

StarWind iSCSI SAN:

Configuring HA File Server for SMB NAS

February 2012

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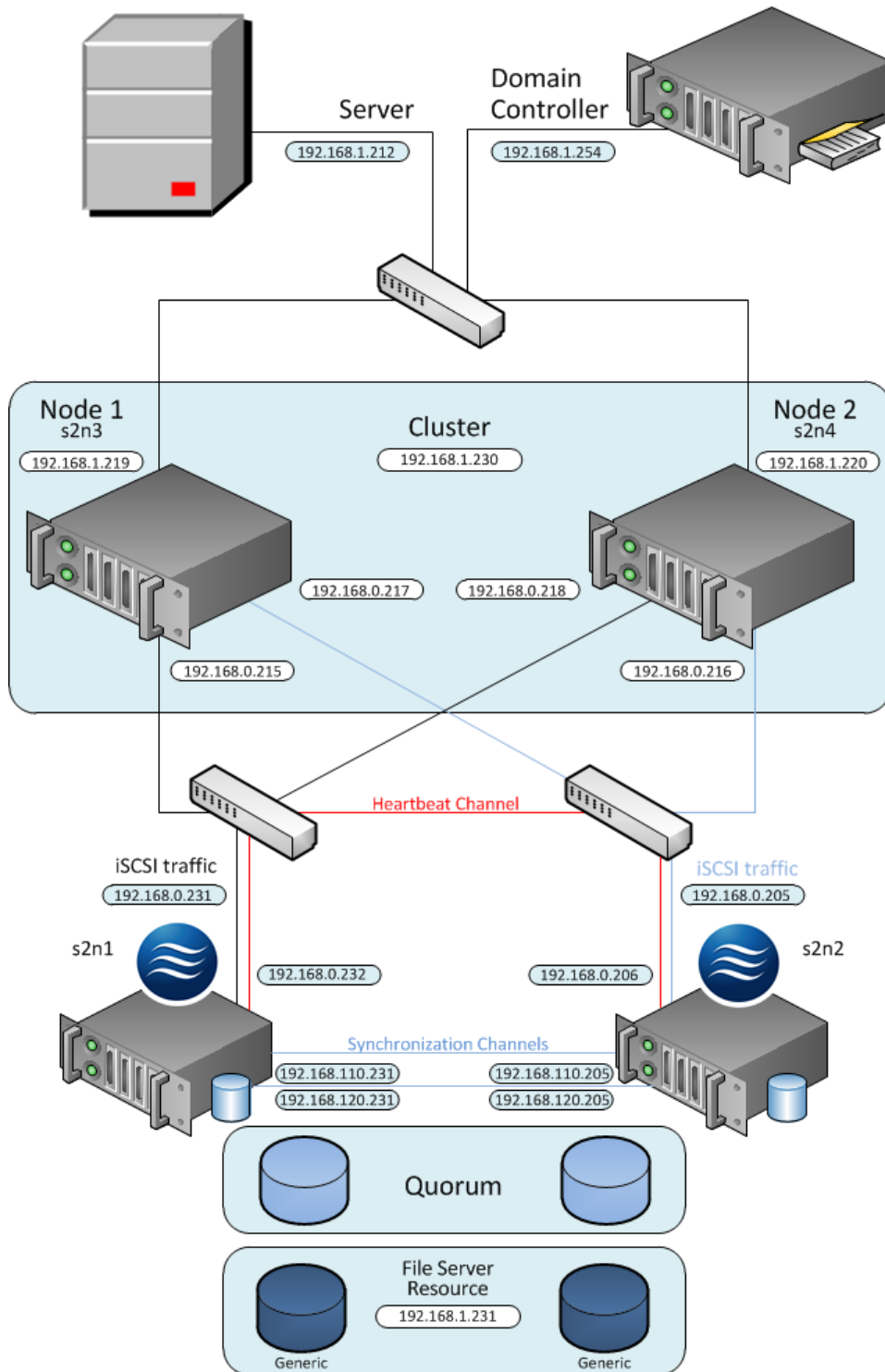
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INTRODUCTION



CONFIGURING SHARED STORAGE

Two virtual disks are required for the storage configuration. Both of them have to be HA devices. We will describe only the process of creation of the first disk, since the procedure of creating the second one is alike, except for the second device is used for a file server, so it has to be of a sufficient size (e.g. 100 GB).

To configure a virtual disk:

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

Note: When the **Management Console** is running, its icon appears in the system tray. To access **StarWind Management Console:**

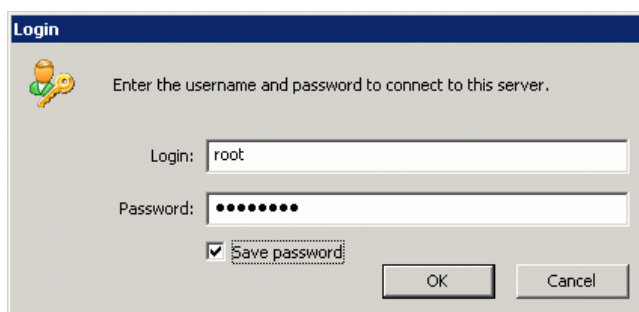
Double-click the **StarWind Management Console** icon

Right click the **StarWind Management Console** icon and select **Start Management Console** from the pop-up menu

2. On the **Console tree** select a server, where iSCSI target device is to be created. Double-click it to connect.

3. In the **Login** dialog that appears specify login and password in the corresponding text fields.

Note:The default login and password are “root” and “starwind”, respectively. You can change them later.



4. Optionally select the **Save password** check box to log in automatically next time.

5. Click **OK** to continue.

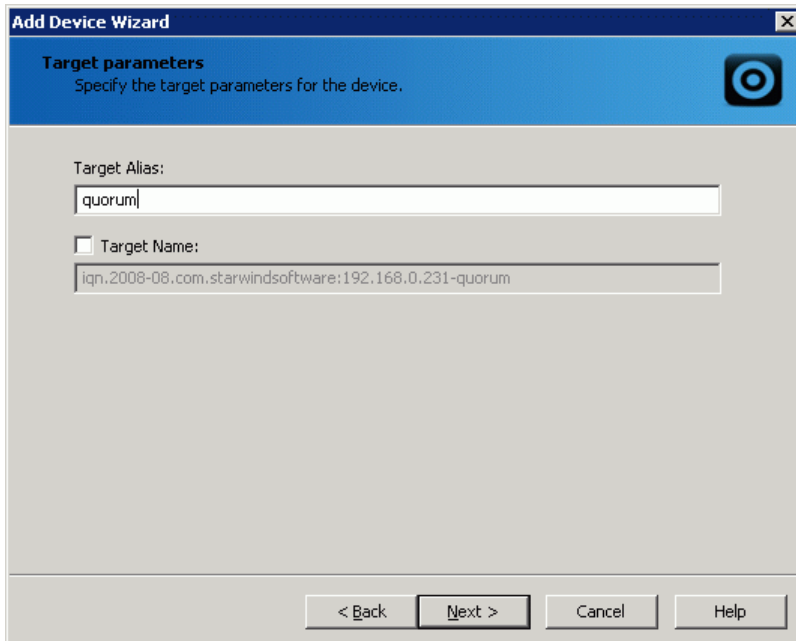
6. As you are connected to the **StarWind Service**, click **Add Device** button to add a device to the selected server.

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

8. Go to **Hard Disk->Advanced Virtual->High Availability Device** to select the HA device type.

9. In the **Target Alias** and **Target Name** text fields, specify corresponding information.

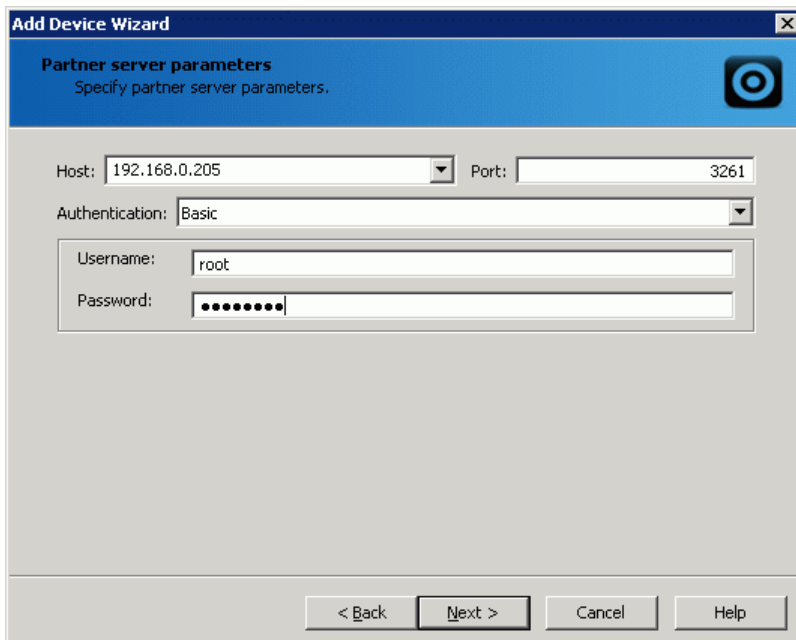
Note: The name must be a unique. Under this name the device is declared to the iSCSI initiators connecting to the **StarWind Service** over an IP network.



The screenshot shows the 'Add Device Wizard' dialog box with the 'Target parameters' step selected. The title bar reads 'Add Device Wizard'. The main title is 'Target parameters' with the subtitle 'Specify the target parameters for the device.' Below this, there are two text input fields. The first is labeled 'Target Alias:' and contains the text 'quorum'. The second is labeled 'Target Name:' and contains the text 'iqn.2008-08.com.starwindsoftware:192.168.0.231-quorum'. At the bottom of the dialog, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

10. Click **Next** to continue.

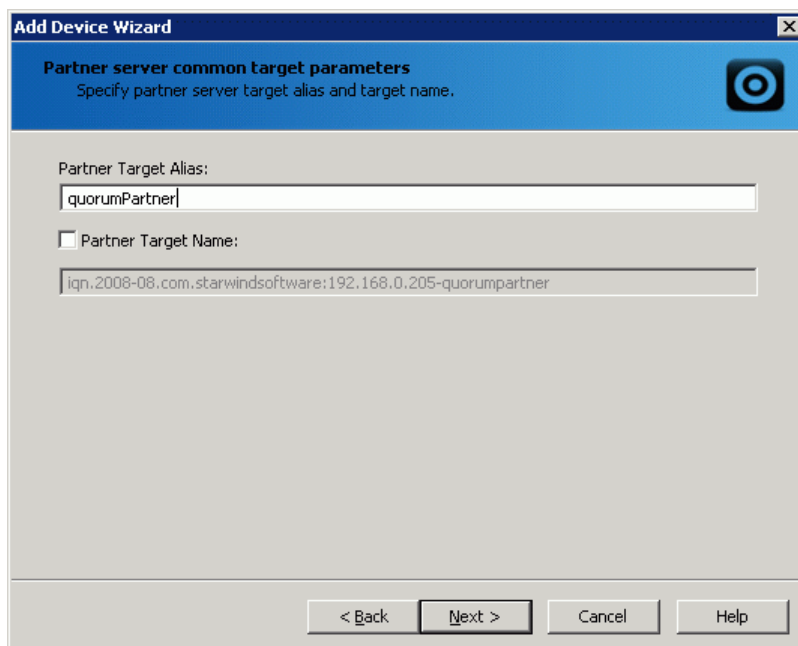
11. Enter the server's IP-address in the **Host** text field, and specify username and password for the StarWind Service in the corresponding text fields.



