



## Step-by-Step Guide

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### Open-E DSS V7 Active-Passive iSCSI Failover

## To set up Active-Passive iSCSI Failover, perform the following steps:

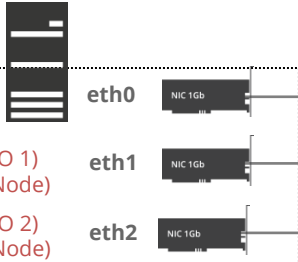
1. Hardware configuration
2. Network Configuration:
  - Set server hostnames and Ethernet ports on both nodes (node-a, node-b)
3. Configure the node-b:
  - Create a Volume Group, iSCSI Volume
  - Configure Volume Replication mode (destination and source mode) – define remote mode of binding , create 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

## Storage client

IP:192.168.0.101

IP:192.168.20.101 (MPIO 1)  
IP:192.168.1.107 (Ping Node)

IP:192.168.21.101 (MPIO 2)  
IP:192.168.2.107 (Ping Node)



## 1. Hardware Configuration

### Data Server (DSS1) node-a

IP Address:192.168.0.220

### RAID System 1

Port used for WEB GUI management  
IP:192.168.0.220

Storage Client Access, Multipath  
Auxiliary connection (Heartbeat)  
IP:192.168.1.220

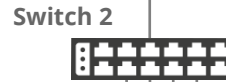
Storage Client Access, Multipath  
Auxiliary connection (Heartbeat)  
IP:192.168.2.220

Volume Replication,  
Auxilliary connection (Heartbeat)  
IP:192.168.3.220

Volume Groups (vg00)

iSCSI volumes (lv0000)

iSCSI targets



### Data Server (DSS2) node-b

IP Address: 192.168.0.221

### RAID System 2

Port used for WEB GUI management  
IP:192.168.0.221

Storage Client Access, Multipath  
Auxiliary connection (Heartbeat)  
IP:192.168.1.221

Storage Client Access, Multipath  
Auxiliary connection (Heartbeat)  
IP:192.168.2.221

Volume Replication  
Auxilliary connection (Heartbeat)  
IP:192.168.3.221

Volume Groups (vg00)

iSCSI volumes (lv0000)

iSCSI targets

Virtual IP Address:  
192.168.20.100 (iSCSI Target)

Virtual IP Address:  
192.168.21.100 (iSCSI Target)

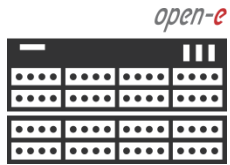
### Note:

It is strongly recommended to use direct point-to-point and if possible 10Gb connection for the volume replication. Optionally Round-Robin-Bonding with 1Gb or 10Gb ports can be configured for the volume replication. The volume replication connection can work over the switch, but the most reliable is a direct connection.

iSCSI Failover/Volume Replication (eth3)

**NOTE:** For additional layer of redundancy, you may add an extra connection between switches and ping nodes.

## 1. Hardware Configuration

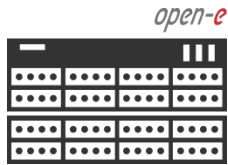


Data Server (DSS2)  
**node-b**  
IP Address: 192.168.0.221

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'. The 'Interfaces' section on the left lists network cards: eth0, eth1, eth2, and eth3. The 'Server Name' section has a 'Server name' field containing 'dss2' and a 'Comment' field containing 'Data Storage Software'. The 'Hostname' section has a 'Hostname' field containing 'node-b-59979144'. The 'DNS settings' section has a 'DNS' field containing '194.204.152.34;194.204.159.1'. Red arrows point from the text in the first block to the 'Network interfaces' section, the 'Server Name' section, and the 'Hostname' field.

## 1. Hardware Configuration

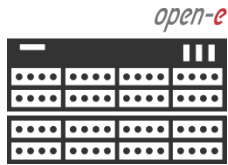


Data Server (DSS2)  
**node-b**  
IP Address: 192.168.0.221

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 breadcrumb trail indicates 'You are here: Setup > Network interfaces > eth0'. The 'Interfaces' panel on the left lists eth0, eth1, eth2, and eth3, with eth0 selected. The 'Interface info' panel shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' panel displays a warning: 'Warning! You are currently connected through this interface.' Below the warning, the 'Active' checkbox is checked. The 'Static' radio button is selected, and the IP address field is set to '192.168.0.221'. Other fields include MAC: 00:04:23:B9:86:FA, DHCP (unchecked), Netmask: 255.255.255.0, Broadcast: auto, and Gateway: 192.168.0.1. A red 'apply' button is at the bottom right. A red dashed box highlights the 'eth0' interface in the list and the 'IP address' field in the configuration panel, with arrows pointing to the explanatory text on the left.

