



# **Step-by-Step Guide**

to configure

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

### **on Intel Server Systems R2224GZ4GC4**

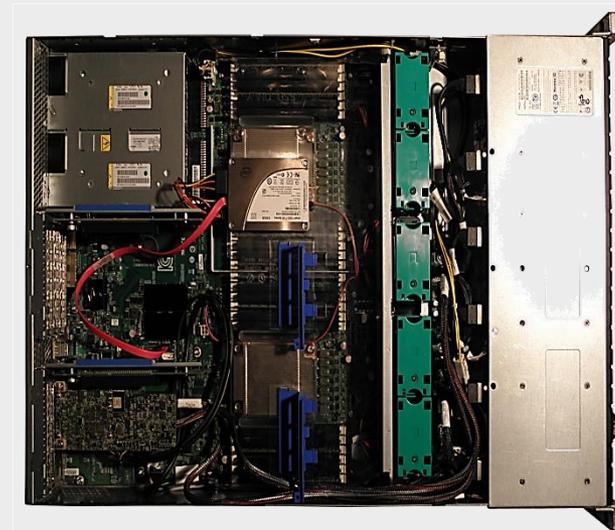
**Software Version: DSS ver. 7.00 up01**

Presentation updated: April 2013



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-ACTIVE iSCSI FAILOVER ON INTEL SERVER SYSTEMS R2224GZ4GC4, GO THROUGH THE FOLLOWING STEPS:

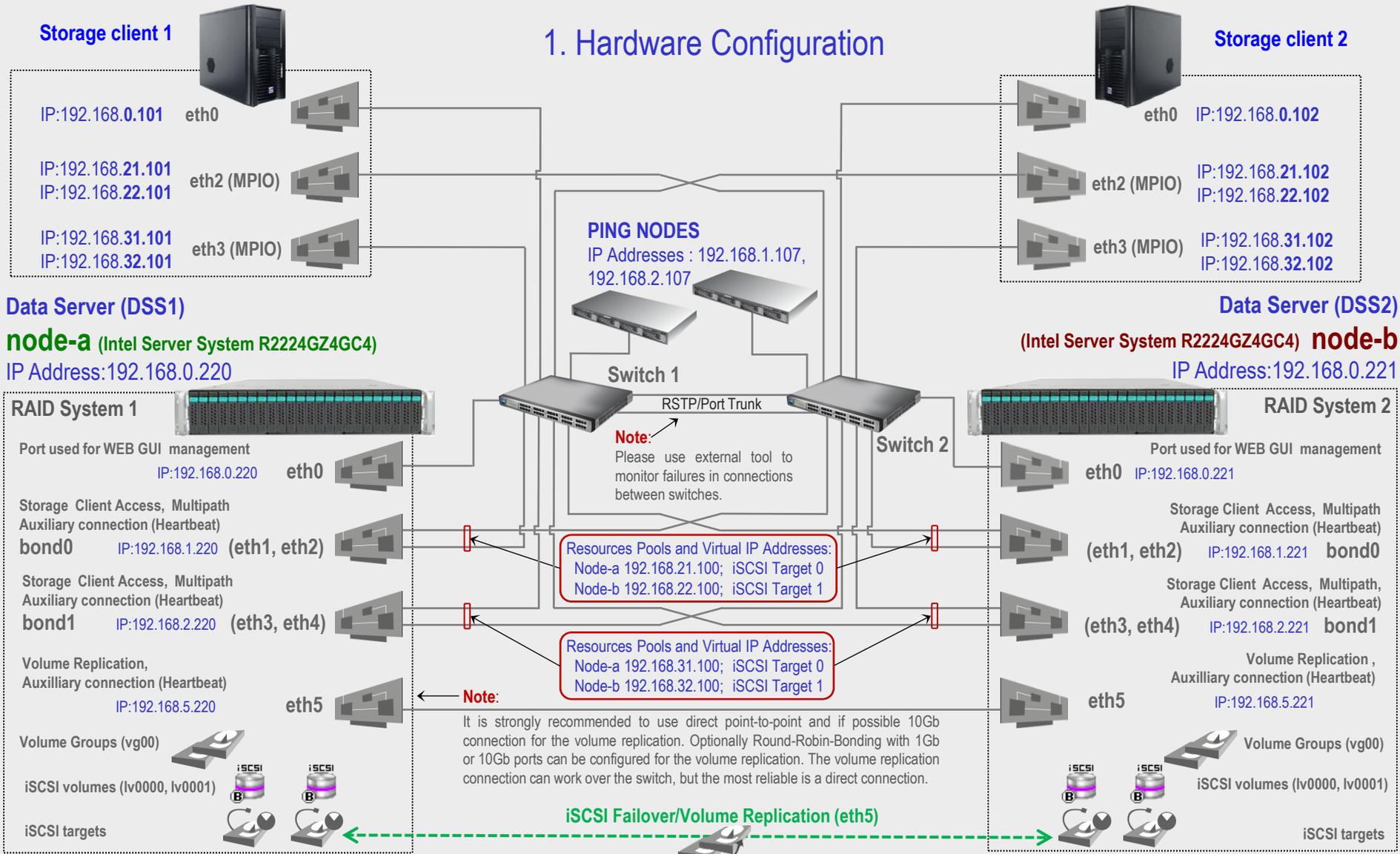
1. Hardware Configuration
2. Network Configuration
  - Set server hostnames and Ethernet ports on both nodes (node-a, node-b)
3. Configure the node-b:
  - Create a Volume Group, iSCSI Volume
  - Configure Volume Replication mode (destination and source mode) – define remote mode of binding, create Volume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



