

# **Step-by-Step Guide** to Synchronous Volume Replication (Block Based) with Multipath Active-Active iSCSI Failover supported by Open-E<sup>®</sup> DSS<sup>™</sup> V7

**Software Version: DSS ver. 7.00 up01**

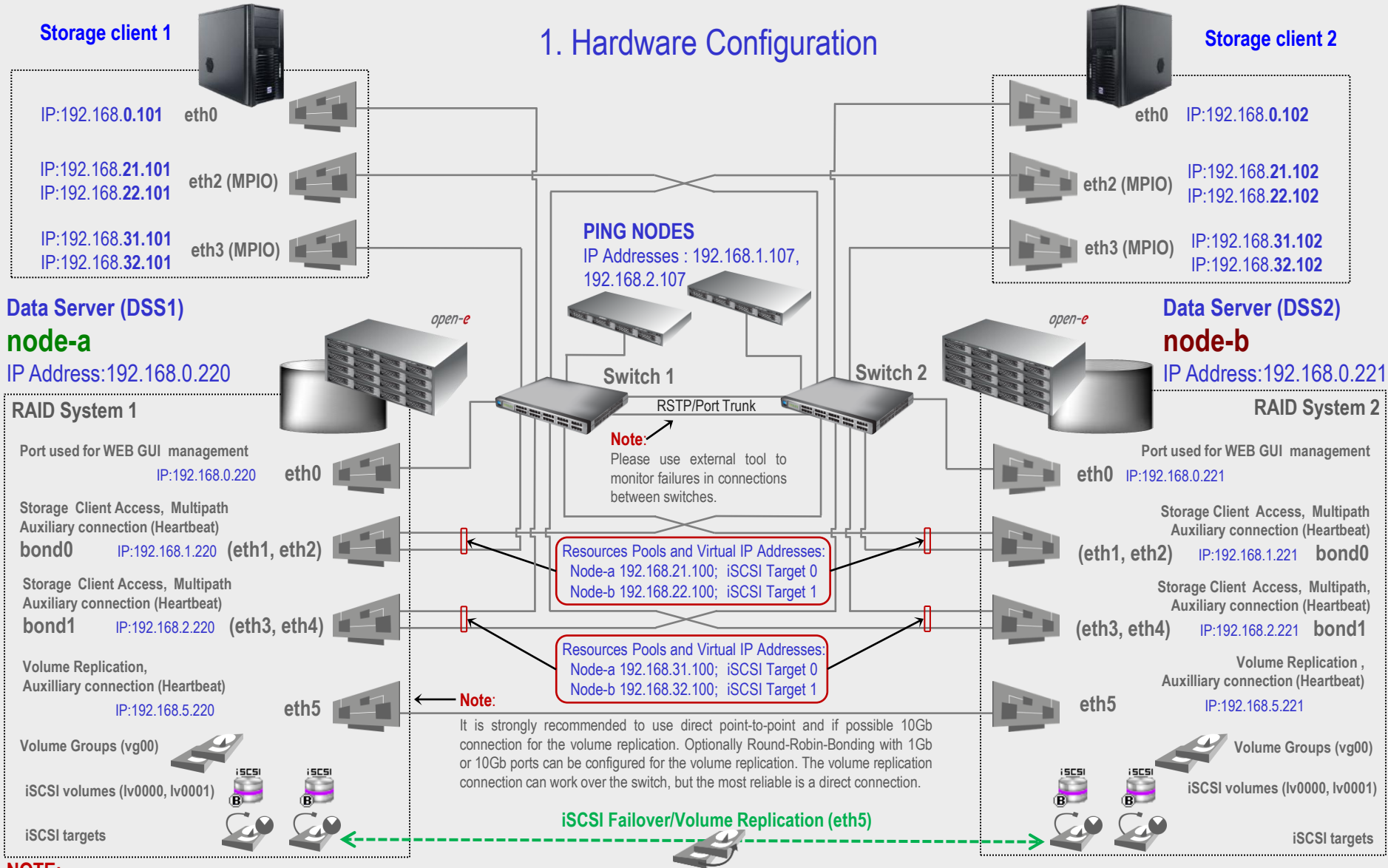
Presentation updated: September 2012

## TO SET UP WITH MULTIPATH 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 Failover (node-a and node-b)
7. Start Failover Service
8. Test Failover Function
9. Run Failback Function

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*

## 1. Hardware Configuration



### NOTE:

To prevent switching loops, it's recommended to use RSTP (802.1w) or Port Trunking on network switches used to build A-A Failover network topology.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 2. Network 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 'Setup > Network interfaces'. On the left, there is a list of network interfaces: eth0, eth1, eth2, eth3, eth4, and eth5. On the right, there are three configuration panels: 'Server name' with fields for 'Server name:' (containing 'dss2') and 'Comment:' (containing 'Data Storage Software'), 'Hostname' with a field for 'Hostname:' (containing 'node-b-59979144'), and 'DNS settings' with a field for 'DNS:' (containing '194.204.152.34;194.204.159.1'). Each panel has an 'apply' button. A blue box on the left contains instructions, with arrows pointing to the 'Network interfaces' list and the 'Hostname' field.