The screenshot shows the 'Add Device Wizard' dialog box with the 'Partner server parameters' step selected. The title bar reads 'Add Device Wizard'. The main title is 'Partner server parameters' with the subtitle 'Specify partner server parameters.' Below this, there are several input fields. The 'Host' field contains '192.168.0.205' and the 'Port' field contains '3261'. The 'Authentication' dropdown menu is set to 'Basic'. Below these, there are two more input fields: 'Username' containing 'root' and 'Password' containing a series of dots. At the bottom of the dialog, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

12. Click **Next** to continue.

13. In the **Partner Target Alias** and **Partner Target Name** text fields specify corresponding information.



The screenshot shows the 'Add Device Wizard' dialog box with the title 'Partner server common target parameters'. The subtitle is 'Specify partner server target alias and target name.' The dialog contains two text input fields. The first is labeled 'Partner Target Alias:' and contains the text 'quorumPartner'. The second is labeled 'Partner Target Name:' and contains the text 'iqn.2008-08.com.starwindsoftware:192.168.0.205-quorumpartner'. There is an unchecked checkbox next to the 'Partner Target Name:' label. At the bottom of the dialog are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

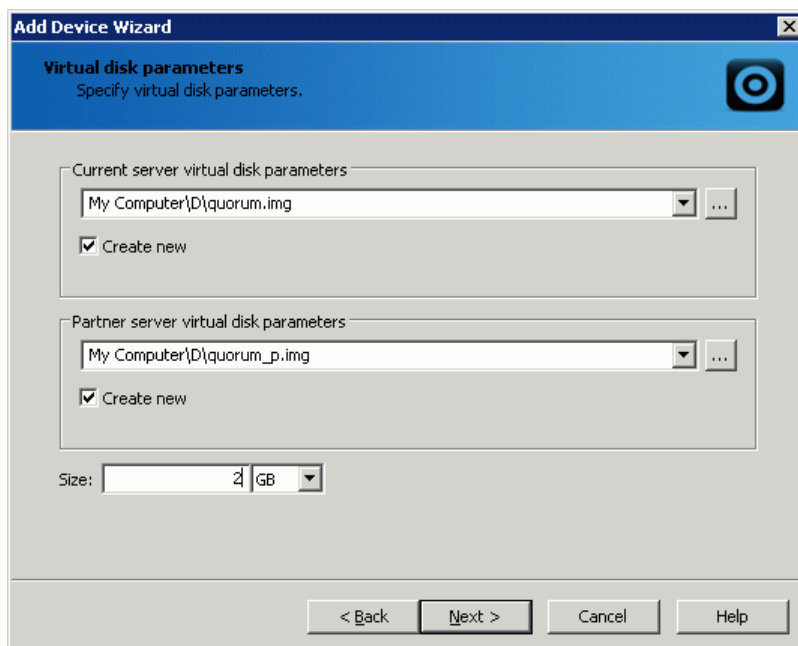
14. Click **Next** to continue.

15. Specify the virtual disks to be created.

Note: The HA device is made up of two virtual disks.

16. In the **Virtual disk parameters of the current server** field and the **Virtual disk parameters of the partner server** field specify name and location of HA virtual disks on the current and partner host, respectively. Press **...** to browse and select appropriate location.

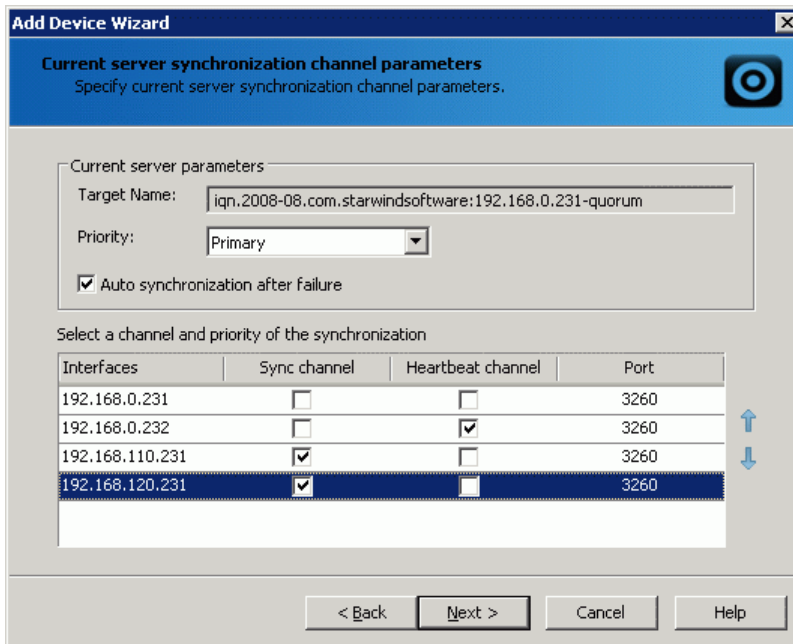
17. Type the size in the **Size** box.



The screenshot shows the 'Add Device Wizard' dialog box with the title 'Virtual disk parameters'. The subtitle is 'Specify virtual disk parameters.' The dialog contains two sections for virtual disk parameters. The first section is 'Current server virtual disk parameters' and contains a text input field with 'My Computer\D\quorum.img' and a browse button (...). Below it is a checked checkbox labeled 'Create new'. The second section is 'Partner server virtual disk parameters' and contains a text input field with 'My Computer\D\quorum_p.img' and a browse button (...). Below it is a checked checkbox labeled 'Create new'. At the bottom of the dialog is a 'Size:' label followed by a text input field containing '2' and a dropdown menu set to 'GB'. At the bottom of the dialog are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

18. Click **Next** to continue.

19. Specify synchronization channel parameters of the current server.



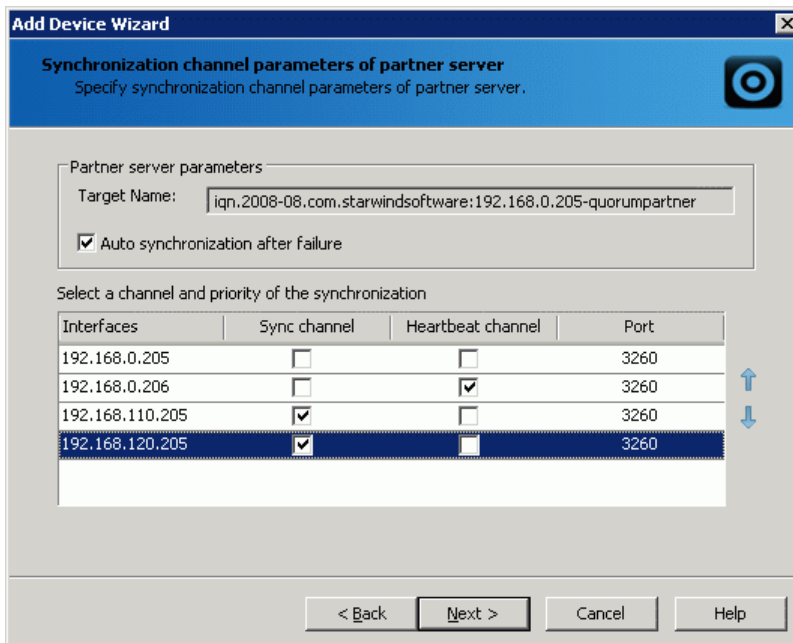
The screenshot shows the 'Add Device Wizard' dialog box with the title 'Current server synchronization channel parameters'. The subtitle is 'Specify current server synchronization channel parameters.' The 'Current server parameters' section includes a 'Target Name' field with the value 'iqn.2008-08.com.starwindsoftware:192.168.0.231-quorum', a 'Priority' dropdown set to 'Primary', and a checked checkbox for 'Auto synchronization after failure'. Below this is a table for selecting synchronization channels:

Interfaces	Sync channel	Heartbeat channel	Port
192.168.0.231	<input type="checkbox"/>	<input type="checkbox"/>	3260
192.168.0.232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3260
192.168.110.231	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3260
192.168.120.231	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3260

At the bottom of the dialog are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

20. Click **Next** to continue.

21. Specify synchronization channel parameters of the partner server.



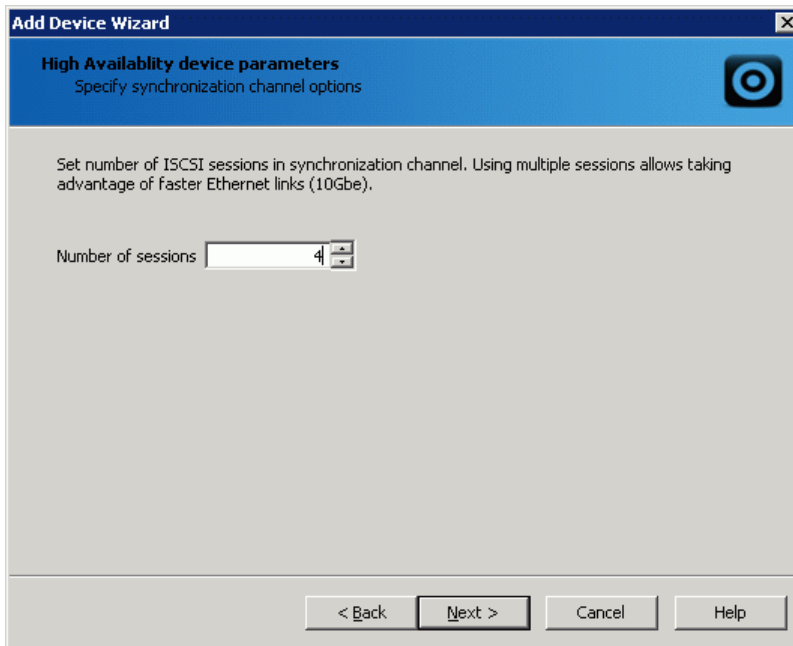
The screenshot shows the 'Add Device Wizard' dialog box with the title 'Synchronization channel parameters of partner server'. The subtitle is 'Specify synchronization channel parameters of partner server.' The 'Partner server parameters' section includes a 'Target Name' field with the value 'iqn.2008-08.com.starwindsoftware:192.168.0.205-quorumpartner' and a checked checkbox for 'Auto synchronization after failure'. Below this is a table for selecting synchronization channels:

Interfaces	Sync channel	Heartbeat channel	Port
192.168.0.205	<input type="checkbox"/>	<input type="checkbox"/>	3260
192.168.0.206	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3260
192.168.110.205	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3260
192.168.120.205	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3260

At the bottom of the dialog are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

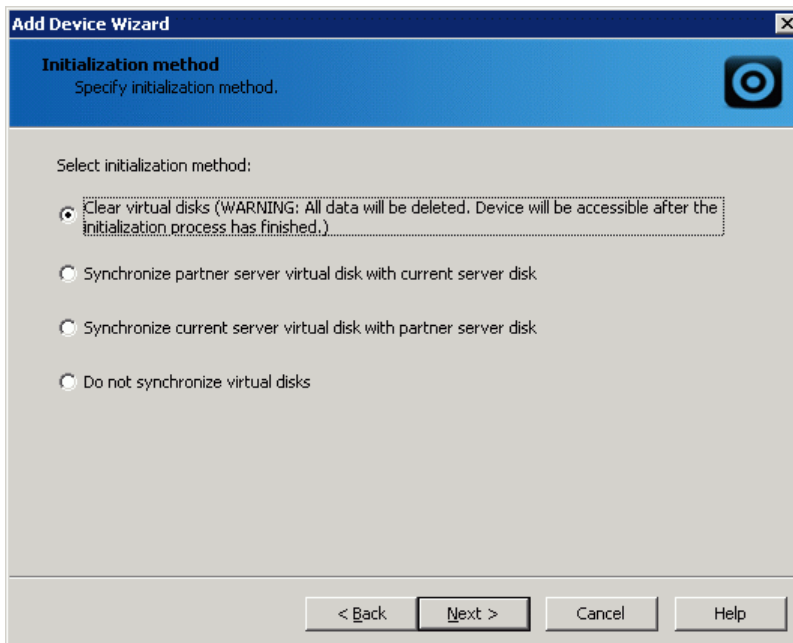
22. Click **Next** to continue.

23. Specify number of iSCSI sessions in synchronization channel.



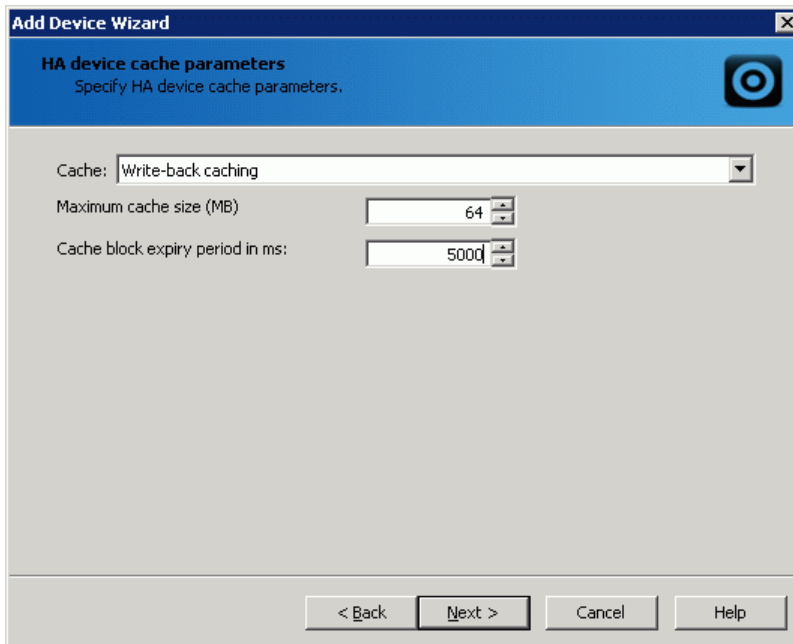
24. Click **Next** to continue.

