Step-by-Step Guide to Asynchronous *Data Replication (File Based) over a LAN Supported by Open-E® DSS™*

DSS ver. 5.00 up60 February 12, 2009

April 2009

Asynchronous Data Replication over a LAN

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

- ASYNCHRONOUS DATA REPLICATION over a LAN enables **asynchronous** file and folder copy from one storage system to another over Local Area Network:
  - With asynchronous replication a point-in-time – snapshot copy of data on the source is made and copied to the target storage system.
  - For maximum flexibility, you can run a data replication task in two directions: one system can be both the source and the destination at the same time, allowing cross data backups on several systems. Replication can be used in disaster recovery or for disk-to-disk backup. Replication provides maximal availability in case one system or unit fails or in case of a site disaster.

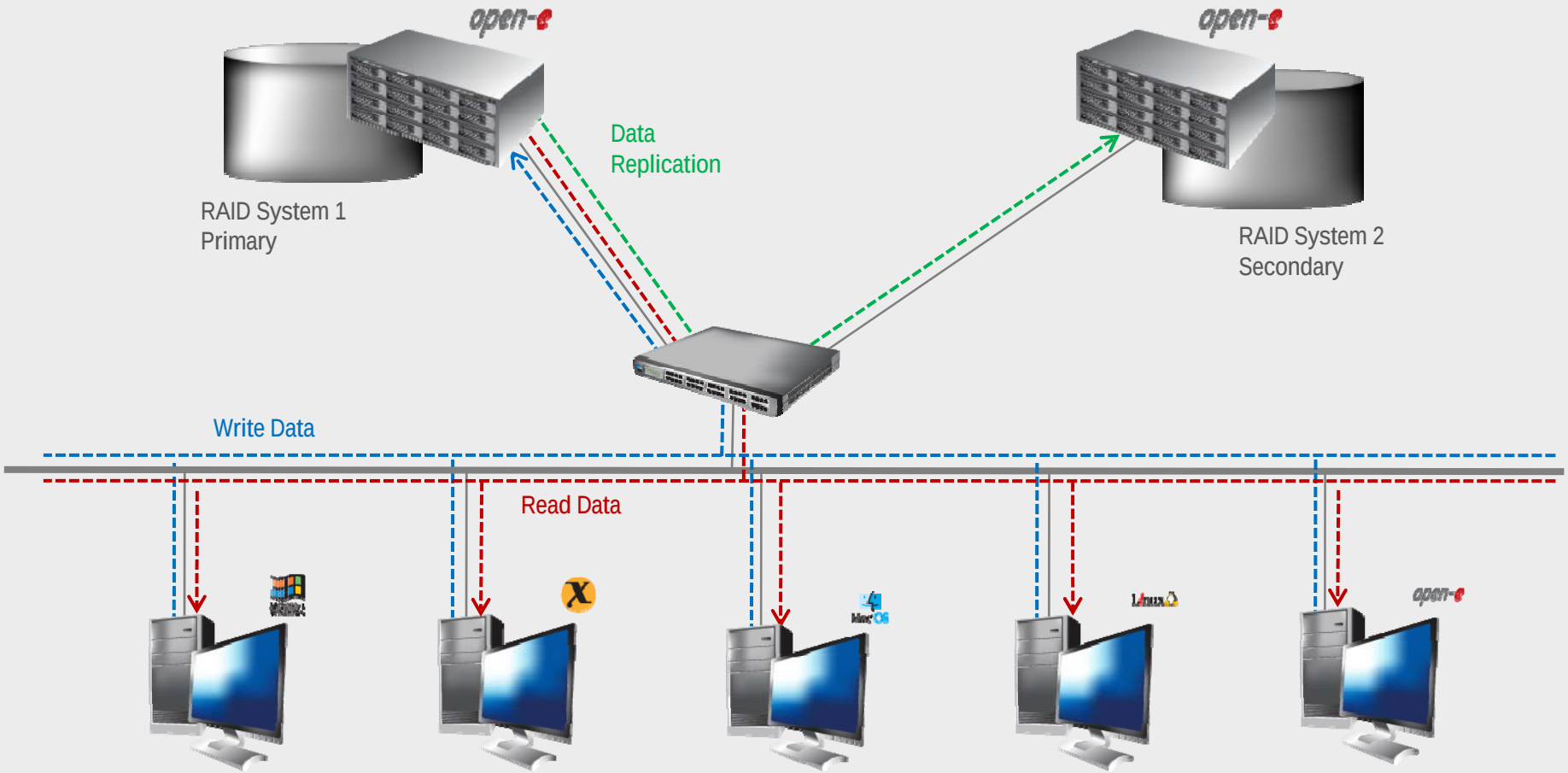
Asynchronous Data Replication over a LAN

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 (recommended) or Open-E NAS-R3, 2 units.
- **Benefits**
  - Data Redundancy over a LAN,
  - Enables continuous data access.
- **Disadvantages**
  - High cost of solution,
  - Natural disasters can destroy local systems.

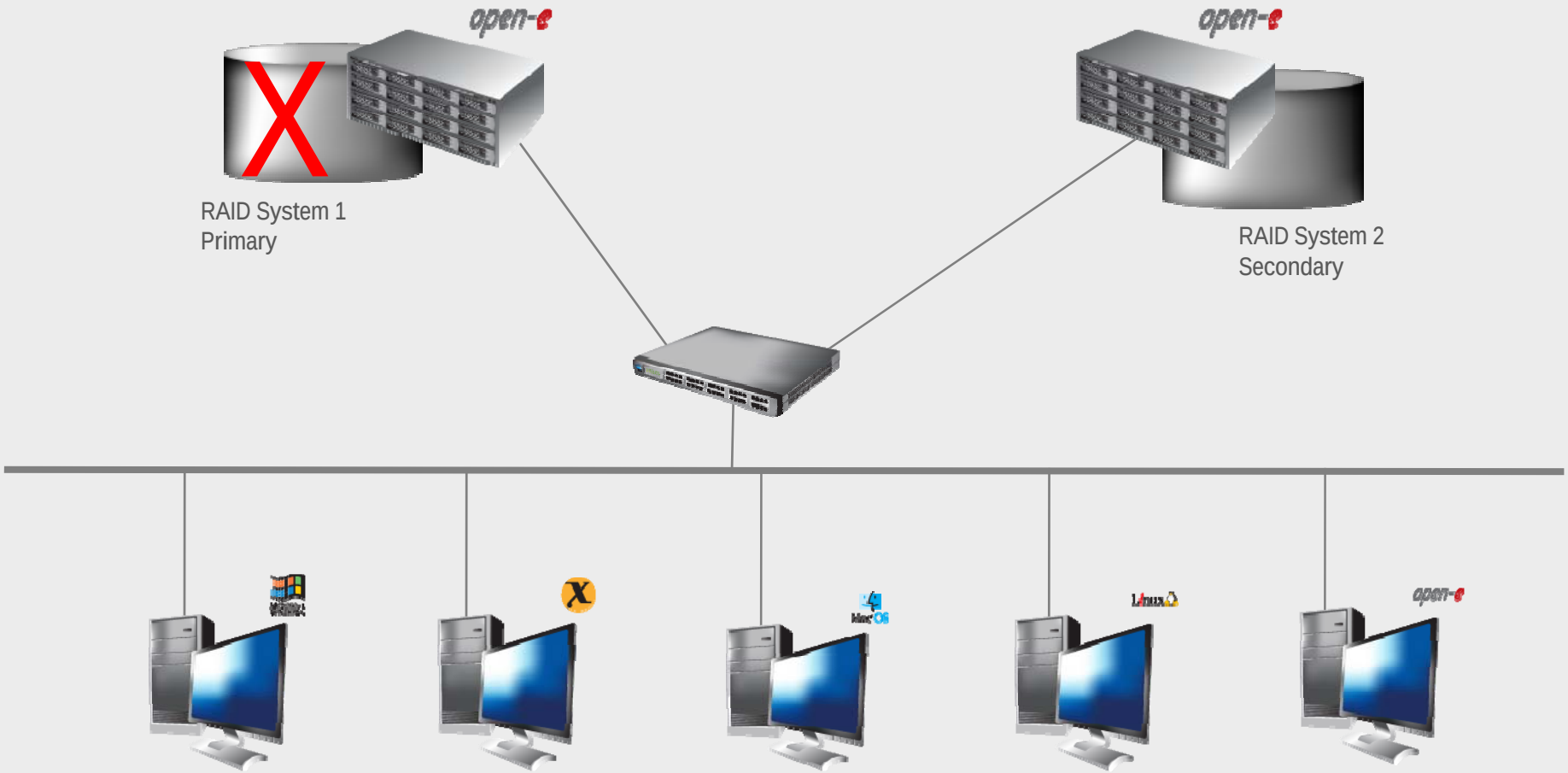
Asynchronous Data Replication over a LAN

