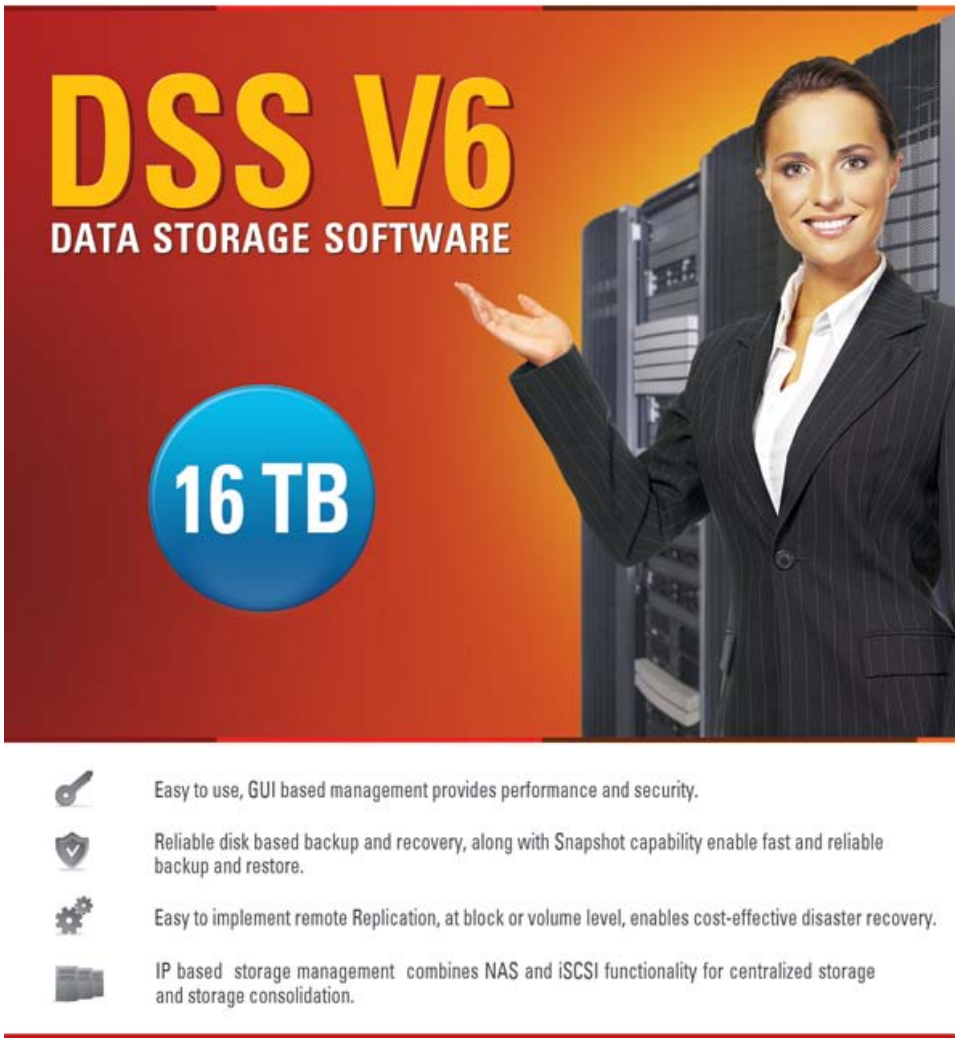
A Step-by-Step Guide to Synchronous Volume Replication (Block Based) over a LAN with Open-E® DSS V6



Software Version: DSS ver. 6.00 up50

Presentation updated: December 2010

Synchronous Volume Replication over a LAN

	Replication Mode		Source/Destination			Data Transfer		Volume Type			
									iSCSI		
	Synchronous	Asynchronous	w/ System	LAN	WAN	File based	Block based	NAS	File-IO	Block-IO	FC
Synchronous Volume Replication over a LAN	✓			✓			✓	✓	✓	✓	✓

- **Volume Replication** is a process of coping a source logical volume to a destination system.
  - Volume replication provides maximal availability in case one of the systems or units fails.

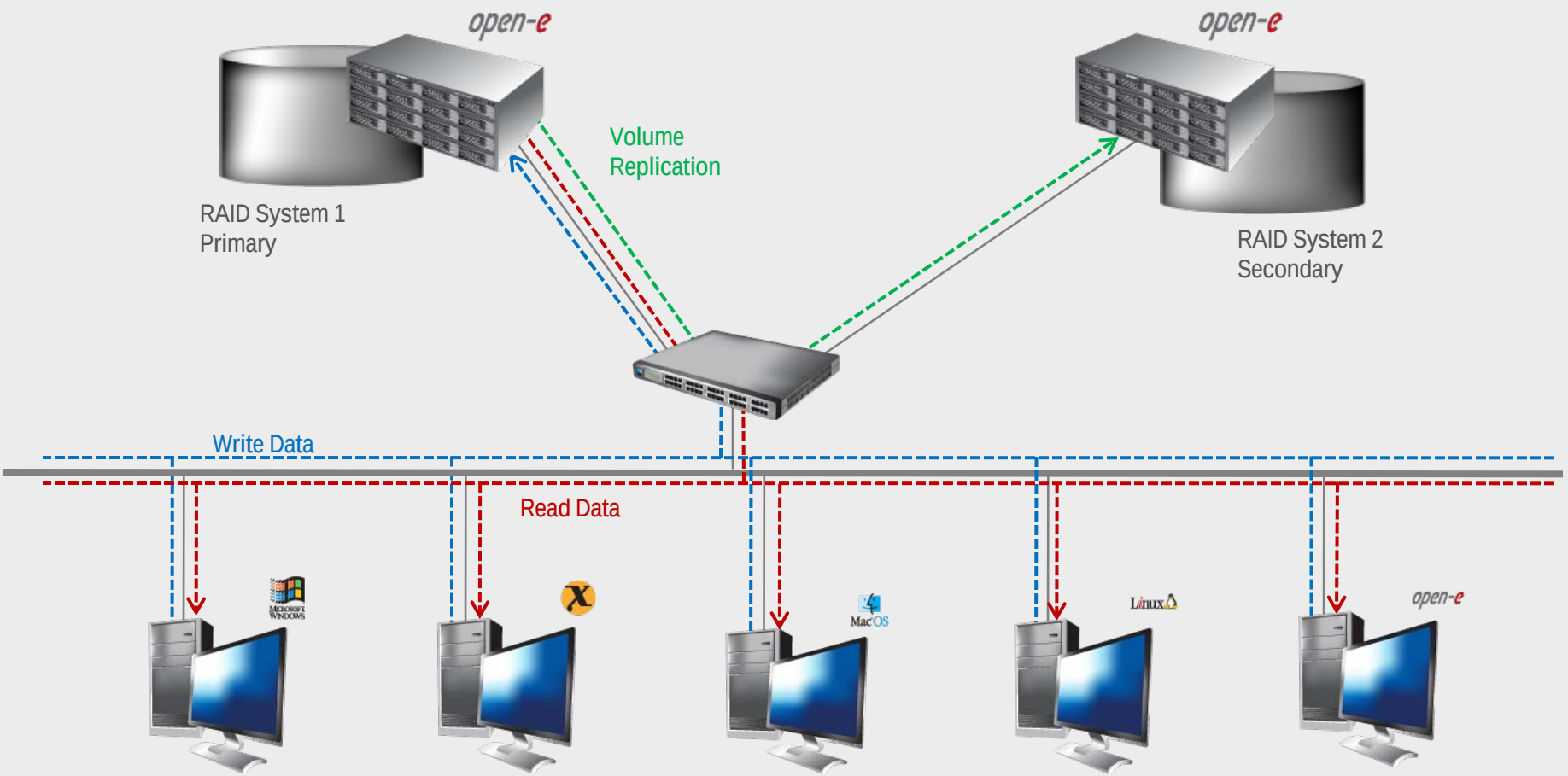
Synchronous Volume Replication over a LAN

Replication between two systems within one LAN

- Recommended Resources
  - Key Hardware (two systems)
    - ✓ x86 compatible,
    - ✓ RAID Controller,
    - ✓ HDD‘s,
    - ✓ Network Interface Cards.
  - Software
    - ✓ Open-E DSS V6, 2 units.
- Benefits
  - Data Redundancy over a LAN,
  - Enables continuous data access.
- Disadvantages
  - High cost of solution,
  - Natural disasters can destroy local systems.

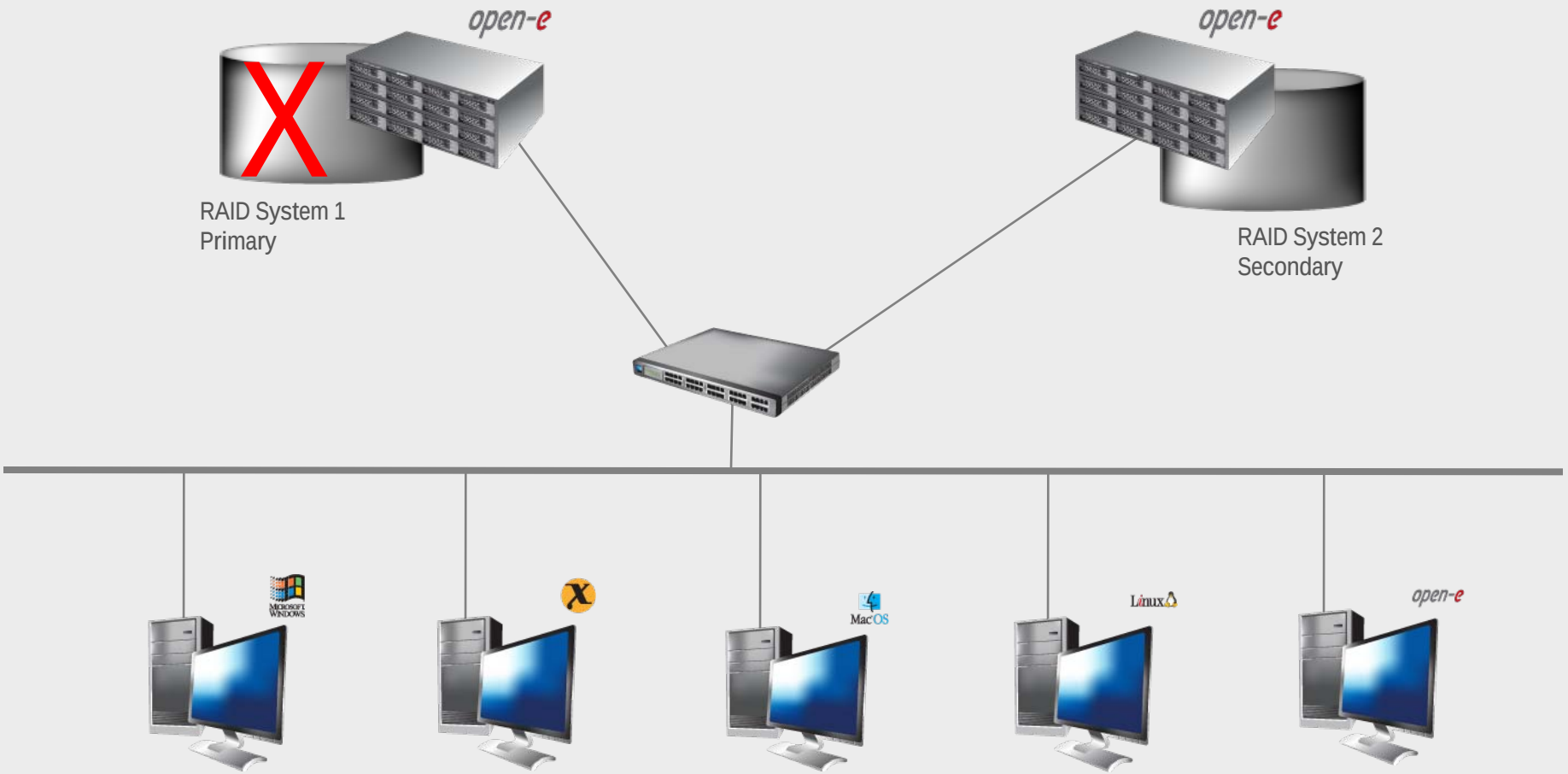
Synchronous Volume Replication over a LAN

- Data is written and read to System 1
- Data is continiously replicated to System 2