25. Select initialization method of HA device.



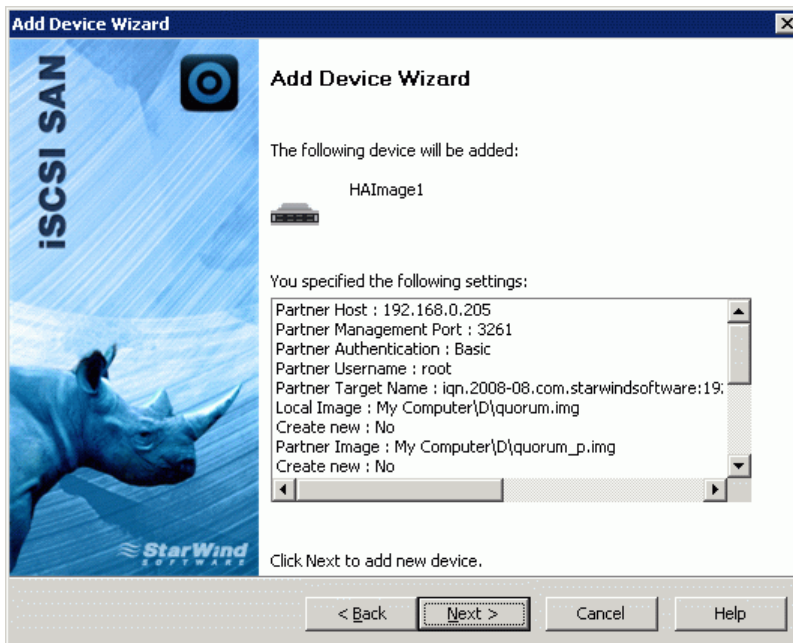
26. Click **Next** to continue.

27. Specify cache parameters of HA device.



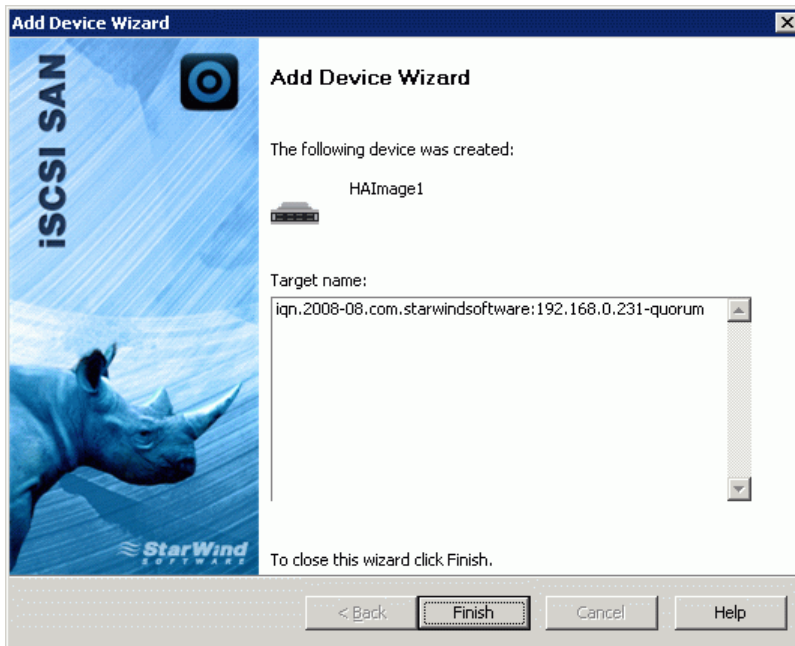
28. Click **Next** to continue.

29. Check whether device parameters are correct. Click **Back** to make any changes.



30. Click **Next** to add StarWind target.

31. Click **Finish** to close the Wizard.

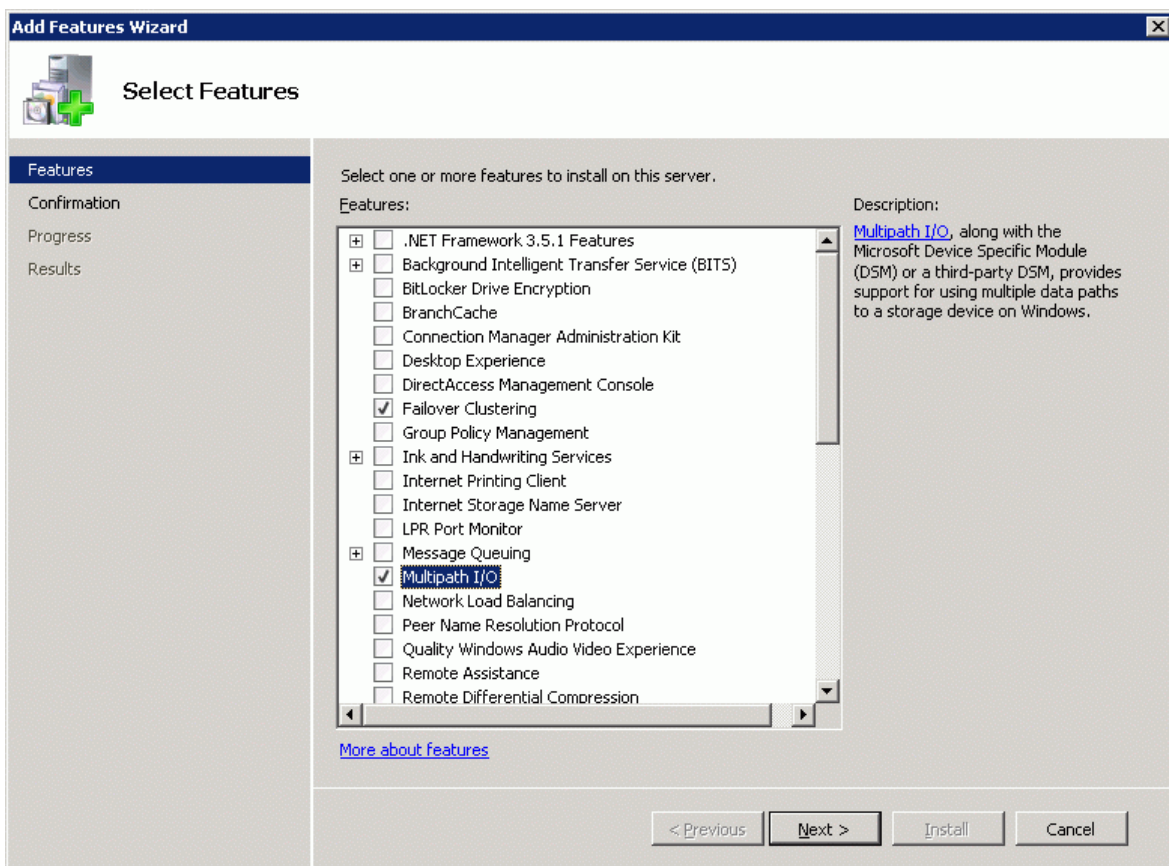


CONFIGURING WINDOWS SERVER 2008

Installing Features

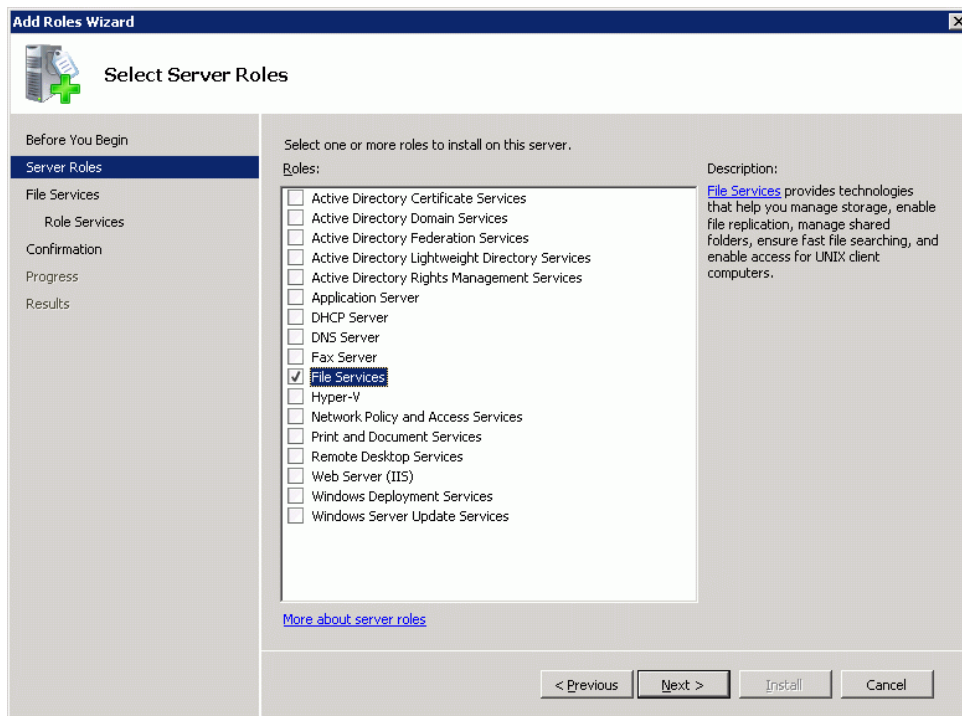
1. Open **Server Manager: Start->Administrative Tools->Sever Manager**.
2. Go to the **Features** item.
3. Click **Add Features**.
4. **Add Features Wizard** appears. In the features list select **Multipath I/O** and **Failover Clustering** features.
5. Follow the Wizard's steps to install the selected features.

Note: Restart the server after installation is completed.

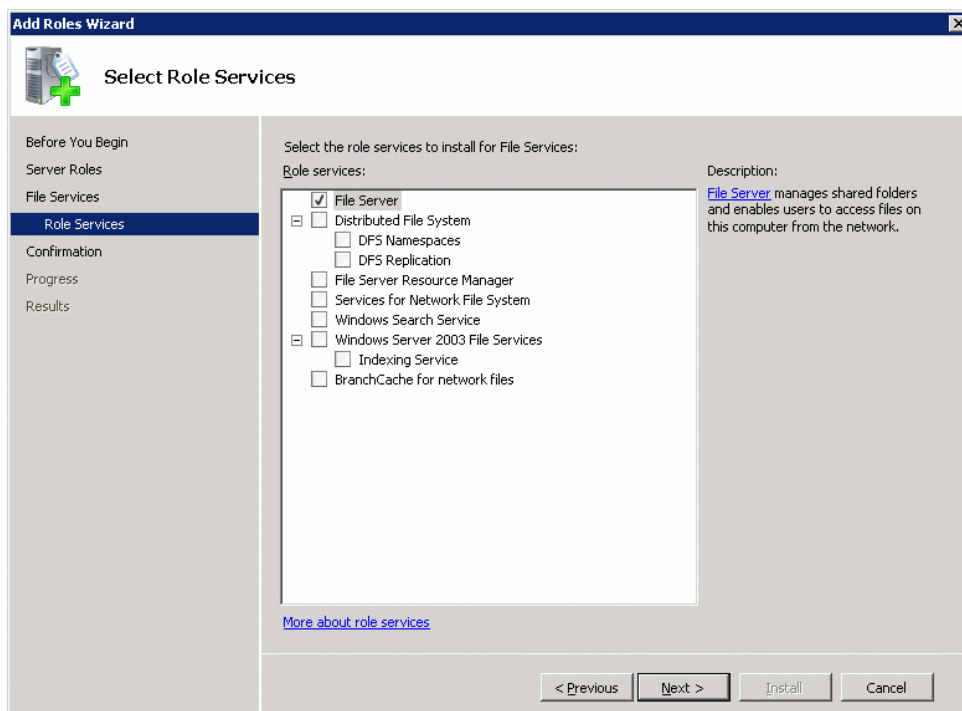


Installing File Service Role

1. Open **Server Manager: Start->Administrative Tools->Sever Manager**.
2. Go to the **Roles** item.
3. Click **Add Roles**.
4. **Add Roles Wizard** appears. In the roles list select the **File Services** role and install it.

