty. An 'apply' button is at the bottom right. The footer contains 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

1. Hardware Configuration

After logging in to node-a, please go to **SETUP** and choose the „**Network interfaces**” option. In the **Hostname** box, replace the "dss" letters in front of the numbers with „node-a” server, in this example „**node-a-39166501**” and click **apply** (this will require a reboot).

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Network interfaces'. On the left, there is a list of interfaces: eth0, eth1, eth2, and eth3. On the right, there are three configuration panels: 'Server Name' (with 'Server name' set to 'dss1' and 'Comment' set to 'Data Storage Software'), 'Hostname' (with 'Hostname' set to 'node-a-39166501'), and 'DNS settings' (with 'DNS' set to '194.204.152.34;194.204.159.1'). Each panel has an 'apply' button. A blue arrow points from the text box to the 'node-a-39166501' hostname field.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Under **CONFIGURATION**, select „Volume manager”, then click on „Volume groups”.

In the **Unit manager** function menu, add the selected physical units (**Unit MD0** or other) to create a new volume group (in this case, **vg00**) and click the **apply** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Configuration > Volume manager > Volume groups'. The 'Vol. groups' section shows a tree view with 'vg00'. The 'Unit manager' section displays a table of units:

Unit	Size (GB)	Serial number	Status
<input checked="" type="checkbox"/> Unit MD0	298.10	N/A	available

Below the table, the 'Action' dropdown is set to 'new volume group' and the 'Name' field contains 'vg00'. An 'apply' button is visible at the bottom of the unit manager section. The 'Drive identifier' section shows a table of physical drives:

Unit	Serial number	Status
<input type="checkbox"/> Unit S000	9SY0QWBT	
<input type="checkbox"/> Unit S001	9RA6VDG3	

At the bottom of the interface, there is an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved'.

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. Please set 2 logical volumes in the Active-Active option. The 1st logical volume (**lv0000**) will be a destination of the replication process on node-b.

Next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Configuration > Volume manager > Volume groups > vg00'. The 'Vol. groups' panel on the left shows 'vg00' selected. The 'Volume manager' panel on the right shows the 'System volumes' table with columns for 'System volumes' and 'Size (GB)'. The table lists 'SWAP' (4.00), 'Reserved for snapshots' (0.00), 'Reserved for system' (4.00), 'Reserved for replication' (0.00), and 'Free' (290.06). Below the table, the 'Action' dropdown is set to 'new iSCSI volume' and the 'Options' dropdown is set to 'Just create volume'. The 'Use volume replication' checkbox is checked. The 'Rate' is set to 'medium'. The 'Block I/O' section has a slider and a text input field for 'add: 50 GB (+0.12 GB for replication)'. The 'apply' button is visible at the bottom right.

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	290.06

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Next, create the 2nd logical volume on the node-b. Logical volume (lv0001) will be the source of the replication process on this node.

Next, check the box **Use volume replication**.

After assigning an appropriate amount of space for the iSCSI volume, click the **apply** button.

The screenshot shows the open-e web interface for configuring a logical volume. The breadcrumb trail is: Configuration > Volume manager > Volume groups > vg00. The 'Vol. groups' section shows 'vg00'. The 'Vol. replication' section has the 'Use volume replication' checkbox checked. The 'Action' dropdown is set to 'new iSCSI volume' and 'Options' is 'Just create volume'. The 'Rate' is set to 'medium'. The 'Free' space is 239.94 GB. The 'add:' field is set to 50 GB, with a note '(+0.12 GB for replication)'. The 'apply' button is visible at the bottom right.

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓		N/A	50.00

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.13
Free	239.94

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Data Server (DSS2)

node-b

IP Address: 192.168.0.221

3. Configure the node-b

2 logical iSCSI Volume Block I/O are now configured.

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓		N/A	50.00
lv0001	iSCSI		✓		N/A	50.00

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.25
Free	189.81

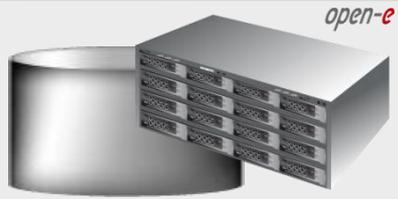


iSCSI volume (lv0000) is set to destination



iSCSI volume (lv0001) is set to source

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Data Server (DSS1)

node-a

IP Address: 192.168.0.220

4. Configure the node-a

Under **CONFIGURATION**, select „Volume manager” and then click on „Volume groups”.

Add the selected physical units (Unit S001 or other) to create a new volume group (in this case, vg00) and click **apply** button.



Volume Groups (vg00)

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Configuration > Volume manager > Volume groups'. The 'Vol. groups' section shows a list with 'vg00'. The 'Unit manager' section shows a table with one unit selected:

Unit	Size (GB)	Serial number	Status
Unit S001	1862.95	N/A	available

The 'Action' dropdown is set to 'new volume group' and the 'Name' field contains 'vg00'. The 'apply' button is visible. The 'Unit rescan' and 'Drive identifier' sections are also visible at the bottom.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. Please set 2 logical volumes in the Active-Active option. The 1st logical volume (**lv0000**) will be a source of the replication process on the node-a.