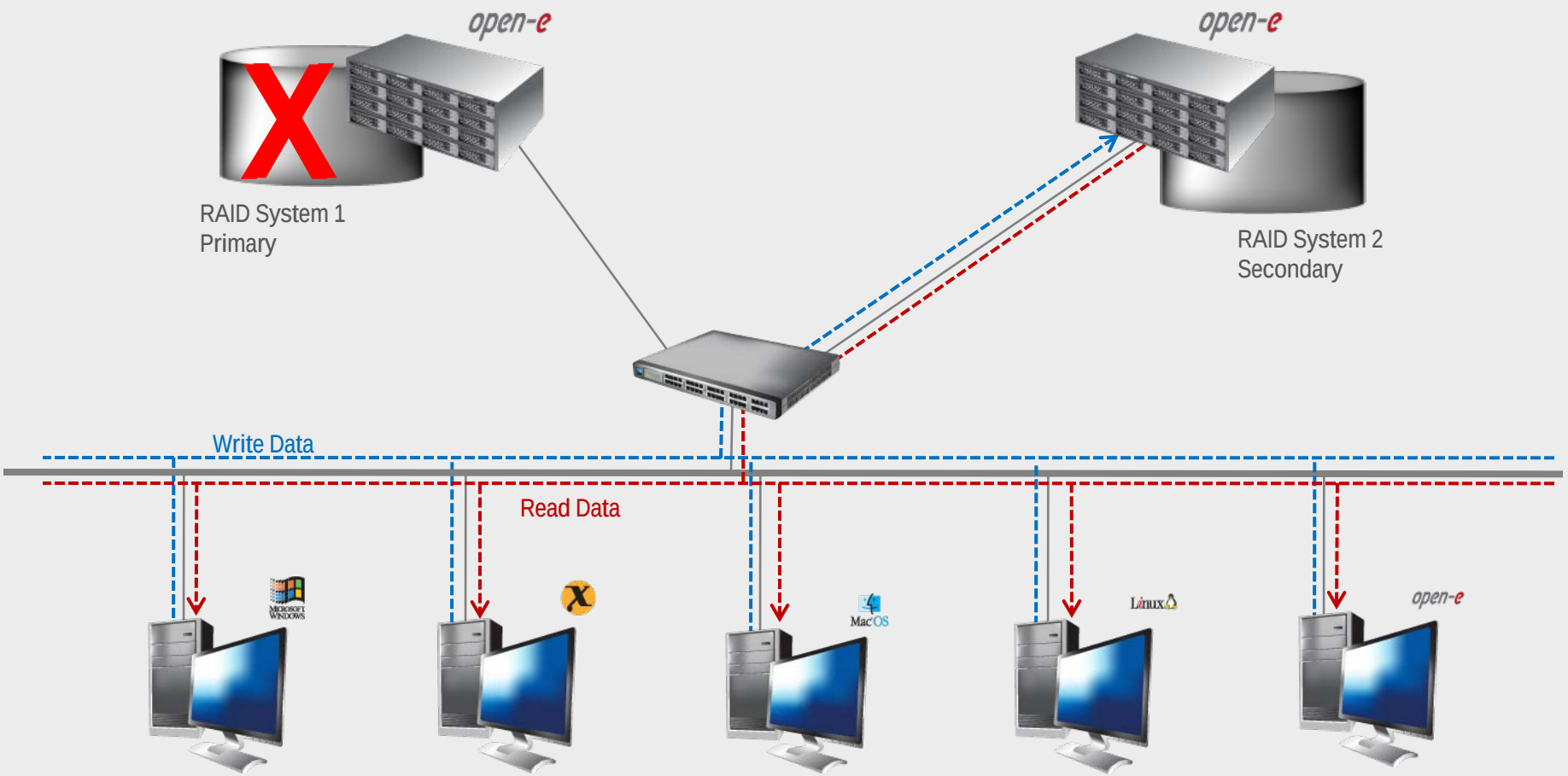
Synchronous Volume Replication over a LAN

- In case of raid array error or disk drive error on the System 1, the server will send an e-mail notification to the administrator,
- In the case of a failure of system 1, users will be notified,
- Administrator then switches users to the System 2.



Synchronous Volume Replication over a LAN

- After switching, replicated volume is available on System 2



Setting up Synchronous Volume Replication over a LAN

open-e

TO SET UP VOLUME REPLICATION, PERFORM THE FOLLOWING STEPS:

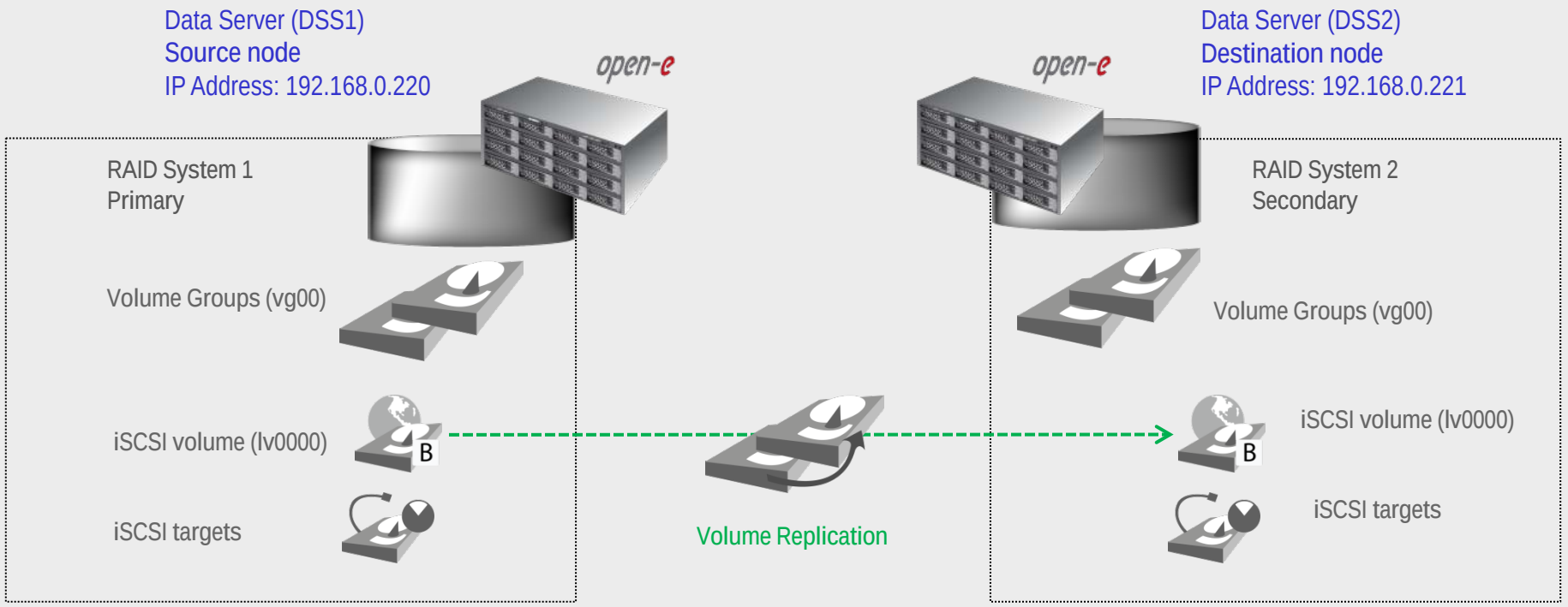
1. Configure Hardware
2. Configure the destination node
3. Configure the source node
4. Configure the replication task
5. Check the status of volume replication

Setting up Synchronous Volume Replication over a LAN

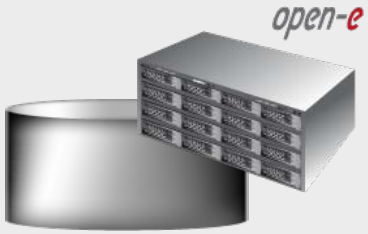
Hardware Requirements

To run the Volume replication of Open-E DSS V6, a minimum of two systems are required. Both servers are working in the Local Area Network. An example configuration is shown below:

1. Configure Hardware



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

Destination node

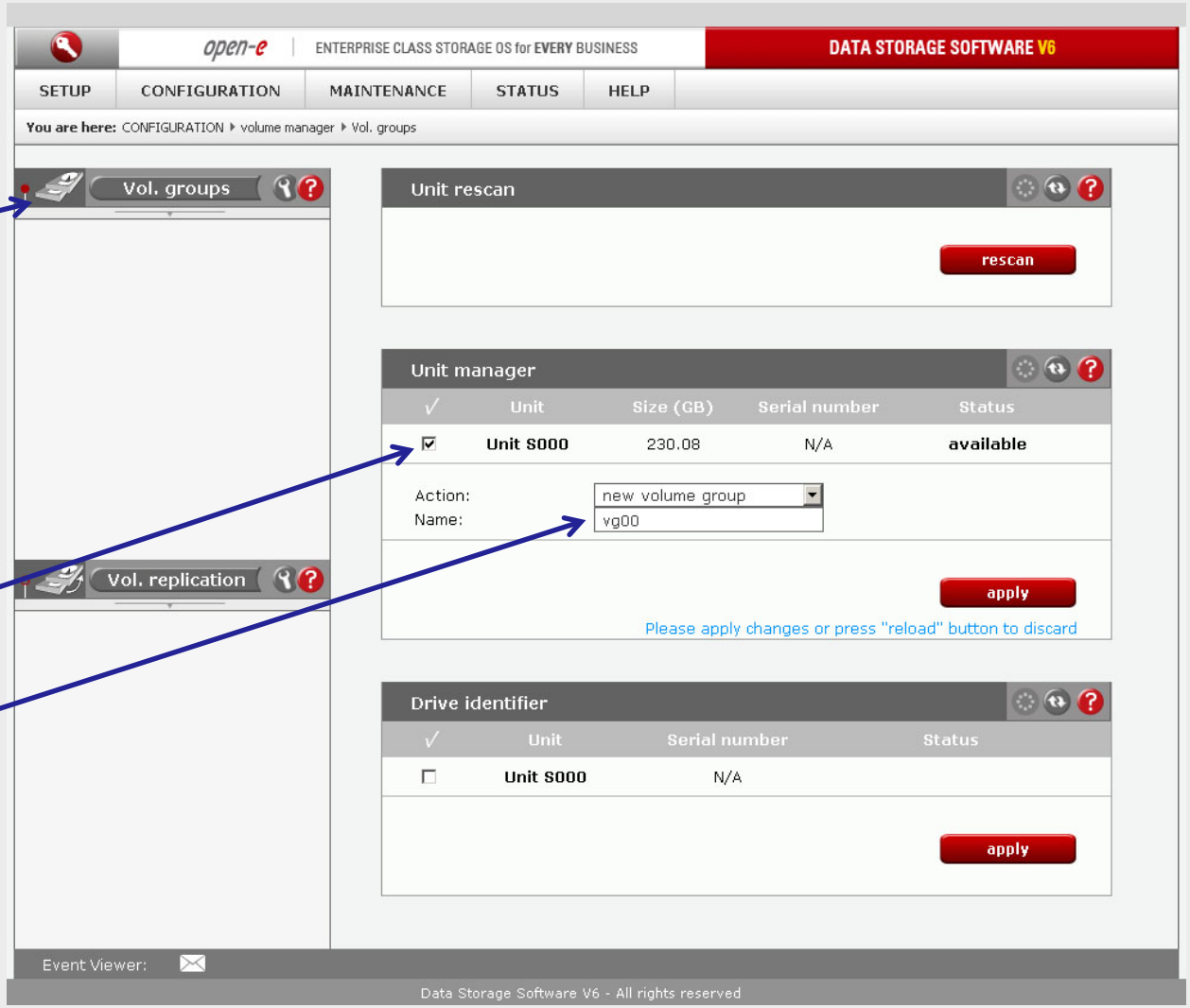
IP Address: 192.168.0.221

2. Configure the Destination Node

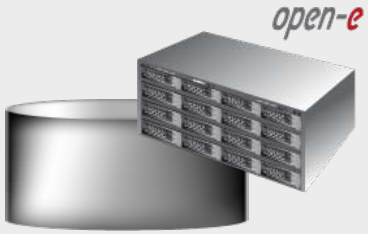
Under the „CONFIGURATION" menu, select „volume manager".

Volume Groups (vg00)

Add the selected physical units (Unit S000) to create a new volume group (in this case, vg00) and click apply button.



