

# StarWind iSCSI SAN & NAS:

## Multipathing

October 2012

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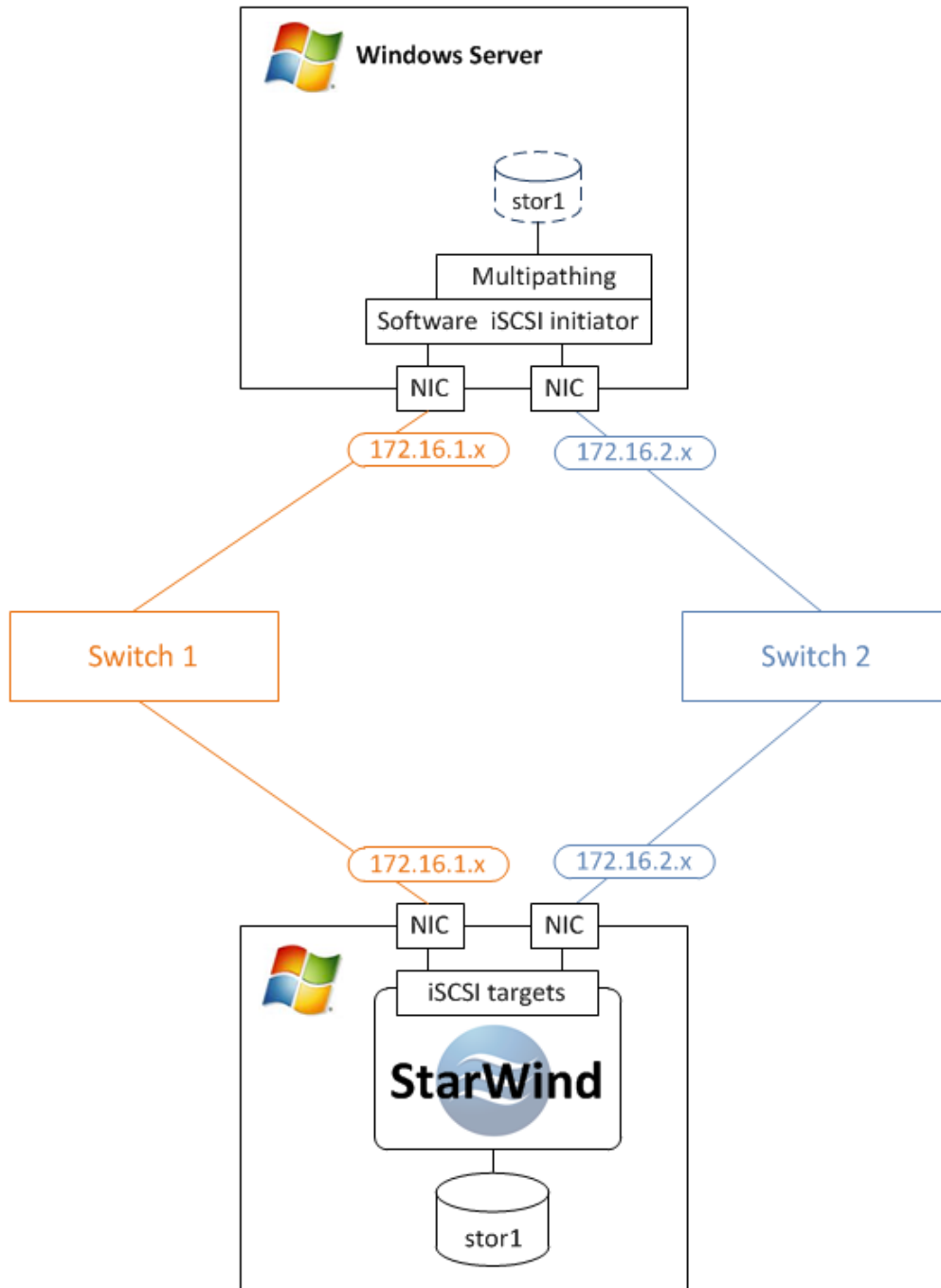
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## INTRODUCTION

The diagram below illustrates the network architecture used in this document.



## CONFIGURING STARWIND SERVER

1. Open a StarWind configuration file.

**Note:** The default path is C:\Program Files\StarWind Software\StarWind\StarWind.cfg

2. Find the string "`<!--<iScsiDiscoveryListInterfaces value="1"/>-->`" and uncomment it (should look as follows: `<iScsiDiscoveryListInterfaces value="1"/>`).

3. Restart **StarWind Service**.

4. Launch **StarWind Management Console: Start -> All Programs -> StarWind Software -> StarWind**.

**Note:** The StarWind Console icon appears in the system tray when the **Console** is running. To open **StarWind Management Console**, double-click the icon or right-click it and then select **Start Management Console** from the shortcut menu.

5. Select the server you want to provide with the iSCSI target device from the **Console tree**. Double-click the host to connect.

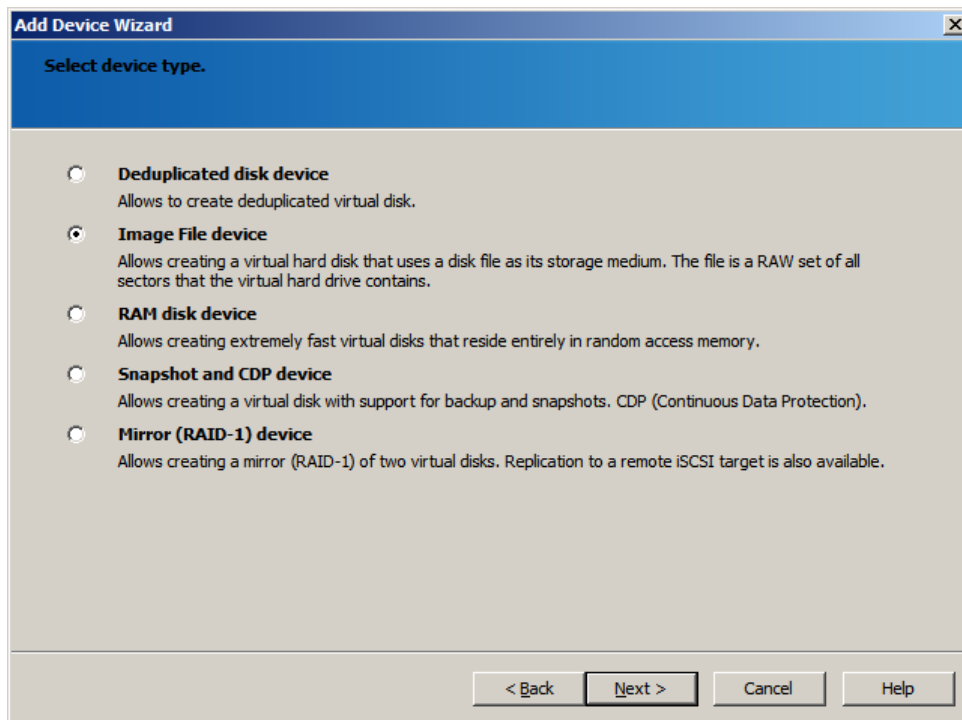
**Note:** If you are prompted to enter login and password, specify "root" and "starwind", relatively. These are the default login and password, but you can always change them later.

6. After connecting to **StarWind Service**, you can create devices and targets on the server. Open **Add Device Wizard** by one of the following ways:

- Select **Add Device** from the **Target** menu.
- Select **Add Device** from the **Devices** shortcut menu (right-click to open it).

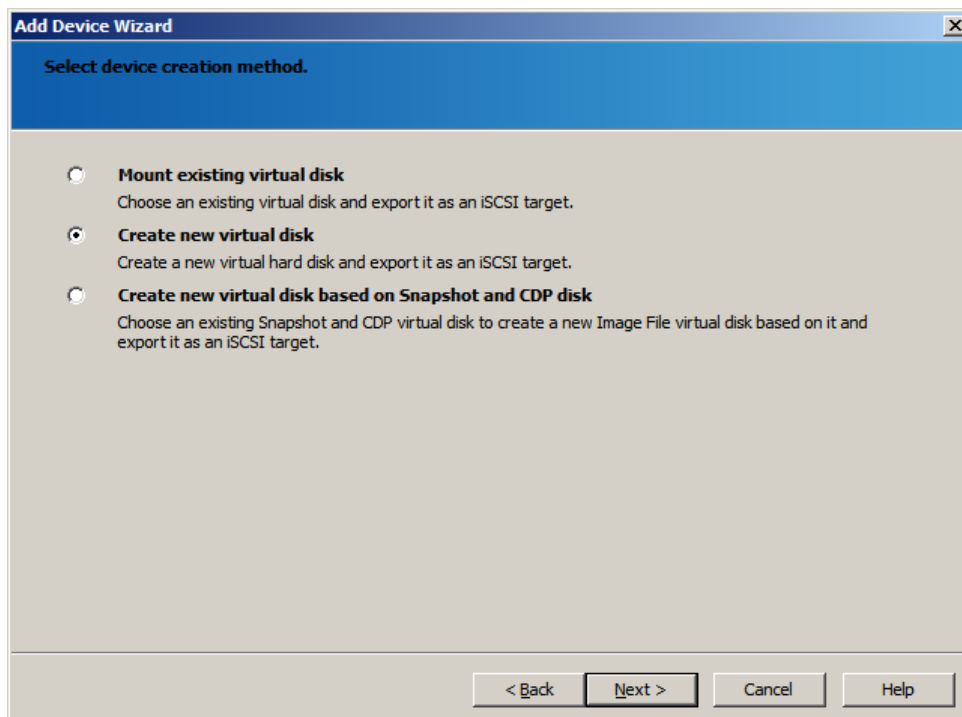
7. **Add Device Wizard** appears. Please, follow the wizard's steps to complete creation of a new image file device.