Next, check the box for „**Use volume replication**”

After assigning an appropriate amount of space to the iSCSI volume, click the **apply** button.

NOTE:

The source and destination volumes must be of identical size.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > Volume manager > Volume groups > vg00'. The main content area is divided into two panels: 'Vol. groups' on the left and 'Volume manager' on the right. The 'Vol. groups' panel shows a list with 'vg00' selected. The 'Volume manager' panel displays system volumes (SWAP, Reserved for snapshots, Reserved for system, Reserved for replication, Free) and configuration options for a new volume. The 'Action' dropdown is set to 'new iSCSI volume' and 'Options' is 'Just create volume'. The 'Use volume replication' checkbox is checked, and 'Block I/O' is selected. The 'Rate' is set to 'medium'. A slider shows the volume size is 50 GB, with a note '(+0.12 GB for replication)'. The 'apply' button is highlighted in red. A footer note says 'Please apply changes or press "reload" button to discard'. The footer also includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

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Data Server (DSS1)
node-a
IP Address:192.168.0.220

4. Configure the node-a

Next, create the 2nd logical volume on the node-a. Logical volume (lv0001) will be a destination of the replication process on this node.

Next, check the box for „Use volume replication”.

After assigning an appropriate amount of space to the iSCSI volume, click the **apply** button.

NOTE:

The source and destination volumes must be of identical size.

The screenshot shows the open-e web interface for configuring a logical volume. The breadcrumb trail is: Configuration > Volume manager > Volume groups > vg00. The interface is divided into two main sections: 'Vol. groups' and 'Vol. replication'. The 'Vol. groups' section shows a table with one entry: 'vg00'. The 'Vol. replication' section shows a table with one entry: 'lv0001'. The 'Vol. replication' section is expanded, showing the configuration options for the logical volume. The 'Action' dropdown is set to 'new iSCSI volume'. The 'Options' dropdown is set to 'Just create volume'. The 'Use volume replication' checkbox is checked. The 'File I/O' radio button is selected. The 'Initialize' checkbox is checked. The 'Rate' dropdown is set to 'medium'. The 'Block I/O' radio button is selected. The 'add:' field is set to '50' GB. The 'apply' button is highlighted in red.

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0001	iSCSI		✓		N/A	50.00

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.13
Free	1804.78

Action: new iSCSI volume
Options: Just create volume
 Use volume replication
 File I/O
 Initialize
Rate: medium
 Block I/O
add: 50 GB (+0.12 GB for replication)
apply

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

4. Configure the node-a

2 logical iSCSI Volume Block I/O are now configured.

Logical Volume	Type	Snap.	Rep.	Init.	Blocksize (bytes)	Size (GB)
lv0000	iSCSI		✓		N/A	50.00
lv0001	iSCSI		✓		N/A	50.00

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.25
Free	1754.66

-  iSCSI volume (lv0000) is set to source
-  iSCSI volume (lv0001) is set to destination

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS2)

node-b

IP Address:192.168.0.221

3. Configure the node-b

Now, on the node-b, go to „Volume replication”. Within Volume replication mode function, check the Destination box for lv0000 and check the Source box for lv0001. Then, click the **apply** button.

In the Hosts binding function, enter the IP address of node-a (in our example, this would be 192.168.3.220), enter node-a administrator password and click the **apply** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Volume replication' under 'Configuration > Volume manager > Volume replication'. The interface is divided into several sections:

- Vol. groups:** Shows a single group 'vg00'.
- Volume replication mode:** A table with columns: Logical Volume, Init, Source, Destination, and Clear metadata. It shows two logical volumes: lv0000 and lv0001. For lv0000, the Destination checkbox is checked. For lv0001, the Source checkbox is checked. An 'apply' button is visible below the table.
- Hosts Binding:** A section for defining a remote node. It includes fields for 'Remote node IP address' (set to 192.168.3.220) and 'Remote node GUI (administrator) password' (masked with dots). A 'connect' button is at the bottom.
- Create new volume replication task:** A section with an 'Info' icon and a message: 'Volume replication tasks can not be created because there is no remote node connected.'

At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V7 - All rights reserved'.

NOTE:

The remote node IP Address must be on the same subnet in order for the replication to communicate. VPN connections can work providing you are not using a NAT. Please follow example:

- node-a: 192.168.3.220
- node-b: 192.168.3.221

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

4. Configure the node-a

Next, on the node-a, go to „Volume replication”. Within Volume replication mode function, check the **Source** box for **lv0000** and check the **Destination** box for **lv0001**. Next, click the **apply** button.

The screenshot shows the Open-E Data Storage Software V7 web interface. The navigation menu includes SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The current page is 'Volume replication' under 'Volume manager'. The 'Vol. groups' section shows a group named 'vg00'. The 'Volume replication mode' section contains a table with the following data:

Logical Volume	Init	Source	Destination	Clear metadata
lv0000	done	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lv0001	done	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Below the table is an 'apply' button and a note: 'Please apply changes or press "reload" button to discard'. The 'Hosts Binding' section shows a remote node with 'Host name: node-b-5...' and 'IP address: 192.168.3.221', with a status of 'Reachable' and a 'disconnect' button. The 'Create new volume replication task' section has a 'Task name' input field and a 'Source volume' dropdown menu currently set to 'lv0000'. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

In the **Create new volume replication task**, enter the task name in the **Task name** field, then click on the  button. In the **Destination volume** field, select the appropriate volume (in this example, lv0000).

