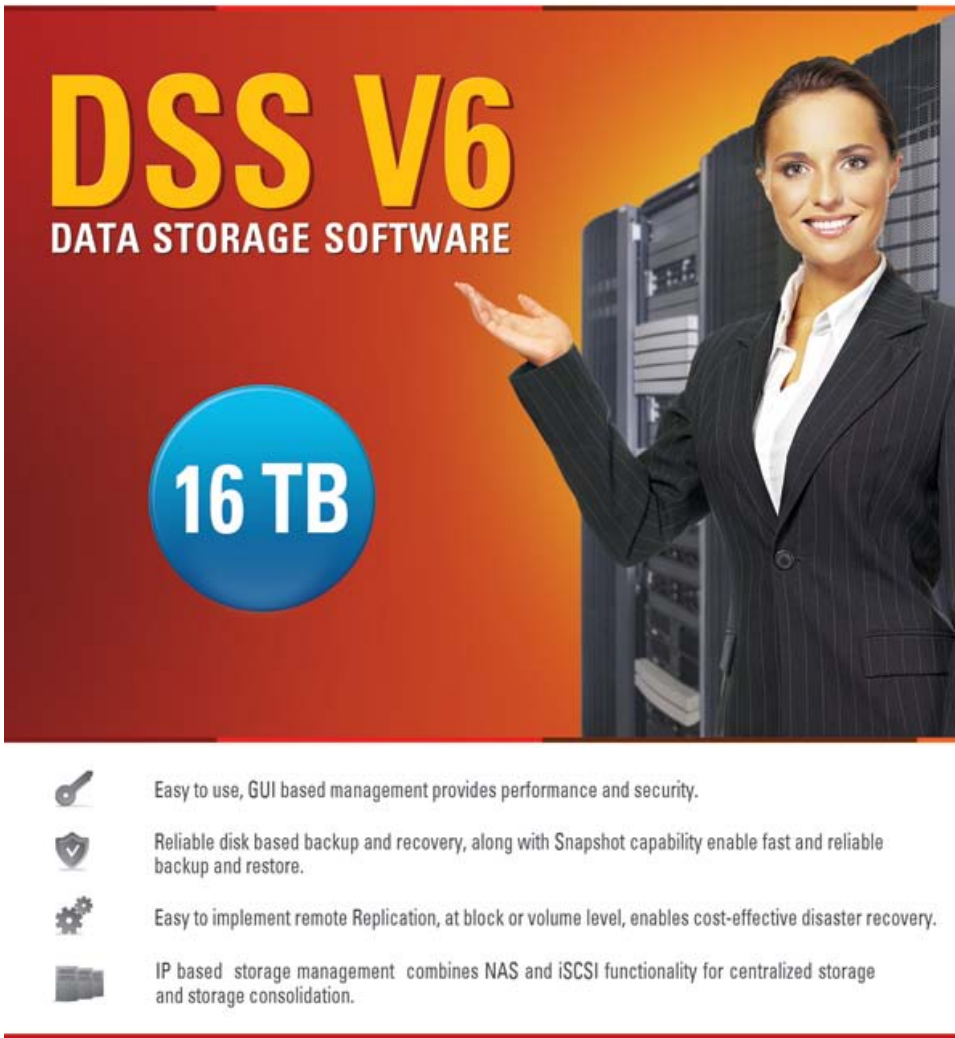
Step-by-Step Guide to Asynchronous *Data (File) Replication (File Based) over a WAN Supported by Open-E® DSS™*



Software Version: DSS ver. 6.00 up85

Presentation updated: September 2011

Asynchronous Data (File) Replication over a WAN

	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
Asynchronous Data (File) Replication over a WAN		✓			✓	✓		✓			

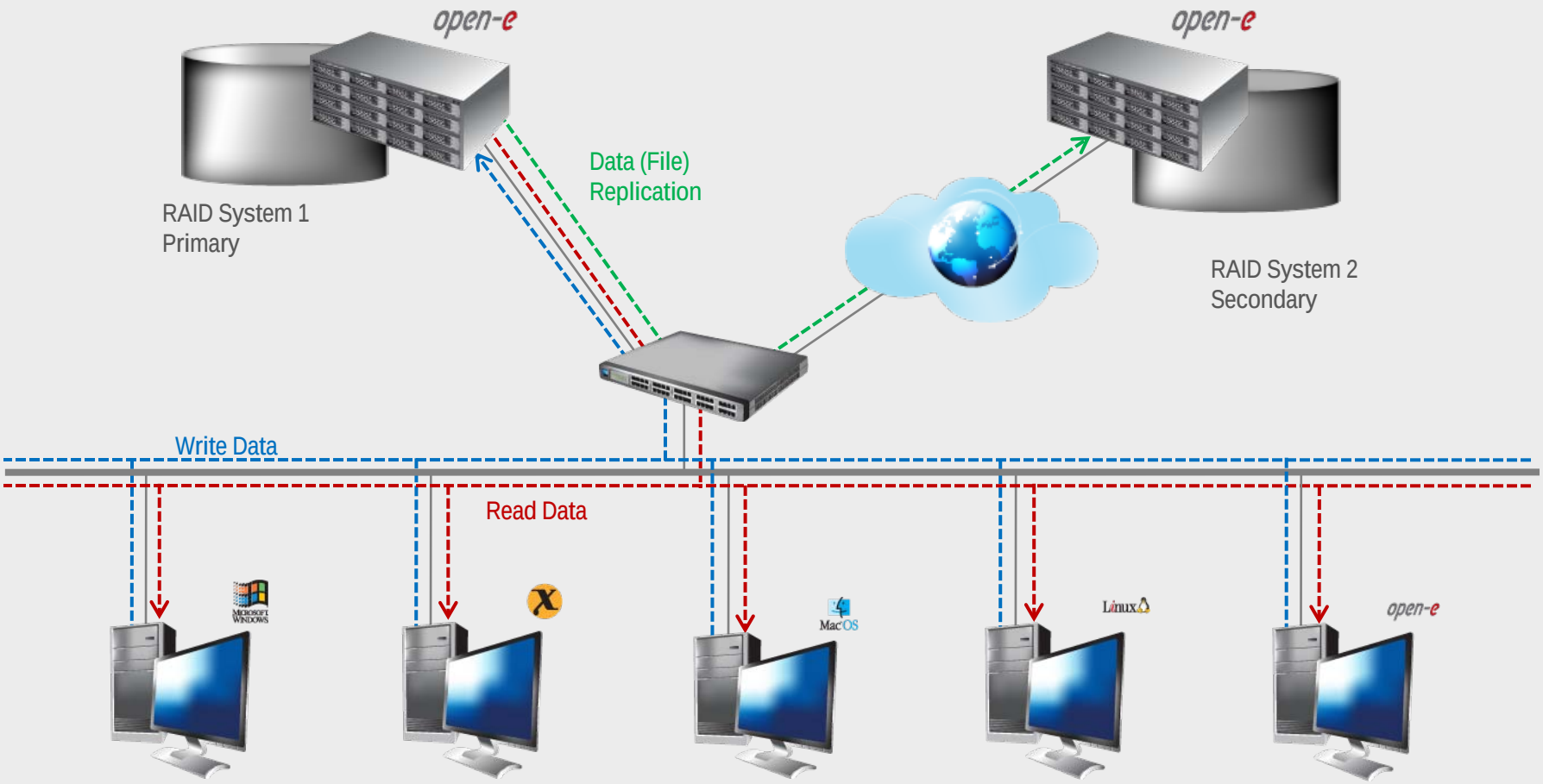
- ASYNCHRONOUS Data (File) Replication over a WAN enables **asynchronous** file and folder copy from one storage system to another over the Wide Area Network:
  - With Asynchronous Replication, a point-in-time or snapshot copy of data on the source is made and copied to the target storage system.
  - For maximum flexibility, you can run a Data (File) 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 between two systems over a WAN

- Recommended Resources
  - Key Hardware (two system)
    - ✓ x86 compatible
    - ✓ RAID Controller
    - ✓ HDD‘s
    - ✓ Network Interface Cards
  - Software:
    - ✓ Open-E DSS V6, 2 units
- Benefits
  - Data redundancy
  - Maximum data safety
- Disadvantages
  - High cost of WAN solution

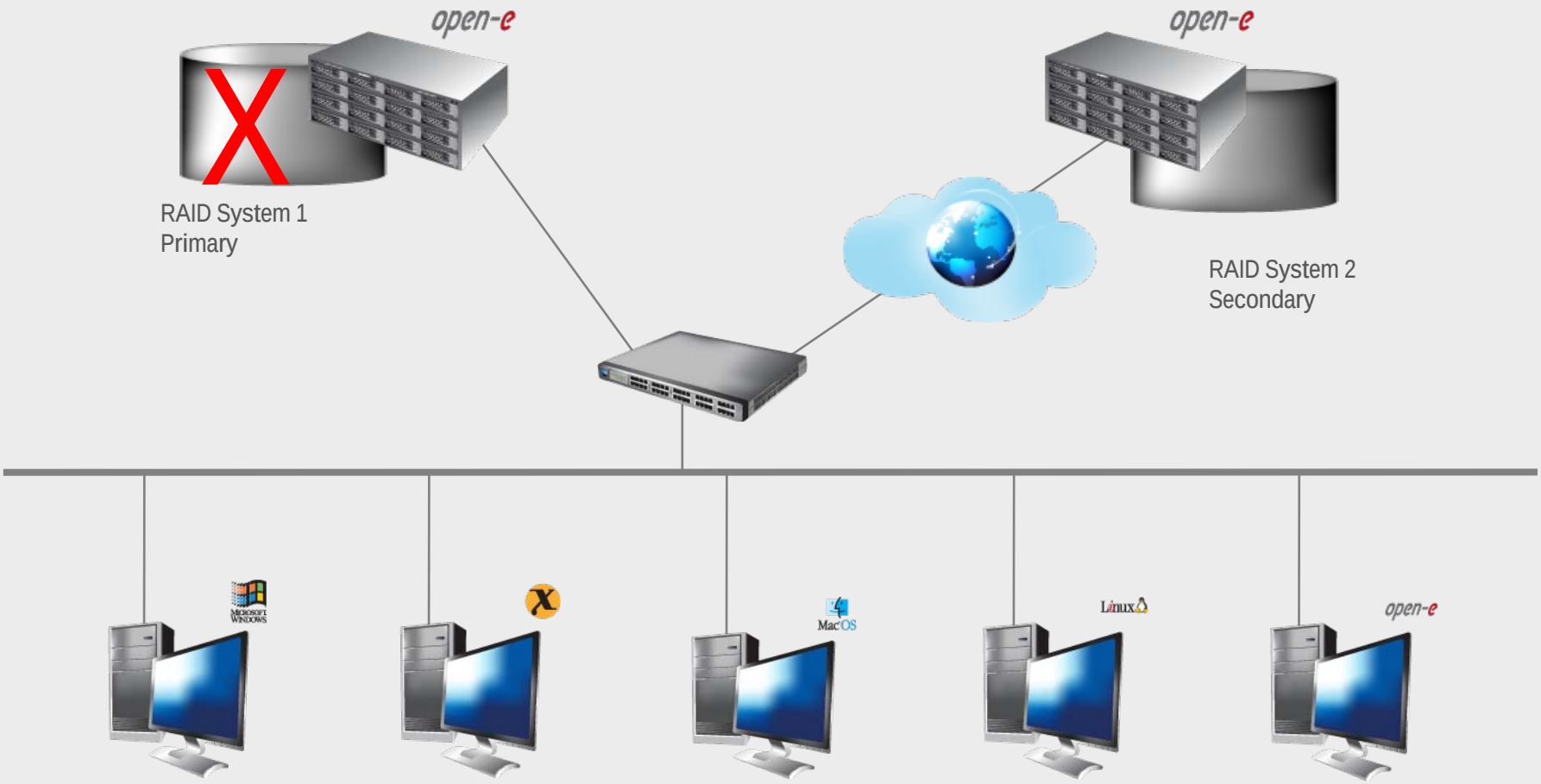
Asynchronous Data (File) Replication over a WAN

- Data is written and read in System 1
- Data is periodically replicated to System 2 via an Internet connection.