8. Select **Virtual Hard Disk -> Image File device**.



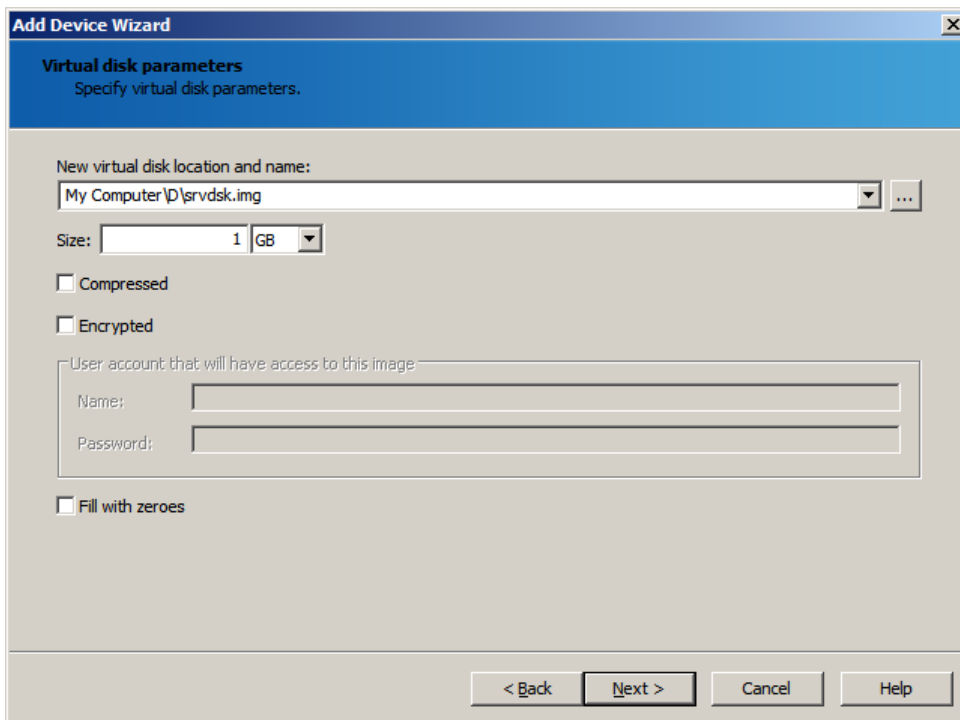
9. Click **Next** to continue.

10. Select the **Create new virtual disk** option.



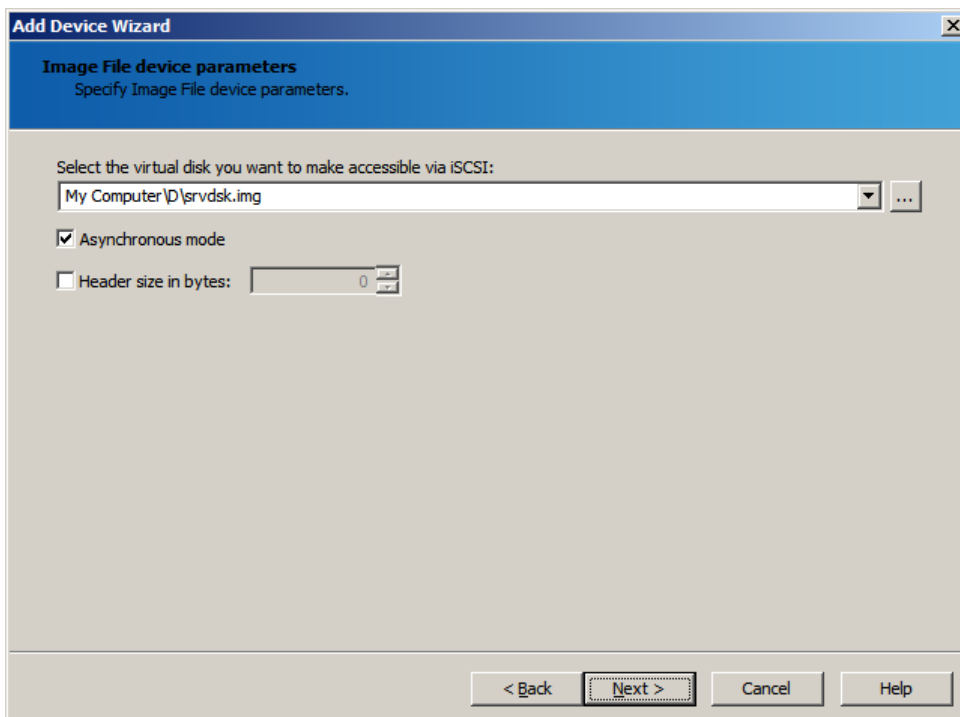
11. Click **Next** to continue.

12. Specify required virtual disk parameters.



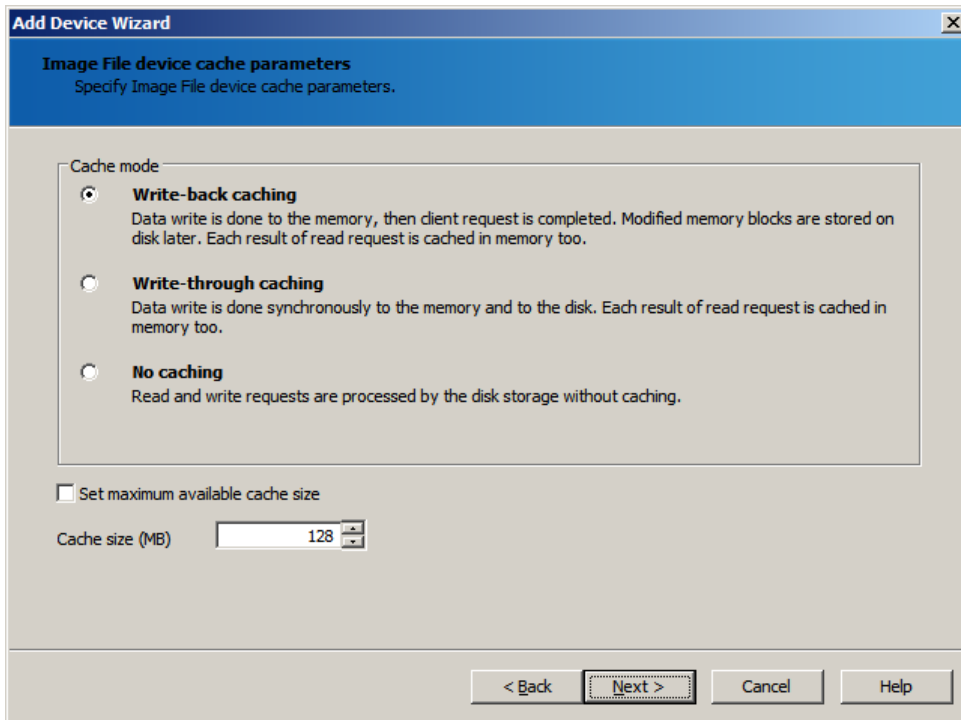
13. Click **Next** to continue.

14. Select a virtual disk that will be made accessible via iSCSI.



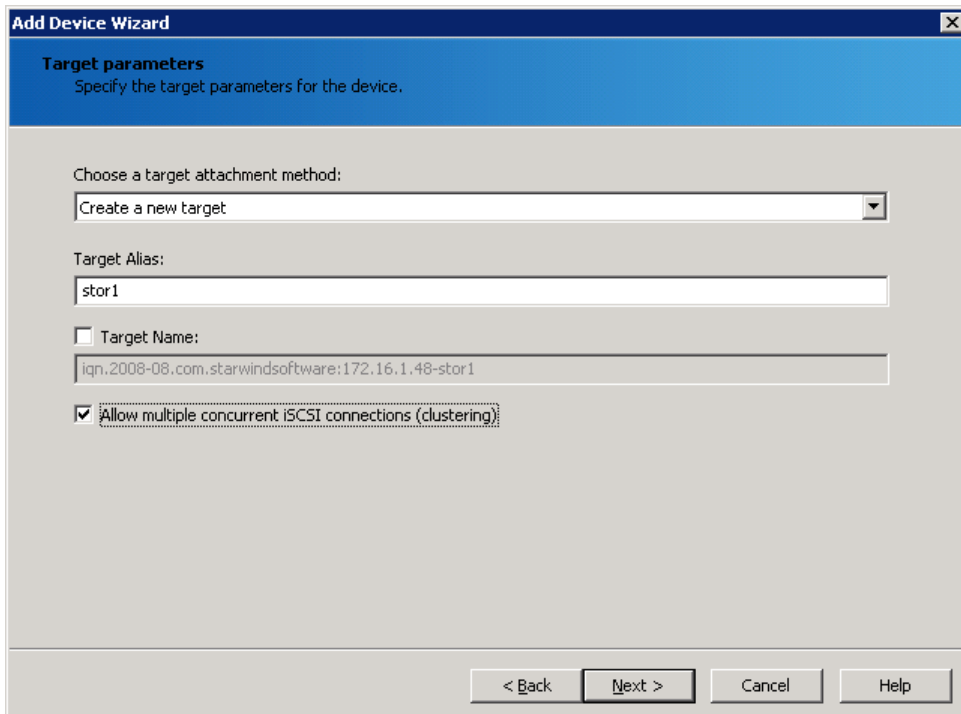
15. Click **Next** to continue.

