

Step-by-Step Guide

to configure

Open-E DSS V7 Active-Passive iSCSI Failover on Intel Server Systems R2224GZ4GC4

Software Version: DSS ver. 7.00 up05

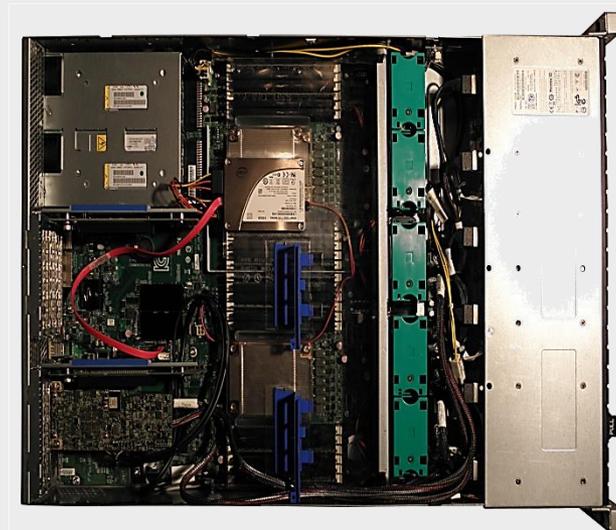
Presentation updated: April 2013



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*

TECHNICAL SPECIFICATIONS OF THE INTEL SERVER SYSTEM R2224GZ4GC4 USED DURING TESTS ARE LISTED BELOW:

Model	Intel Server System R2224GZ4GC4
Operating system	Open-E DSS V7
Enclosure/chassis	Intel R2224 2U Chassis
CPU	Intel Xeon E5-2643 3.30GHz
Motherboard	Intel Server Board S2600GZ
Memory	8x 4GB DDR3 1600 ECC-REG Kingston KVR16R11D8/4
Network	1GbE Intel I350 Quad Port Ethernet Controller (on-board)
Network	10GbE Intel AXX10GBNIAIOM Dual Port I/O Module (i82599EB)
HW RAID	Intel Integrated RAID Module RMS25PB080
Hard disk drives	24x 900GB Western Digital WD9001BKHG-02D22V1
Hard disk drives	100GB Intel 710 Series SSDSA2BZ100G301



NOTE:

Presented Intel server is an example. Other Intel servers could be used for the purpose of this configuration.



TO SET UP ACTIVE-PASSIVE iSCSI FAILOVER ON INTEL SERVER SYSTEMS R2224GZ4GC4, GO THROUGH 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



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Storage client

IP:192.168.0.101 eth0

IP:192.168.20.101 eth1 (MPIO)

IP:192.168.21.101 eth2 (MPIO)



1. Hardware Configuration

Data Server (DSS1)

node-a (Intel Server System R2224GZ4GC4)

IP Address:192.168.0.220



RAID System 1

Port used for WEB GUI management
IP:192.168.0.220

eth0

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

eth1

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

eth2

Volume Replication,
Auxilliary connection (Heartbeat)
IP:192.168.3.220

eth3

Volume Groups (vg00)



iSCSI volumes (lv0000)

iSCSI targets



PING NODES:

IP Addresses:
192.168.1.107

192.168.2.107



Switch 1

Switch 2



Data Server (DSS2)

(Intel Server System R2224GZ4GC4) **node-b**

IP Address:192.168.0.221



RAID System 2

Port used for WEB GUI management
IP:192.168.0.221

eth0

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

eth1

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

eth2

Volume Replication,
Auxilliary connection (Heartbeat)
IP:192.168.3.221

eth3

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.



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

After logging on to the Open-E DSS V7 (node-b), please go to **SETUP** and choose the "**Network interfaces**" option.

In the **Hostname** box, replace the "dss" letters in front of the numbers with "node-b" server, in this example "**node-b-59979144**" and click the **apply** button (this will require a reboot).

The screenshot displays 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 eth0, eth1, eth2, and eth3. The 'Server name' section has 'Server name:' set to 'dss2' and 'Comment:' set to 'Data Storage Software'. The 'Hostname' section has 'Hostname:' set to 'node-b-59979144'. The 'DNS settings' section has 'DNS' set to '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 'Network interfaces' and 'Hostname' sections.



Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The 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 system is currently connected 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.



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

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

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

The screenshot displays the Open-E DSS V7 web management interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces > eth1'. On the left, a list of interfaces shows 'eth1' selected. The main content area is divided into two panels: 'Interface info' and 'IP address'. The 'Interface info' panel shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' panel has 'Active' checked, 'DHCP' unselected, and 'Static' selected. The 'IP address' field is set to '192.168.1.221', 'Netmask' is '255.255.255.0', and 'Broadcast' is 'auto'. An 'apply' button is at the bottom right. A blue box with arrows points to the 'eth1' interface in the list and the 'IP address' field.



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Data Server (DSS1)

node-a

IP Address:192.168.0.220

1. Hardware Configuration

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

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Network interfaces'. On the left, there is a list of interfaces: eth0, eth1, eth2, and eth3. On the right, there are three configuration panels: 'Server name' (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 blue arrow points from the text box to the 'node-a-39166501' input field in the 'Hostname' section.



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Configure the node-b

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

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

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

- Vol. groups**: A panel with a settings icon and a help icon.
- 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, containing a table of units and an 'Action' dropdown menu.
- Vol. replication**: A panel with a settings icon and a help icon.
- Drive identifier**: A panel with a refresh icon and a help icon, containing a table of drive identifiers.

The 'Unit manager' table is as follows:

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

The 'Action' dropdown menu is set to 'new volume group'. The 'Name' field contains 'vg00'. A red 'apply' button is visible below the form.

The 'Drive identifier' table is as follows:

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

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



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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 **Use volume replication**.

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > Volume manager > Volume groups > vg00'. The left sidebar shows a list of volume groups with 'vg00' selected. The main content area is divided into two panels: 'Vol. groups' and 'Vol. replication'. The 'Vol. replication' panel has a checkbox for 'Use volume replication' which is checked. The 'Volume manager' panel shows system volumes and their sizes. Below this, there are configuration options for creating a new iSCSI volume, including 'Action' (set to 'new iSCSI volume'), 'Options' (set to 'Just create volume'), and 'Use volume replication' (checked). There are also radio buttons for 'File I/O' and 'Block I/O', with 'Block I/O' selected. The 'Rate' is set to 'medium'. At the bottom, there is a slider for volume size, currently set to 50 GB, with an 'add' button and a red 'apply' button. A footer note says 'Please apply changes or press "reload" button to discard'.



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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.



The screenshot shows the Open-E DSS V7 Volume manager interface. The breadcrumb trail is: Configuration > Volume manager > Volume groups > vg00. The 'Vol. groups' panel on the left shows 'vg00'. The 'Volume manager' panel on the right displays a success message: 'Logical volume lv0000 has been created successfully.' Below this is a table with the following data:

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

Below the table, the 'System volumes' section shows:

- SWAP: 4.00 GB
- Reserved for snapshots: 0.00 GB
- Reserved for system: 4.00 GB
- Reserved for replication: 0.13 GB
- Free: 239.94 GB

The 'Action:' dropdown is set to 'new NAS volume'. There are checkboxes for 'Use volume replication' and 'WORM', both of which are unchecked. At the bottom, there is a slider for volume size, currently at 0.00 GB, with an 'add:' button and a text input field containing '0.00' GB. An 'apply' button is located at the bottom right.



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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 then click on "Volume groups".

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



Volume Groups (vg00)

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

- Vol. groups:** A panel for managing volume groups, currently empty.
- Unit rescan:** A panel with a 'rescan' button.
- Unit manager:** A table listing available units. Unit S001 is selected with a checkmark. Below the table, the 'Action' dropdown is set to 'new volume group' and the 'Name' field contains 'vg00'. An 'apply' button is visible at the bottom.
- Vol. replication:** A panel for managing volume replication, currently empty.
- Drive identifier:** A table listing physical units. Unit S001 is listed with a status of 'available'.

