Step-by-Step Guide

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

Software Version: DSS ver. 7.00 up01

Presentation updated: August 2012

Open-E DSS V7 Active-Passive iSCSI Failover

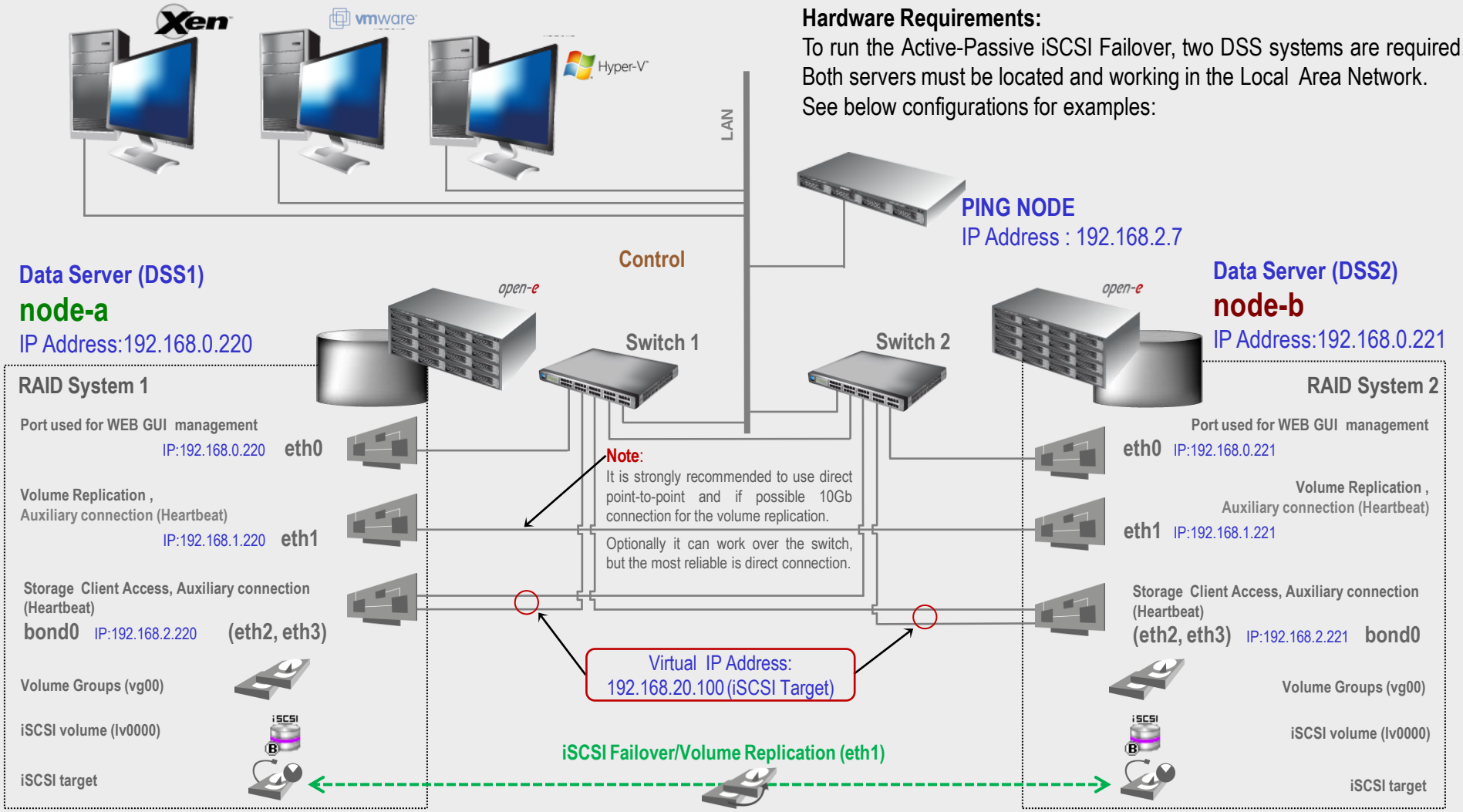
To set up Active-Passive iSCSI Failover, perform the following steps:

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

Open-E DSS V7 Active-Passive iSCSI Failover

1. Hardware Configuration

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



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

Open-E DSS V7 Active-Passive iSCSI Failover

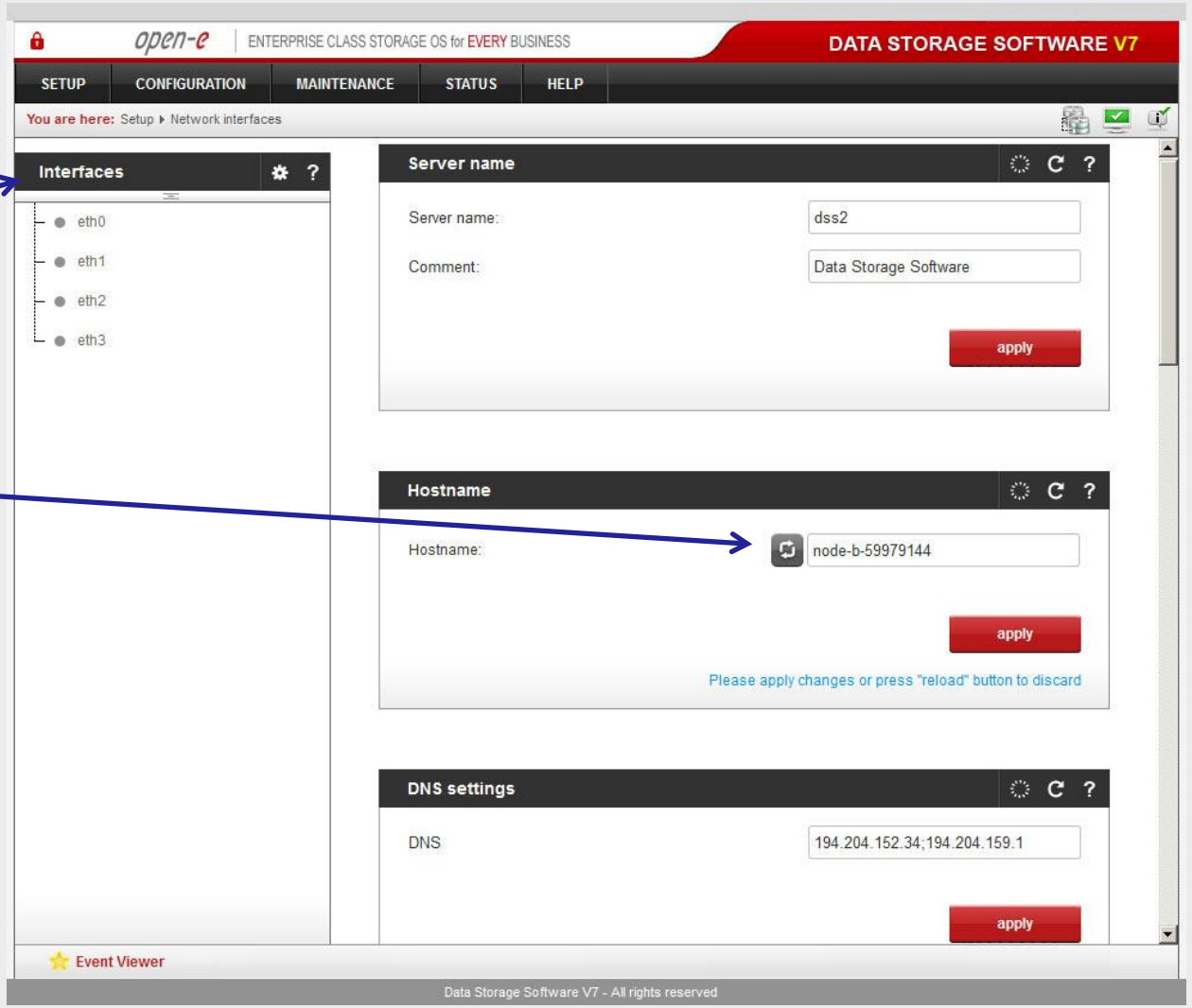
Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

After logging into Open-E DSS V7 on the secondary node, please go to the **SETUP** tab, and click **„Network Interfaces**". Next, in the **Hostname** box replace the "dss" letters (they are located in front of the numbers) with „node-b server" (in this example **„node-b-59979144")** and click the apply button (this will require a reboot).



Open-E DSS V7 Active-Passive iSCSI Failover

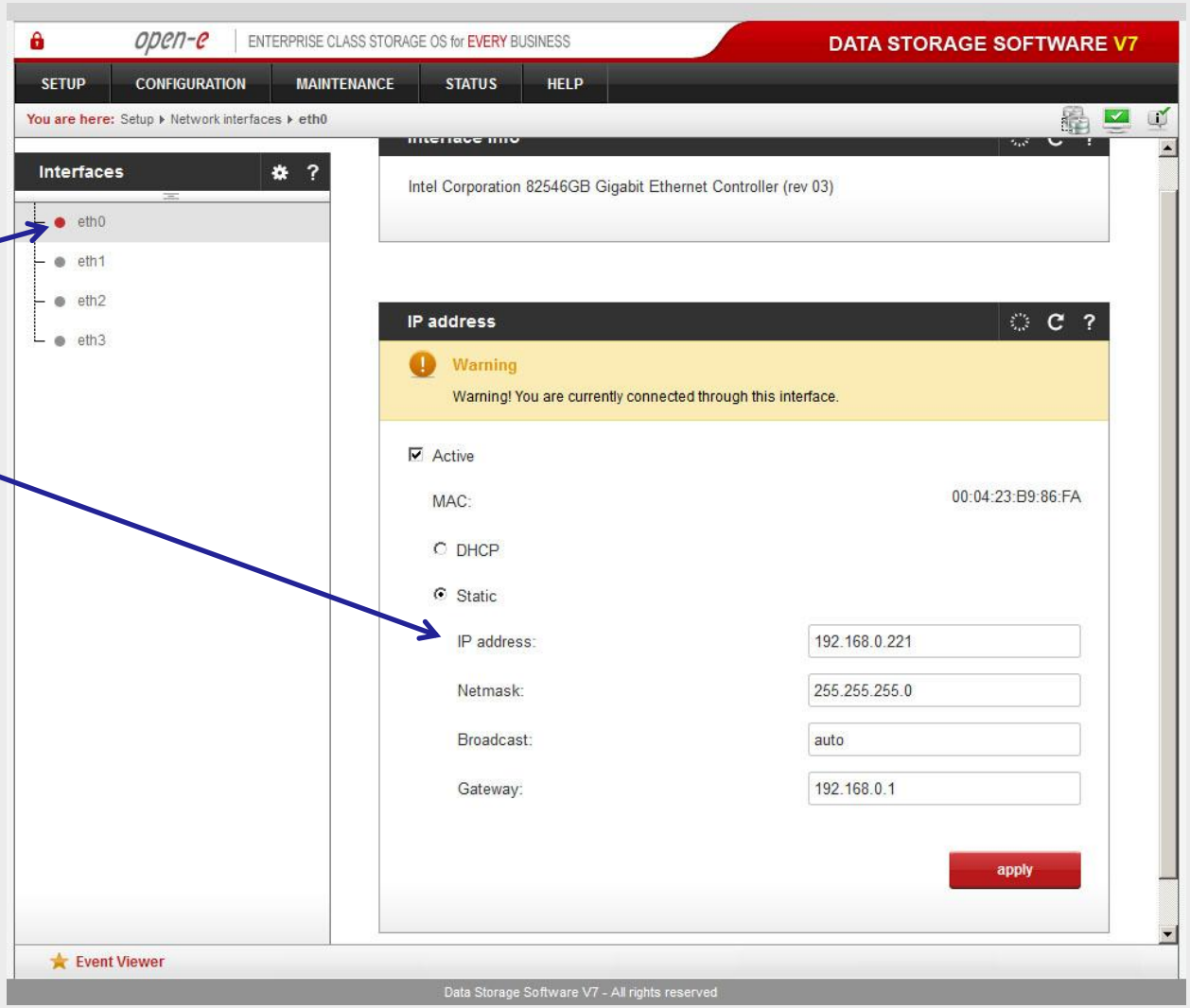
Data Server (DSS2)

node-b

IP Address:192.168.0.221

1. Hardware Configuration

Next, please select **eth0** interface and change the IP Address from 192.168.0.220 to 192.168 .0.221 in the field **IP address** and click apply. (This will restart network configurations).



Open-E DSS V7 Active-Passive iSCSI Failover

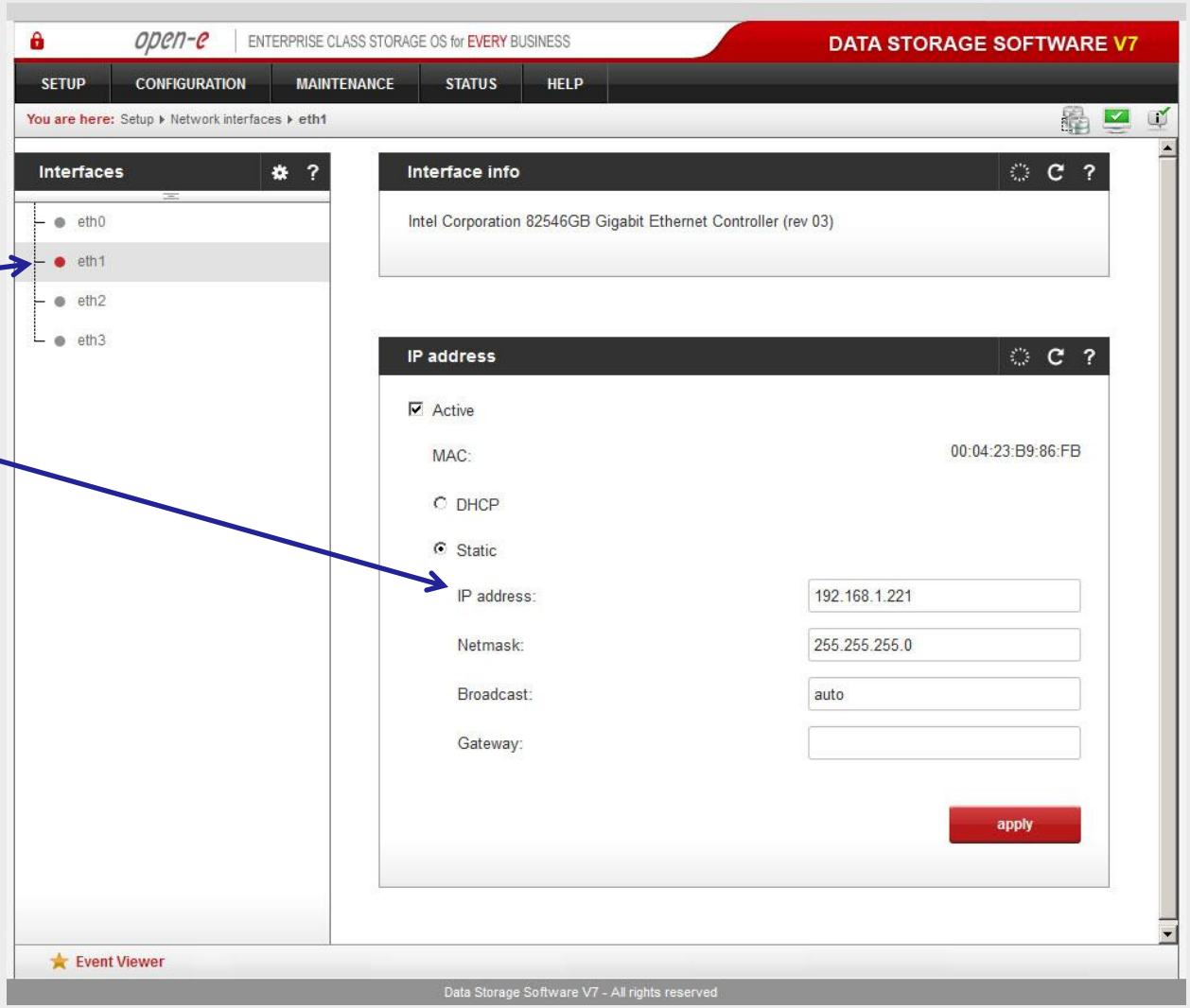
Data Server (DSS2)

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.