## 1. Hardware Configuration



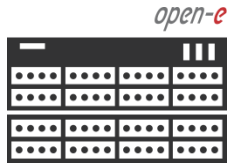
Data Server (DSS2)  
**node-b**  
IP Address: 192.168.0.221

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 displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail shows 'You are here: Setup > Network interfaces > eth1'. The main content area is divided into two panels. The left panel, titled 'Interfaces', lists 'eth0', 'eth1', 'eth2', and 'eth3', with 'eth1' selected. The right panel, titled 'Interface info', shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. Below this is the 'IP address' configuration panel, which has 'Active' checked, 'Static' selected, and the 'IP address' field set to '192.168.1.221'. Other fields include 'Netmask: 255.255.255.0', 'Broadcast: auto', and 'Gateway:'. An 'apply' button is at the bottom right. Red arrows point from the text instructions to the 'eth1' interface in the list and the 'IP address' input field.

## 1. Hardware Configuration



Data Server (DSS1)

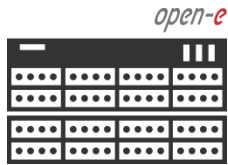
**node-a**

IP Address: 192.168.0.220

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 'Setup > Network interfaces'. On the left, there is a list of network interfaces: eth0, eth1, eth2, and eth3. On the right, there are three configuration panels: 'Server Name' (Server name: dss1, Comment: Data Storage Software), 'Hostname' (Hostname: node-a-39166501), and 'DNS settings' (DNS: 194.204.152.34;194.204.159.1). Each panel has an 'apply' button. A red arrow points from the text box to the 'node-a-39166501' hostname field.

## 2. Configure the node-b



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

In **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 breadcrumb trail is: Configuration > Volume manager > Volume groups. The 'Unit manager' section is active, showing a table of units:

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

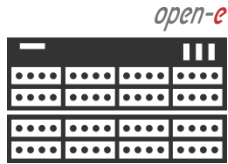
The 'Action' dropdown is set to 'new volume group' and the 'Name' field contains 'vg00'. The 'apply' button is visible at the bottom of the form.

Below the unit manager, the 'Drive identifier' section shows a table of drives:

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



## 2. Configure the node-b



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. The logical volume (**lv0000**) will be the destination of the replication process on node-b.

Next, check "**Use volume replication**" checkbox. 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: 'You are here: Configuration > Volume manager > Volume groups > vg00'. The left sidebar shows 'Vol. groups' with 'vg00' selected and 'Vol. replication' below it. The main area displays the 'Volume manager' configuration for 'vg00'. The 'System volumes' table shows the following details:

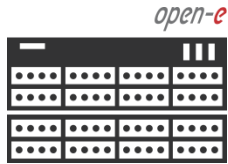
System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	290.06

The 'Volume manager' configuration includes the following options:

- Actions: new iSCSI volume
- Options: Just create volume
- Use volume replication
- File I/O
- Initialize
- Rate: medium
- Block I/O
- Slider: 0 to 290.06
- add: 50 GB (+0.12 GB for replication)
- apply button

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

## 2. Configure the node-b



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

Logical iSCSI Volume Block I/O is now configured.

open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS DATA STORAGE SOFTWARE V7

SETUP CONFIGURATION MAINTENANCE STATUS HELP

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

Vol. groups

- vg00

Vol. replication

Volume manager

Info

Logical volume lv0000 has been created successfully.

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

System volumes

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 NAS volume

Use volume replication

WORM

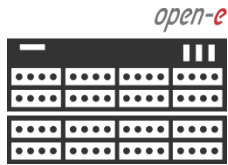
add: 0.00 GB

apply

★ Event Viewer

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### 3. Configure the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Go to the node-a system. In **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.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb trail is "You are here: Configuration > Volume manager > Volume groups". The "Unit manager" section is active, showing a table of units:

Unit	Size (GB)	Serial number	Status
<input checked="" type="checkbox"/> Unit S001	1862.95	N/A	available

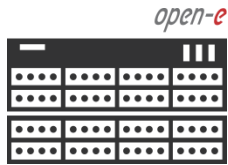
Below the table, the "Action:" dropdown is set to "new volume group" and the "Volume group name:" field contains "vg00". The "apply" button is visible.