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



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Data Server (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 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 'Vol. groups' with 'vg00' selected and 'Vol. replication' below it. 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	457.66

Below the table, the 'Action' dropdown is set to 'new iSCSI volume' and 'Options' 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 'apply' button is highlighted in red.



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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.

 iSCSI volume (lv0000)

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 'Vol. groups' section on the left shows 'vg00'. The 'Volume manager' section on the right displays a message: 'Logical volume lv0000 has been created successfully.' Below this is a table of logical volumes:

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

Below the table, the 'System volumes' section shows the following details:

- SWAP: 4.00 GB
- Reserved for snapshots: 0.00 GB
- Reserved for system: 4.00 GB
- Reserved for replication: 0.13 GB
- Free: 407.53 GB

The 'Action:' dropdown is set to 'new NAS volume'. There are checkboxes for 'Use volume replication' and 'WORM', both of which are unchecked. At the bottom, there is a slider for 'add:' with a value of '0.00' GB and an 'apply' button.



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Data Server (DSS2)

node-b

IP Address:192.168.0.221

2. Configure the node-b

Now, on the node-b, go to "Volume replication". Within Volume replication mode function, check the Destination box 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*.

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:** A table with one entry: 'vg00'.
- Vol. replication:** A table with one entry: 'lv0000'. The 'Destination' column has a checked checkbox.
- Volume replication mode:** A table with columns: Logical Volume, Init, Source, Destination, Clear metadata. The 'lv0000' row shows 'done' in the Init column and a checked checkbox in the Destination column. A red 'apply' button is visible below the table.
- Hosts binding:** A section titled 'Define remote node' with two input fields: 'Remote node IP address:' (containing '192.168.3.220') and 'Remote node GUI (administrator) password:' (containing '*****'). A red 'connect' button is at the bottom.
- Create new volume replication task:** A section with an 'Info' icon and a message: 'Volume replication tasks can not be created because there is no remote node connected.'

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

NOTE:

The 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



Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

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

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

The screenshot displays the Open-E 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 'Create new volume replication task' form is the central focus, with fields for 'Task name' (MirrorTask-a), 'Source volume' (lv0000), 'Destination volume' (lv0000), and 'Bandwidth for SyncSource (MB)' (600). A 'create' button is at the bottom right of the form. The 'Vol. groups' section on the left shows 'vg00'. The 'Vol. replication' section is empty. The 'Replication tasks manager' section at the bottom shows 'No tasks have been found.'



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Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

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

- Vol. groups:** Shows a single group named 'vg00'.
- Vol. replication:** Shows a single replication task named 'MirrorTask-a'.
- Hosts binding:** Shows a 'Remote node' configuration for 'node-b-5...' with an 'IP address' of '192.168.3.221' and a 'Status' of 'Reachable'. A 'disconnect' button is visible.
- Create new volume replication task:** Displays an 'Info' 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 'play' button in the 'Action' column to the 'play' button in the 'Replication task manager' section.

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

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



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Data Server (DSS1)

node-a

IP Address: 192.168.0.220

3. Configure the node-a

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Configuration > Volume manager > Volume replication

Vol. groups

- vg00

Vol. replication

- MirrorTask-a

Remote node

Host name: node-b-5... IP address: 192.168.3.221 Status: **Reachable**

disconnect

Create new volume replication task

Info

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

Replication tasks manager

Name	Start time	Action
MirrorTask-a	2012-11-04 20:30:29	[Play] [Stop] [Delete]

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

★ Event Viewer

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



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Data Server (DSS1)

