open-e

# Open-E® Data Storage Server (DSS™)

# Volume Replication

## INSTALATION GUIDE

**Enterprise-class Volume Replication helps ensure non-stop access to critical business data.**

## Open-E DSS Volume Replication

Open-E Data Server Storage (DSS) offers enterprise-class Volume Replication capability to help you protect business data against system failure, cyber-attack, fire or natural disaster, all at no extra cost! Because Open-E DSS provides integrated management for all your data - iSCSI, NAS, and Fiber Channel - all your enterprise data can be protected with one low-cost, easy-to-use solution.

## How does it works?

Open-E DSS Volume Replication can be set up in just a few minutes to mirror target data volumes, providing an extra layer of fault tolerance in case of system downtime or loss of the primary data source.

By allocating one target as the primary data storage device and the second as a destination, you can ensure data will be written synchronously to both targets using a dedicated network connection. Volumes can be replicated at either the file level or the block level. Because the primary target is replicated in real time, the data will be immediately available if the primary storage system is down or damaged. The system accommodates up to 256 Logical Unit Numbers (LUNs) per target, and up to 4TB per volume. Adjustable bandwidth throttling helps to ensure continuous top performance.[1]

[1] We recommend a dedicated 1GbE NIC for replication. Replication volume should not exceed 60MB for 1GbE. With 10GbE NICs, the volume can be higher.

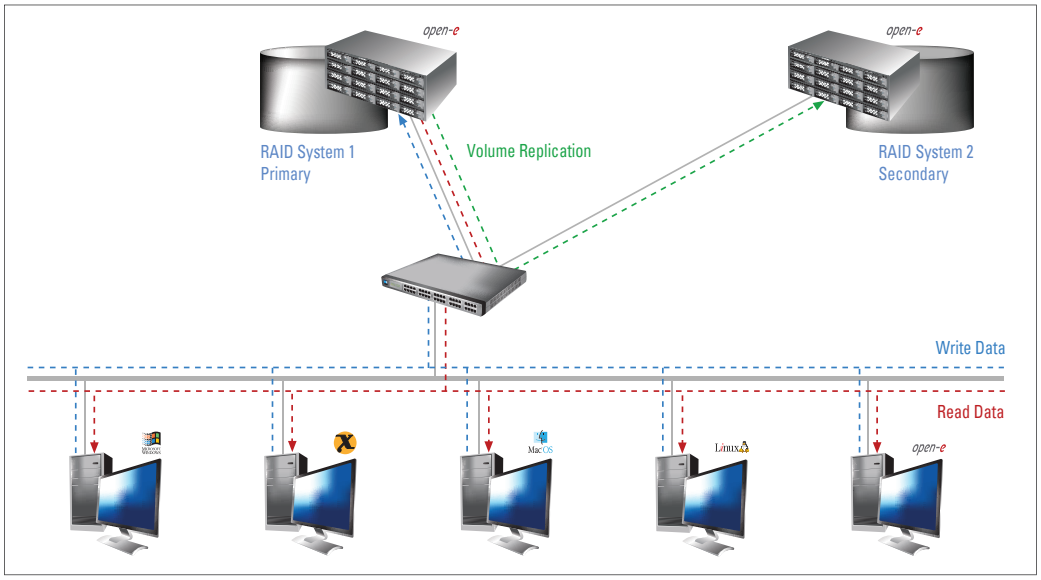



**Figure 1**
Data is written and read to a primary Open-E DSS Server (system1) and synchronously copied to a secondary Open-E DSS Server (system 2) via Open-E DSS Volume Replication.

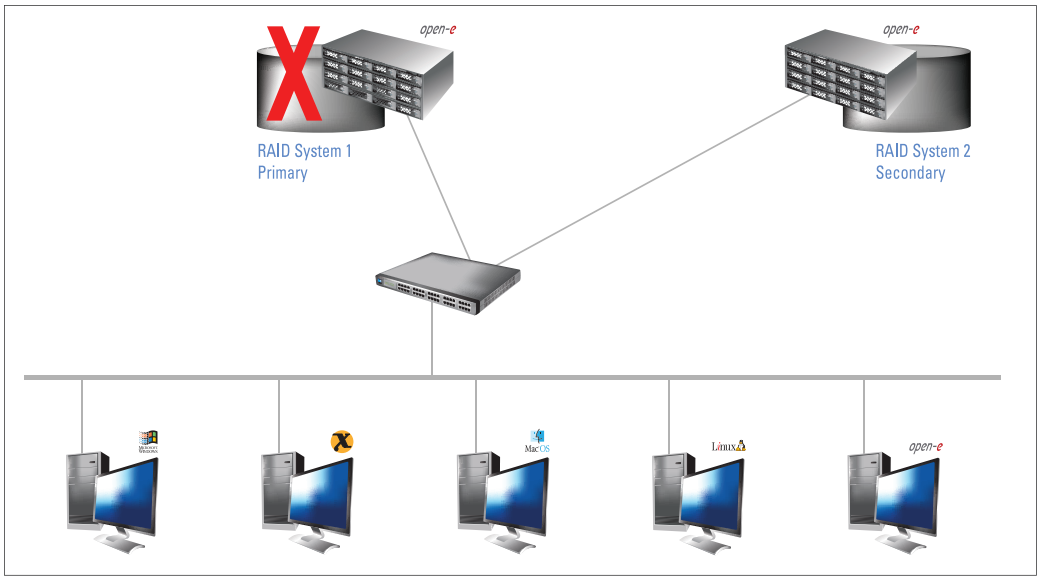



**Figure 2**
In the event of raid array error or disk drive error on the primary Open-E DSS Server (system 1), the server will send an e-mail notification to the administrator and users will be notified. The administrator then switches users to the secondary Open-E DSS Server (system 2).