16. Specify cache parameters of an image file device.



17. Click **Next** to continue.

18. Specify target parameters. Select **Allow multiple concurrent iSCSI connections (clustering)** checkbox.



19. Click **Next** to continue.

20. Check whether device parameters are correct. Click **Back** to make any changes. Click **Next** to continue.

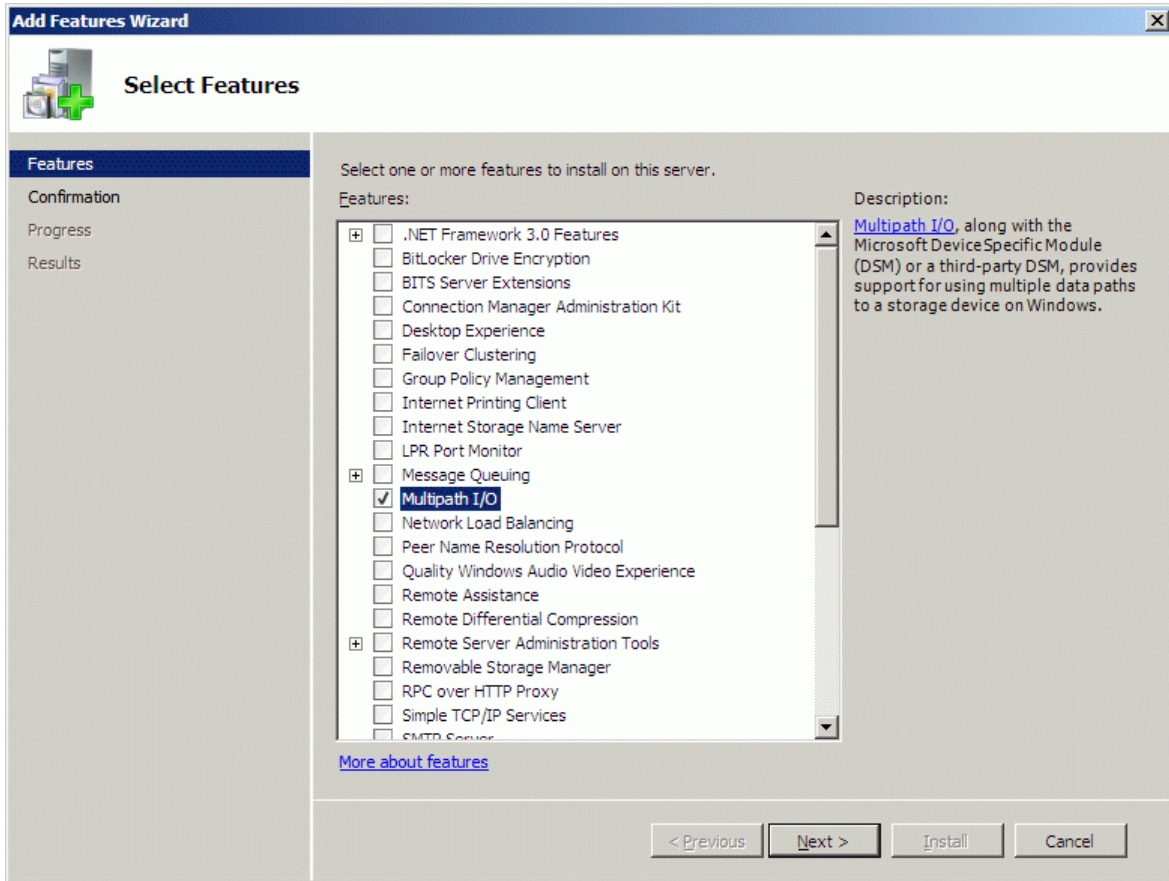
21. Click **Finish** to close the wizard.



## CONFIGURING ISCSI CLIENTS

### Windows Server 2008

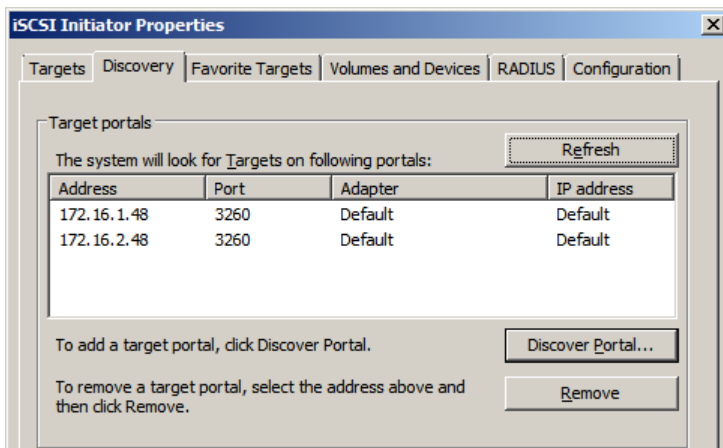
1. Launch **Server Manager**, select the **Features** item and click **Add Features**. Select **Multipath I/O** from the features list. Follow the wizard's instructions to install it.



2. Launch **Microsoft iSCSI Initiator: Start > Administrative Tools > iSCSI Initiator**. Navigate to the **Discovery** tab.

3. Click **Discover Portal**. In the **Discover Target Portal** dialog enter the first IP address of the StarWind Server. Click **OK**.

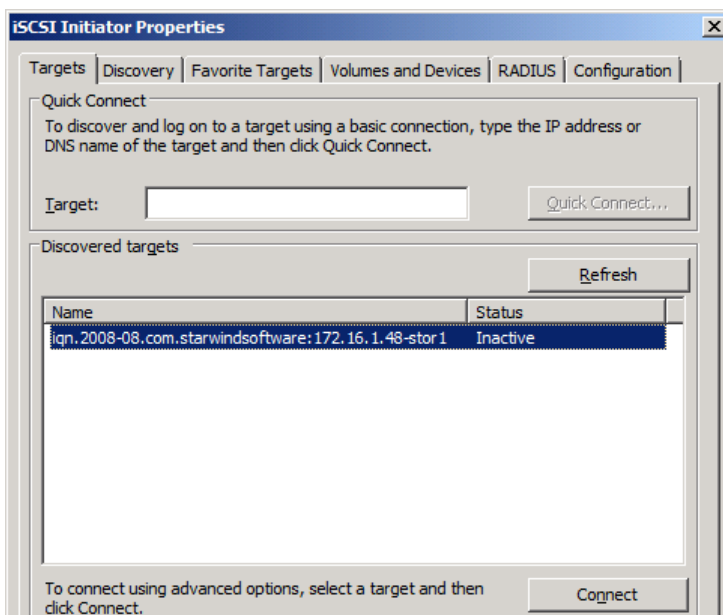
4. Click **Discover Portal** again. Enter the second IP address of the StarWind Server. Click **OK**.



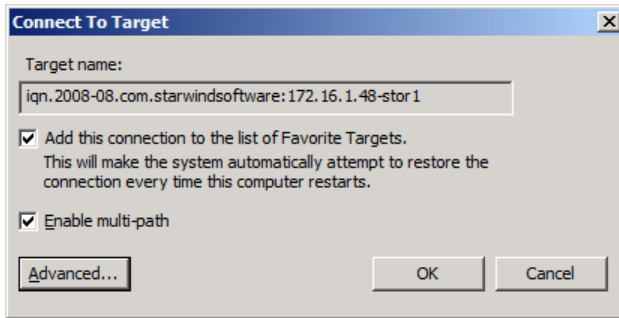
5. Navigate to the **Targets** tab. The previously created target is listed in the **Discovered Targets** section.

**Note:** If the created target is not listed, check the firewall settings on the StarWind Server as well as a list of networks served by the StarWind Server (go to **StarWind Management Console -> Configuration -> Network**).

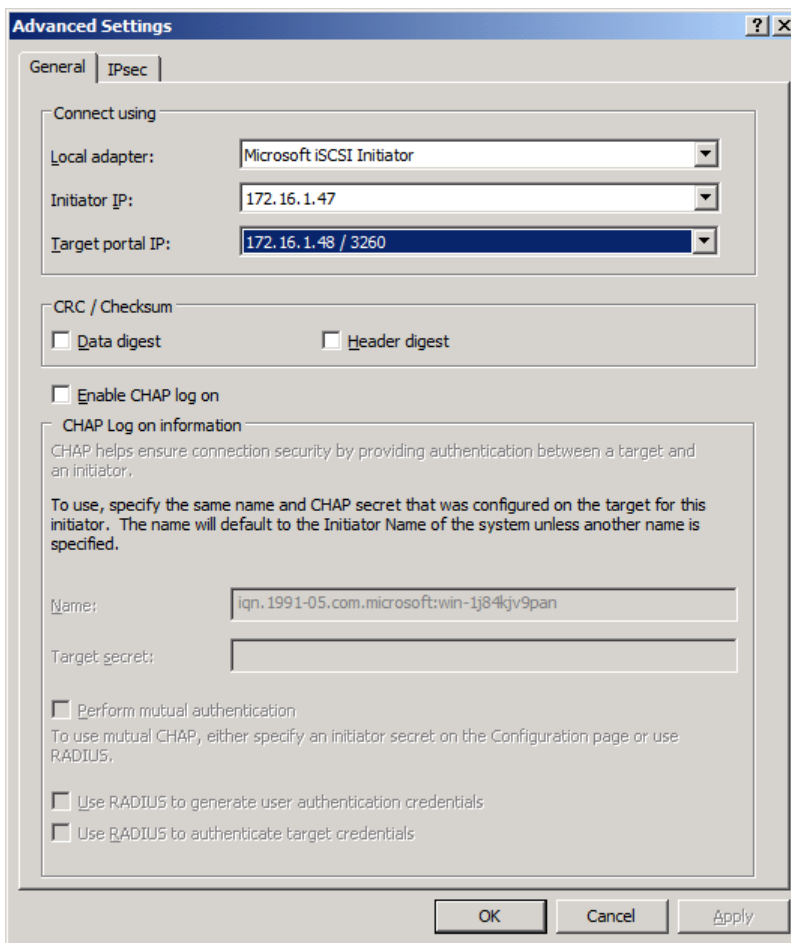
6. Select the target and click **Connect**.



7. In the **Connect to Target** dialog select **Add this connection to the list of Favorite Targets** and **Enable multi-path** checkboxes. Click **Advanced**.

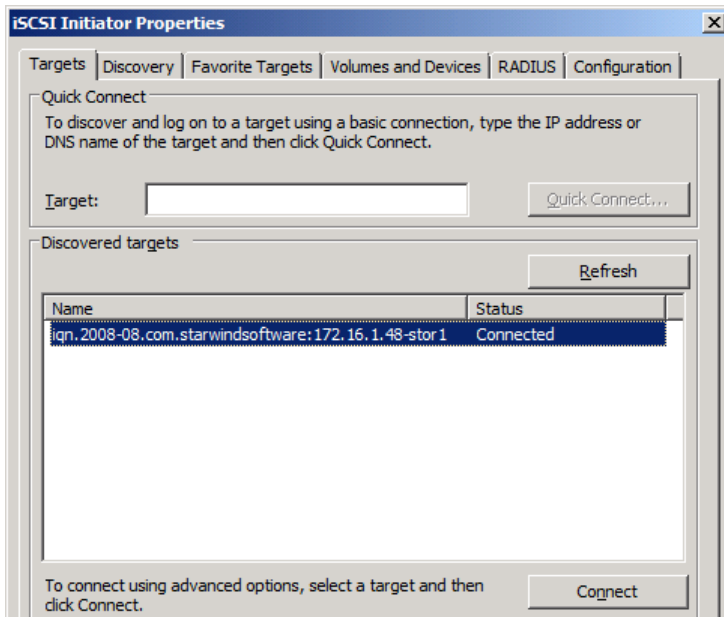


8. Select **Microsoft iSCSI Initiator** in the **Local adapter** text field. In the **Target portal IP** select the first IP address of the StarWind Server.