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

Destination node

IP Address: 192.168.0.221

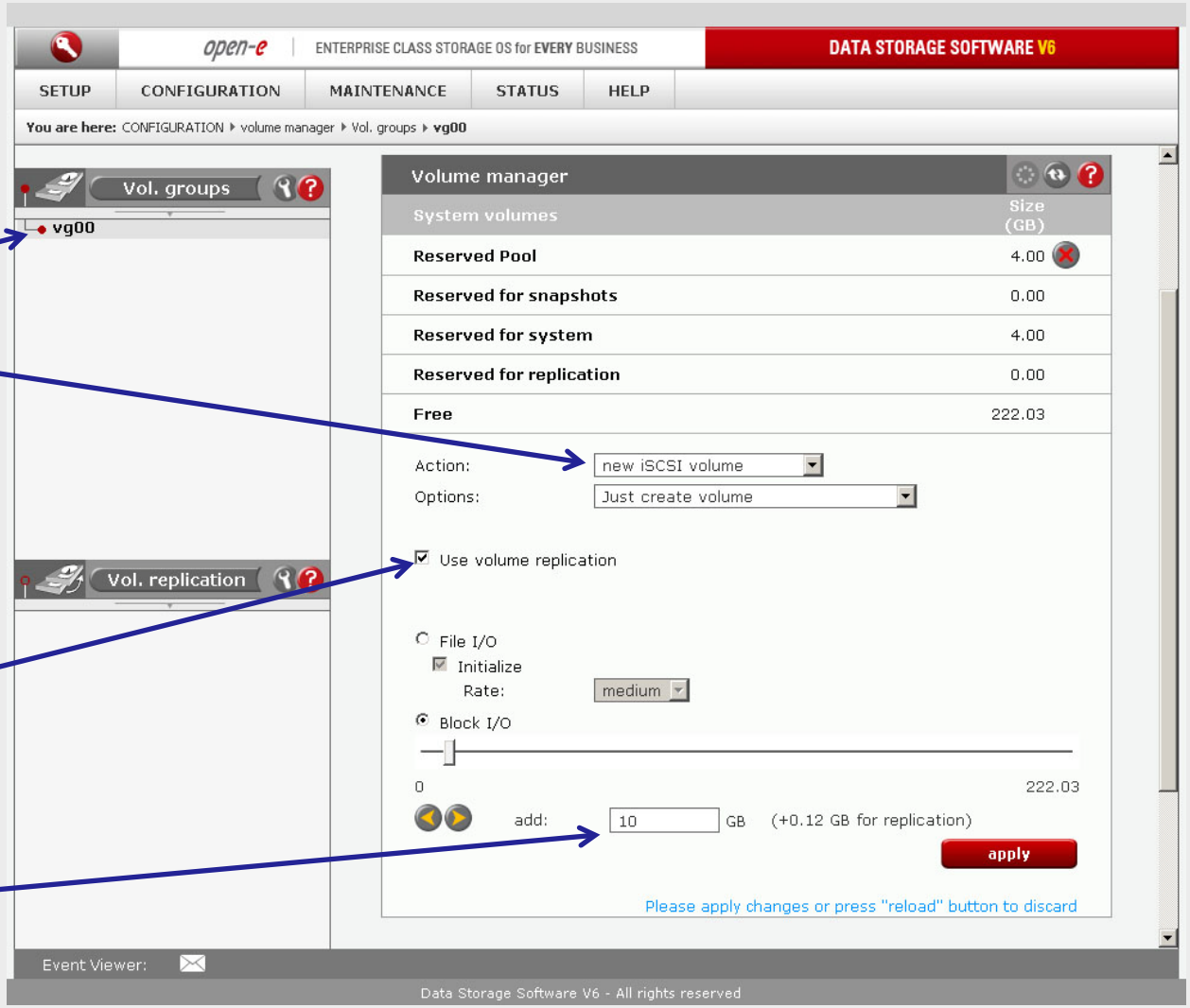
2. Configure the Destination Node

Select the appropriate volume group (vg00) from the list on the left and create a new iSCSI volume of the required size. This logical volume will be the destination of the replication process.

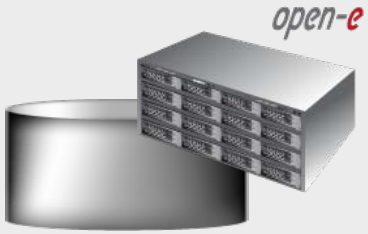
iSCSI volume (lv0000)

Next check the box to Use volume replication

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



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

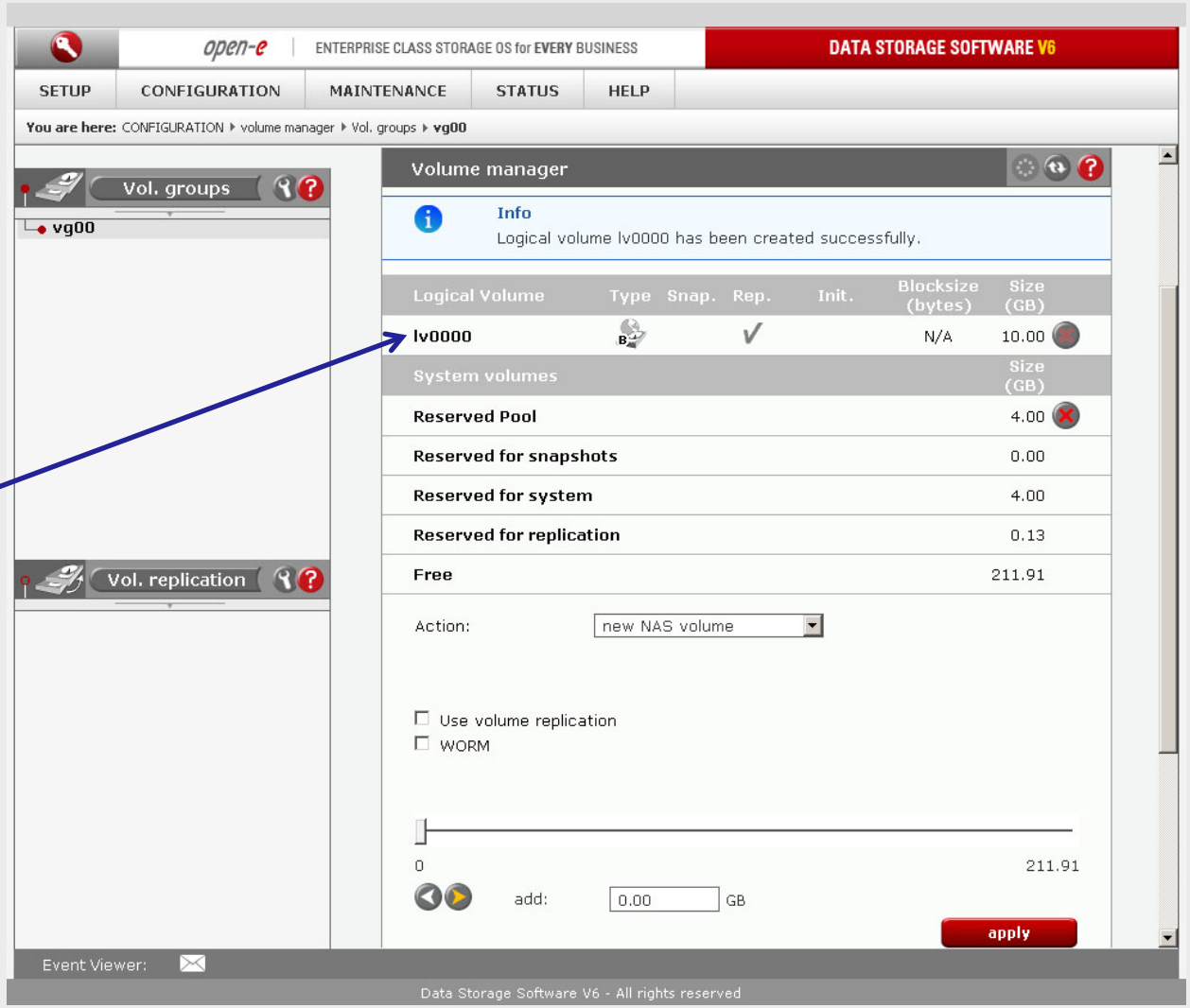
Destination node

IP Address: 192.168.0.221

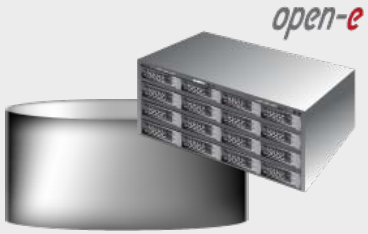
2. Configure the Destination Node

The destination iSCSI Volume Block I/O is now configured.

iSCSI volume (lv0000)



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

Destination node

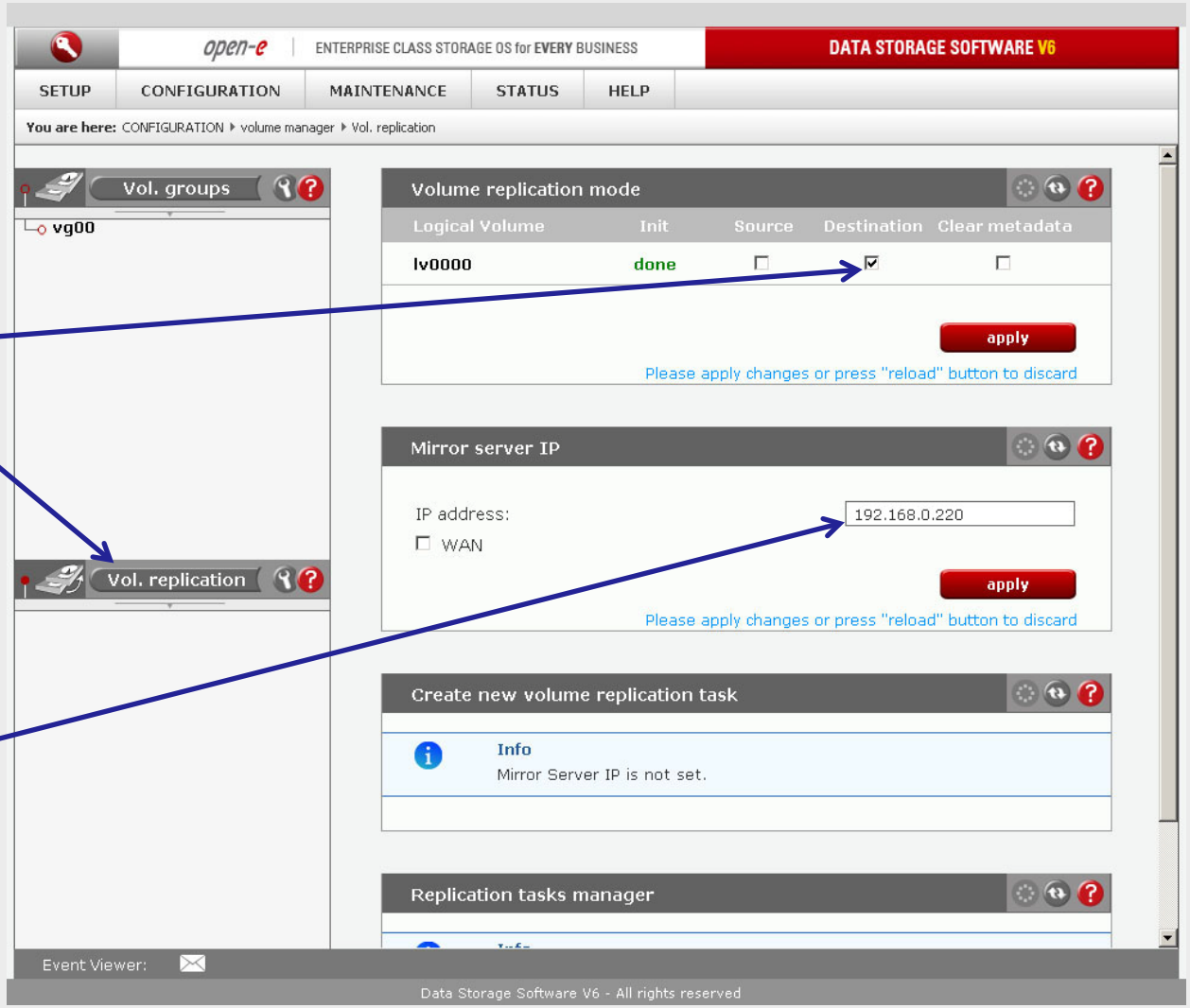
IP Address: 192.168.0.221

2. Configure the Destination Node

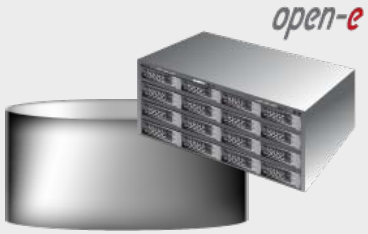
Now, select the Vol. replication and check the box under Destination and click the apply button.