In the **Bandwidth for SyncSource (MB)** field you must change the value. In the example, 35MB is used. Next, click the **create** button.

NOTE:

The "Bandwidth for SyncSource (MB)" need to be calculated based on available Ethernet Network throughput and number of replication tasks and the limitation factor (about 0.7).

For example: 1 Gbit Ethernet and 2 replication tasks (assuming 1 Gbit provides about 100 MB/sec sustained network throughput)

- Bandwidth for SyncSource (MB): = 0.7 * 100 / 2 = 35

For example: 10 Gbit Ethernet and 10 replication tasks (assuming 10 Gbit provides about 700 MB/sec sustained network throughput)

- Bandwidth for SyncSource (MB): = 0.7 * 700 / 10 = 49

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

4. Configure the node-a

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Configuration > Volume manager > Volume replication'. The left sidebar shows 'Vol. groups' with 'vg00' and 'Vol. replication' with 'Mirror_0000'. The main content area has three sections: 'Hosts Binding' showing a remote node 'node-b-5...' with IP '192.168.3.221' and status 'Reachable'; 'Create new volume replication task' with an info message; and 'Replication tasks manager' with a table containing one task 'Mirror_0000' with a 'play' button highlighted by a blue arrow.

Name	Start time	Action
Mirror_0000	n/a	

Now, in the **Replication task manager** function, click the corresponding „play” button to start the Replication task on the node-a.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

Vol. groups

- vg00

Vol. replication

- Mirror_0000

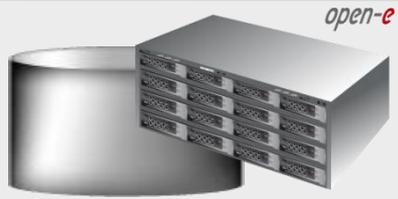
Replication tasks manager

Name	Start time	Action
Mirror_0000	2013-05-17 19:11:18	[Play] [Stop] [Delete]

Source volume: lv0000
Destination volume: lv0000
Destination IP: 192.168.3.221
Protocol type: Synchronous

In the **Replication tasks manager** function, information is available on currently running replication tasks. When a task is started, a date and time will appear.

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

4. Configure the node-a

You can check the status of Volume Replication anytime in **STATUS** -> „**Tasks**” -> „**Volume Replication**” menu.

Click on the  button, located next to a task name (in this case **Mirror_0000**) to display detailed information on the current replication task.

Name	Type	Start time
Mirror_0000	Volume replication	2013-05-17 19:11:18

Time	Name	Type	Status	Action
2013-05-17 19:11:26	Mirror_0000	Volume replication	OK	Started

NOTE:

Please allow the replication task to complete (similar to above with status being „Consistent”) before writing to the iSCSI Logical Volume.

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Data Server (DSS2)