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

## 2. Network 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, a list of interfaces shows 'eth0' selected with a red dot. On the right, the 'Interface info' section displays 'Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)'. Below that, the 'IP address' section shows a warning: 'Warning! You are currently connected through this interface.' The configuration is set to 'Static' with the following values: IP address: 192.168.0.221, Netmask: 255.255.255.0, Broadcast: auto, and Gateway: 192.168.0.1. An 'apply' button is visible at the bottom right. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

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

## 2. Network Configuration

Once again, select **Interfaces** and in the „**Create new bond interface**” function check two boxes with **eth1** and **eth2**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

Next, in the field **Address IP** enter 192.168.1.221 and in the **Netmask** field enter 255.255.255.0  
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Network interfaces

**Interfaces**

- eth0
- eth1
- eth2
- eth3
- eth4
- eth5

**Create new bond interface**

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes

Create: **New balance-alb**

MAC: 02:38:22:48:C2:69

DHCP

Static

Address IP: 192.168.1.221

Netmask: 255.255.255.0

Broadcast:

Gateway:

★ Event Viewer

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

## 2. Network Configuration

Again, in the „Create new bond interface” function check two boxes with **eth3** and **eth4**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

Next, in the field **Address IP** enter 192.168.2.221 and in the **Netmask** field enter 255.255.255.0  
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

Select	Primary	Interface	Active	Cable	Available	
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	yes	▼
<input type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	no (bond0)	▼
<input type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	no (bond0)	▼
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes	▼
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes	▼
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes	▼

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 2. Network Configuration

Next, select **eth5** interface and in the **IP address** field, change the IP address from 192.168.5.220 to 192.168.5.221 and click the **apply** button.

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 'Setup > Network interfaces > eth5'. On the left, a list of interfaces is shown, with 'eth5' selected. On the right, the 'Interface info' section displays 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. Below that, the 'IP address' section shows 'Active' checked, 'Static' selected, and the IP address field set to '192.168.5.221'. Other fields include 'Netmask: 255.255.255.0', 'Broadcast: auto', and 'Gateway:'. An 'apply' button is at the bottom right. A footer note states: 'Activation required. Without activation system services will continue running for 30 days after volume group creation. Data Storage Software V7 - All rights reserved.'



# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 2. Network 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 Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces'. On the left, there is a list of network interfaces: eth0, eth1, eth2, eth3, eth4, and eth5. 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. The footer of the interface 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

## 2. Network Configuration

Next, select **Interfaces** and in the „**Create new bond interface**” function check two boxes with **eth1** and **eth2**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

In the field **Adress IP** enter 192.168.1.220 and in the **Netmask** field enter 255.255.255.0  
Afterwards, click the **create** button and confirm this action by clicking the **yes** 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 > Network interfaces'. A 'Create new bond interface' dialog is open, displaying a table of interfaces and configuration options.

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes

Configuration fields below the table:

- Create:
- MAC:
- DHCP
- Static
- Address IP:
- Netmask:
- Broadcast:
- Gateway:

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Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 2. Network Configuration

Again in the „**Create new bond interface**” function check two boxes with **eth3** and **eth4**. Next, in the field **Create** select a bonding mode. In this example select **New balance-alb**.

Next, in the field **Address IP** enter 192.168.2.220 and in the **Netmask** field enter 255.255.255.0  
Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

Select	Primary	Interface	Active	Cable	Available
<input type="checkbox"/>	<input type="checkbox"/>	eth0	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth1	yes	cable	no (bond0)
<input type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	no (bond0)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth4	yes	cable	yes
<input type="checkbox"/>	<input type="checkbox"/>	eth5	yes	cable	yes

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



*open-e*

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 breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume groups'. The main content area is divided into several panels: 'Vol. groups', 'Unit rescan', 'Unit manager', 'Vol. replication', and 'Drive identifier'. The 'Unit manager' panel is active, showing a table of units and configuration options for creating a new volume group.

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

Action:

Name:

**apply**

Please apply changes or press "reload" button to discard

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

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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' section on the left shows 'vg00' selected. The 'Volume manager' section on the right shows the 'System volumes' table with columns for 'System volumes' and 'Size (GB)'. The table lists 'SWAP' (4.00 GB), 'Reserved for snapshots' (0.00 GB), 'Reserved for system' (4.00 GB), 'Reserved for replication' (0.00 GB), and 'Free' (290.06 GB). 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 'Block I/O' section is selected, and the 'Rate' is set to 'medium'. 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.

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

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



open-e  
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.

