How to Configure Windows Fibre Channel MPIO with AccelStor NeoSapphire

Version History

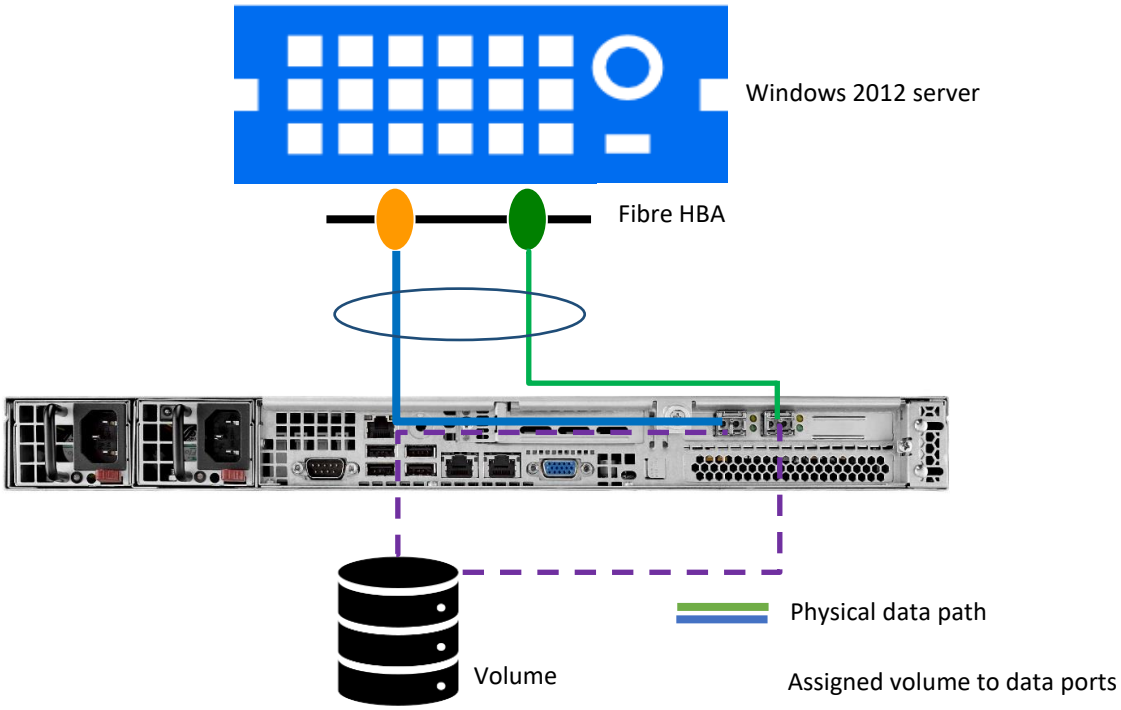
Version	Changed	Date
V1.0	First release	20170427

Introduction

Already supported by the majority of OS platforms, Microsoft Multipath I/O (MPIO) optimizes storage performance and provides fault-tolerant connectivity to storage. This document addresses how to configure Windows 2012 Fibre Channel (FC) MPIO with AccelStor NeoSapphire.

- If you are not familiar with how to make Windows identify volumes from an AccelStor NeoSapphire all-flash array using a Fibre Channel connection, please refer to the document entitled "How to Make Windows Identify Volumes from AccelStor NeoSapphire using Fibre Channel Connection" before proceeding.

Use Case



Multipath I/O recognizes and manages redundant data paths to an individual volume (refer to the physical cabling of the red and green lines in the Use Case diagram). It ensures greater reliability through a path failover mechanism in the event of cabling or component failure, and multiple data paths can be employed to provide greater aggregate throughput than one path can provide.

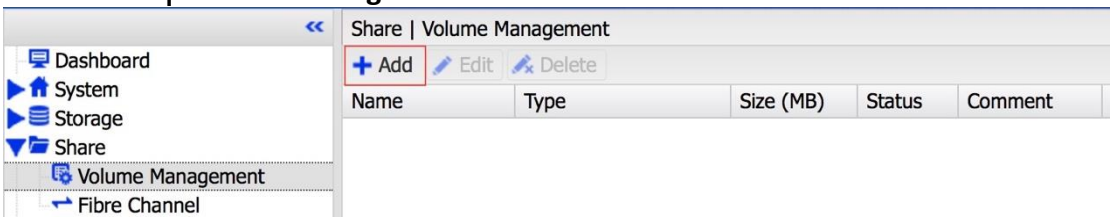
Please note:

• This scenario uses a direct attached storage structure to demonstrate how to configure Windows FC MPIO with AccelStor NeoSapphire.