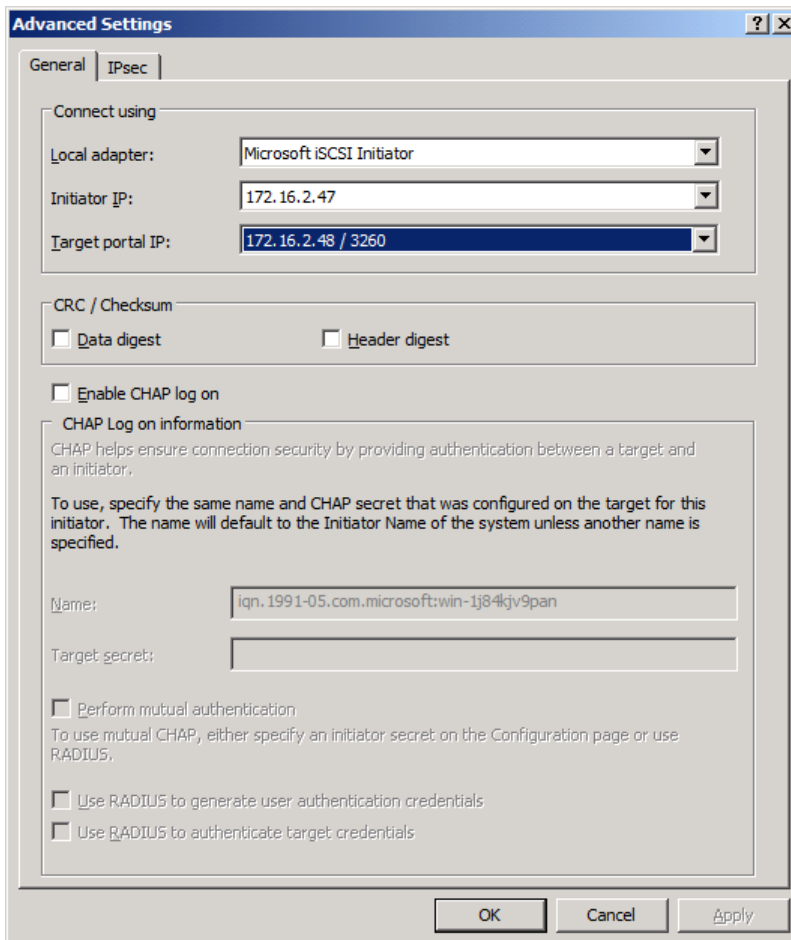


9. Click **OK**. As you return to the previous dialog, click **OK** to go back to **iSCSI Initiator Properties**.

10. Select the same target and again click **Connect**.



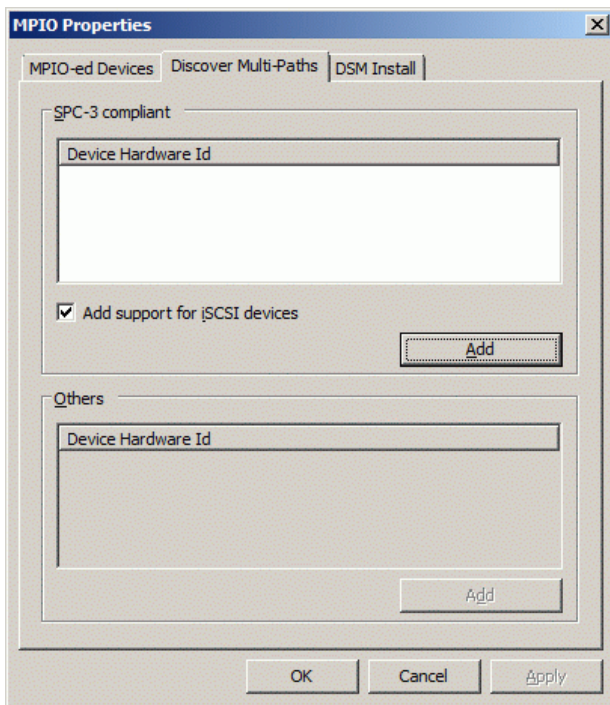
11. Perform the same actions as described above; this time specify another IP address as a target portal IP. Click **OK**.



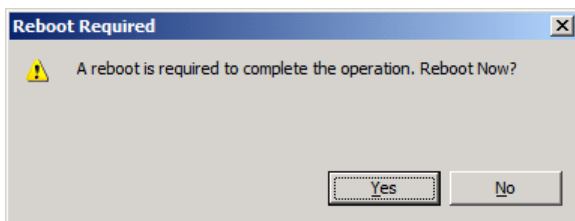
12. Connect the second path of the target and close the MS Initiator.

13. Open the **MPIO manager: Start -> Administrative Tools -> MPIO.**

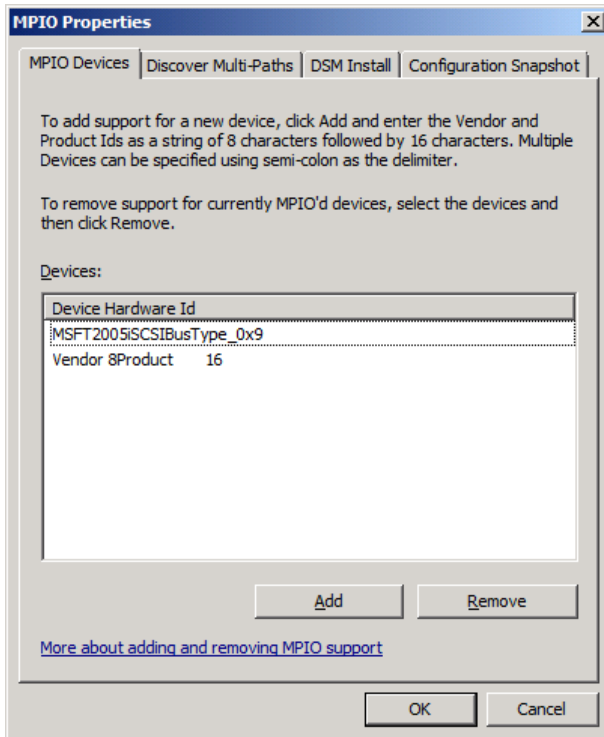
14. Go to the **Discover Multi-Paths** tab. Select the **Add support for iSCSI devices** checkbox and click **Add**.



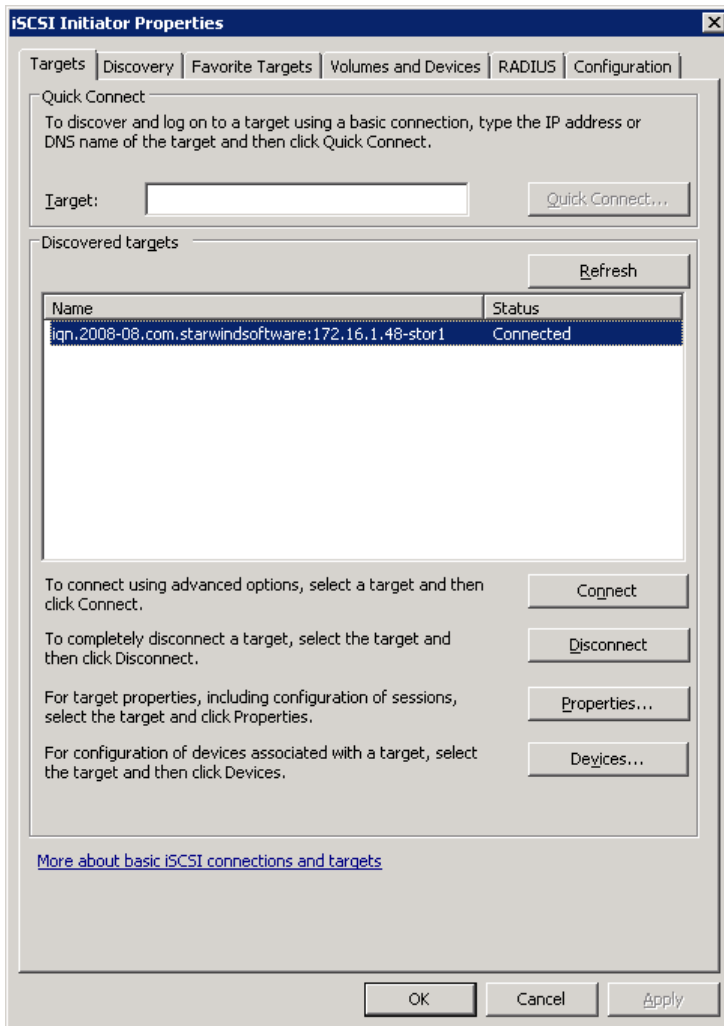
15. When prompted to restart the server, click **Yes** to proceed.