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



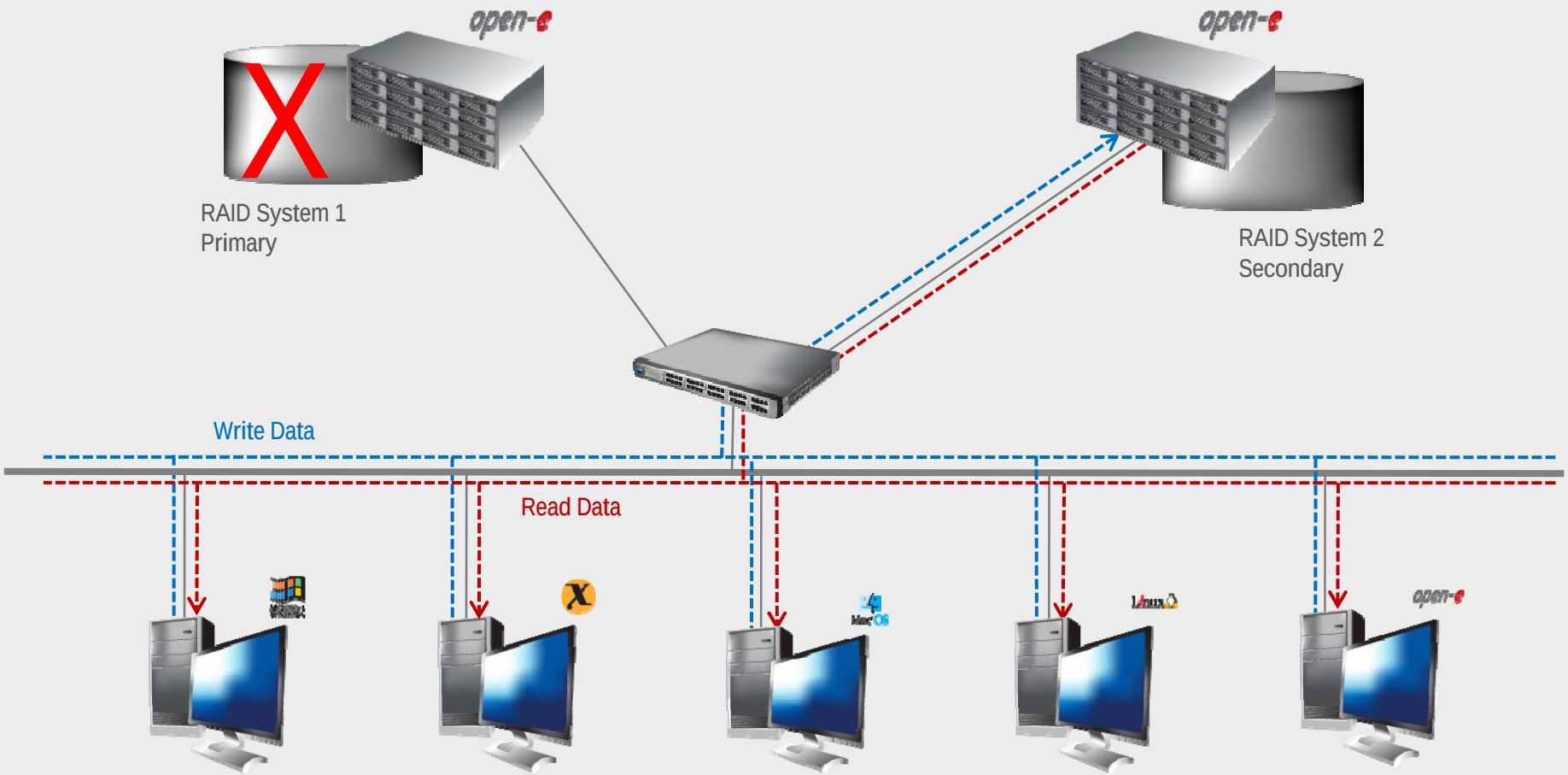
Asynchronous Data Replication over a LAN

- 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.



Asynchronous Data Replication over a LAN

- After switching, replicated volume is available on System 2



Setting up Asynchronous Data Replication over a LAN

open-e

TO SET UP DATA REPLICATION, PERFORM THE FOLLOWING STEPS:

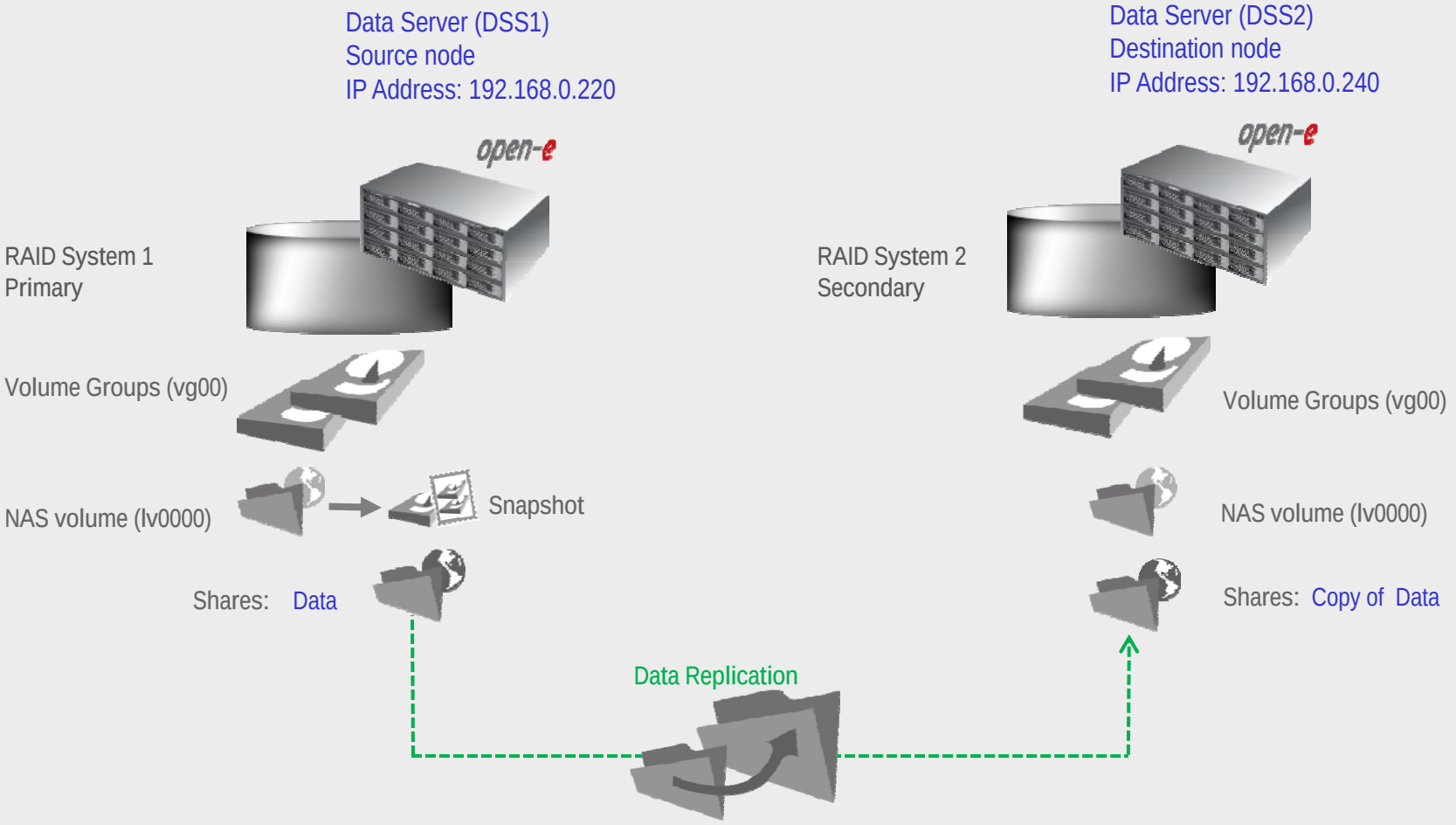
1. Hardware configuration
2. Configure the destination node
3. Configure the source node
4. Configure Schedule replication
5. Checking status data replication

Setting up Asynchronous Data Replication over a LAN

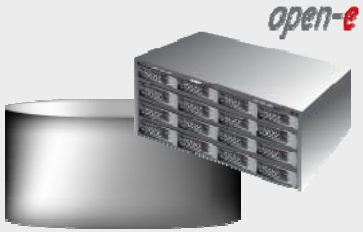
1. Hardware Configuration

Hardware Requirements

To run the data replication of Open-E DSS (or NAS R-3), a minimum of two systems are required. Logical volumes working in slave mode must have snapshots created and enabled. Both servers are working in the Local Area Network. An example configuration is shown below:



Setting up Asynchronous Data Replication over a LAN



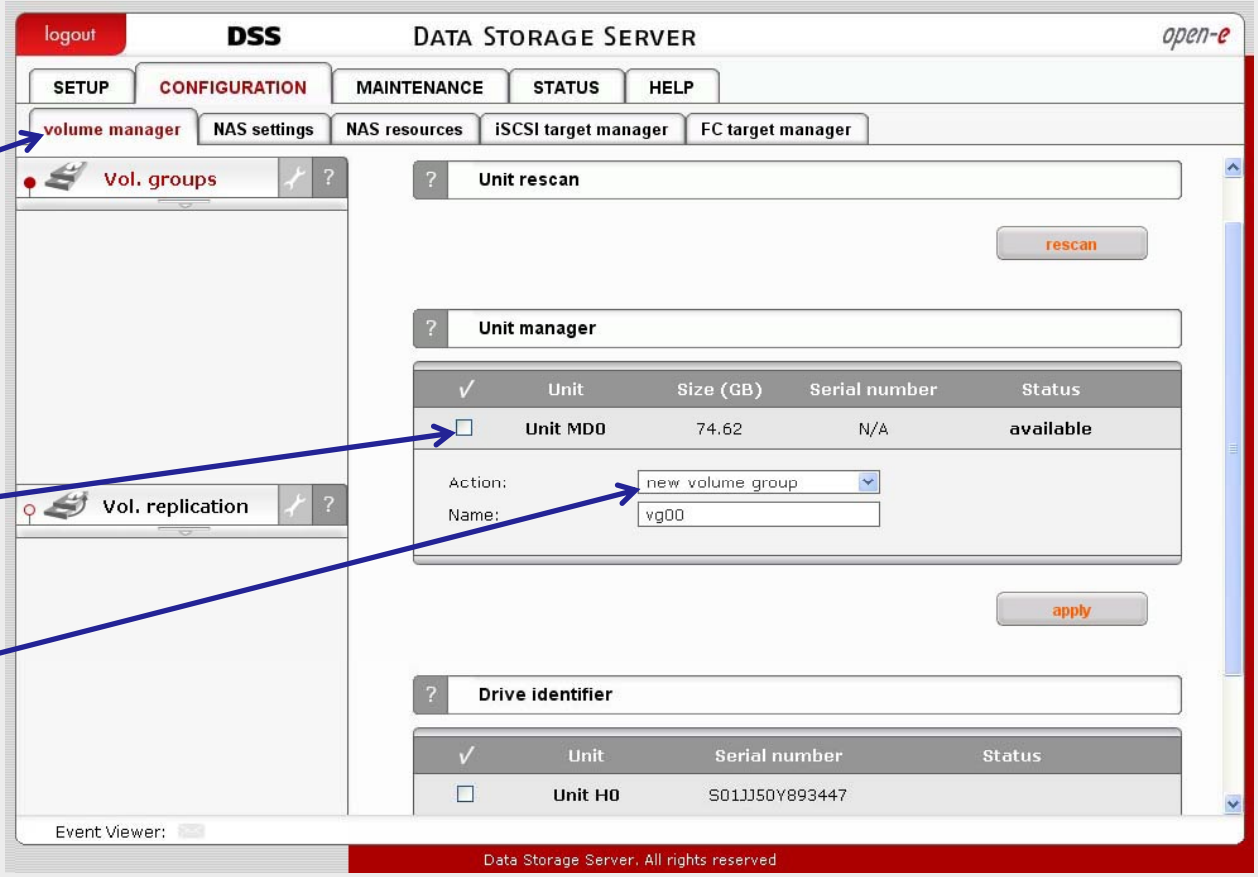
Data Server (DSS2)
Destination node
IP Address: 192.168.0.240

2. Configure the Destination Node

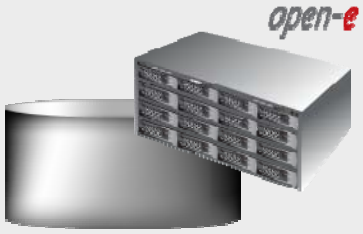
Under the „CONFIGURATION" tab, select „volume manager".