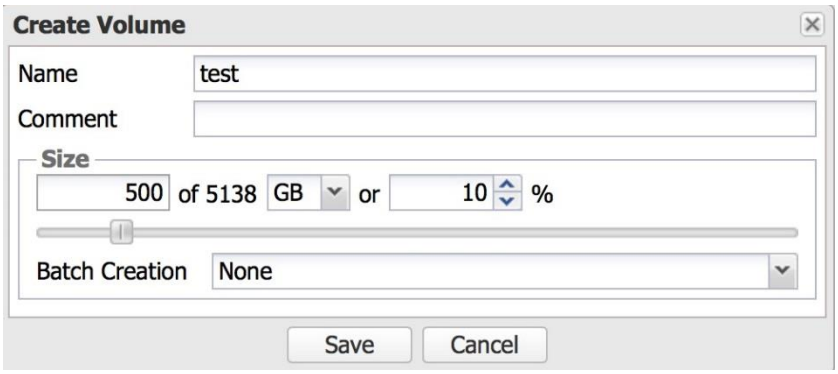
• Actual field deployment usually has a switch configured in between the host and storage, so the paths can be more flexibly adjusted.

NeoSapphire

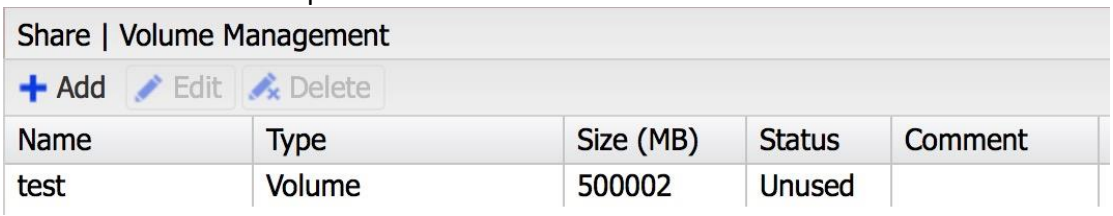
Go to **Share | Volume Management** > **Add**.



Enter the volume name and size.

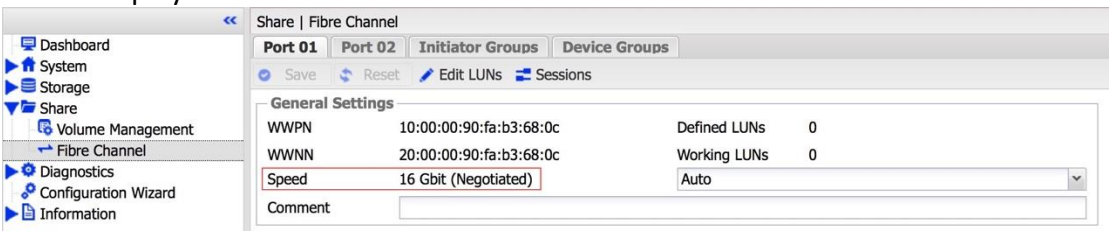


Volume creation is completed.

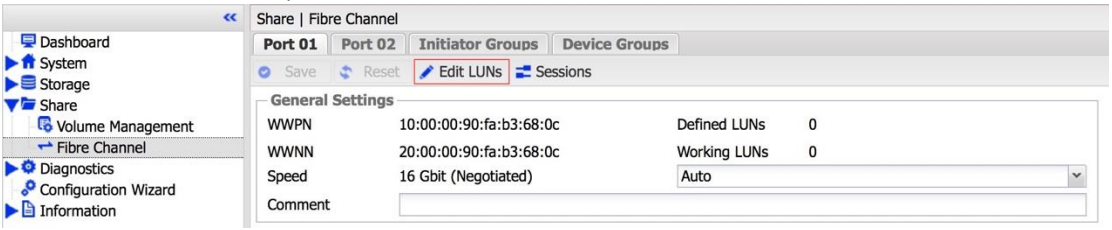


Go to **Share | Fibre Channel**

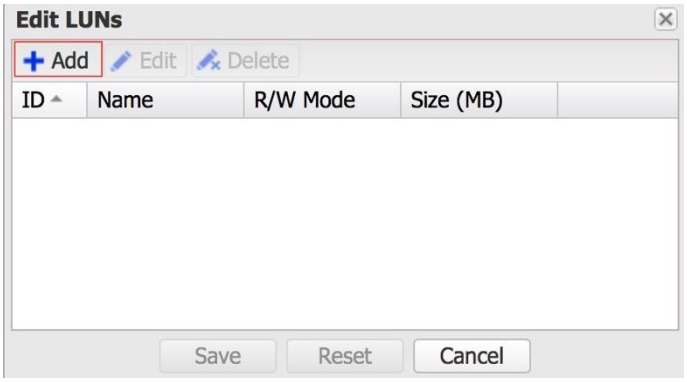
Make sure the FC cable is plugged into the FC port properly. If it is, the cable speed will be displayed.