# Open-E DSS V7 Active-Active iSCSI Failover



## 1. Hardware Configuration



### NOTE:

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



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 2. Network Configuration

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

The screenshot 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, a list of interfaces (eth0 to eth5) is shown. On the right, there are three configuration panels: 'Server name' (with 'dss2' in the input field), 'Hostname' (with 'node-b-59979144' in the input field), and 'DNS settings' (with '194.204.152.34;194.204.159.1' in the input field). Each panel has an 'apply' button. A blue box on the left contains instructions, with arrows pointing to the 'Network interfaces' section and the 'Hostname' input field.



Data Server (DSS2)

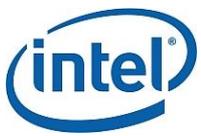
**node-b**

IP Address: 192.168.0.221

## 2. Network Configuration

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates 'You are here: Setup > Network interfaces > eth0'. On the left, a list of interfaces shows 'eth0' selected with a red dot. The main content area is divided into two panels. The 'Interface info' panel shows 'Intel Corporation 82571EB Gigabit Ethernet Controller (rev 06)'. The 'IP address' panel features a yellow warning box: 'Warning! You are currently connected through this interface.' Below this, the 'Active' checkbox is checked. The 'Static' radio button is selected. The 'IP address' field contains '192.168.0.221', the 'Netmask' is '255.255.255.0', 'Broadcast' is 'auto', and 'Gateway' is '192.168.0.1'. A red 'apply' button is at the bottom right. The footer includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 2. Network Configuration

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

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

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, the 'Interfaces' list shows eth0 through eth5. On the right, the 'Create new bond interface' form is displayed. A table lists available interfaces with checkboxes for selection. Below the table, the 'Create' dropdown is set to 'New balance-alb', and the 'Static' radio button is selected. The 'Address IP' field contains '192.168.1.221' and the 'Netmask' field contains '255.255.255.0'. The 'MAC' field shows '02:38:22:48:C2:69'. At the bottom, there is an 'Event Viewer' icon and a footer with 'Data Storage Software V7 - All rights reserved'.

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



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

## 2. Network Configuration

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

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

The screenshot shows the Open-E DSS V7 web interface for network configuration. The main window is titled "Create new bond interface" and contains a table of available interfaces and a form for creating a new bond.

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

Below the table, the "Create:" dropdown is set to "New balance-alb". The "MAC:" field contains "02:2C:27:3B:54:97". The "Static" radio button is selected. The "Address IP:" field contains "192.168.2.221" and the "Netmask:" field contains "255.255.255.0".



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

## 2. Network Configuration

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

The screenshot shows the Open-E web interface for configuring network interfaces. The breadcrumb trail indicates the user is in 'Setup > Network interfaces > eth5'. On the left, a list of interfaces includes eth0, eth1 (bond0), eth2 (bond0), eth3 (bond1), eth4 (bond1), eth5 (selected), bond0, and bond1. The 'Interface info' panel shows 'Intel Corporation 82546GB Gigabit Ethernet Controller (rev 03)'. The 'IP address' panel shows 'Active' checked, 'Static' selected, and the IP address field set to 192.168.5.221. Other fields include MAC (00:04:23:B6:EC:83), Netmask (255.255.255.0), Broadcast (auto), and Gateway. An 'apply' button is at the bottom right. A footer message states 'Activation required. Without activation system services will continue running for 30 days after volume group creation.'