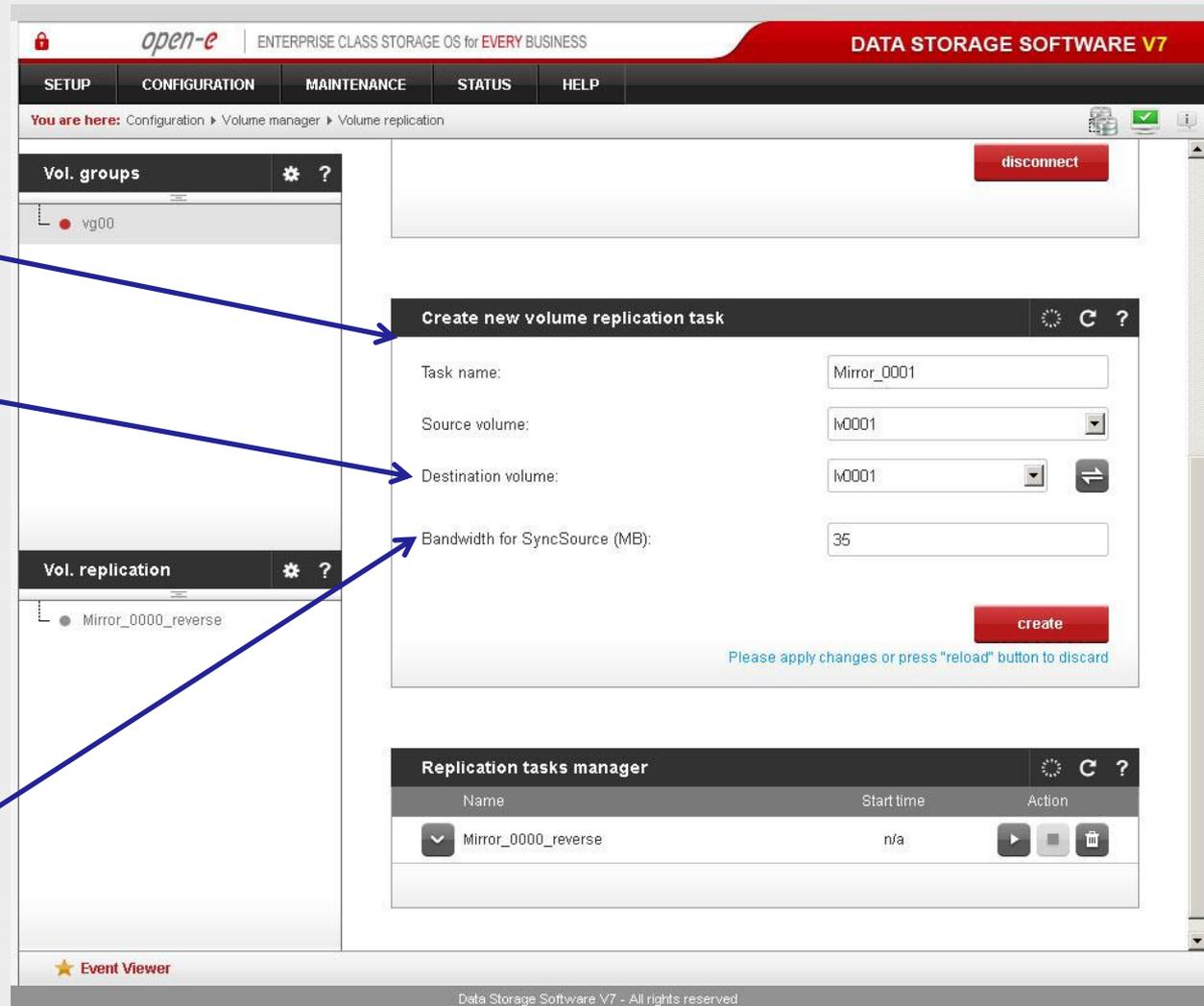
node-b

IP Address:192.168.0.221

3. Configure the node-b

Next, go to the node-b.
Within **Create new volume replication task**, enter the task name in the **Task name** field, then click on the  button. In the **Destination volume** field, select the appropriate volume (in this example, **lv0001**).

As in the node-a, in the **Bandwidth for SyncSource (MB)** field you must change the value. In our example 35 MB is used. Next click the **create** button.



The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Volume replication'. The 'Vol. groups' section shows 'vg00'. The 'Vol. replication' section shows 'Mirror_0000_reverse'. The 'Create new volume replication task' form is open, with the following fields:

- Task name: Mirror_0001
- Source volume: lv0001
- Destination volume: lv0001
- Bandwidth for SyncSource (MB): 35

A 'create' button is located at the bottom right of the form. Below the form is a 'Replication tasks manager' table:

Name	Start time	Action
Mirror_0000_reverse	n/a	  

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS2)

node-b

IP Address: 192.168.0.221

3. Configure the node-b

In the **Replication tasks manager** function, click the corresponding „play” button to start the Replication task on the node-b: **Mirror_0001**.

In this box you can find information about currently running replication tasks.

When a task is started a date and time will appear.

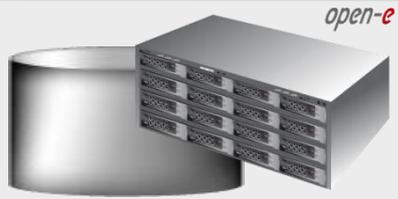
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Configuration > Volume manager > Volume replication'. The interface is divided into several panels:

- Vol. groups:** Shows a single group named 'vg00'.
- Vol. replication:** Lists two replication tasks: 'Mirror_0000_reverse' and 'Mirror_0001'.
- Hosts Binding:** Shows a remote node configuration with 'Host name: node-a-3...' and 'IP address: 192.168.3.220'. The status is 'Reachable' and there is a 'disconnect' button.
- Create new volume replication task:** An info box states 'No volumes with replication functionality found or all volumes have a task assigned already.'
- Replication tasks manager:** A table showing the status of replication tasks.

Name	Start time	Action
Mirror_0000_reverse	n/a	[Play] [Stop] [Delete]
Mirror_0001	2013-05-17 19:27:50	[Play] [Stop] [Delete]

At the bottom, there is an 'Event Viewer' section and a footer that reads 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS2)
node-b
IP Address:192.168.0.221

5. Create new target on the node-b

Choose **CONFIGURATION**, „iSCSI target manager” and „Targets” from the top menu.

In the **Create new target** function, uncheck the box **Target Default Name**.
In the **Name** field, enter a name for the new target and click **apply** to confirm.

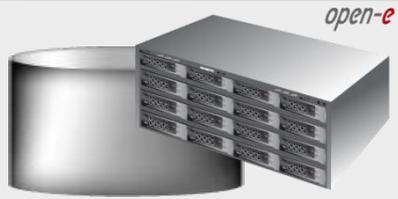
iSCSI targets



★ Event Viewer

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

5. Create new target on the node-b

Next, you must set the 2nd target. Within the **Create new target** function, uncheck the box **Target Default Name**. In the **Name** field, enter a name for the 2nd new target and click **apply** to confirm.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Configuration > iSCSI target manager > Targets'. The main content area is divided into two panels. The left panel, titled 'Targets', shows a list with one entry: 'target0'. The right panel, titled 'Create new target', displays a success message: 'New target has been created successfully!'. Below this, there is a checkbox for 'Target Default Name' which is unchecked. The 'Name' field contains the text 'iqn.2013-05:mirror-1' and the 'Alias' field contains 'target1'. A red 'apply' button is visible at the bottom of this panel. Below the 'Create new target' panel is another panel titled 'Discovery CHAP user access' with two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. A second red 'apply' button is at the bottom of this panel. At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V7 - All rights reserved'.

iSCSI targets



NOTE:

Both systems must have the same Target name.