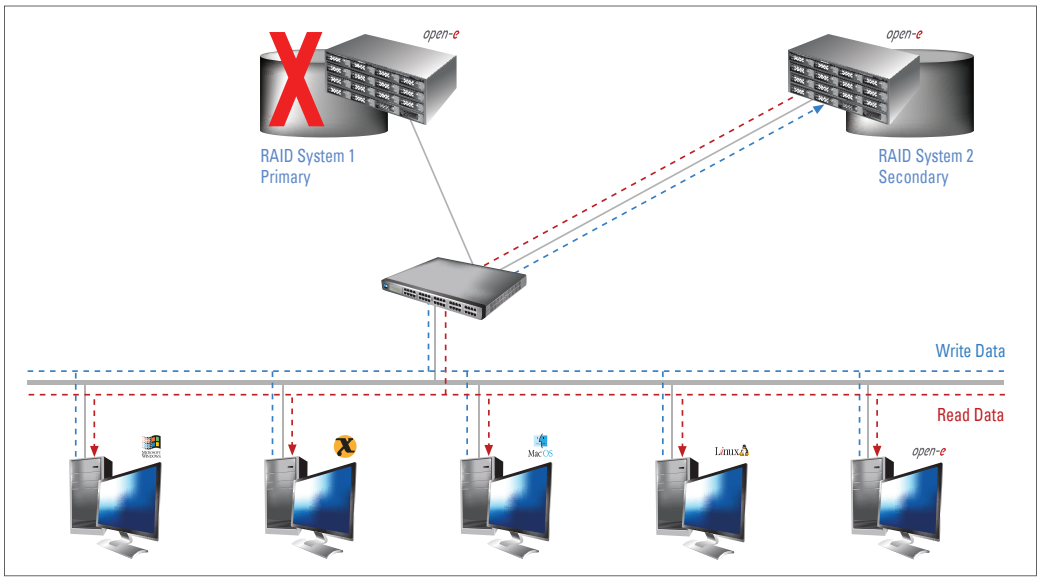



**Figure 3**
The replicated volumes are now available to users on the secondary Open-E DSS Server (system 2).

Open-E DSS supports IP security (IPsec), a standard for securing IP communications by encrypting and authenticating all packets. This provides extra security for the network layer to protect enterprise data as it is replicated and accessed from local or remote primary and secondary storage servers.

## Volume Replication Usage Models

### Volume Replication for Disaster Recovery

Open-E DSS Volume Replication provides synchronous replication to copy critical company data from NAS, iSCSI and/or Fibre Channel networks to a secondary site. If the primary server fails for any reason, the secondary server can be up and running as the primary server with just a few mouse clicks. You can also use Open-E DSS Automatic Failover to automatically switch over to secondary storage in case of failure.

### Integrated Data and Volume Replication at No Extra Cost

Open-E DSS offers both asynchronous Data Replication and Synchronous Volume replication to provide zero-data-loss protection for your critical company data, at no extra cost! For example, when a system administrator is notified that failover has occurred with the Open-E DSS Automatic Failover feature, they can immediately apply incremental changes from Open-E DSS Data Replication to bring the secondary data source right up to pre-failure state. The combination of these features lets you maintain multiple complete copies of data on remote servers over local area networks (LANs) or wide area networks (WANs) using the integrated block-based replication technologies.