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 2. Network Configuration

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces'. On the left, there is a list of network interfaces: eth0, eth1, eth2, eth3, eth4, and eth5. On the right, there are three configuration panels: 'Server name' (with 'Server name:' set to 'dss1' and 'Comment:' set to 'Data Storage Software'), 'Hostname' (with 'Hostname:' set to 'node-a-39166501'), and 'DNS settings' (with 'DNS' set to '194.204.152.34;194.204.159.1'). Each panel has an 'apply' button. A blue arrow points from the text box to the 'node-a-39166501' hostname field. The footer of the interface includes 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 2. Network Configuration

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

In the field **Address IP** enter 192.168.1.220 and in the **Netmask** field enter 255.255.255.0. Afterwards, click the **create** button and confirm this action by clicking the **yes** button.

The screenshot shows the Open-E DSS V7 web interface for network configuration. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces'. On the left, the 'Interfaces' panel lists eth0 through eth5. On the right, the 'Create new bond interface' panel contains a table of interfaces and configuration fields.

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

Configuration fields below the table:

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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 2. Network Configuration

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

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

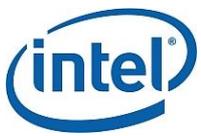
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Network interfaces'. A modal window titled 'Create new bond interface' is open, displaying a table of network interfaces and configuration options.

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

Configuration fields below the table:

- Create: **New balance-alb** (dropdown)
- MAC: 02:1C:26:AA:B4:38
- Radio buttons:  DHCP,  Static
- Address IP: 192.168.2.220
- Netmask: 255.255.255.0
- Broadcast: (empty field)
- Gateway: (empty field)

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



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 3. Configure the node-b

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

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates '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. It contains a table with the following data:

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

Below the table, there is an 'Action:' dropdown menu set to 'new volume group' and a 'Name:' text input field containing 'vg00'. A red 'apply' button is at the bottom of this panel.
- 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 |
|------------------------------------|---------------|--------|
| <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'.



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

## 3. Configure the node-b

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

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

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume groups > vg00'. The left sidebar shows 'Vol. 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                     | 290.06    |

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 'add' field is set to '50 GB'. The 'apply' button is visible at the bottom right.



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 3. Configure the node-b

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

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

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

| 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    |



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

## 3. Configure the node-b

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

The screenshot shows the Open-E DSS V7 Volume manager interface. The 'Volume manager' section contains a table of logical volumes:

| Logical Volume | Type  | Snap. | Rep. | Init. | Blocksize (bytes) | Size (GB) |
|----------------|-------|-------|------|-------|-------------------|-----------|
| lv0000         | iSCSI |       | ✓    |       | N/A               | 50.00     |
| lv0001         | 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: 0.25 GB
- Free: 189.81 GB

The 'Action' dropdown is set to 'new NAS volume'. There are checkboxes for 'Use volume replication' and 'WORM', both of which are unchecked. A slider bar is visible with a value of 0.00 GB and an 'add' button. An 'apply' button is located at the bottom right of the configuration area.



iSCSI volume (lv0000) is set to destination



iSCSI volume (lv0001) is set to source



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 4. Configure the node-a

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

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



Volume Groups (vg00)

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes "SETUP", "CONFIGURATION", "MAINTENANCE", "STATUS", and "HELP". The breadcrumb trail indicates the current location: "You are here: Configuration > Volume manager > Volume groups".

The "Vol. groups" section is active, showing a table with columns: Unit, Size (GB), Serial number, and Status. The table contains one entry: Unit S001, 465.70 GB, N/A, and Status available. A checkbox is checked next to Unit S001.

The "Unit manager" section is also visible, showing a table with columns: Unit, Size (GB), Serial number, and Status. The table contains one entry: Unit S001, 465.70 GB, N/A, and Status available. A checkbox is checked next to Unit S001.

The "Action:" dropdown menu is set to "new volume group". The "Name:" input field contains "vg00".

The "apply" button is visible at the bottom of the "Unit manager" section. Below it, a message reads: "Please apply changes or press 'reload' button to discard".

The "Drive identifier" section is also visible, showing a table with columns: Unit, Serial number, and Status. The table contains one entry: Unit S001, N/A, and Status available. A checkbox is unchecked next to Unit S001.

