

Step-by-Step Guide to Synchronous Volume Replication (Block Based) with **Active-Passive** iSCSI Failover supported by Open-E[®] DSS[™] V7

Software Version: DSS ver. 7.00 up01

Presentation updated: August 2012

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

1. Hardware configuration:
 - Set server hostnames and ethernet ports on both systems
2. Configure the node-b :
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (destination and source mode) – set mirror IP address, create Volume Replication task and start the replication task
3. Configure the node-a
 - Create a Volume Group, iSCSI Volume
 - Configure Volume Replication mode (source and destination mode) – set mirror IP address, create Volume Replication task and start the replication task.
4. Configure Failover
5. Start Failover Service
6. Test Failover Function
7. Run Failback Function

Open-E DSS V7 Active-Passive iSCSI Failover



1. Hardware Configuration



Hardware Requirements:

To run the Active-Passive iSCSI Failover, two DSS systems are required. Both servers must be located and working in the Local Area Network. See below configurations for examples:

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

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

RAID System 1

RAID System 2

- Port used for WEB GUI management
IP: 192.168.0.220 **eth0**
- Volume Replication, Auxiliary connection (Heartbeat)
IP: 192.168.1.220 **eth1**
- Storage Client Access, Auxiliary connection (Heartbeat)
bond0 IP: 192.168.2.220 (**eth2, eth3**)
- Volume Groups (vg00)
- iSCSI volume (lv0000)
- iSCSI target

- Port used for WEB GUI management
IP: 192.168.0.221 **eth0**
- Volume Replication, Auxiliary connection (Heartbeat)
IP: 192.168.1.221 **eth1**
- Storage Client Access, Auxiliary connection (Heartbeat)
bond0 IP: 192.168.2.221 (**eth2, eth3**)
- Volume Groups (vg00)
- iSCSI volume (lv0000)
- iSCSI target

Note:
It is strongly recommended to use direct point-to-point and if possible 10Gb connection for the volume replication.
Optionally it can work over the switch, but the most reliable is direct connection.

Virtual IP Address:
192.168.20.100 (iSCSI Target)

iSCSI Failover/Volume Replication (eth1)

NOTE:

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



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

1. Hardware Configuration

After logging into Open-E DSS V7 on the secondary node, please go to the **SETUP** tab, and click „Network Interfaces”. Next, in the **Hostname** box replace the "dss" letters (they are located 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 'SETUP' tab is active, and the breadcrumb trail shows 'You are here: Setup > Network interfaces'. The 'Interfaces' section on the left lists network interfaces eth0, eth1, eth2, and eth3. The 'Server name' section has a text input field containing 'dss2' and a comment field containing 'Data Storage Software'. The 'Hostname' section has a text input field containing 'node-b-59979144'. The 'DNS settings' section has a text input field containing '194.204.152.34;194.204.159.1'. Each section has an 'apply' button. A blue box on the left contains instructions, with arrows pointing to the 'Interfaces' list and the 'Hostname' input field.



Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

Next, please select **eth0** interface and change the IP Address from 192.168.0.220 to 192.168.0.221 in the field **IP address** and click **apply**. (This will restart network configurations).

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'. On the left, the 'Interfaces' panel lists eth0, eth1, eth2, and eth3, with eth0 selected. The main content area shows the configuration for the selected interface, including a warning that the current connection is through this interface. The 'IP address' section 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 of the configuration panel.



Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

Afterwards, select **eth1** interface and change the IP address from 192.168.1.220 to 192.168 .1.221 in the field **IP address** and click the **apply** button.

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 > eth1'. On the left, the 'Interfaces' panel lists eth0, eth1 (selected), eth2, and eth3. The 'Interface info' panel shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' panel has 'Active' checked, 'Static' selected, and the IP address field set to '192.168.1.221'. Other fields include MAC (00:04:23:B9:86:FB), Netmask (255.255.255.0), Broadcast (auto), and Gateway. An 'apply' button is at the bottom right.



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

1. Hardware Configuration

Once again, select Network **Interfaces** and in the „**Create new bond interface**” function check two boxes with **eth2** and **eth3**. Next, in the field **Create** select a bonding mode. In this example select **New balance-rr**.