## Configuring Open-E DSS Volume Replication

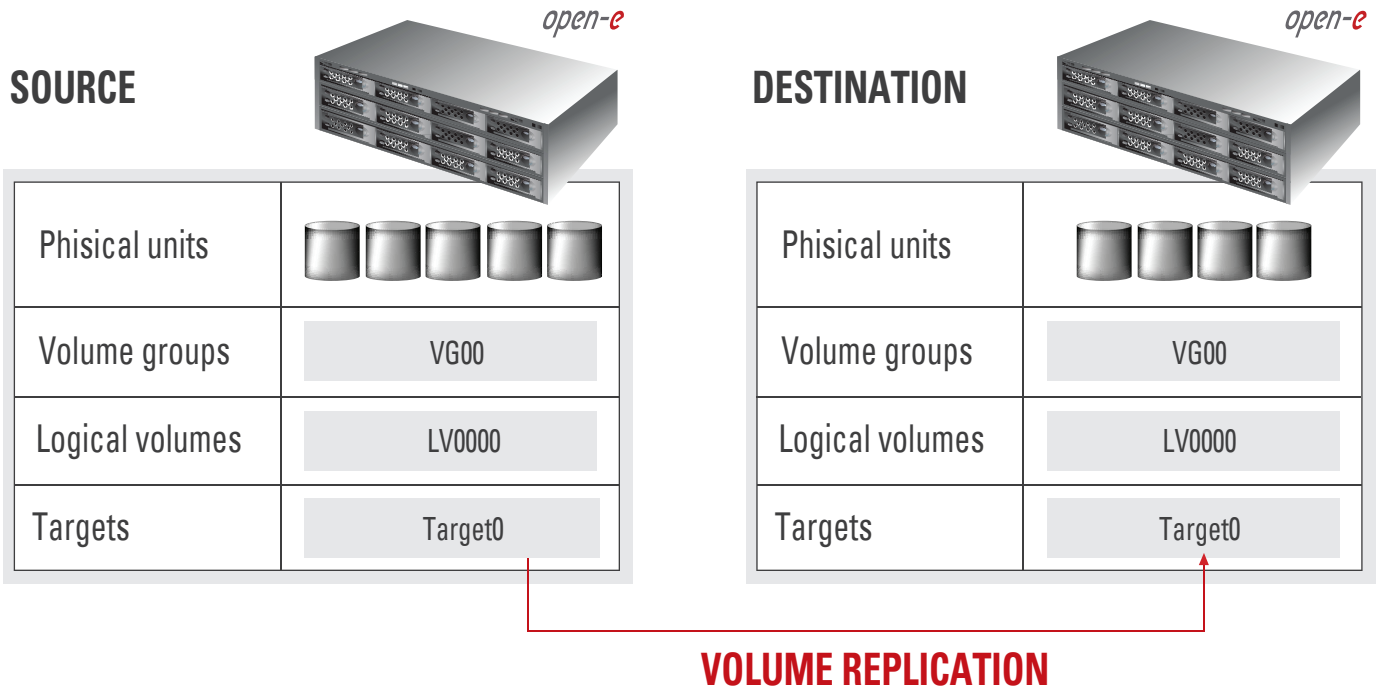
### Hardware Requirements

The Volume Replication feature of Open-E DSS requires two storage servers. The destination volume should be exactly the same size as the source volume.

### Hardware Requirements

To configure Volume Replication in Open-E DSS, you must first configure the destination and source systems.

> **NOTE**
> The volumes to be replicated must be exactly the same size.




**Picture** How volume replication works

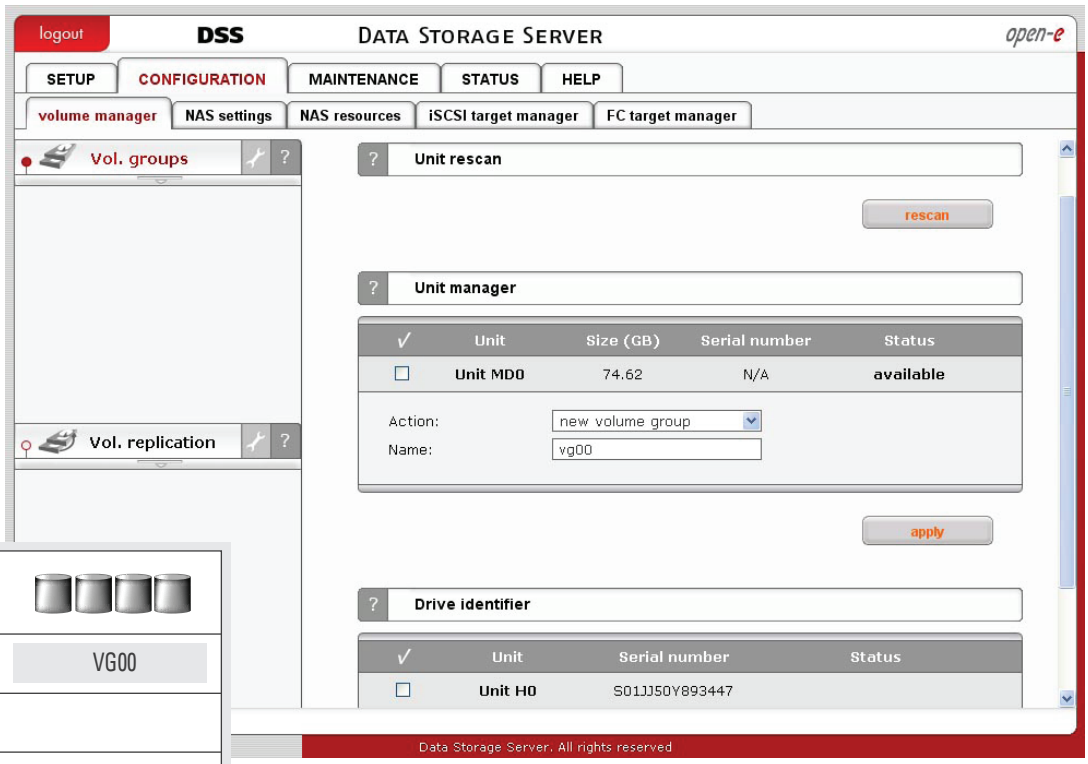
## SOFTWARE CONFIGURATION

To set up volume replication, perform the following steps:

1. Configure the destination node
2. Configure the source node

## Step 1 Configure the Destination Node

1. In the CONFIGURATION tab under Volume Manager, create a new volume group (vg00).

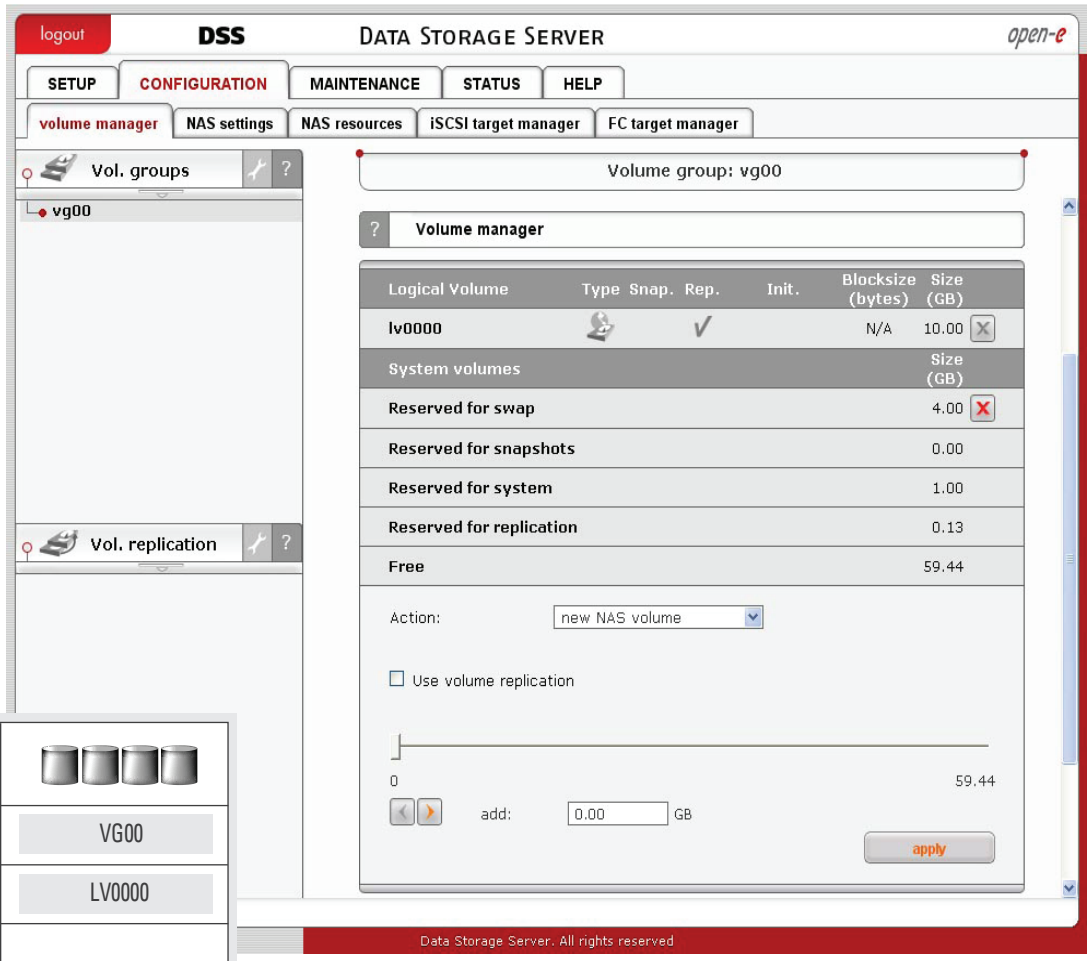



**DESTINATION**

| | |
|---|---|
| Phisical units | |
| Volume groups | VG00 |
| Logical volumes | |
| Targets | |

**Picture** Creating a new volume group.

2. Under **CONFIGURATION** on the **Volume Manager** tab, select the appropriate volume group within the volume group function. Create the logical volume that will be the destination for the replication process. Remember to enable **Volume Replication**, as shown below:



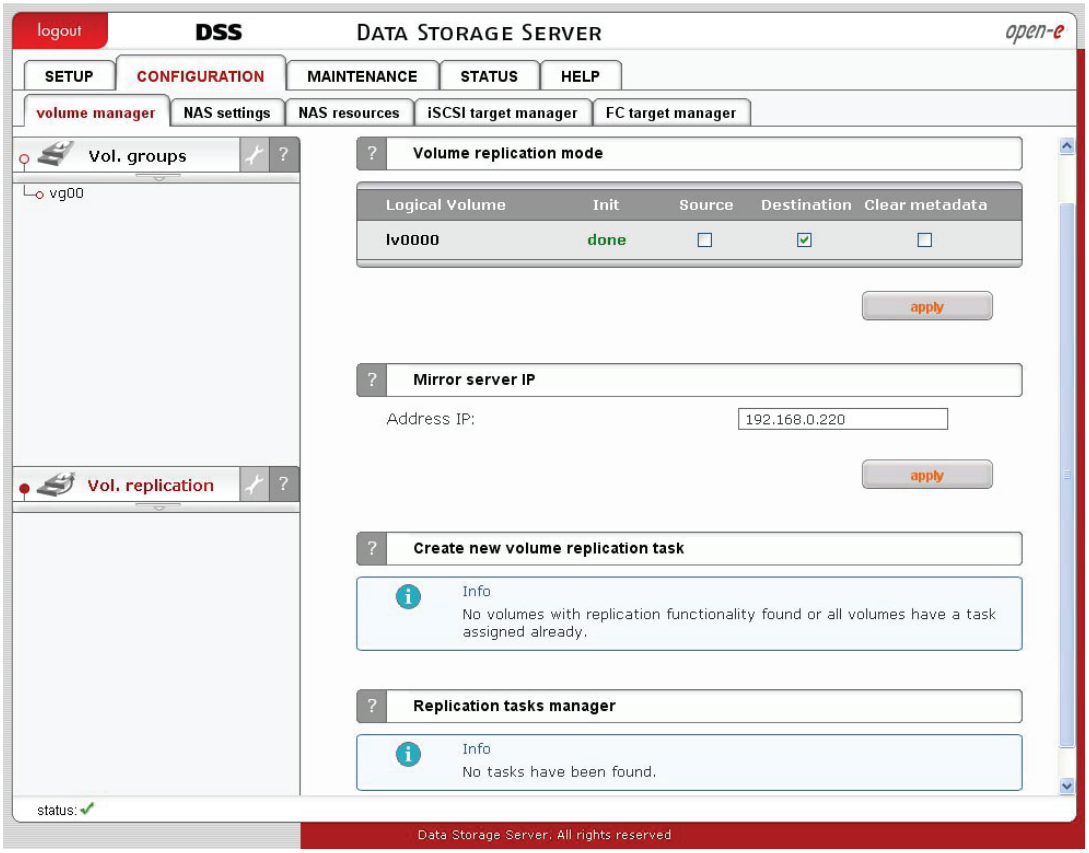

**DESTINATION**

| | |
|---|---|
| Phisical units | |
| Volume groups | VG00 |
| Logical volumes | LV0000 |
| Targets | |

**Picture** Creating the logical volume that will be the destination.

3. Under **Volume Manager**, check the destination box within the **Volume Replication Mode** function, then click the apply button.

4. Under **Mirror Server IP** function, enter the IP address of the source node. In our example, this would be 192.168.0.220.