Volume Groups (vg00)

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



Setting up Asynchronous Data Replication over a LAN



Data Server (DSS2)
Destination node
IP Address: 192.168.0.240

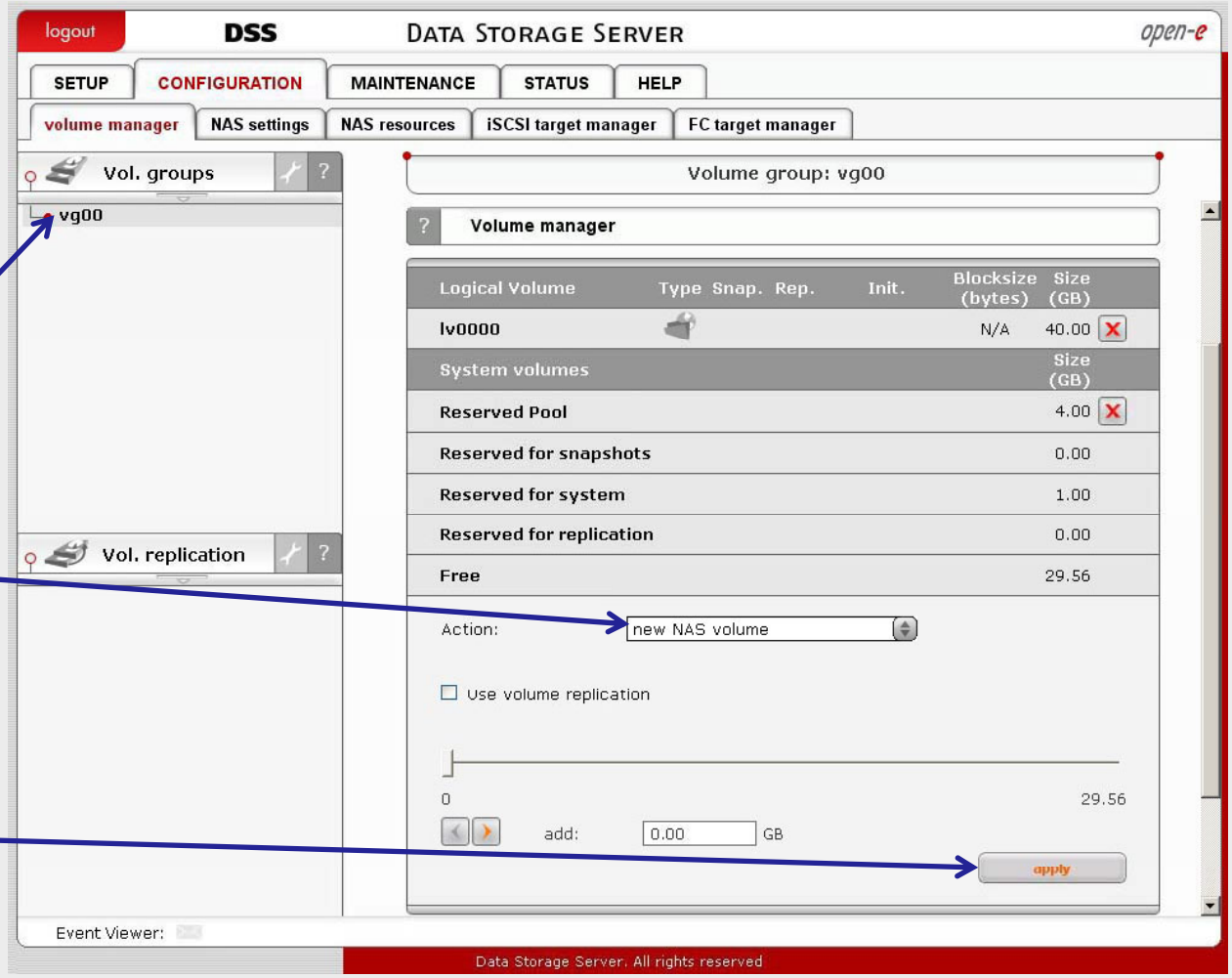
2. Configure the Destination Node

Volume Groups (vg00)

NAS volume (lv0000)

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

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



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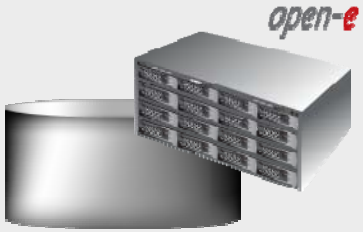


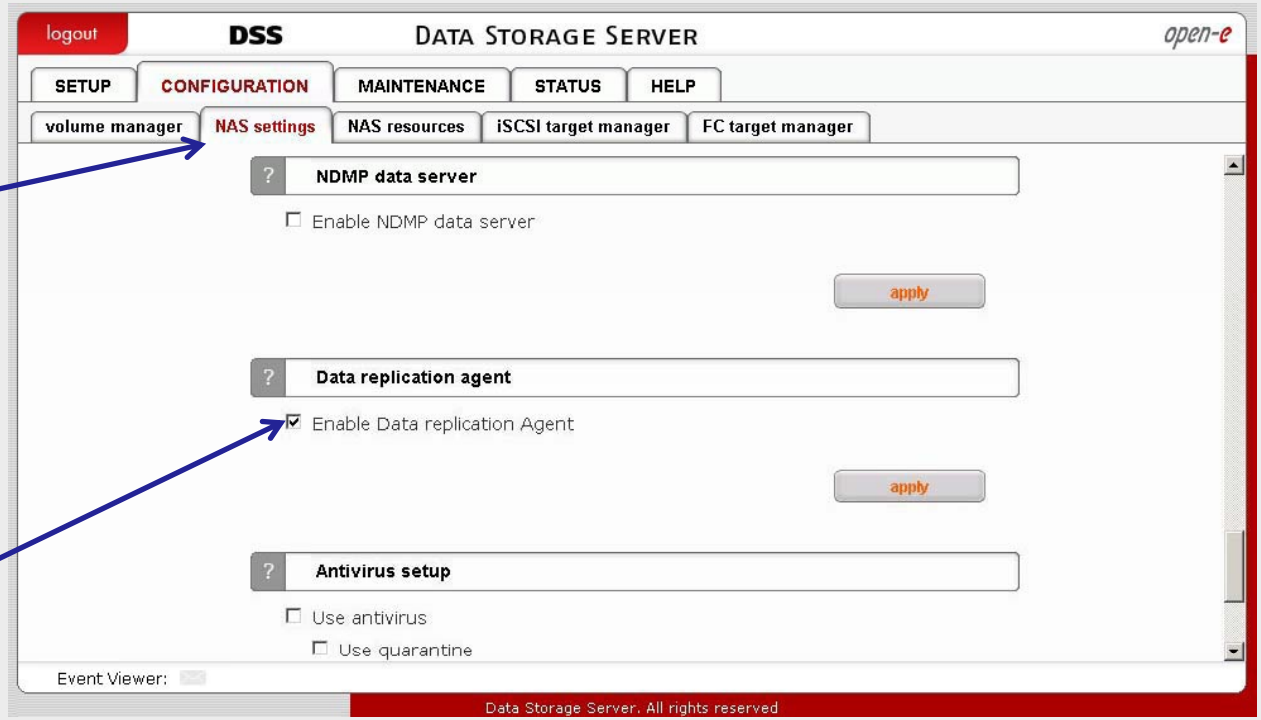
Data Server (DSS2)
Destination node
IP Address: 192.168.0.240

2. Configure the Destination Node

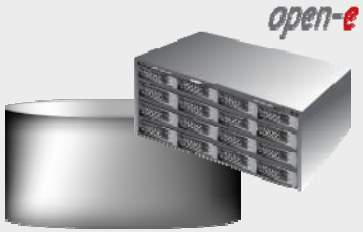
Under the „CONFIGURATION" tab, select „NAS settings" menu.

Data Replication

Check the Enable Data replication Agent box, and click the apply button.