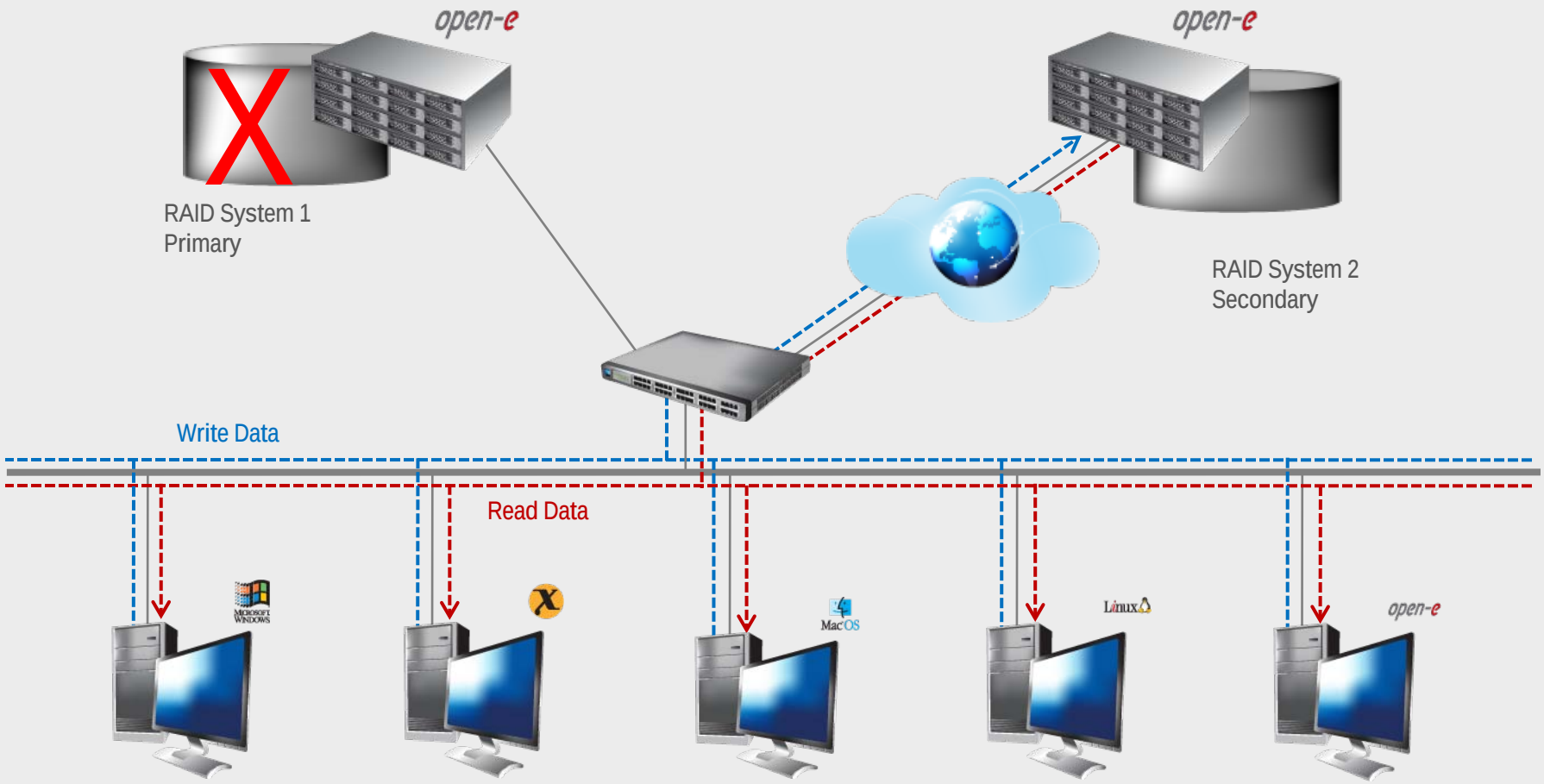
Asynchronous Data (File) Replication over a WAN

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



Asynchronous Data (File) Replication over a WAN

- After switching, replicated data is available on System 2



Asynchronous Data (File) Replication over a WAN

To set up Data (File) Replication, perform the following steps:

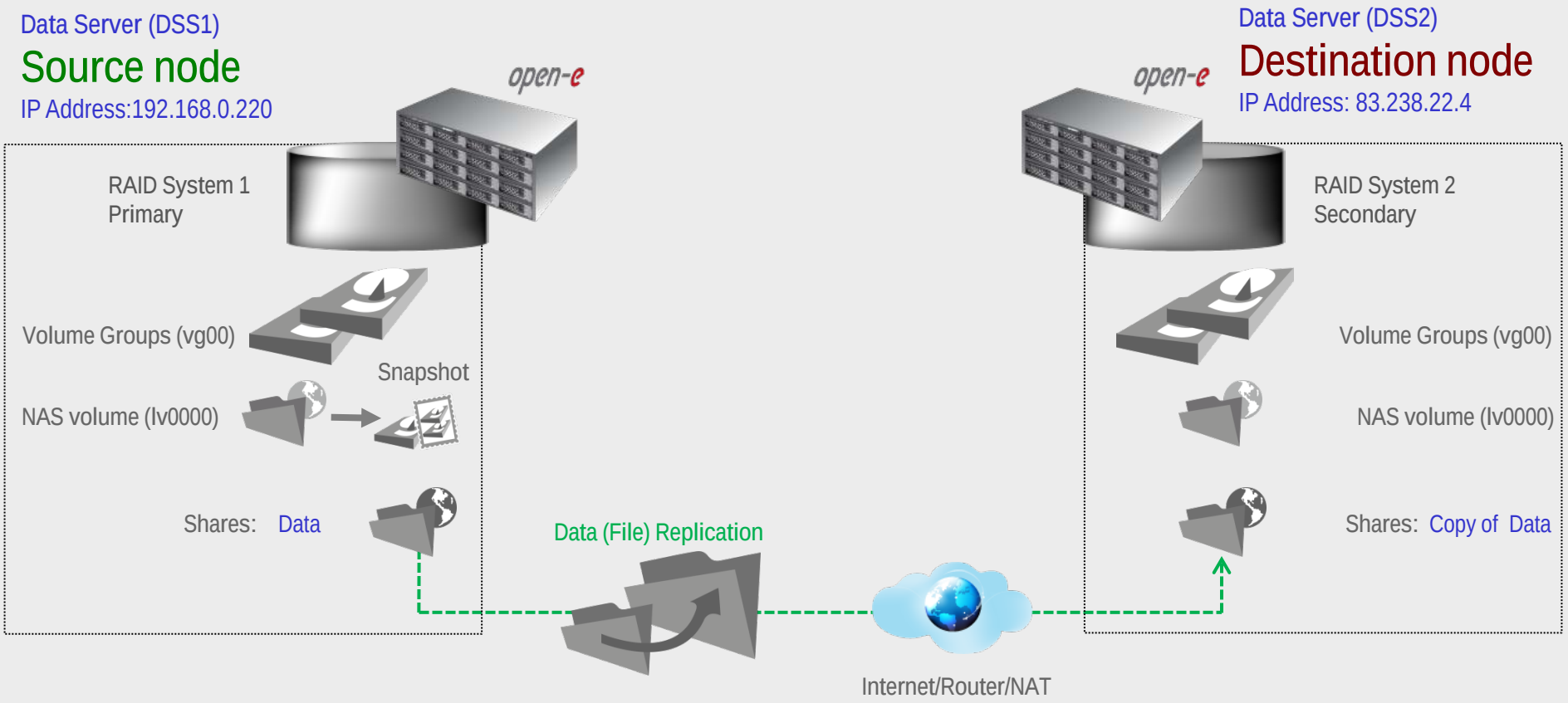
1. Hardware configuration
2. Configure DSS1 and DSS2 on the WAN
3. Configure the destination node
4. Configure the source node
5. Schedule replication
6. Check the status Data (File) Replication

Asynchronous Data (File) Replication over a WAN

Hardware Requirements

To run the Data (File) Replication of Open-E DSS V6, 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 Wide Area Network. An example configuration is shown below:

1. Hardware Configuration

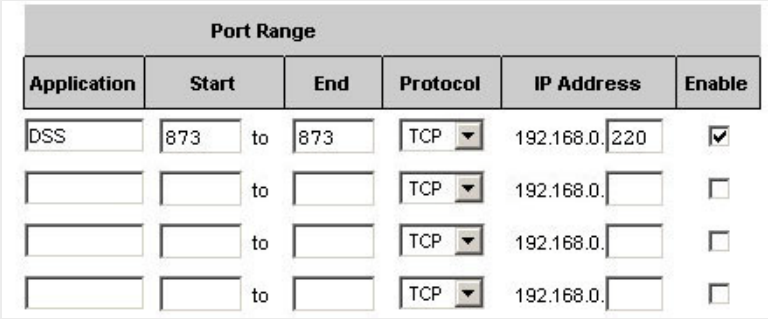


Setting up Asynchronous Data (File) Replication over a WAN

2. Configure DSS1 and DSS2 on the WAN

BELOW YOU CAN FIND OF SETTING THE DSS1 AND DSS2 ON THE WAN:

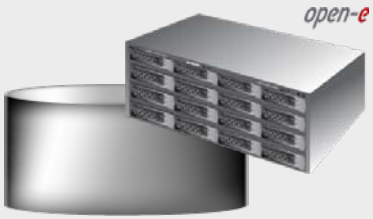
- DSS 1 - machine behind the NAT with local IP address,
- Forwarding port 873 to local Ip from DSS 1 in your router (eg. below screenshot)



Port Range					
Application	Start	End	Protocol	IP Address	Enable
DSS	873 to	873	TCP	192.168.0. 220	☑
	to		TCP	192.168.0.	☐
	to		TCP	192.168.0.	☐
	to		TCP	192.168.0.	☐

- DSS 2 – Data Storage System with external internet IP address router/firewall

Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS2)

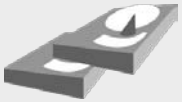
Destination node

IP Address: 83.238.22.4

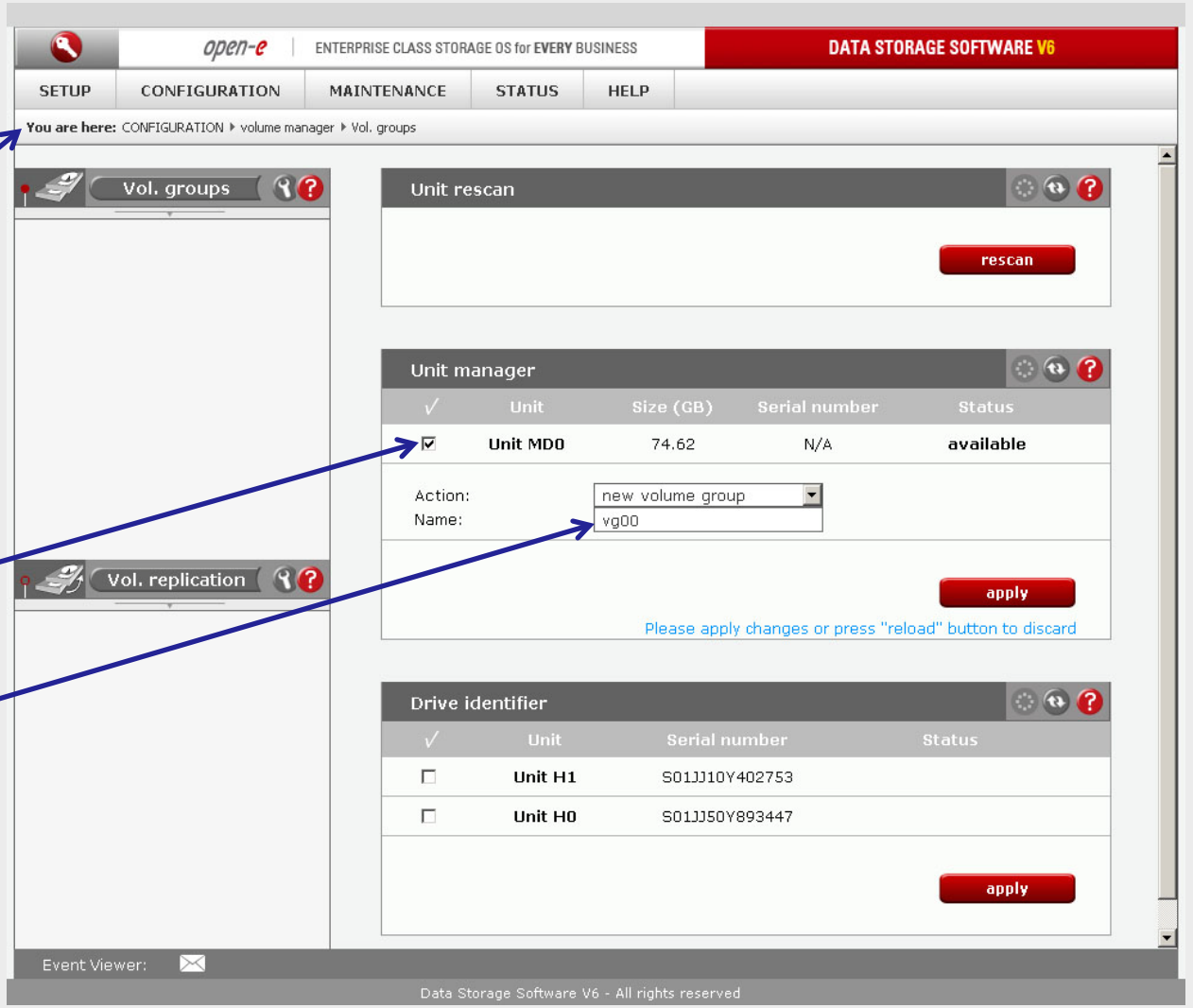
3. Configure the Destination Node

Under the „CONFIGURATION" tab, select „volume manager" and next Vol. Groups.