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	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes

Create:

MAC:

DHCP

Static

Address IP:

Netmask:

Broadcast:

Gateway:



Data Server (DSS1)

node-a

IP Address:192.168.0.220

1. Hardware Configuration

After logging into the primary node, please go to the **SETUP** tab and click „**Network interfaces**“. Next, in **Hostname** box replace the "dss" letters (they are located in front of the numbers) with „node-a server“ (in this example „**node-a-39166501**“) and click the **apply** button. Please note, 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. The main content area is divided into three sections: 'Server name', 'Hostname', and 'DNS settings'. The 'Server name' section has a text input field containing 'dss1' and a comment field containing 'Data Storage Software'. The 'Hostname' section has a text input field containing 'node-a-39166501'. The 'DNS settings' section has a text input field containing '194.204.152.34;194.204.159.1'. Each section has an 'apply' button. A blue arrow points from the text box on the left to the 'node-a-39166501' hostname field.

Open-E DSS V7 Active-Passive iSCSI Failover

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

1. Hardware Configuration

Next, in the **Create new bond interface** function check two boxes with **eth2** and **eth3**. In the field **Create** select a bonding mode. In this example select **New balance-rr**.

Next, enter the IP Address in the field **Address IP** 192.168 .2.220, **Netmask** (is there something missing here?) . 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	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth2	yes	cable	yes
<input checked="" type="checkbox"/>	<input type="checkbox"/>	eth3	yes	cable	yes



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Configure the node-b

Under the **CONFIGURATION** menu, please select „**Volume manager**” and click on **Volume groups**.

Next, in the **Unit manager** function 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 sections:

- Vol. groups:** A section for managing volume groups, currently empty.
- Unit rescan:** A section with a 'rescan' button.
- Unit manager:** A section containing a table of units and a form to create 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
- Vol. replication:** A section for managing volume replication, currently empty.
- Drive identifier:** A section containing a table of drives.

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

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

Open-E DSS V7 Active-Passive iSCSI Failover



Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. 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. The logical volume (**lv0000**) will be the destination of the replication process on node-b.

Next check the box with **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'. On the left, the 'Vol. groups' section shows 'vg00' selected. Below it, the 'Vol. replication' section has the 'Use volume replication' checkbox checked. On the right, the 'Volume manager' section shows system volumes: 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). The 'Action' dropdown is set to 'new iSCSI volume' and 'Options' is 'Just create volume'. Under 'Block I/O', the 'Rate' is set to 'medium' and the size is '50 GB (+0.12 GB for replication)'. The 'apply' button is highlighted in red.



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

2. Configure the node-b

Logical iSCSI Volume Block I/O is now configured.



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

Action:

Use volume replication

WORM

0 | 239.94

< > add: GB

apply

★ Event Viewer

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

3. Configure the node-a

Next, go to the node-a system.
Under **CONFIGURATION**, select
„Volume manager” and click on
„Volume groups”.

Now, add the selected physical
units (**Unit S001** or other) to create
a new volume group (in this case,
vg00) and click the **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 help icon. An arrow points to this panel from the first instruction box.
- Unit rescan:** A panel with a refresh icon and a help icon, containing a red 'rescan' button.
- Unit manager:** A panel with a refresh icon and a help icon. It contains a table with the following data:

Unit	Size (GB)	Serial number	Status
Unit S001	465.70	N/A	available

Below the table, there is an 'Action:' dropdown menu set to 'new volume group' and a 'Name:' input field containing 'vg00'. A red 'apply' button is at the bottom. A blue note says 'Please apply changes or press "reload" button to discard'. An arrow points from the second instruction box to the 'Unit S001' row, and another arrow points to the 'Name:' field.
- Vol. replication:** A panel with a settings icon and a help icon.
- Drive identifier:** A panel with a refresh icon and a help icon. It contains a table with the following data:

Unit	Serial number	Status
Unit S001	N/A	

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

Open-E DSS V7 Active-Passive iSCSI Failover



Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. 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. The logical volume (**lv0000**) will be the source of the replication process on node-a.

Next , check the box **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: '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. In the 'Vol. groups' panel, the 'vg00' group is selected. In the 'Volume manager' panel, 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. Under 'Block I/O', the 'Rate' is set to 'medium' and the size is set to '50 GB' with a note '(+0.12 GB for replication)'. The 'Free' space available is 457.66 GB. At the bottom right, there is a red 'apply' button. A footer note says 'Please apply changes or press "reload" button to discard'. The bottom of the page shows '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



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

3. Configure the node-a

Logical iSCSI Volume Block I/O is now configured.