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

## 4. Configure the node-a

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

Next, check the box for "Use volume replication"

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

### NOTE:

The source and destination volumes must be of identical size.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > Volume manager > Volume groups > vg00'. The main content area is divided into two panels: 'Vol. groups' on the left and 'Volume manager' on the right. The 'Vol. groups' panel shows a list with 'vg00' selected. The 'Volume manager' panel displays system volumes and their sizes (e.g., SWAP: 4.00 GB, Free: 457.66 GB). Below this, there are configuration options for creating a new iSCSI volume. 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'). A red 'apply' button is visible at the bottom right of the configuration area. A footer note says 'Please apply changes or press "reload" button to discard'. The bottom of the interface shows an 'Event Viewer' icon and the text 'Data Storage Software V7 - All rights reserved'.



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 4. Configure the node-a

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

Next, check the box for "Use volume replication".

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

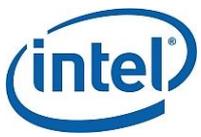
**NOTE:**  
The source and destination volumes must be of identical size.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb trail is: Configuration > Volume manager > Volume groups > vg00. The 'Vol. groups' section shows a single group 'vg00'. The 'Vol. replication' section has the 'Use volume replication' checkbox checked. The 'Action' dropdown is set to 'new iSCSI volume' and the 'Options' dropdown is set to 'Just create volume'. The 'Rate' is set to 'medium'. A slider for volume size is set to 50 GB, with a note '(+0.12 GB for replication)'. The 'apply' button is highlighted in red.

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

| System volumes           | Size (GB) |
|--------------------------|-----------|
| SWAP                     | 4.00      |
| Reserved for snapshots   | 0.00      |
| Reserved for system      | 4.00      |
| Reserved for replication | 0.13      |
| Free                     | 407.53    |



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 4. Configure the node-a

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

| Logical Volume | Type  | Snap. | Rep. | Init. | Blocksize (bytes) | Size (GB) |
|----------------|-------|-------|------|-------|-------------------|-----------|
| Iv0000         | iSCSI |       | ✓    |       | N/A               | 50.00     |
| Iv0001         | iSCSI |       | ✓    |       | N/A               | 50.00     |

| System volumes           | Size (GB) |
|--------------------------|-----------|
| SWAP                     | 4.00      |
| Reserved for snapshots   | 0.00      |
| Reserved for system      | 4.00      |
| Reserved for replication | 0.25      |
| Free                     | 357.41    |



iSCSI volume (Iv0000) is set to source



iSCSI volume (Iv0001) is set to destination



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 3. Configure the node-b

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

In the Hosts binding function, enter the IP address of node-a (in our example, this would be 192.168.5.220), enter node-a administrator password and click the **apply** button.

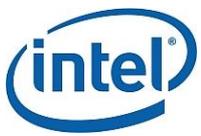
The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Volume replication' under 'Configuration > Volume manager > Volume replication'. The 'Volume replication mode' table shows two logical volumes, lv0000 and lv0001, both with 'done' status. The 'Destination' checkbox is checked for lv0000, and the 'Source' checkbox is checked for lv0001. Below the table is an 'apply' button. The 'Hosts binding' section shows the 'Define remote node' configuration with 'Remote node IP address' set to 192.168.5.220 and a password field. A 'connect' button is present. At the bottom, a message states: 'Volume replication tasks can not be created because there is no remote node connected.'

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

### NOTE:

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

- node-a: 192.168.5.220
- node-b: 192.168.5.221



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 4. Configure the node-a

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

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

apply

Please apply changes or press "reload" button to discard

Hosts binding

Remote node

Host name: node-b-5... IP address: 192.168.5.221 Status: Reachable

disconnect

Create new volume replication task

Task name:

Source volume:



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 4. Configure the node-a

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

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

The screenshot displays the Open-E 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 main content area is divided into several sections: 'Vol. groups' (showing 'vg00'), 'Vol. replication', and 'Create new volume replication task'. The 'Create new volume replication task' form has the following fields: '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. Below the form is a 'Replication tasks manager' section with an 'Info' message: 'No tasks have been found.' 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

## 4. Configure the node-a

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'You are here: Configuration > Volume manager > Volume replication'. The 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 IP address '192.168.5.221' and status 'Reachable'. A 'disconnect' button is visible.
- 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 listing the replication tasks. The 'MirrorTask-a' entry has a 'Start time' of 'n/a' and an 'Action' column with a play button icon.

A blue callout box on the left contains the text: 'Now, in the Replication task manager function, click the corresponding "play" button to start the Replication task on the node-a.' A blue arrow points from this text to the play button in the 'Replication tasks manager' table.

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



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 4. Configure the node-a

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

The screenshot 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 task named 'MirrorTask-a'.
- Replication tasks manager:** A table listing the details of the 'MirrorTask-a' task.