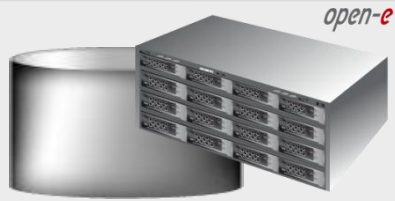
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > Volume manager > Volume groups > vg00'. The main content area is divided into two panels: 'Vol. groups' and 'Vol. replication'. The 'Vol. groups' panel shows a table with one entry: 'vg00'. The 'Vol. replication' panel shows a table with one entry: 'lv0000'. The right-hand side of the interface displays the configuration options for a new 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, and the 'Initialize' checkbox is checked. The 'Rate' dropdown is set to 'medium'. The 'Block I/O' radio button is selected. A slider for the volume size is shown, with the current value set to 50 GB. The 'add:' field is set to 50 GB, and the total available space is 239.94 GB. The 'apply' button is highlighted in red.

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

Action: new iSCSI volume  
Options: Just create volume  
 Use volume replication  
 File I/O  
 Initialize  
Rate: medium  
 Block I/O  
0 239.94  
< > add: 50 GB (+0.12 GB for replication)  
apply

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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 breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume groups'. The main content area is divided into several panels:

- Vol. groups:** A panel with a settings icon and a question mark icon.
- Unit rescan:** A panel with a refresh icon and a question mark icon, containing a red 'rescan' button.
- Unit manager:** A panel with a refresh icon and a question mark icon. It contains a table with the following data:

Unit	Size (GB)	Serial number	Status
<input checked="" type="checkbox"/> Unit S001	465.70	N/A	available

Below the table, there is an 'Action:' dropdown menu set to 'new volume group' and a 'Name:' text input field containing 'vg00'. A red 'apply' button is at the bottom of this panel. A blue note at the bottom of the panel reads: 'Please apply changes or press "reload" button to discard'.
- Vol. replication:** A panel with a settings icon and a question mark icon.
- Drive identifier:** A panel with a refresh icon and a question mark icon. It contains a table with the following data:

Unit	Serial number	Status
<input type="checkbox"/> Unit S001	N/A	

The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.



# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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 Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume groups > vg00'. The interface is divided into two main 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. The 'Block I/O' section has a slider set to 50 GB, with a note '(+0.12 GB for replication)'. A red 'apply' button is at the bottom right. 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'.

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	457.66

Action: new iSCSI volume  
Options: Just create volume

Use volume replication  
 File I/O  
 Initialize  
Rate: medium

Block I/O  
0 457.66  
< > add: 50 GB (+0.12 GB for replication)

apply

Please apply changes or press "reload" button to discard

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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.

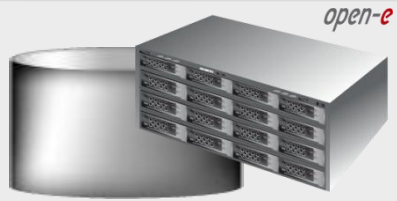
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > Volume manager > Volume groups > vg00'. The main content area is divided into two sections: 'Vol. groups' and 'Vol. replication'. The 'Vol. groups' section shows a table with one entry: 'lv0000' of type 'iSCSI' and size '50.00'. The 'Vol. replication' section shows a table with one entry: 'vg00' of type 'iSCSI' and size '50.00'. The 'Vol. replication' section also has a 'Use volume replication' checkbox checked. The 'Action' dropdown is set to 'new iSCSI volume' and the 'Options' dropdown is set to 'Just create volume'. The 'Rate' is set to 'medium'. The 'Block I/O' section has a slider 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	407.53

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



# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.

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

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	357.41

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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 192.168.5.220), 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 'Volume manager'. The 'Vol. groups' section shows a group named 'vg00'. The 'Volume replication mode' table is as follows:

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

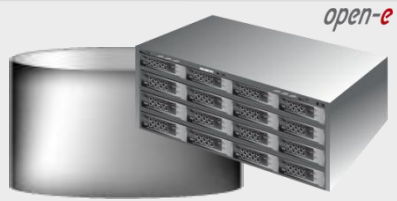
Below the table is an 'apply' button and a note: 'Please apply changes or press "reload" button to discard'. The 'Hosts binding' section is also visible, with fields for 'Remote node IP address' (192.168.5.220) and 'Remote node GUI (administrator) password' (masked with dots), and a 'connect' button. At the bottom, a message states: 'Volume replication tasks can not be created because there is no remote node connected.'

### 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: 192.168.5.220
- node-b: 192.168.5.221

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.


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"/>

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

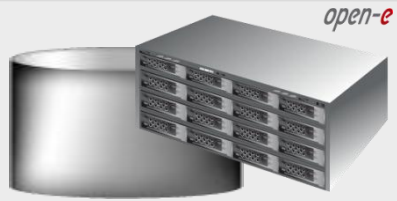
## 4. Configure the node-a

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 case of a 10GbE connection it is recommended to set for the replication a higher **Bandwidth for SyncSource (MB)**. To achieve better performance you can set 500MB. In the example, maximum 600MB is used. Next, click the **create** button.