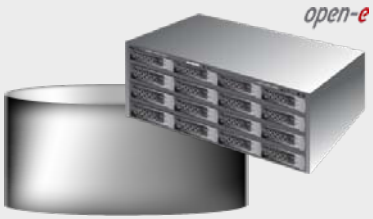
Volume Groups (vg00)



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 (File) Replication over a WAN



Data Server (DSS2)

Destination node

IP Address: 83.238.22.4

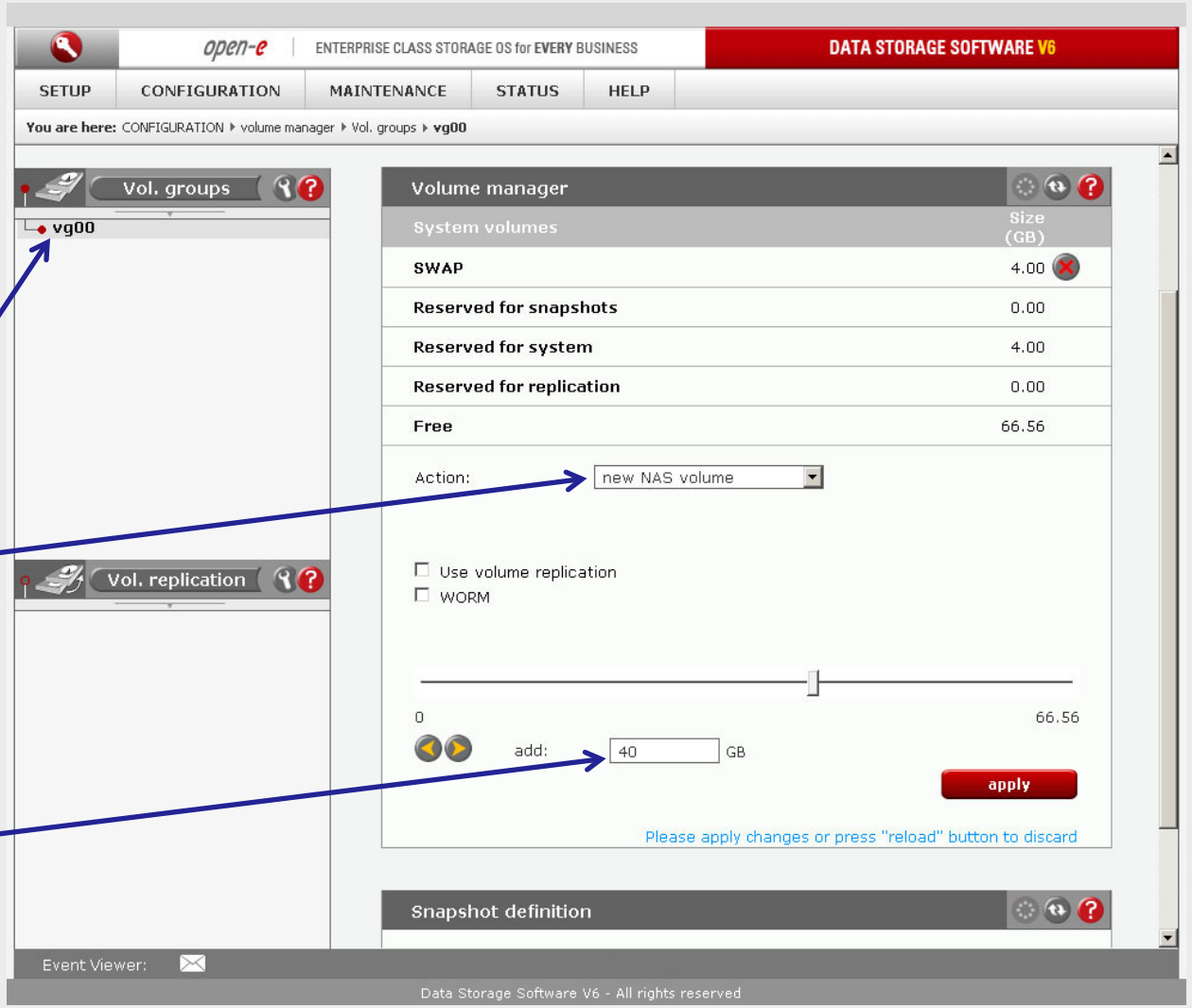
3. Configure the Destination Node

Volume Groups (vg00)

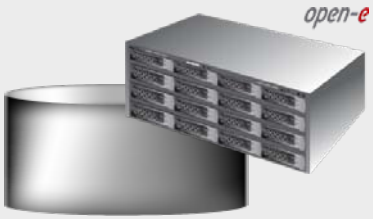
NAS volume (lv0000)

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



Setting up Asynchronous Data (File) Replication over a WAN



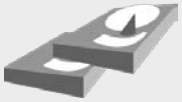
Data Server (DSS2)

Destination node

IP Address: 83.238.22.4

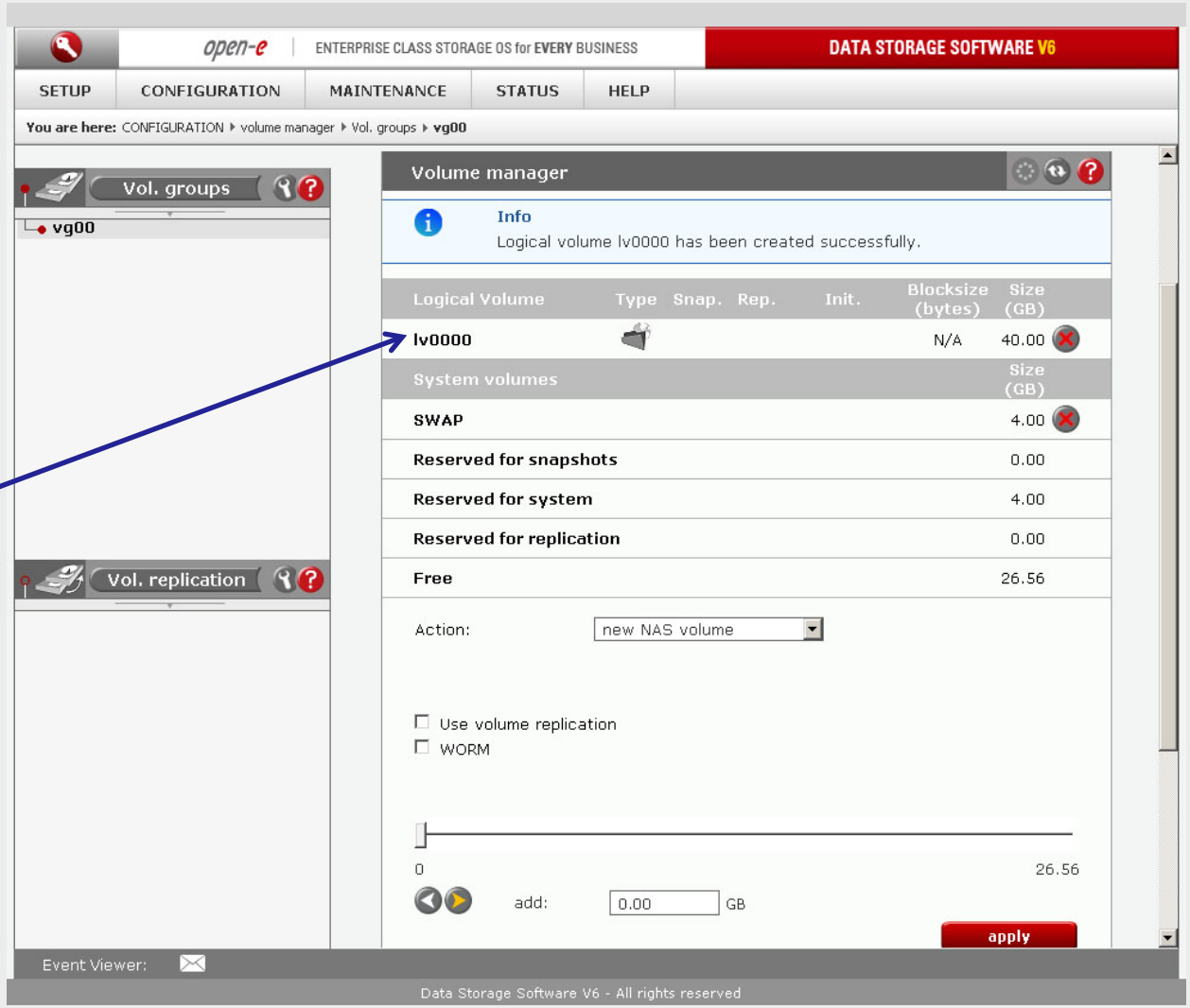
3. Configure the Destination Node

Volume Groups (vg00)

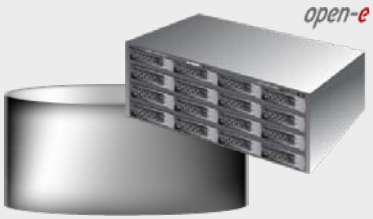


The destination NAS Volume is now configured.

NAS volume (lv0000)



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS2)

Destination node

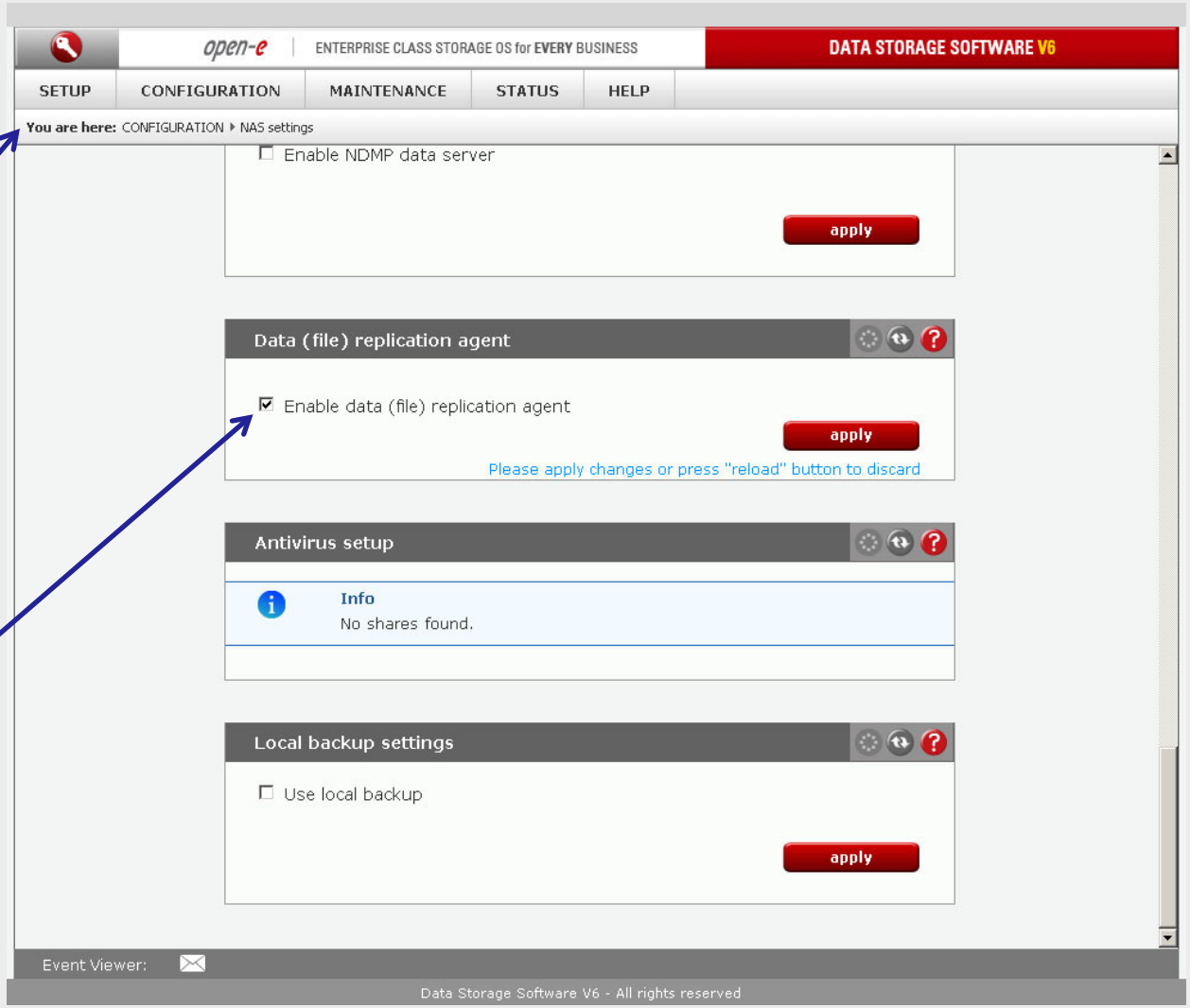
IP Address: 83.238.22.4

3. Configure the Destination Node

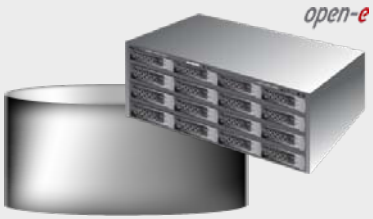
Under the „CONFIGURATION" tab, select „NAS settings" menu.