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

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



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

## 4. Configure the node-a

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

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

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

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

### NOTE:

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



Data Server (DSS2)

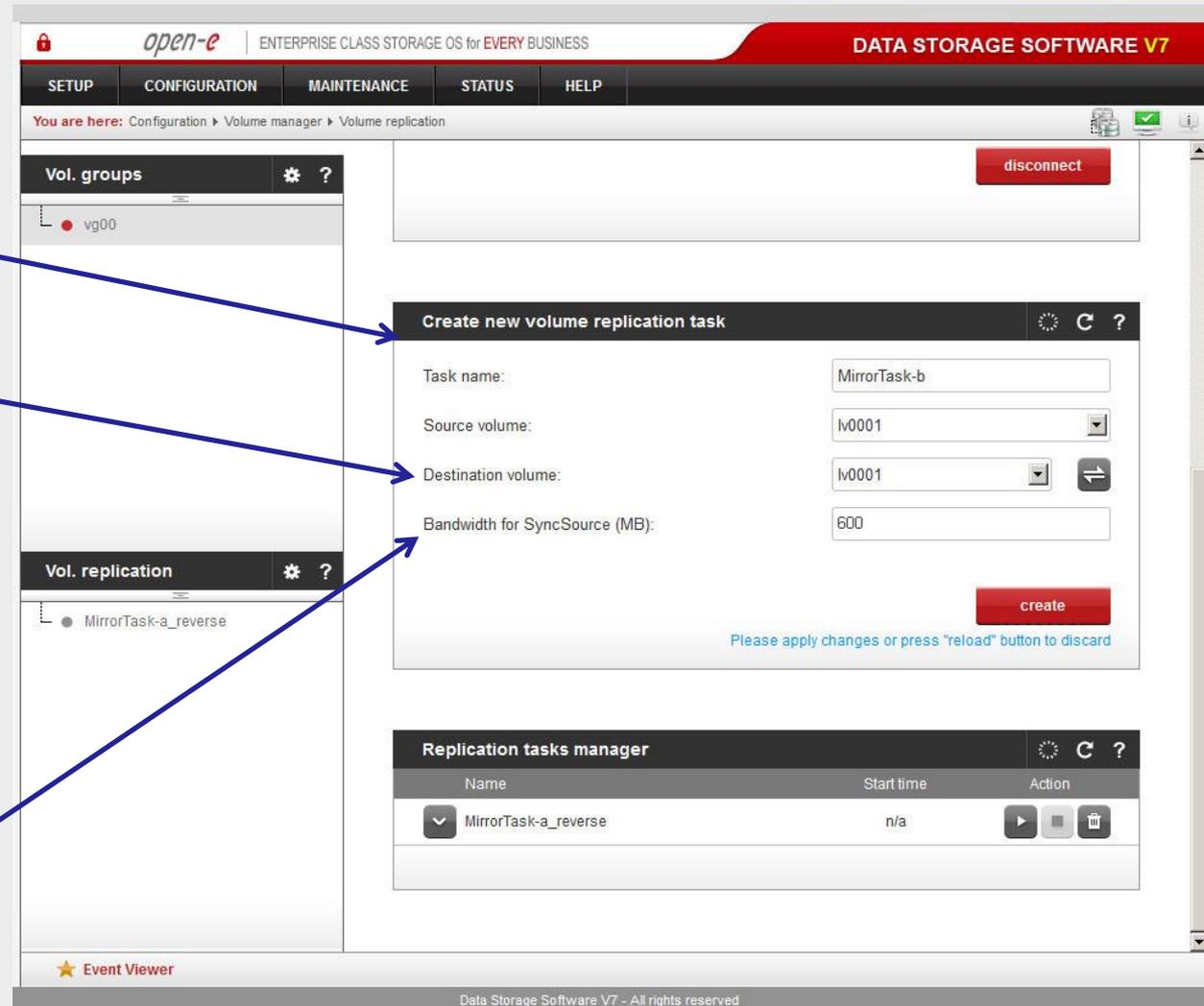
**node-b**

IP Address:192.168.0.221

## 3. Configure the node-b

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

As in the node-a, in the **Bandwidth for SyncSource (MB)** field you must change the value of a minimum of 500 MB. In our example 600 MB is used. Next click the **create** button.



The screenshot displays the Open-E DSS V7 web interface for configuring volume replication. The breadcrumb trail indicates the user is in Configuration > Volume manager > Volume replication. The 'Create new volume replication task' form is the central focus, with the following fields and values:

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

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

| Name                 | Start time | Action                 |
|----------------------|------------|------------------------|
| MirrorTask-a_reverse | n/a        | [Play] [Stop] [Delete] |

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



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

## 3. Configure the node-b

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

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

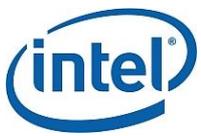
When a task is started a date and time will appear.