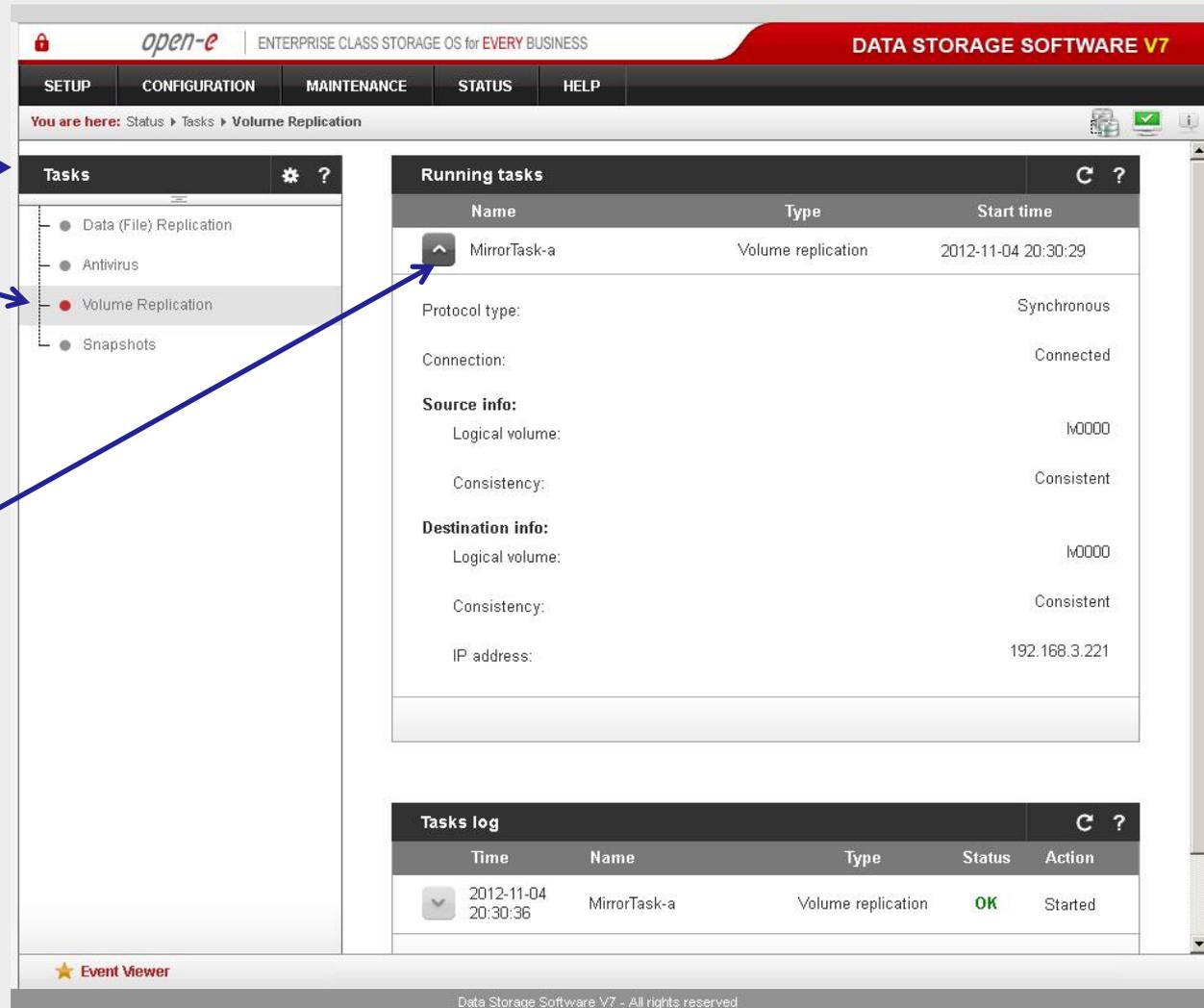
node-a

IP Address:192.168.0.220

3. Configure the node-a

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

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



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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Status > Tasks > Volume Replication

Tasks

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

Running tasks

Name	Type	Start time
 MirrorTask-a	Volume replication	2012-11-04 20:30:29

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

Tasks log

Time	Name	Type	Status	Action
 2012-11-04 20:30:36	MirrorTask-a	Volume replication	OK	Started

★ Event Viewer

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NOTE:

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



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

4. Create new target on the node-b

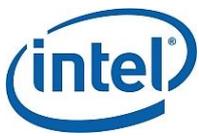
Choose **CONFIGURATION**, "iSCSI target manager" and "Targets" from the top menu.

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

iSCSI targets



NOTE:
Both systems must have the same Target name.



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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 (iqn.2012-11:mirror-0 -> lv0000) and click the **+** button located under **Action**.