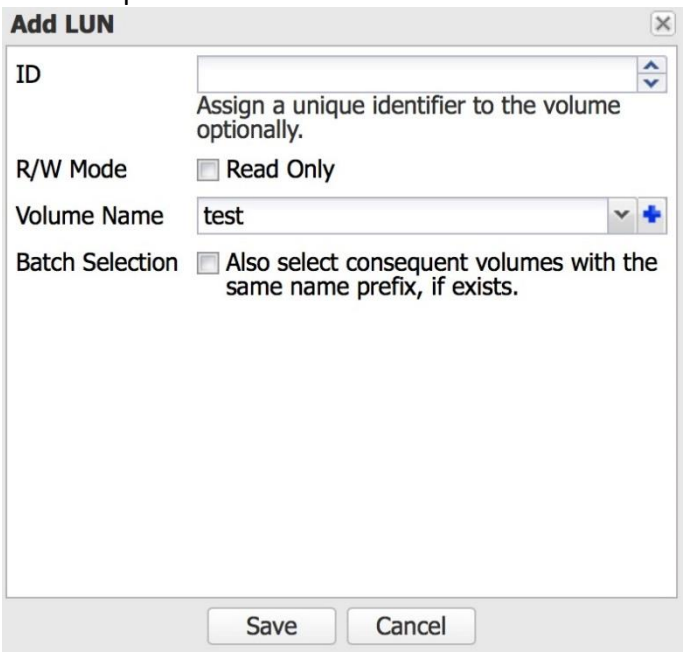
Under the **Port 01** tab, click **Edit LUNs**.



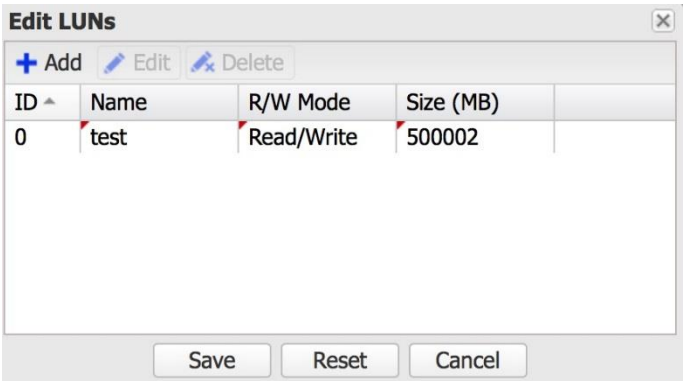
Click **Add**.



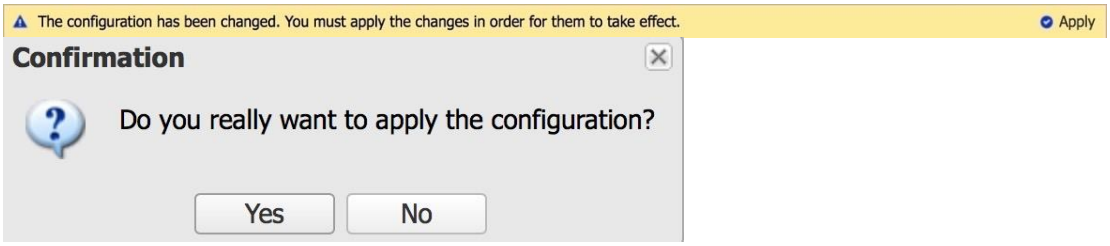
Select a specific volume.



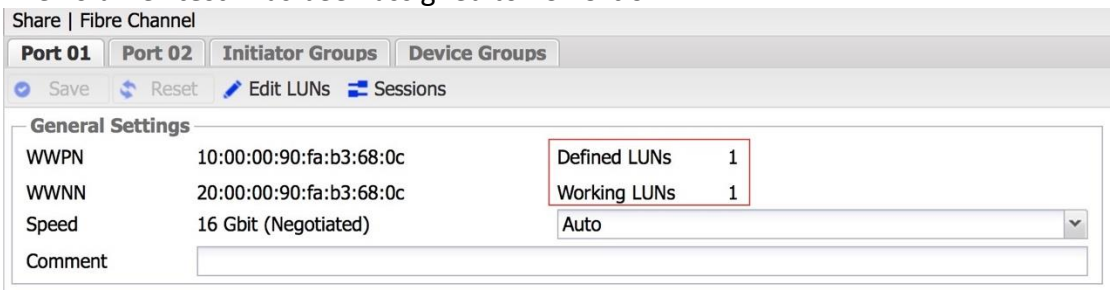
Click **Save**.



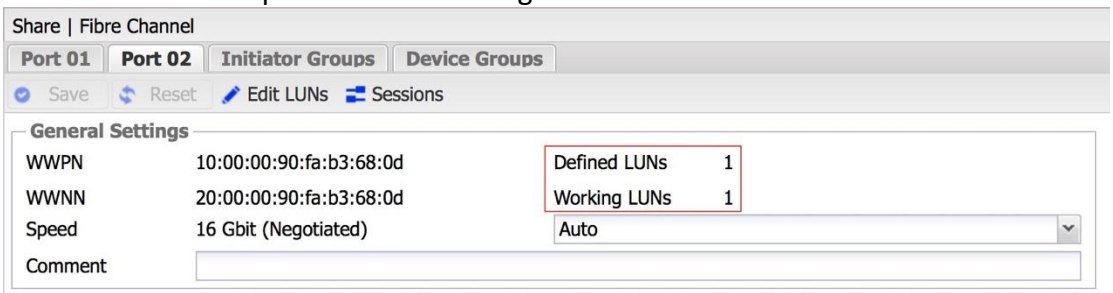
A confirmation message will appear. Click **Apply**, then **Yes**.



The volume **"test"** has been assigned to FC **Port 01**.