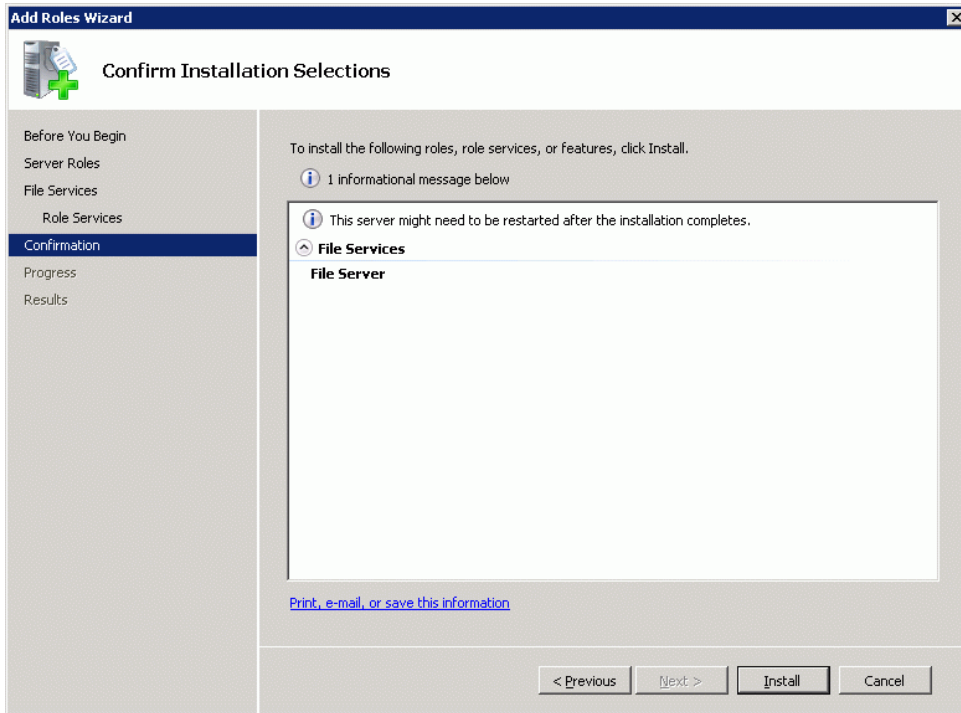


5. Click **Next** to continue.
6. Select **File Server** check box.



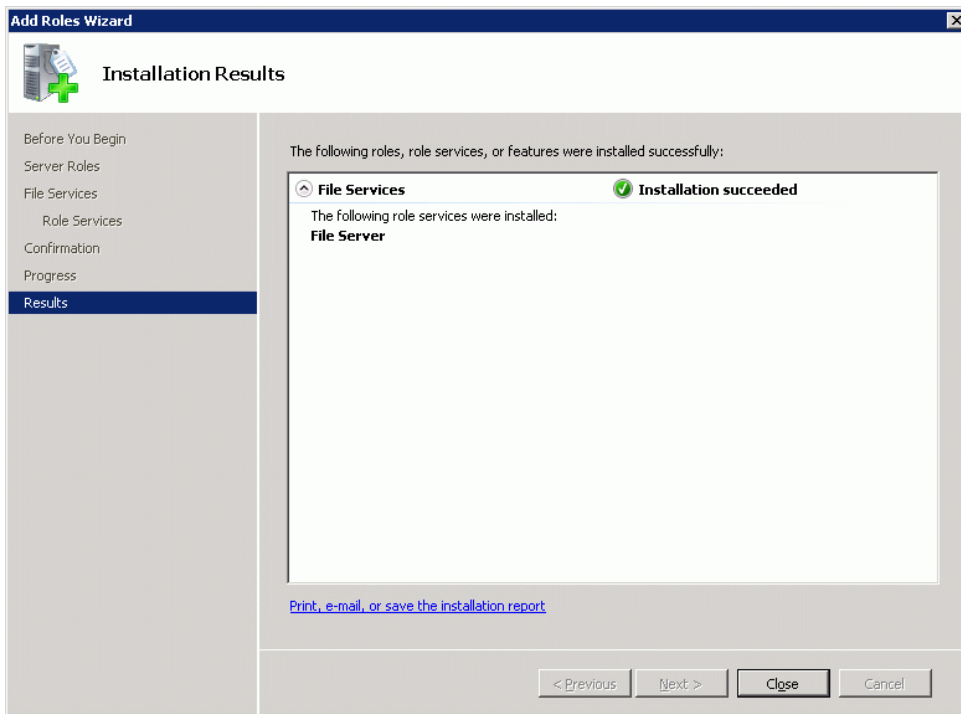
7. Click **Next** to continue.

8. Check whether everything is correct, and click **Install** to install the **File Server** role on the server.



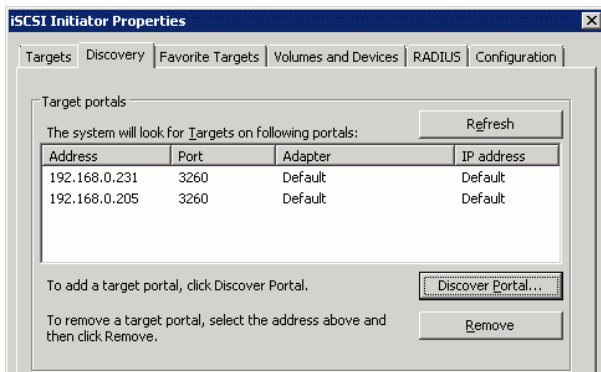
9. Review installation results and click **Close** to exit the Wizard.

Note: Restart the server after installation is completed.

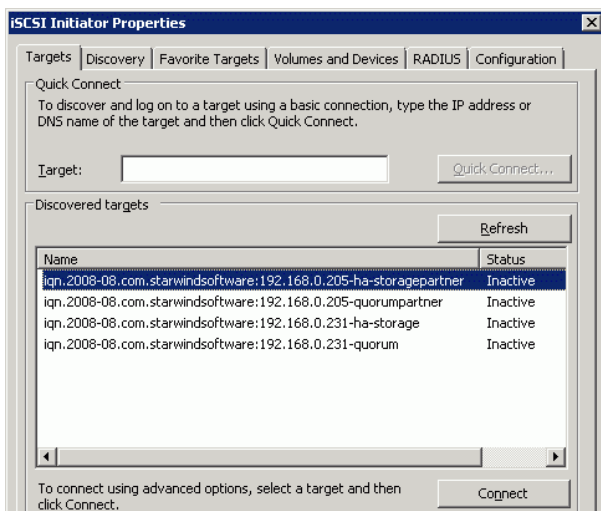


Connecting Targets

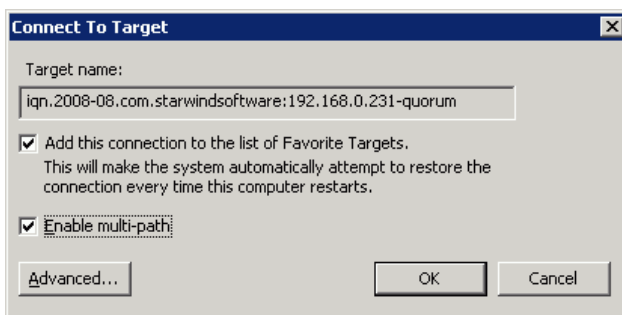
1. Open **Microsoft iSCSI Initiator: Start -> Administrative Tools -> iSCSI Initiator**.
2. Click the **Discovery** tab.
3. To add StarWind server click **Discover Portal** and specify server's IP-address.



4. Switch to the **Targets** tab.



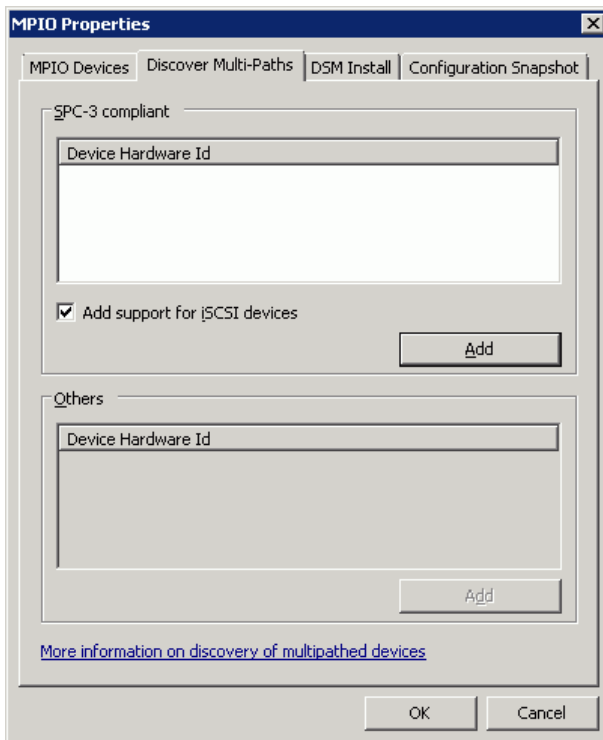
5. Select the needed target and click **Connect** to connect to it.
6. In the **Connect to Target** dialog select **Add this connection to the list of Favorite Targets** and **Enable multi-path** check boxes.



7. Click **OK**.
8. Repeat the same operations for the rest of 3 targets.

Enabling Multipath Support

1. Open the **MPIO manager: Start->Administrative Tools->MPIO**.
2. Go to the **Discover Multi-Paths** tab.
3. Select the **Add support for iSCSI devices** check box.



4. Click **Add**.
5. When prompted to restart the server, click **Yes** to proceed.
6. After the server is restarted, initialize the disk and create partitions, as if it were physical hard drive.

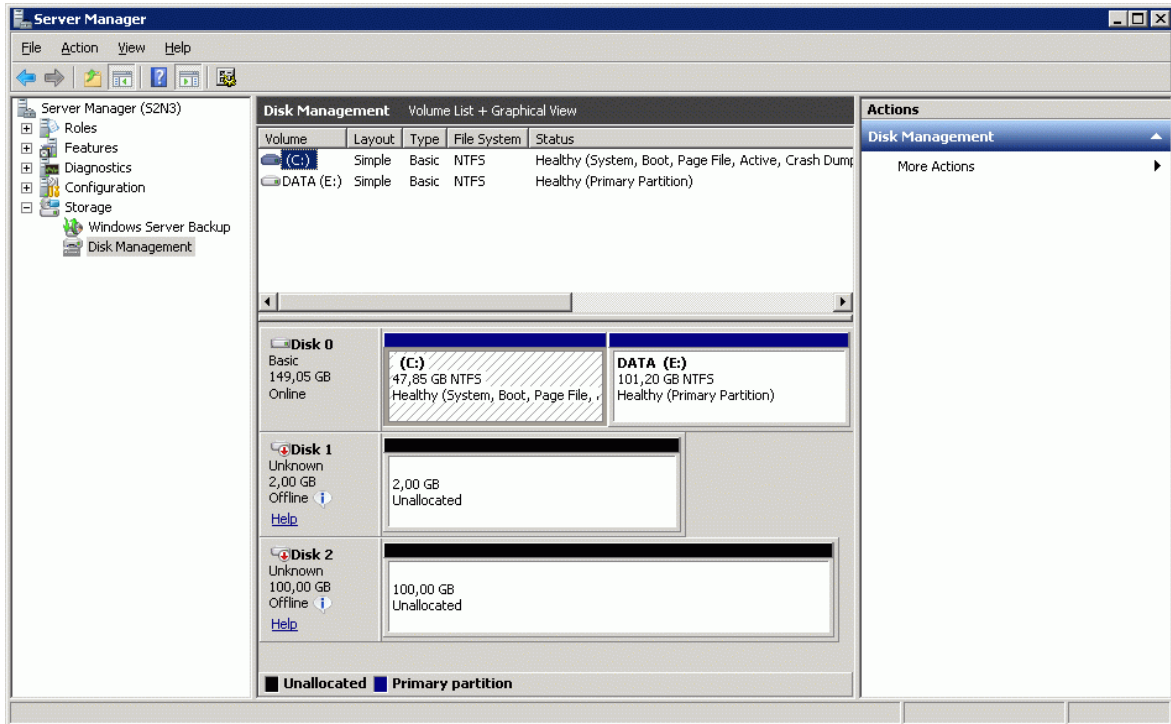
Note: The procedures performed on the first server are automatically shown on the second one.

Initializing Disks

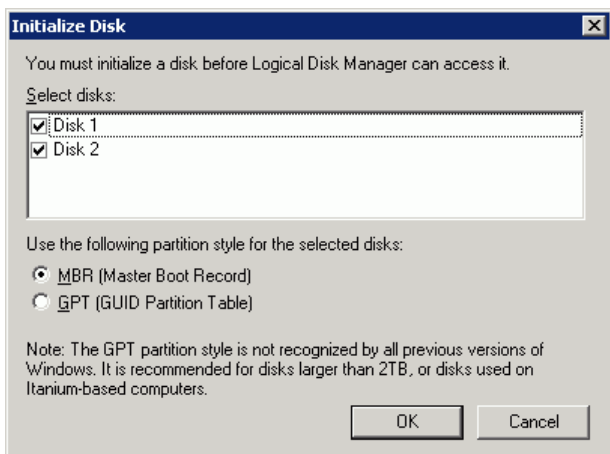
The **StarWind** disks must be initialized and formatted, before they can be utilized as cluster disks.