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

- Vol. groups:** Shows a single group named 'vg00'.
- Vol. replication:** Lists two replication tasks: 'MirrorTask-a\_reverse' and 'MirrorTask-b'.
- Hosts binding:** Shows a remote node configuration for 'node-a-3...' with IP address '192.168.5.220' and status 'Reachable'. A 'disconnect' button is present.
- Create new volume replication task:** Displays an information message: 'No volumes with replication functionality found or all volumes have a task assigned already.'
- Replication tasks manager:** A table showing the status of replication tasks.

| Name                 | Start time          | Action                 |
|----------------------|---------------------|------------------------|
| MirrorTask-a_reverse | n/a                 | [Play] [Stop] [Delete] |
| MirrorTask-b         | 2012-09-05 20:25:27 | [Play] [Stop] [Delete] |

The 'Event Viewer' is visible at the bottom left, and the footer contains 'Data Storage Software V7 - All rights reserved'.



Data Server (DSS2)

**node-b**

IP Address: 192.168.0.221

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

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

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

iSCSI targets



★ Event Viewer

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### NOTE:

Both systems must have the same Target name.



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

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

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

iSCSI targets



### NOTE:

Both systems must have the same Target name.



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

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

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

To assign appropriate volume to the target (**iqn.2012-09:mirror-0 -> lv0000**) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-0 (target0)'. The main content area is divided into two panels. The left panel, titled 'Targets', shows a list of targets: 'target0' (selected with a red dot) and 'target1' (with a grey dot). Below this is a 'CHAP users' section. The right panel, titled 'Target volume manager', contains three informational messages and a table of volumes. The table has columns for 'Volume', 'SCSI ID', 'LUN', 'RO', 'WB', and 'Action'. Two volumes are listed: 'lv0000' with SCSI ID 'yakFXJGNEV587eA' and 'lv0001' with SCSI ID 'iZGxwlh33QBSpRdN'. Both have LUN '0'. The 'Action' column for 'lv0000' has a '+' button highlighted with a blue arrow. At the bottom of the interface, there is an 'Event Viewer' icon and a footer with 'Data Storage Software V7 - All rights reserved'.

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

### NOTE:

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

### WARNING:

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



Data Server (DSS2)

**node-b**

IP Address:192.168.0.221

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

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

To assign appropriate volume to the target (**iqn.2012-09:mirror-1->lv0001**) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The breadcrumb trail indicates the current location: 'Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-1 (target1)'. The main content area is divided into several sections:

- Targets:** A list of targets with 'target0' and 'target1'. 'target1' is selected and highlighted in red.
- Target volume manager:** Contains informational text and a table for managing LUNs.
- CHAP users:** A section for configuring CHAP authentication.
- CHAP user access authentication:** A section with radio buttons for 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication'. An 'apply' button is at the bottom.

The 'Target volume manager' table has the following structure:

| Volume | SCSI ID          | LUN | RO                       | WB                       | Action            |
|--------|------------------|-----|--------------------------|--------------------------|-------------------|
| M0001  | izGxwIh33QBSpRdN | 0   | <input type="checkbox"/> | <input type="checkbox"/> | <b>+</b> <b>-</b> |

An arrow points from the text box to the '+' button in the 'Action' column of the table.

### 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

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

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

iSCSI targets



### NOTE:

Both systems must have the same Target name.



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

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

Next, you must set the 2nd target. In the **Create new target** function, uncheck the box **Target Default Name**.

In the Name field, enter a name for the 2nd new target and click **apply** to confirm.

iSCSI targets



### NOTE:

Both systems must have the same Target name.



Data Server (DSS1)

**node-a**

IP Address:192.168.0.220

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

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

To assign appropriate volume to the target (**iqn.2012-09:mirror-0 -> lv0000**) and click the **+** button located under **Action**.

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

### 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

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

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

To assign appropriate volume to the target (iqn.2012-09:mirror-1->lv0001) and click the **+** button located under **Action**.