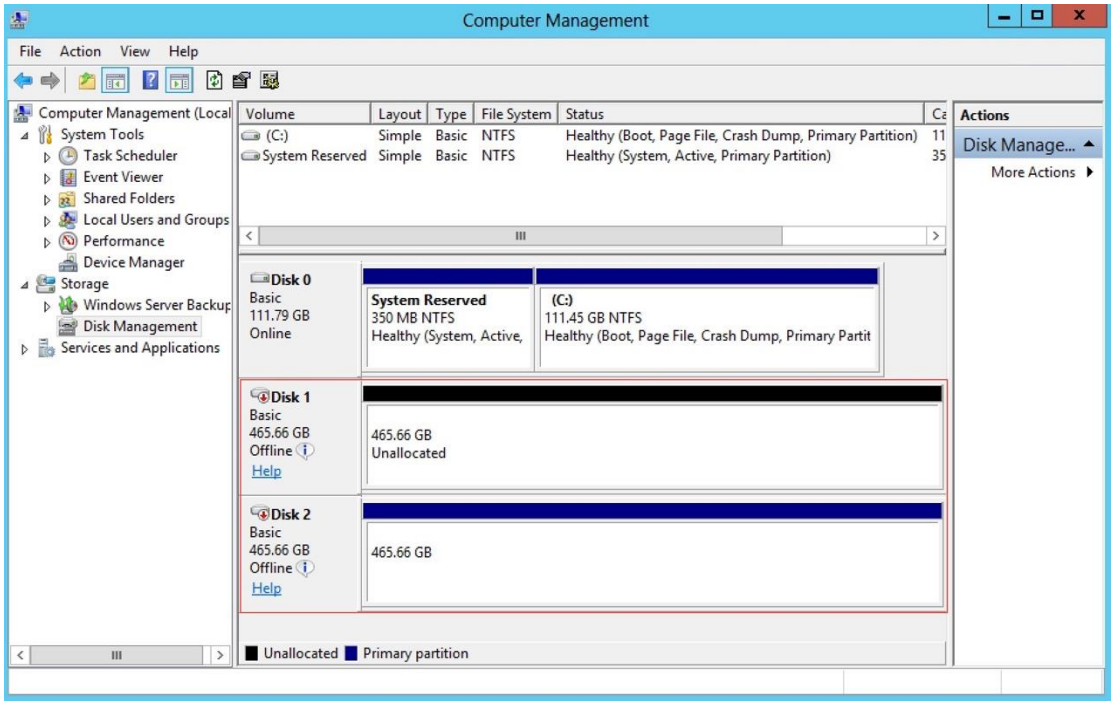


Follow the same steps as above to configure **Port 02**.