The screenshot displays the Open-E Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Configuration > Volume manager > Volume replication'. The 'Vol. groups' section shows a single group 'vg00'. The 'Vol. replication' section is currently empty. The 'Create new volume replication task' form is the central focus, with the following fields and values: 'Task name' is 'MirrorTask-a'; 'Source volume' is 'lv0000'; 'Destination volume' is 'lv0000'; and 'Bandwidth for SyncSource (MB)' is '600'. A 'create' button is located at the bottom right of the form. Below the form is a 'Replication tasks manager' section with an 'Info' icon and the text 'No tasks have been found.' The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 4. Configure the node-a

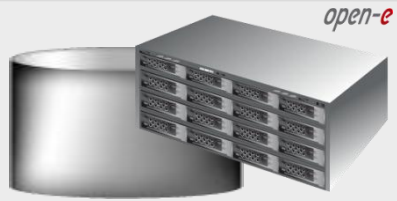
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume replication'. The main content area is divided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

- Vol. groups:** Shows a single group named 'vg00'.
- Vol. replication:** Shows a single replication task named 'MirrorTask-a'.
- Hosts binding:** Displays a 'Remote node' configuration for 'node-b-5...' with IP address '192.168.5.221' and status 'Reachable'. A 'disconnect' button is visible.
- Create new volume replication task:** An information box states: 'No volumes with replication functionality found or all volumes have a task assigned already.'
- Replication tasks manager:** A table with columns 'Name', 'Start time', and 'Action'. It lists 'MirrorTask-a' with a start time of 'n/a'. A blue arrow points from the 'play' button in the 'Action' column to the text in the blue callout box.

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

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 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 4. Configure the node-a

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.

The screenshot displays 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 replication'. The main content area is divided into several sections:

- Vol. groups:** Shows a single group named 'vg00' with a red status indicator.
- Vol. replication:** Shows a single task named 'MirrorTask-a' with a green status indicator.
- Replication tasks manager:** A table listing the details of the 'MirrorTask-a' task.

Name	Start time	Action
MirrorTask-a	2012-09-05 20:20:31	[Play] [Stop] [Delete]
Source volume:	lv0000	
Destination volume:	lv0000	
Destination IP:	192.168.5.221	
Protocol type:	Synchronous	

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




# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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 **MirrorTask-a**) to display detailed information on the current replication task.

**Tasks**

- Data (File) Replication
- Antivirus
- **Volume Replication**
- Snapshots

**Running tasks**


Name	Type	Start time
 MirrorTask-a	Volume replication	2012-09-05 20:20:31

Protocol type: Synchronous  
Connection: Connected

**Source info:**  
Logical volume: lv0000  
Consistency: Consistent

**Destination info:**  
Logical volume: lv0000  
Consistency: Consistent  
IP address: 192.168.5.221

**Tasks log**

Time	Name	Type	Status	Action
 2012-09-05 20:20:38	MirrorTask-a	Volume replication	OK	Started

★ Event Viewer

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### NOTE:


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

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*

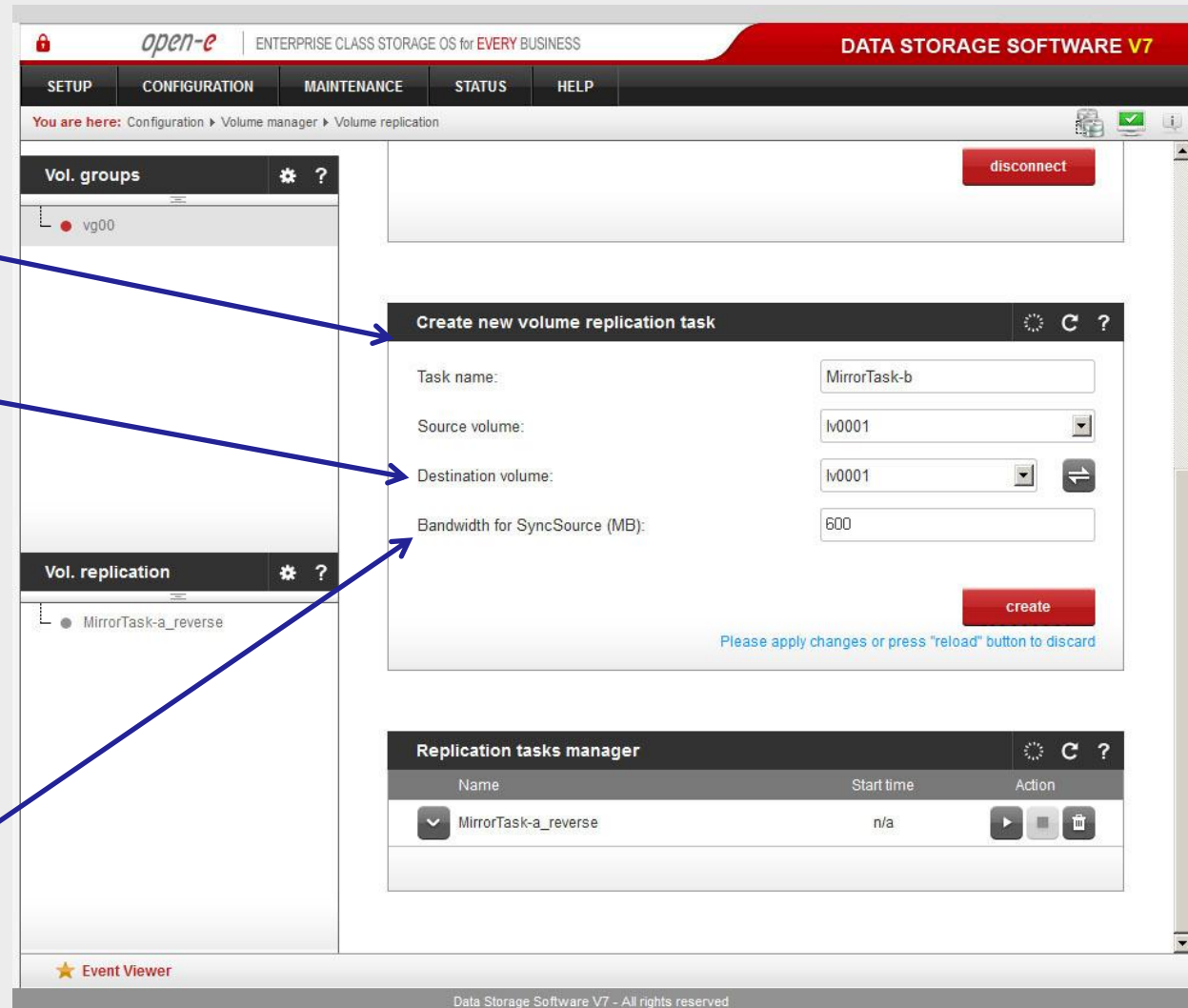


Data Server (DSS2)  
**node-b**  
IP Address:192.168.0.221

## 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 of a minimum of 500 MB. In our example 600 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' under 'Volume manager'. The 'Vol. groups' section shows 'vg00'. The 'Vol. replication' section shows 'MirrorTask-a\_reverse'. The 'Create new volume replication task' form is open, with the following fields:

- Task name: MirrorTask-b
- Source volume: lv0001
- Destination volume: lv0001
- Bandwidth for SyncSource (MB): 600

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
MirrorTask-a_reverse	n/a	  

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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: **MirrorTask-b**.

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

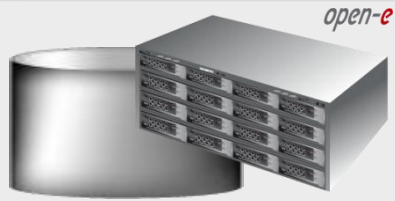
When a task is started a date and time will appear.

The screenshot displays the Open-E Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is '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: 'MirrorTask-a\_reverse' and 'MirrorTask-b'.
- Hosts binding:** Shows a remote node configuration with 'Host name: node-a-3...', 'IP address: 192.168.5.220', and 'Status: Reachable'. A 'disconnect' button is present.
- Create new volume replication task:** Displays an information message: '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
MirrorTask-a_reverse	n/a	[play] [stop] [delete]
MirrorTask-b	2012-09-05 20:25:27	[play] [stop] [delete]

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



*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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### NOTE:

Both systems must have the same Target name.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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 main navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > iSCSI target manager > Targets'. The 'Targets' section on the left shows a list with 'target0'. The 'Create new target' form is active, displaying a success message: 'New target has been created successfully!'. The 'Target Default Name' checkbox is unchecked. The 'Name' field is filled with 'iqn.2012-09: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 is a 'Discovery CHAP user access' section with two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. Another 'apply' button is at the bottom right of this section. 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 with Multipath Active-Active iSCSI Failover *open-e*



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.2012-09:mirror-0 -> lv0000**) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb trail is: Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-0 (target0). The 'Targets' section shows a list with 'target0' selected. The 'Target volume manager' section contains three informational messages and a table of volumes. The table has columns: Volume, SCSI ID, LUN, RO, WB, and Action. The first row shows volume 'lv0000' with SCSI ID 'yakFXJGNEV587eA' and LUN '0'. A blue arrow points to the '+' button in the 'Action' column for this row. The 'CHAP user access authentication' section is set to 'No CHAP user access authentication'.