To initialize disks and create partitions:

1. Launch the **Server Manager** console.

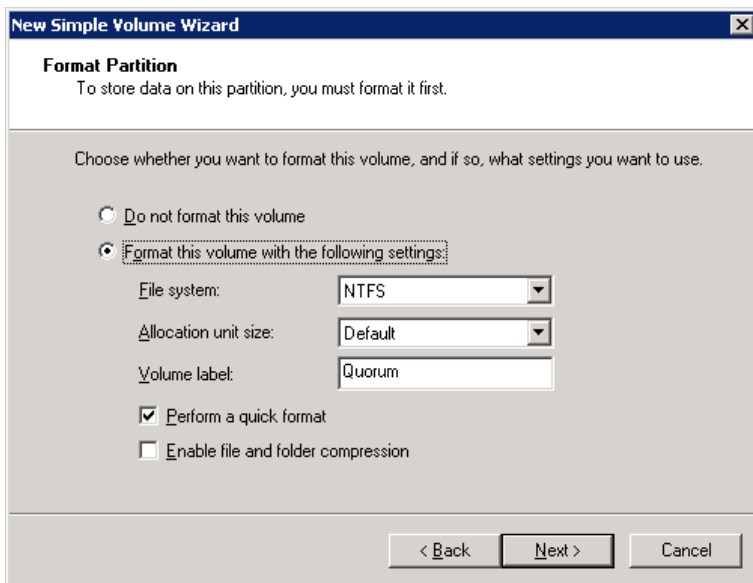


2. Select the **Disk Management** item.
3. Right click each disk and select **Online Disk** to bring it online.
4. Right click each disk and select **Initialize Disk** to initialize it. Follow the Wizard to initialize disks.

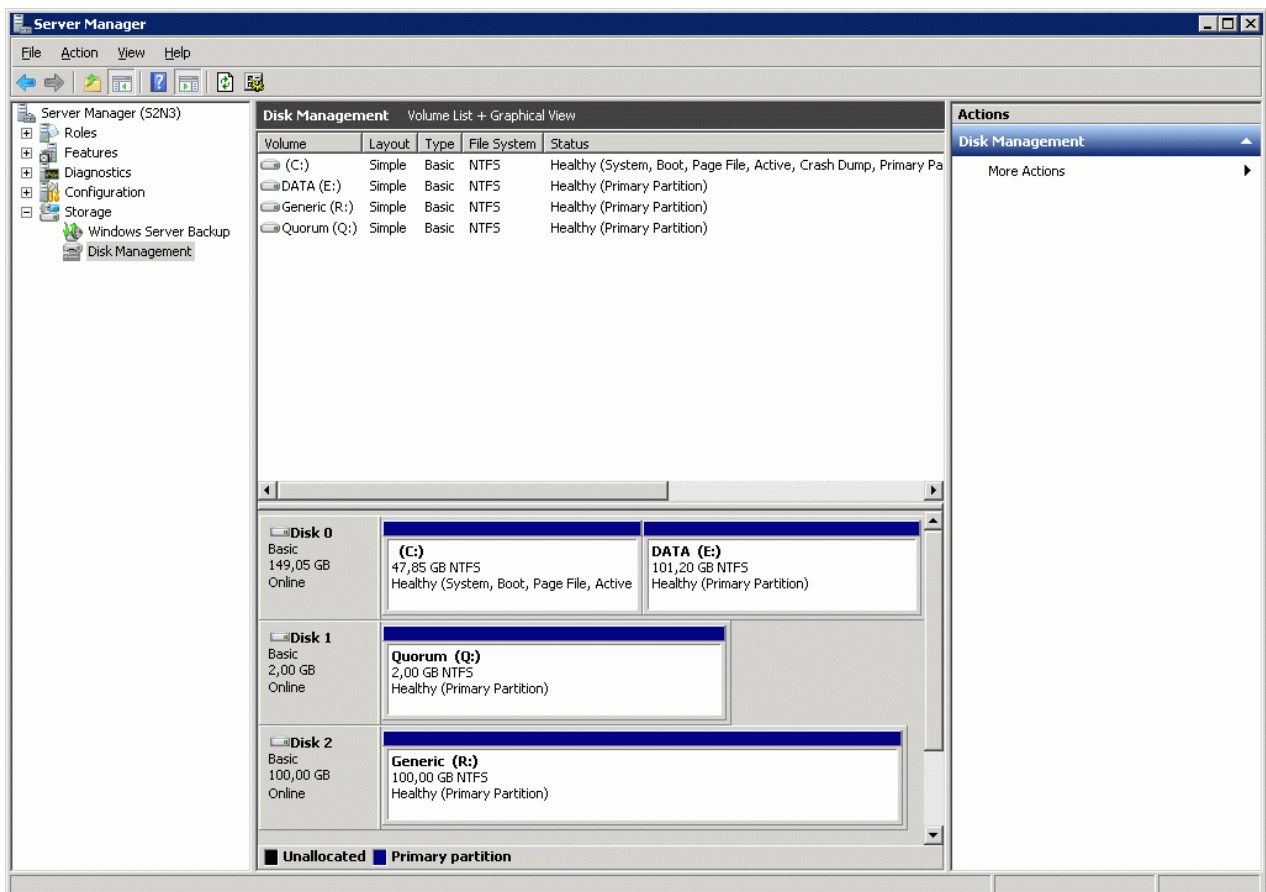


5. Click **OK** to continue.

6. Format disks with default settings, and optionally, set Volume labels. Follow the Wizard's steps.



7. In case the operation is completed successfully, the disks will be formatted as shown in the screenshot below.

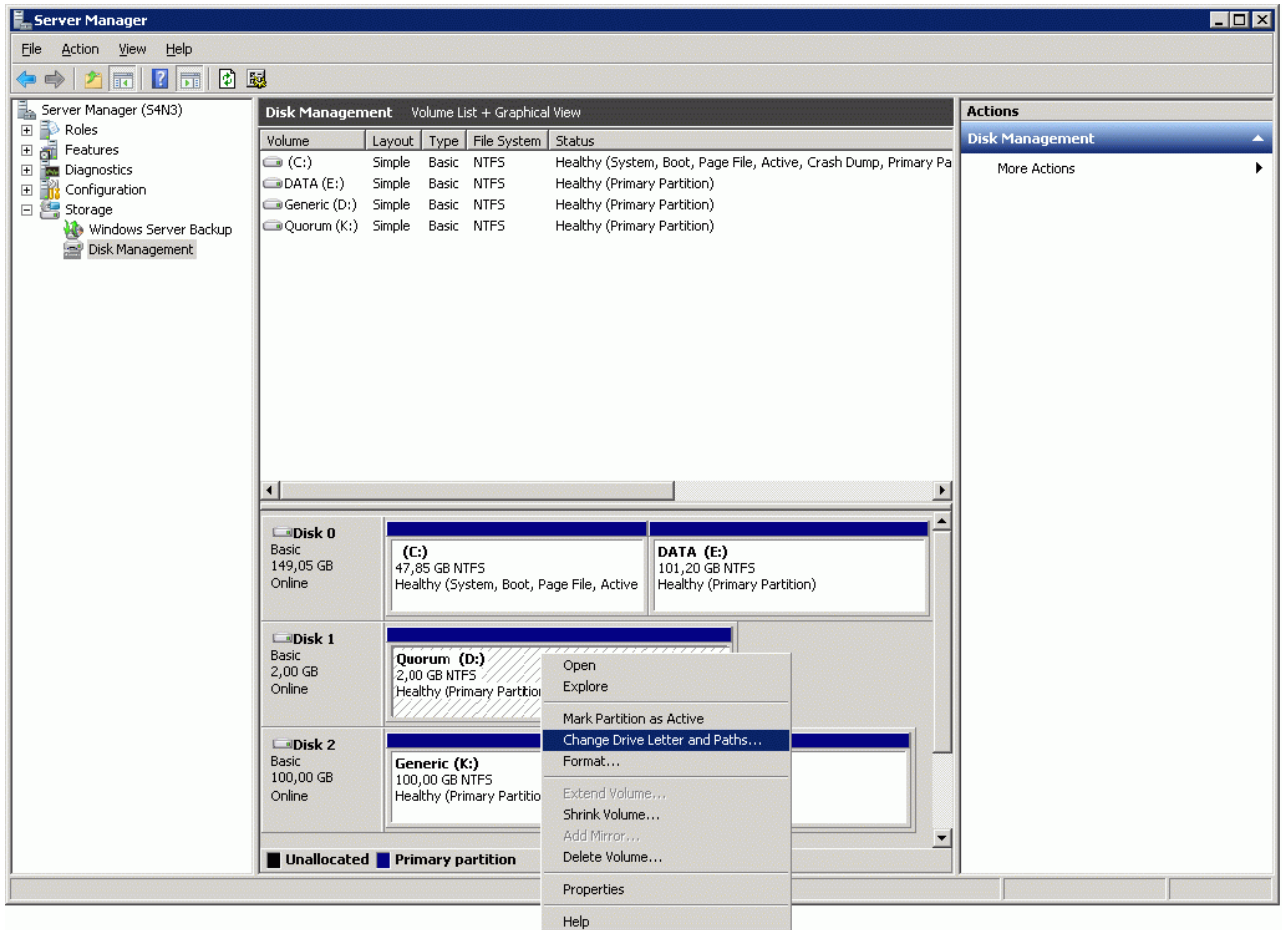


8. Switch to the second node and connect the targets in the same way.

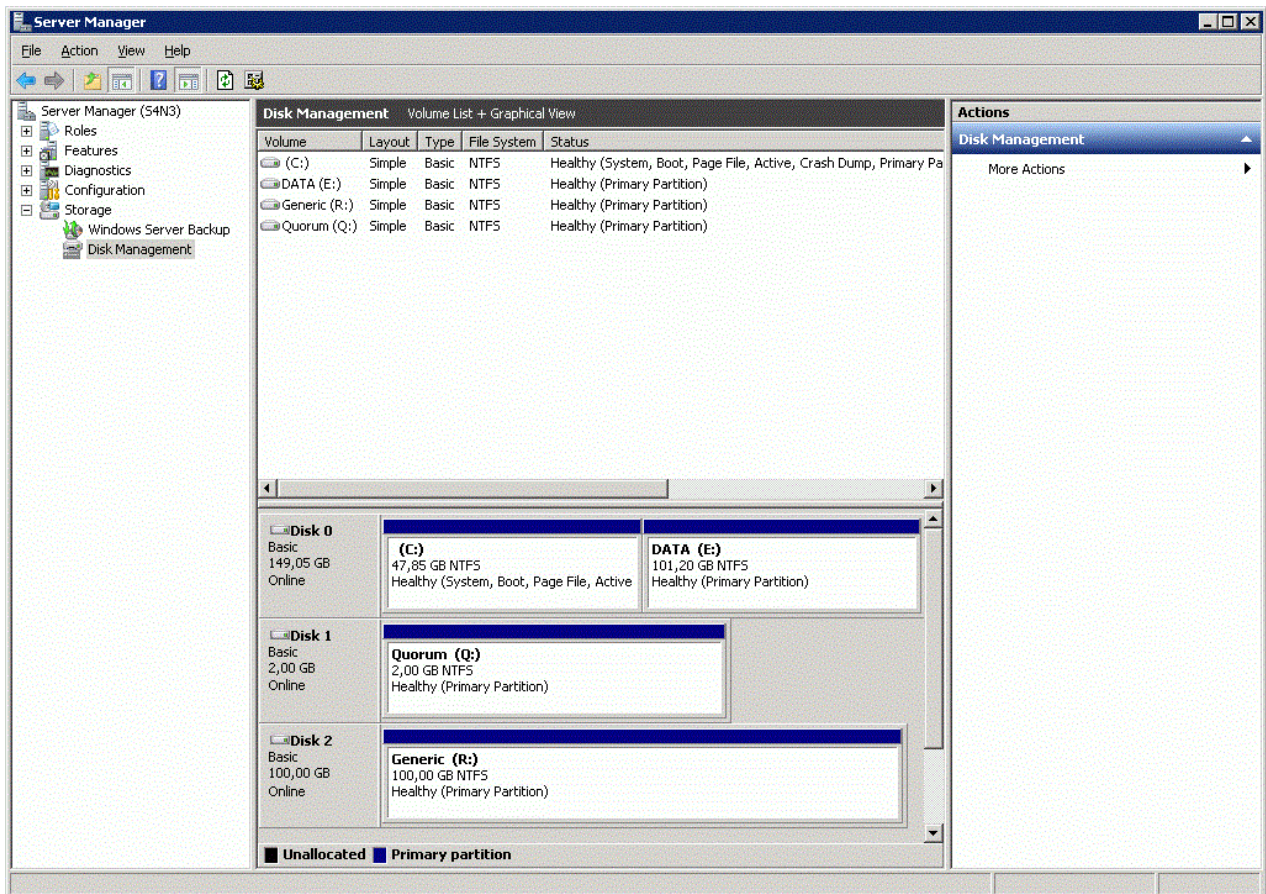
9. Bring disks online.