The "Drive identifier" section shows a table:

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

Red arrows indicate the navigation path: from the "Volume groups" tab to the "Unit manager" table, then to the "Action:" dropdown, then to the "Volume group name:" field, and finally to the "apply" button.

### 3. Configure the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Select the appropriate volume group (**vg00**) from the list on the left and create a **new iSCSI volume** of the required size. The 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 for the iSCSI volume, click the **apply** button.

**NOTE:**

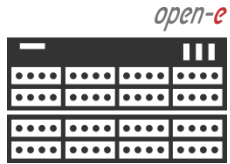
The source and destination volumes must be of identical size.

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 left sidebar shows a list of volume groups, with 'vg00' selected. The main content area is titled 'Volume manager' and displays a table of system volumes:

System volumes	Size (GB)
SWAP	4.00
Reserved for snapshots	0.00
Reserved for system	4.00
Reserved for replication	0.00
Free	1854.91

Below the table, 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 'Rate' is set to 'medium'. A slider shows the available space (0 to 1854.91 GB) with a selection of 50 GB. The text below the slider indicates '+0.12 GB for replication'. The 'apply' button is highlighted in red.

## 3. Configure the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Logical iSCSI Volume Block I/O is now configured.

**Volume manager**

Logical volume lv0000 has been created successfully.

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

**System volumes**

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 NAS volume

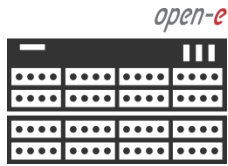
Use volume replication

WORM

add: 0.00 GB

apply

## 2. Configure the node-b



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

Now, on the node-b, go to "**Volume replication**". Within **Volume replication mode** function, check "**Destination**" checkbox for **lv0000**. 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. After applying all the changes, the status should be: *Reachable*.

### NOTE:

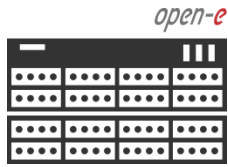
The Mirror server IP Address must be on the same subnet in order for the replication to communicate. VPN connections can work providing you are not using a NAT. Please follow example:

Source: 192.168.3.220 Destination: 192.168.3.221

The screenshot shows the Open-E DSS V7 web interface with the following configuration steps highlighted:


- Volume replication mode:** The "Destination" checkbox for logical volume **lv0000** is checked. The status is "done". The "apply" button is visible.
- Hosts Binding:** The "Define remote node" section is active. The "Remote node IP address" is set to 192.168.3.220. The "Remote node GUI (administrator) password" field is filled with dots. The "connect" button is visible.
- Create new volume replication task:** An info message states: "Volume replication tasks can not be created because there is no remote node connected."

### 3. Configure the node-a



Data Server (DSS1)  
**node-a**

IP Address: 192.168.0.220

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)

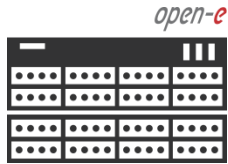
- Bandwidth for SyncSource (MB): =  $0.7 * 100 / 2 = 35$

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

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

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 main content area is divided into two panes. The left pane shows 'Vol. groups' with a single group 'vg00'. The right pane shows the 'Create new volume replication task' dialog box. The dialog has the following fields: 'Task name' (Mirror\_0000), 'Source volume' (lv0000), 'Destination volume' (lv0000), and 'Bandwidth for SyncSource (MB)' (35). A 'create' button is at the bottom right. Below the dialog is a 'Replication tasks manager' section with an 'Info' message: 'No tasks have been found.' Red arrows point from the text in the previous block to the 'Task name', 'Destination volume', and 'Bandwidth for SyncSource (MB)' fields.