Volume Replication

Next, under Mirror Server IP function, enter the IP address of the Primary node (in our example, this would be 192.168.1.220) and click the apply button.



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

Destination node

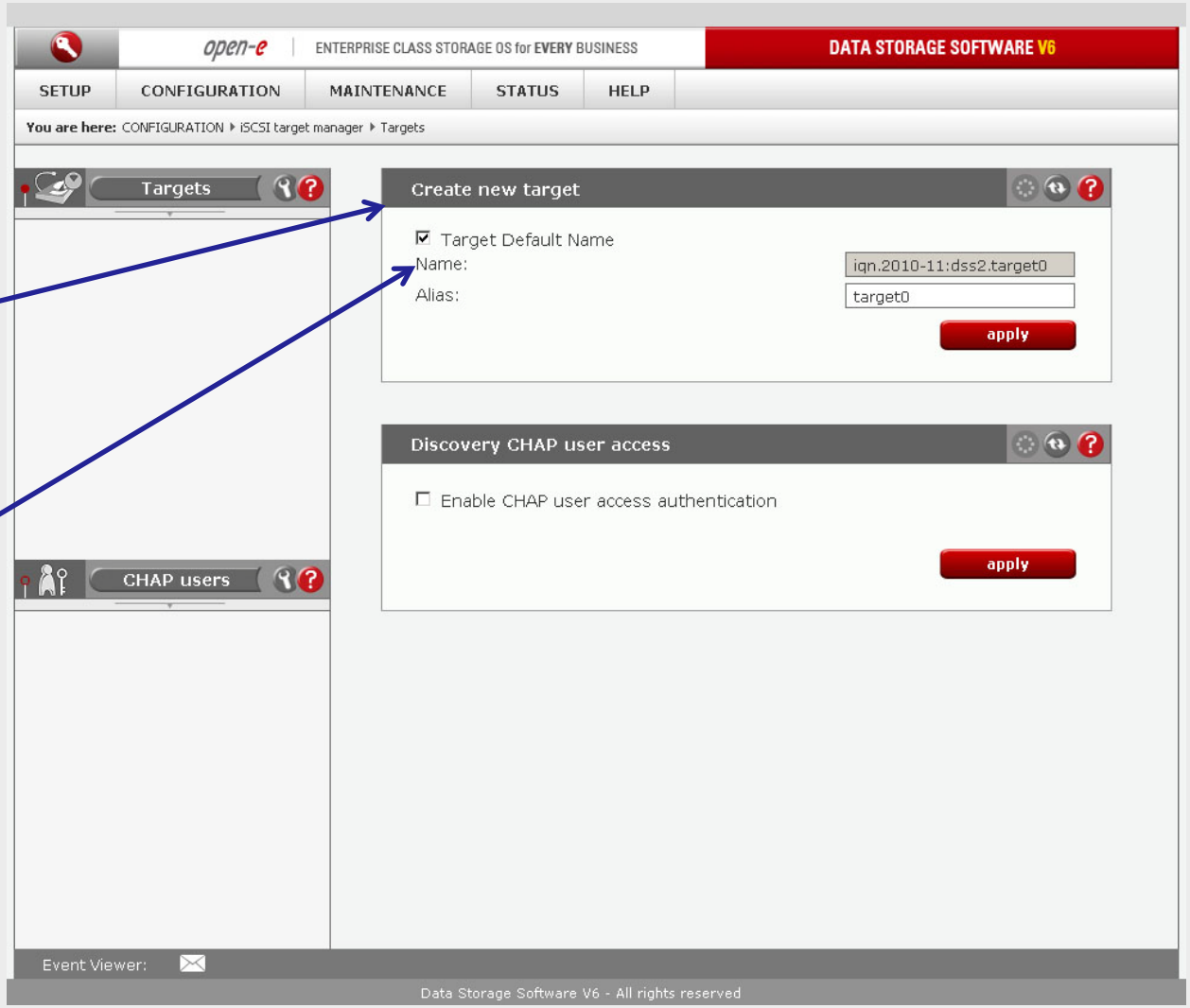
IP Address: 192.168.0.221

2. Configure the Destination Node

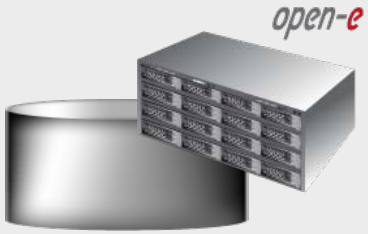
Choose „CONFIGURATION", „iSCSI target manager" and „Targets" from the menu

iSCSI targets

In the Create new target function enter a name for the new target (as desired) in the Name field and click apply to confirm.



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS2)

Destination node

IP Address: 192.168.0.221

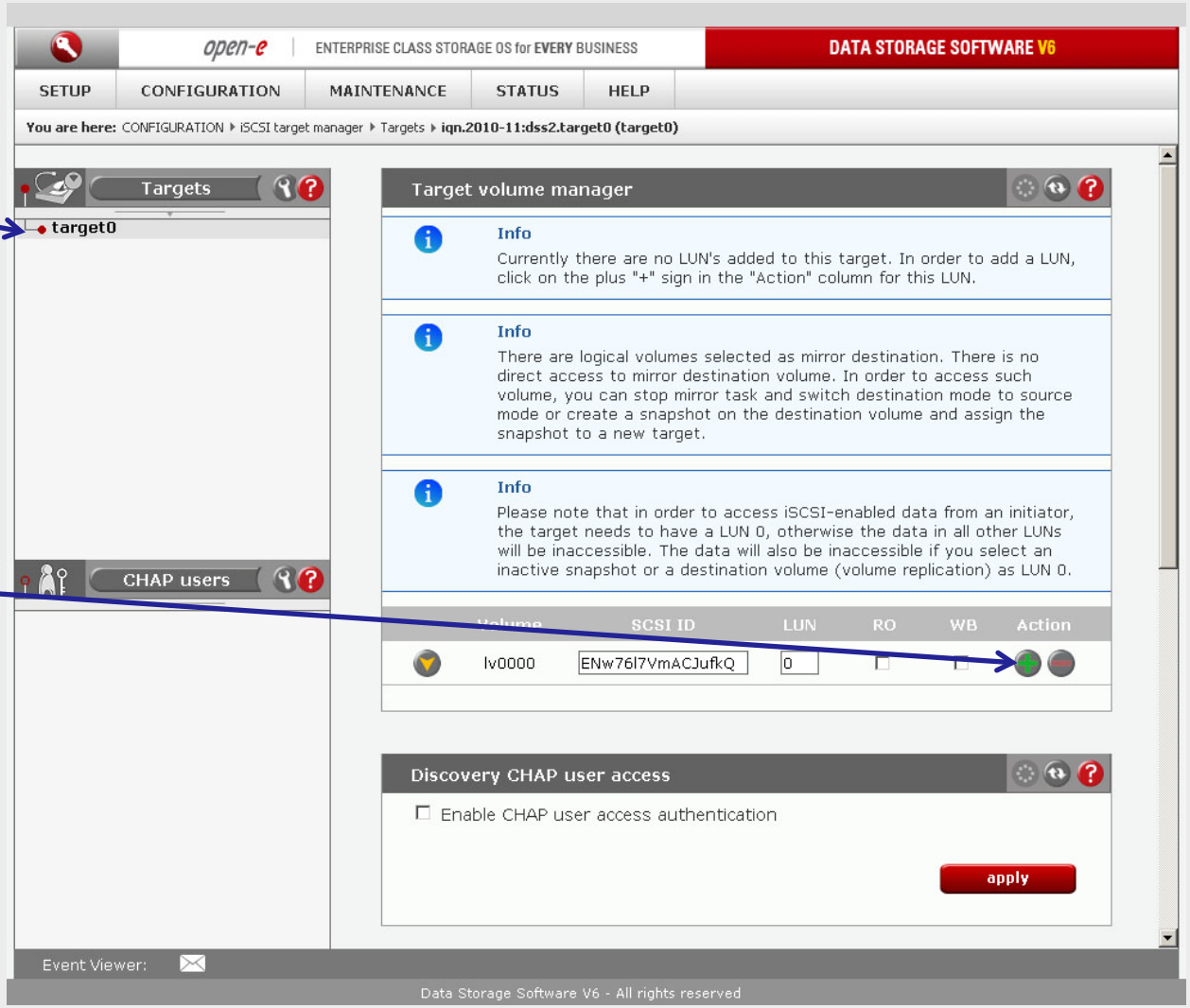
2. Configure the Destination Node

Select target0 within the Targets field.

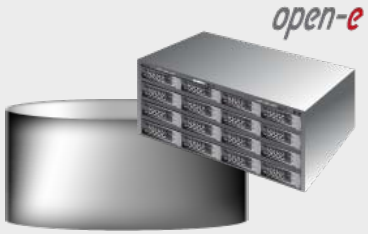
iSCSI targets

To assign a volume to the target, click the button located under Action

The configuration of the Destination Node (storage server) is now complete.



Setting up Synchronous Volume Replication over a LAN



Data Server (DSS1)

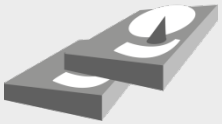
Source node

IP Address: 192.168.0.220

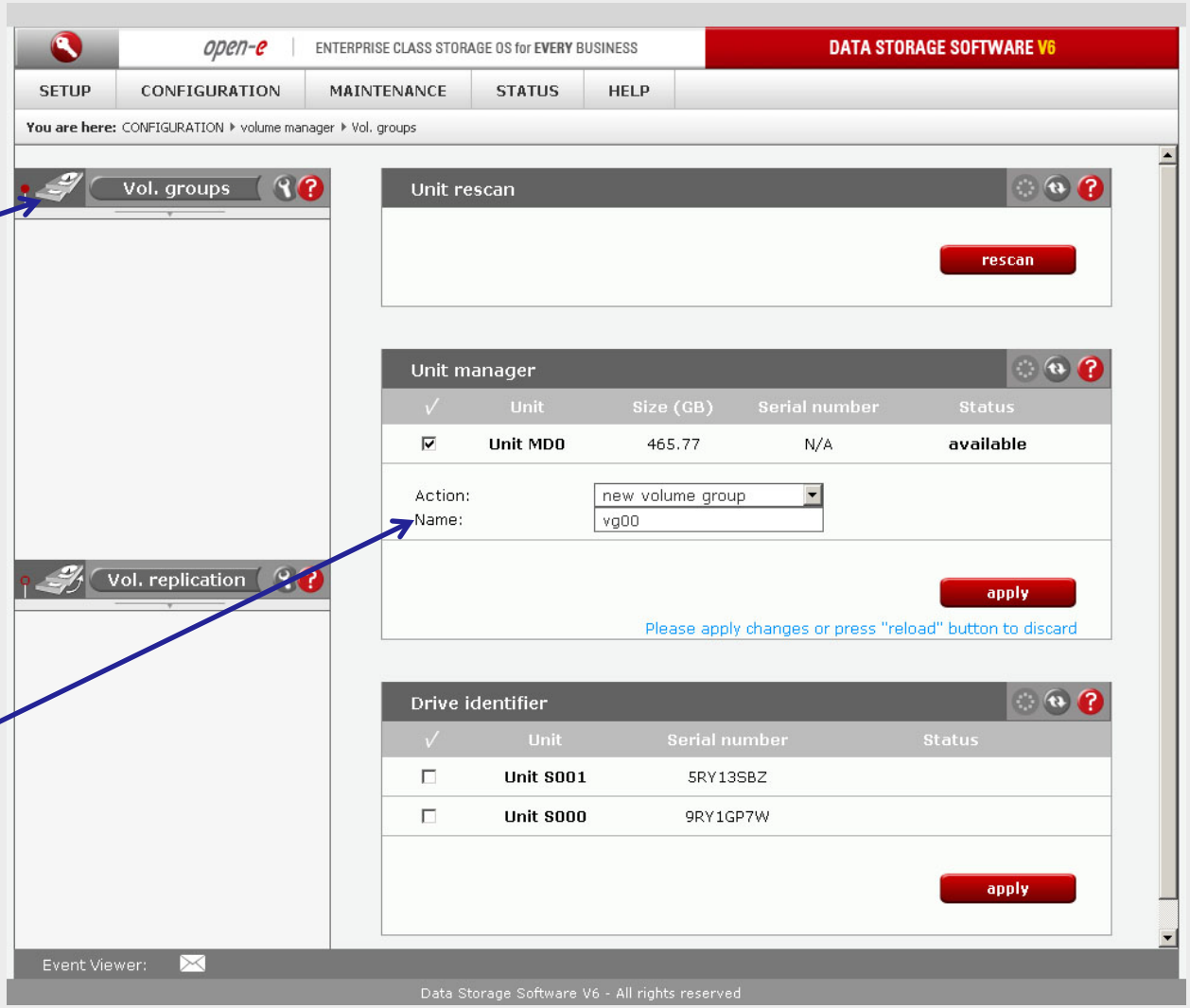
3. Configure the Source Node

Under the CONFIGURATION menu, select volume manager..