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS2)

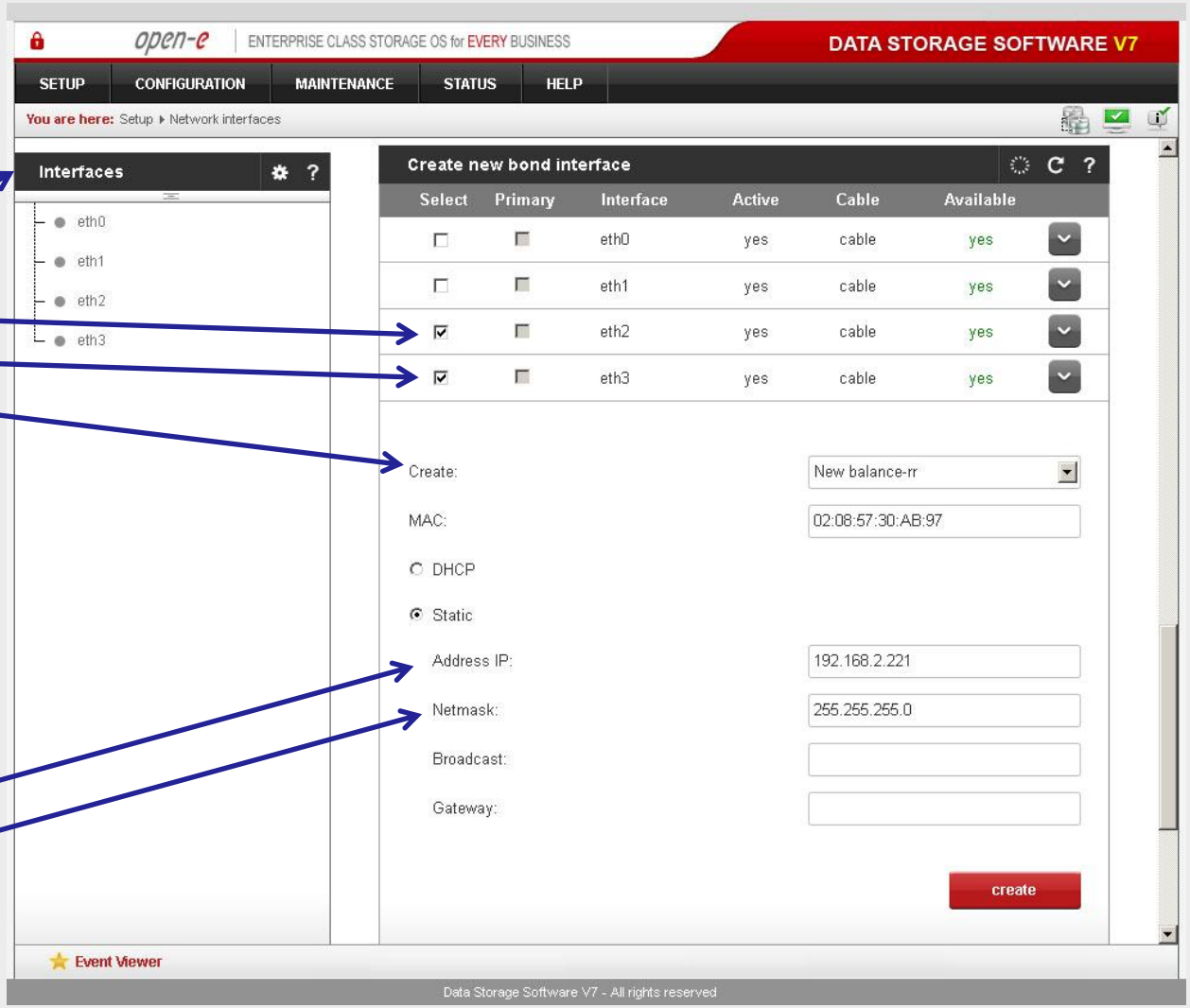
node-b

IP Address:192.168.0.221

1. Hardware Configuration

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

Next, in the field **Adress 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.



Open-E DSS V7 Active-Passive iSCSI Failover

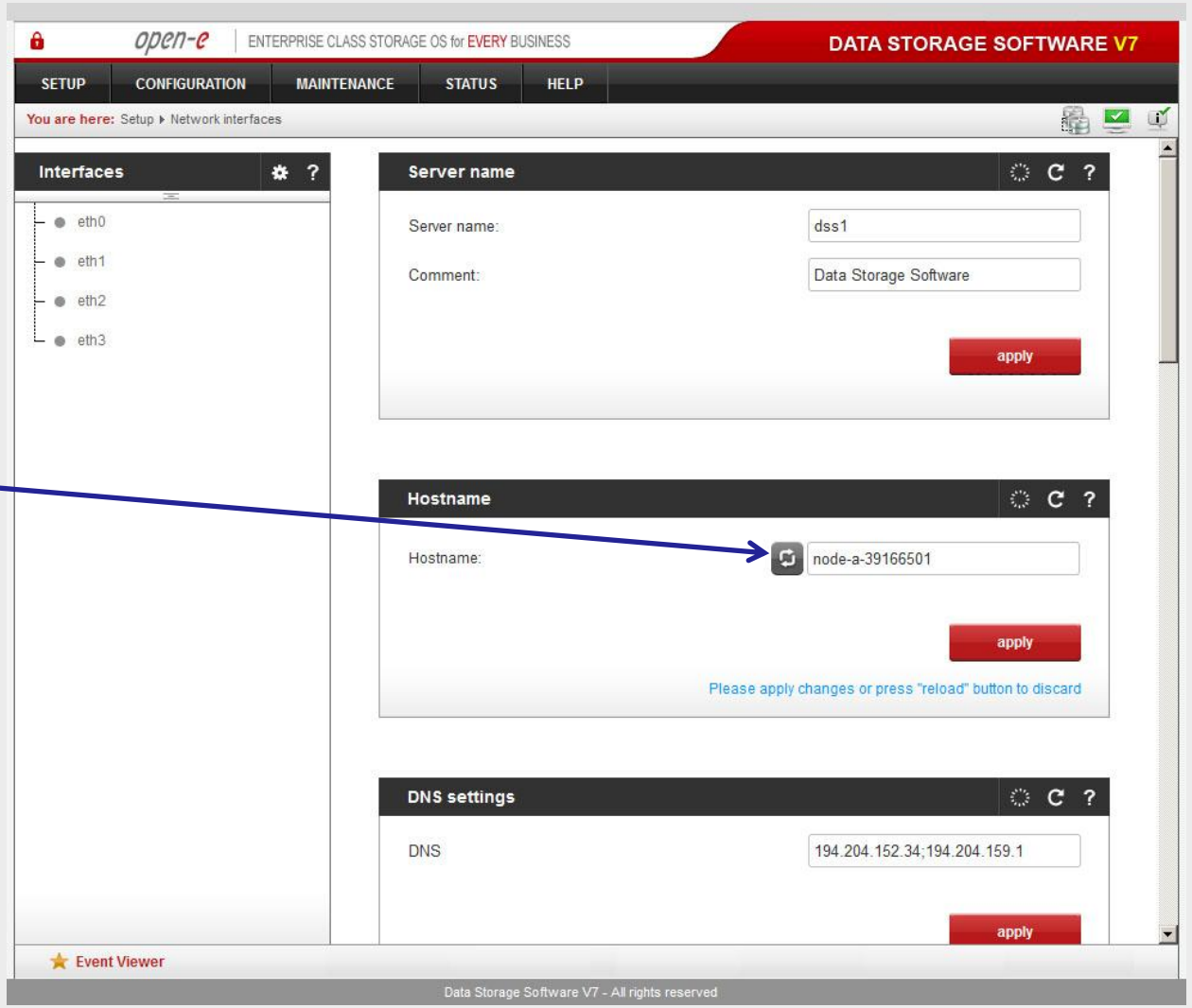
Data Server (DSS1)

node-a

IP Address:192.168.0.220

1. Hardware Configuration

After logging into the primary node, please go to the **SETUP** tab and click **„Network interfaces**". Next, in **Hostname** box replace the "dss" letters (they are located in front of the numbers) with „node-a server" (in this example **„node-a-39166501")** and click the **apply** button. Please note, this will require a reboot.



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

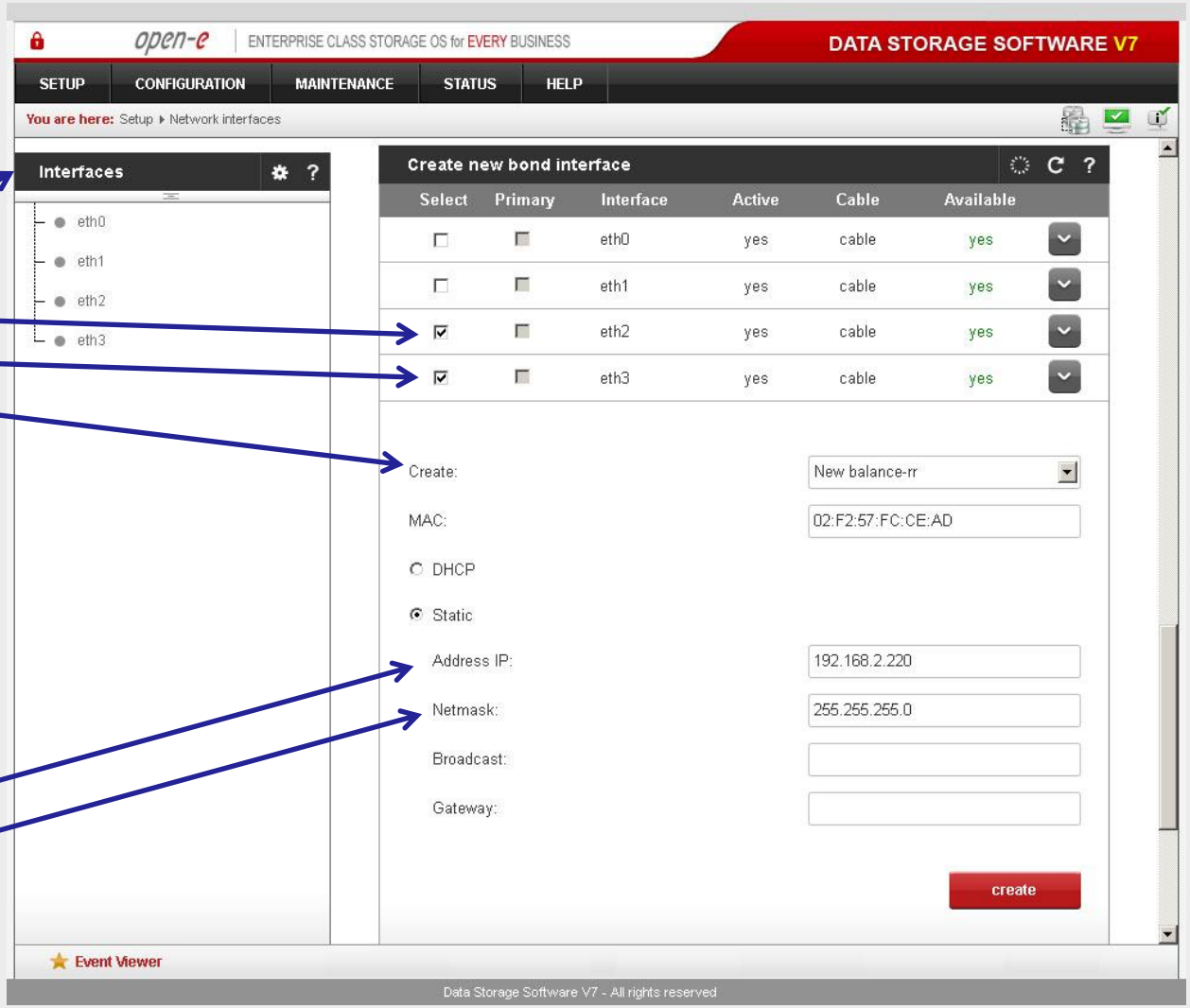
node-a

IP Address:192.168.0.220

1. Hardware Configuration

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

Next, enter the IP Address in the field **Adress IP** 192.168 .2.220, **Netmask (is there something missing here?) .** Afterwards, click the create button and confirm this action by clicking the yes button.



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS2)