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Data Server (DSS2)
node-b
IP Address: 192.168.0.221

5. Create new target on the node-b

After that, select **target0** within the **Targets** field.

To assign appropriate volume to the target (**iqn.2013-05:mirror-0** -> **lv0000**) and click **attach** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2013-05:mirror-0 (target0)'. The main content area is divided into two panels. The left panel, titled 'Targets', shows a list of targets: 'target0' (selected with a red dot) and 'target1' (unselected with a grey dot). The right panel, titled 'Target volume manager', displays information about the selected target. It includes two informational messages: one about logical volumes selected as mirror destinations and another about LUN 0 requirements. Below the messages is a table for 'Logical volumes attached to this target', which is currently empty. At the bottom, there is a table for 'Available logical volumes' with two entries:

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	YAkFXJf3NEV5870A	0	write-through	attach
lv0001	iSCSI	ZiGxwlh33QBSpR1N	0	write-through	attach

The 'attach' button for the first row is highlighted with a blue arrow pointing from the text box above. At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V7 - All rights reserved'.

NOTE:

Volumes on both sides must have the same SCSI ID and LUN# for example: lv0000 SCSI ID on node-a = lv0000 SCSI ID on node-b.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS2)
node-b
IP Address:192.168.0.221

5. Create new target on the node-b

Next, select **target1** within the **Targets** field.

To assign appropriate volume to the target (iqn.2013-05:mirror-1->lv0001) and click **attach** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2013-05:mirror-1 (target1)'. The main content area is divided into several sections:

- Targets:** A list of targets with 'target0' and 'target1'. 'target1' is selected and highlighted in red.
- Target volume manager:** Contains an 'Info' section with a note about LUN 0. Below it is a table for 'Logical volumes attached to this target' which is currently empty. Underneath is a table for 'Available logical volumes' with one entry: 'lv0001' of type 'iSCSI' with SCSI ID 'ZIGxwlh33QBSpR1N' and LUN '0'. The 'Access mode' is set to 'write-through' and an 'attach' button is visible.
- CHAP users:** A section for managing CHAP users, currently empty.
- CHAP user access authentication:** A section with two radio button options: 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'.

At the bottom of the interface, there is an 'Event Viewer' icon and a footer that reads 'Data Storage Software V7 - All rights reserved'.

NOTE:

Both systems must have the same SCSI ID and LUN#

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

5. Create new target on the node-a

On the node-a, choose **CONFIGURATION**, „iSCSI target manager” and „Targets” from the top menu.

Within the **Create new target** function, uncheck the box **Target Default Name**.
In the **Name** field, enter a name for the new target and click **apply** to confirm.

iSCSI targets



NOTE:

Both systems must have the same Target name.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address: 192.168.0.220

5. Create new target on the node-a

Next, you must set the 2nd target. In the **Create new target** function, uncheck the box **Target Default Name**. In the Name field, enter a name for the 2nd new target and click **apply** to confirm.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Targets' under 'ISCSI target manager'. The 'Create new target' form is displayed, showing a success message: 'New target has been created successfully!'. The 'Target Default Name' checkbox is unchecked. The 'Name' field is filled with 'iqn.2013-05:mirror-1' and the 'Alias' field is filled with 'target1'. An 'apply' button is located at the bottom right of the form. Below the form, there is a 'Discovery CHAP user access' section with radio buttons for 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. An 'apply' button is also present here. The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

iSCSI targets



NOTE:

Both systems must have the same Target name.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

Select the **target0** within the **Targets** field.

To assign appropriate volume to the target (**iqn.2013-05:mirror-0 -> lv0000**) and click **attach** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2013-05:mirror-0 (target0)'. The main content area is divided into two panels. The left panel, titled 'Targets', shows a list of targets: 'target0' (selected with a red dot) and 'target1' (with a grey dot). Below this is a 'CHAP users' section. The right panel, titled 'Target volume manager', displays information about the selected target. It includes two 'Info' sections: the first explains that logical volumes are selected as mirror destinations and that direct access is not possible; the second notes that a LUN 0 is required for iSCSI access. Below the info is a table for 'Logical volumes attached to this target', which is currently empty. At the bottom, there is a table for 'Available logical volumes' with two entries:

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	YAkFXJj3NEV5870A	0	write-through	attach
lv0001	iSCSI	ZiG:xlh33QBSpR1N	0	write-through	attach

Blue arrows from the text boxes point to 'target0' in the Targets list and the 'attach' button for the 'lv0000' volume in the Available logical volumes table.

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NOTE:
Before clicking the **attach** button again, please copy & paste the SCSI ID and LUN# from the node-b.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

Select the **target1** within the **Targets** field.