Volume Groups (vg00)



Add the selected physical units (Unit MD0) to create a new volume group (in this case, vg00) and click apply button.



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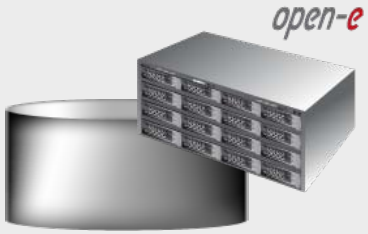


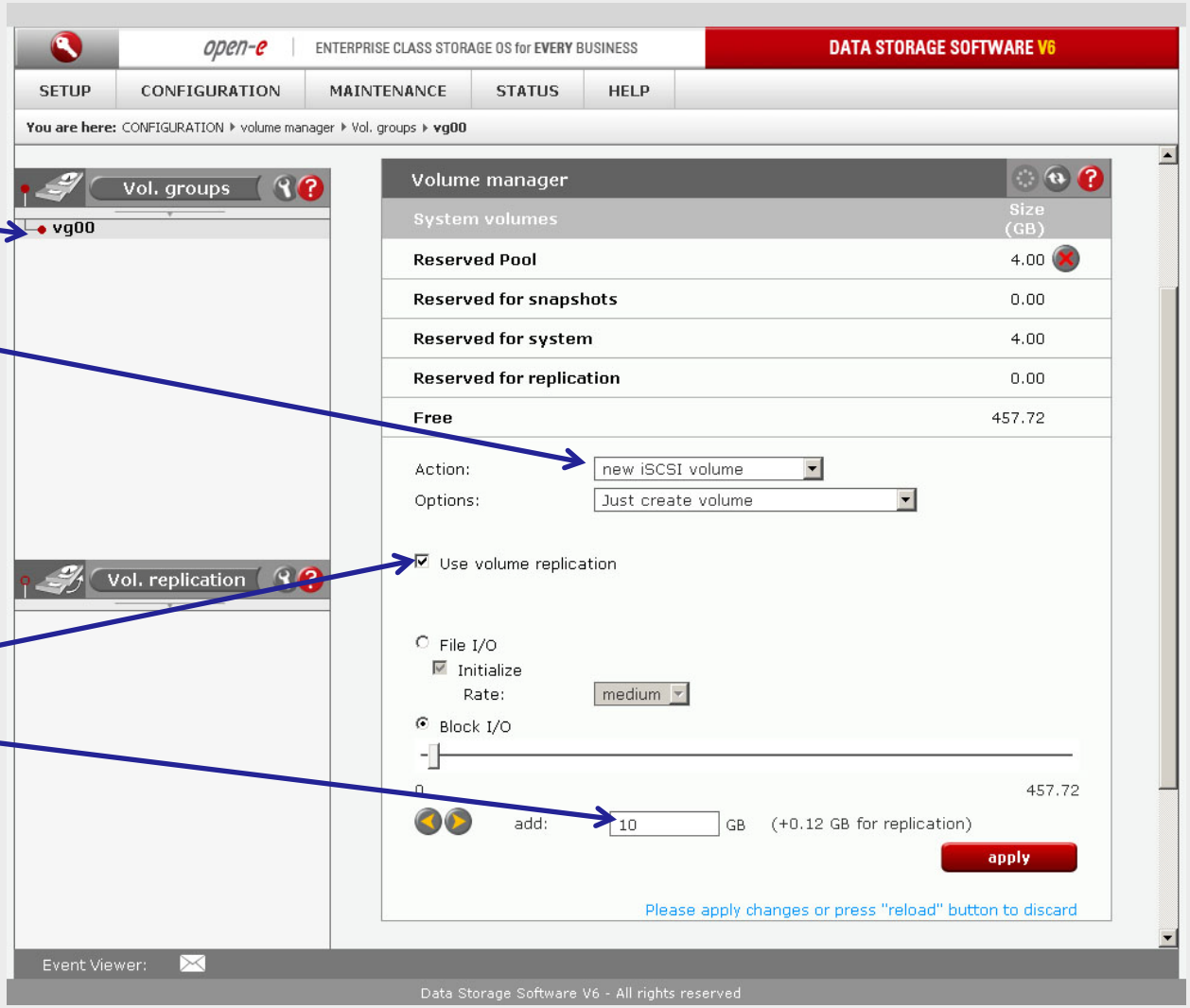
Data Server (DSS1)
Source node
IP Address: 192.168.0.220

3. Configure the Source Node

Select the appropriate volume group (vg00) from the list on the left and create a new iSCSI volume of the required size. This logical volume will be the destination of the replication process.

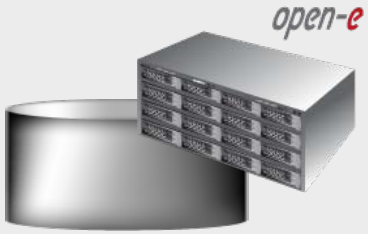
iSCSI volume (lv0000)

Next check the box to 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. Remember to enable Volume Replication.

Setting up Synchronous Volume Replication over a LAN



Data Server (DSS1)

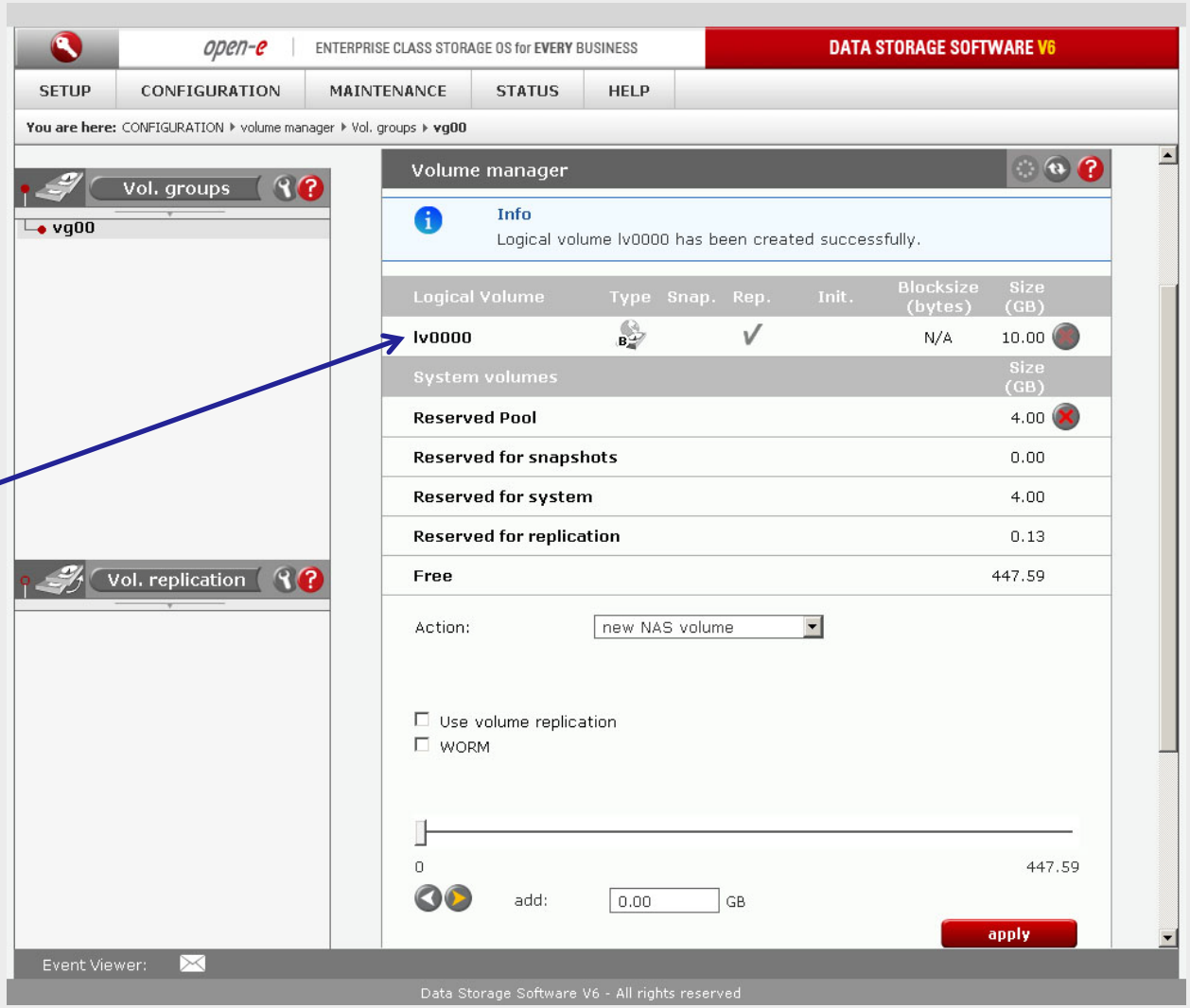
Source node

IP Address: 192.168.0.220

3. Configure the Source Node

iSCSI volume (lv0000)

The destination iSCSI Volume Block I/O is now configured.



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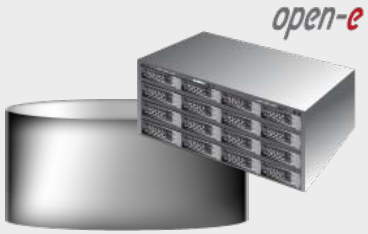


Data Server (DSS1)