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	yakFXJGNEV587eA	0	<input type="checkbox"/>	<input type="checkbox"/>	+ -
lv0001	iZGxwlh33QBSpRdN	0	<input type="checkbox"/>	<input type="checkbox"/>	+ -

### NOTE:

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

### WARNING:

Please do not switch on the write back (WB) cache !

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.2012-09:mirror-1->lv0001**) and click the **+** 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.2012-09:mirror-1 (target1)'. The main content area is divided into several sections:

- Targets:** A list showing 'target0' and 'target1'. 'target1' is selected and highlighted.
- Target volume manager:** Contains informational text and a table for LUNs. The table has columns for Volume, SCSI ID, LUN, RO, and WB. The first row shows Volume 'lv0001', SCSI ID 'iZGxwIh33QBSpRdN', and LUN '0'. The 'Action' column for this row contains a '+' button, which is highlighted by a blue arrow from the instruction box.
- CHAP users:** A section for managing CHAP users, currently empty.
- CHAP user access authentication:** A section with two radio buttons: 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. An 'apply' button is at the bottom right.

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

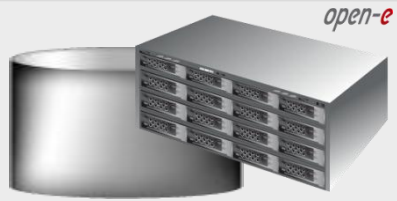
### NOTE:

Both systems must have the same SCSI ID and LUN#

### WARNING:

Please do not switch on the write back (WB) cache !

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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 with Multipath Active-Active iSCSI Failover *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.

iSCSI targets



### NOTE:

Both systems must have the same Target name.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.2012-09:mirror-0 -> lv0000**) and click the **+** button located under **Action**.

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SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-0 (target0)

**Targets**

- target0
- target1

**Target volume manager**

**Info**  
Currently there are no LUN's added to this target. In order to add a LUN, click on the plus "+" sign in the "Action" column for this LUN.

**Info**  
There are logical volumes selected as mirror destination. There is no direct access to mirror destination volume. In order to access such volume, you can stop mirror task and switch destination mode to source mode or create a snapshot on the destination volume and assign the snapshot to a new target.

**Info**  
Please note that in order to access iSCSI-enabled data from an initiator, the target needs to have a LUN 0, otherwise the data in all other LUNs will be inaccessible. The data will also be inaccessible if you select an inactive snapshot or a destination volume (volume replication) as LUN 0.

Volume	SCSI ID	LUN	RO	WB	Action
lv0000	yakFXJ3NEV587eA	0	<input type="checkbox"/>	<input type="checkbox"/>	<b>+</b> <b>-</b>
lv0001	79tECRjeM3GuhBfa	0	<input type="checkbox"/>	<input type="checkbox"/>	<b>+</b> <b>-</b>

**CHAP user access authentication**

No CHAP user access authentication

Event Viewer

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### NOTE:

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

### WARNING:

Please do not switch on the write back cache (WB) !

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.2012-09:mirror-1->lv0001**) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb navigation is: Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-1 (target1). The 'Targets' panel on the left shows a list with 'target0' and 'target1' (selected). The 'Target volume manager' panel on the right shows information and a table of volumes. The table has columns: Volume, SCSI ID, LUN, RO, WB, and Action. A row is shown with Volume 'lv0001', SCSI ID 'iZGxwlh33QBSpRdN', LUN '0', and checkboxes for RO and WB. The '+' button in the Action column is highlighted with a blue arrow. Below the table is the 'CHAP user access authentication' section with radio buttons for 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. An 'apply' button is at the bottom right.

Volume	SCSI ID	LUN	RO	WB	Action
lv0001	iZGxwlh33QBSpRdN	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button" value="+"/>

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

**WARNING:**  
Please do not switch on the write back cache (WB) !

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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	eth5 (192.168.5.220)	eth5 (192.168.5.221)

**New auxiliary path**

Interface on local node:

Interface on remote node:

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.		

Event Viewer

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# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 6. Configure Failover

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.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

### Auxiliary paths

**Info**  
Auxiliary path has been created successfully.

Status	node-a-3... interface (local node)	node-b-5... interface (remote node)
Inactive	eth5 (192.168.5.220)	eth5 (192.168.5.221)
Inactive	bond0 (192.168.1.220)	bond0 (192.168.1.221)

**New auxiliary path**

Interface on local node: bond1 (192.168.2.220)

Interface on remote node: bond1 (192.168.2.221)

cancel | add new auxiliary path

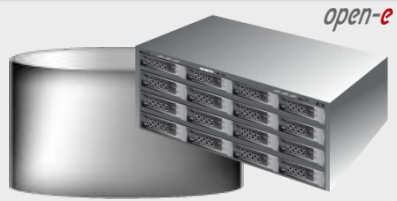
### Ping nodes

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

★ Event Viewer

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# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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: 192.168.1.107 and the second ping node: 192.168.2.107