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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	407.53

Action: new NAS volume

Use volume replication

WORM

add: 0.00 GB

apply

Event Viewer

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Open-E DSS V7 Active-Passive iSCSI Failover

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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Configure the node-b

Now, on node-b select „Volume replication” and check the box under **Destination** with lv0000. Next, click the **apply** button.

In the **Hosts binding** function, enter the IP address of the node-a (in our example, this would be 192.168.1.220) and enter the administrator password. Next, click the **apply** button. After applying all the changes, the status should be: *Reachable*.

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 'Vol. groups' section shows a group 'vg00' with a red dot. The 'Volume replication mode' table shows a logical volume 'lv0000' with 'Init' status 'done', 'Source' unchecked, and 'Destination' checked. The 'Hosts binding' section shows 'Define remote node' with 'Remote node IP address' set to '192.168.1.220' and 'Remote node GUI (administrator) password' masked with dots. The 'Create new volume replication task' section shows an info message: 'Volume replication tasks can not be created because there is no remote node connected.' The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

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

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: 192.168.1.220
- Destination: 192.168.1.221




Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

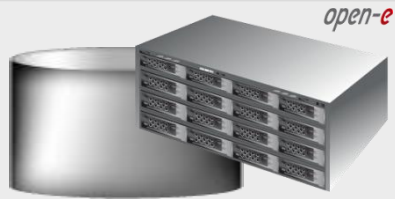
Next, on node-a select the „Volume replication”. In **Create new volume replication task** enter the task name in field **Task name** next click on the  button.

In the **Destination volume** field select the appropriate volume (in this example, **lv0000**) and click **create** to confirm.

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'.
- Vol. replication:** Contains the 'Create new volume replication task' form. The form fields are:
 - Task name: MirrorTask-a
 - Source volume: lv0000
 - Destination volume: lv0000
 - Bandwidth for SyncSource (MB): 40A red 'create' button is located at the bottom right of the form. A blue note below the form reads: 'Please apply changes or press "reload" button to discard'.
- Replication tasks manager:** Shows an 'Info' message: 'No tasks have been found.'

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



Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

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 '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:** Shows a remote node configuration with 'Host name: node-b-5...', 'IP address: 192.168.1.221', 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 with columns 'Name', 'Start time', and 'Action'. It lists 'MirrorTask-a' with a start time of 'n/a'. A blue arrow points from the text box to the play button in the 'Action' column.

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

3. Configure the node-a

You will be able to find information about the current running replication task in the **Replication tasks manager** tab. When a task is complete 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 current page is 'Volume replication' under 'Volume manager'. The interface is divided into several sections:

- Vol. groups:** Shows a single group named 'vg00'.
- Vol. replication:** Shows a single task named 'MirrorTask-a'.
- Host information:** Displays 'Host name: node-b-5...', 'IP address: 192.168.1.221', and 'Status: Reachable'. A 'disconnect' button is present.
- 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 showing the details of the 'MirrorTask-a' task.

Name	Start time	Action
MirrorTask-a	2012-08-12 22:42:34	[Play] [Stop] [Delete]

Additional details for the task:

- Source volume: lv0000
- Destination volume: lv0000
- Destination IP: 192.168.1.221
- Protocol type: Synchronous


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



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

3. Configure the node-a

Under the **STATUS** tab, select „Tasks” and „Volume Replication”.

Next, click on the  button with a task name (in this case MirrorTask) to display detailed information about the current replication task.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The current page is titled "Volume Replication" under the "Tasks" section. The "Tasks" list on the left includes Data (File) Replication, Antivirus, Volume Replication (selected), and Snapshots. The "Running tasks" table shows a task named "MirrorTask-a" of type "Volume replication" starting at 2012-08-12 22:42:34. The task details show protocol type as Synchronous, connection as Connected, and source and destination info as Logical volume: iV0000, Consistency: Consistent, and IP address: 192.168.1.221. The "Tasks log" table at the bottom shows a log entry for "MirrorTask-a" with status "OK" and action "Started".

Name	Type	Start time
MirrorTask-a	Volume replication	2012-08-12 22:42:34

Time	Name	Type	Status	Action
2012-08-12 22:42:41	MirrorTask-a	Volume replication	OK	Started

NOTE:

Please allow the replication task to finish and the status to state "Consistent" before writing to the iSCSI Logical Volume.