The screenshot shows the Open-E DSS V7 web interface. The breadcrumb trail is: Configuration > iSCSI target manager > Targets > iqn.2012-09:mirror-1 (target1). The 'Targets' panel on the left shows a list with 'target0' and 'target1' (selected). The 'Target volume manager' panel on the right shows an info message and a table with columns: Volume, SCSI ID, LUN, RO, WB, and Action. The table contains one row: lv0001, iZGxwlh33QBSpRdN, 0, [checkbox], [checkbox], and [+] [-]. A blue arrow points from the '+' button in the table to the 'Action' column header. Below the table is the 'CHAP user access authentication' section with radio buttons for 'No CHAP user access authentication' (selected) and 'Enable CHAP user access authentication', and an 'apply' button.

### 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 1st 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 **Auxiliary paths** function, select the 2nd **New auxiliary path** on the local and remote node and click the **add new auxiliary path** button.

**Auxiliary paths**

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

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

**New auxiliary path**

Interface on local node: bond1 (192.168.2.220)

Interface on remote node: bond1 (192.168.2.221)

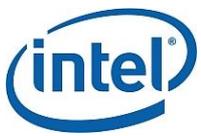
cancel add new auxiliary path

**Ping nodes**

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

★ Event Viewer

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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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 6. Configure Failover

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Setup > Failover'. A table lists virtual IP configurations:

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

Below the table, the 'node-b-59979144 resources (remote node)' section shows a status of 'unknown' and a 'move' button. The 'Synchronization status' is 'not configured' with a 'sync between nodes' button. A tabbed interface shows 'Virtual IP addresses' selected over 'iSCSI resources'. The 'add virtual IP' form is open, with the following fields:

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

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

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The current page is 'Failover' under 'Setup'. The interface is divided into sections for 'node-a' and 'node-b-59979144 resources (remote node)'. Each section has tabs for 'Virtual IP addresses' and 'iSCSI resources'. Under 'Virtual IP addresses', there is an 'add virtual IP' button and a table with columns: 'Virtual IP', 'Interface on local node:', and 'Interface on remote node:'. For node-a, two Virtual IPs are listed: 192.168.21.100 and 192.168.31.100. For node-b, two Virtual IPs are listed: 192.168.22.100 and 192.168.32.100. Each entry has a 'move' button and a 'sync between nodes' button. A status message indicates 'Virtual IP has been created successfully'. The footer shows 'Event Viewer' and 'Data Storage Software V7 - All rights reserved'.

| Virtual IP     | Interface on local node: | Interface on remote node: |
|----------------|--------------------------|---------------------------|
| 192.168.21.100 | bond0 (192.168.1.220)    | bond0 (192.168.1.221)     |
| 192.168.31.100 | bond1 (192.168.2.220)    | bond1 (192.168.2.221)     |
| 192.168.22.100 | bond0 (192.168.1.220)    | bond0 (192.168.1.221)     |
| 192.168.32.100 | bond1 (192.168.2.220)    | bond1 (192.168.2.221)     |



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)

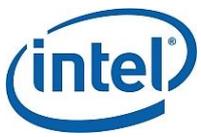
**node-a**

IP Address:192.168.0.220

## 6. Configure Failover

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

The screenshot shows the Open-E DSS V7 web interface. At the top, there is a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. Below this, a breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area is divided into several sections. The top section is titled 'iSCSI resources' and contains a table with columns for 'Replication task', 'Logical volume', and 'Replication task state'. Below this, there is a section for 'node-b-59979144 resources (remote node)'. This section includes a 'Status: inactive' indicator, a 'move' button, and a 'Synchronization status: not configured' indicator with a 'sync between nodes' button. At the bottom of the interface, there are two tabs: 'Virtual IP addresses' and 'iSCSI resources'. The 'iSCSI resources' tab is active and shows two columns: 'Available targets' and 'Targets already in cluster'. The 'Available targets' column is empty, and the 'Targets already in cluster' column contains the entry 'iqn.2012-09:mirror-1'. Below these columns are 'cancel' and 'apply' buttons. A blue box on the left side of the image contains instructions and arrows pointing to the 'add or remove targets' button, the 'move' button, and 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: inactive  
Replication state: **synced**

[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: **192.168.5.221**  
[See details >](#)

**Auxiliary paths**

★ **Event Viewer**

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### NOTE:

If the start button is grayed out, 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 Failover manager interface. At the top, there is a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. Below this, a breadcrumb trail indicates 'You are here: Setup > Failover'. The main content area is titled 'Failover manager' and displays the following information:

- Cluster status:** Running - OK (indicated by a green arrow from the callout box)
- Resources pool:**
  - node-a-39166501 (local node) resources pool:**
    - Status: active on node-a-3... (local node)
    - Replication state: synced
  - node-b-59979144 (remote node) resources pool:**
    - Status: active on node-b-5... (remote node)
    - Replication state: synced
- Network statuses:**
  - Ping nodes: 2 of 2 reachable
  - Auxiliary paths: 3 of 3 reachable
- Remote node status:**
  - Remote node availability: Reachable
  - Remote node hostname: node-b-59979144
  - Remote node IP: 192.168.5.221

At the bottom of the interface, there is an 'Auxiliary paths' section with an 'Info' button and an 'Event Viewer' icon. The footer of the interface reads 'Data Storage Software V7 - All rights reserved'.