Data (File) Replication

In the Data (file) replication agent function check the Enable data (file) replication agent box, and click the apply button.



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS2)

Destination node

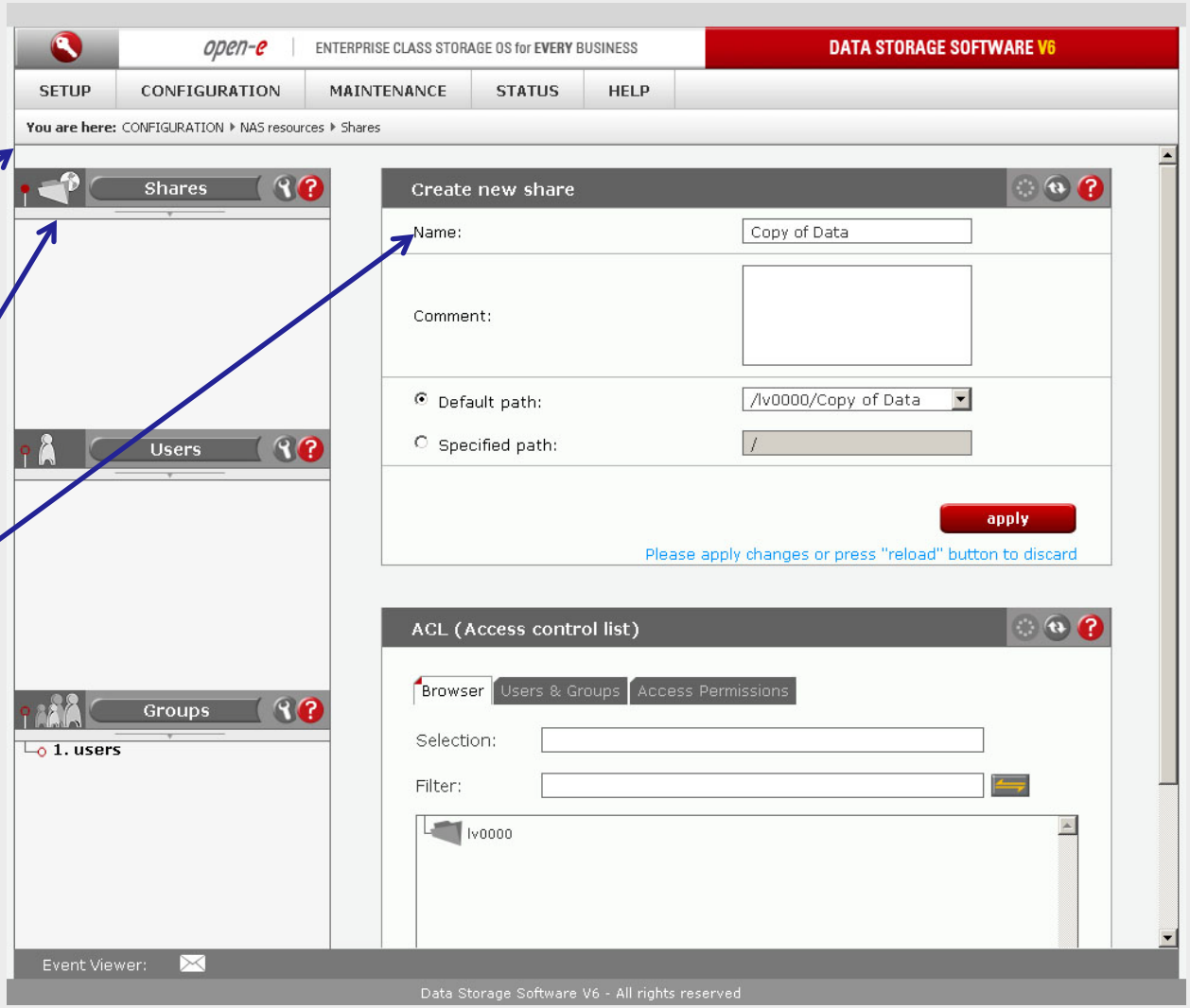
IP Address: 83.238.22.4

3. Configure the Destination Node

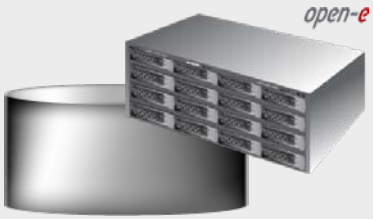
Under the „CONFIGURATION", select „NAS settings" and „Shares" menu.

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 (File) Replication over a WAN



Data Server (DSS2)

Destination node

IP Address: 83.238.22.4

3. Configure the Destination Node

After creating the new shared volume, configure it:

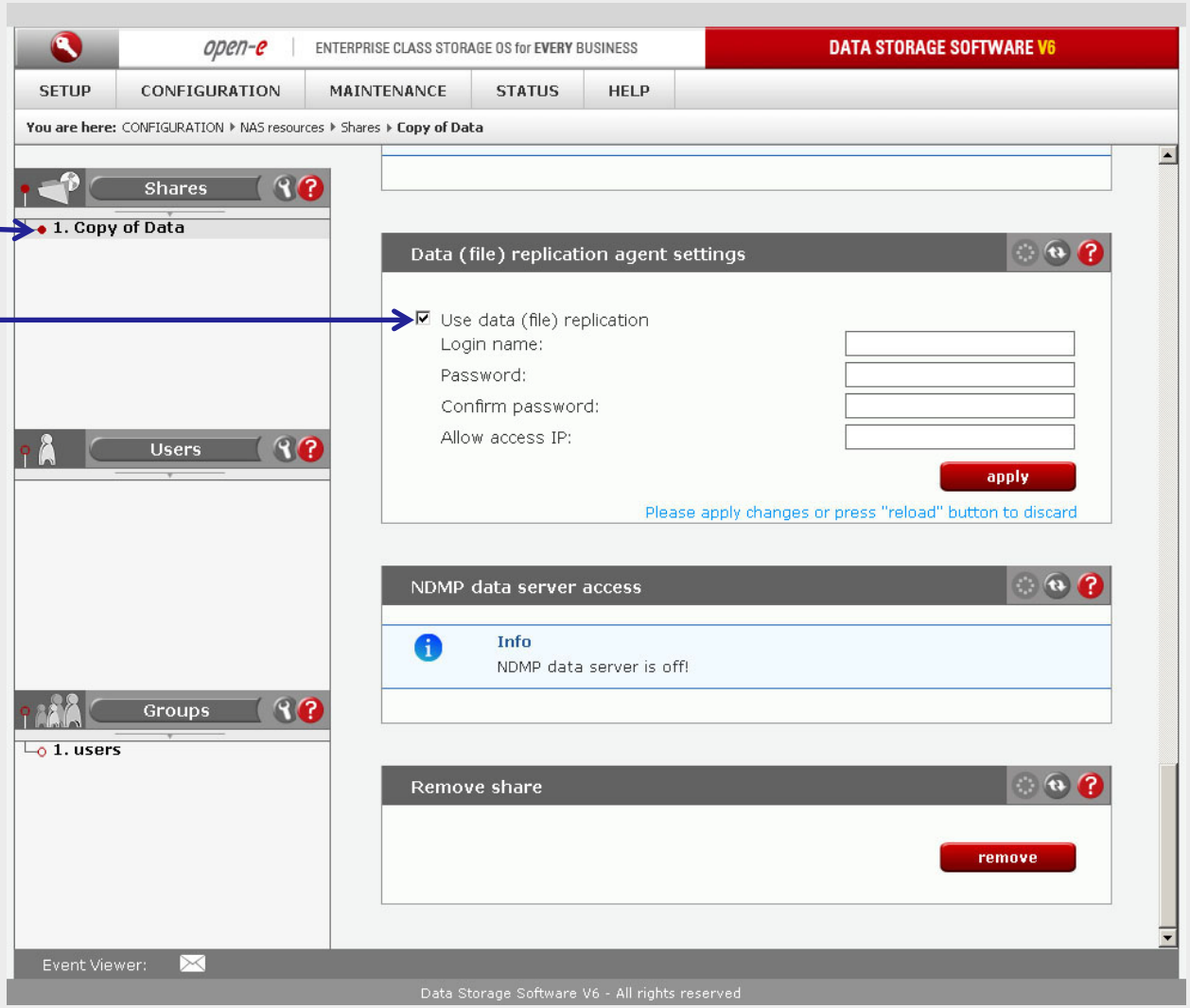
- Click on the share name (Copy of Data),
- Check the box Use data (file) replication within Data (file) replication agent settings function.
- Click on the apply button.

Data (File) Replication

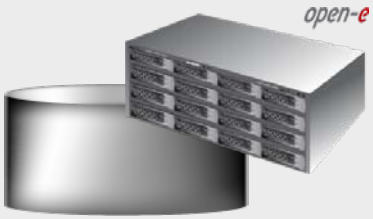
NOTE:

It is strongly recommended protecting the replication protocol with a user name and password, along with a list of allowed IP address. This will prevent other Data (File) Replication tasks 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 (File) Replication over a WAN



Data Server (DSS1)

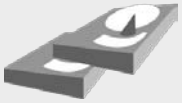
Source node

IP Address: 192.168.0.220

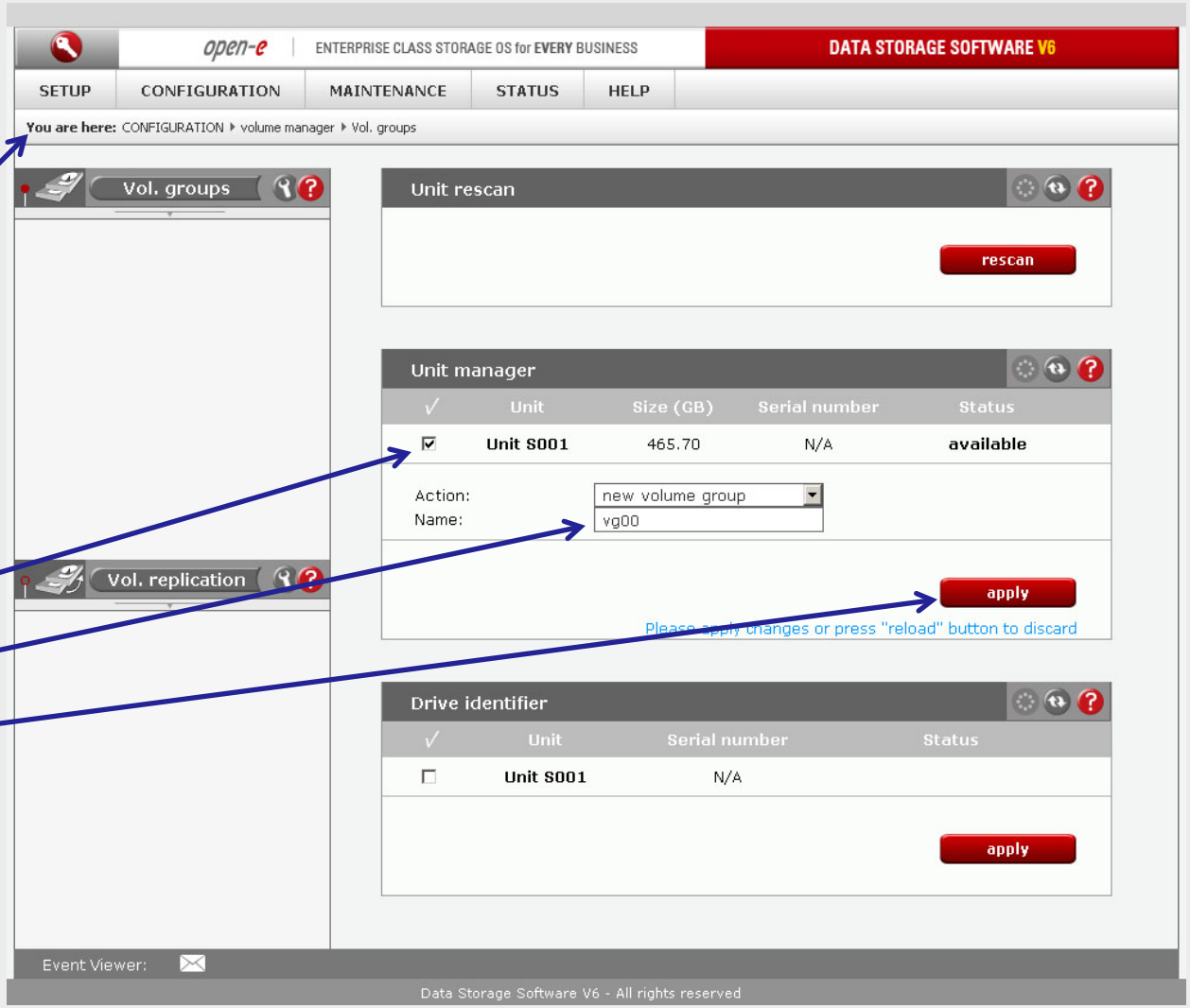
4. Configure the Source Node

Under the „CONFIGURATION" tab, select „volume manager" and Vol. groups.