Note: Windows automatically assigns drive letters to the mounted volumes. As these are local drive letters, they may differ from those assigned on the first node. However, you can change drive letters manually:

Right click **Quorum** or **Generic** volumes and select **Change Drive Letter and Paths** in the shortcut menu.



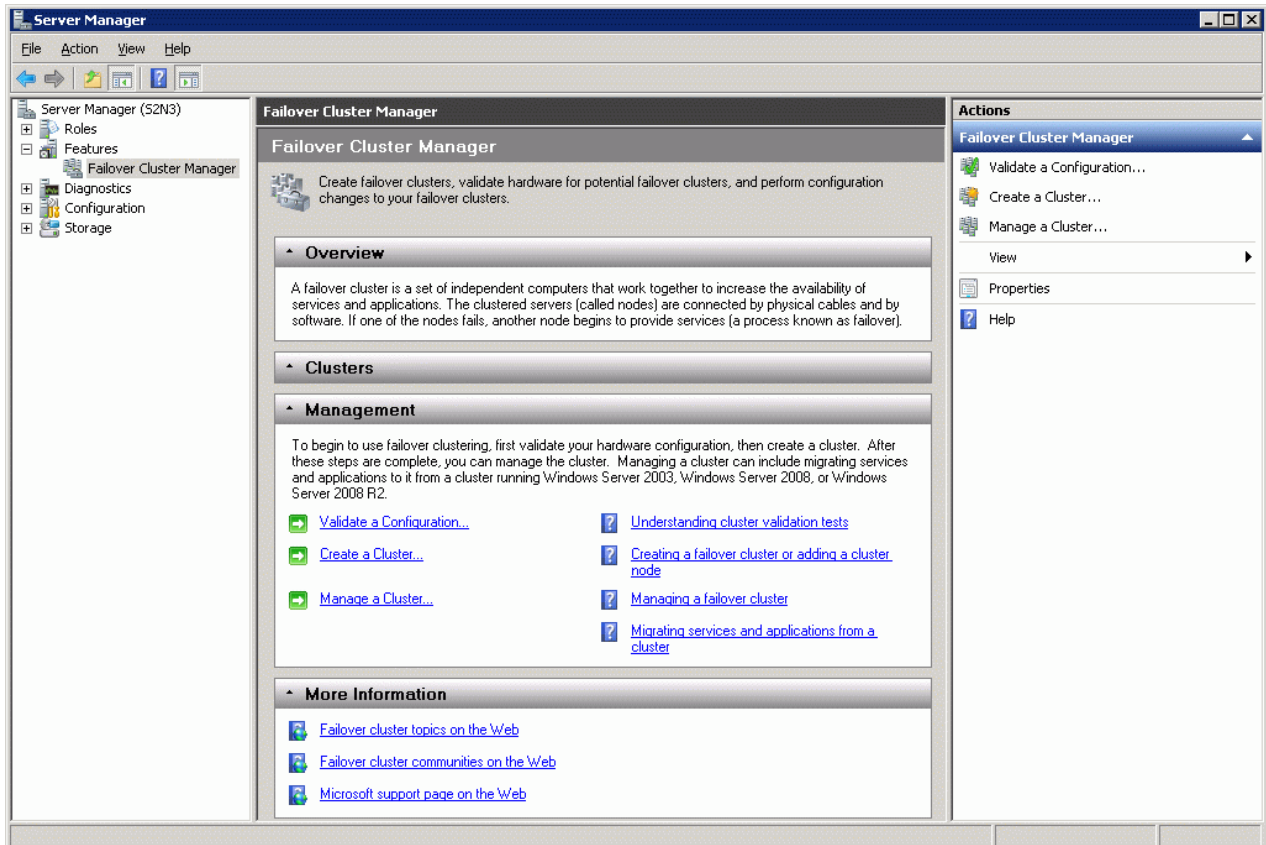
If drive letters are changed successfully, the **Server Manager** console looks as shown in the screenshot below.



CREATING A CLUSTER

To create a cluster:

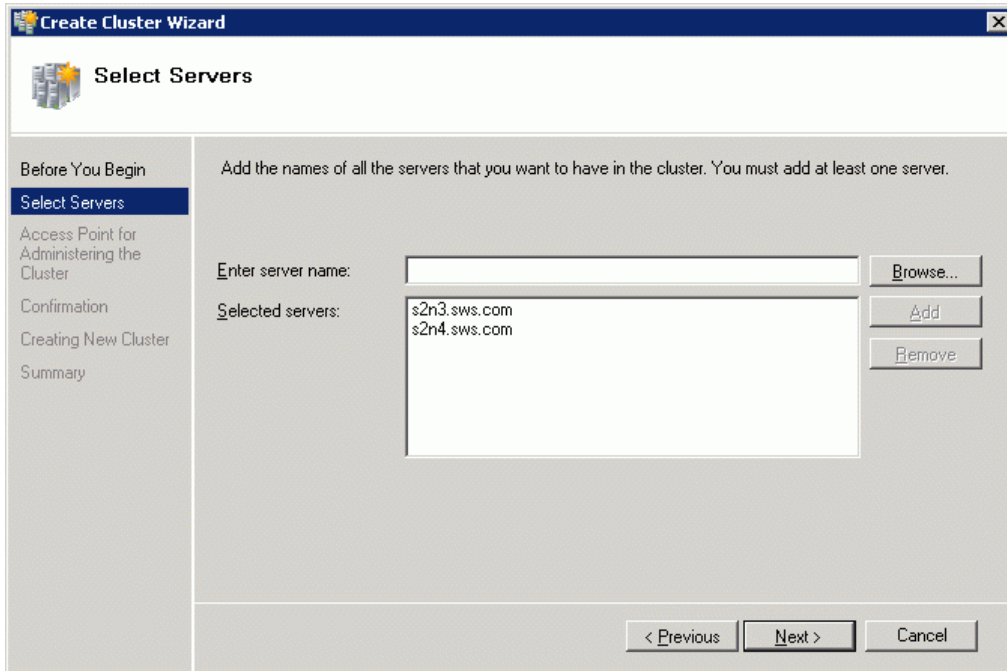
1. Open **Server Manager**.
2. Expand the **Features** item on the Console tree and select the **Failover Cluster Manager** item.
3. Click **Validate a Configuration** to verify whether your servers are suitable for building a cluster. As validation is completed, you are returned to the **Failover Cluster Manager** window.



4. Click **Create a Cluster** and follow **Create Cluster Wizard's** steps.

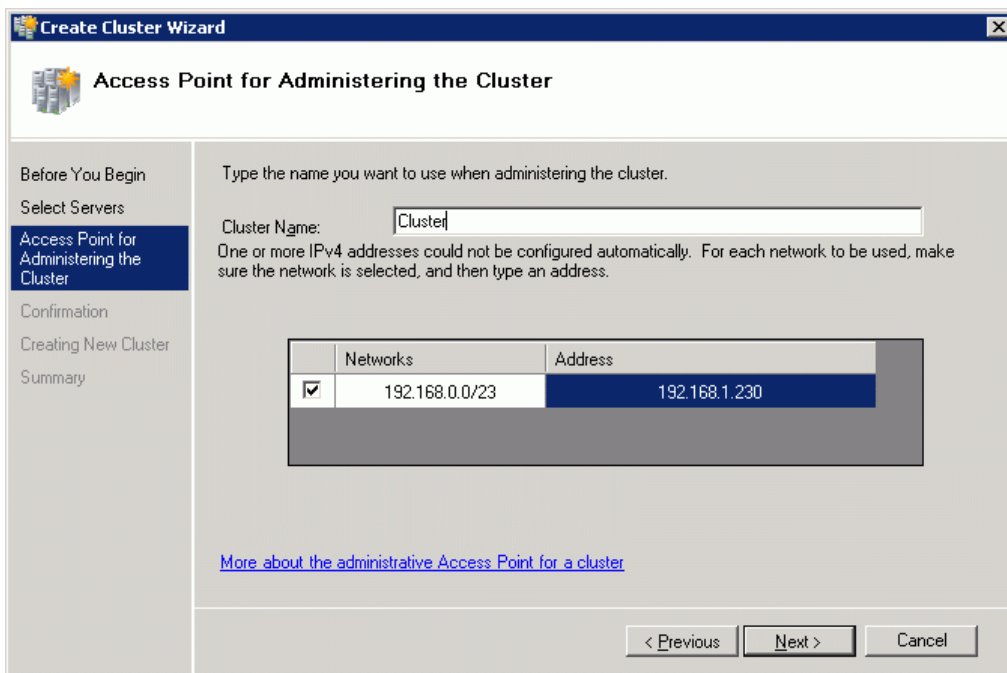
5. Add the names of all servers, which are to form the cluster, in one of the following ways:

- Enter the domain name manually
- Click **Browse**. Type first letters of the domain name, and click **Check Names**. Select the name from the offered list.



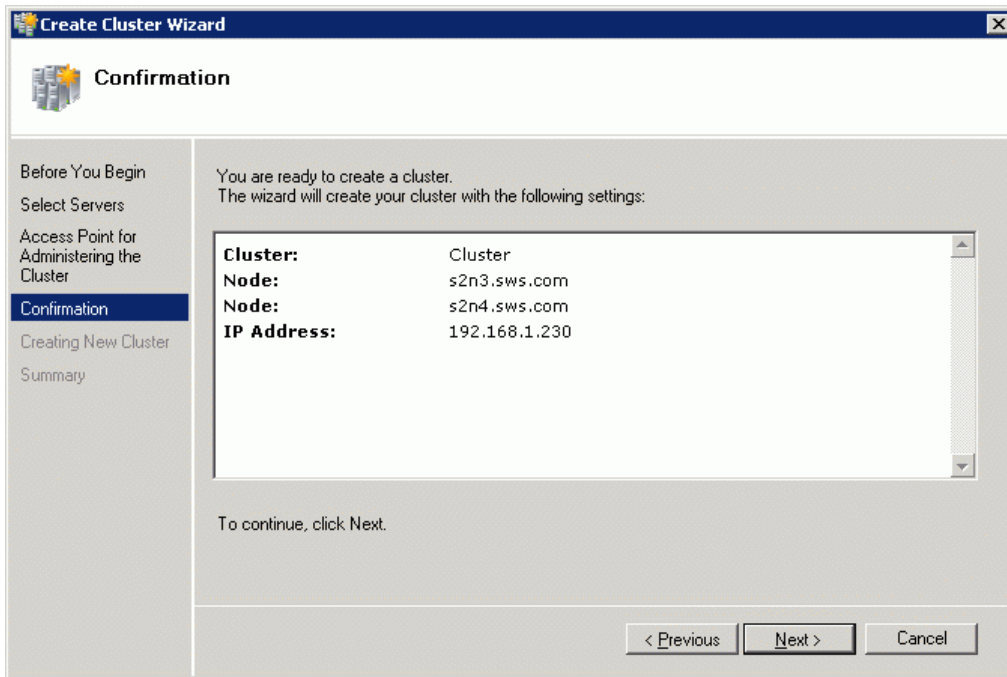
6. Click **Next** to continue.