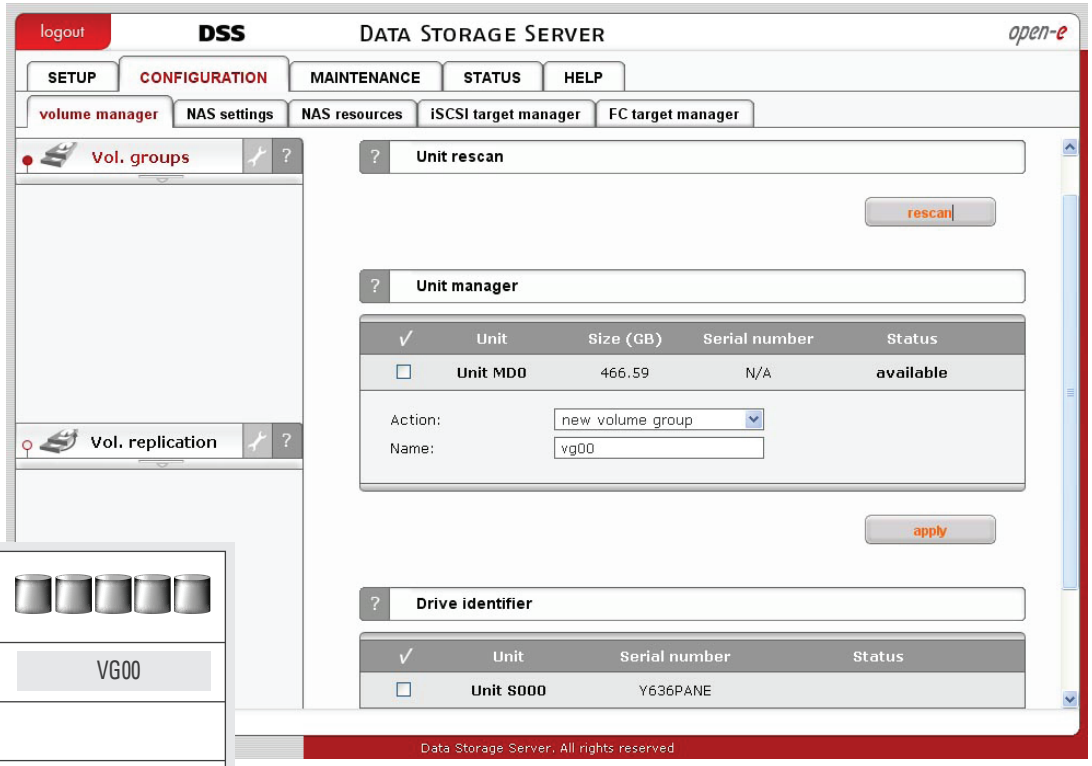



**Picture** Providing the IP address of the source node.

## The destination node is now configured.

## Step 2 Configure the Source Node

1. Under the **CONFIGURATION** tab, create a new volume group (vg00).




**SOURCE**

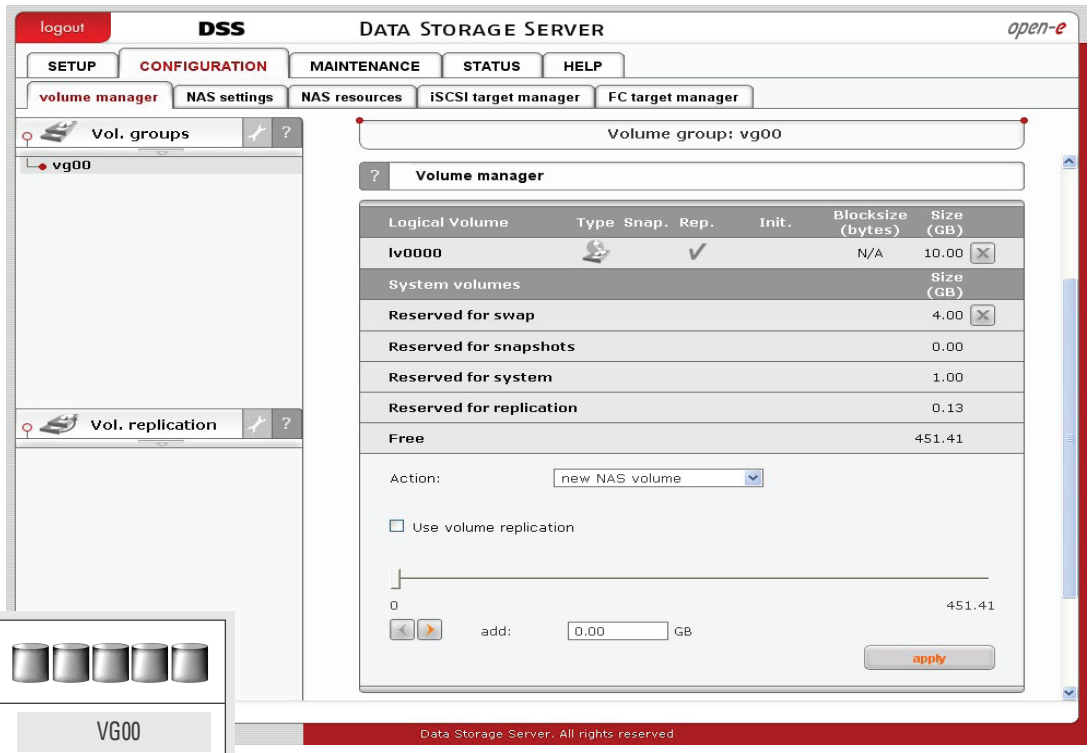
| | |
|---|---|
| Phisical units | |
| Volume groups | VG00 |
| Logical volumes | |
| Targets | |

**Picture** Creating the new volume group.

2. Identify the source volume to be replicated.

3. Under the **CONFIGURATION** tab, click on **Volume Manager** and select the applicable volume group (vg00) within the Volume group function.