## 3. Configure the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Now, in the **Replication task manager** function, click the corresponding "play" button to start the Replication task on 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 'Mirror\_0000'.
- Hosts Binding:** Displays configuration for 'node-a':
  - Remote node: node-a
  - Host name: node-b-5...
  - IP address: 192.168.3.221
  - Status: Reachable
  - There is a 'disconnect' button.
- Create new volume replication task:** Shows an information message: 'No volumes with replication functionality found or all volumes have a task assigned already.'
- Replication tasks manager:** Contains a table with the following data:
 

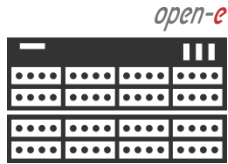
Name	Start time	Action
Mirror_0000	n/a	[Play] [Stop] [Delete]

 A red arrow points from the text box to the 'play' button in the 'Action' column for the 'Mirror\_0000' task.

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



### 3. Configure the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

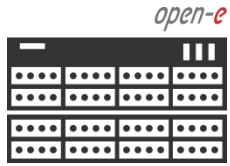
You may view information about currently running replication tasks in **Replication tasks manager function**.  
When a task is started, a date and time will appear.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The 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 panels: 'Hosts Binding' showing 'Remote node' with 'Host name: node-b-5...', 'IP address: 192.168.3.221', and 'Status: Reachable'; 'Create new volume replication task' with an 'Info' message: 'No volumes with replication functionality found or all volumes have a task assigned already.'; and 'Replication tasks manager' with a table:

Name	Start time	Action
Mirror_0000	2013-06-19 22:46:37	[Play] [Stop] [Delete]

A red arrow points from the text box to the 'Mirror\_0000' entry in the 'Replication tasks manager' table. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved.'

### 3. Configure the node-a




Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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 about the current replication task.

#### NOTE:

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

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb navigation indicates the current location: **You are here: Status > Tasks > Volume Replication**. The **Tasks** panel on the left shows a tree view with **Volume Replication** selected. The **Running tasks** table on the right displays the following information:

Name	Type	Start time
Mirror_0000	Volume replication	2013-06-19 22:46:37

Below the table, the following details are shown:

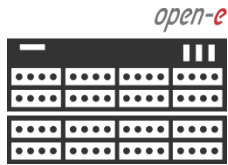
- Protocol type:** Synchronous
- Connection:** Connected
- Source info:**
  - Logical volume: lv0000
  - Consistency: Consistent
- Destination info:**
  - Logical volume: lv0000
  - Consistency: Consistent
  - IP address: 192.168.3.221

At the bottom, the **Tasks log** table shows the following entry:

Time	Name	Type	Status	Action
2013-06-19 22:46:46	Mirror_0000	Volume replication	OK	Started

Red arrows in the original image point from the text boxes to the 'Volume Replication' menu item and the dropdown arrow next to 'Mirror\_0000' in the screenshot.

#### 4. Create new target on the node-b



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

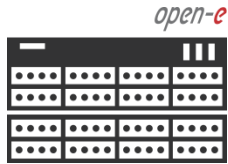
Choose **CONFIGURATION**, "iSCSI target manager" and "Targets" from the top menu.

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.

**NOTE:**

Both systems must have the same Target name.

## 4. Create new target on the node-b



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

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

To assign appropriate volume to the target (iqn.2013-06:mirror-0 -> lv0000) click **attach** button located under **Action**.

### NOTE:

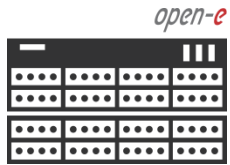
Volumes on both sides must have the same SCSI ID and LUN# for example: lv0000 SCSI ID on node-a = lv0000 SCSI ID on node-b. In this case before clicking the **attach** button please copy the SCSI ID and LUN# from this node.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb trail is: Configuration > iSCSI target manager > Targets > iqn.2013-06:mirror-0 (target0). The 'Targets' field contains 'target0'. The 'Target volume manager' section has two info messages. Below them is a table for 'Logical volumes attached to this target' which is empty. Below that is a table for 'Available logical volumes' with the following data:

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	cVMMIUSPA603m1nzB	0	write-through	attach

The 'attach' button is highlighted in red. At the bottom, there is an 'Event Viewer' section and a footer with 'Data Storage Software V7 - All rights reserved.'

## 5. Create new target on the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Next, go to node-a, click on **CONFIGURATION** and choose "iSCSI target manager" -> "Targets" from the menu.

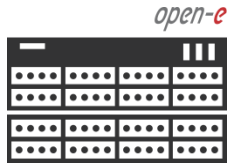
From the **Create new target** function, uncheck the box **Target Default Name**. In the **Name** field, enter a name for the new target and click **apply** to confirm.