To assign appropriate volume to the target (**iqn.2013-05:mirror-1->lv0001**) and click **attach** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2013-05:mirror-1 (target1)'. The main content area is divided into two panels. The left panel, titled 'Targets', shows a list of targets: 'target0' and 'target1'. 'target1' is selected and highlighted. The right panel, titled 'Target volume manager', displays information about the selected target. It includes two 'Info' sections with instructions on how to access mirrored volumes and the requirement for LUN 0. Below the info sections is a table of logical volumes attached to the target, which is currently empty. At the bottom of this panel, there is a table of available logical volumes. The first row shows 'lv0001' with a SCSI ID of 'ZiGxwlh33QBSpR1N' and LUN '0'. The 'Action' column for this row contains an 'attach' button, which is highlighted by a blue arrow from the text box above.

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0001	iSCSI	ZiGxwlh33QBSpR1N	0	write-through	attach

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Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address: 192.168.0.220

6. Configure Cluster

On the node-a, go to **SETUP** and select „Failover”.

In the **Auxiliary paths** function, select the 1st **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

Auxiliary paths

Status	node-a-3... interface (local node)	node-b-5... interface (remote node)
Inactive	eth3 (192.168.3.220)	eth3 (192.168.3.221)

New auxiliary path

Interface on local node: eth1 (192.168.1.220)

Interface on remote node: eth1 (192.168.1.221)

cancel add new auxiliary path

Please apply changes or press "reload" button to discard

Ping nodes

Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)
No ping nodes defined.		

add new ping node

Event Viewer

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Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Cluster

In the **Auxiliary paths** function, select the 2nd **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Cluster

In the **Ping nodes** function, enter two ping nodes.
In the **IP address** field enter IP address and click the **add new ping node** button (according to the configuration in the third slide).
In this example, IP address of the first ping node is: 192.168.1.101, 192.168.2.101, 192.168.1.102, and the fourth ping node: 192.168.2.102

Ping nodes

Info
Ping node has been added successfully.

Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)	
192.168.1.101	Reachable	Reachable	🗑️
192.168.2.101	Reachable	Reachable	🗑️
192.168.1.102	Reachable	Reachable	🗑️

New ping node

IP address:

Please apply changes or press "reload" button to discard

Failover trigger policy

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

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Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Cluster

Next, go to the **Resources Pool Manager** function (on node-a resources) and click the **add virtual IP** button. After that, enter **Virtual IP**, (in this example 192.168.21.100 according to the configuration in the third slide) and select two appropriate interfaces on local and remote nodes. Then, click the **add** button.

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover' under 'Setup'. The main content area is titled 'Resources pool manager' and shows configuration for 'node-a-39166501 resources (local node)'. The status is 'unknown'. There are buttons for 'move' and 'sync between nodes'. Below this, there are tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'add virtual IP' form is visible, with the following fields: Virtual IP (192.168.21.100), Interface on local node (eth1 (192.168.1.220)), Interface on remote node (eth1 (192.168.1.221)), Netmask (255.255.255.0), and Broadcast (optional). There are 'cancel' and 'add' buttons at the bottom of the form. Below the form, there is a section for 'node-b-59979144 resources (remote node)' with a status of 'unknown' and a 'move' button. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address: 192.168.0.220

6. Configure Cluster

Now, still on node-a resources (local node) enter the next Virtual IP address. Click **add virtual IP** enter **Virtual IP**, (in this example 192.168.31.100), and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

The screenshot displays the Open-E DSS V7 web interface. At the top, there is a navigation menu with options: SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. Below the menu, a breadcrumb trail indicates the current location: "You are here: Setup > Failover". The main content area is titled "Resources pool manager" and shows the configuration for "node-a-39166501 resources (local node)". The status is "unknown" and the synchronization status is "not configured". There are "move" and "sync between nodes" buttons. Below this, there are tabs for "Virtual IP addresses" and "iSCSI resources". The "add virtual IP" form is active, with fields for "Virtual IP" (192.168.31.100), "Interface on local node" (eth2 (192.168.2.220)), "Interface on remote node" (eth2 (192.168.2.221)), "Netmask" (255.255.255.0), and "Broadcast (optional)". There are "cancel" and "add" buttons at the bottom of the form. The footer shows "Event Viewer" and "Data Storage Software V7 - All rights reserved".

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Cluster

Then, go to node-b resources and click the **add virtual IP** button again and enter the **Virtual IP** (In this example 192.168.22.100 according to the configuration in the third slide) and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.21.100	eth1 (192.168.1.220)	eth1 (192.168.1.221)	
192.168.31.100	eth2 (192.168.2.220)	eth2 (192.168.2.221)	

node-b-59979144 resources
(remote node)

Status: **unknown** move

Synchronization status: not configured sync between nodes

Virtual IP addresses | iSCSI resources

add virtual IP

Virtual IP: 192.168.22.100

Interface on local node: eth1 (192.168.1.220)

Interface on remote node: eth1 (192.168.1.221)

Netmask: 255.255.255.0

Broadcast (optional):

cancel add

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Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Cluster

Now, still on node-b resources, click the **add virtual IP** button and enter the next **Virtual IP**, (in this example 192.168.32.100, according to the configuration in the third slide) and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. The main content area displays a table of resources with columns for 'Virtual IP', 'Interface on local node', and 'Interface on remote node'. Below the table, there is a section for 'node-b-59979144 resources (remote node)' with a status of 'unknown' and a 'sync between nodes' button. A modal window titled 'add virtual IP' is open, showing fields for 'Virtual IP' (192.168.32.100), 'Interface on local node' (eth2 (192.168.2.220)), 'Interface on remote node' (eth2 (192.168.2.221)), 'Netmask' (255.255.255.0), and 'Broadcast (optional)'. The 'add' button is highlighted in red.