Setting up Asynchronous Data Replication over a LAN



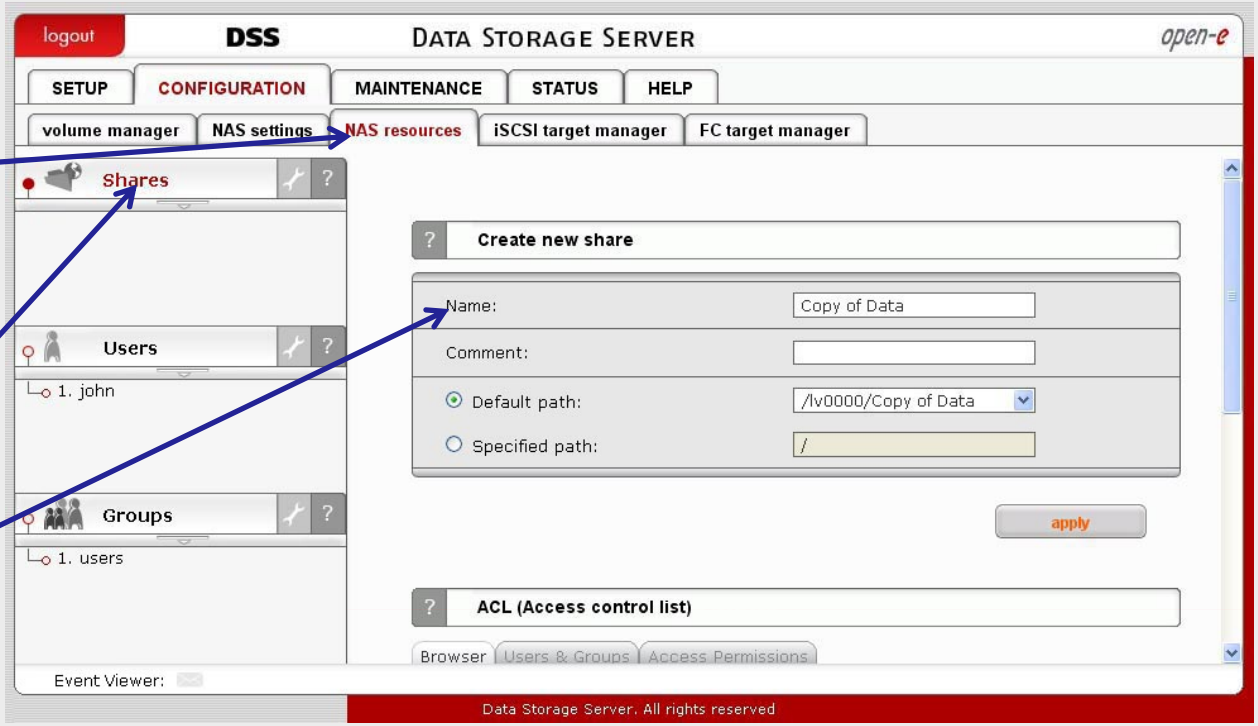
Data Server (DSS2)
Destination node
IP Address: 192.168.0.240

2. Configure the Destination Node

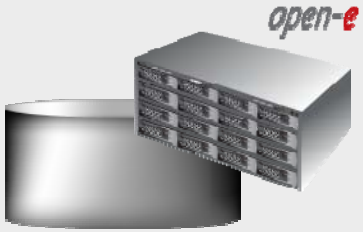
Under the „CONFIGURATION" tab, select „NAS resources" menu.

Shares: Copy of Data

A tree listing of NAS shared volumes (Shares) will appear on the left side of the DSS console. In the example, a shared volume named Copy of Data has been created.



Setting up Asynchronous Data Replication over a LAN

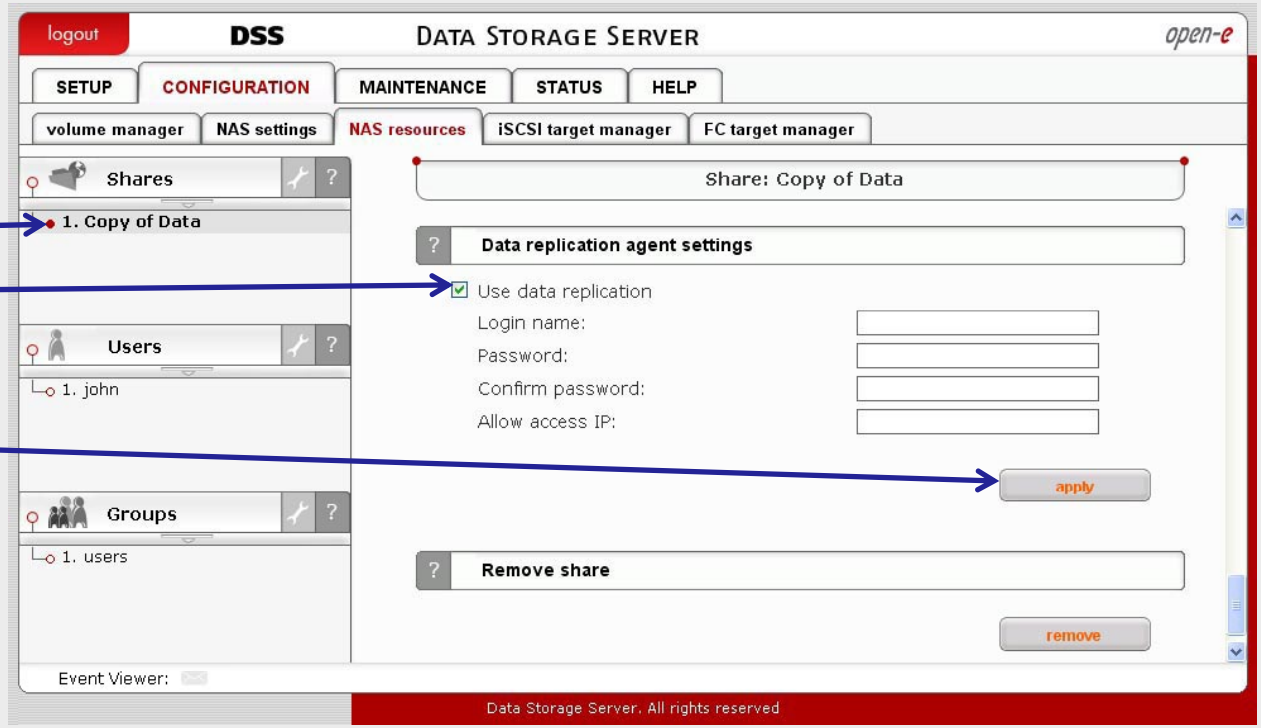


Data Server (DSS2)
Destination node
IP Address: 192.168.0.240

2. Configure the Destination Node

After creating the new shared volume, configure it:

- Click on the share name (Copy of Data),
- Check the box Use data replication within Data replication agent settings function.
- Click on the apply button.



Shares: Copy of Data

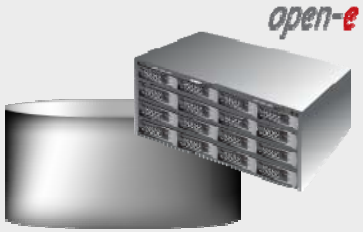
Data Replication

NOTE:

It is strongly recommended to protect the replication protocol with a user name and password, along with a list of allowed IP address. This will prevent local network users from accessing this share. The user name and password must be the same as on the destination node.

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

Setting up Asynchronous Data Replication over a LAN



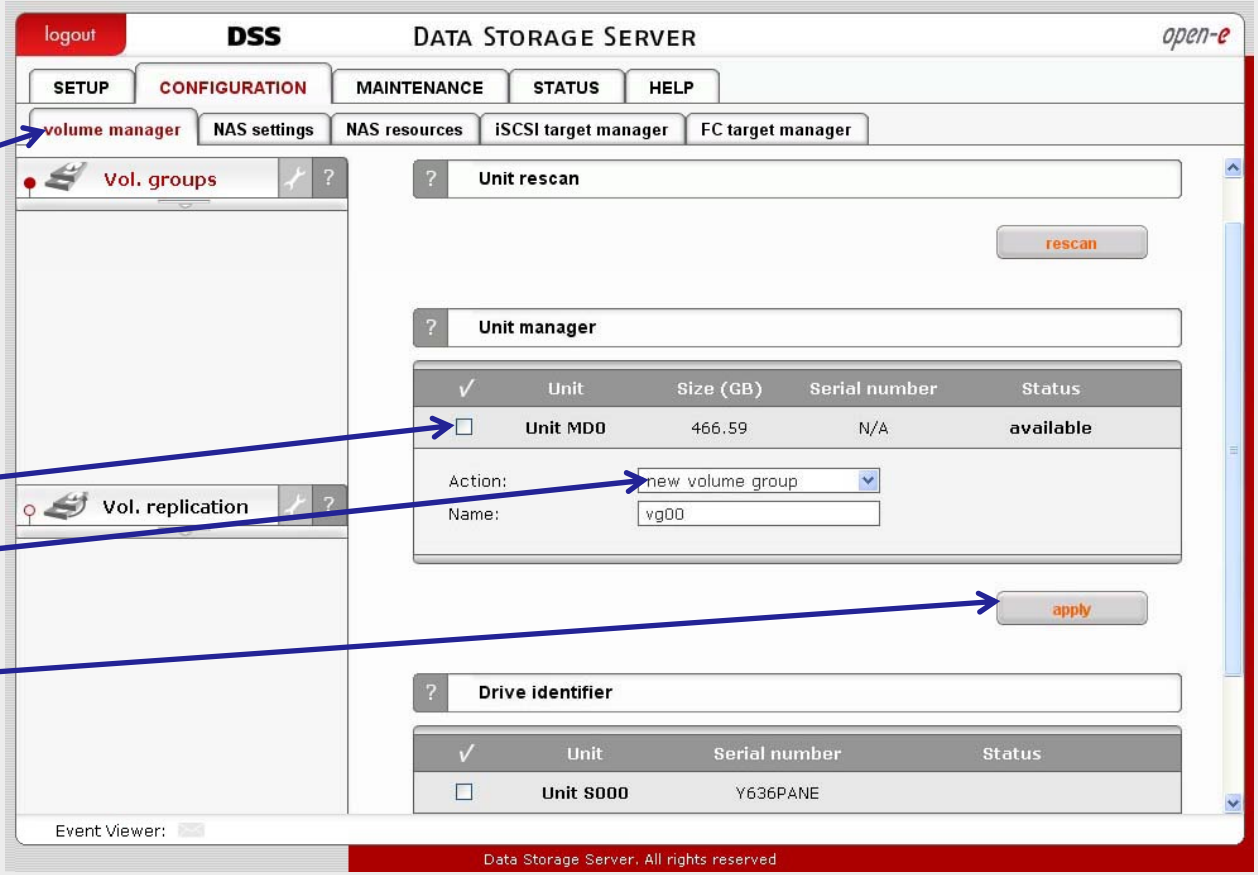
Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