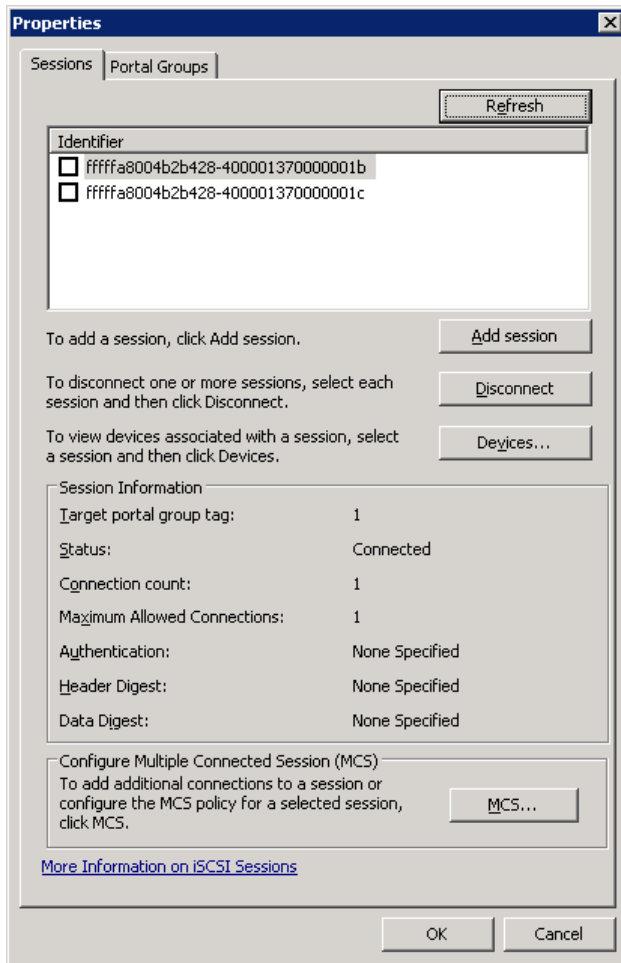
16. After the system reboot open the MPIO Manager again to ensure that the multipathed device has been recognized and added. A new device has to be displayed in the **Devices** list of the **MPIO-ed Devices** tab.



17. Open the iSCSI Initiator and view the target properties. Select the target and click **Properties**.

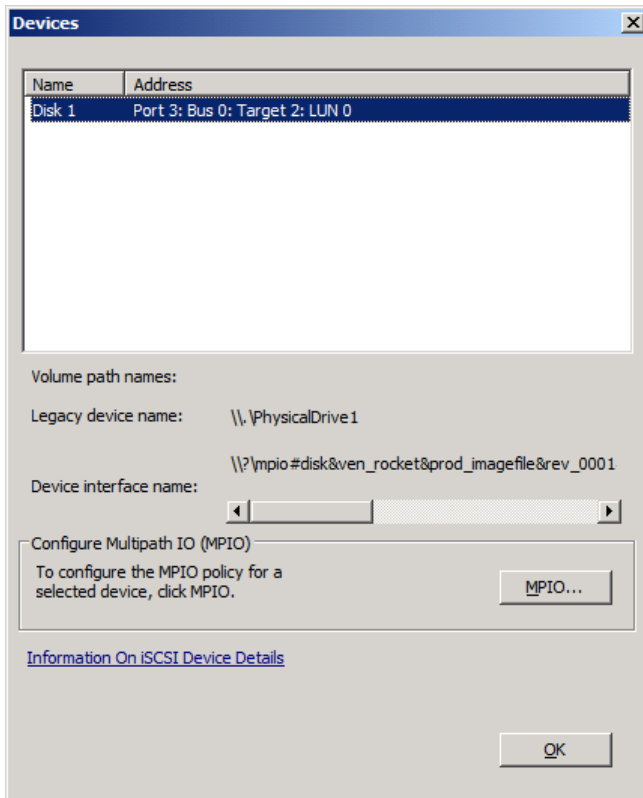


18. The **Sessions** tab contains two sessions that represent both network paths that you have set.

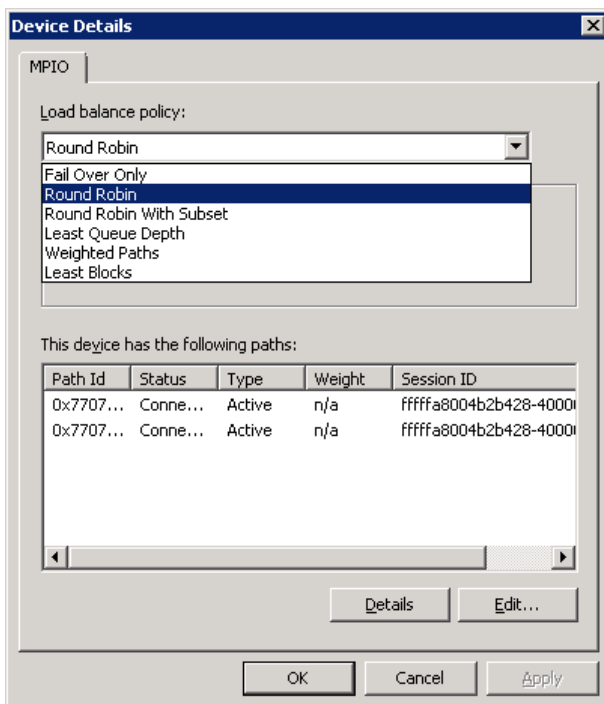




19. Click **Devices**. This window displays general information about devices.

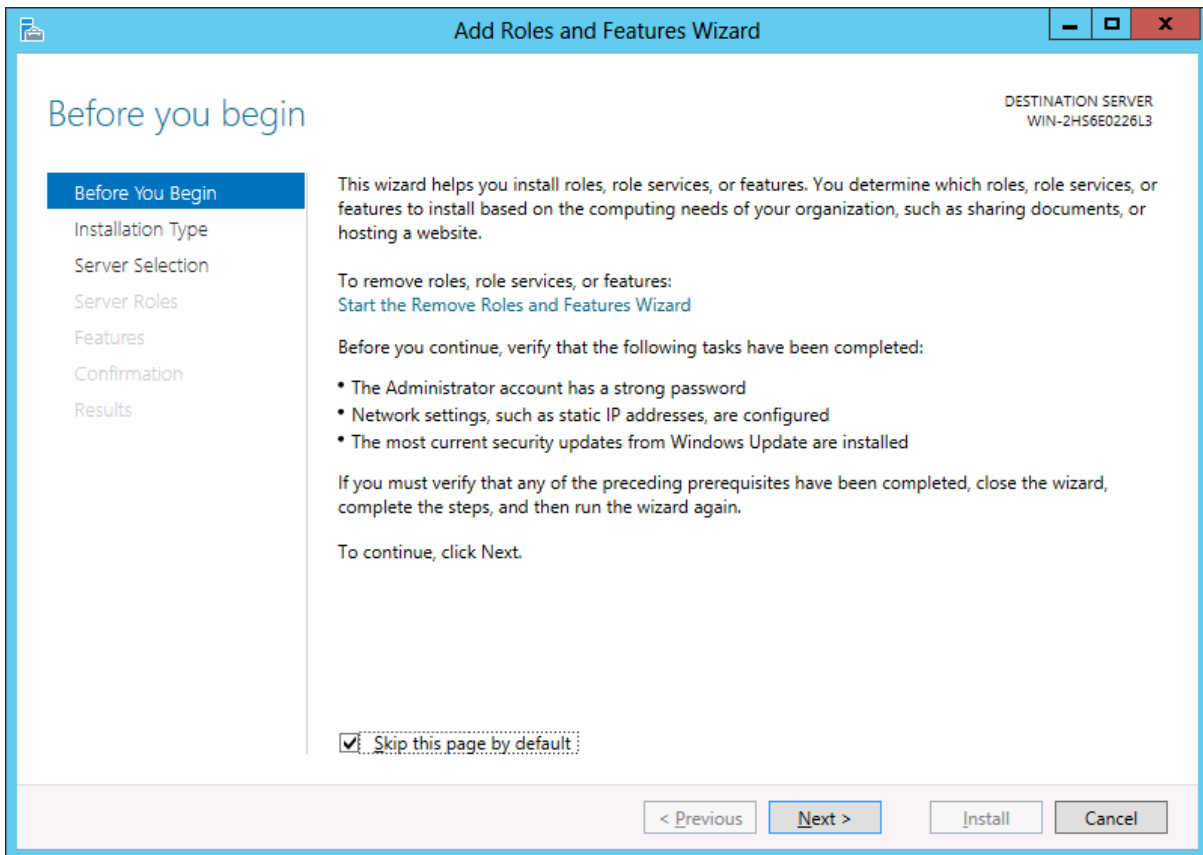


20. Click **MPIO**. Select a load balance policy of your connections. A brief description of the selected policy is provided beneath the **Load balance policy** box.