7. Fill in the **Cluster Name** field with the corresponding information, and type the cluster address.

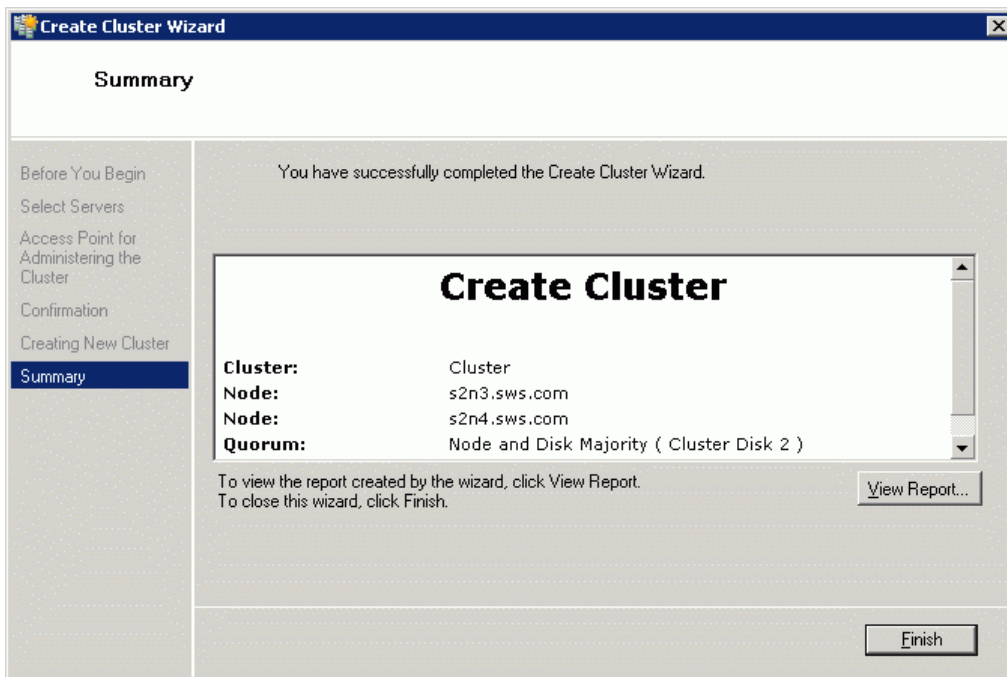


8. Click **Next** to continue.

9. Check whether specified information is correct. Click **Next** to proceed.



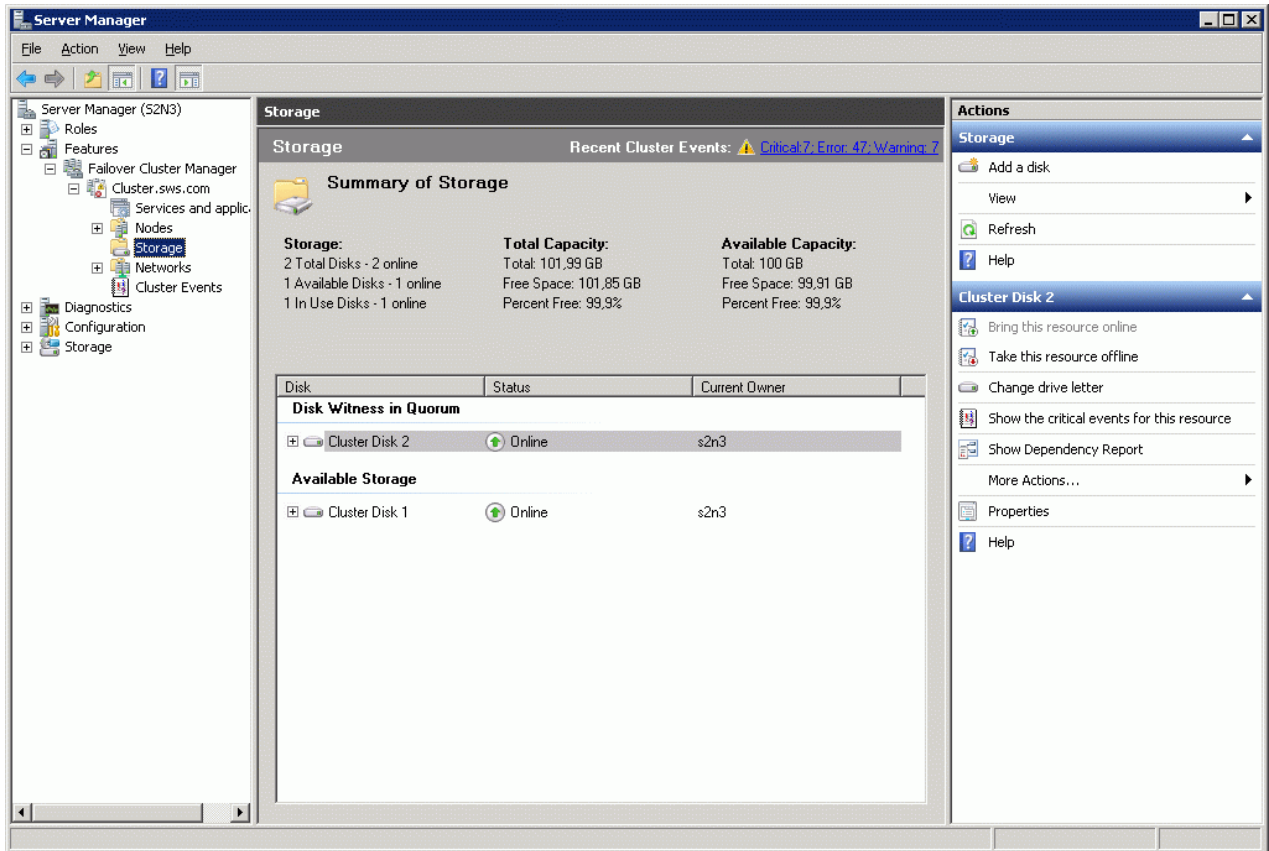
When finished successfully, the Wizard should look as shown in the screenshot below.



10. Click **Finish** to close the Wizard. The created cluster is displayed in the left pane.

11. Click + next to the cluster to expand it, and then click the **Storage** item.

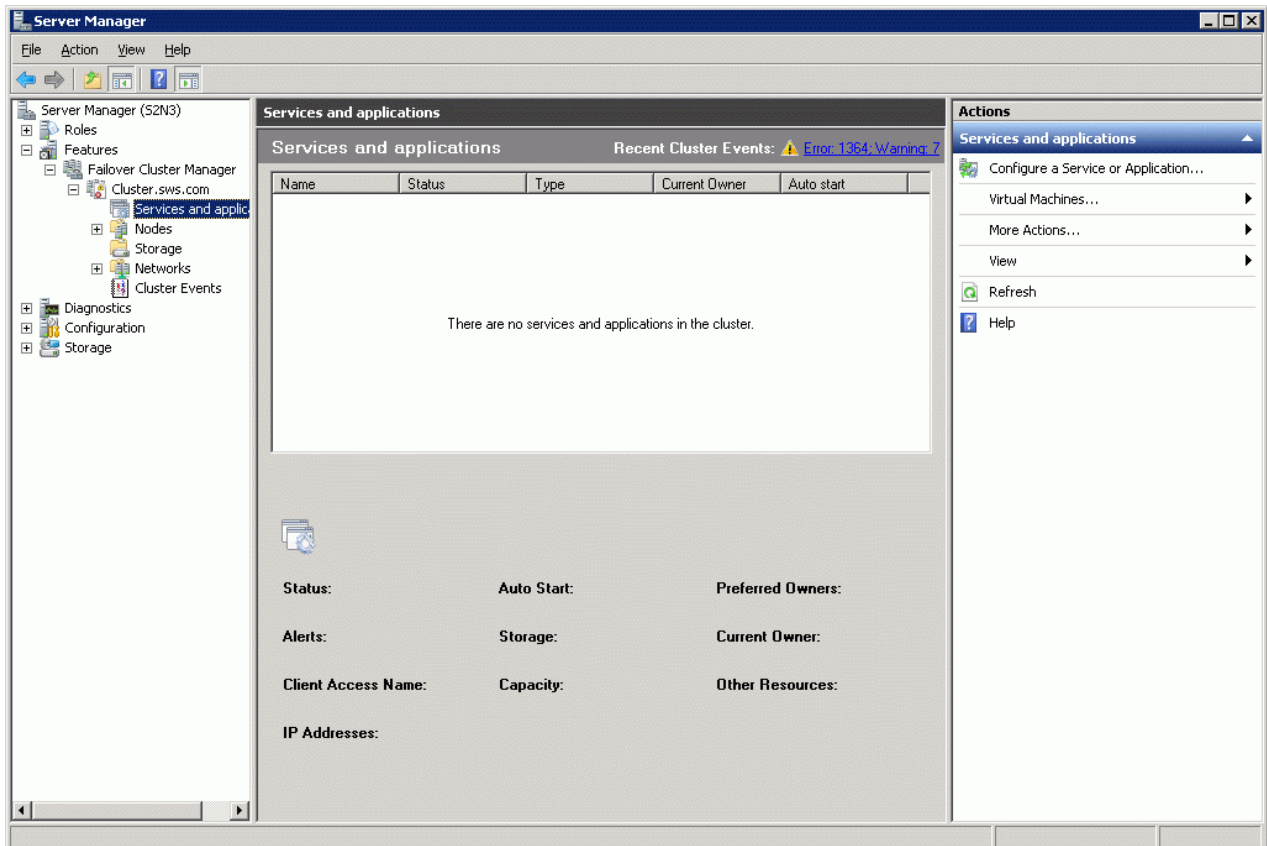
The **Failover Cluster Manager** console should look as shown in the screenshot below. Both cluster disks will have online status.



MAKING THE FILE SERVER HIGHLY AVAILABLE

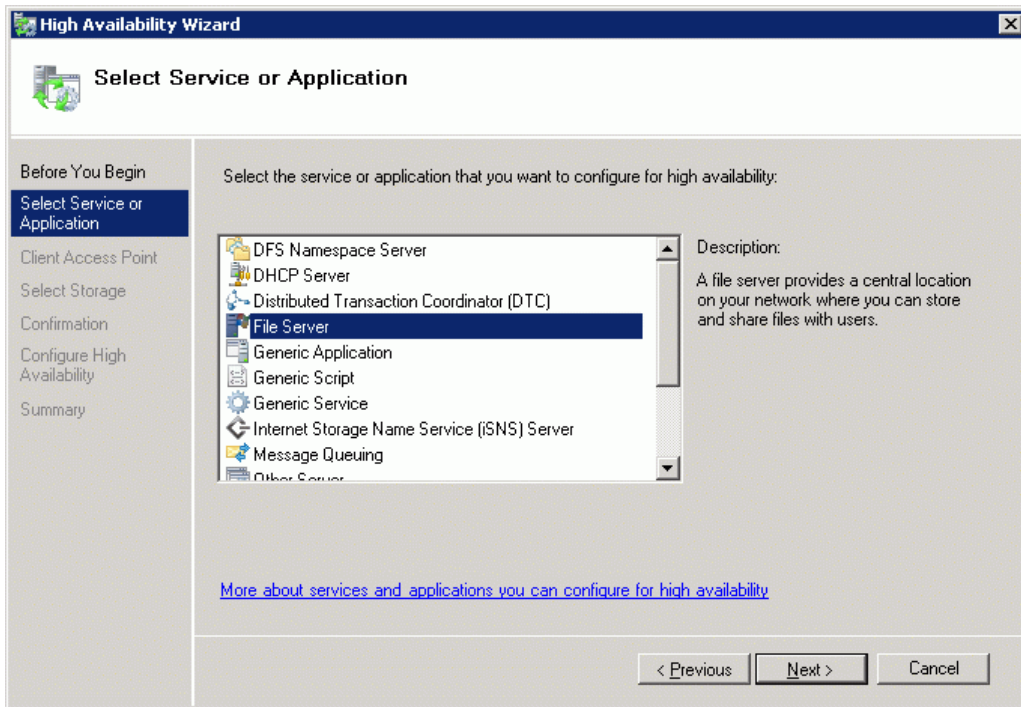
To make the File Server Highly Available:

1. Open **Server Manager**.
2. Expand the **Features** item on the Console tree and select the **Services and applications** item.