3. Configure the Source Node

Under the „CONFIGURATION" tab, 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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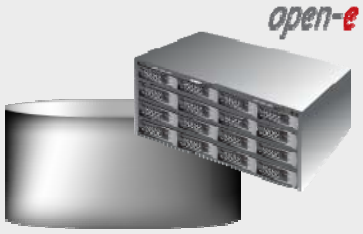


Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

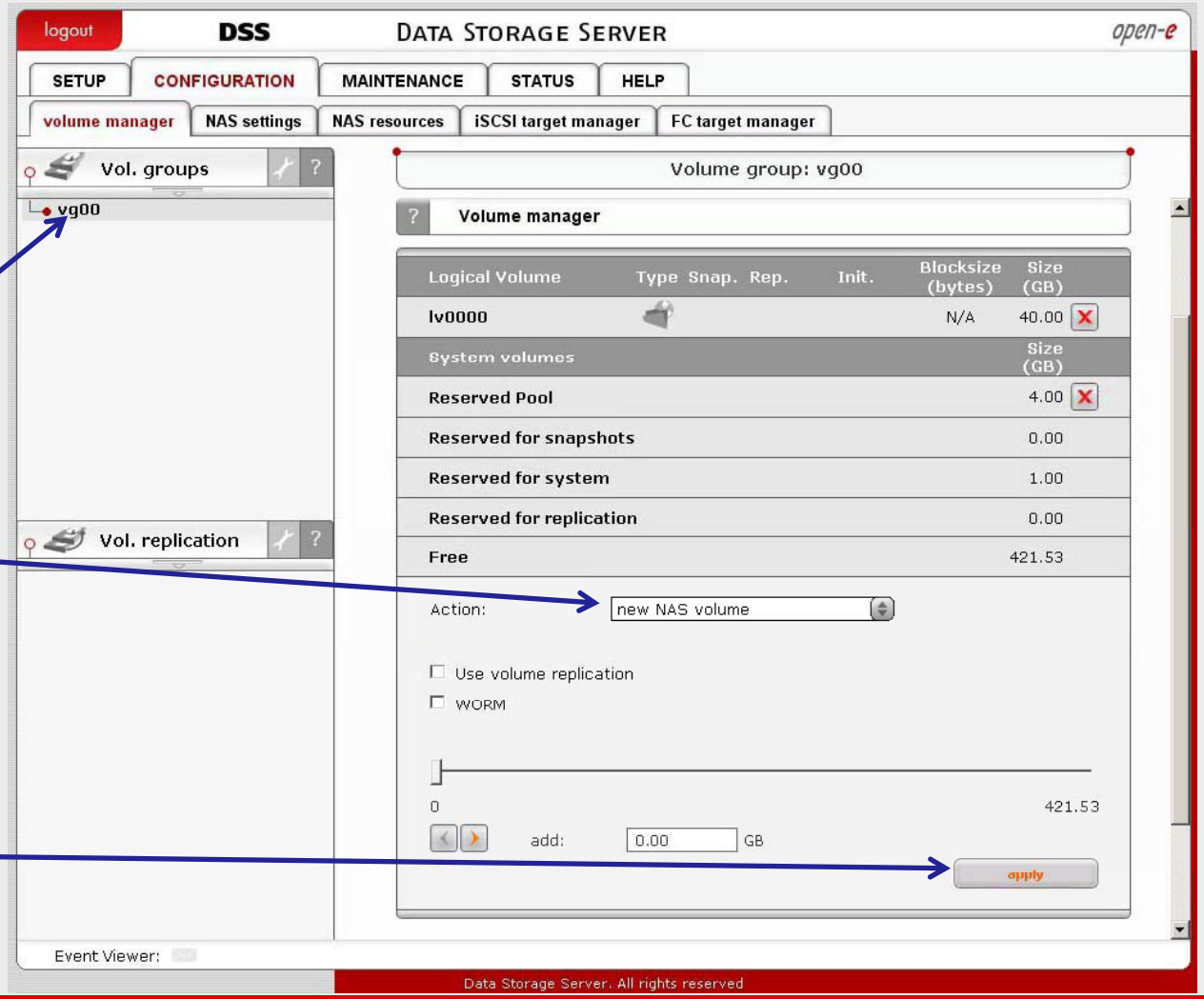
3. Configure the Source Node

Volume Groups (vg00)

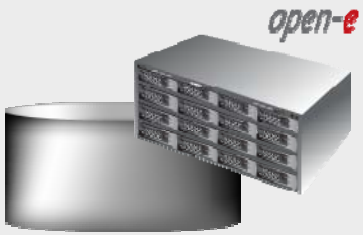
NAS volume (lv0000)

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

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



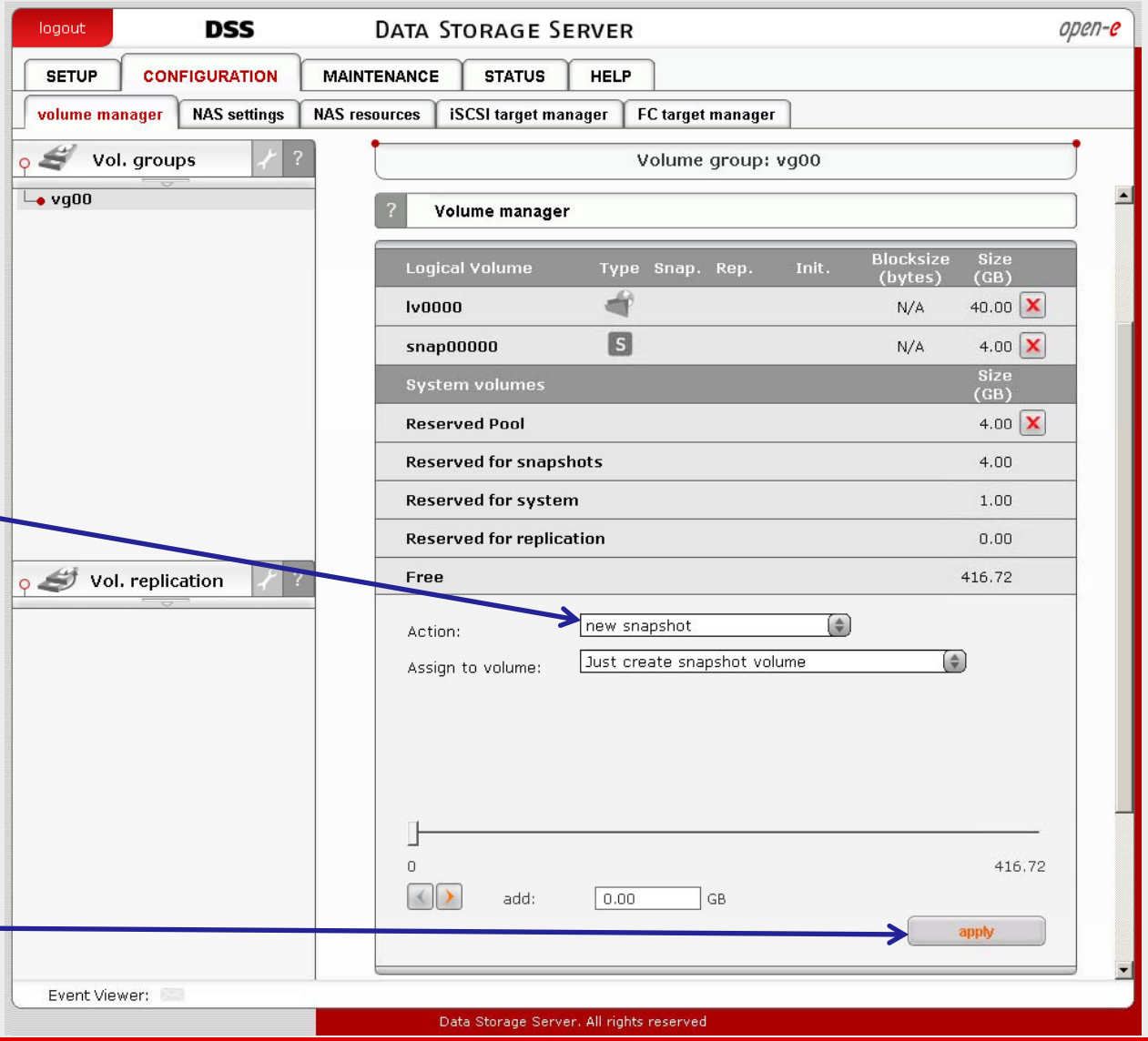
Setting up Asynchronous Data Replication over a LAN



Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

Snapshot 

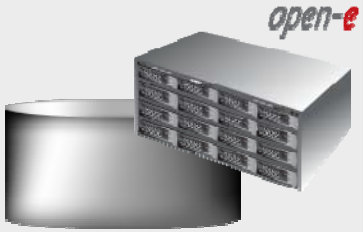
3. Configure the Source Node



To run the replication process, you must first define a new snapshot in Volume manager function to be taken of the volume to be replicated. Snapshot size should be large enough to accommodate the changes you anticipate, 10% to 15% of the logical volume is sometimes recommend.

After assigning an appropriate amount of space for the snapshot, click the apply button.