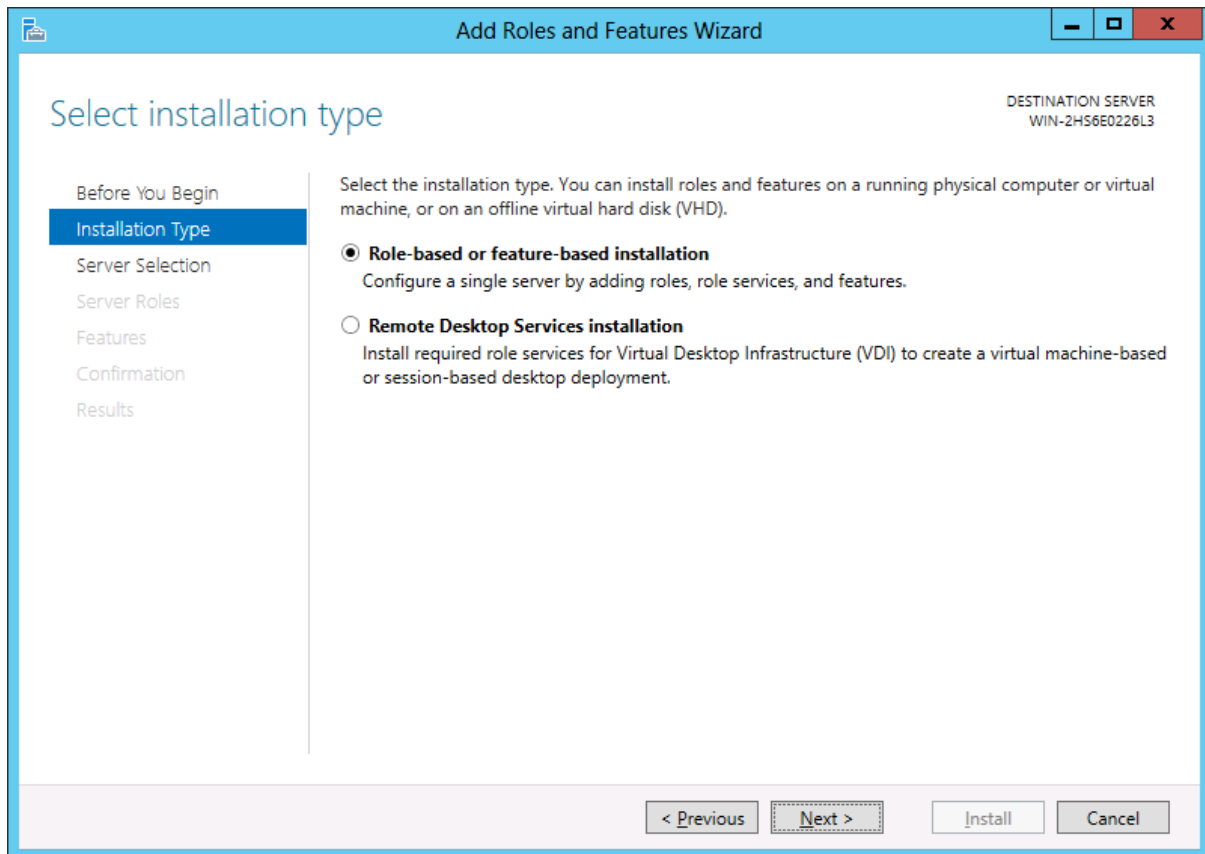
## Windows Server 2012

1. Launch **Server Manager**, select the **Manage** item and click the **Add Roles and Features** option. Install the **Multipath I/O** feature by following the wizard's steps.

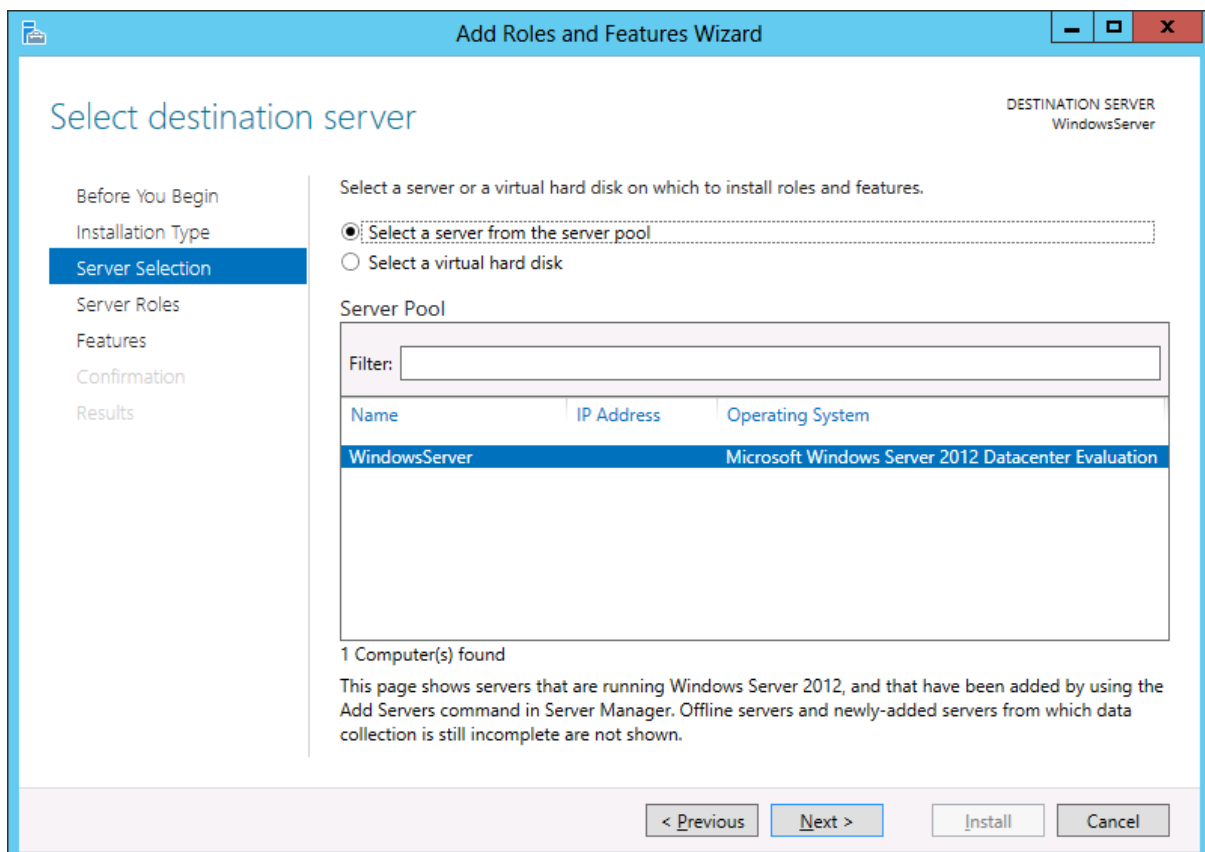


2. Click **Next**.

3. Select **Role-based or feature-based installation** as an installation type and click **Next** to continue.

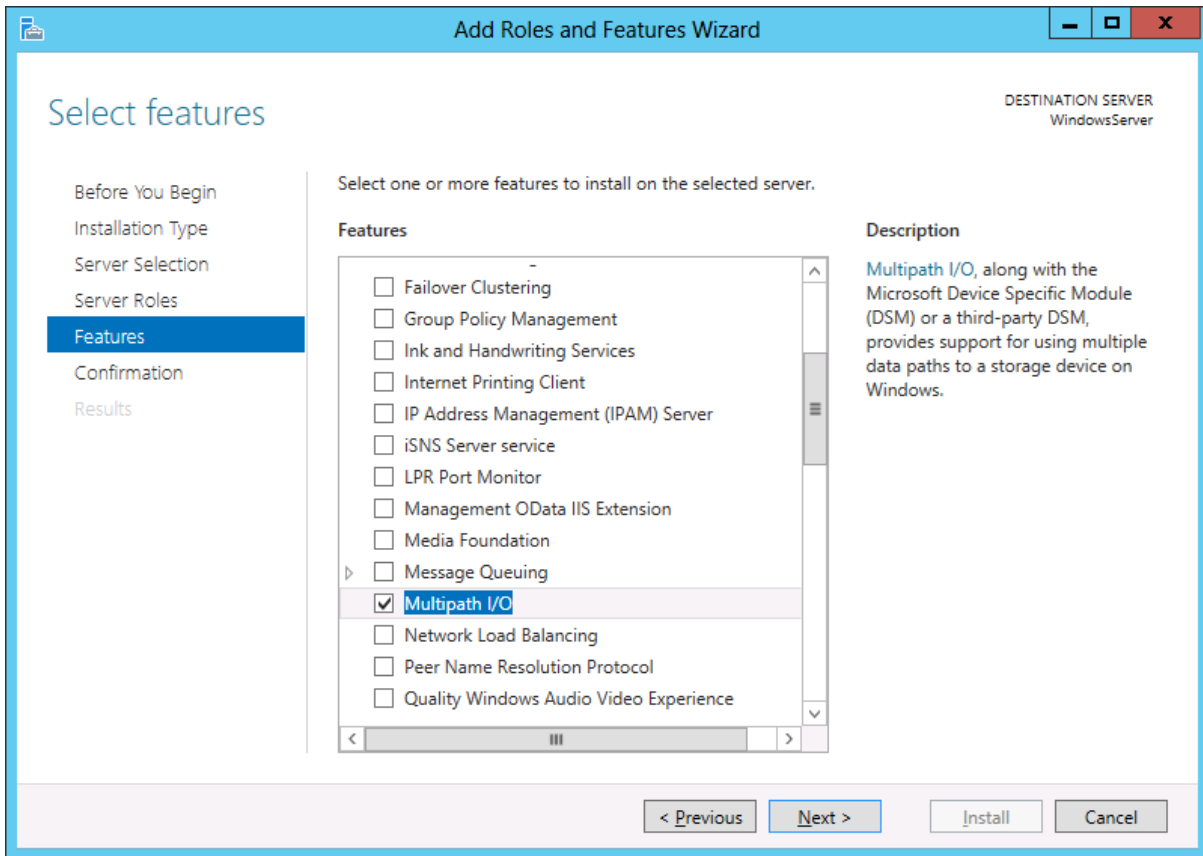


4. Select the **Select a server from the server poll** option and select the appropriate server.



5. Click **Next**.

6. In the features list select **Multipath I/O** feature and install it.

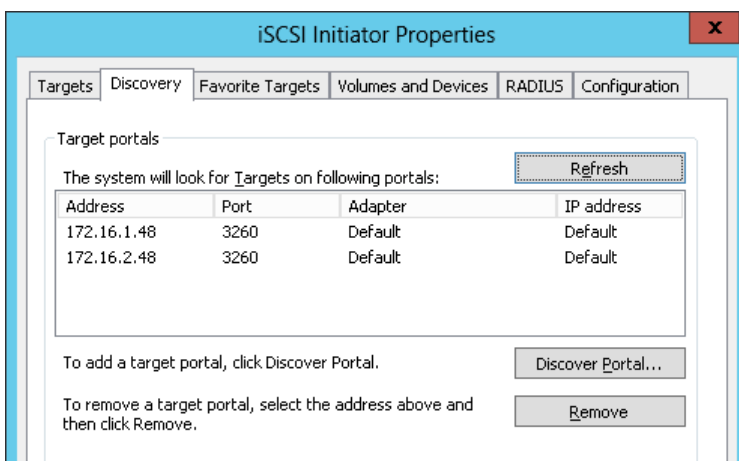


7. Launch **Microsoft iSCSI Initiator: Start > Administrative Tools > iSCSI Initiator**. The **iSCSI Initiator Properties** window appears.

8. Navigate to the **Discovery** tab.

9. Click **Discover Portal**. Enter the first IP address of the StarWind Server in the appropriate field of the **Discover Target Portal** dialog. Click **OK**.