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.21.100	eth1 (192.168.1.220)	eth1 (192.168.1.221)	
192.168.31.100	eth2 (192.168.2.220)	eth2 (192.168.2.221)	

node-b-59979144 resources
(remote node)

Status: **unknown** move

Synchronization status: not configured sync between nodes

Virtual IP addresses | iSCSI resources

add virtual IP

Virtual IP: 192.168.32.100

Interface on local node: eth2 (192.168.2.220)

Interface on remote node: eth2 (192.168.2.221)

Netmask: 255.255.255.0

Broadcast (optional):

cancel add

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Cluster

Now you have 4 Virtual IP addresses configured on two interfaces.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover' under 'Setup'. The main content area is titled 'Virtual IP addresses' and 'iSCSI resources'. It features a table with columns for 'Virtual IP', 'Interface on local node:', and 'Interface on remote node:'. The table lists two Virtual IP addresses: 192.168.21.100 and 192.168.31.100. Below the table, there is a section for 'node-b-59979144 resources' (remote node) with an 'Info' message: 'Virtual IP has been created successfully.' and buttons for 'move' and 'sync between nodes'. The bottom of the interface shows an 'Event Viewer' and the footer text 'Data Storage Software V7 - All rights reserved'.

Virtual IP	Interface on local node:	Interface on remote node:
192.168.21.100	eth1 (192.168.1.220)	eth1 (192.168.1.221)
192.168.31.100	eth2 (192.168.2.220)	eth2 (192.168.2.221)

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address: 192.168.0.220

6. Configure Cluster

When you are finished with setting the virtual IP, go to the **iSCSI resources** tab on the local node resources and click the **add or remove targets** button. After moving the target **mirror-0** from **Available targets** to **Targets already in cluster**, click the **apply** button.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address:192.168.0.220

6. Configure Cluster

Next, go to the **iSCSI resources** tab on the remote node resources and click the **add or remove targets** button.
After moving the target **mirror-1** from **Available targets** to **Targets already in cluster**, click the **apply** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. The main content area displays the configuration for a remote node, 'node-b-59979144 (remote node)'. The 'iSCSI resources' tab is selected, showing a table of iSCSI targets:

Replication task	Logical volume	Replication task state
Mirror_0000	lv0000	OK

Below the table, there are buttons for 'move' and 'sync between nodes'. At the bottom, there are two lists: 'Available targets' (empty) and 'Targets already in cluster' (containing 'iqn.2013-05:mirror-1'). A red 'cancel' button and a red 'apply' button are at the bottom right. A blue callout box with arrows points to the 'add or remove targets' button and the 'apply' button.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address: 192.168.0.220

6. Configure Cluster

After that, scroll to the top of the **Failover manager** function.
At this point, both nodes are ready to start the Failover.
In order to run the Failover service, click the **start** button and confirm this action by clicking the **start** button again.

Failover Manager

Cluster status: Ready for Start

All required settings have been set up, cluster is ready to be started.

Important! Please refer to [Failover: Important notes](#) help for important information related to configuration and maintenance of failover services.

start

Resources pool

node-a-39166501 (local node) resources pool:

Status: inactive

Replication state: **synced**

Persistent reservation synchronization: inactive

node-b-59979144 (remote node) resources pool:

Status: inactive

Replication state: **synced**

Persistent reservation synchronization: inactive

[See details >](#)

Network statuses

Ping nodes: **4 of 4 reachable**

[See details >](#)

Auxiliary paths: 3 defined

[See details >](#)

Remote node status

Remote node availability: **Reachable**

Remote node hostname: **node-b-59979144**

Remote node IP: **192.168.3.221**

[See details >](#)

★ **Event Viewer**

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NOTE:

If the start button is grayed out, the setup has not been completed.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

7. Start Failover Service

After clicking the **start** button, configuration of both nodes is complete.

Failover Manager

Cluster status: Running - OK

Important! Please refer to [Failover. Important notes](#) help for important information related to configuration and maintenance of failover services.

stop

Resources pool

node-a-39166501 (local node) resources pool:
Status: **active on node-a-3... (local node)**
Replication state: **synced**
Persistent reservation synchronization: **active**

node-b-59979144 (remote node) resources pool:
Status: **active on node-b-5... (remote node)**
Replication state: **synced**
Persistent reservation synchronization: **active**

[See details >](#)

Network statuses	Remote node status
Ping nodes: 4 of 4 reachable	Remote node availability: Reachable
See details >	Remote node hostname: node-b-59979144
Auxiliary paths: 3 of 3 reachable	Remote node IP: 192.168.3.221
See details >	See details >

★ **Event Viewer**

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NOTE:

You can now connect with iSCSI Initiators. The first storage client, in order to connect to target0 please setup multipath with following IP on the initiator side: 192.168.21.101 and 192.168.31.101. In order to connect to target1 please setup multipath with following IP on the initiator side: 192.168.22.101 and 192.168.32.101.