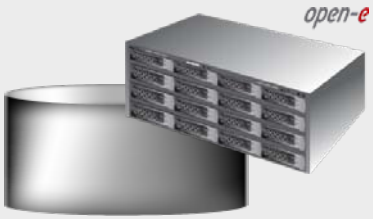
Volume Groups (vg00)



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



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

Source node

IP Address: 192.168.0.220

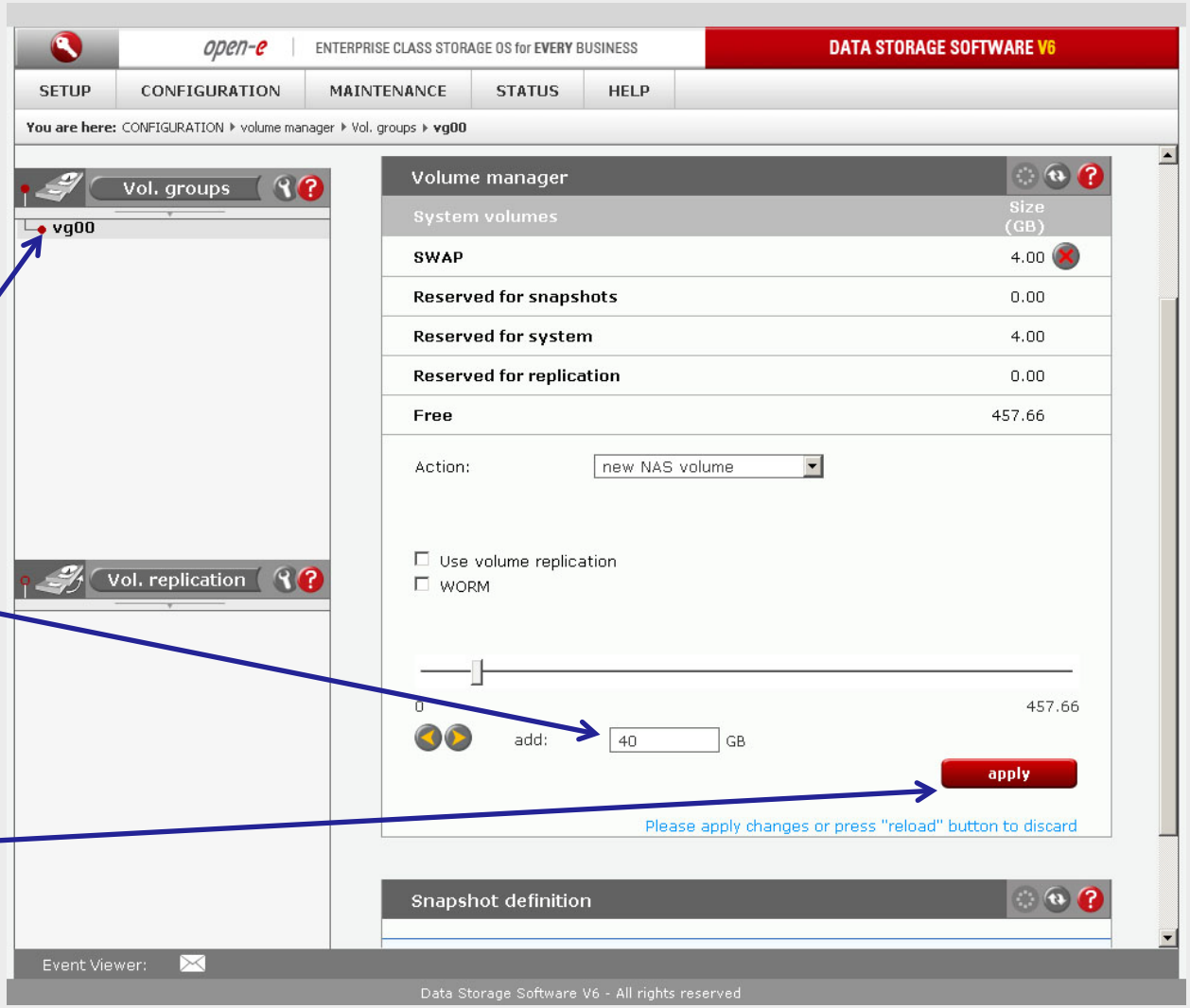
4. Configure the Source Node

Volume Groups (vg00)

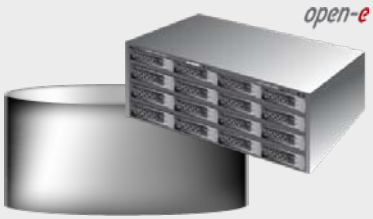
NAS volume (lv0000)

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 (File) Replication over a WAN



Data Server (DSS1)

Source node

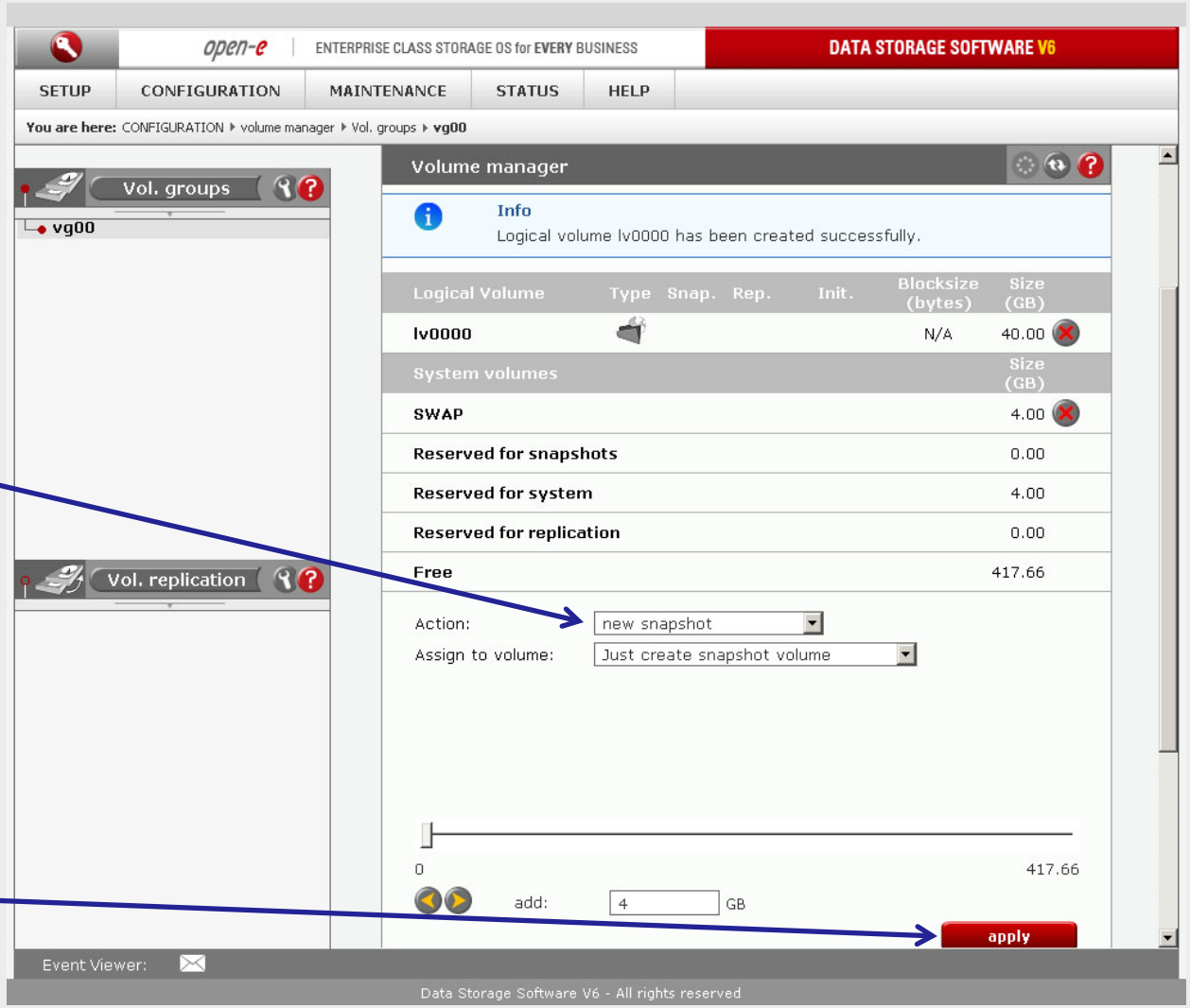
IP Address: 192.168.0.220

4. Configure the Source Node

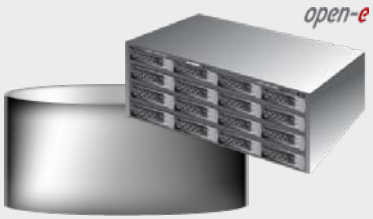
Snapshot

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 (File) Replication over a WAN



Data Server (DSS1)

Source node

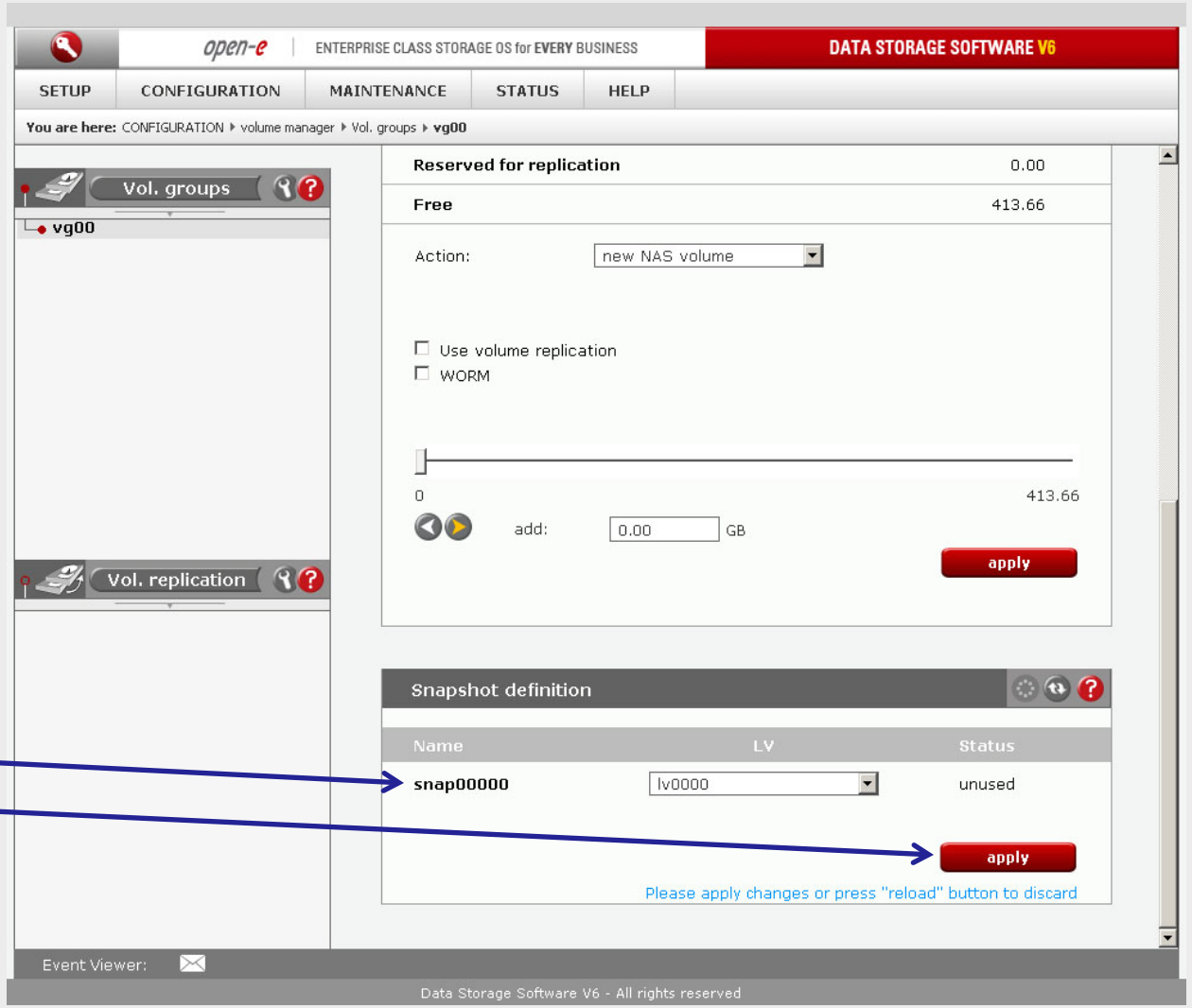
IP Address: 192.168.0.220

4. Configure the Source Node

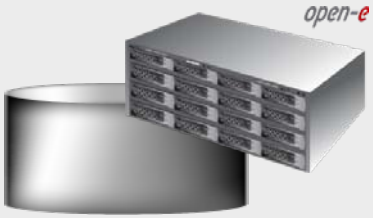
NAS volume (lv0000)