> **NOTE**
> The source and destination volumes must be of identical size. Remember to enable Volume Replication.




**SOURCE**

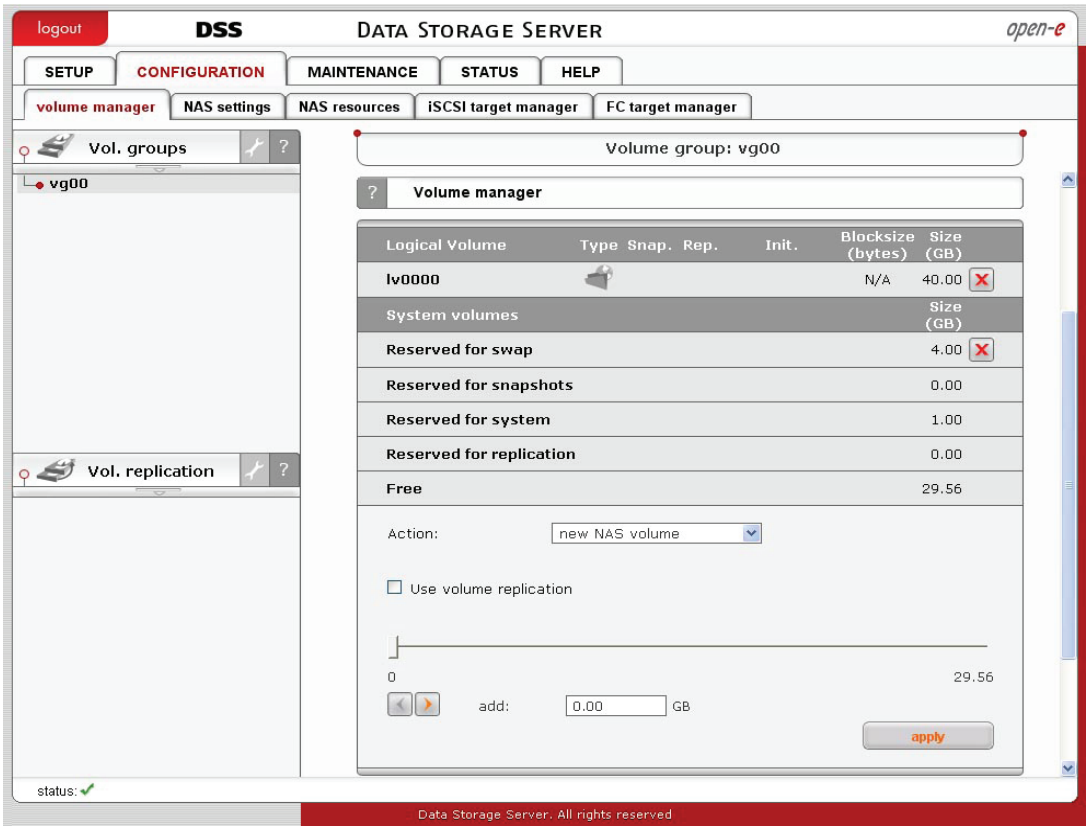
| | |
|---|---|
| Phisical units | |
| Volume groups | VG00 |
| Logical volumes | LV0000 |
| Targets | |

**Picture** Selecting the volume group.

4. Under **Volume Manager** in the **Volume Replication Mode** function, check the **Source** box for the source volume to be replicated.

5. In the **Mirror Server IP** function, enter the IP address of the destination node. In our example, this would be 192.168.0.240.

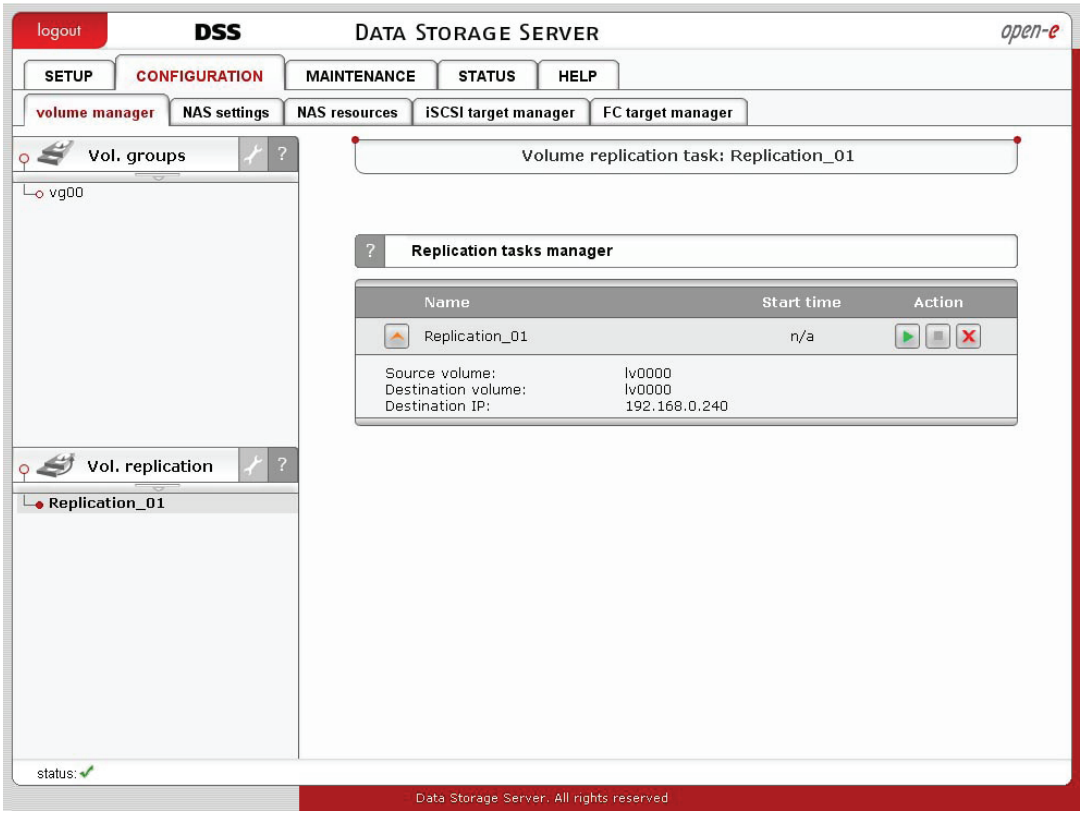
6. Next, access the **Create New Volume Replication Task** function and enter the name in the **Task Name** field (here, **Replication_01**), and choose the appropriate destination volume using the button.