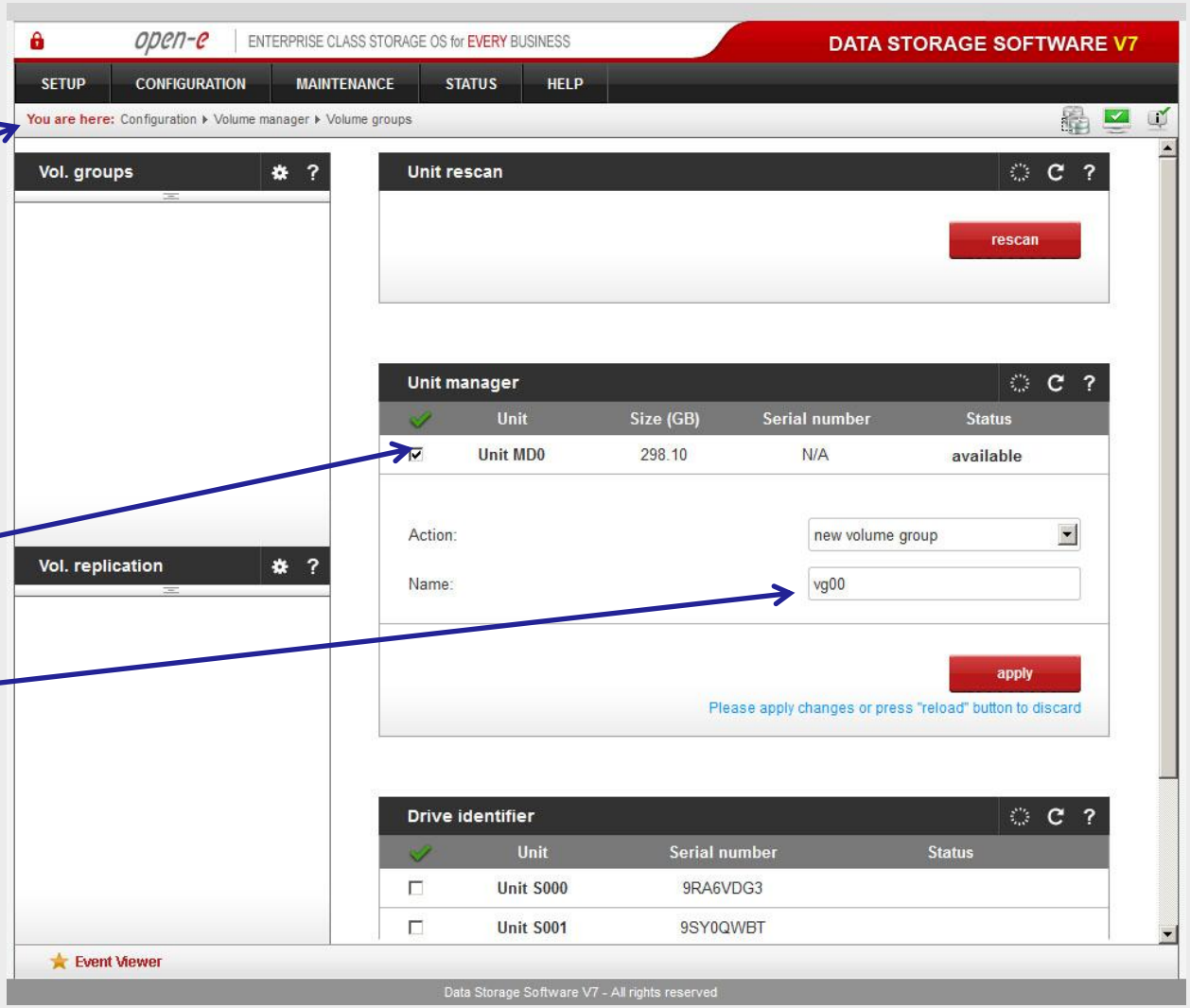
node-b

IP Address:192.168.0.221

2. Configure the node-b

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

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



Open-E DSS V7 Active-Passive iSCSI Failover

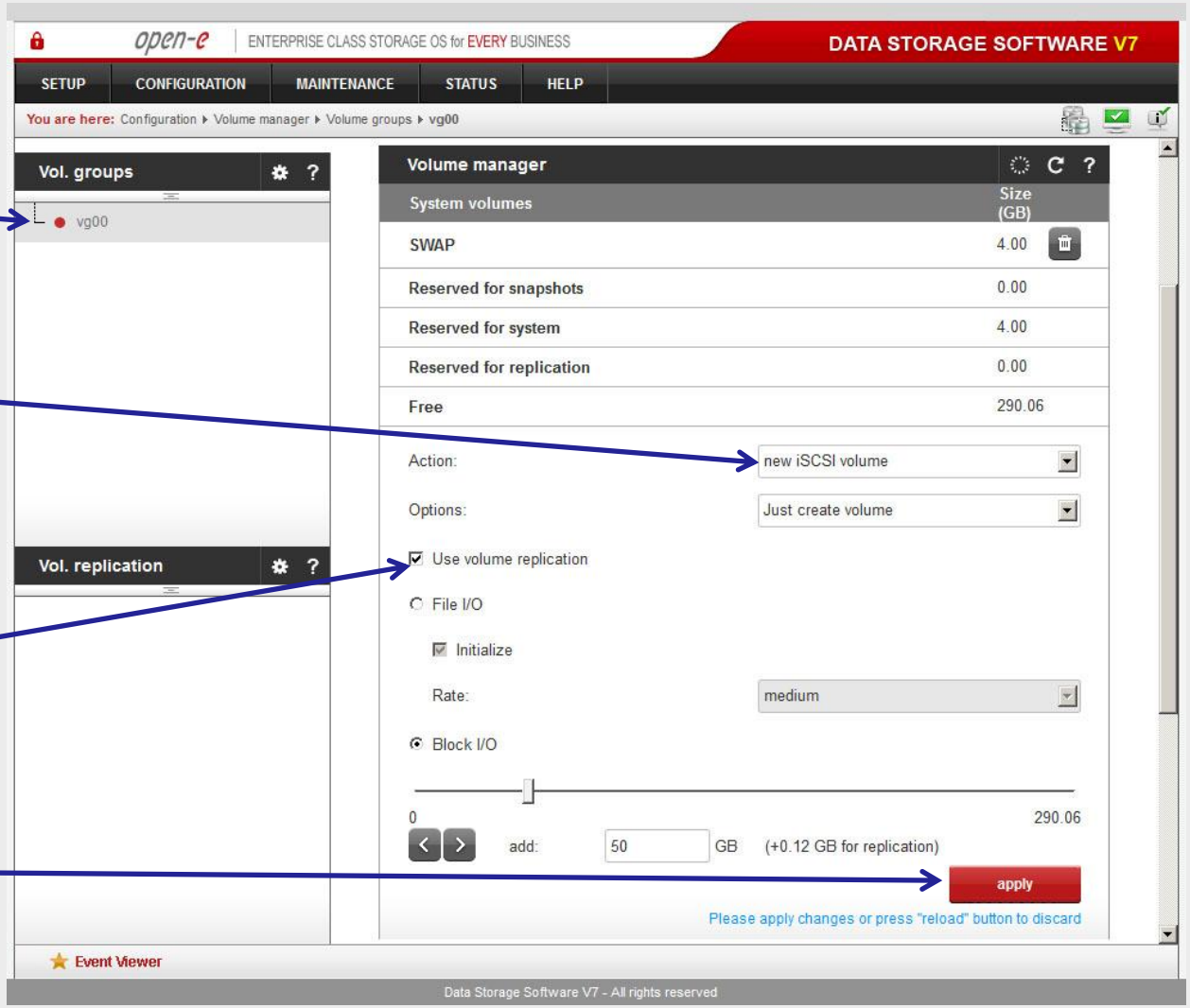
Data Server (DSS2)
node-b
IP Address:192.168.0.221

2. Configure the node-b

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

Next check the box with **Use volume replication**

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



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS2)

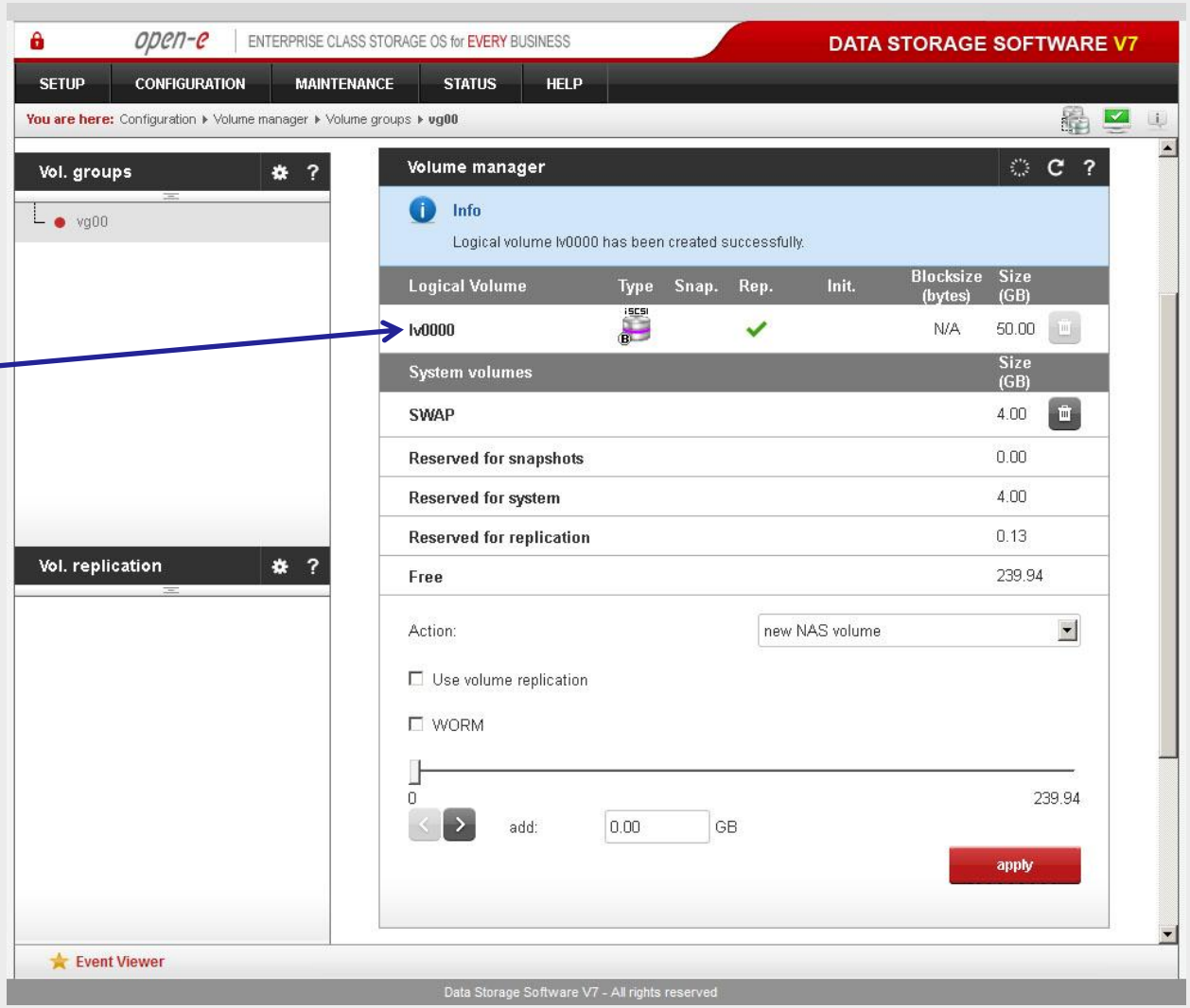
node-b

IP Address:192.168.0.221

2. Configure the node-b

Logical iSCSI Volume Block I/O is now configured.

iSCSI volume (lv0000)



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

node-a

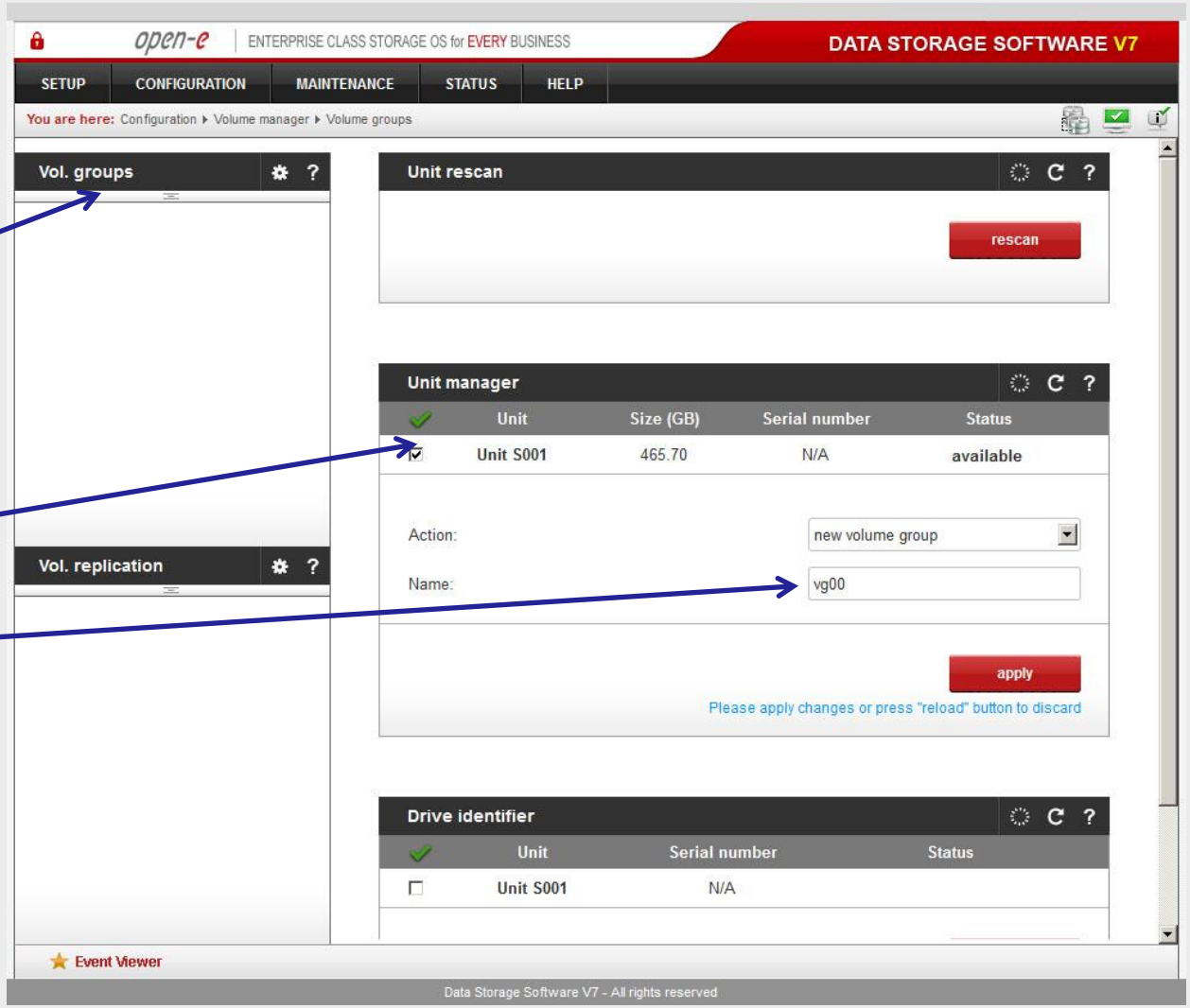
IP Address:192.168.0.220

3. Configure the node-a

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

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

Volume Groups (vg00)



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

node-a

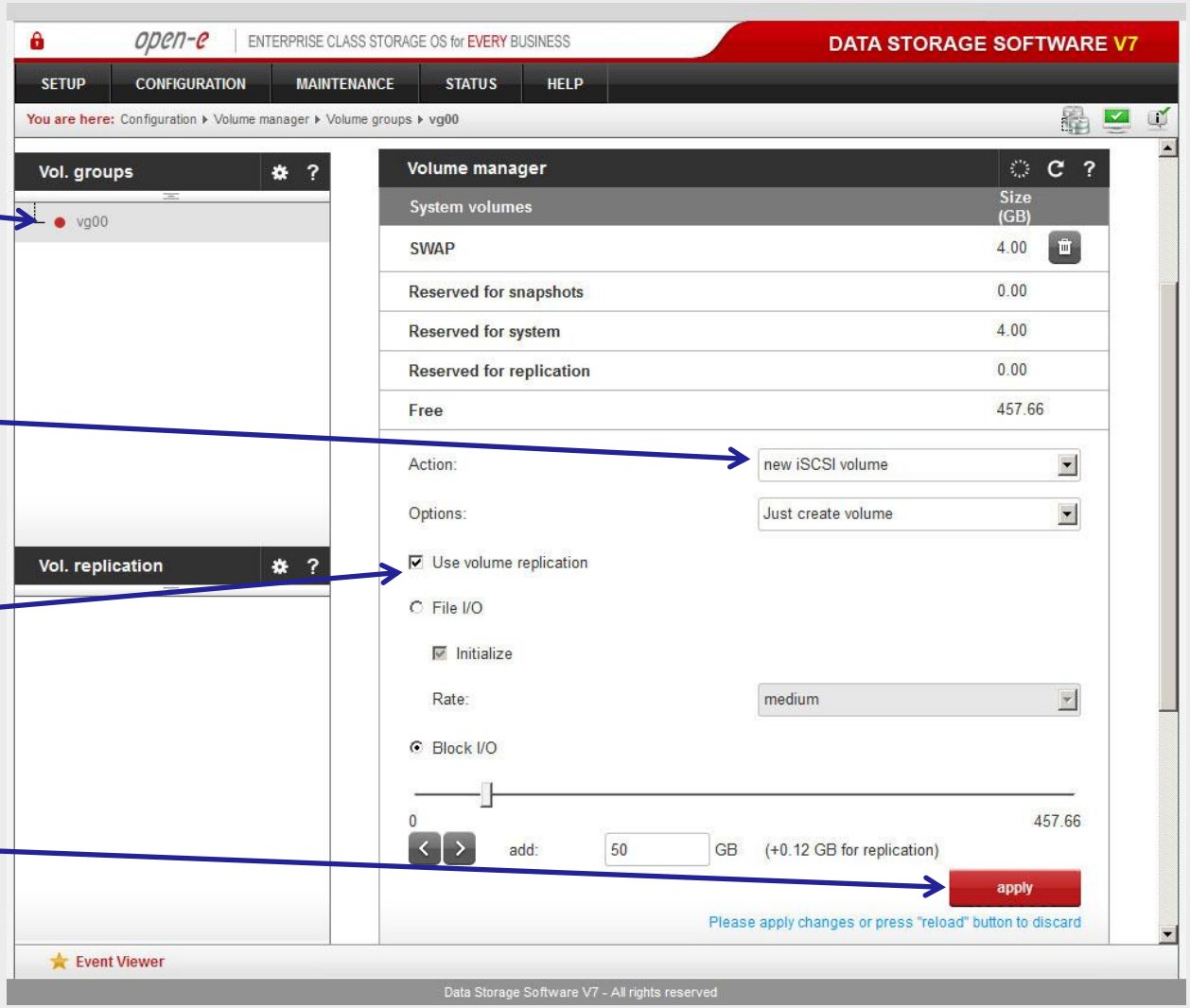
IP Address:192.168.0.220

3. Configure the node-a

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

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

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



NOTE:

The source and destination volumes must be of identical size.

Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

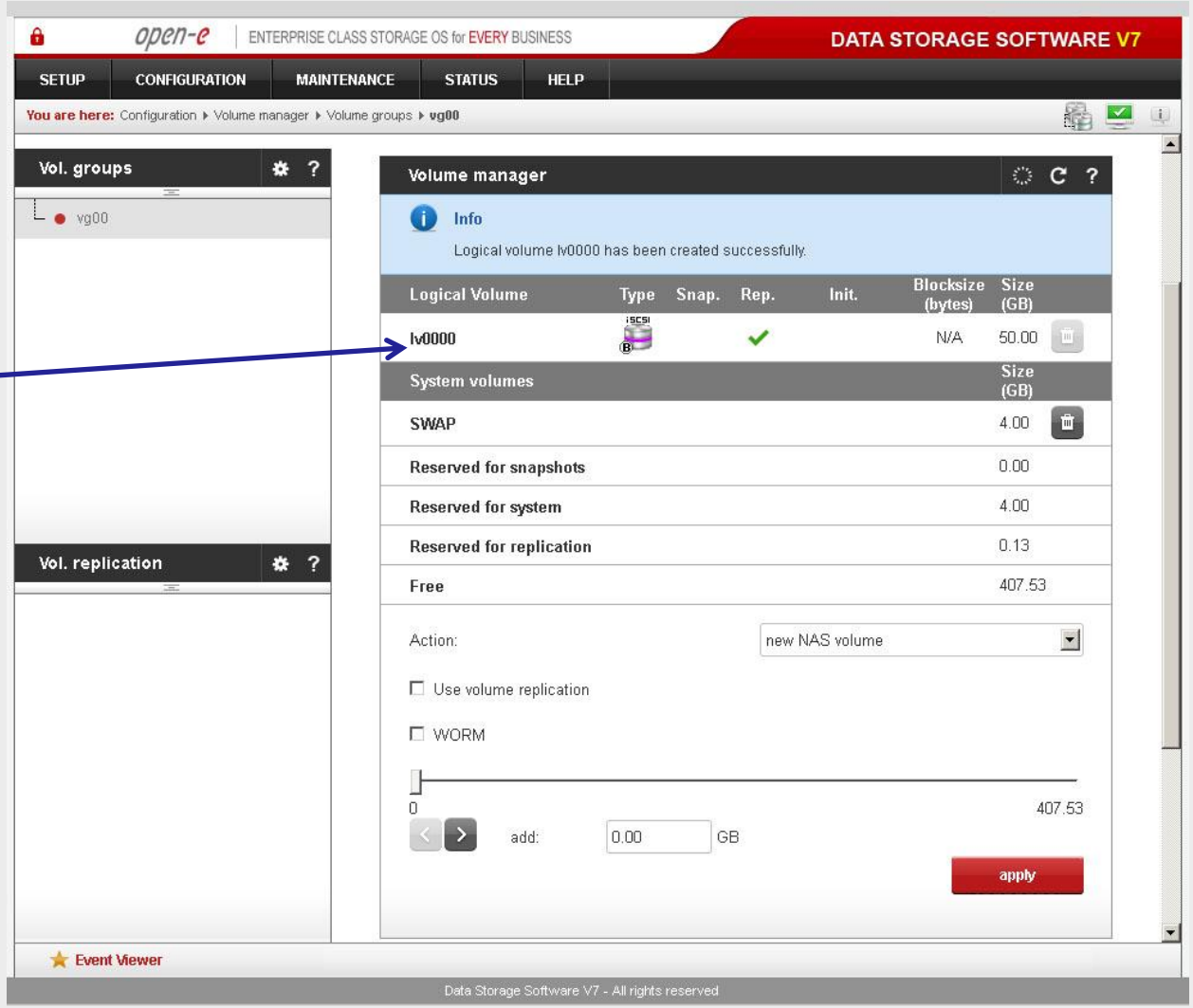
node-a

IP Address:192.168.0.220

3. Configure the node-a

Logical iSCSI Volume Block I/O is now configured.

iSCSI volume (lv0000)



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS2)

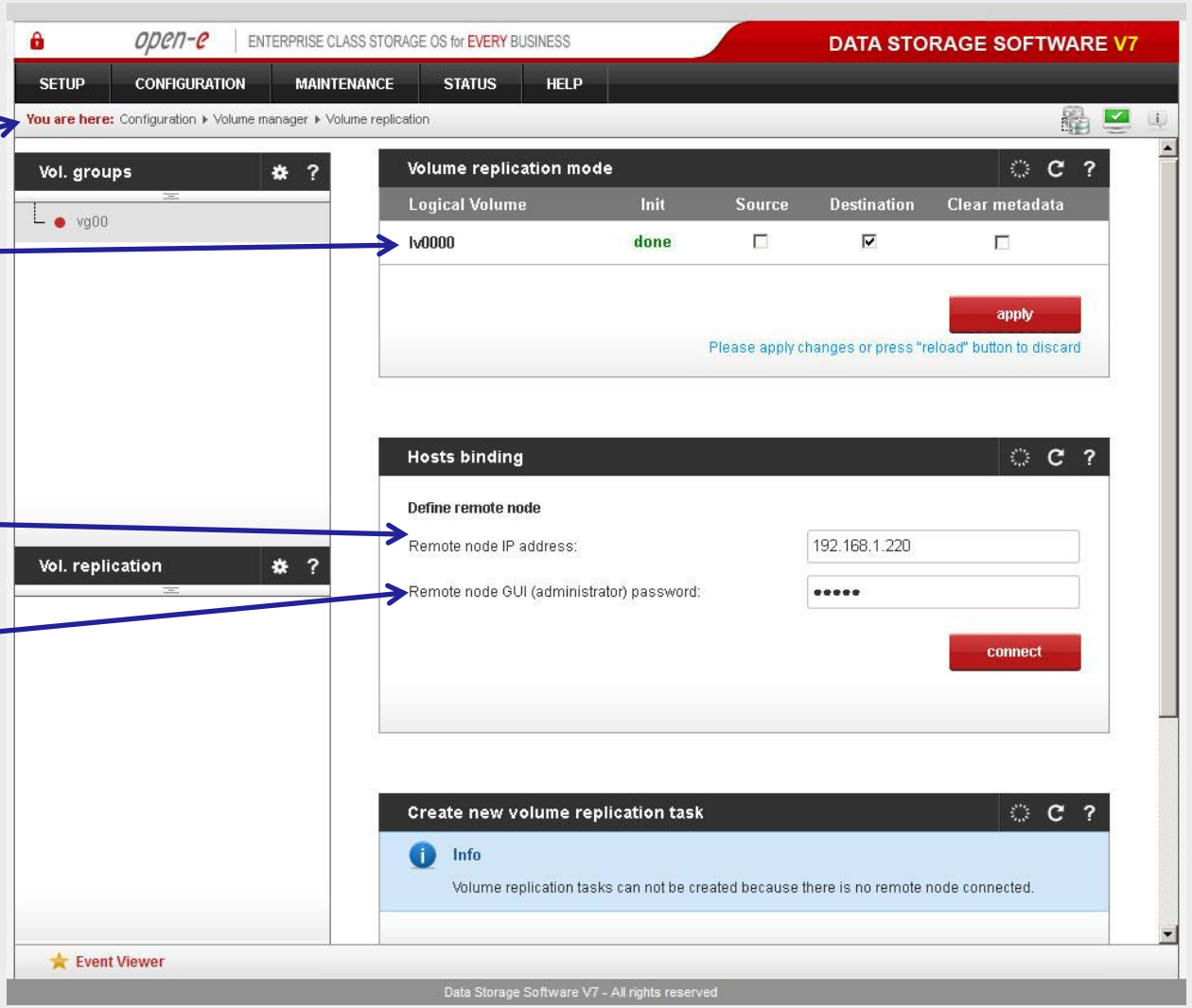
node-b

IP Address:192.168.0.221

2. Configure the node-b

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

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



NOTE:

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

- Source: 192.168.1.220
- Destination: 192.168.1.221

Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

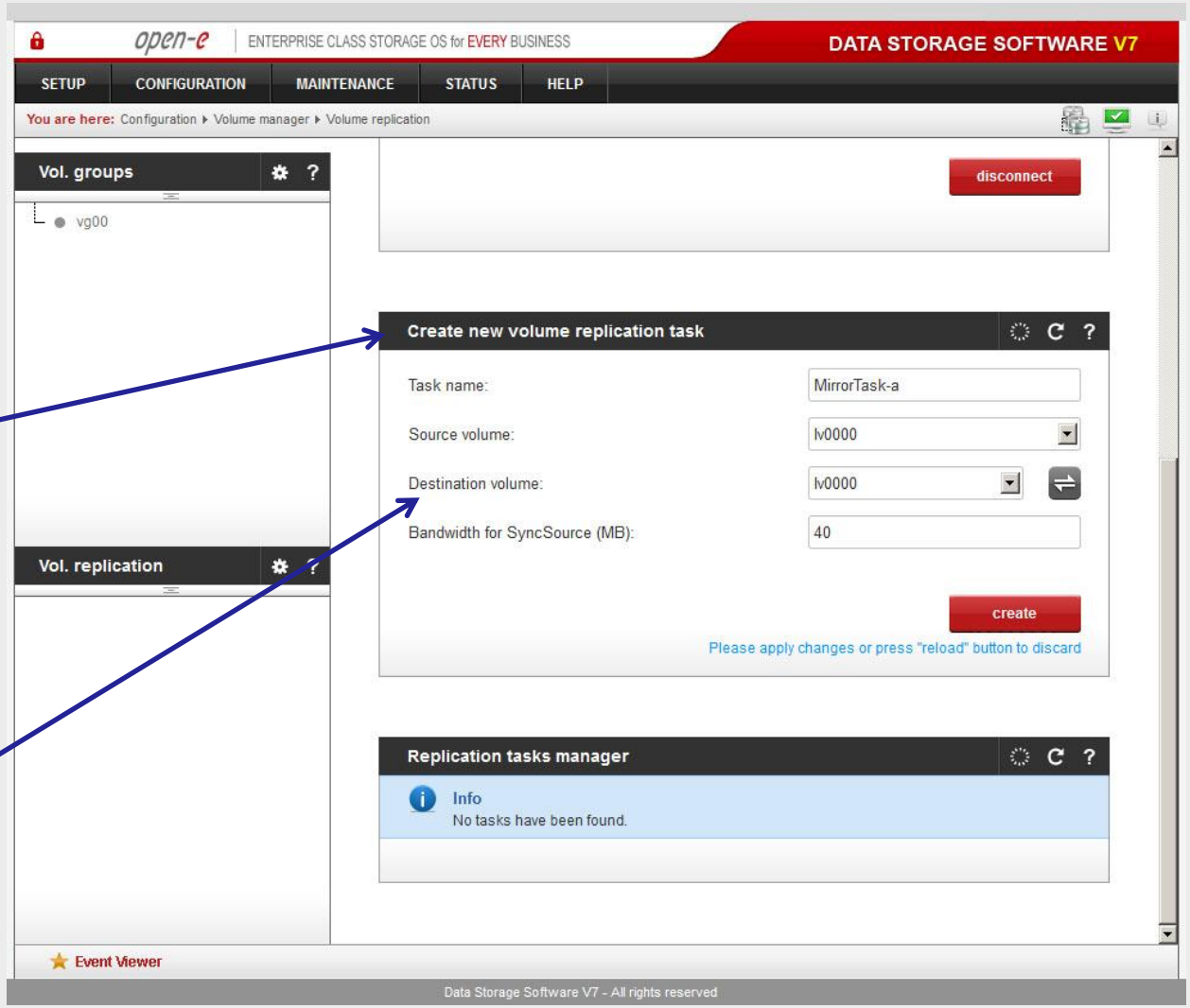
node-a

IP Address:192.168.0.220

3. Configure the node-a

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

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



Open-E DSS V7 Active-Passive iSCSI Failover

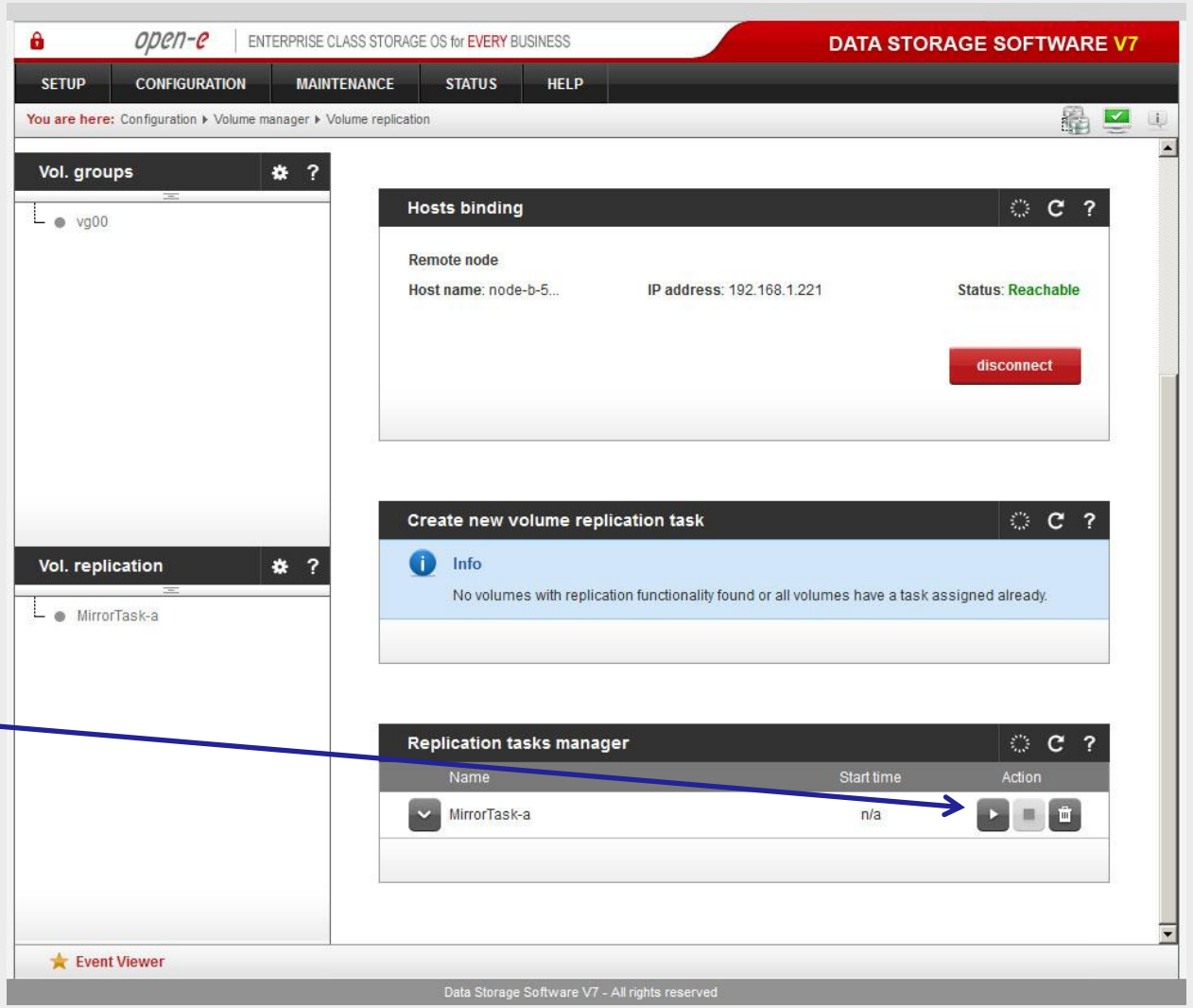
Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