Snapshot

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



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

Source node

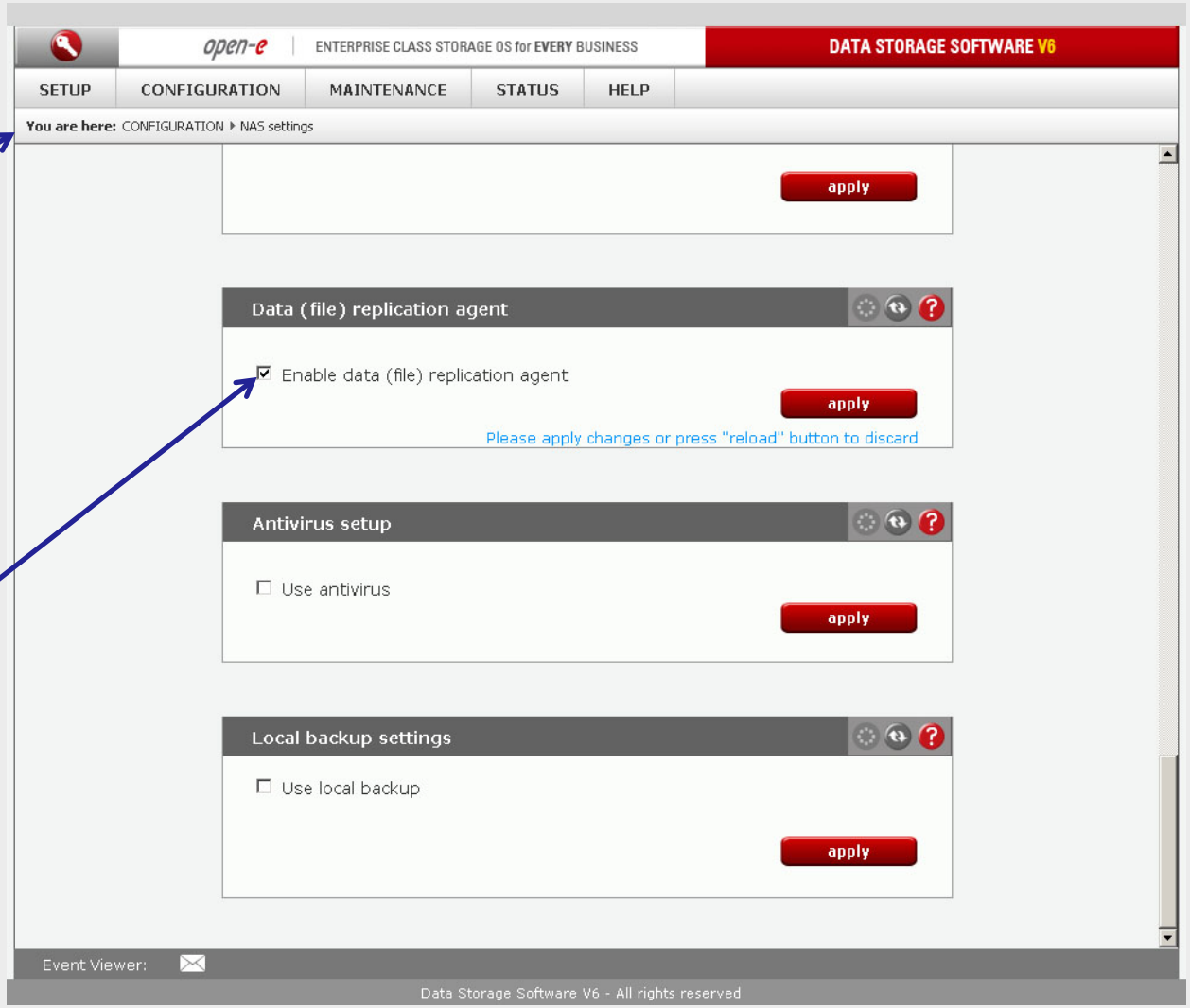
IP Address: 192.168.0.220

4. Configure the Source Node

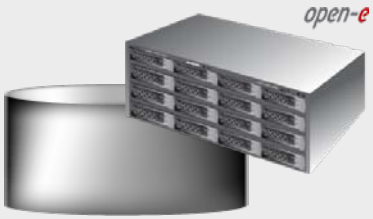
Under the „CONFIGURATION" menu, select „NAS settings"

Data (File) Replication

Check the Enable Data (File) Replication Agent box, and click the apply button.



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

Source node

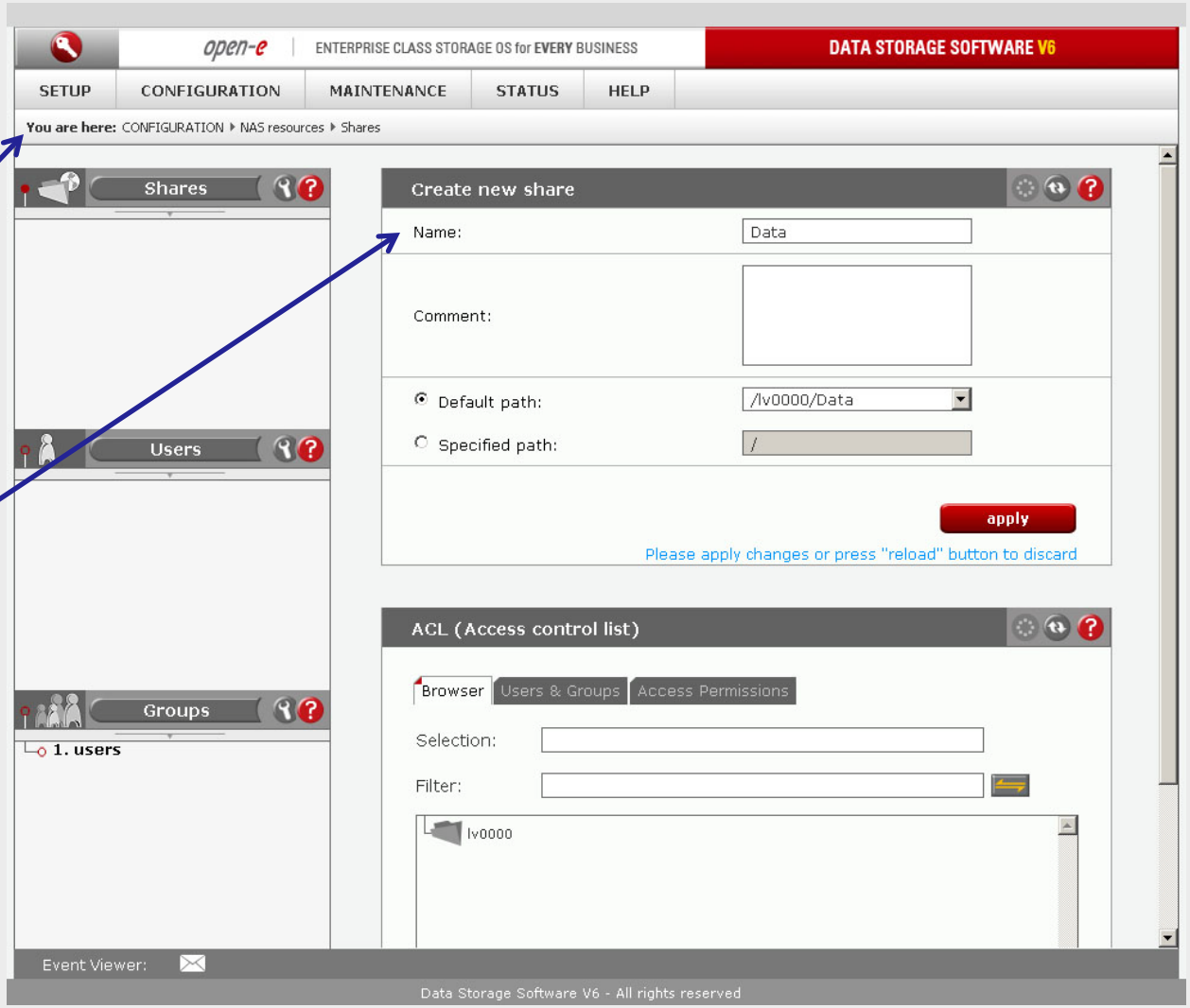
IP Address: 192.168.0.220

4. Configure the Source Node

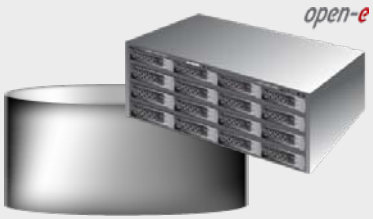
Under the „CONFIGURATION" tab, select „NAS resources" menu, to see a tree listing all the NAS shared volumes (Shares).

Shares: Data

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



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

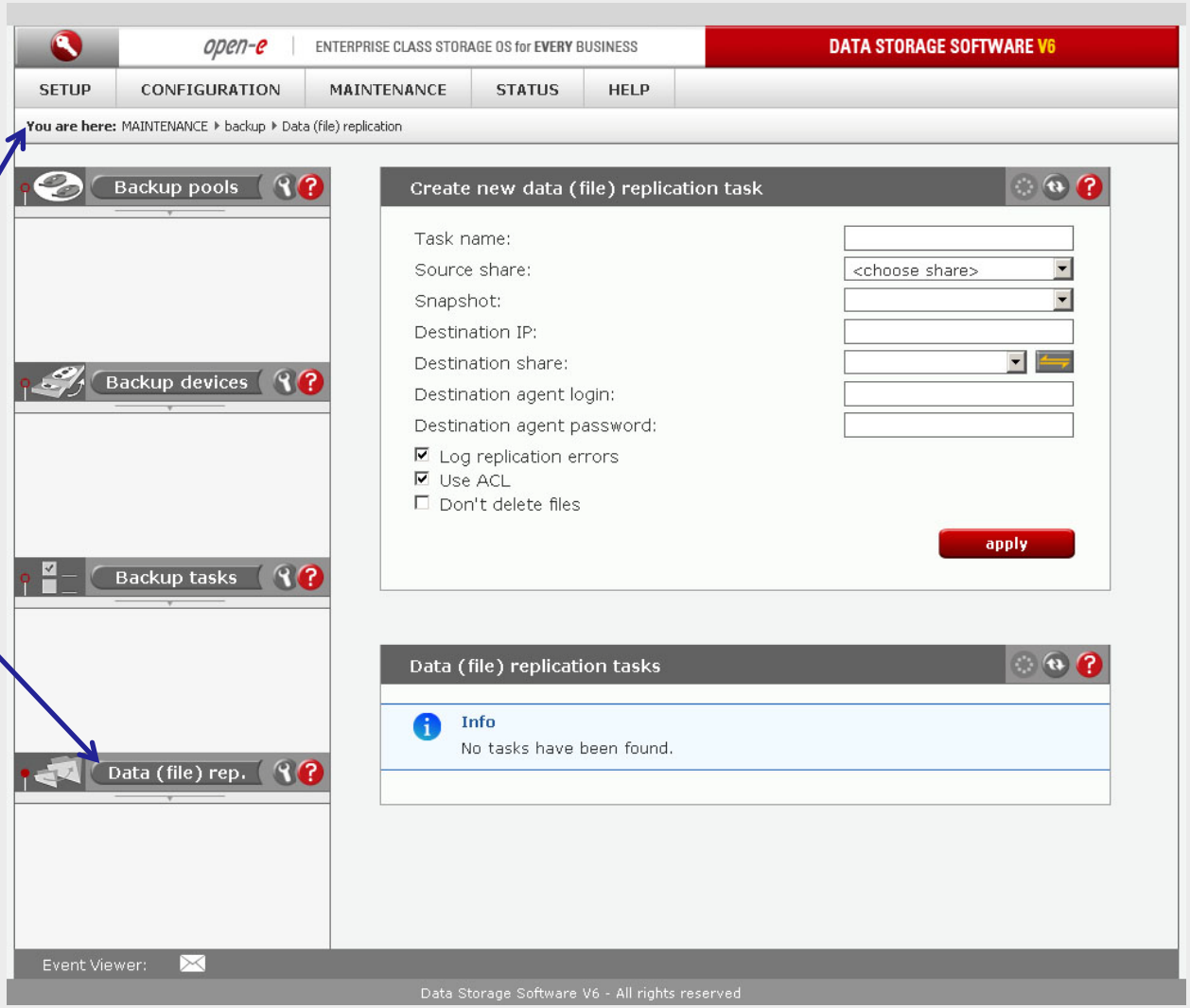
Source node

IP Address: 192.168.0.220

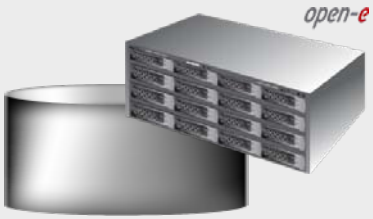
4. Configure the Source Node

After the share to be replicated has been configured, go to the „MAINTENANCE" menu and select „backup" to choose Data (file) replication.