For the next storage client please setup multipath accordingly: for access to target0: 192.168.21.102, 192.168.31.102 and for access to target1: 192.168.22.102, 192.168.32.102.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

In order to test Failover, go to the **Resources pool manager** function. Then, in the **local node** resources, click on the **move to remote node** button and confirm this action by clicking the **move** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The main content area is titled 'Resources pool manager' and contains an 'Info' message: 'While a cluster is running you are not able to change Virtual IPs settings. Please stop cluster in order to make changes.' Below this, there are two sections for node resources. The first section is for 'node-a-39166501 resources (local node)'. It shows the status as 'active on node-a-3... (local node)' and a 'sync between nodes' button. A red button labeled 'move to remote node' is visible. The second section is for 'node-b-59979144 resources (remote node)'. It shows the status as 'active on node-b-5... (remote node)' and a 'sync between nodes' button. A red button labeled 'move to local node' is visible. A blue arrow points from the 'move to remote node' button in the node-a section to the 'move to local node' button in the node-b section. The bottom of the interface shows 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

After performing this step, the status for **local node** resources should state „active on node-b (remote node)” and the **Synchronization status** should state „synced”.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover' under 'Setup'. The main content area is titled 'Resources pool manager' and contains several sections:

- Info:** While a cluster is running you are not able to change Virtual IP's settings. Please stop cluster in order to make changes.
- node-a-39166501 resources (local node):**
 - Info:** Resources were moved successfully.
 - Status: **active on node-b-5... (remote node)** (with a 'move to local node' button)
 - Synchronization status: **synced** (with a 'sync between nodes' button)
 - Virtual IP addresses and iSCSI resources tabs.
 - 'add or remove targets' button.
 - iSCSI target: target0 (iqn.2013-05:mirror-0) with a trash icon.
 - Table with columns: Replication task, Logical volume, Replication task state.

Replication task	Logical volume	Replication task state
Mirror_0000	lv0000	OK
- node-b-59979144 resources (remote node):**
 - Info:** Targets have been added/removed successfully.
 - Status: **active on node-b-5... (remote node)** (with a 'move to local node' button)

At the bottom, there is an 'Event Viewer' icon and a footer: 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

In order to test failback, click the **move to local node** button in the **Resources pool manager** box for local node resources and confirm this action by clicking the **move** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. The main content area is titled 'Resources pool manager' and contains an 'Info' box with a warning: 'While a cluster is running you are not able to change Virtual IPs settings. Please stop cluster in order to make changes.' Below this, the 'node-a-39166501 resources (local node)' section shows the status as 'active on node-b-5... (remote node)' and 'Synchronization status: synced'. A red button labeled 'move to local node' is highlighted with a blue arrow. Below this, there are tabs for 'Virtual IP addresses' and 'iSCSI resources', and a red button 'add or remove targets'. The 'iSCSI target: target0 (iqn.2013-05:mirror-0)' section shows a replication task 'Mirror_0000' with logical volume 'lv0000' and a state of 'OK'. Below this, the 'node-b-59979144 resources (remote node)' section shows the status as 'active on node-b-5... (remote node)' and 'Synchronization status: synced', with another 'move to local node' button. The bottom of the interface includes an 'Event Viewer' icon and the footer text 'Data Storage Software V7 - All rights reserved'.

Open-E DSS V7 Active-Active Load Balanced iSCSI HA Cluster *open-e*



Data Server (DSS1)
node-a
IP Address:192.168.0.220

9. Run Failback Function

After completing this step, the status for node-a resources should state „active on node-a (local node)” and the **Synchronization status** should state „synced”. Then, you can apply the same actions for **node-b resources**.

NOTE:

The Active-Active option allows configuring resource pools on both nodes and makes it possible to run some active volumes on node-a and other active volumes on node-b. The Active-Active option is enabled with the TRIAL mode for 60 days or when purchasing the Active-Active Failover Feature Pack. The Active-Passive option allows configuring a resource pool only on one of the nodes. In such a case, all volumes are active on a single node only.

The configuration and testing of Active-Active iSCSI Failover is now complete.

The screenshot shows the Open-E Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover' under 'Setup'. The main content area is titled 'Resources pool manager' and shows the following information:

- Info:** While a cluster is running you are not able to change Virtual IP's settings. Please stop cluster in order to make changes.
- node-a-39166501 resources (local node):**
 - Info:** Resources were moved successfully.
 - Status: **active on node-a-3... (local node)** (with a 'move to remote node' button)
 - Synchronization status: **synced** (with a 'sync between nodes' button)
- Virtual IP addresses** and **iSCSI resources** tabs.
- add or remove targets** button.
- iSCSI target: target0 (iqn.2013-05:mirror-0)**
 - Replication task: Mirror_0000
 - Logical volume: lv0000
 - Replication task state: **OK**
- node-b-59979144 resources (remote node):**
 - Status: **active on node-b-5... (remote node)** (with a 'move to local node' button)
 - Synchronization status: **synced** (with a 'sync between nodes' button)

At the bottom, there is an 'Event Viewer' icon and the footer text 'Data Storage Software V7 - All rights reserved'.

Thank you!

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