**Picture** Choosing the destination volume.

7. After the DSS console has reloaded, you can start, stop or delete the task within the **Replication Task Manager** function.

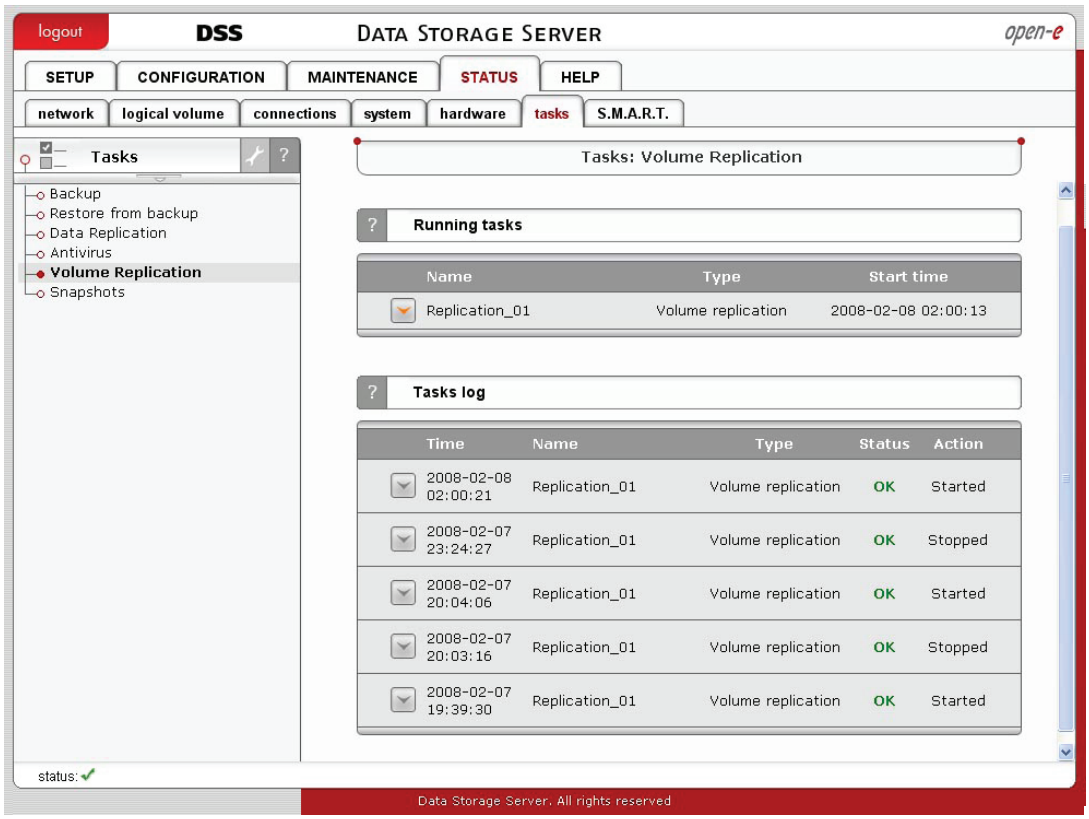
**NOTE**
Once the replication process has started, the replication direction cannot be changed.