### NOTE:

Both systems must have the same Target name.

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'open-e', 'ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS', and 'DATA STORAGE SOFTWARE V7'. The main menu has 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > iSCSI target manager > Targets'. The 'Targets' section is active, showing a 'Create new target' form. The form includes a checkbox for 'Target Default Name' (unchecked), a 'Name' field with the value 'iqn.2013-06:mirror-0', and an 'Alias' field with the value 'target0'. A red 'apply' button is present. Below the form is a section for 'Discovery CHAP user access' with radio buttons for 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. Another red 'apply' button is at the bottom of this section. The footer shows 'Event Viewer' and 'Data Storage Software V7 - All rights reserved.'

## 5. Create new target on the node-a



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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

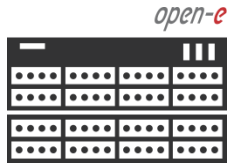
To assign appropriate volume to the target (iqn.2013-06:mirror-0 -> lv0000) click **attach** button located under **Action**.

### NOTE:

Before clicking the **attach** button again, please paste the SCSI ID and LUN# (previously copied) from the node-b.

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 > iSCSI target manager > Targets > iqn.2013-06:mirror-0 (target0)'. 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 'Target volume manager', contains an 'Info' section with a note about LUN 0, a table for 'Logical volumes attached to this target' (which is empty), and a table for 'Available logical volumes'. The 'Available logical volumes' table has columns for Volume, Type, SCSI ID, LUN, Access mode, and Action. One volume is listed: 'lv0000' with SCSI ID 'cVMMIUSPA603m1nzB' and LUN '0'. The 'Action' column for this volume contains an 'attach' button. A red arrow points from the 'attach' button in the screenshot to the 'attach' button in the text description. Below the 'Available logical volumes' table is a 'CHAP user access authentication' section with radio buttons for 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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.

open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS DATA STORAGE SOFTWARE V7

SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: Setup > Failover

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**

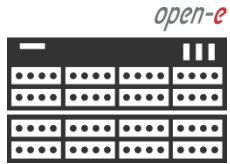
Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)
No ping nodes defined.		

add new ping node

Event Viewer

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## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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

open-e ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS DATA STORAGE SOFTWARE V7

SETUP CONFIGURATION MAINTENANCE STATUS HELP

You are here: Setup > Failover

### Auxiliary paths

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

Status	node-a-3... interface (local node)	node-b-5... interface (remote node)
Inactive	eth1 (192.168.1.220)	eth1 (192.168.1.221)
Inactive	eth3 (192.168.3.220)	eth3 (192.168.3.221)

#### New auxiliary path

Interface on local node: eth2 (192.168.2.220)

Interface on remote node: eth2 (192.168.2.221)

cancel add new auxiliary path

Please apply changes or press "reload" button to discard

### Ping nodes

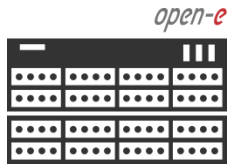
Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)
No ping nodes defined.		

★ Event Viewer

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## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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

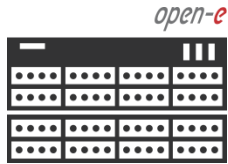
and the second ping node: 192.168.2.107

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'. A red button 'add new auxiliary path' is visible at the top right. The main content area features a 'Ping nodes' section with a table of existing nodes and a 'New ping node' form.

Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)	
192.168.1.107	Reachable	Reachable	

The 'New ping node' form has an 'IP address:' field containing '192.168.2.107' and two buttons: 'cancel' and 'add new ping node'. Below the form, a note says 'Please apply changes or press "reload" button to discard'. At the bottom, there is a 'Failover trigger policy' section with three radio button options: 'Ignore I/O errors', 'Trigger failover on I/O errors (any volume)' (which is selected), and 'Trigger failover on I/O errors (only volumes configured in failover)'. An 'Event Viewer' icon is in the bottom left corner.