### NOTE:

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

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



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. At the top, there is a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. Below this is a breadcrumb trail: "You are here: Setup > Failover". The main content area is titled "Resources pool manager" and contains several sections:

- Info:** A message stating, "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):** This section shows the status of resources on the local node. The status is "active on node-a-3... (local node)". There are two buttons: "move to remote node" (highlighted with a blue arrow) and "sync between nodes". The synchronization status is "synced".
- Virtual IP addresses / iSCSI resources:** A section with a button "add or remove targets".
- iSCSI target: target0 (iqn.2012-09:mirror-0):** This section shows details for a specific iSCSI target. It includes a table with columns for Replication task, Logical volume, and Replication task state. The table contains one entry: "MirrorTask-a", "lv0000", and "OK".
- node-b-59979144 resources (remote node):** This section shows the status of resources on the remote node. The status is "active on node-b-5... (remote node)". There are two buttons: "move to local node" and "sync between nodes". The synchronization status is "synced".

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

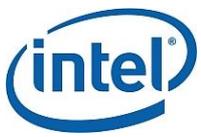
## 8. Test Failover Function

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

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

- Info:** While a cluster is running you are not able to change settings. Please stop cluster in order to make changes.
- node-a-39166501 resources (local node):**
  - Info:** Resources were moved successfully.
  - Status: **active on node-b-5... (remote node)** (with a 'move to local node' button)
  - Synchronization status: **synced** (with a 'sync between nodes' button)
  - Virtual IP addresses | **iSCSI resources**
  - add or remove targets
  - iSCSI target: target0 (iqn.2012-09:mirror-0)**
  - Table with columns: Replication task, Logical volume, Replication task state.
    - MirrorTask-a | lv0000 | OK
- node-b-59979144 resources (remote node):**
  - Info:** Targets have been added/removed successfully.
  - Status: **active on node-b-5... (remote node)** (with a 'move to local node' button)

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



Data Server (DSS1)

**node-a**

IP Address: 192.168.0.220

## 9. Run Failback Function

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

The screenshot displays the Open-E DSS V7 web interface. At the top, there is a navigation bar with tabs for SETUP, CONFIGURATION, MAINTENANCE, STATUS, and HELP. The current page is 'Setup > Failover'. The main content area is titled 'Resources pool manager' and contains an 'Info' box stating that settings cannot be changed while a cluster is running. Below this, there are sections for 'node-a-39166501 resources (local node)' and 'node-b-59979144 resources (remote node)'. The 'node-a' section shows a status of 'active on node-b-5... (remote node)' and a 'sync between nodes' button. A blue arrow points from the text box to the 'move to local node' button in this section. Below the 'node-a' section, there is a table for iSCSI resources, including a target 'target0' with a replication task 'MirrorTask-a' in 'OK' state. The 'node-b' section also shows a status of 'active on node-b-5... (remote node)' and a 'sync between nodes' button. At the bottom, there is an 'Event Viewer' icon and a footer with the text '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 step, the status for node-a resources should state "active on node-a (local node)" and the Synchronization status should state "synced". Then, you can apply the same actions for node-b resources.

### NOTE:

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

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

The screenshot shows the Open-E DSS V7 web interface. The top navigation bar includes the Open-E logo, the text 'ENTERPRISE CLASS STORAGE OS for EVERY BUSINESS', and 'DATA STORAGE SOFTWARE V7'. Below the navigation bar are tabs for 'SETUP', 'CONFIGURATION', 'MAINTENANCE', 'STATUS', and 'HELP'. The main content area is titled 'Resources pool manager' and displays two resource pools. The first pool is 'node-a-39166501 resources (local node)'. It shows a status of 'active on node-a-3... (local node)' and a synchronization status of 'synced'. The second pool is 'node-b-59979144 resources (remote node)'. It shows a status of 'active on node-b-5... (remote node)' and a synchronization status of 'synced'. The interface also includes buttons for 'move to remote node', 'sync between nodes', 'move to local node', and 'add or remove targets'. A blue box with arrows points to the status and synchronization fields for the local node.



Thank you!

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