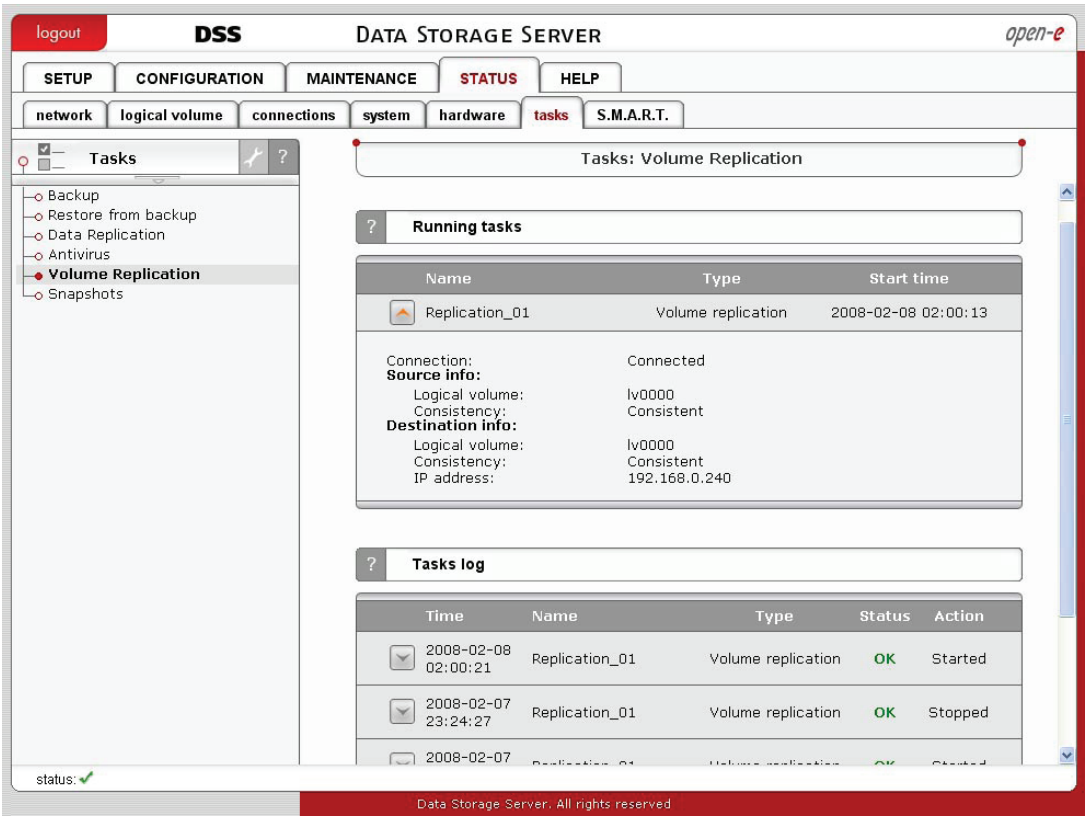

**Picture** Starting, stopping or deleting the replication task with the Task Manager.

**8.** Check the status:

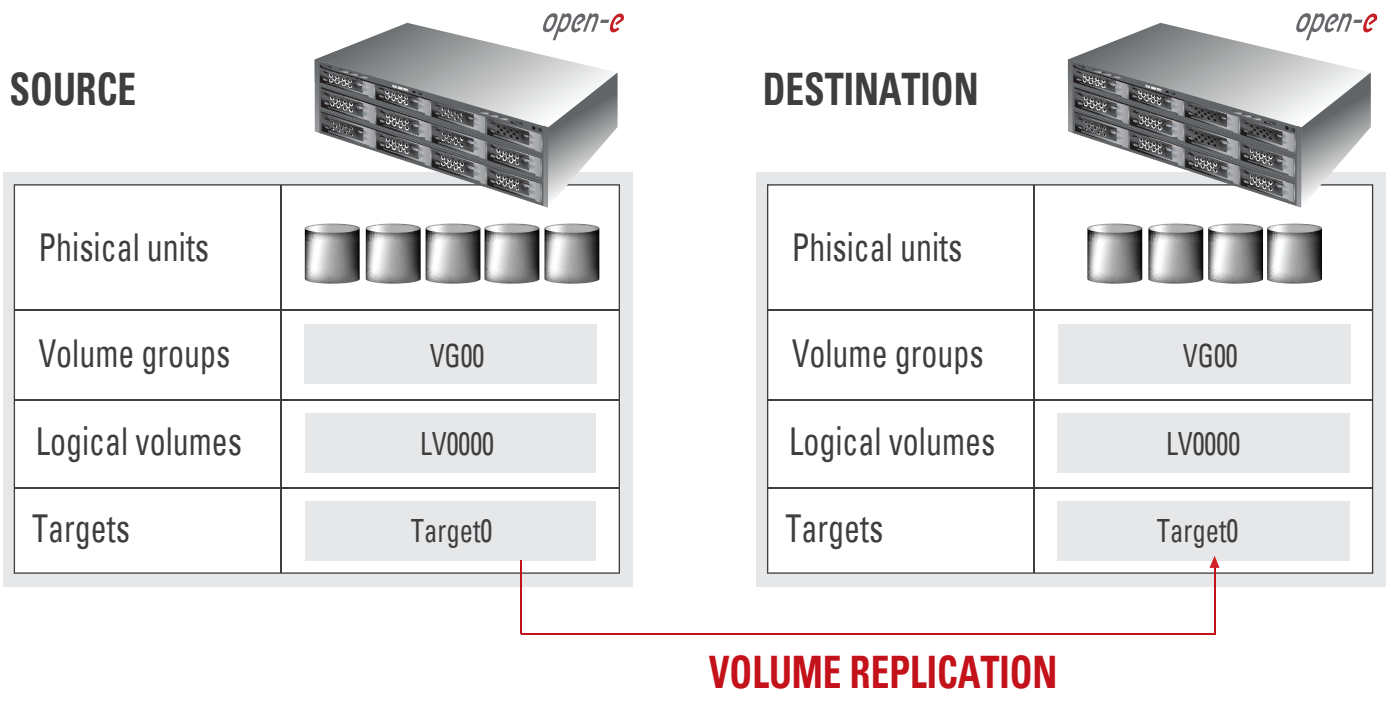
- To see current replication tasks, refer to the **STATUS** tab under **Tasks**, as shown in the figure below.
- Select **Volume Replication** under **Tasks** to display information on existing volume replication tasks.
- Click to display detailed information on the current replication task.




**Picture** Checking the status of current replication tasks.




**Picture** Showing the changing status of the replication task currently running.




**Picture** The completed setup.

## Open-E DSS Volume Replication, between source and destination nodes, is now complete!


# About Open-E

Open-E IP-based storage management products are known throughout the storage industry for their best-in-class performance, reliability, scalability and ROI. The Open-E **DSS**, **NAS-R3** and **iSCSI-R3** line of products offer outstanding flexibility and value with the ability to support a variety of storage protocols, such as iSCSI, Fibre Channel or Infiniband (IPoIB), in either file or block data transmission.

Open-E works extensively with leading technology vendors, allowing system integrators to build affordable, scalable and secure storage systems on a variety of industry-standard hardware platforms.


## LEARN MORE

To find out more about Open-E DSS, go to **www.open-e.com** or contact us at **1-781-481-9399**