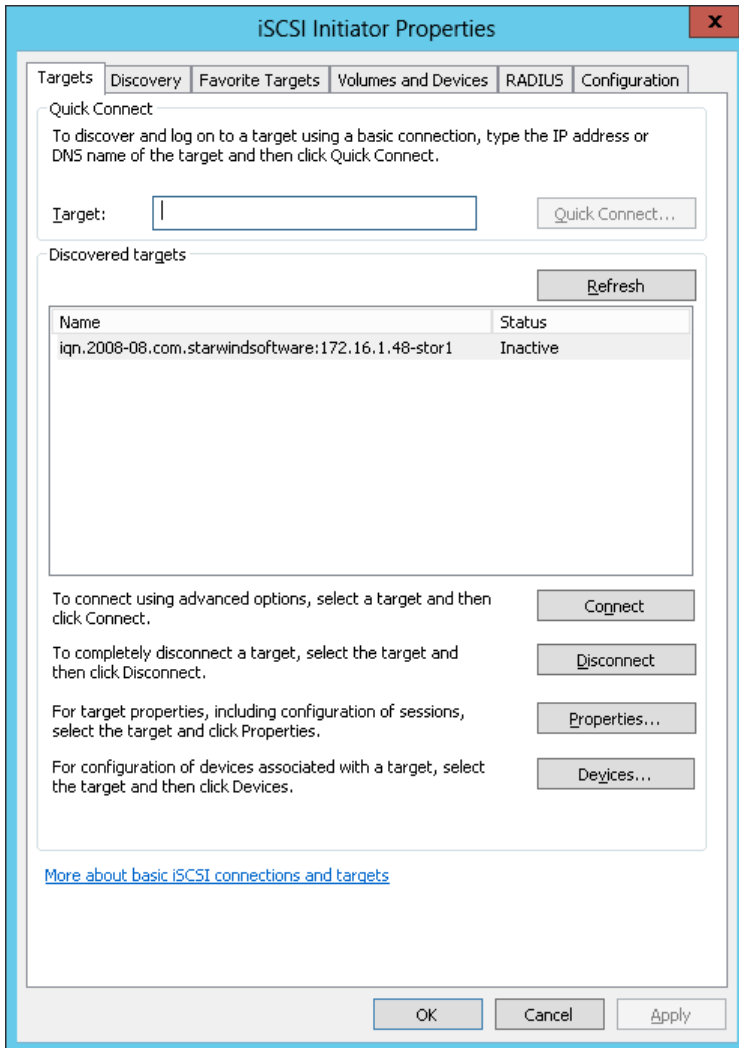
10. Again click **Discover Portal** to add the second IP address of the StarWind Server.



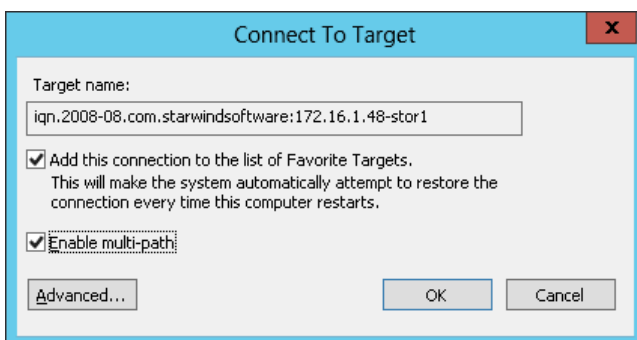
11. Click the **Targets** tab. The previously created targets are listed in the **Discovered Targets** section.

**Note:** If created targets are not listed, check the firewall settings of the StarWind Server as well as the list of networks served by the StarWind Server (go to **StarWind Management Console -> Configuration -> Network**).

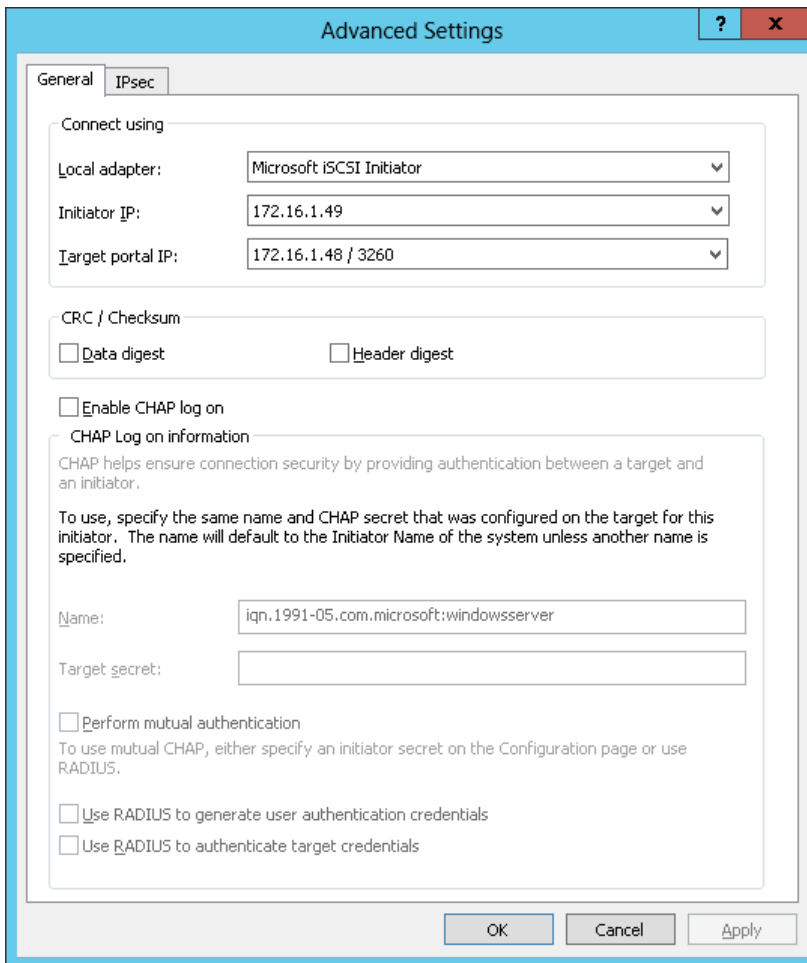
12. Select the targets and click **Connect** to add it.



13. Select **Add this connection to the list of Favorite Targets** and **Enable multi-path** checkboxes in the **Connect to Target** dialog. Click **Advanced**.

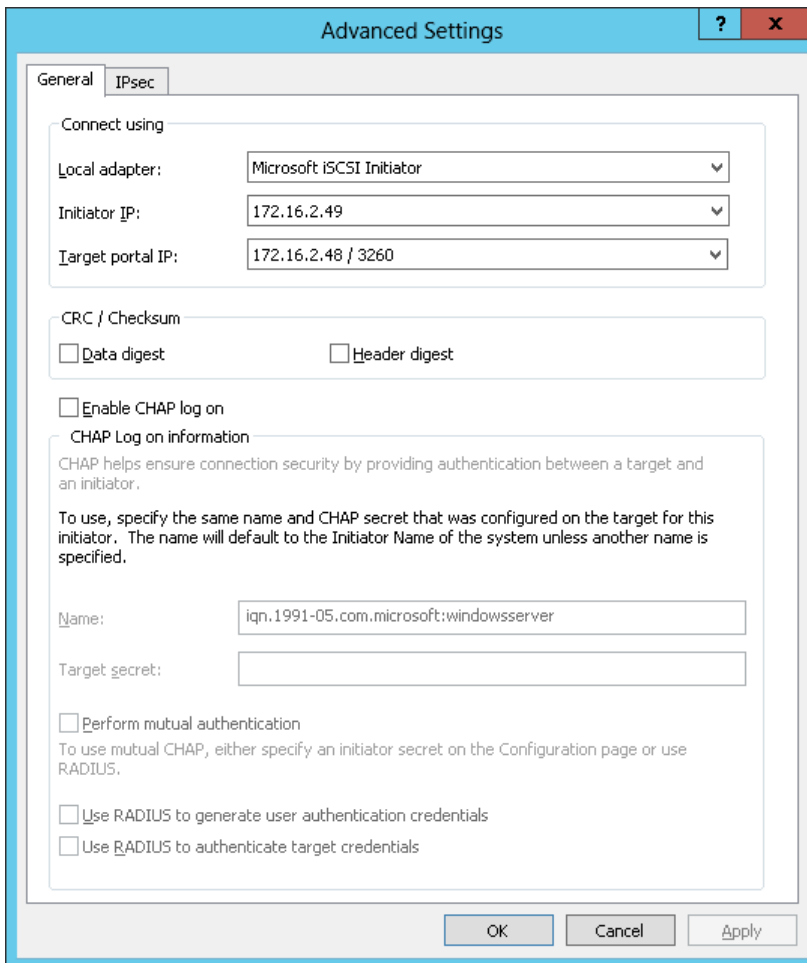
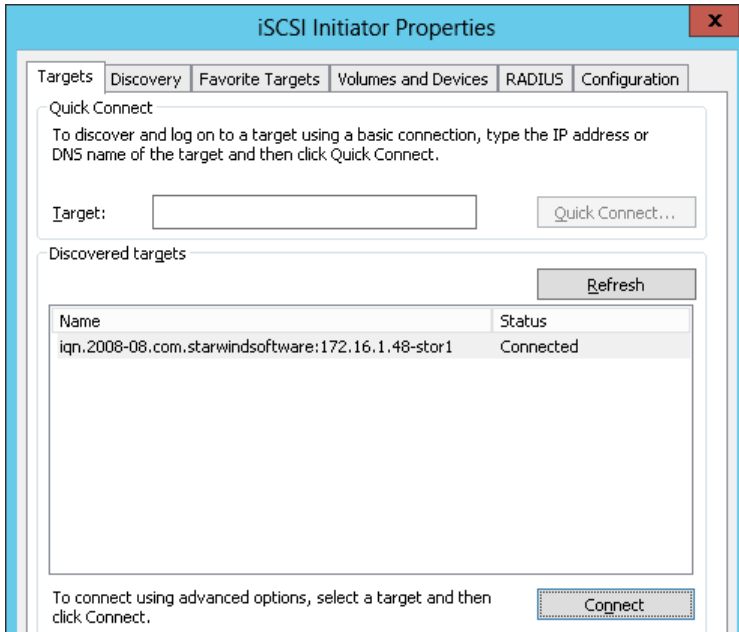


14. Select **Microsoft iSCSI Initiator** in the **Local adapter** text field. In the **Target portal IP** select the first IP address of the StarWind Server. Click **OK**.