Source node

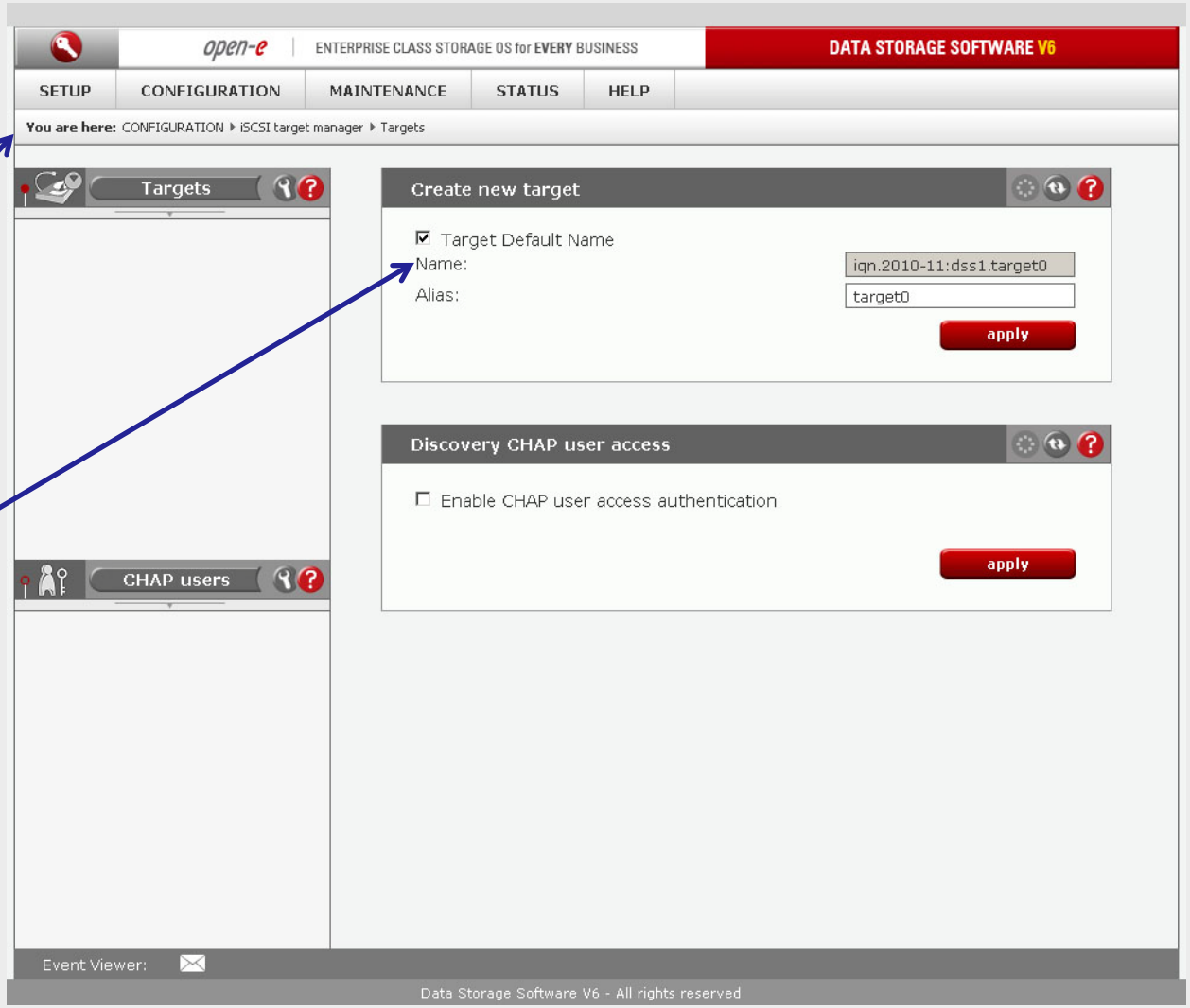
IP Address: 192.168.0.220

3. Configure the Source Node

Under the „CONFIGURATION" tab, select „iSCSI target manager" and Targets

iSCSI targets

In the Create new target function enter a name for the new target (as desired) in the Name field and click apply to confirm.



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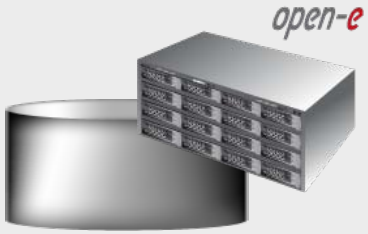


Data Server (DSS1)

Source node

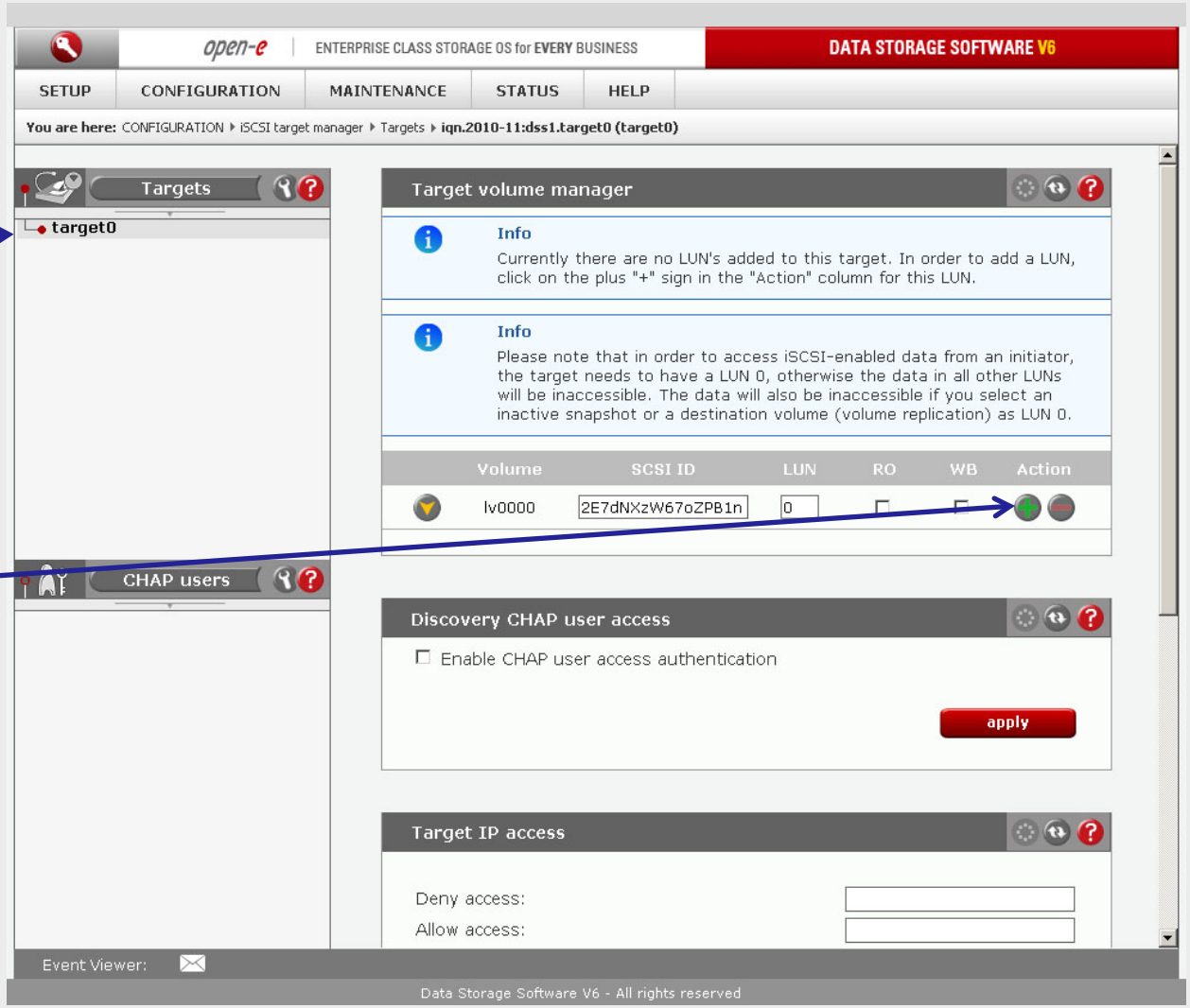
IP Address: 192.168.0.220

3. Configure the Source Node

Select target0 within the Targets field.

iSCSI targets

To assign a volume to the target, click the button located under Action



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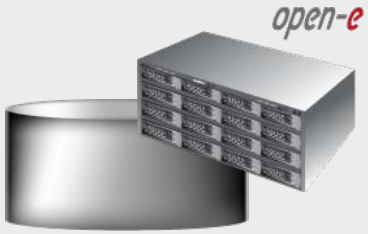


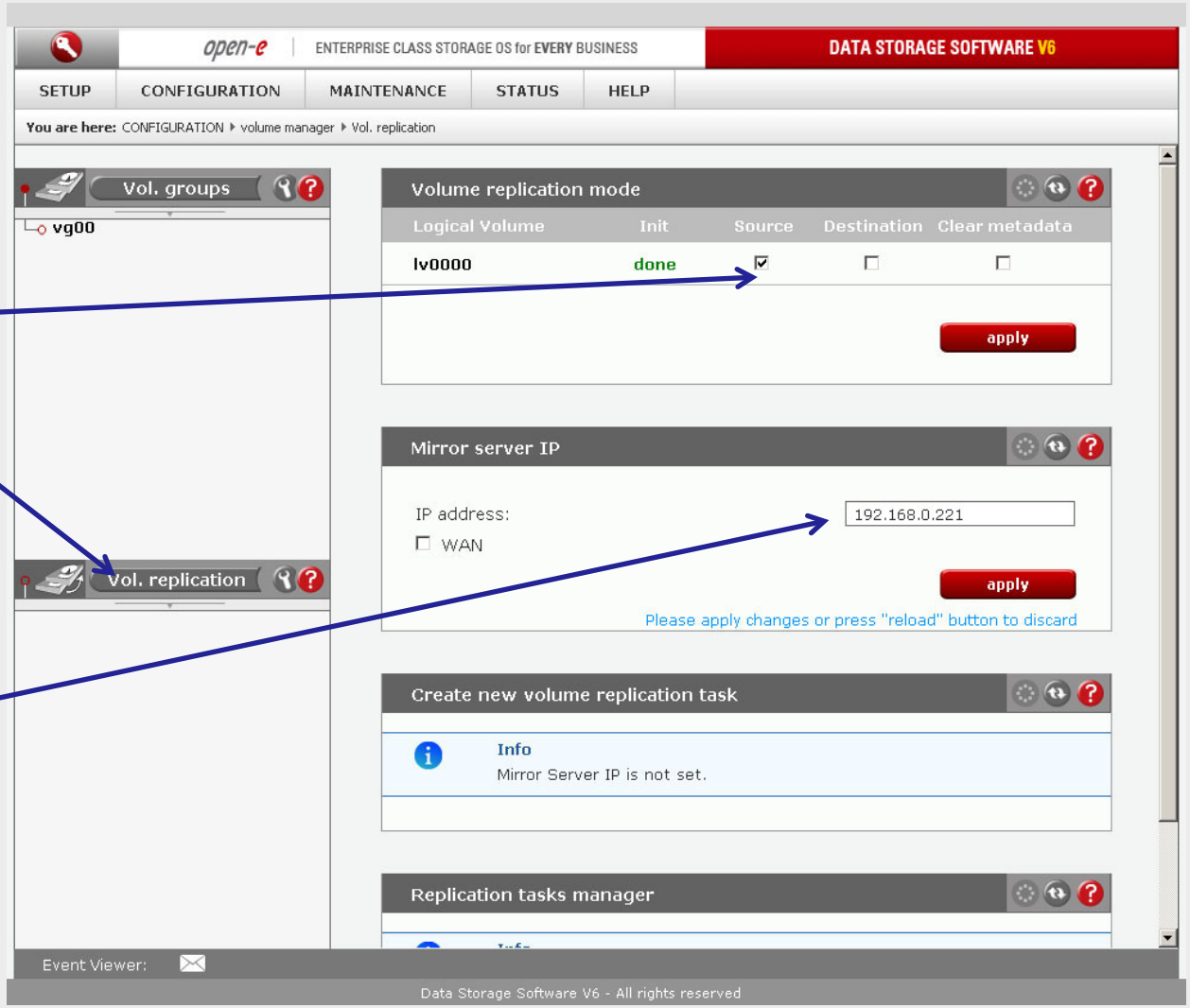
Data Server (DSS1)
Source node
IP Address: 192.168.0.220

3. Configure the Source Node

Now, select the Vol. replication and check box under Source and click the apply button

Volume Replication

Next, under Mirror Server IP function, enter the IP address of the destination node. In our example, this would be 192.168.0.240 click the apply button



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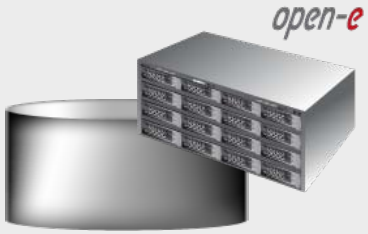


Data Server (DSS1)