Setting up Asynchronous Data Replication over a LAN



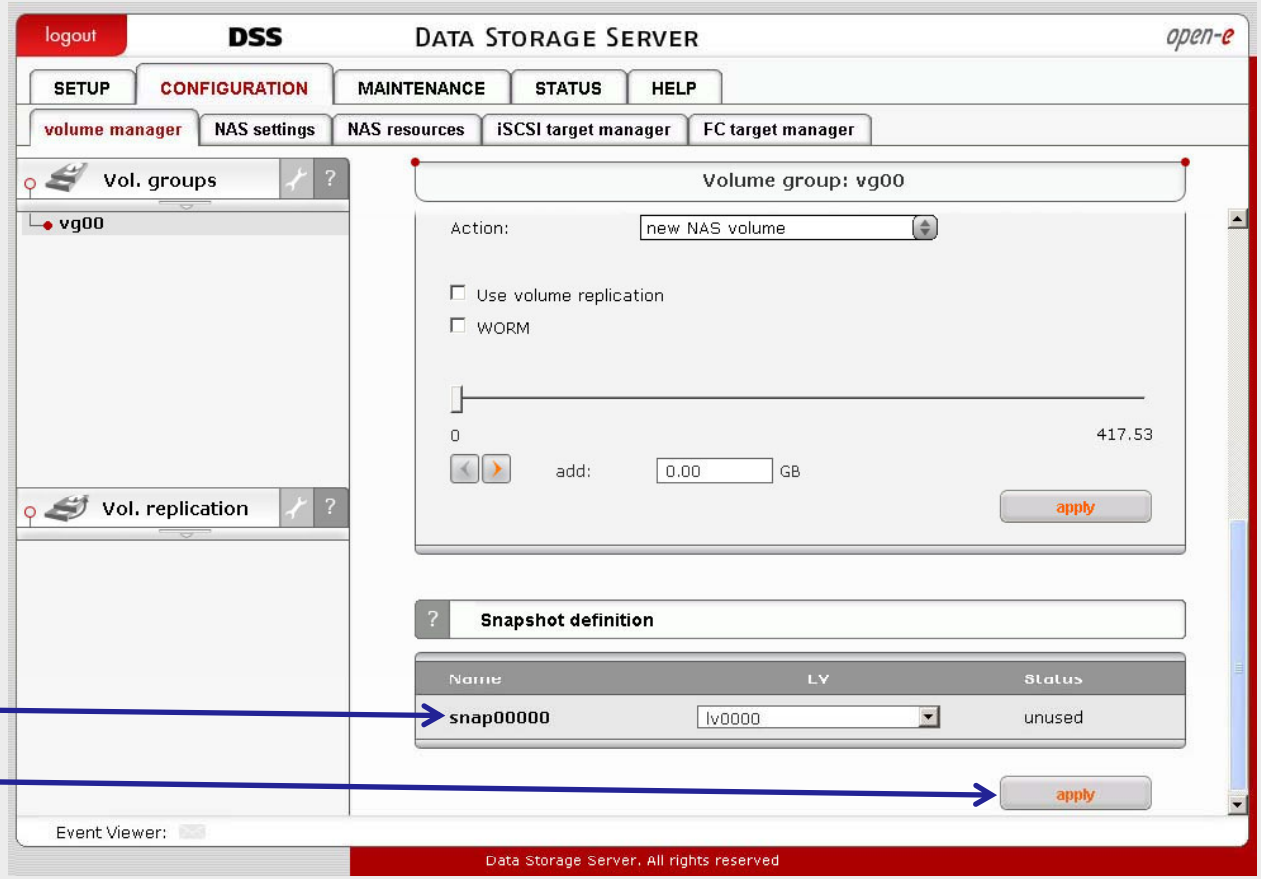
Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

3. Configure the Source Node

NAS volume
(lv0000)

Snapshot

Assign the snapshot (snap00000) to the logical volume to be replicated (in this example: lv0000) and click the apply button.



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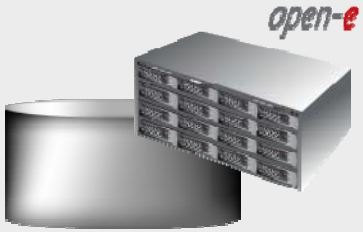


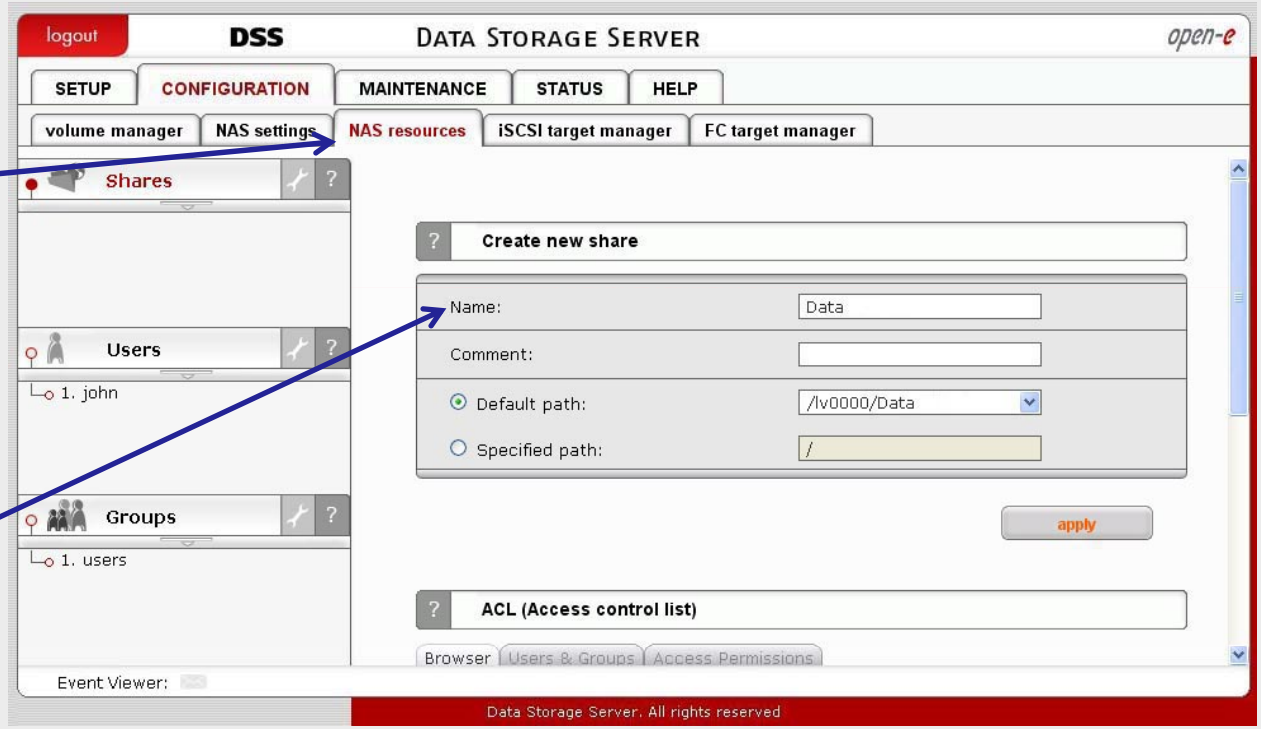
Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

3. Configure the Source Node

Under the „CONFIGURATION" tab, select „NAS resources" menu, to see a tree listing all the NAS shared volumes (Shares).

Shares: Data

To create a share, enter the share name in field Name. In this example a new share named Data has been created.



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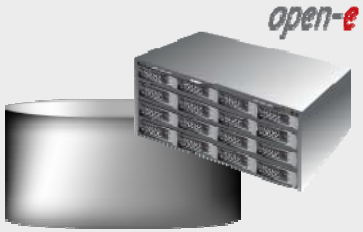
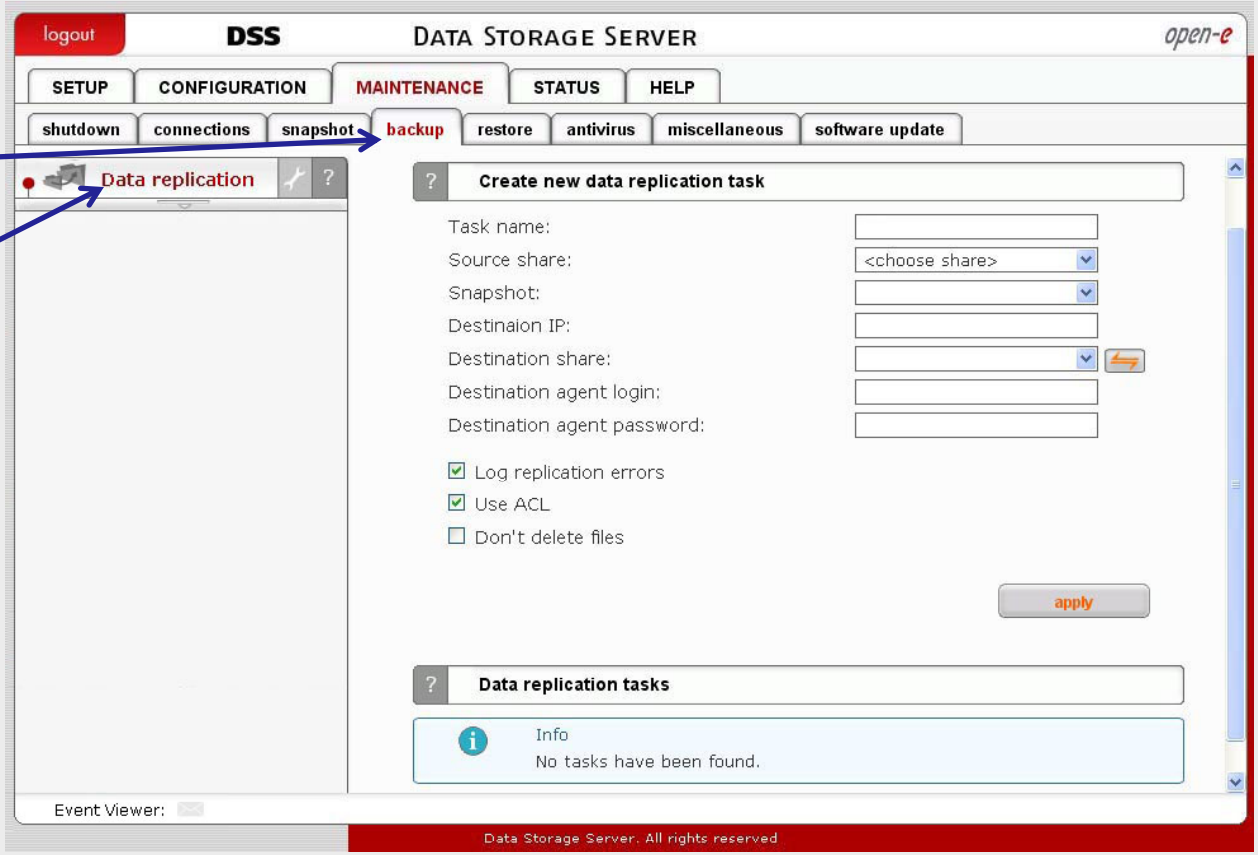


Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

3. Configure the Source Node

After the share to be replicated has been configured, go to the „MAINTENANCE" tab and select „backup" to choose the Data Replication.