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

4. Create new target on the node-b

On node-b please go to **CONFIGURATION**, and choose „iSCSI target manager” → **Targets**

Next in the „Create new target” function, uncheck the box **Target Default Name** and enter a name for the new target in the Name field. Once done, click **apply** to confirm.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Configuration > iSCSI target manager > Targets'. The main content area is divided into two panels: 'Targets' and 'Create new target'. The 'Create new target' panel has a 'Target Default Name' checkbox which is unchecked. Below it are input fields for 'Name:' (containing 'mirror-01') and 'Alias:' (containing 'target0'). A red 'apply' button is at the bottom right of this panel. Below the 'Create new target' panel is the 'Discovery CHAP user access' section, which has two radio button options: 'No discovery CHAP user access authentication' (selected) and 'Enable discovery CHAP user access authentication'. A red '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.



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

4. Create new target on the node-b

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

To assign appropriate volume to the target and click the **+** button located under **Action**.

NOTE:
Both systems must have the same SCSI ID and LUN#

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



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

5. Create new target on the node-a

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

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

iSCSI targets



NOTE:
Both systems must have the same Target name.



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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 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 > mirror-01 (target0). The main content area is divided into several panels:

- Targets:** A list containing 'target0' with a red dot next to it. A blue arrow points from this list to the 'Info' section of the 'Target volume manager' panel.
- Target volume manager:** Contains two 'Info' sections. The first says: '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.' The second says: '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.' Below this is a table with columns: Volume, SCSI ID, LUN, RO, WB, and Action. The table has one row with values: 'l0000', 'aZNDUILKjgdNISdJ', '0', a checked checkbox for RO, an unchecked checkbox for WB, and a '+' button in the Action column. A blue arrow points from the '+' button to the 'Action' column header.
- CHAP users:** A panel with a settings icon and a question mark.
- CHAP user access authentication:** Contains two radio buttons: 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. There is an 'apply' button at the bottom right.

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

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) !



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 auxiliary path interface 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

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

New auxiliary path

Interface on local node: bond0 (192.168.2.220)

Interface on remote node: bond0 (192.168.2.221)

cancel | add new auxiliary path

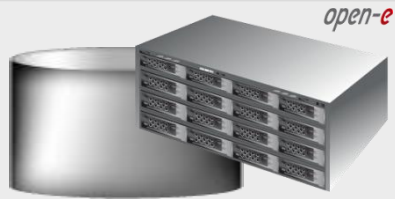
Please apply changes or press "reload" button to discard

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

6. Configure Failover

In the „Ping nodes” function, in the field IP address, enter the IP address and click on the **add new ping node** button (according to the configuration of the third slide) . In this example, the IP address of the ping node is: 192.168.2.7

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	bond0 (192.168.2.220)	bond0 (192.168.2.221)	

add new auxiliary path

Ping nodes

Ping node IP address	node-a-3... status (local node)	node-b-5... status (remote node)
New ping node		
IP address:		<input type="text" value="192.168.2.7"/>

cancel **add new ping node**

Please apply changes or press "reload" button to discard



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

Next, go to the „Resources Pool Manager” function and click the **add virtual IP** button. After that, enter the **Virtual IP** on the local node, (in this example: 192.168.20.100 according to the configuration of the third slide) and select two appropriate interfaces on the local and remote nodes. Next, 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 'Failover' under 'Setup'. The main content area is titled 'Resources pool manager' and shows configuration for 'node-a-39166501 resources (local node)'. The status is 'unknown' 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 'add virtual IP' form is active, with fields for 'Virtual IP' (192.168.20.100), 'Interface on local node' (bond0 (192.168.2.220)), 'Interface on remote node' (bond0 (192.168.2.221)), and 'Netmask' (255.255.255.0). There are 'cancel' and 'add' buttons at the bottom of the form. Below the form, there is a section for 'node-b-59979144 resources (remote node)' with a status of 'unknown' and a 'move' button. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.



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-01** 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 shows 'node-a-39166501 resources (local node)'. An 'Info' message states 'Virtual IP has been created successfully.' Below this, the status is 'unknown' and synchronization is 'not configured'. There are buttons for 'move' and 'sync between nodes'. A tab for 'iSCSI resources' is selected. Below this, there are two lists: 'Available targets' (empty) and 'Targets already in cluster' (containing 'mirror-01'). There are arrows between the lists and 'cancel'/'apply' buttons. At the bottom, there is an 'Event Viewer' section and a footer with 'Data Storage Software V7 - All rights reserved'.