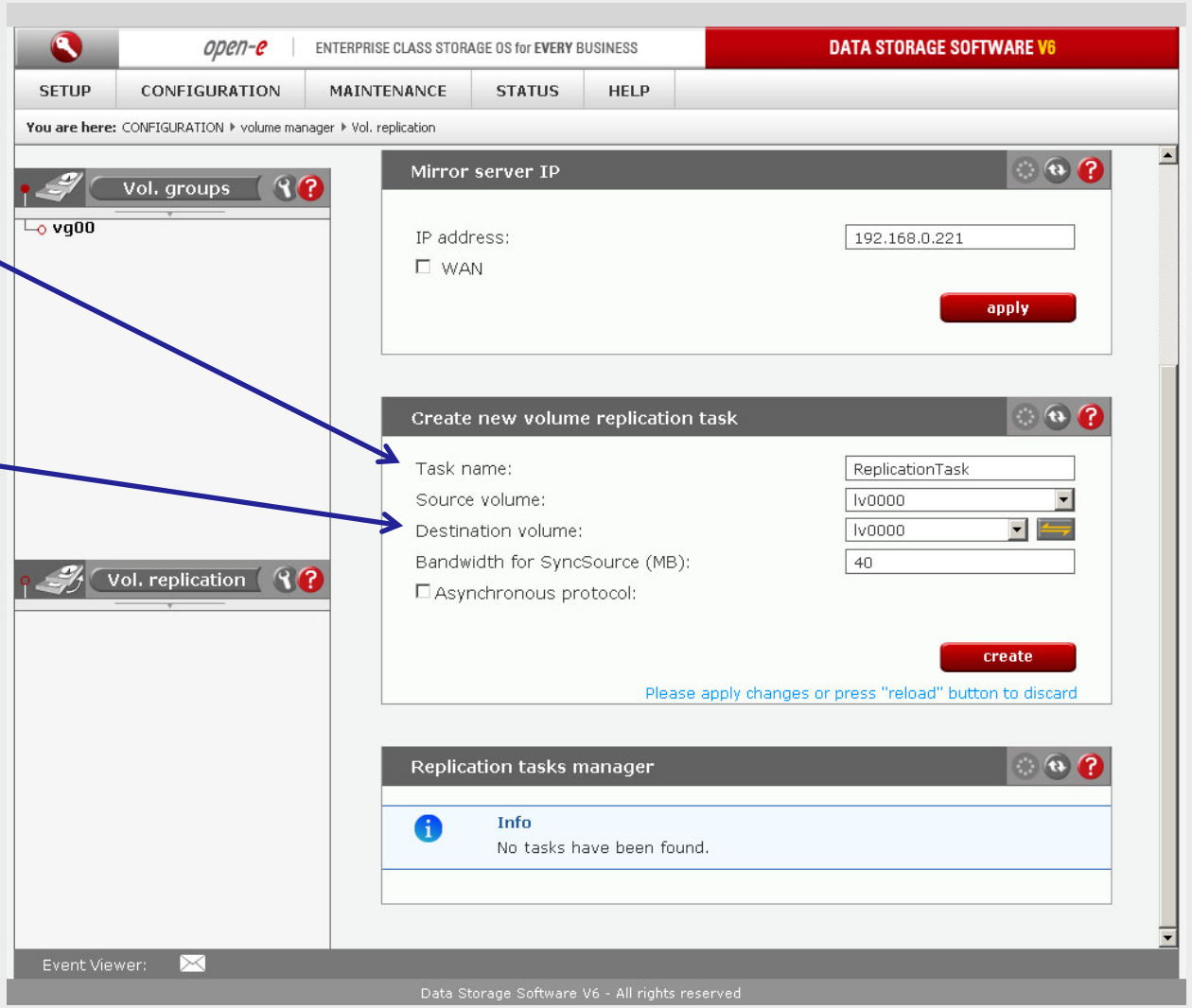
Source node

IP Address: 192.168.0.220

4. Configure replication task

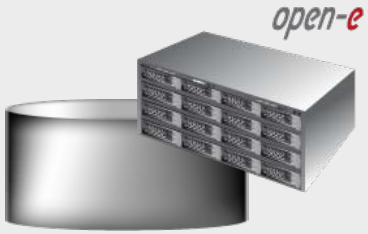
Enter the task name in field Task name next, click on the button.

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



The configuration of the Source Node (storage server) is now complete.

Setting up Synchronous Volume Replication over a LAN



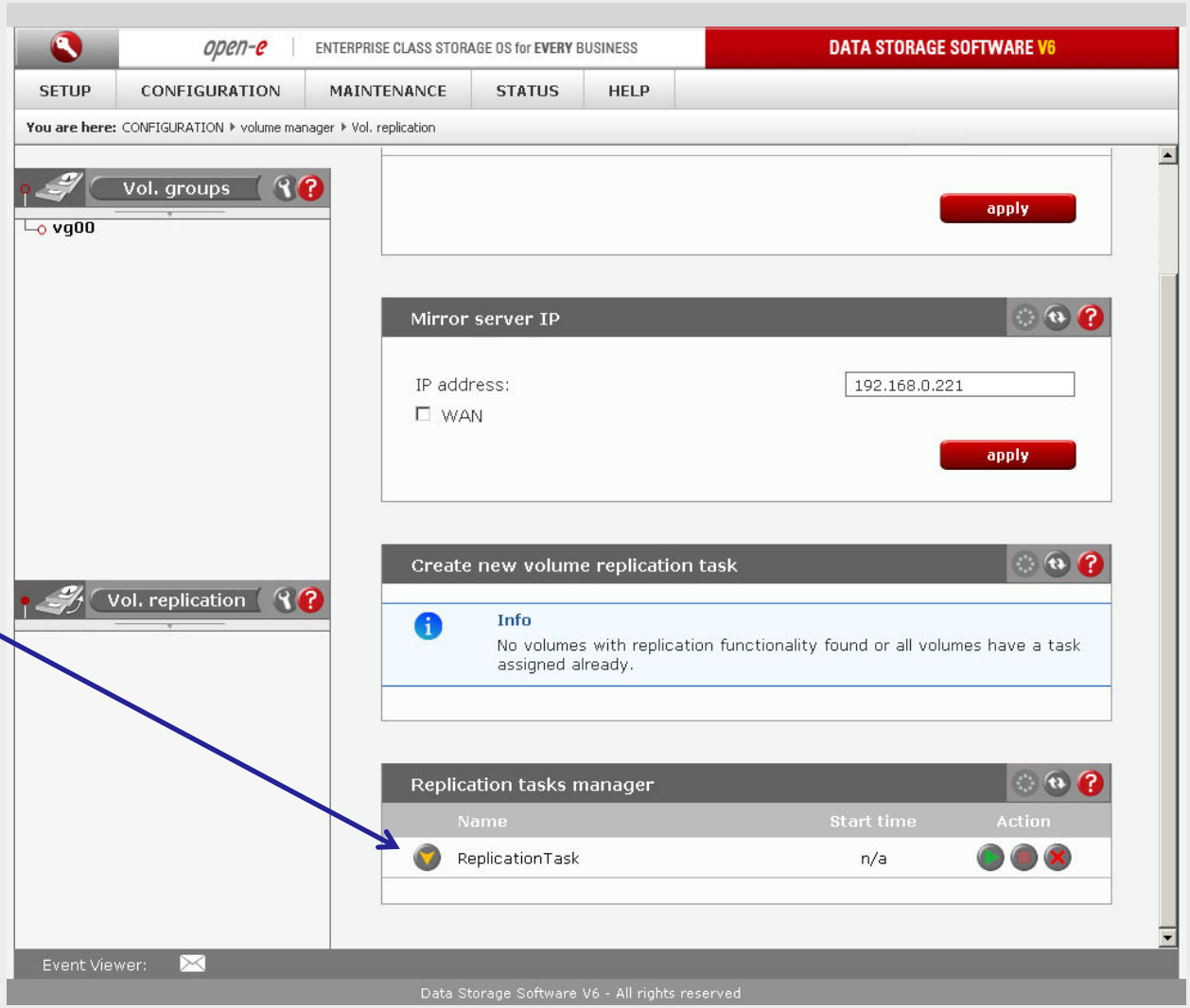
Data Server (DSS1)

Source node

IP Address: 192.168.0.220

4. Configure replication task

After the DSS V6 console has reloaded, you can start, stop or delete the task within the Replication task manager function.



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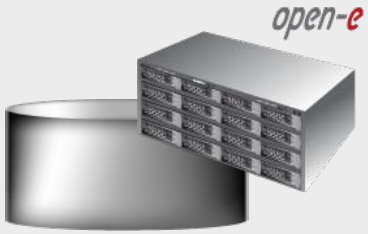


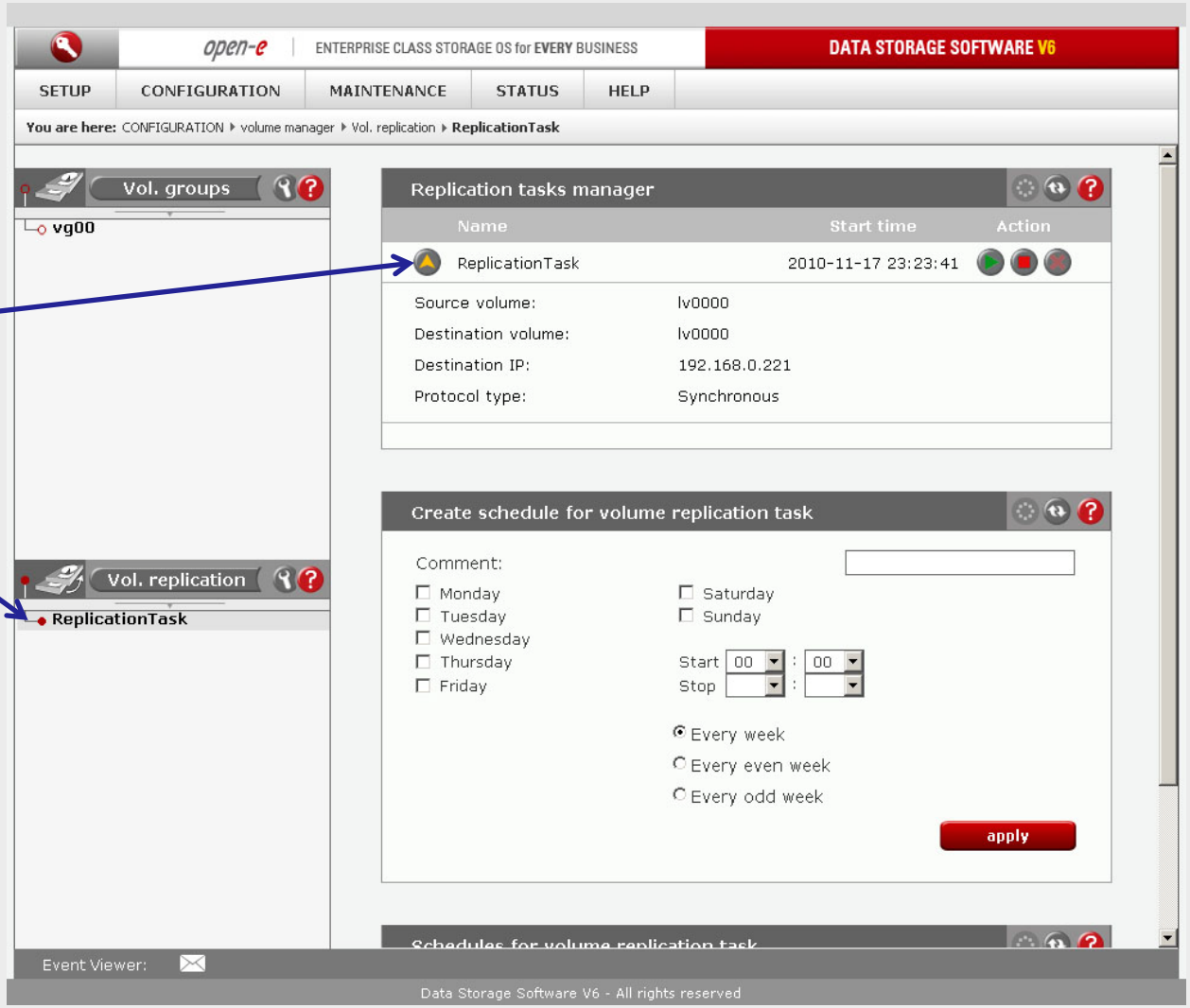
Data Server (DSS1)

Source node

IP Address: 192.168.0.220

4. Configure replication task

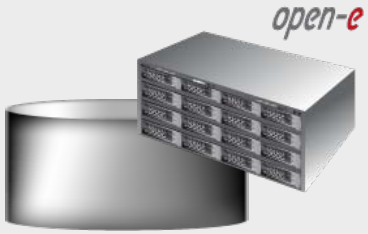
Also, you can start, stop or delete the task within the Replication Task Manager function by clickling on the name replication (in this case, ReplicationTask)



NOTE:

Once the replication process has started, the replication direction cannot be changed.