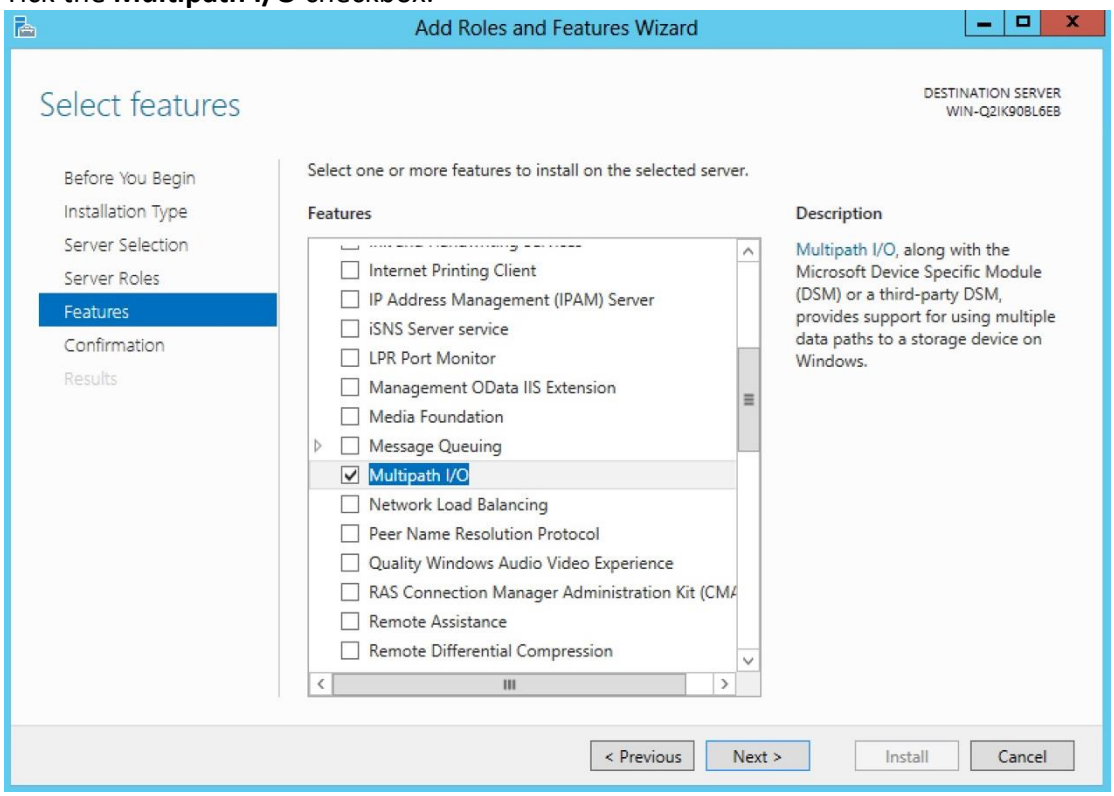


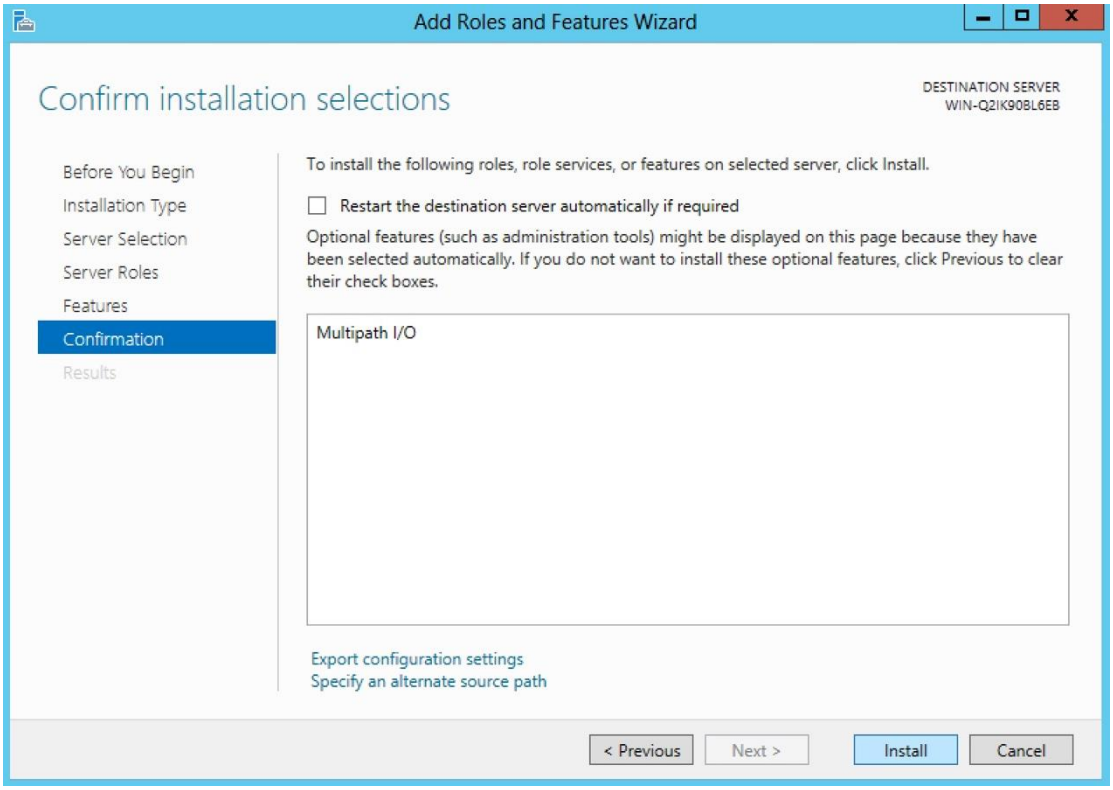
Windows

Make sure all FC cables are connected properly to the Windows server. Launch the **Computer Management** console. Since a volume has been assigned to two FC ports without MPIO, Windows will display two disks.