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

6. Configure Failover

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

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 manager'. The cluster status is 'Ready for Start'. A red 'start' button is visible. Below this, there are sections for 'Resources pool', 'Network statuses', and 'Remote node status'. The 'Resources pool' section shows 'node-a-39166501 (local node) resources pool' with status 'inactive' and 'Replication state: synced', and 'node-b-59979144 (remote node) resources pool' with status 'not configured' and 'Replication state: not configured'. The 'Network statuses' section shows 'Ping nodes: 1 of 1 reachable' and 'Auxiliary paths: 2 defined'. The 'Remote node status' section shows 'Remote node availability: Reachable', 'Remote node hostname: node-b-59979144', and 'Remote node IP: 192.168.1.221'. A 'start' button is located between the 'Cluster status' and 'Resources pool' sections. A blue box on the left contains text explaining the next steps, with arrows pointing to the 'start' button and the 'Failover manager' header.

NOTE:
If the start button is not red, the setup has not been completed



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 manager'. The main content area displays 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: not configured
 - Replication state: not configured
- Network statuses:**
 - Ping nodes: 1 of 1 reachable
 - Auxiliary paths: 2 of 2 reachable
- Remote node status:**
 - Remote node availability: Reachable
 - Remote node hostname: node-b-59979144
 - Remote node IP: 192.168.1.221

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

NOTE:

You can now connect via your iSCSI initiator and use your targets via the Virtual IP address e.g. 192.168.20.100 (For example, in a Microsoft Windows environment, please use Microsoft iSCSI Initiator).



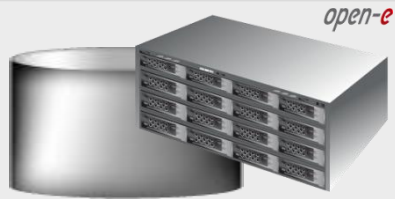
Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

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



Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

After performing this, 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. At the top, there is a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. Below the navigation bar, the breadcrumb path is "You are here: Setup > Failover". 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) [Red button: move to local node]
 - Synchronization status:** synced [Grey button: sync between nodes]
 - Virtual IP addresses / iSCSI resources:**
 - add virtual IP** button
 - | Virtual IP | Interface on local node: | Interface on remote node: |
|----------------|--------------------------|---------------------------|
| 192.168.20.100 | bond0 (192.168.2.220) | bond0 (192.168.2.221) |
- node-b-59979144 resources (remote node):**
 - Status:** not configured [Grey button: move]
 - Synchronization status:** not configured [Grey button: sync between nodes]
 - Virtual IP addresses / iSCSI resources:**

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



Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

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

The screenshot shows the Open-E DSS V7 web 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 'Resources pool manager'. It contains an 'Info' message: 'While a cluster is running you are not able to change settings. Please stop cluster in order to make changes.' Below this, it shows 'node-a-39166501 resources (local node)'. Another 'Info' message says 'Resources were moved successfully.' The status is 'active on node-b-5... (remote node)'. There are two buttons: 'move to local node' (highlighted in red) and 'sync between nodes'. Below this, there's a section for 'Virtual IP addresses' and 'iSCSI resources'. Under 'iSCSI resources', there's a table for 'iSCSI target: target0 (mirror-01)'. The table has columns for 'Replication task', 'Logical volume', and 'Replication task state'. The row shows 'MirrorTask-a', 'lv0000', and 'OK'. Below the table, there's a 'move' button. At the bottom, there's an 'Event Viewer' section and a footer with 'Data Storage Software V7 - All rights reserved'.



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

9. Run Failback Function

After completing this, the status for node-a resources should state „active on node-a” (local node) and the Synchronization status should state: **synced**.

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 configuration and testing of Active-Passive 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 current page is 'Setup > Failover'. The main content area is titled 'Resources pool manager' and displays information for 'node-a-39166501 resources (local node)'. The status is 'active on node-a-3... (local node)' and the synchronization status is 'synced'. There are buttons for 'move to remote node' and 'sync between nodes'. Below this, there is a section for 'Virtual IP addresses' and 'iSCSI resources' with an 'add virtual IP' button. A table shows the following data:

Virtual IP	Interface on local node:	Interface on remote node:
192.168.20.100	bond0 (192.168.2.220)	bond0 (192.168.2.221)

Below the table, there is information for 'node-b-59979144 resources (remote node)'. The status is 'not configured' and the synchronization status is 'not configured'. There are buttons for 'move' and 'sync between nodes'. The bottom of the interface shows 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

Thank you!

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