Setting up Synchronous Volume Replication over a LAN



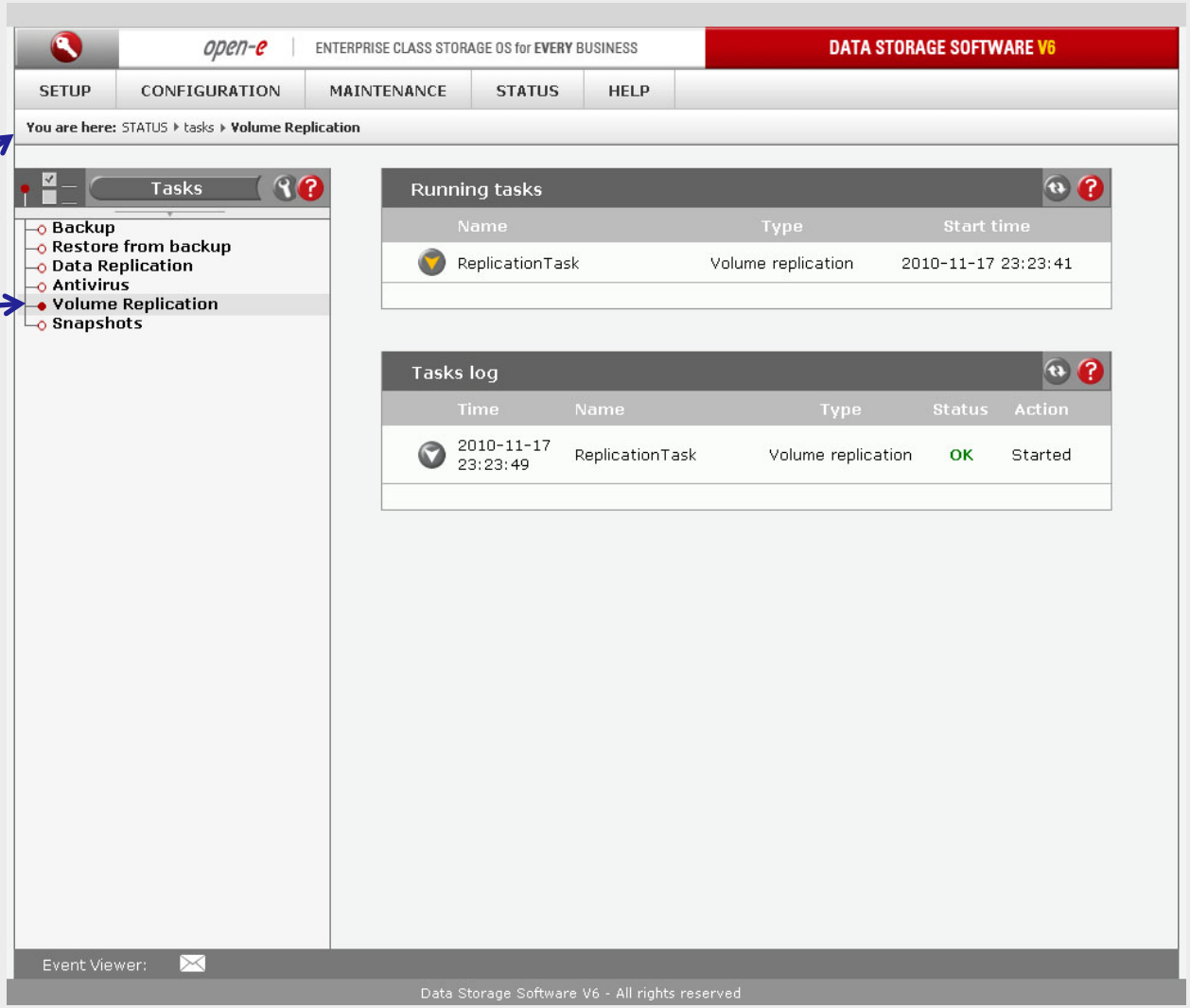
Data Server (DSS1)

Source node

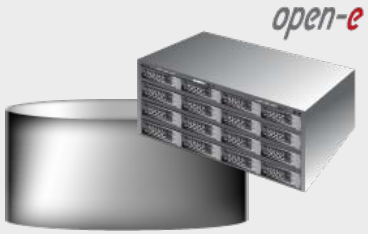
IP Address: 192.168.0.220

5. Check the status of volume replication

Under the „STATUS" menu, select „tasks", next select Volume Replication.



Setting up Synchronous Volume Replication over a LAN



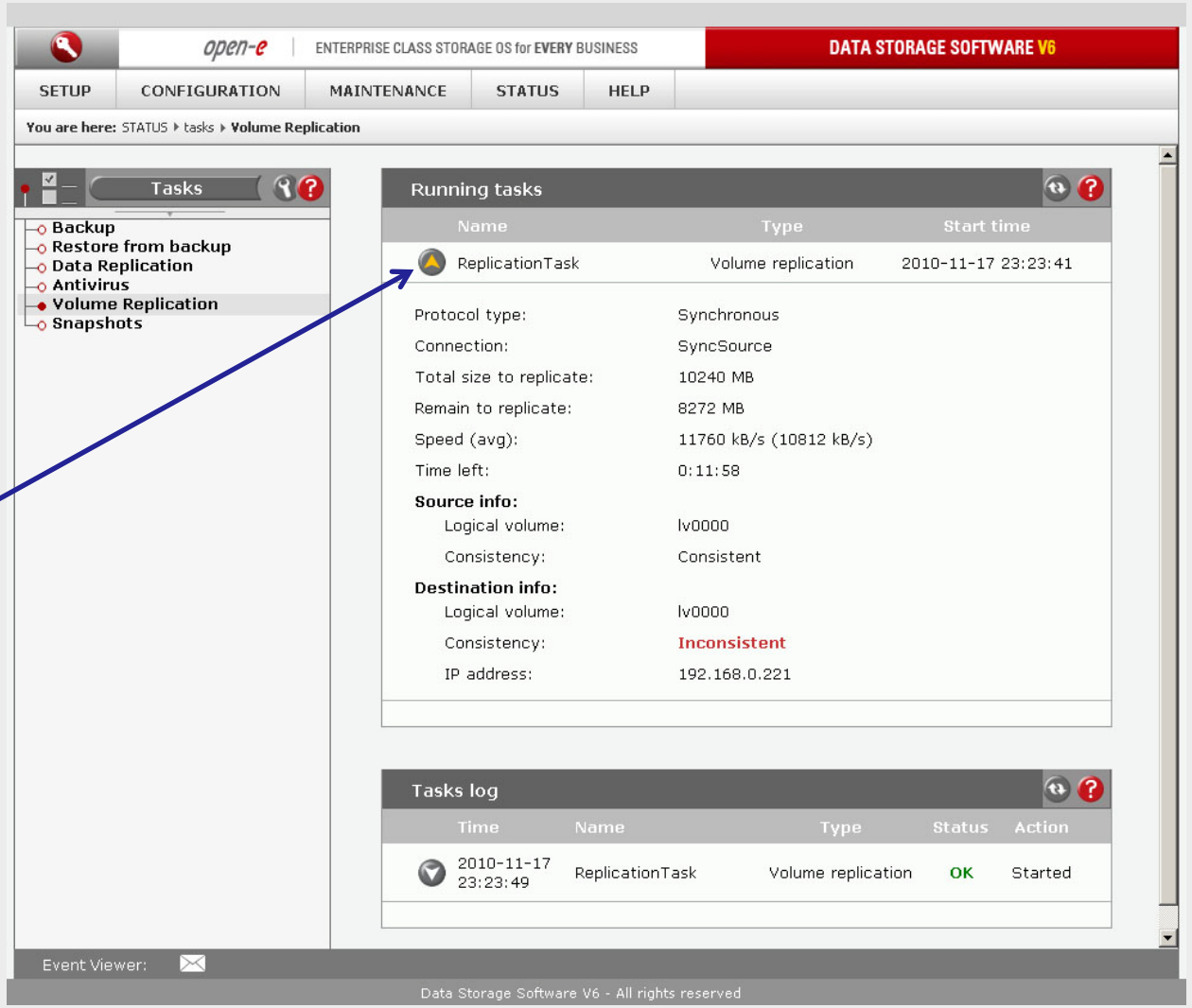
Data Server (DSS1)

Source node

IP Address: 192.168.0.220

5. Check the status of volume replication

Click on button with task name (in this case ReplicationTask) to display detailed information on the current replication task.



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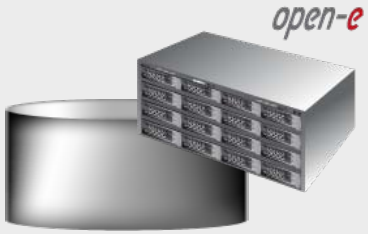


Data Server (DSS1)

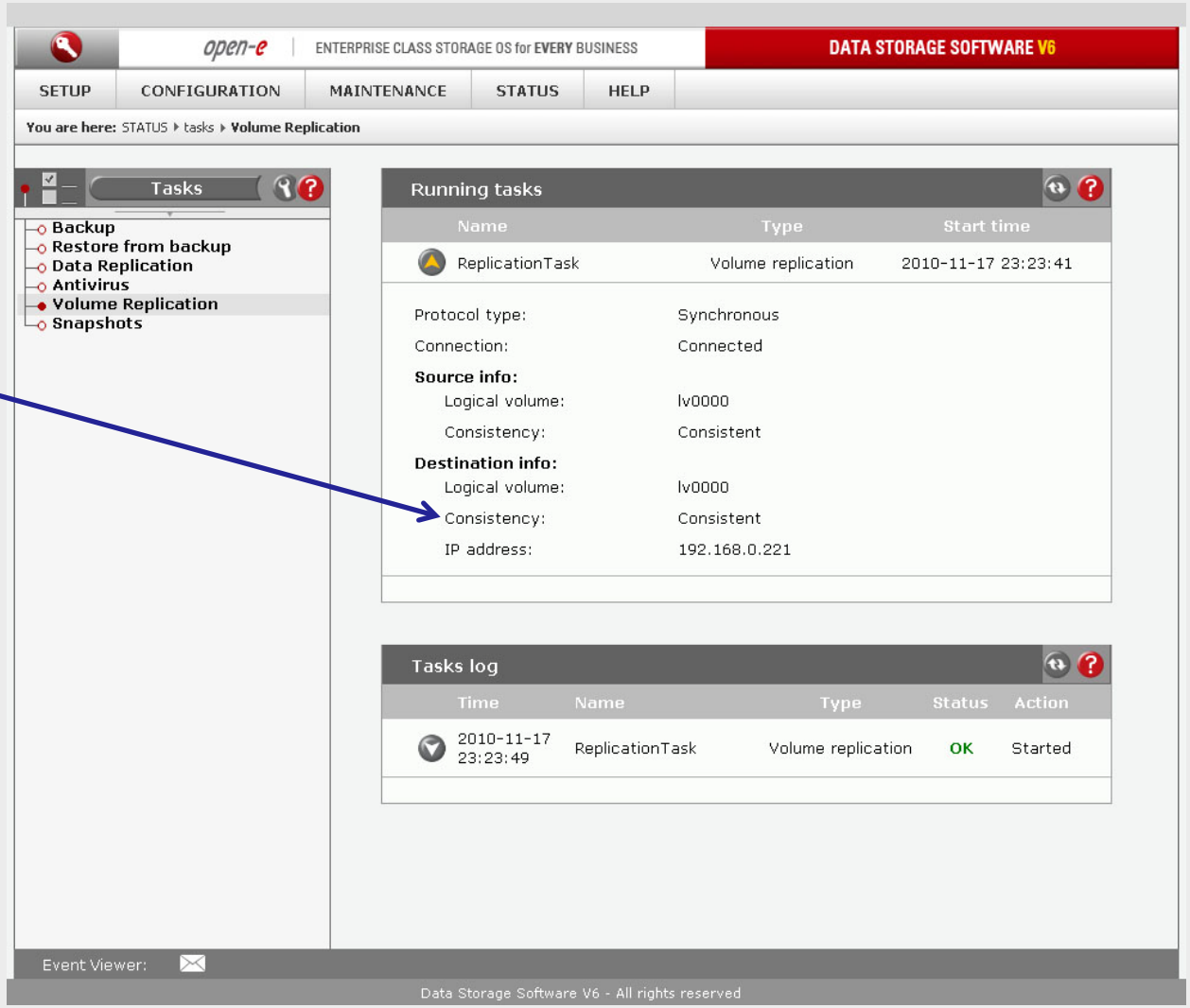
Source node

IP Address: 192.168.0.220

5. Check the status of volume replication

The replication task provides information about the consistency of the data on destination node. In this case the replication proces for the destination mode is ended.

Volume Replication, between source and destination nodes, is now complete



Thank you!