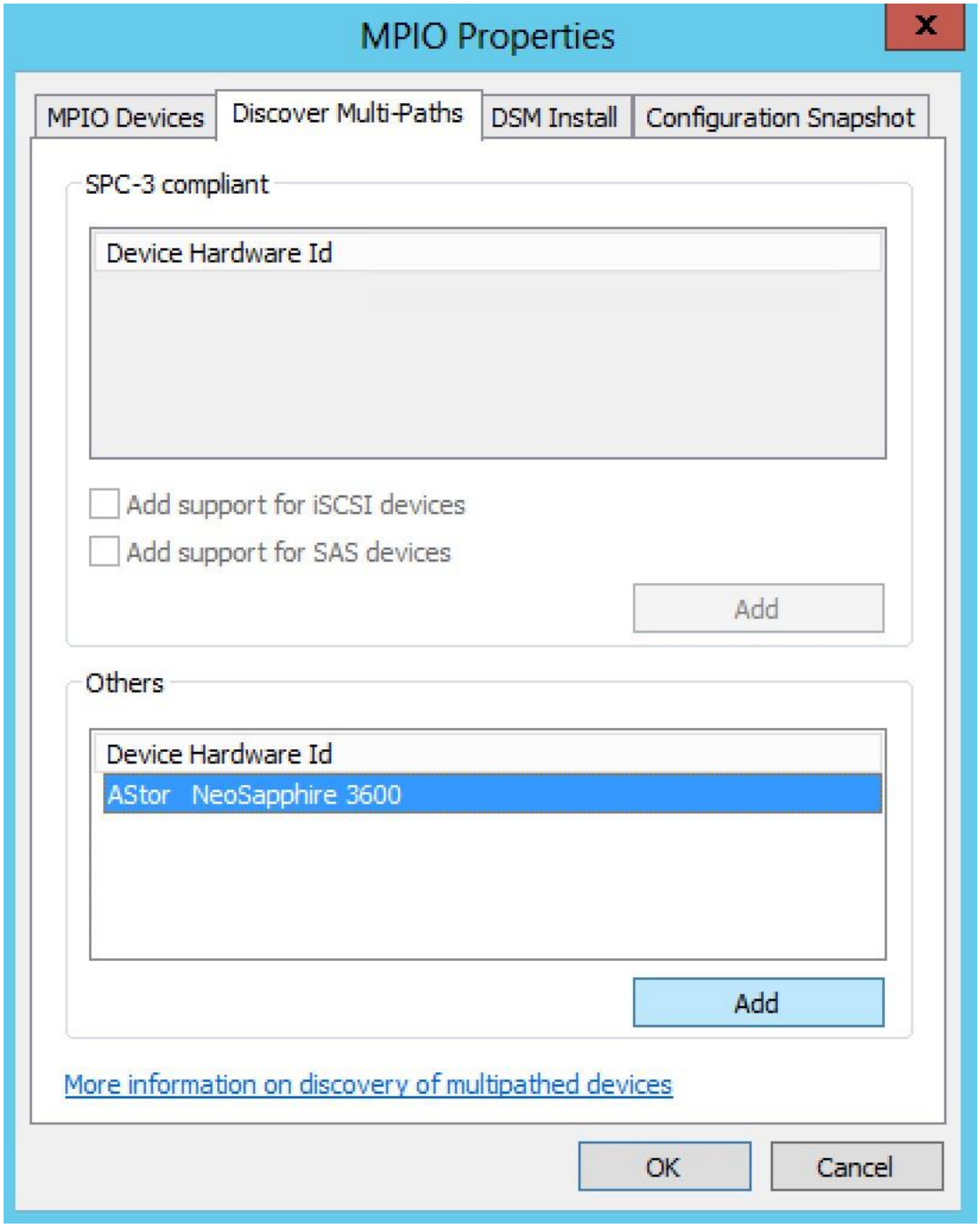


To enable MPIO, open **Server Management** -> **Add Roles and Features** -> **Features**. Tick the **Multipath I/O** checkbox.

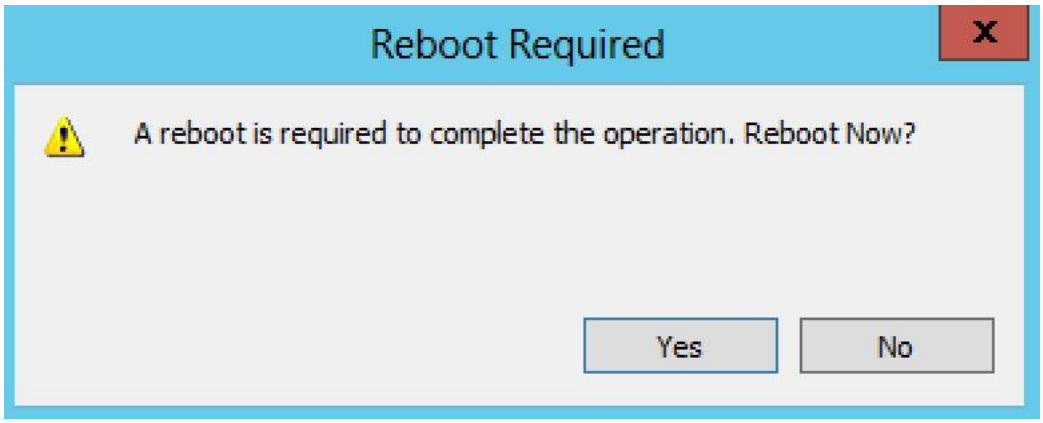




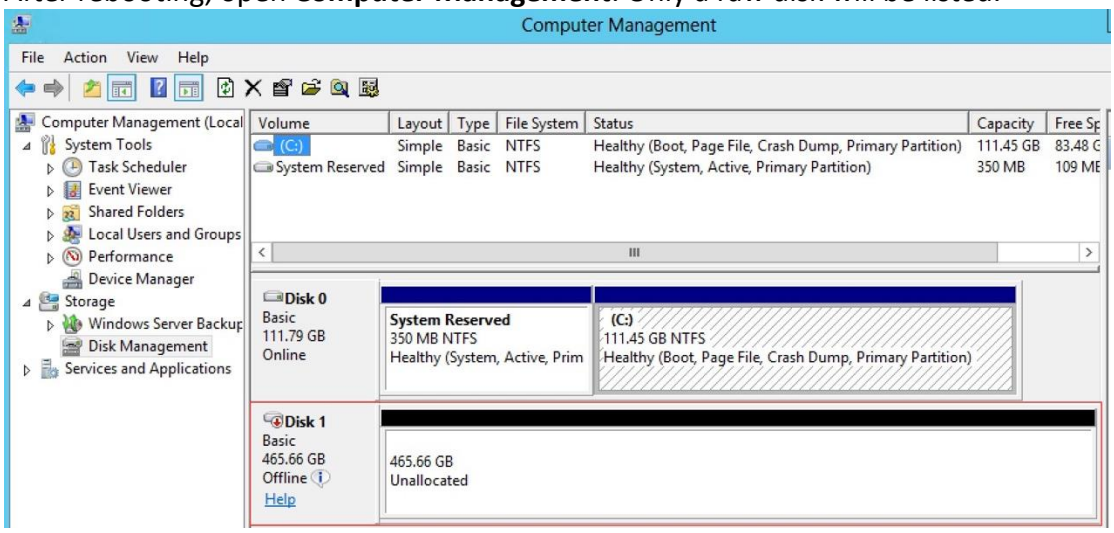
Open **MPIO Properties**. Select **Discover Multi-Paths** -> **AStor NeoSapphire [model number]** -> **Add**.