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



Open-E DSS V7 Active-Passive iSCSI Failover

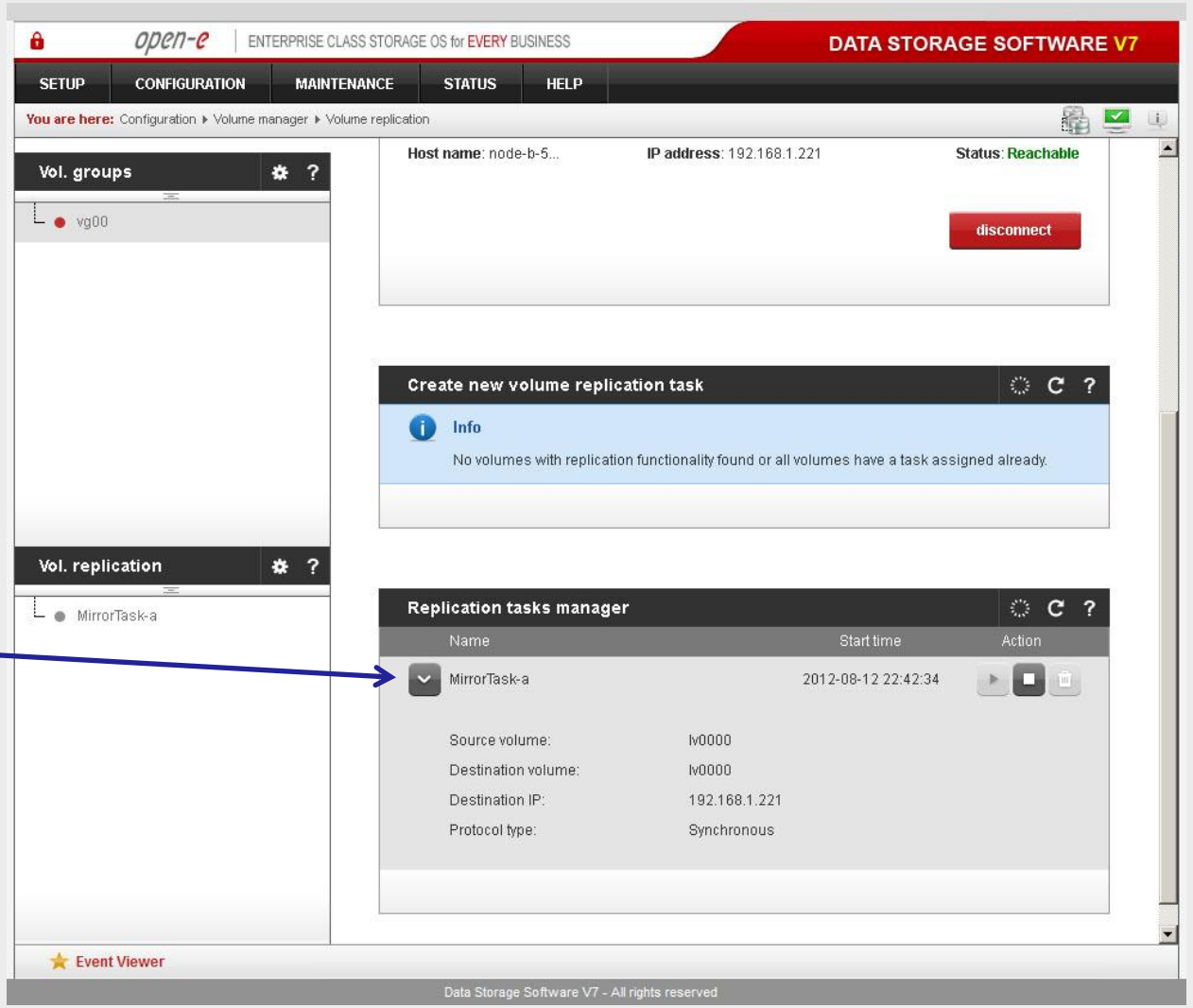
Data Server (DSS1)

node-a

IP Address:192.168.0.220

3. Configure the node-a

You will be able to find information about the current running replication task in the **Replication tasks manager** tab. When a task is complete a date and time will appear.



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

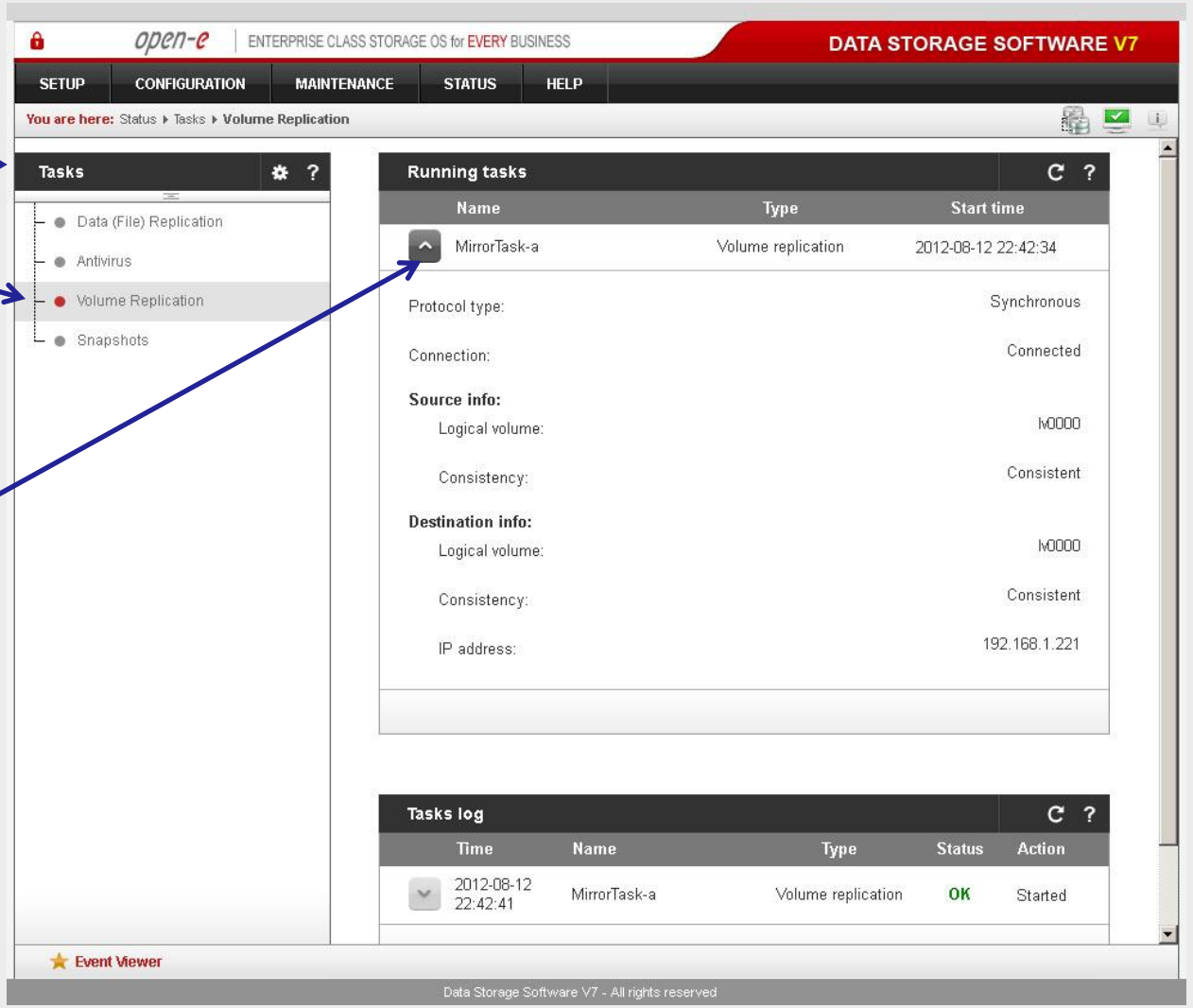
node-a

IP Address:192.168.0.220

3. Configure the node-a

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

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



NOTE:

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

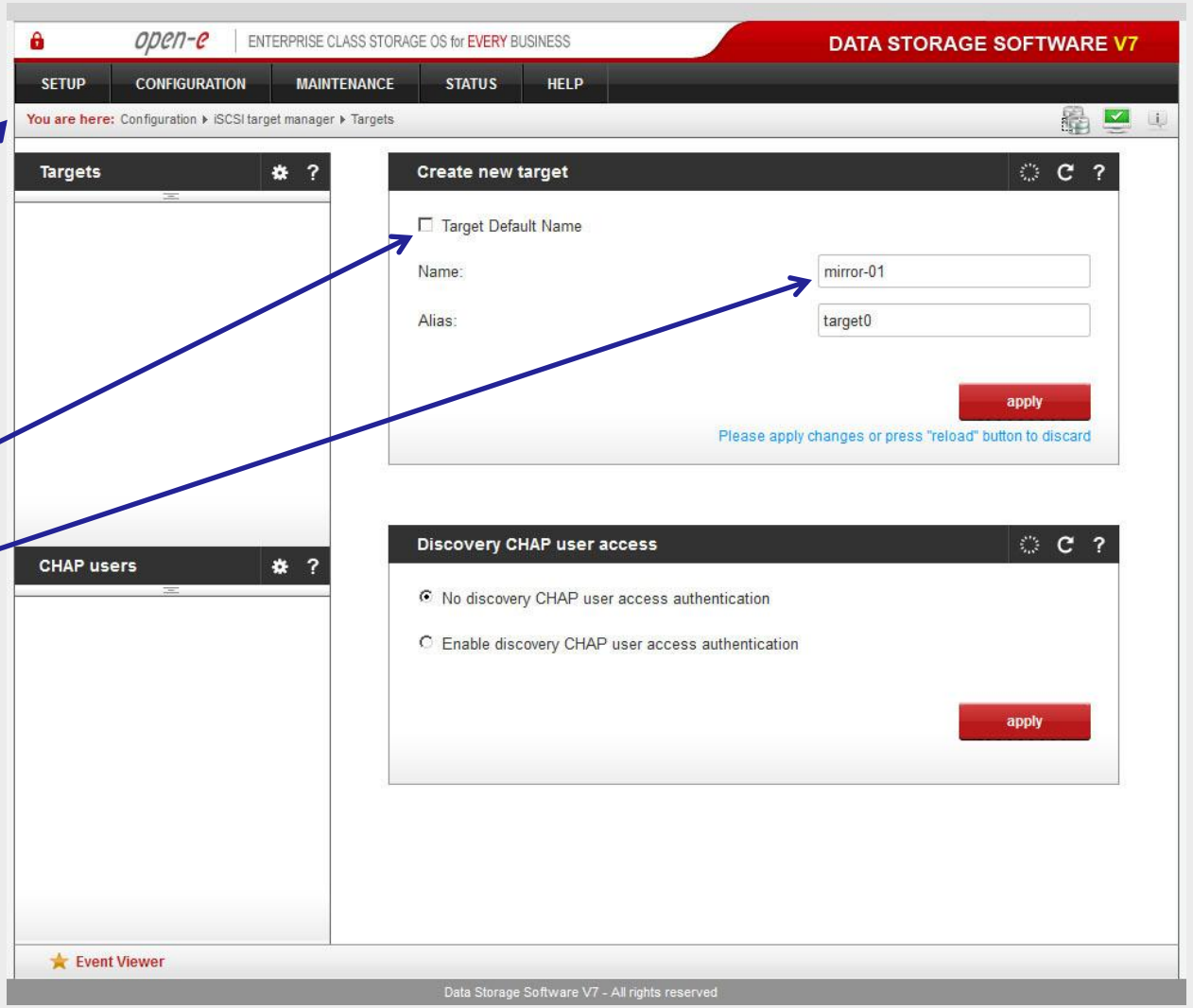
Open-E DSS V7 Active-Passive iSCSI Failover

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

4. Create new target on the node-b

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

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



iSCSI targets

NOTE:
Both systems must have the same Target name.

Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS2)

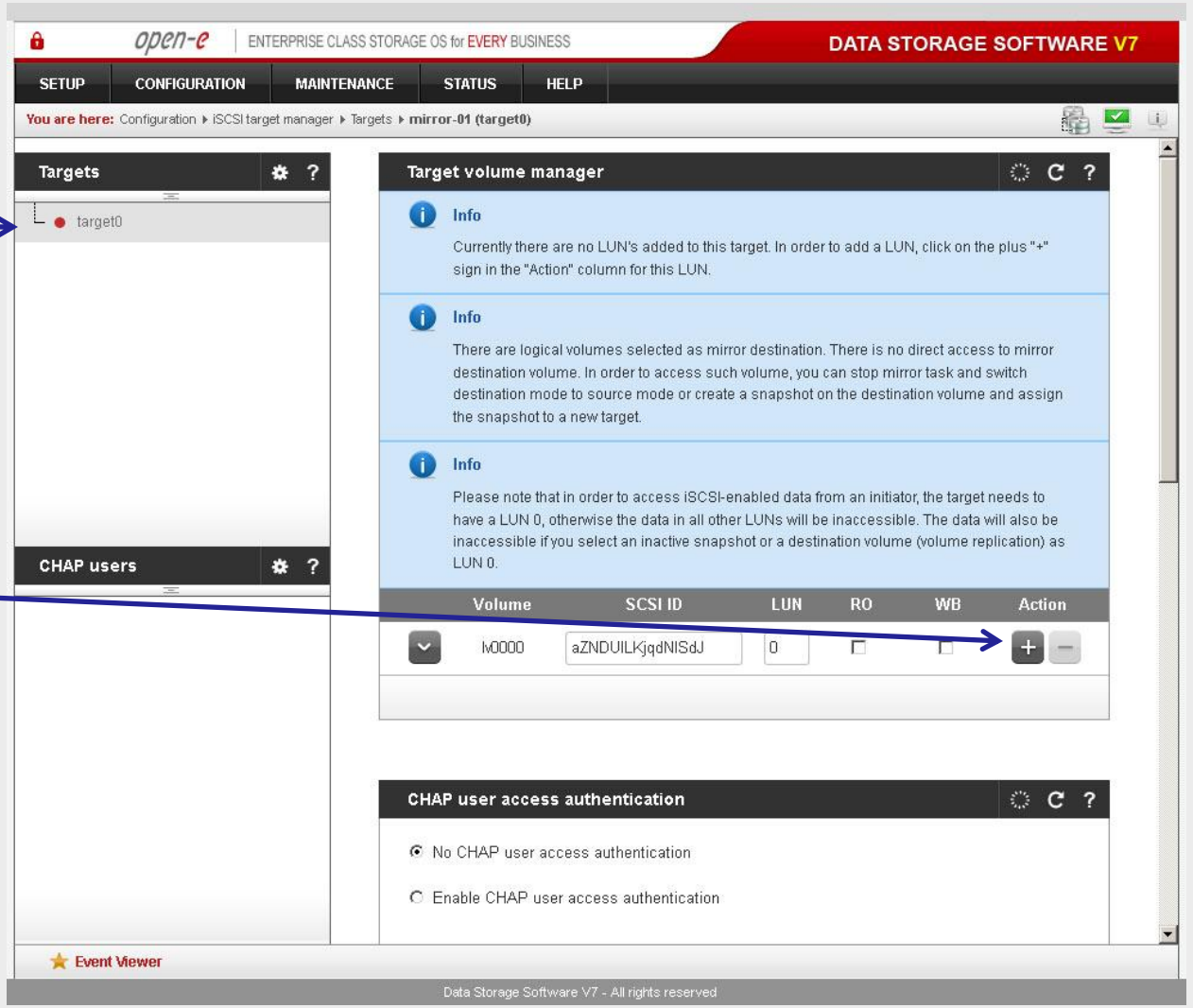
node-b

IP Address:192.168.0.221

4. Create new target on the node-b

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

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



NOTE:

Both systems must have the same SCSI ID and LUN#

WARNING:

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

Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

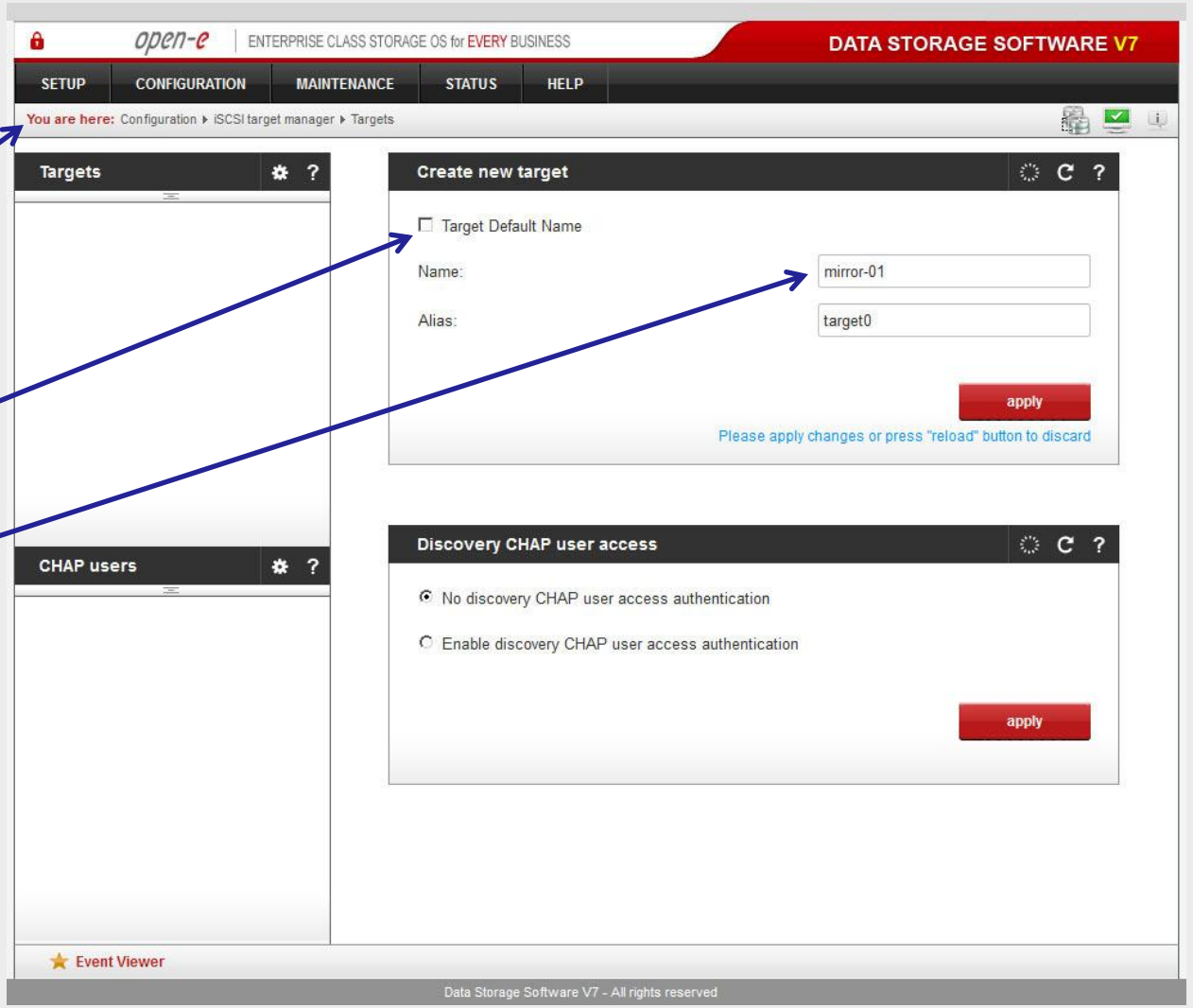
node-a

IP Address:192.168.0.220

5. Create new target on the node-a

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

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



iSCSI targets

NOTE:

Both systems must have the same Target name.

Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

node-a

IP Address:192.168.0.220

5. Create new target on the node-a

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

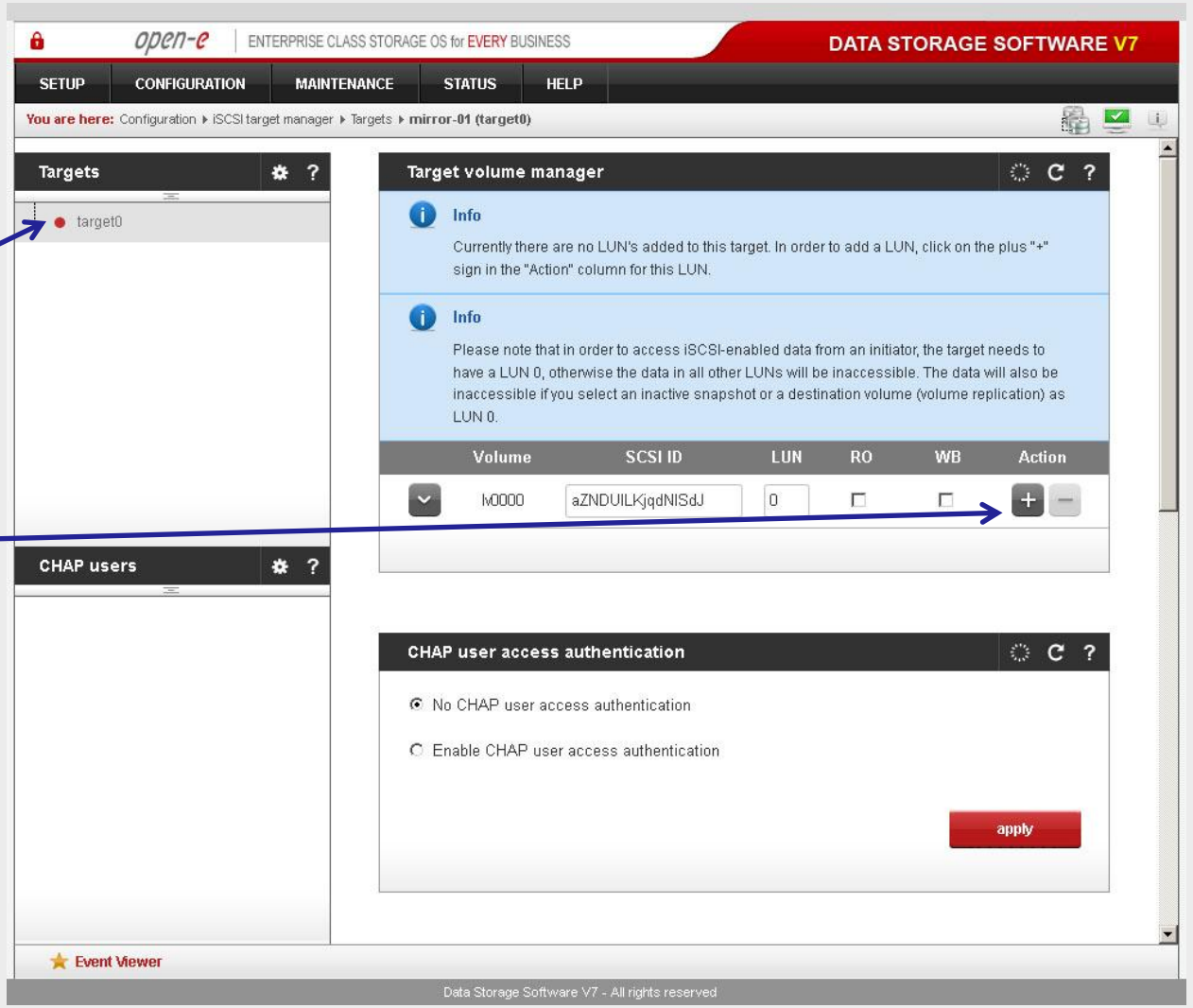
To assign appropriate volume to the target and click the + button located under **Action.**

NOTE:

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

WARNING:

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



Open-E DSS V7 Active-Passive iSCSI Failover

Data Server (DSS1)

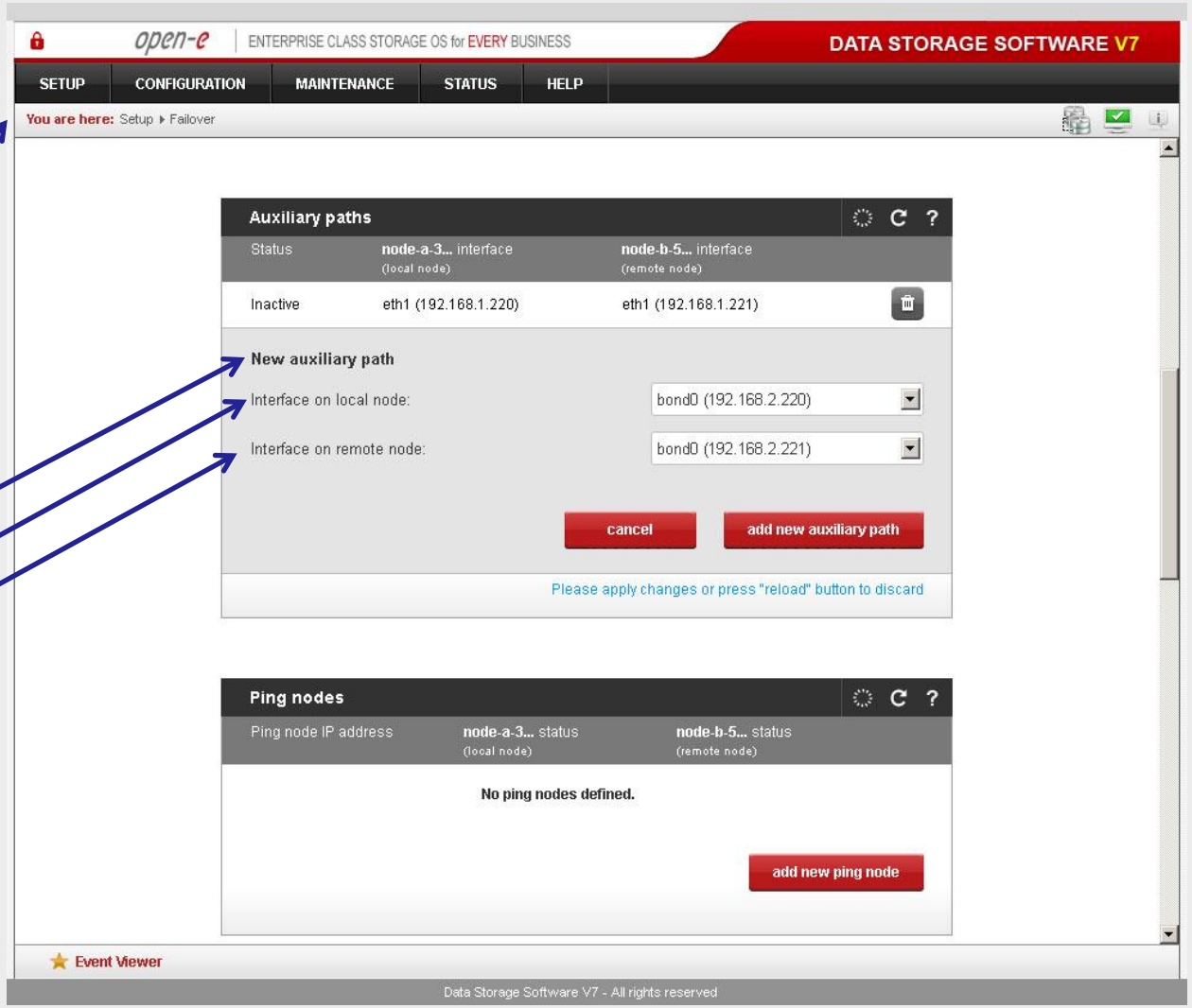
node-a

IP Address:192.168.0.220

6. Configure Failover

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

In the „**Auxiliary paths**” function, select the auxiliary path interface on the local and remote node and click the **add new auxiliary path** button.



Open-E DSS V7 Active-Passive iSCSI Failover

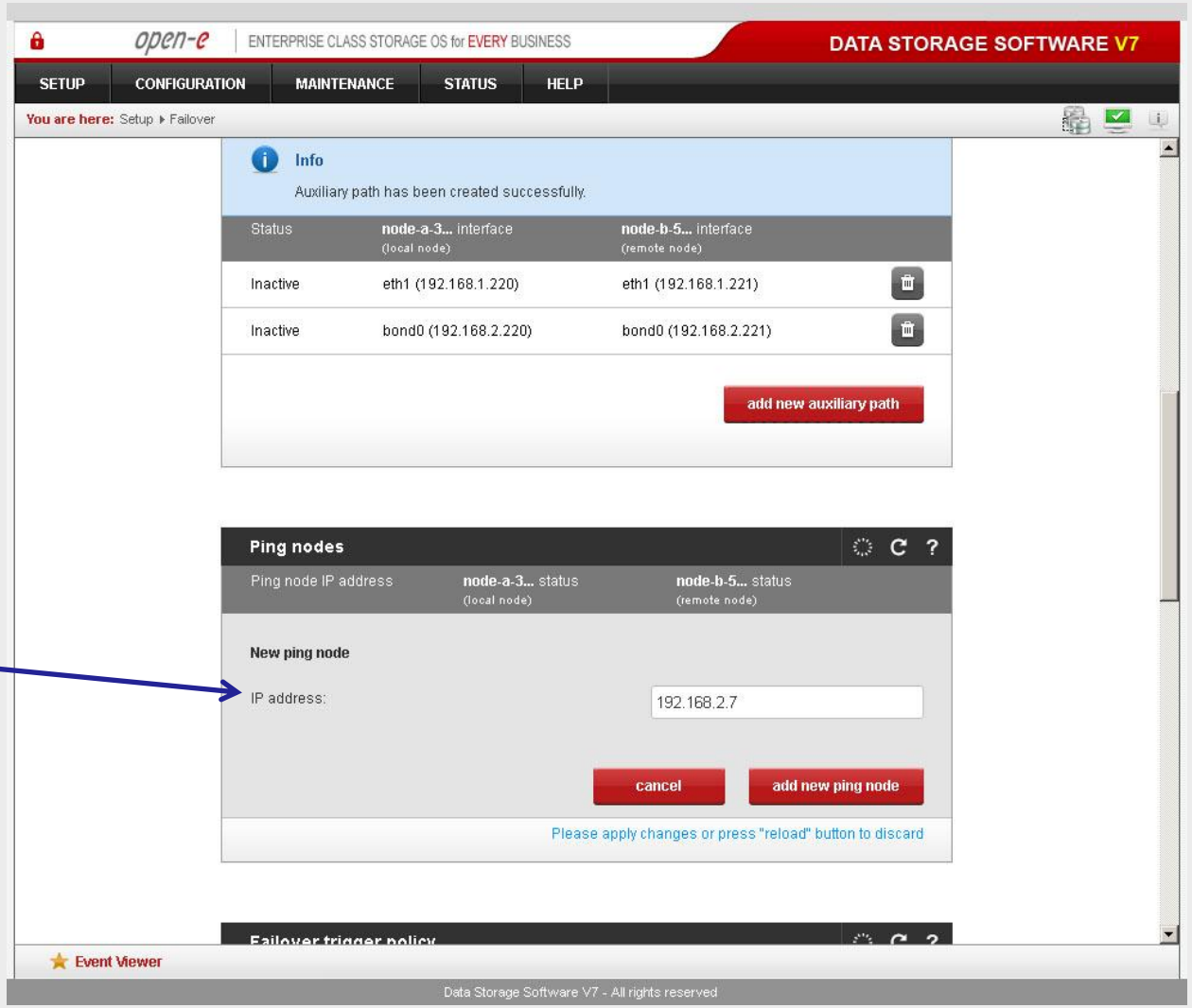
Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