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SETUP | CONFIGURATION | MAINTENANCE | STATUS | HELP

You are here: Configuration > iSCSI target manager > Targets > iqn.2012-11:mirror-0 (target0)

Targets

- target0

Target volume manager

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

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

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

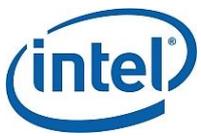
Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	cWMIUSPA603m1nzB	0	write-through	+ -

CHAP user access authentication

- No CHAP user access authentication
- Enable CHAP user access authentication

★ Event Viewer

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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" and "Targets" from the menu.

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

iSCSI targets



NOTE:

Both systems must have the same Target name.



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

After that, select target0 within the Targets field.

To assign appropriate volume to the target (iqn.2012-11:mirror-0 -> lv0000) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb navigation is: Configuration > iSCSI target manager > Targets > iqn.2012-11:mirror-0 (target0). The main content area is divided into three panels: 'Targets', 'Target volume manager', and 'CHAP users'. The 'Targets' panel shows a list with 'target0'. The 'Target volume manager' panel has an 'Info' section and a table with columns: Volume, Type, SCSI ID, LUN, Access mode, and Action. The table contains one row with Volume 'lv0000', Type 'iSCSI', SCSI ID 'cWMMIUSPA603m1nzB', LUN '0', and Access mode 'write-through'. The 'Action' column has a '+' button. The 'CHAP users' panel is empty. At the bottom right, there is an 'apply' button.

Volume	Type	SCSI ID	LUN	Access mode	Action
lv0000	iSCSI	cWMMIUSPA603m1nzB	0	write-through	+

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



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

6. Configure Failover

On the node-a go to **Setup** and select "Failover"

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

Auxiliary paths

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

New auxiliary path

Interface on local node:

Interface on remote node:

Please apply changes or press "reload" button to discard

Ping nodes

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

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

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



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Failover

In the "Ping nodes" function, enter two ping nodes. In the IP address field enter IP address and click the **add new ping node** button (according to the configuration in the third slide). In this example, IP address of the first ping node is: 192.168.1.107 and the second ping node: 192.168.2.107

The screenshot displays the Open-E DSS V7 web interface. At the top, there is a navigation menu with 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover'. Below the navigation, there is a table of auxiliary paths:

Status	Primary Path	Secondary Path	Action
Inactive	eth2 (192.168.2.220)	eth2 (192.168.2.221)	[Delete]
Inactive	eth3 (192.168.3.220)	eth3 (192.168.3.221)	[Delete]

Below the table is a red button labeled 'add new auxiliary path'. A modal window titled 'Ping nodes' is open, showing a success message: 'Ping node has been added successfully.' Below the message is a table of ping nodes:

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

Below the table is a 'New ping node' form with the following fields:

- IP address: 192.168.2.107

At the bottom of the modal are 'cancel' and 'add new ping node' buttons. A footer message reads: 'Please apply changes or press "reload" button to discard'. The bottom of the page features an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved'.



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Failover

Next, go to the **Resources Pool Manager** function (on node-a resources) and click the **add virtual IP** button. After that, enter 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.



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



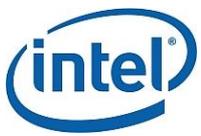
Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Failover

Now, still on node-a resources (local node) enter the next Virtual IP address. Click **add virtual IP** enter 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.



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

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 the 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 'Virtual IP addresses' tab is selected for both nodes. For node-a, two virtual IP addresses are listed: 192.168.20.100 and 192.168.21.100. Each virtual IP is associated with a local interface (eth1 and eth2) and a remote interface (eth1 and eth2). A blue callout box points to these two virtual IP entries.

Resources pool manager

node-a-39166501 resources
(local node)

Info
Virtual IP has been created successfully.