MPIO Properties
MPIO Devices
Discover Multi-Paths
DSM Install
Configuration Snapshot
SPC-3 compliant
Device Hardware Id
Add support for iSCSI devices
Add support for SAS devices
Add
Others
Device Hardware Id
AStor NeoSapphire 3600
Add
More information on discovery of multipathed devices
OK
Cancel

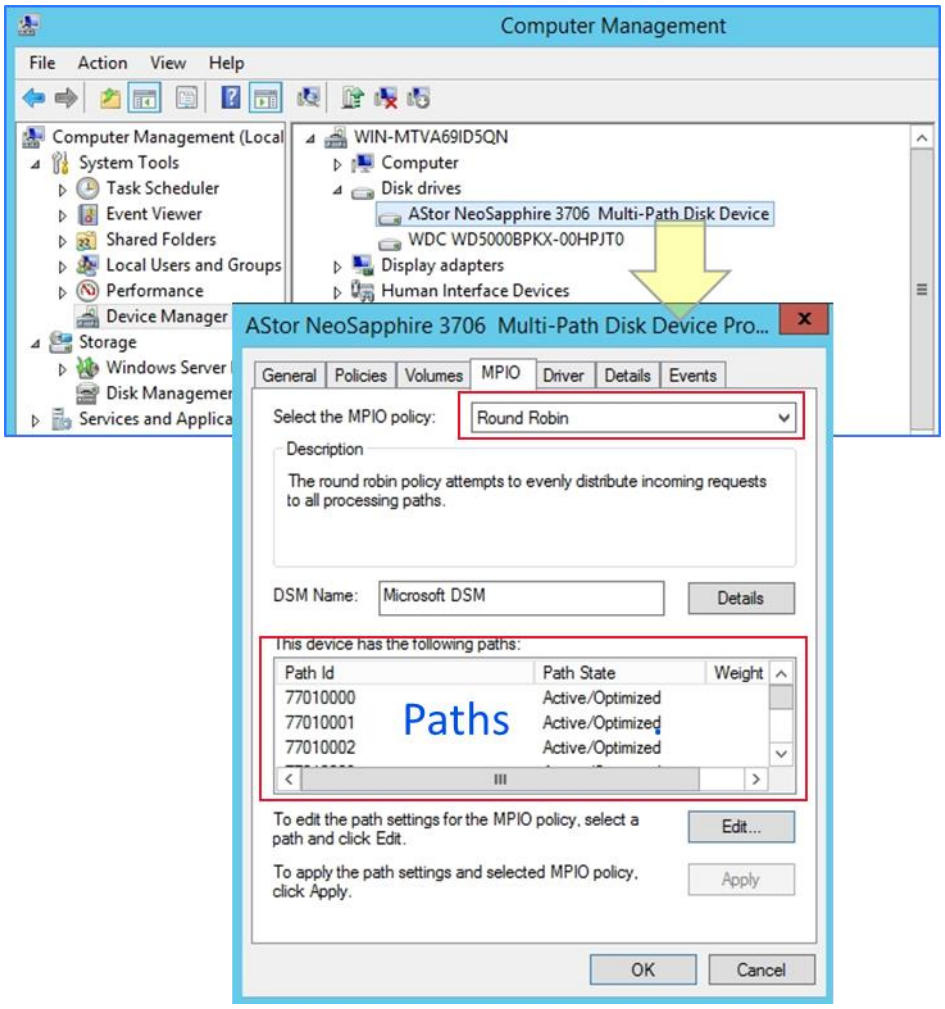
Reboot Windows.



After rebooting, open **Computer Management**. Only a raw disk will be listed.