Data (File) Replication



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

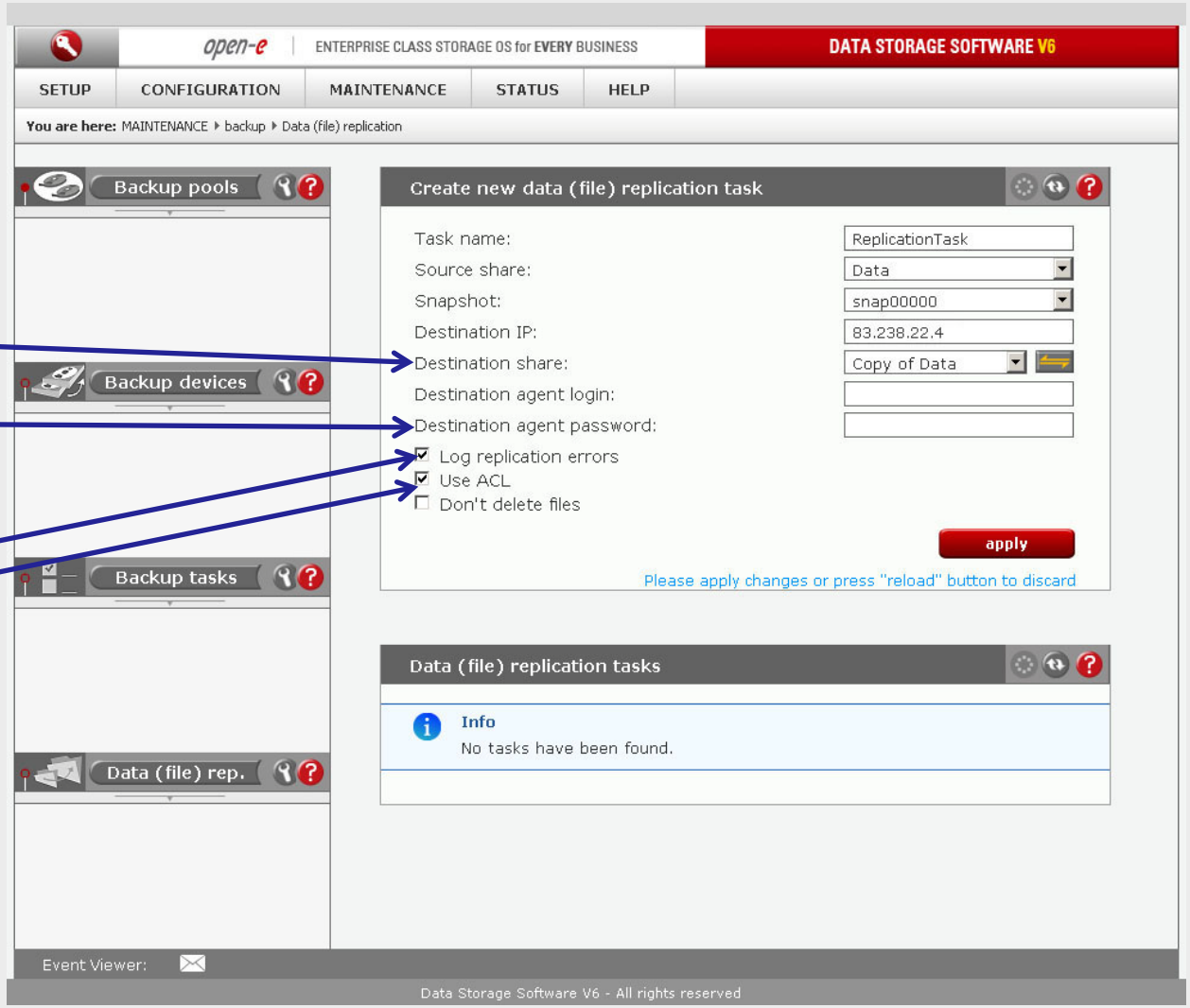
Source node

IP Address: 192.168.0.220

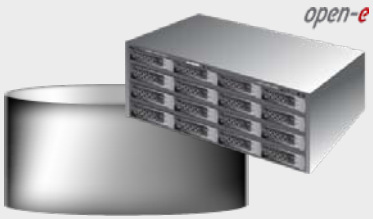
4. Configure the Source Node

Select the source share to be replicated. Under **Create new data (file) 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, 83.238.22.4) 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 is appear. Click on the **apply** button.



Setting up Asynchronous Data (File) Replication over a WAN



Data Server (DSS1)

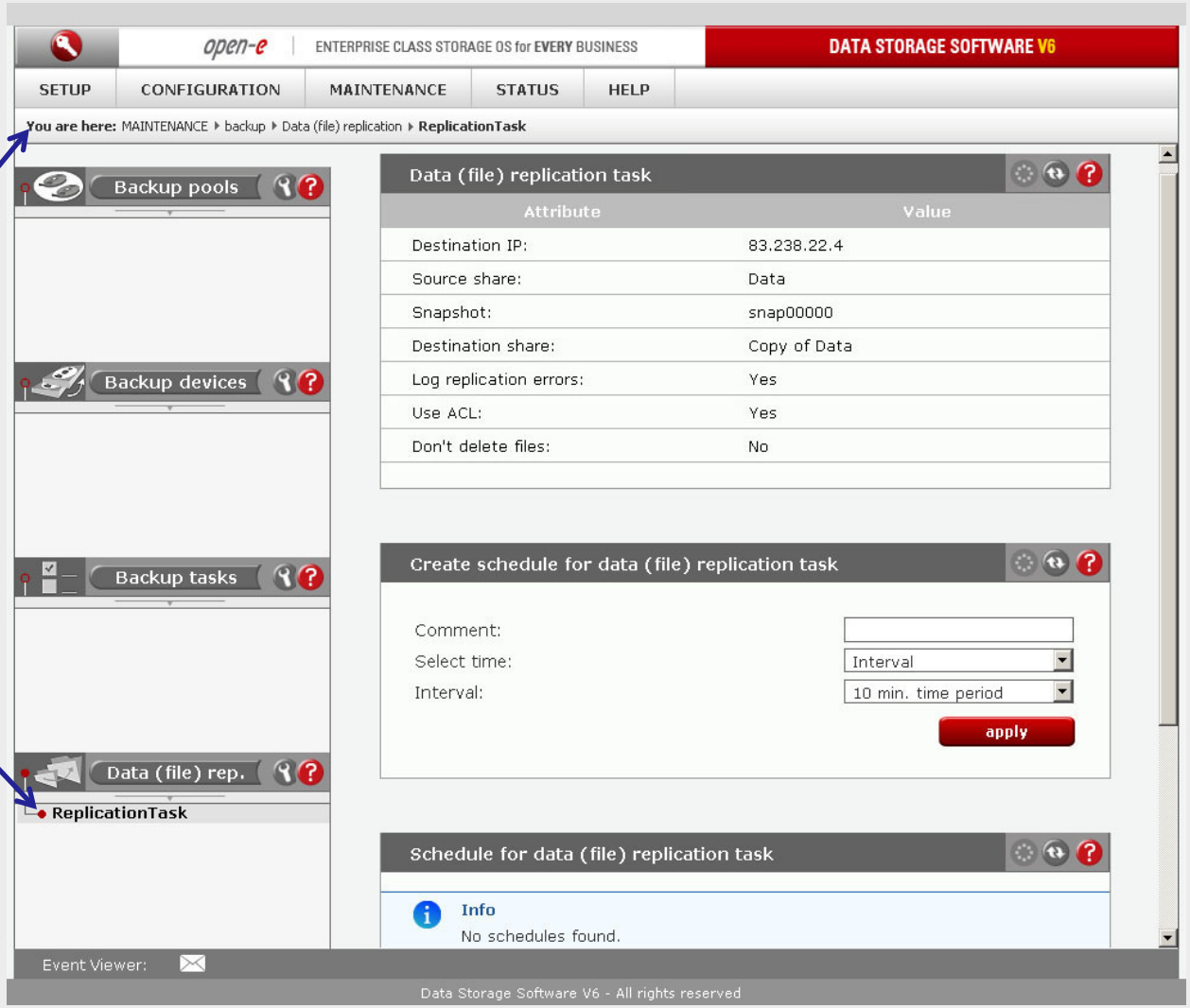
Source node

IP Address: 192.168.0.220

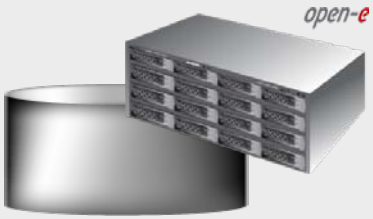
4. Configure the Source Node

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

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



Setting up Asynchronous Data (File) Replication over a WAN



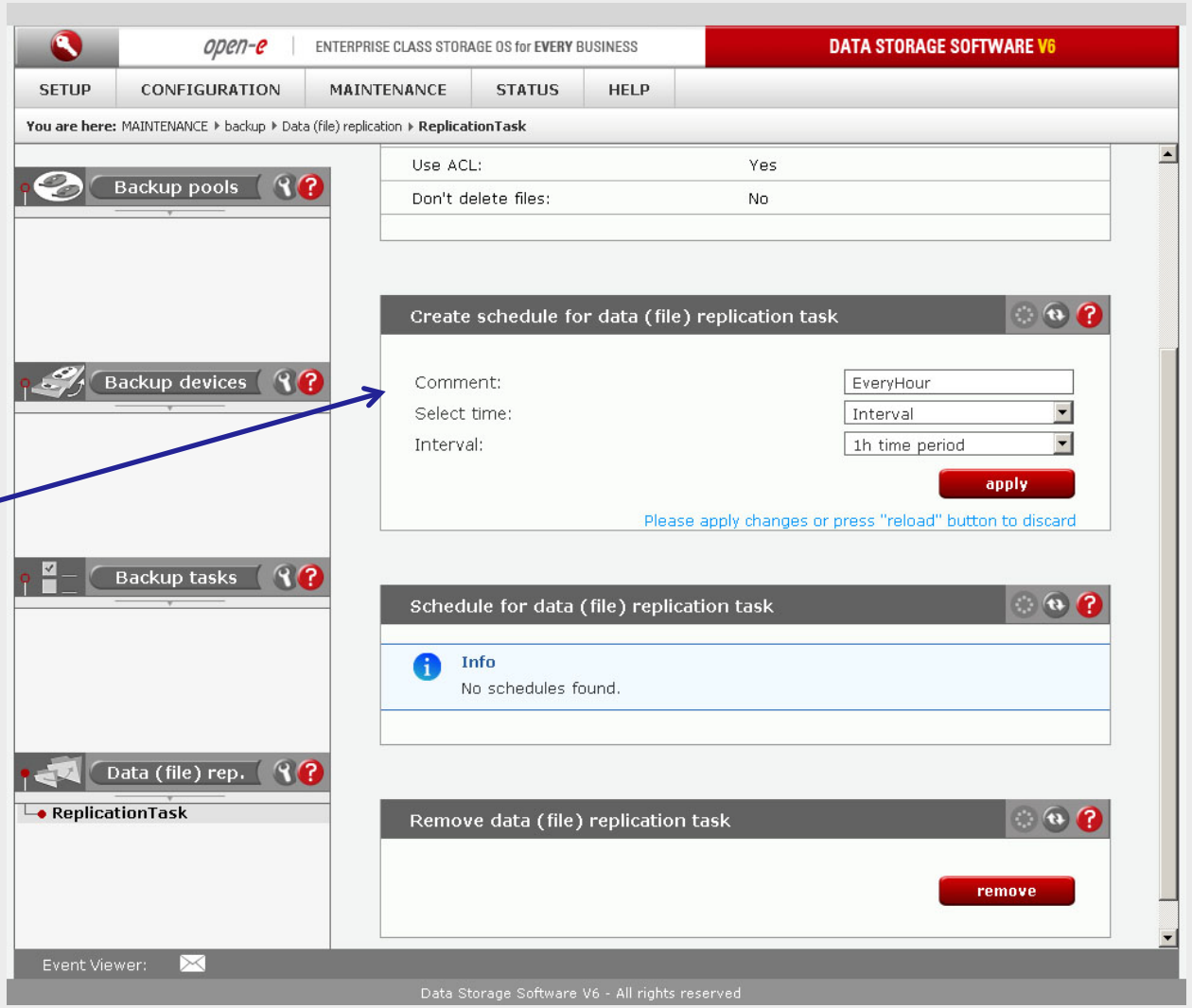
Data Server (DSS1)

Source node

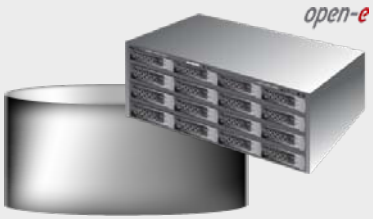
IP Address: 192.168.0.220

5. Configure Schedule replication

Using the Create schedule for data (file) replication task function, set the desired replication schedules or explicitly start, stop and delete Data (File) Replication tasks, as desired.