## 6. Configure Failover



Data Server (DSS1)

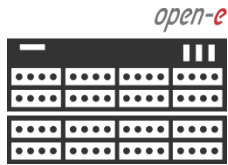
**node-a**

IP Address: 192.168.0.220

Next, go to the **Resources Pool Manager** function (on node-a resources) and click the **add virtual IP** button. After that, enter 1st **Virtual IP**, (in this example 192.168.20.100 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 shows the Open-E web interface for the Resources Pool Manager. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area is titled 'Resources pool manager' and shows two resource pools: 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. The 'node-a' pool is selected, and its status is 'unknown'. Below the pool information, there are buttons for 'move' and 'sync between nodes'. A tab labeled 'Virtual IP addresses' is active, and the 'add virtual IP' form is displayed. The form fields are: 'Virtual IP:' (192.168.20.100), '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):'. At the bottom of the form are 'cancel' and 'add' buttons. The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

Now, still on node-a resources (local node) enter the next Virtual IP address. Click **add virtual IP** enter 2nd **Virtual IP**, (in this example 192.168.21.100), and select two appropriate interfaces on the local and remote nodes. Then, click the **add** button.

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: eth2 (192.168.2.220)

Interface on remote node: eth2 (192.168.2.221)

Netmask: 255.255.255.0

Broadcast (optional):

cancel add

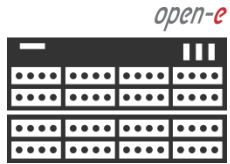
node-b-59979144 resources (remote node)

Status: **unknown** move

Event Viewer

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## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

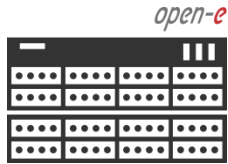
Now you have 2 **Virtual IP** addresses configured on two interfaces.

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 'Setup > Failover'. The main content area is titled 'Resources pool manager' and shows configuration for two nodes: 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. Both nodes have a status of 'unknown' and 'Synchronization status: not configured'. The 'node-a' section has tabs for 'Virtual IP addresses' and 'iSCSI resources'. Under 'Virtual IP addresses', there is a table with two rows of configuration:

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

Buttons for 'add virtual IP', 'move', and 'sync between nodes' are visible. The 'node-b' section has a tab for 'Virtual IP addresses' and a button for 'add or remove targets'. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

## 6. Configure Failover



Data Server (DSS1)

**node-a**

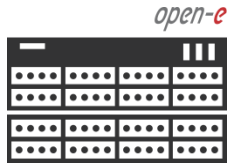
IP Address: 192.168.0.220

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 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 displays configuration for two nodes: 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. Both nodes have a status of 'unknown' and 'Synchronization status: not configured'. The 'node-a' section has tabs for 'Virtual IP addresses' and 'iSCSI resources'. The 'iSCSI resources' tab is active, showing two columns: 'Available targets' (empty) and 'Targets already in cluster' (containing 'iqn.2013-06:mirror-0'). A red arrow points from the 'Available targets' column to the 'Targets already in cluster' column, and another red arrow points to the 'apply' button. The bottom of the interface shows an 'Event Viewer' section and a footer with 'Data Storage Software V7 - All rights reserved'.

## 6. Configure Failover



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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.

**NOTE:**

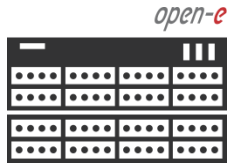
If the start button is grayed out, the setup has not been completed.

The screenshot shows the Open-E DSS V7 Failover Manager interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area displays the 'Failover Manager' window with the following details:

- 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.
- 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: not configured
    - Replication state: not configured
    - Persistent reservation synchronization: inactive
- Network statuses:**
  - Ping nodes: **2 of 2 reachable**
  - Auxiliary paths: 3 defined
- Remote node status:**
  - Remote node availability: **Reachable**
  - Remote node hostname: **node-b-59979144**
  - Remote node IP: **192.168.3.221**

A red 'start' button is visible at the top right of the Failover Manager window. A red arrow points from this button to the 'start' button in the diagram. Another red arrow points from the 'start' button in the diagram to the 'start' button in the screenshot.

## 7. Start Failover Service



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

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

### NOTE:

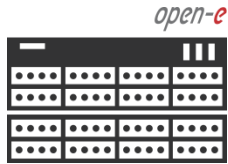
You can now connect with iSCSI Initiators. The storage client, in order to connect to target0 please setup multipath with following IP on the initiator side: 192.168.20.100 and 192.168.21.100.