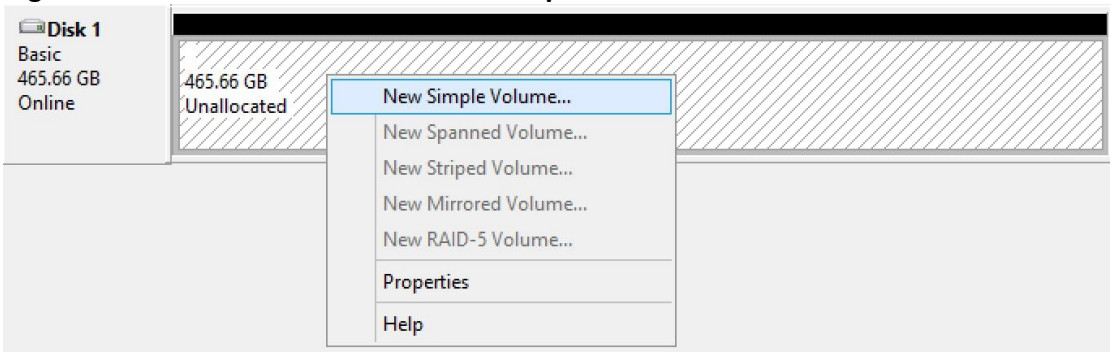
After successfully configuring FC MPIO, effective data transmission paths can be verified with the following steps:



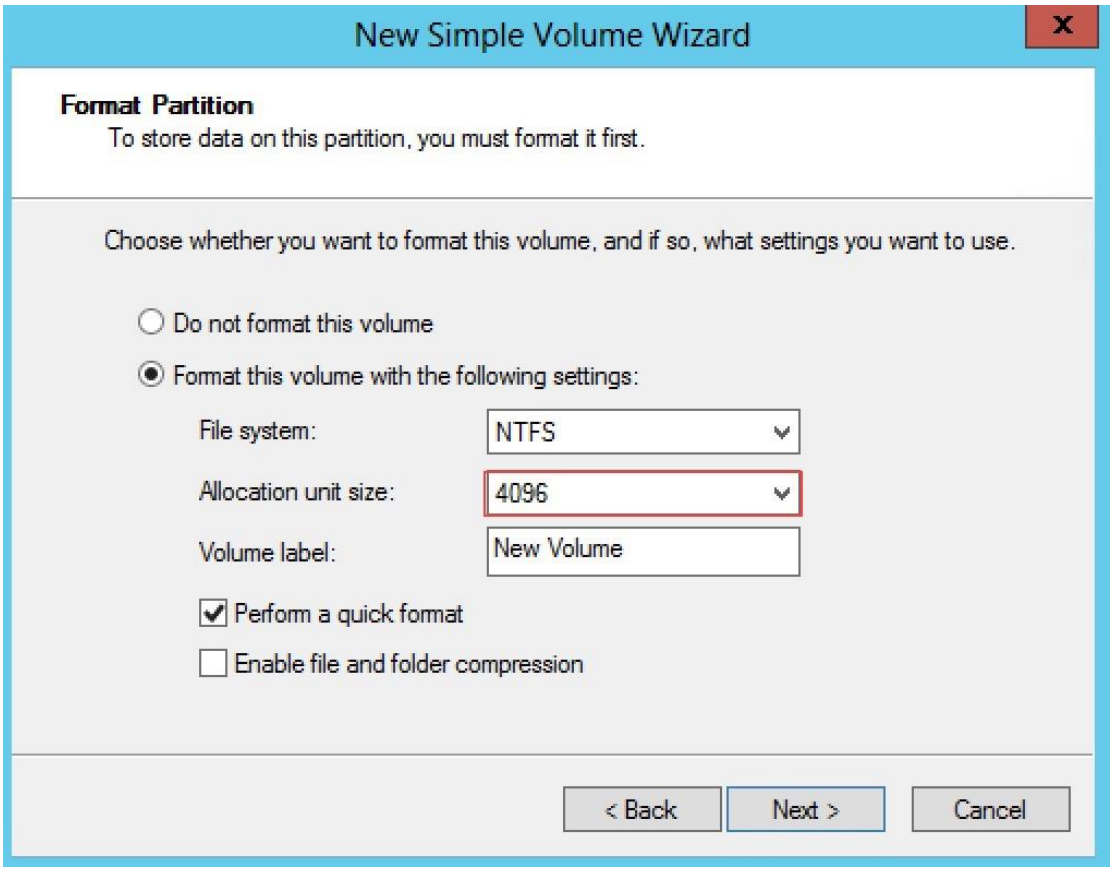
1. Open **Computer Management** and select **Device Manager**.
2. In **Disk drives**, make sure there is only one disk device for the LUN connected via multiple paths.
3. Right-click the disk and in the disk properties, switch to the **MPIO** tab:
   - Make sure the MPIO policy is **Round Robin** (default setting).
   - Count and verify the number of paths to the disk (in this case, two paths). Each should be displayed with an **Active/Optimized** path state.

Right-click the mouse and select **Online**.

Right-click the mouse and select **New Simple Volume**.



Note: When formatting the partition, remember to set the **Allocation unit size** to **4096**.



New Volume (D:) is now available.

Run a benchmark tool to see if performance has been enhanced. (This assumes the original performance bottleneck was related to data path bandwidth.)

In this Use Case, we connected two 16 Gb/s FC cables between the server and storage. One 16 Gb/s FC cable can offer up to around 1,500 MBPS per volume; two paths can support up to around 3,000 MBPS per volume.