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



Open-E DSS V7 Active-Passive iSCSI Failover

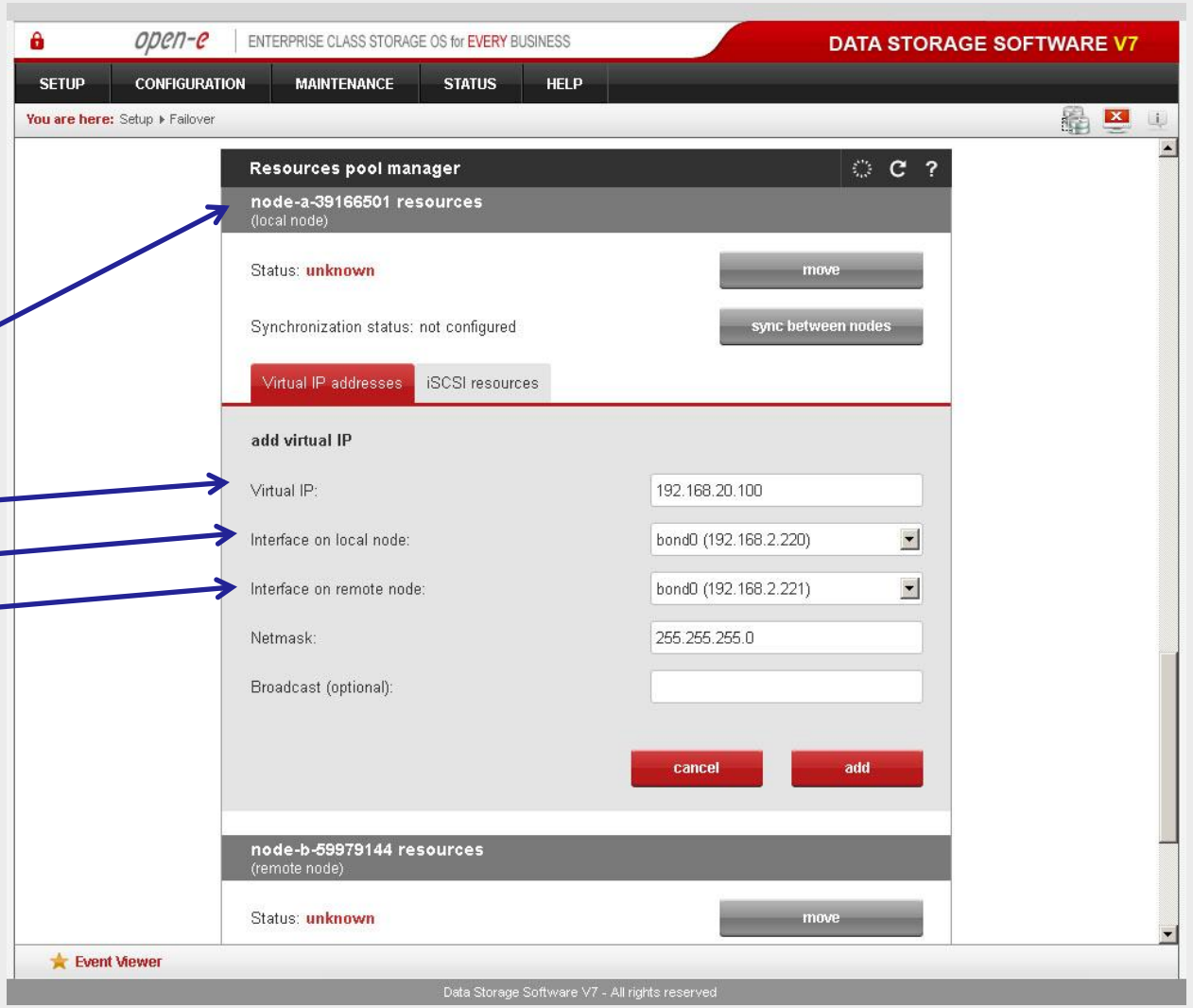
Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

Next, go to the „**Resources Pool Manager**" function and click the add virtual IP button. After that, enter the **Virtual IP** on the local node, (in this example: 192.168.20.100 according to the configuration of the third slide) and select two appropriate interfaces on the local and remote nodes. Next, click the add button.



Open-E DSS V7 Active-Passive iSCSI Failover

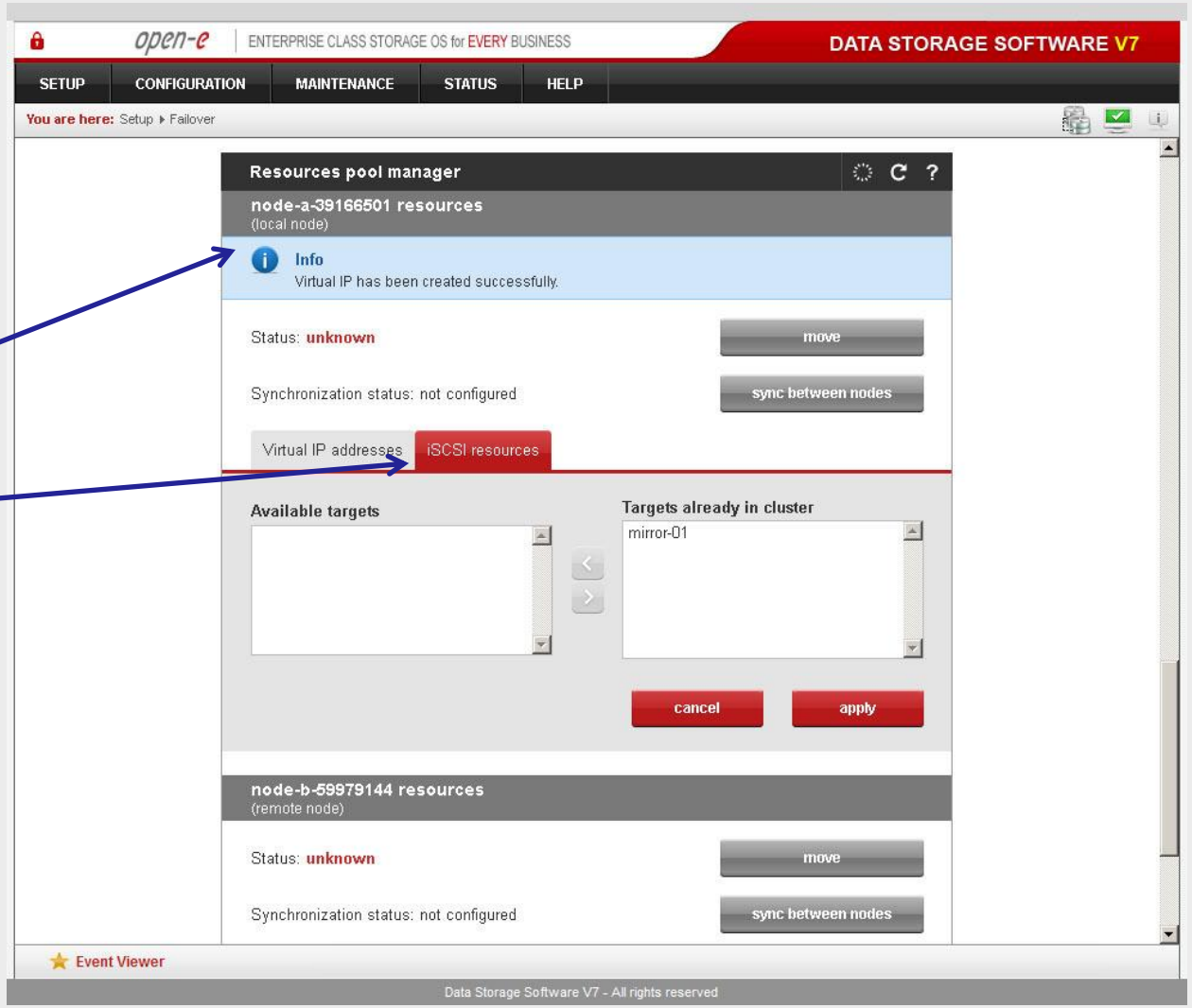
Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

When you are finished with setting the virtual IP, go to the „**iSCSI resources**" tab on the **local node** resources and click the **add or remove targets** button.
After moving the target **mirror-01** from „**Available targets**" to „**Targets already in cluster**" click the **apply** button.



Open-E DSS V7 Active-Passive iSCSI Failover

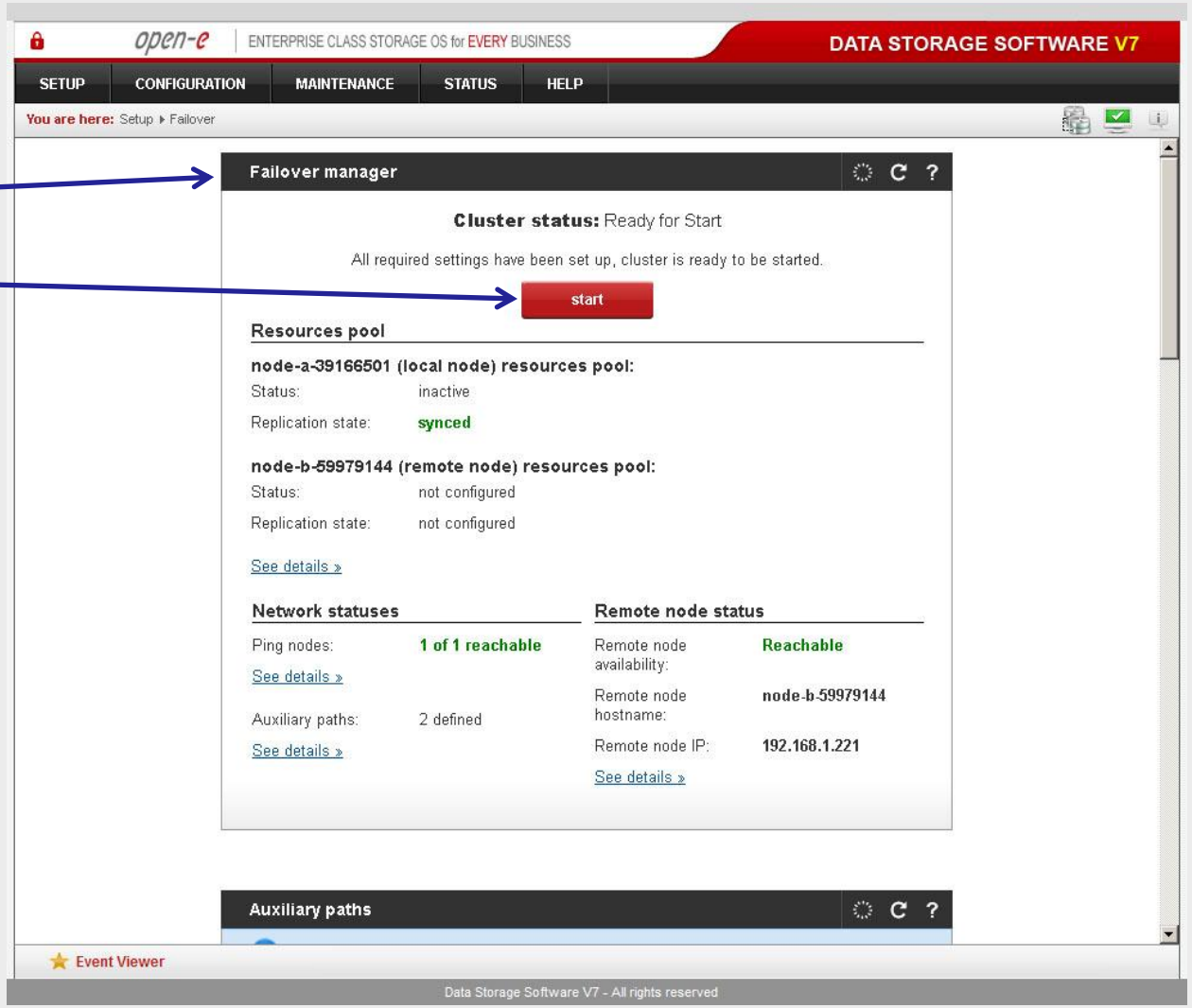
Data Server (DSS1)

node-a

IP Address:192.168.0.220

6. Configure Failover

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



NOTE:

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

Open-E DSS V7 Active-Passive iSCSI Failover

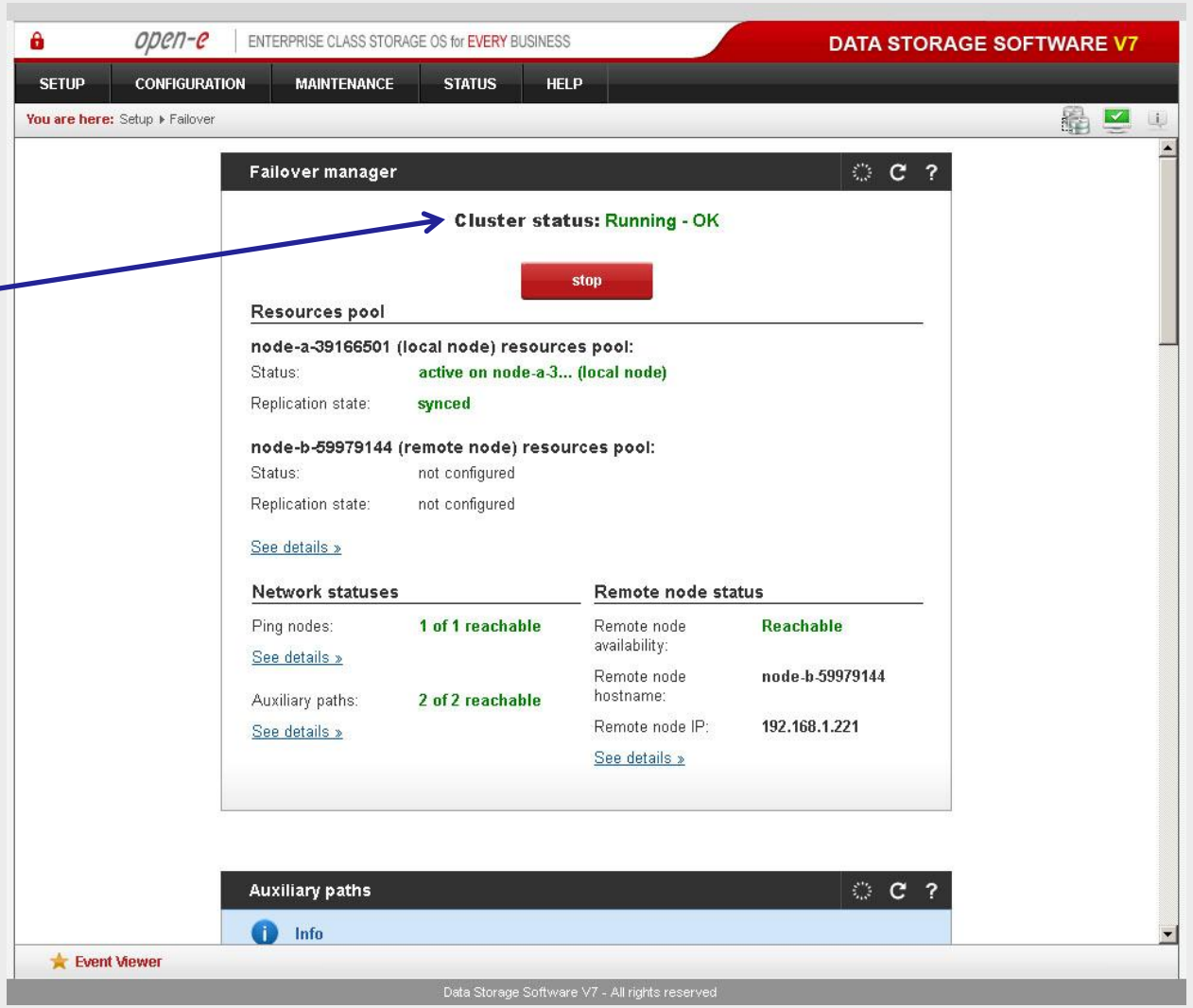
Data Server (DSS1)

node-a

IP Address:192.168.0.220

7. Start Failover Service

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



NOTE:

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

Open-E DSS V7 Active-Passive iSCSI Failover

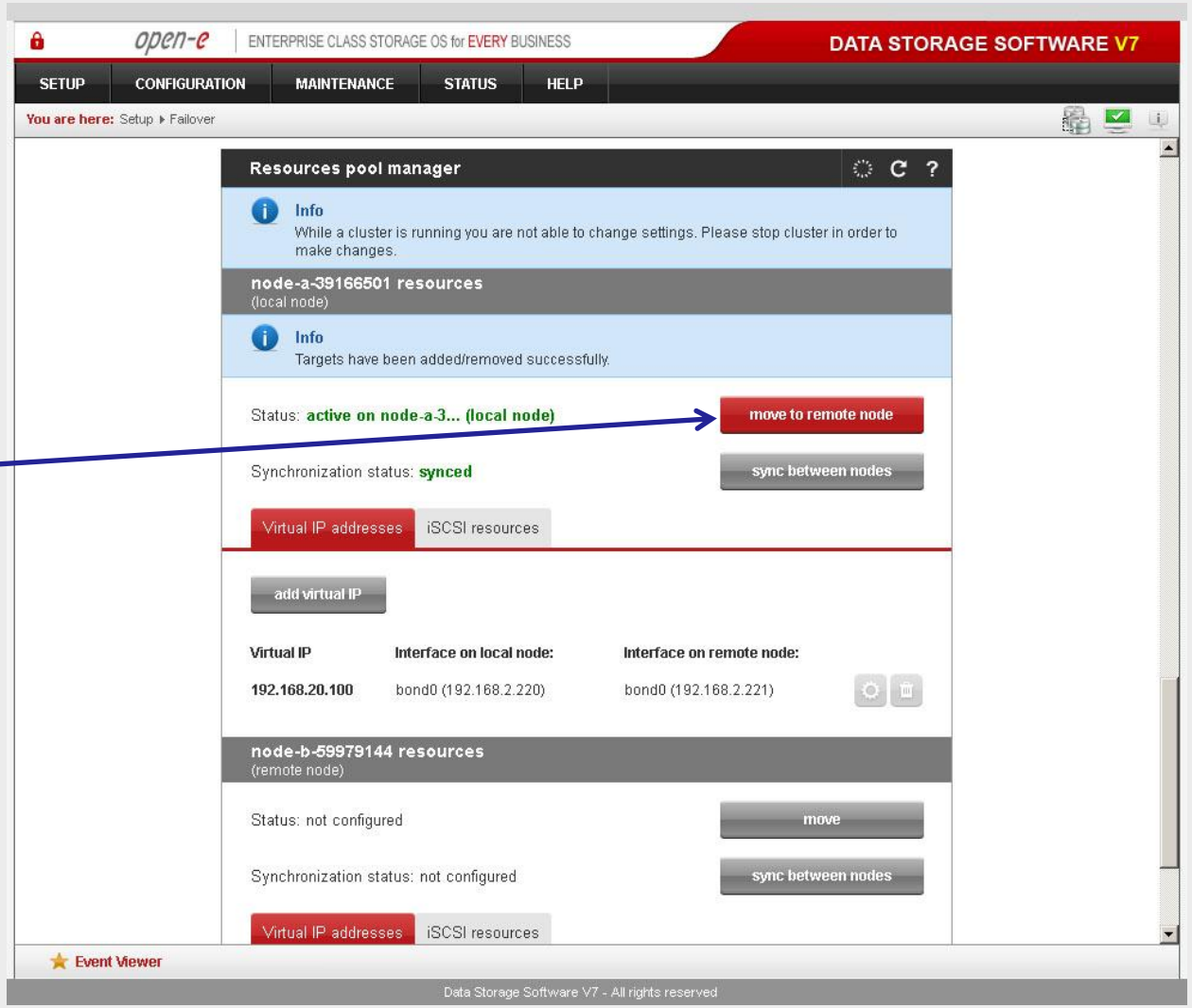
Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

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



Open-E DSS V7 Active-Passive iSCSI Failover

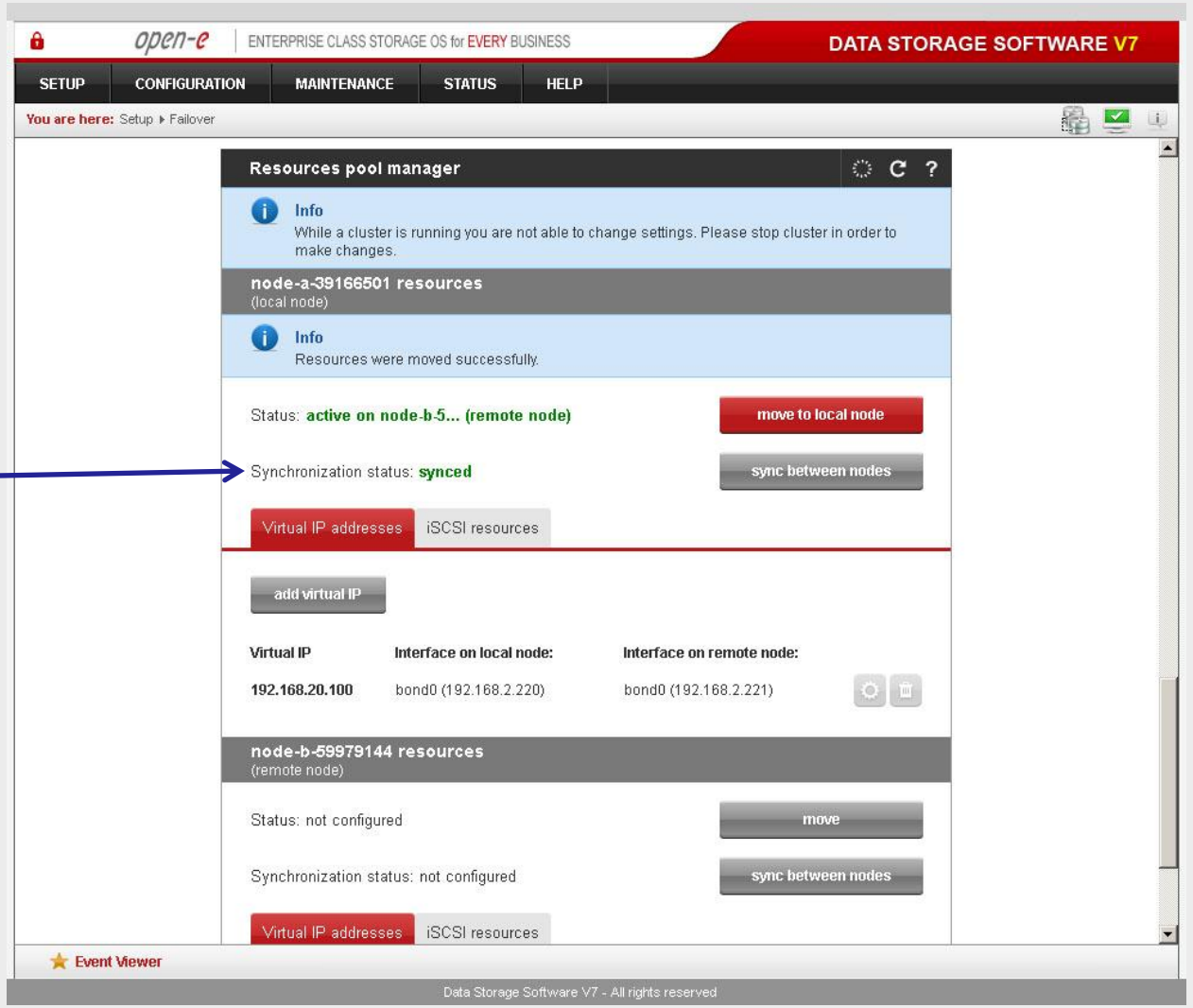
Data Server (DSS1)

node-a

IP Address:192.168.0.220

8. Test Failover Function

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



Open-E DSS V7 Active-Passive iSCSI Failover

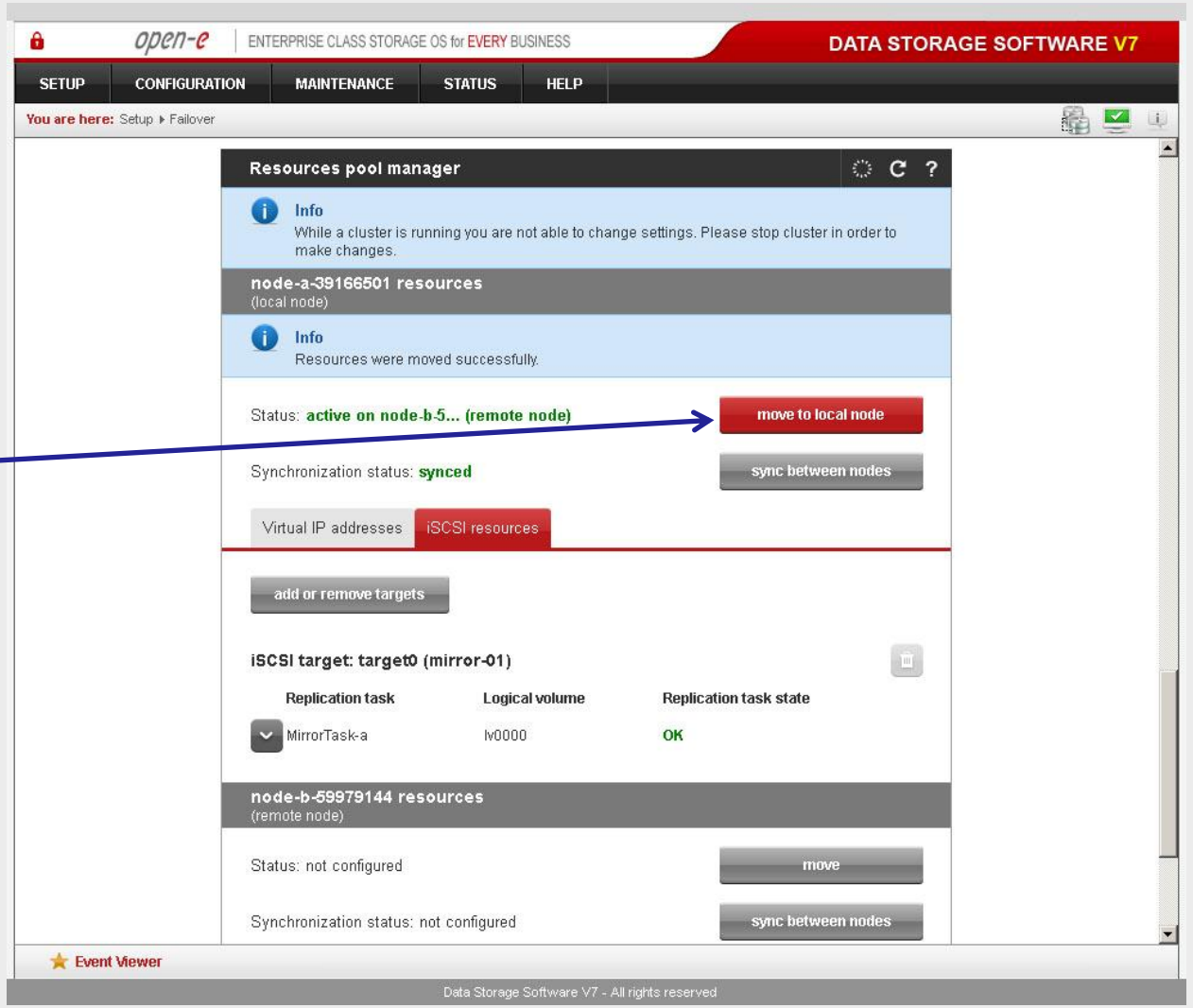
Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

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



Open-E DSS V7 Active-Passive iSCSI Failover

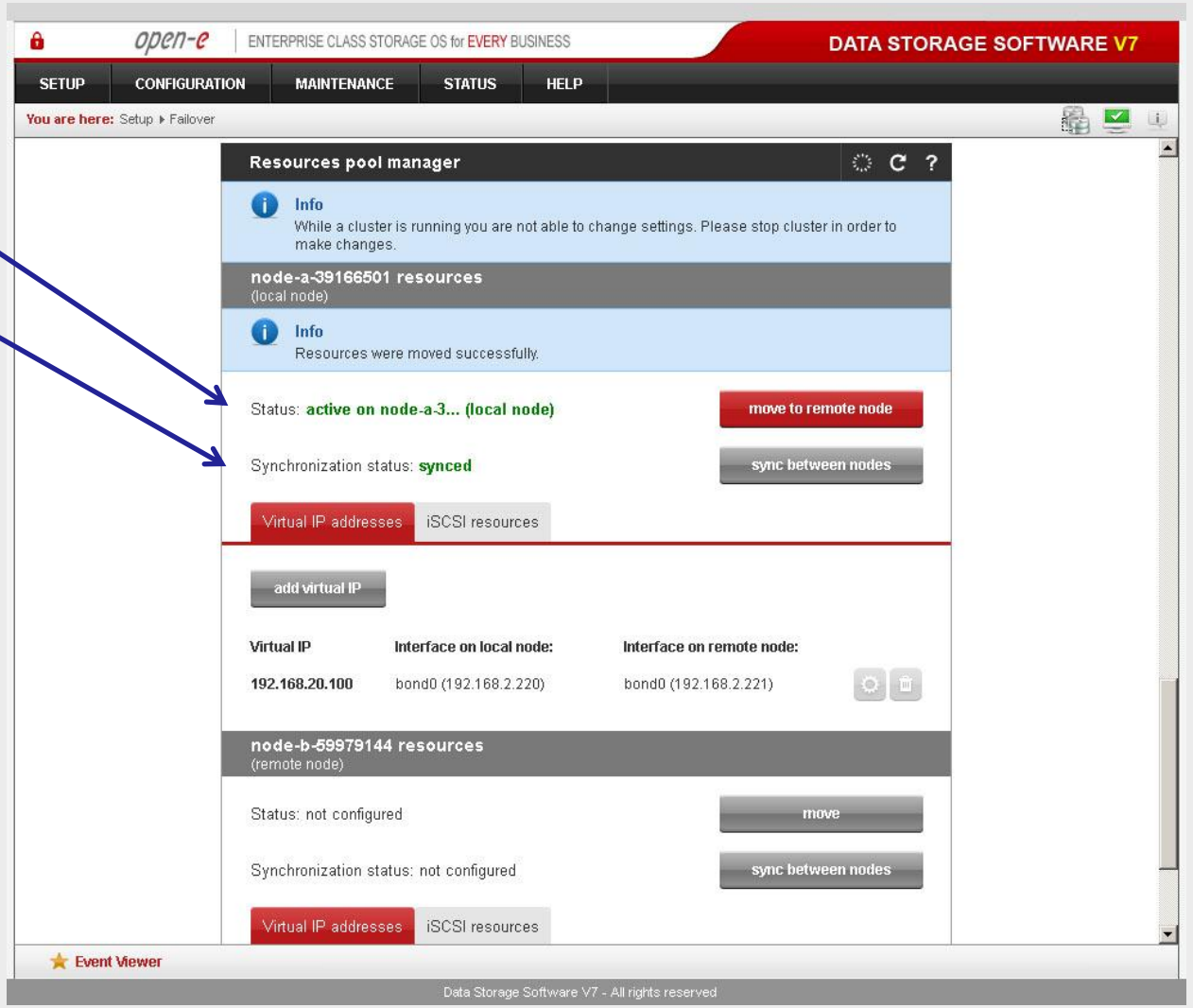
Data Server (DSS1)

node-a

IP Address:192.168.0.220

9. Run Failback Function

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



NOTE:

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

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

Thank you!

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