The screenshot shows the Open-E DSS V7 Failover Manager interface. At the top, there's a navigation bar with 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. Below that, a breadcrumb trail says 'You are here: Setup > Failover'. The main content area is titled 'Failover Manager' and displays the following information:

- Cluster status:** Running - OK
- Important!** Please refer to [Failover Important notes](#) help for important information related to configuration and maintenance of failover services.
- stop** button
- 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: not configured
    - Replication state: not configured
    - Persistent reservation synchronization: active
- 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: 192.168.3.221

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

## 8. Test Failover Function



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

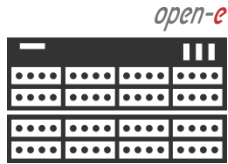
In order to test Failover, go to the **Resources pool manager** function. Then, in the **local node** resources, click on the **move to remote node** button and confirm this action by clicking the **move** button.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Setup > Failover'. 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 Virtual IPs settings. Please stop cluster in order to make changes.
- node-a-39166501 resources (local node):**
  - Info:** Targets have been added/removed successfully.
  - Status:** active on node-a.3... (local node)
  - Synchronization status:** synced
  - Buttons:** 'move to remote node' (highlighted with a red arrow), 'sync between nodes'
  - Virtual IP addresses:** [empty]
  - iSCSI resources:**
    - add or remove targets:** [button]
    - iSCSI target: target0 (iqn.2013-06:mirror-0)**
      - Replication task:** Mirror\_0000 (checked)
      - Logical volume:** lv0000
      - Replication task state:** OK
- node-b-59979144 resources (remote node):**
  - Status:** not configured
  - Synchronization status:** not configured
  - Buttons:** 'move', 'sync between nodes'



## 8. Test Failover Function



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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

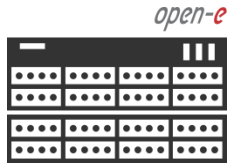
The screenshot shows the Open-E web interface for the Resources pool manager. The top navigation bar includes SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area displays the following information:

- Resources pool manager** (local node)
- Info**: While a cluster is running you are not able to change Virtual IPs 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: **syncd** (with a 'sync between nodes' button)
- Virtual IP addresses and iSCSI resources tabs
- add or remove targets button
- iSCSI target: target0 (iqn.2013-06:mirror-0)
- Replication task table:
 

Replication task	Logical volume	Replication task state
Mirror_0000	lv0000	OK
- node-b-59979144 resources** (remote node)
- Status: not configured (with a 'move' button)
- Synchronization status: not configured (with a 'sync between nodes' button)

A red arrow points from the text box to the 'syncd' synchronization status.

## 9. Run Failback Function



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

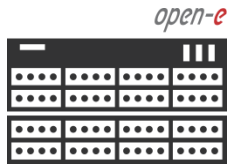
In order to test failback, click the **move to local node** button in the **Resources pool manager** box for local node resources and confirm this action by clicking the **move** button.

The screenshot shows the Open-E web interface for the Resources pool manager. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area is titled 'Resources pool manager' and contains the following information:

- Info:** While a cluster is running you are not able to change Virtual IPs 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)
  - Synchronization status:** synced
  - Virtual IP addresses:** [tab]
  - iSCSI resources:** [tab]
  - add or remove targets:** [button]
  - iSCSI target: target0 (iqn.2013-06:mirror-0)**
    - Replication task:** Mirror\_0000 (checked)
    - Logical volume:** lv0000
    - Replication task state:** OK
- node-b-59979144 resources (remote node):**
  - Status:** not configured
  - Synchronization status:** not configured

Buttons for 'move to local node', 'sync between nodes', and 'move' are visible. A red arrow points from the 'move to local node' button to the text box on the left.

## 9. Run Failback Function



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

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**.

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

### NOTE:

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 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 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: Setup > Failover'. The main content area is titled 'Resources pool manager' and displays the following information:

- Info:** While a cluster is running you are not able to change Virtual IPs 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) [move to remote node]
  - Synchronization status:** synced [sync between nodes]
- Virtual IP addresses:** iSCSI resources
- add or remove targets** [button]
- iSCSI target: target0 (lqn.2013-06:mirror-0)** [trash icon]

Replication task	Logical volume	Replication task state
▼ mirror_0000	lv0000	OK

- node-b-59979144 resources (remote node):**
  - Status:** not configured [move]
  - Synchronization status:** not configured [sync between nodes]

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

*open-e*

Thank You!

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