**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)
192.168.1.107	Reachable	Reachable

New ping node

IP address: 192.168.2.107

cancel add new ping node

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)

[Show advanced options](#)

apply

Event Viewer

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# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Setup > Failover

**Resources pool manager**

node-a-39166501 resources (local node)

Status: **unknown** move

Synchronization status: not configured sync between nodes

Virtual IP addresses | iSCSI resources

**add virtual IP**

Virtual IP: 192.168.21.100

Interface on local node: bond0 (192.168.1.220)

Interface on remote node: bond0 (192.168.1.221)

Netmask: 255.255.255.0

Broadcast (optional):

cancel add

node-b-59979144 resources (remote node)

Status: **unknown** move

★ Event Viewer

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# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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 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 shows 'node-a-39166501 resources (local node)'. The status is 'unknown'. There are buttons for 'move' and 'sync between nodes'. The 'Virtual IP addresses' tab is selected, and the 'add virtual IP' form is displayed. The form fields are: Virtual IP: 192.168.31.100; Interface on local node: bond1 (192.168.2.220); Interface on remote node: bond1 (192.168.2.221); Netmask: 255.255.255.0; Broadcast (optional): (empty). There are 'cancel' and 'add' buttons at the bottom of the form. Below the form, 'node-b-59979144 resources (remote node)' is shown 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 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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.

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 'Setup > Failover'. The main content area displays a table of virtual IP configurations:

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)	
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)	

Below the table, there is a section for 'node-b-59979144 resources (remote node)'. The status is 'unknown' and the synchronization status is 'not configured'. There are buttons for 'move' and 'sync between nodes'. A red button labeled 'add virtual IP' is visible above the table.

The 'Virtual IP addresses' tab is selected, showing a form to add a new virtual IP:

- Virtual IP: 192.168.22.100
- Interface on local node: bond0 (192.168.1.220)
- Interface on remote node: bond0 (192.168.1.221)
- Netmask: 255.255.255.0
- Broadcast (optional):

Buttons for 'cancel' and 'add' are at the bottom of the form.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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 Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. A table lists virtual IP configurations:

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)	
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)	

Below the table, the 'node-b-59979144 resources (remote node)' section shows a status of 'unknown' and a 'sync between nodes' button. A modal window titled 'add virtual IP' is open, with the following fields:

- Virtual IP: 192.168.32.100
- Interface on local node: bond1 (192.168.2.220)
- Interface on remote node: bond1 (192.168.2.221)
- Netmask: 255.255.255.0
- Broadcast (optional):

Buttons for 'cancel' and 'add' are at the bottom of the modal. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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 interface is divided into sections for 'Virtual IP addresses' and 'iSCSI resources'. The 'Virtual IP addresses' section shows two tables, one for 'node-a' and one for 'node-b-59979144 resources (remote node)'. Each table has columns for 'Virtual IP', 'Interface on local node', and 'Interface on remote node'. The 'node-a' table shows two Virtual IP addresses: 192.168.21.100 and 192.168.31.100. The 'node-b' table shows two Virtual IP addresses: 192.168.22.100 and 192.168.32.100. A blue callout box points to these four Virtual IP addresses. Below the tables, there is an 'Info' section with a message: 'Virtual IP has been created successfully.' and buttons for 'move' and 'sync between nodes'. The bottom of the interface shows an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved.'

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.21.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)	⚙️ 🗑️
192.168.31.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)	⚙️ 🗑️

Virtual IP	Interface on local node:	Interface on remote node:	
192.168.22.100	bond0 (192.168.1.220)	bond0 (192.168.1.221)	⚙️ 🗑️
192.168.32.100	bond1 (192.168.2.220)	bond1 (192.168.2.221)	⚙️ 🗑️

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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.

The screenshot displays the Open-E Data Storage Software 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 shows configuration for 'node-a-39166501 resources (local node)'. The status is 'unknown' and synchronization is 'not configured'. There are 'move' and 'sync between nodes' buttons. Below this, there are tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'iSCSI resources' tab is active, showing two columns: 'Available targets' and 'Targets already in cluster'. The target 'iqn.2012-09:mirror-1' is in the 'Available targets' list, and 'iqn.2012-09:mirror-0' is in the 'Targets already in cluster' list. There are left and right arrow buttons between the lists. At the bottom of this section are 'cancel' and 'apply' buttons. Below the iSCSI resources section, there is a section for 'node-b-59979144 resources (remote node)'. It has an 'Info' message: 'Virtual IP has been created successfully.' and 'Status: unknown'. There are 'move' and 'sync between nodes' buttons. At the bottom left, there is an 'Event Viewer' icon. At the bottom right, it says 'Data Storage Software V7 - All rights reserved.'