Status: **unknown** move

Synchronization status: not configured sync between nodes

Virtual IP addresses | iSCSI resources

add virtual IP

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)	⚙️ 🗑️

node-b-59979144 resources
(remote node)

Status: **unknown** move

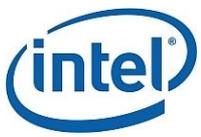
Synchronization status: not configured sync between nodes

Virtual IP addresses | iSCSI resources

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



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

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



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

6. Configure Failover

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

Failover manager

Cluster status: Ready for Start

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

start

Resources pool

node-a-39166501 (local node) resources pool:
Status: inactive
Replication state: **synced**

node-b-59979144 (remote node) resources pool:
Status: not configured
Replication state: not configured

[See details >](#)

Network statuses

Ping nodes: **2 of 2 reachable**
[See details >](#)

Auxiliary paths: 3 defined
[See details >](#)

Remote node status

Remote node availability: **Reachable**
Remote node hostname: **node-b-59979144**
Remote node IP: **192.168.3.221**
[See details >](#)

Auxiliary paths

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NOTE:

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



Open-E DSS V7 Active-Passive iSCSI Failover *open-e*



Data Server (DSS1)

node-a

IP Address:192.168.0.220

7. Start Failover Service

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

The screenshot displays the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover', indicated by the breadcrumb 'You are here: Setup > Failover'. The main content area is titled 'Failover manager' and shows the following information:

- Cluster status:** Running - OK (with a red 'stop' button)
- Resources pool:**
 - node-a-39166501 (local node) resources pool:**
 - Status: active on node-a-3... (local node)
 - Replication state: synced
 - node-b-59979144 (remote node) resources pool:**
 - Status: not configured
 - Replication state: not configured
- 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, there is an 'Auxiliary paths' section with an 'Info' icon and an 'Event Viewer' star icon. The footer text reads 'Data Storage Software V7 - All rights reserved'.

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.



Data Server (DSS1)

node-a

IP Address: 192.168.0.220

8. Test Failover Function

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

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

- node-a-39166501 resources (local node):**
 - Status: **active on node-a-3... (local node)**
 - Synchronization status: **synced**
 - Buttons: **move to remote node** (highlighted with a blue arrow), **sync between nodes**
 - Virtual IP addresses: **iSCSI resources**
 - Buttons: **add or remove targets**
 - iSCSI target: target0 (iqn.2012-11:mirror-0)**
 - Replication task table:

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

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



Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

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

Resources pool manager

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)** move to local node

Synchronization status: **synced** sync between nodes

Virtual IP addresses iSCSI resources

add or remove targets

iSCSI target: target0 (iqn.2012-11:mirror-0)

Replication task	Logical volume	Replication task state
MirrorTask-a	lv0000	OK

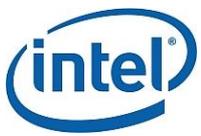
node-b-59979144 resources
(remote node)

Status: not configured move

Synchronization status: not configured sync between nodes

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Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

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

Resources pool manager

Info
While a cluster is running you are not able to change settings. Please stop cluster in order to make changes.

node-a-39166501 resources
(local node)

Status: **active on node-b-5... (remote node)** **move to local node**

Synchronization status: **synced** **sync between nodes**

Virtual IP addresses **iSCSI resources**

add or remove targets

iSCSI target: target0 (iqn.2012-11:mirror-0)

Replication task	Logical volume	Replication task state
MirrorTask-a	lv0000	OK

node-b-59979144 resources
(remote node)

Status: not configured **move**

Synchronization status: not configured **sync between nodes**

Virtual IP addresses **iSCSI resources**

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

9. Run Failback Function

After completing this step the status for node-a resources should state "active on node-a" (local node) and the Synchronization status should state: synced.

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. 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' 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-a-3... (local node) [with a red 'move to remote node' button]
 - Synchronization status:** synced [with a grey 'sync between nodes' button]
 - Virtual IP addresses: [empty]
 - iSCSI resources: [empty]
 - add or remove targets: [button]
 - iSCSI target: target0 (iqn.2012-11:mirror-0)**
 - Replication task: MirrorTask-a
 - Logical volume: lv0000
 - Replication task state: OK
- node-b-59979144 resources (remote node):**
 - Status: not configured [with a grey 'move' button]
 - Synchronization status: not configured [with a grey 'sync between nodes' button]

At the bottom left, there's an 'Event Viewer' icon, and at the bottom right, it says 'Data Storage Software V7 - All rights reserved'.



Thank you!

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