15. Click **OK** to return to MS Initiator main window.

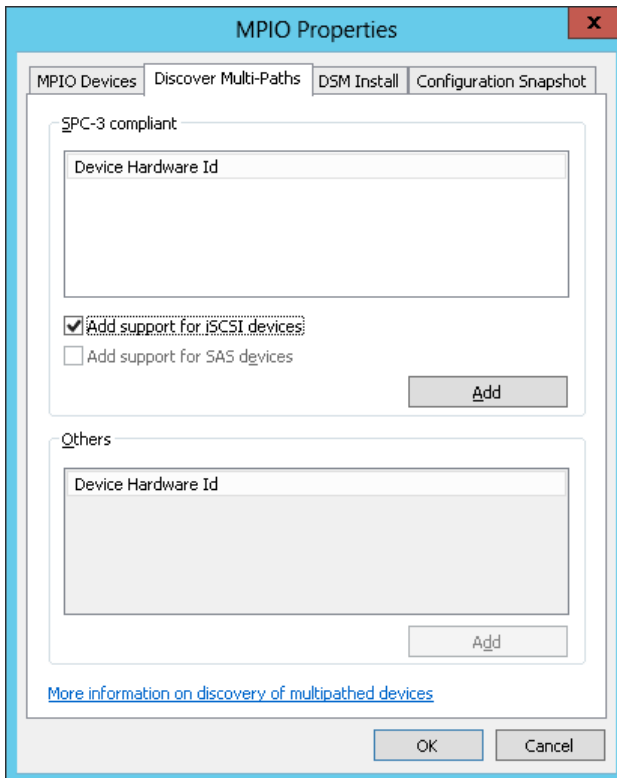
16. Select the same target and again click **Connect**. Perform the same actions as described above; this time specify another IP address as a target portal IP. Click **OK**.



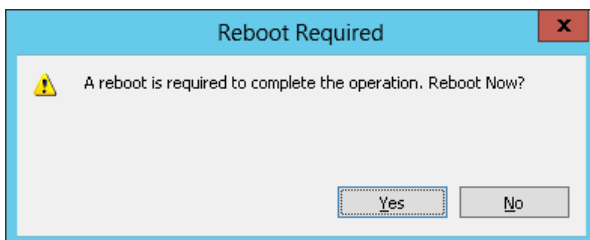
17. Connect the second path of the target and close the MS Initiator.

18. Open the **MPIO manager: Start -> Administrative Tools -> MPIO.**

19. Go to the **Discover Multi-Paths** tab. Select the **Add support for iSCSI devices** checkbox and click **Add**.

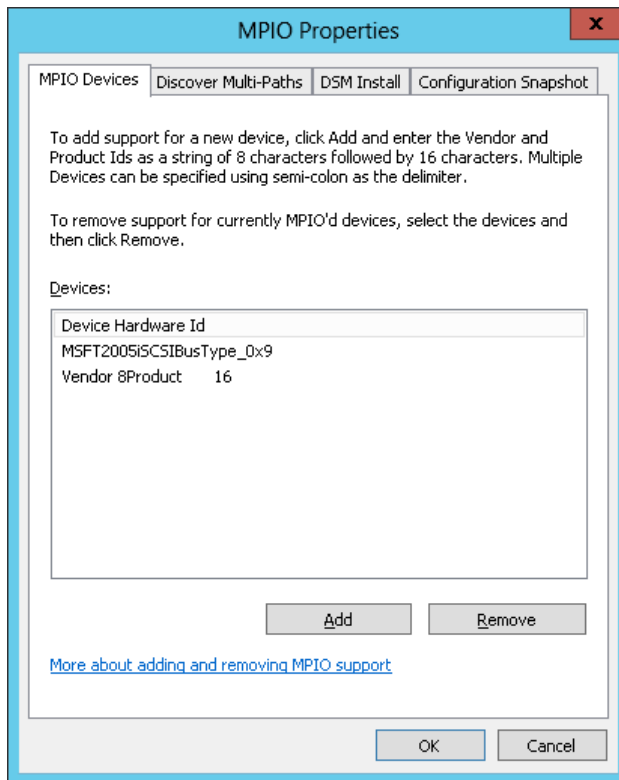


20. When prompted to restart the server, click **Yes** to proceed.



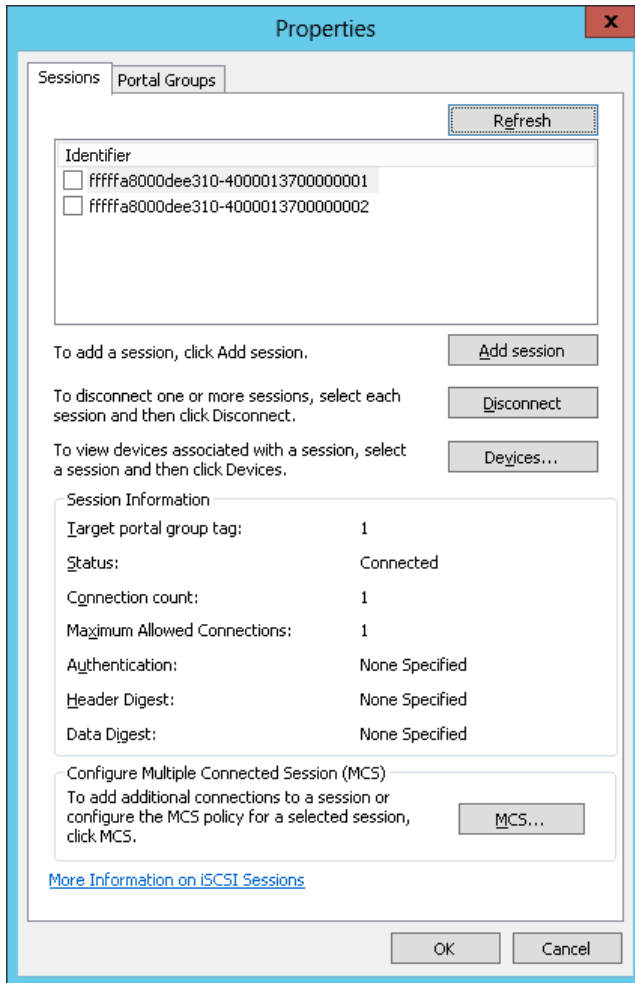


21. After the system reboot open the MPIO Manager once again to check whether the multipathed device has been recognized and added. A new device should be displayed in the **Devices** list of the **MPIO-ed devices** tab.

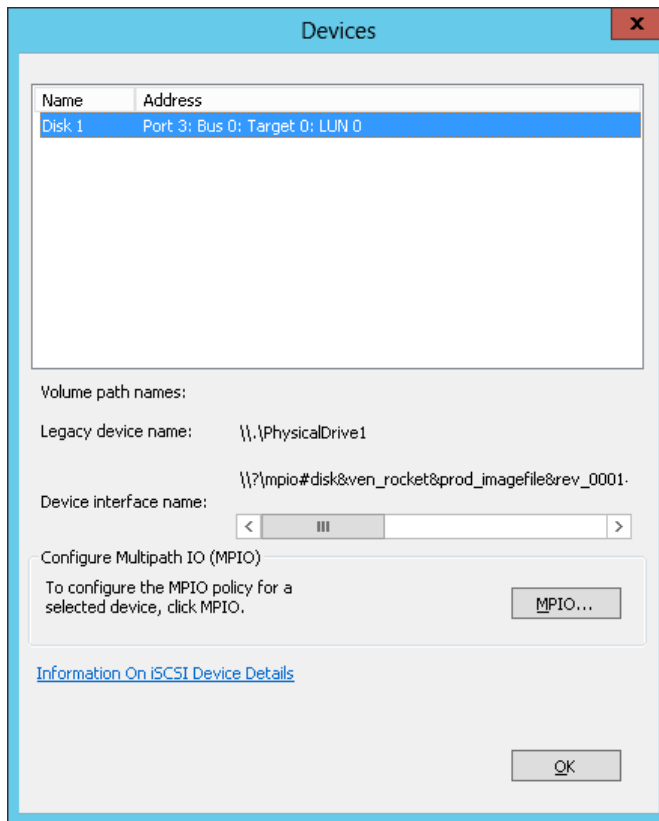


22. Open the iSCSI Initiator to check the target properties. Select the target and click **Properties**.

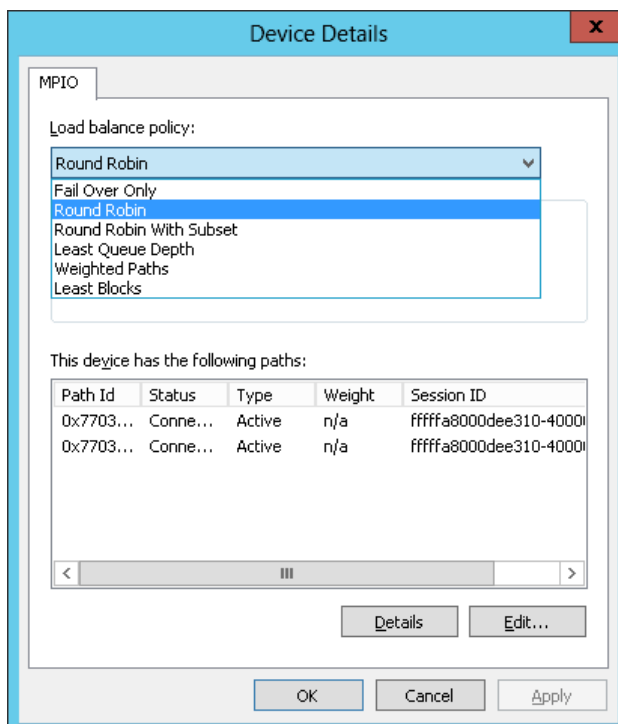
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