Setting up Asynchronous Data (File) Replication over a WAN



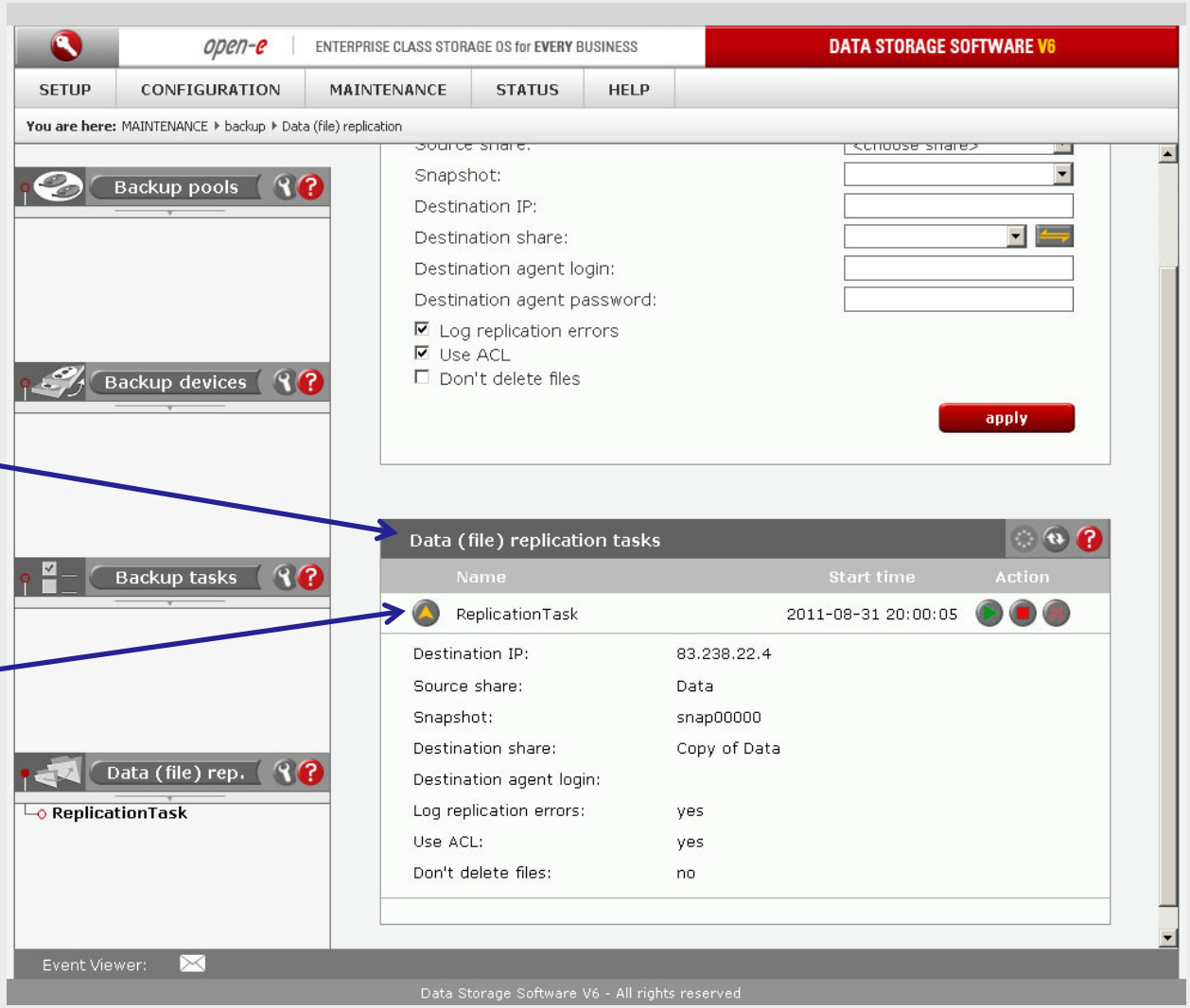
Data Server (DSS1)

Source node

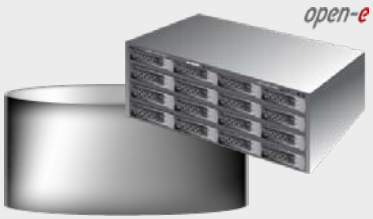
IP Address: 192.168.0.220

6. Check the status Data (File) Replication

In Data (file) replication tasks function set the desired Data (File) Replication to start, stop and delete tasks.
Click on the button with task name (in this case ReplicationTask) to display detailed information on the current replication task (the replication task running at 8 pm.



Setting up Asynchronous Data (File) Replication over a WAN



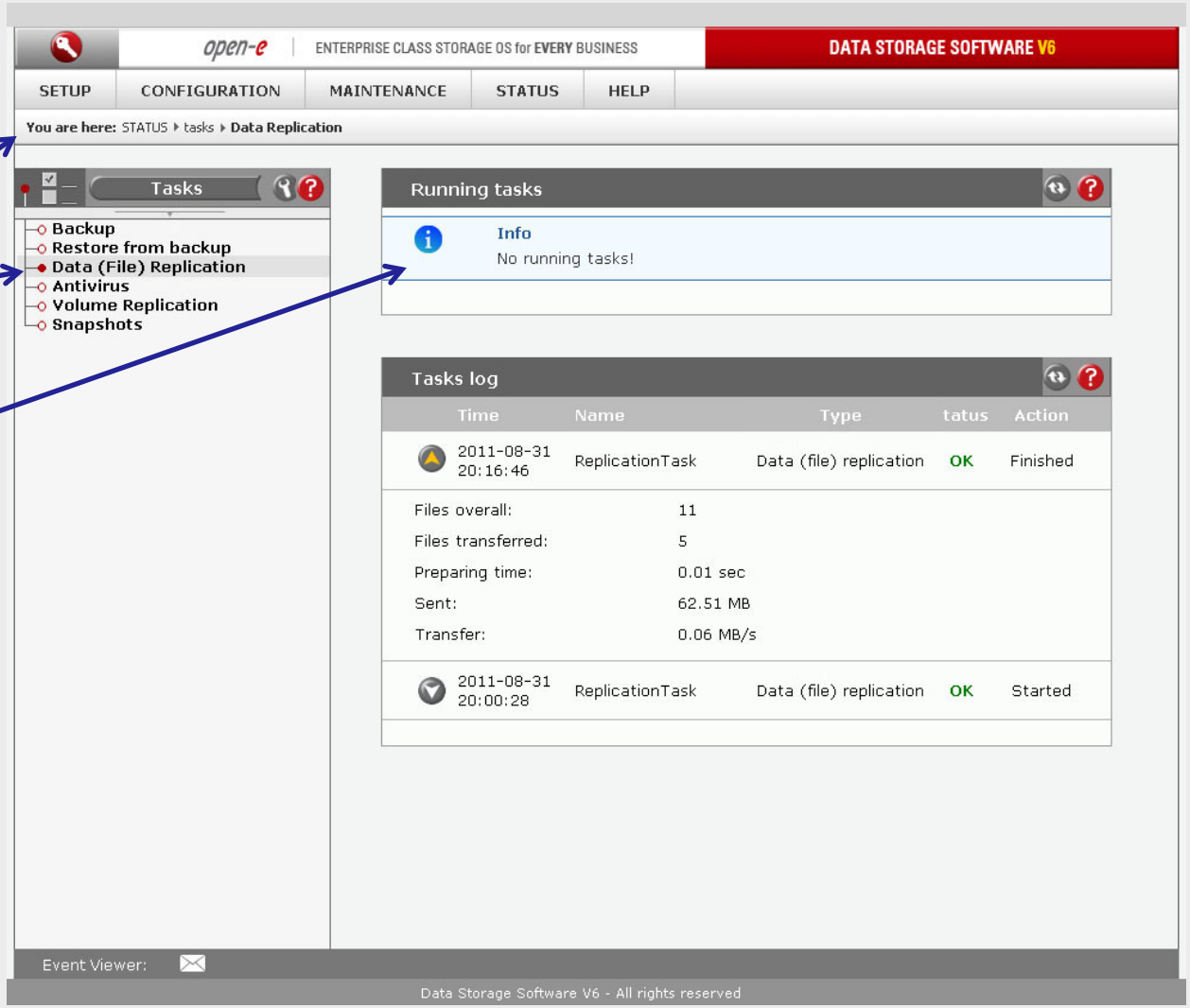
Data Server (DSS1)

Source node

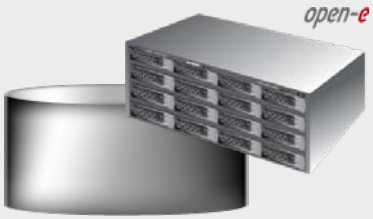
IP Address: 192.168.0.220

6. Check the status Data (File) Replication

To obtain detailed information about the progress of Data (File) Replication tasks, under the „STATUS" menu, select „tasks". Next click Data (File) Replication tasks and select the Tasks.



Setting up Asynchronous Data (File) Replication over a WAN



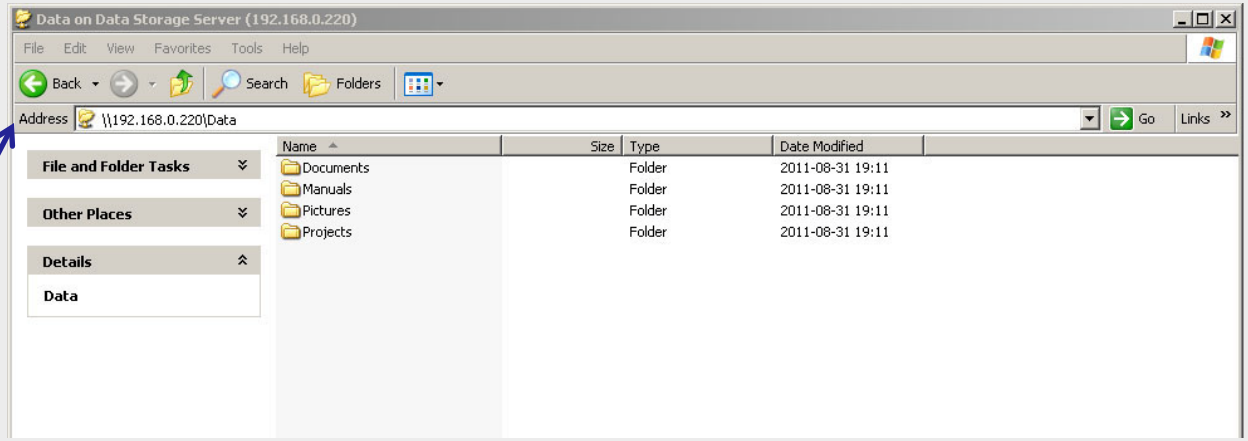
Data Server (DSS1 and DSS2)

Source and Destination node

IP Address: 192.168.0.220 and 83.238.22.4

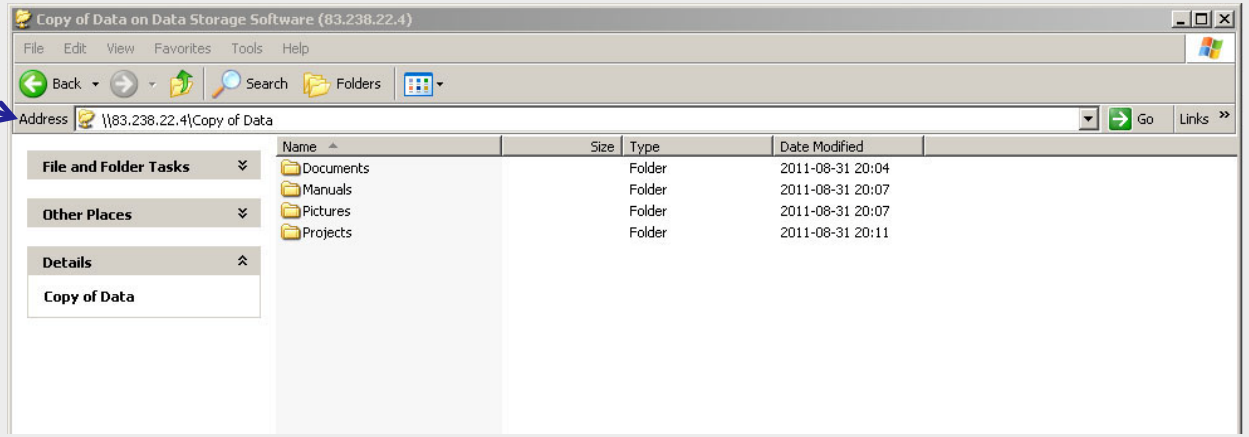
6. Check the status Data (File) Replication

Share: Data



After the end of the Data (File) Replication task all data from the „Data" share are available on the "Copy of data" share.

Share: Copy of Data



The configuration of the source and destination nodes for asynchronous Data (File) Replication is now complete.

Thank you!