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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 displays the Open-E Data Storage Software V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. The main content area shows the 'iSCSI resources' tab for a remote node 'node-b-59979144'. A table lists iSCSI targets and their replication tasks:

Replication task	Logical volume	Replication task state
MirrorTask-a	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.2012-09:mirror-1'). A red 'cancel' button and a red 'apply' button are at the bottom right. A blue box with arrows points to the 'add or remove targets' button and the 'apply' button.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *open-e*



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

## 6. Configure Failover

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.

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 manager', indicated by the breadcrumb 'You are here: Setup > Failover'. The main content area displays the 'Failover manager' status, which is 'Ready for Start'. A message states: 'All required settings have been set up, cluster is ready to be started.' Below this message is a red 'start' button. The 'Resources pool' section shows two nodes: 'node-a-39166501 (local node) resources pool' and 'node-b-59979144 (remote node) resources pool'. Both nodes have a status of 'inactive' and a replication state of 'synced'. The 'Network statuses' section shows 'Ping nodes: 2 of 2 reachable' and 'Auxiliary paths: 3 defined'. The 'Remote node status' section shows 'Remote node availability: Reachable', 'Remote node hostname: node-b-59979144', and 'Remote node IP: 192.168.5.221'. At the bottom of the interface, there is an 'Event Viewer' section and a footer that reads 'Data Storage Software V7 - All rights reserved'.

### NOTE:

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

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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.

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', indicated by 'You are here: Setup > Failover'. The main content area is titled 'Failover manager' and shows the following information:

- Cluster status:** Running - OK (with a red 'stop' button)
- Resources pool:**
  - node-a-39166501 (local node) resources pool:**
    - Status: active on node-a-3... (local node)
    - Replication state: synced
  - node-b-59979144 (remote node) resources pool:**
    - Status: active on node-b-5... (remote node)
    - Replication state: synced
- Network statuses:**
  - Ping nodes: 2 of 2 reachable
  - Auxiliary paths: 3 of 3 reachable
- Remote node status:**
  - Remote node availability: Reachable
  - Remote node hostname: node-b-59979144
  - Remote node IP: 192.168.5.221

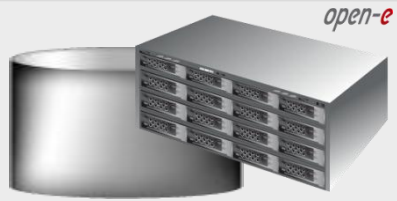
At the bottom, there is an 'Auxiliary paths' section with an 'Info' button and an 'Event Viewer' icon.

### 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 target: 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 with Multipath Active-Active iSCSI Failover *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 Data Storage Software 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 the following sections:

- Info:** While a cluster is running you are not able to change settings. Please stop cluster in order to make changes.
- node-a-39166501 resources (local node):**
  - Status: **active on node-a-3... (local node)**
  - Synchronization status: **synced**
  - Buttons: **move to remote node** (highlighted with a blue arrow), **sync between nodes**
  - Virtual IP addresses: **iSCSI resources**
  - add or remove targets
  - iSCSI target: **target0 (iqn.2012-09:mirror-0)**
  - Replication task table:

Replication task	Logical volume	Replication task state
MirrorTask-a	lv0000	OK
- node-b-59979144 resources (remote node):**
  - Info:** Targets have been added/removed successfully.
  - Status: **active on node-b-5... (remote node)**
  - Synchronization status: **synced**
  - Buttons: **move to local node**, **sync between nodes**

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



# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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 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 | **iSCSI resources**
  - add or remove targets
  - iSCSI target: target0 (iqn.2012-09:mirror-0)**
  - Table with columns: Replication task, Logical volume, Replication task state.
    - MirroTask-a | 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 with Multipath Active-Active iSCSI Failover *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 displays the Open-E DSS V7 web interface. At the top, there is a navigation bar with tabs for 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 stating that settings cannot be changed while a cluster is running. Below this, there are sections for 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. The 'node-a' section shows a status of 'active on node-b-5... (remote node)' and a 'sync between nodes' button. A blue arrow points from the text box to the 'move to local node' button in this section. Below the resources, there is a table for iSCSI targets, showing 'target0 (iqn.2012-09:mirror-0)' with a replication task 'MirrorTask-a' and logical volume 'lv0000' in an 'OK' state. The footer includes an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved'.

# Open-E DSS V7 with Multipath Active-Active iSCSI Failover *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 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 displays the following information:

- node-a-39166501 resources (local node)**
  - Status: **active on node-a-3... (local node)**
  - Synchronization status: **synced**
  - Buttons: **move to remote node** (red), **sync between nodes** (grey)
- node-b-59979144 resources (remote node)**
  - Status: **active on node-b-5... (remote node)**
  - Synchronization status: **synced**
  - Buttons: **move to local node** (red), **sync between nodes** (grey)

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

Thank you!

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