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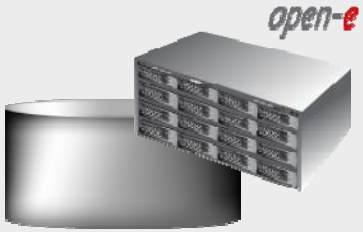
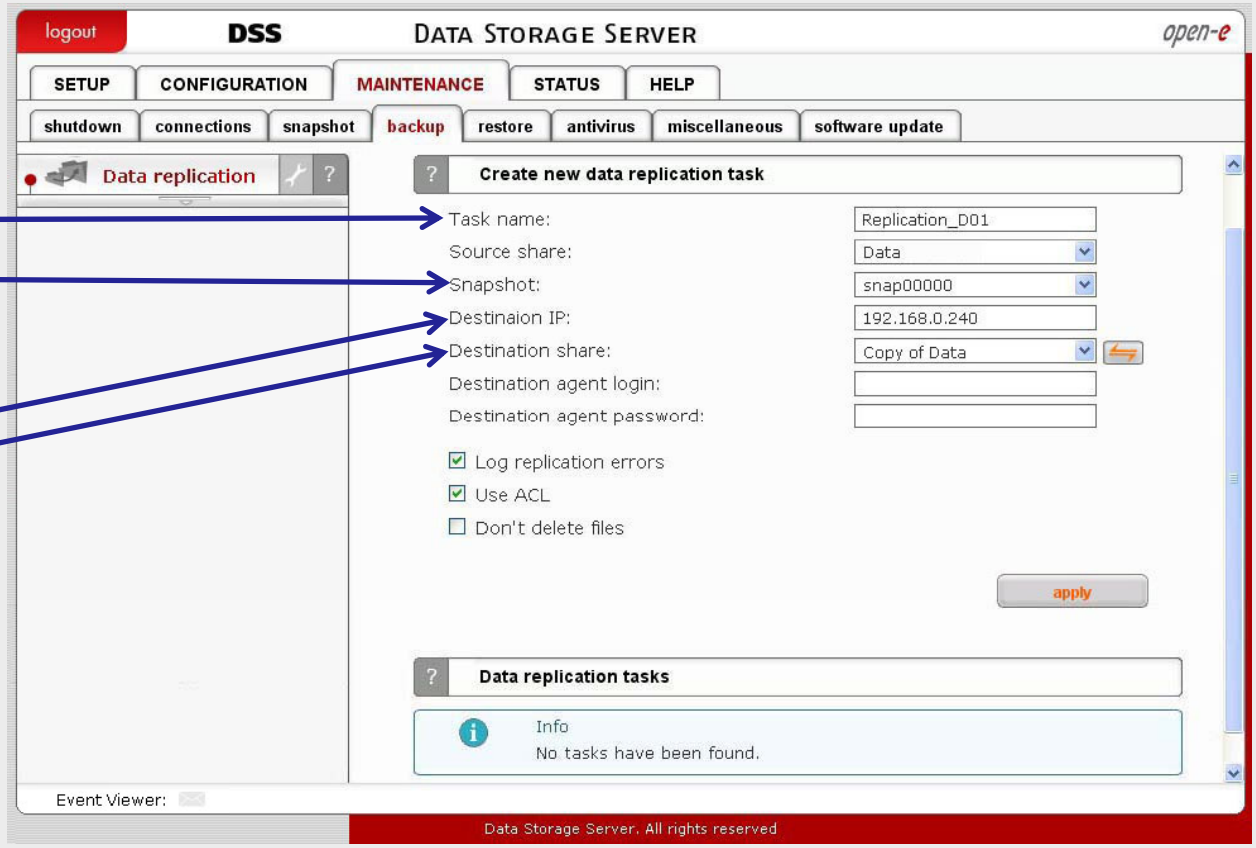


Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

3. Configure the Source Node

Select the source share to be replicated. Under Create new data replication task function, enter a name for the task and select the Source share to be replicated. At this point, a snapshot (snap00000) of the source share will automatically be assigned.

In the Destination IP field, enter the IP address of the destination server (in this example, 192.168.0.240) and the user name/password (if applicable) for the destination. Next, configure the Destination share field by clicking on the button. In this example, the Copy of Data share will appear. Click on the apply button.



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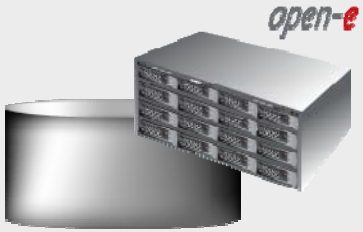
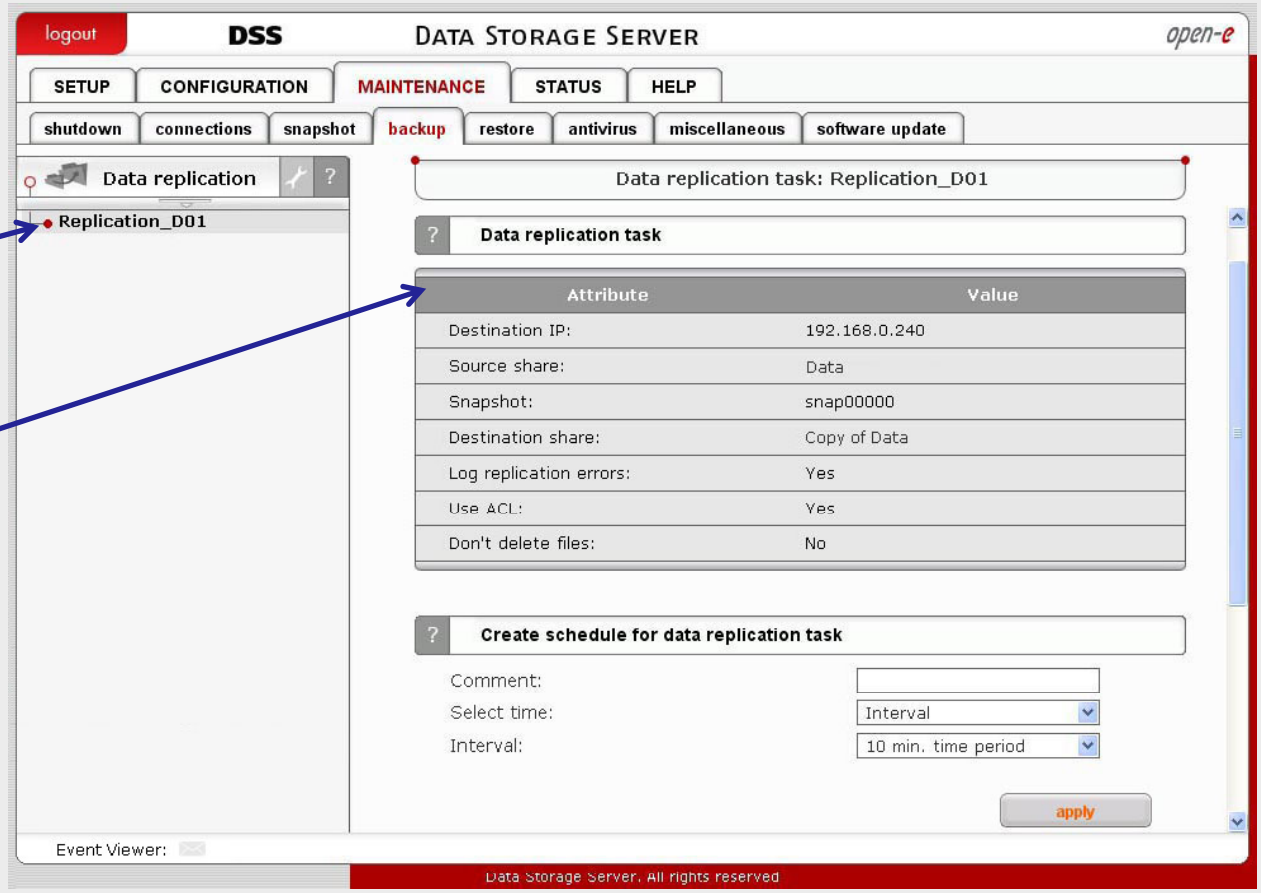


Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

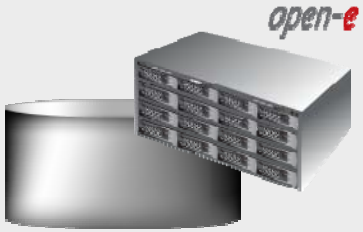
3. Configure the Source Node

After the DSS WEB console, has been reloaded, the new task should appear (Replication_D01).
Obtain additional information about a selected replication task by accessing the Data replication task function.



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

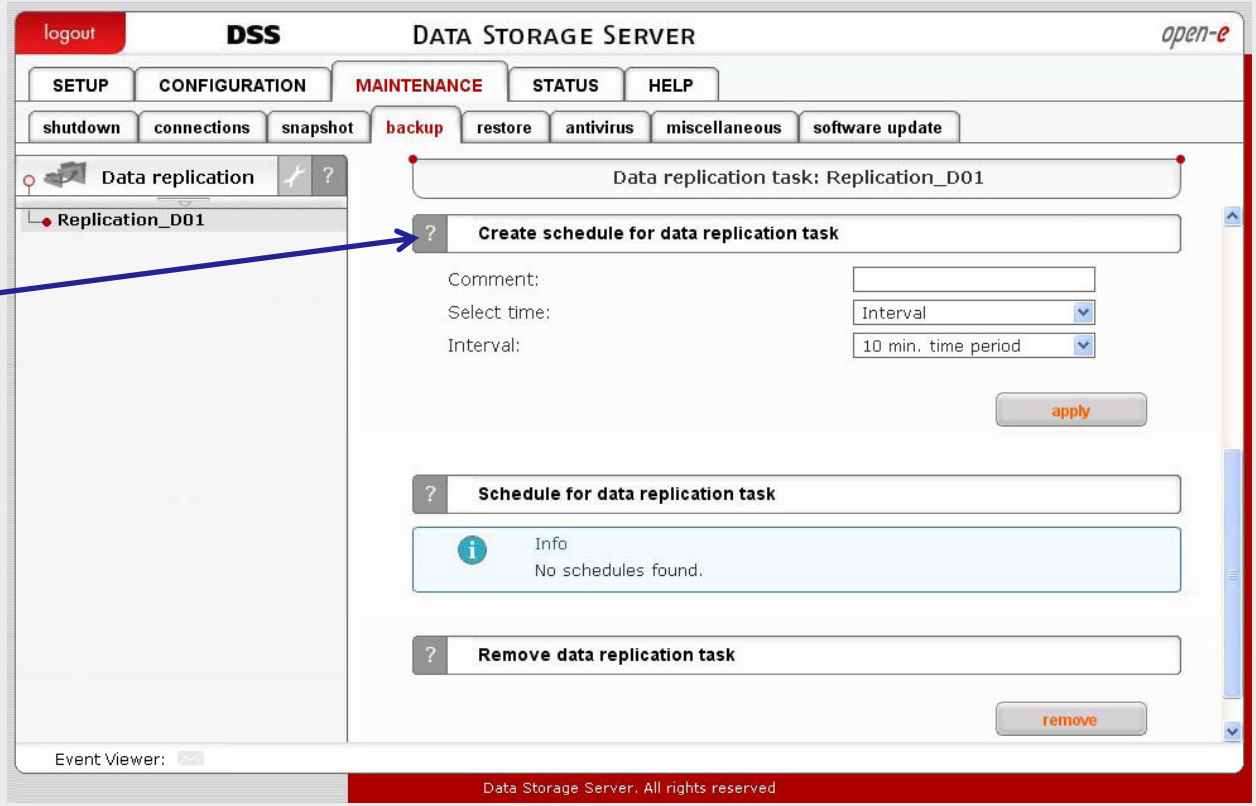
Setting up Asynchronous Data Replication over a LAN



Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

4. Configure Schedule replication

Using the Create schedule for data replication task function, set the desired replication schedules or explicitly start, stop and delete data replication tasks, as desired.



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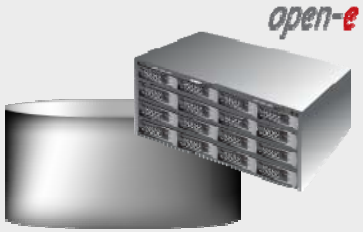
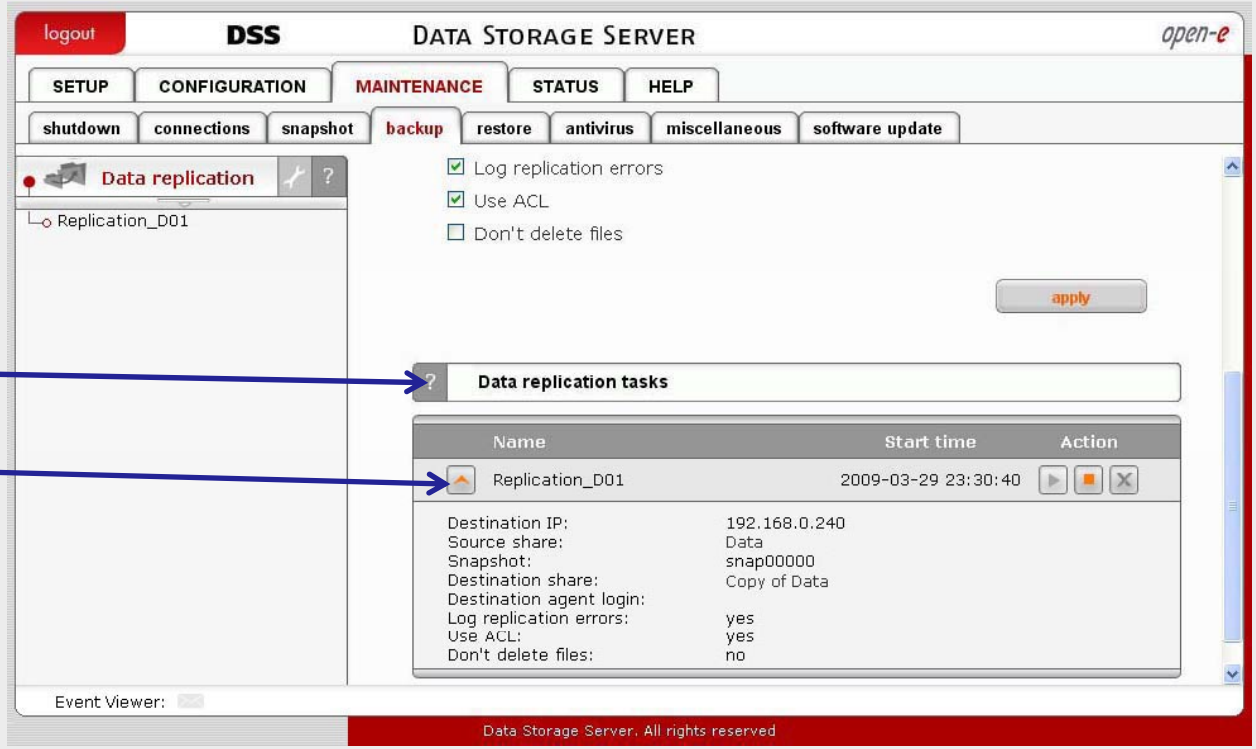


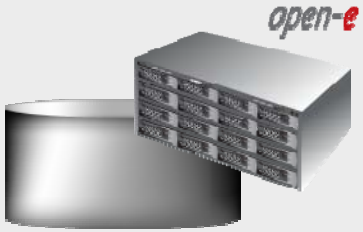
Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

5. Checking status data replication

In Data replication tasks function set the desired data replication to start, stop and delete tasks.



Setting up Asynchronous Data Replication over a LAN

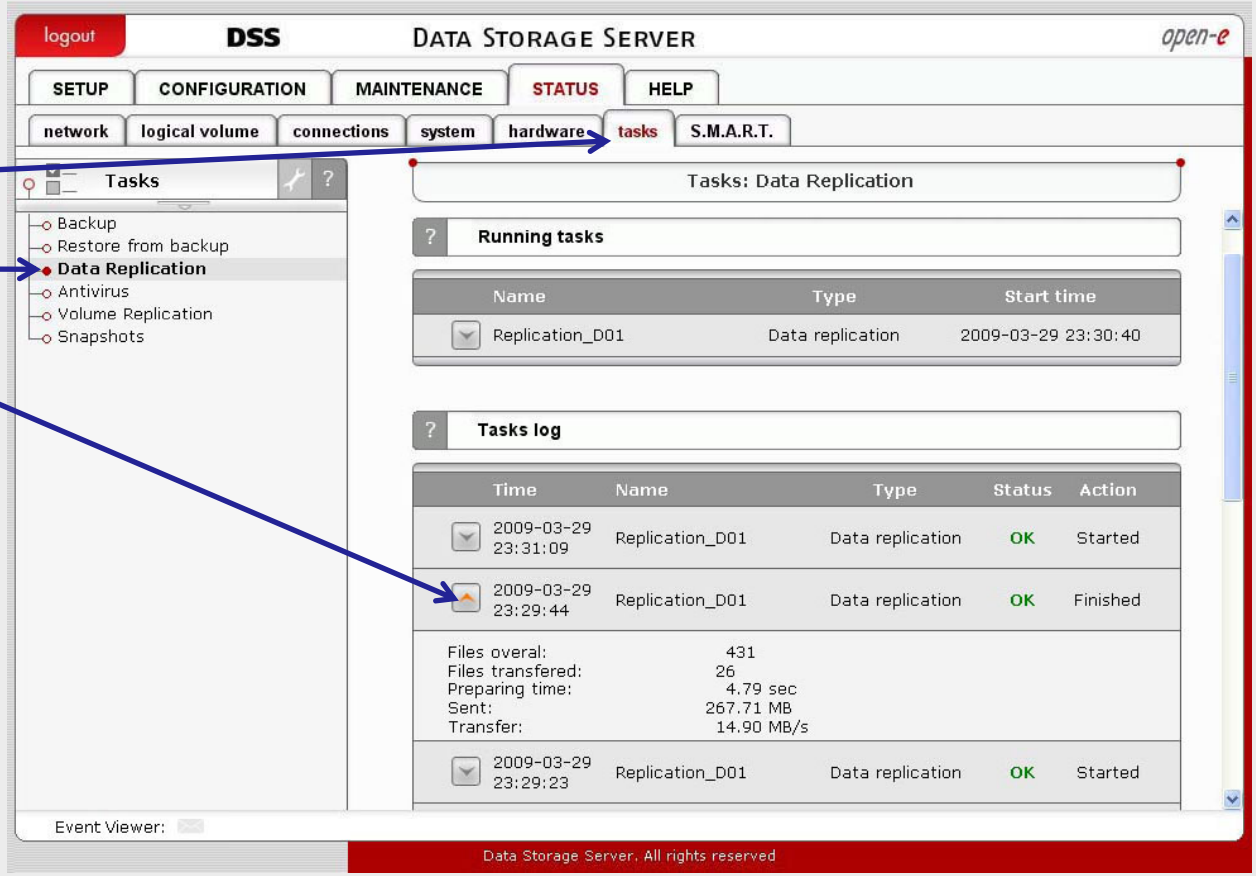


Data Server (DSS1)
Destination node
IP Address: 192.168.0.220

5. Checking status data replication

To obtain detailed information about the progress of data replication tasks, under the „STATUS" tab, select „tasks" menu.

Next click Data Replication tasks and select the Tasks.



The configuration of the source and destination nodes for asynchronous data replication is now complete.

Thank you!