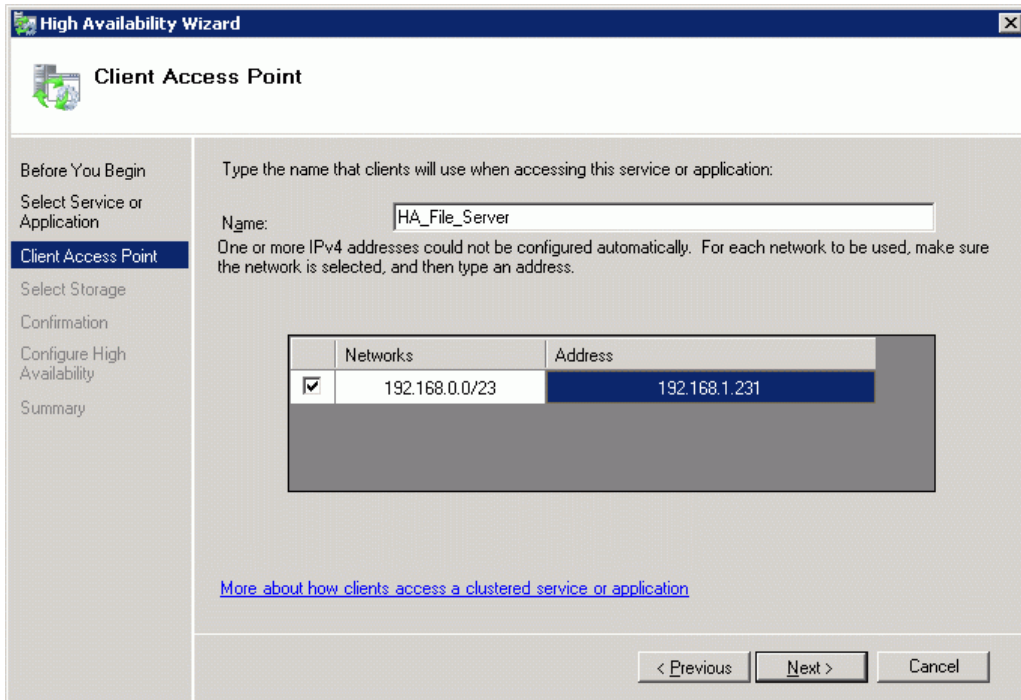
3. Click **Configure a Service or application** in the **Actions** pane.

4. Select the **File Server** item from the list in **High Availability Wizard**.



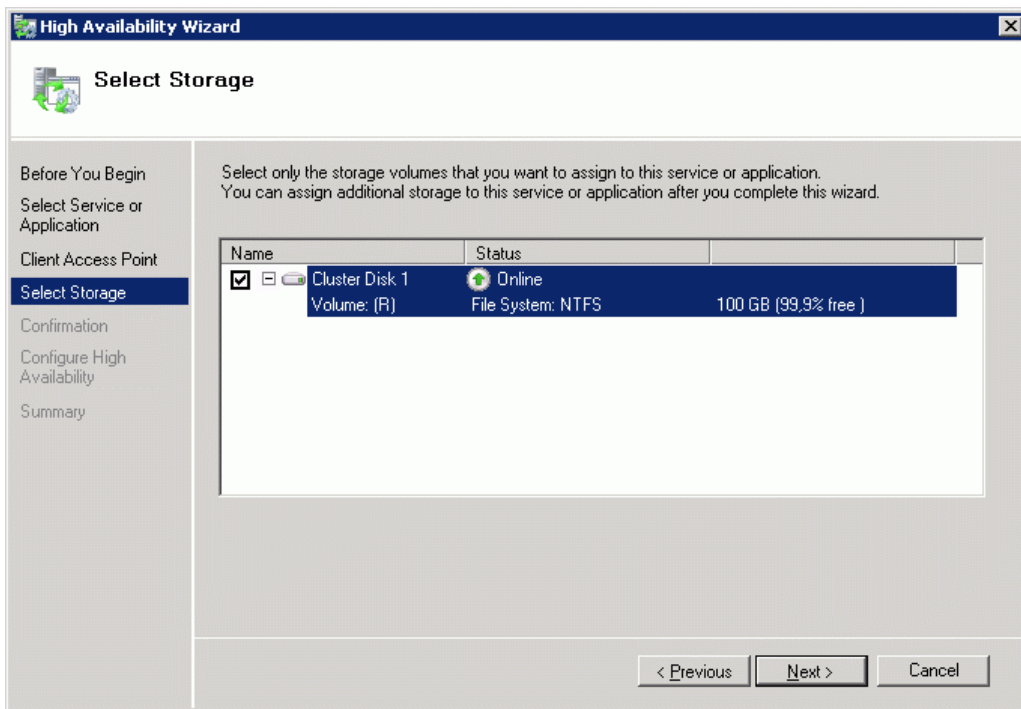
5. Click **Next**. Follow **High Availability Wizard**'s steps to complete the configuration.

6. Fill in the **Name** field with the corresponding information, and type the cluster address.



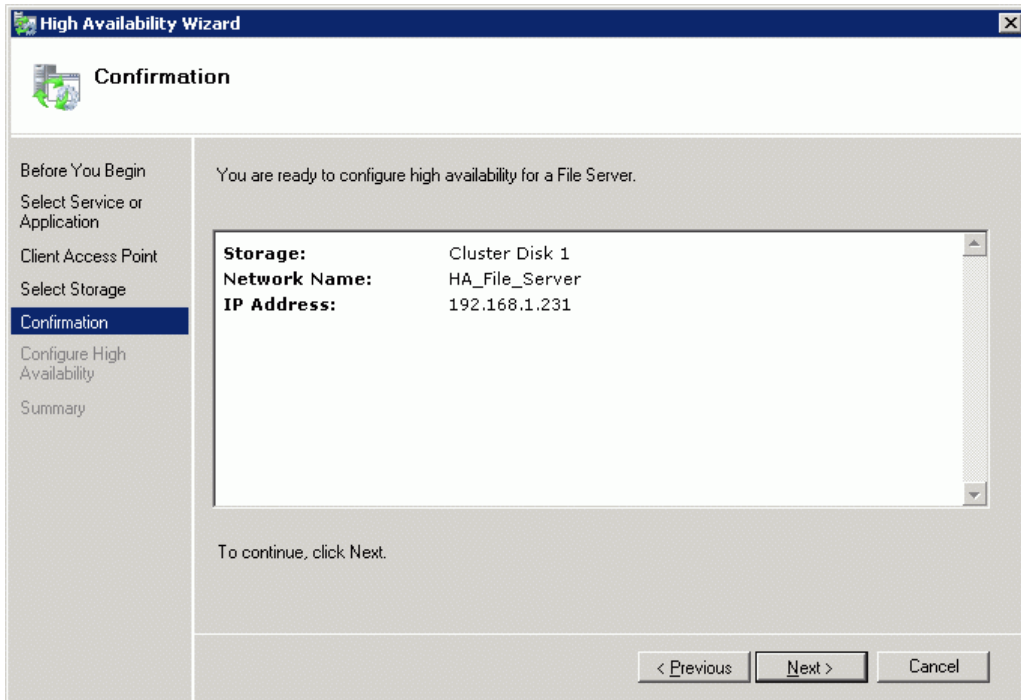
7. Click **Next**.

8. Select the storage volume to be assigned to the service or application.

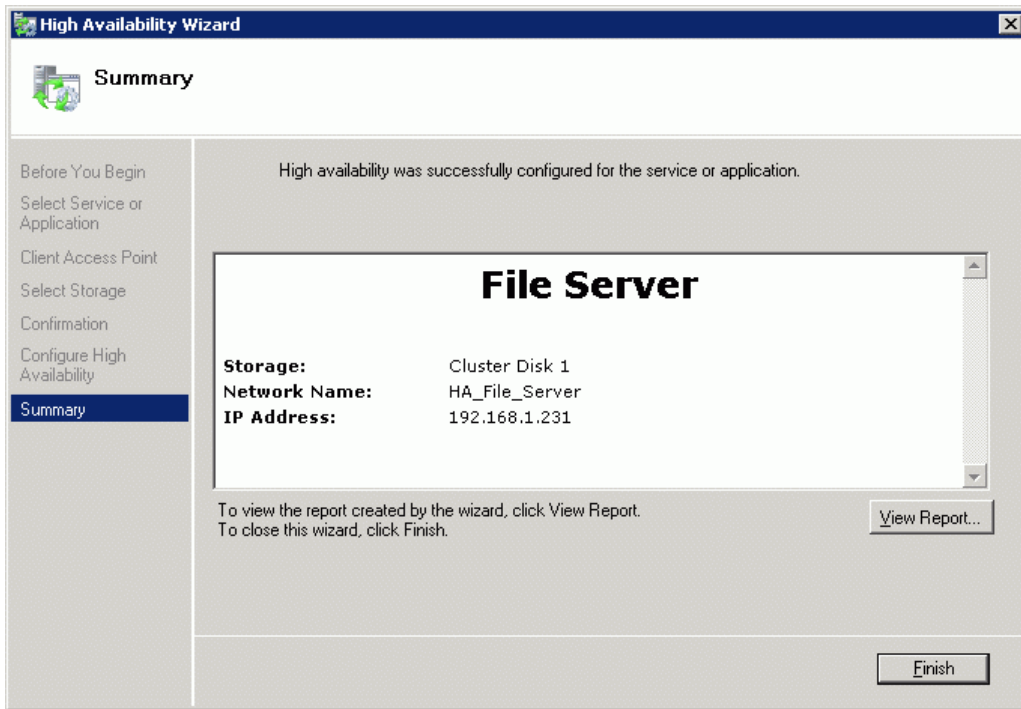


9. Click **Next**.

10. Check whether specified information is correct. Click **Next** to proceed.

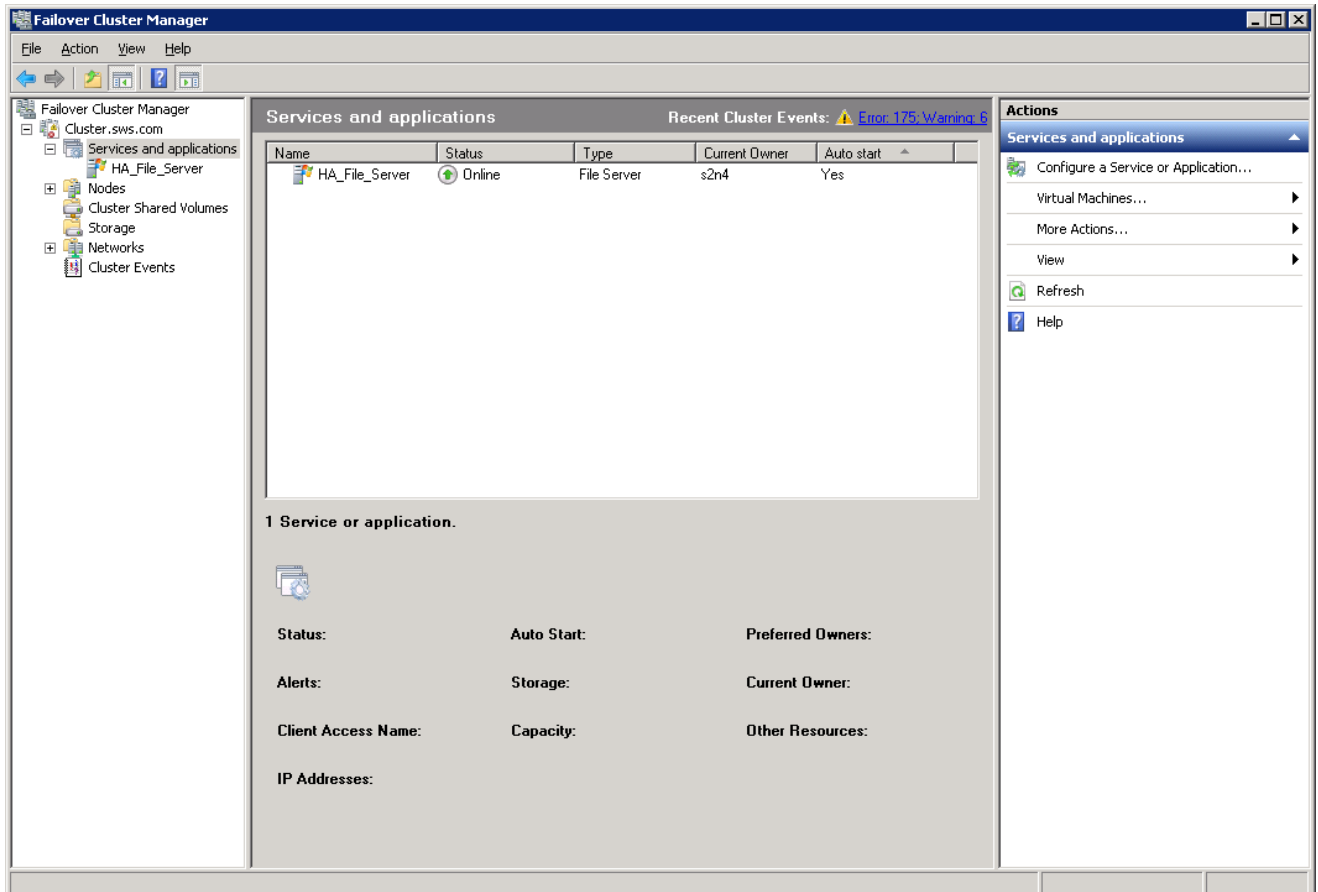


When finished successfully, the Wizard should look as shown in the screenshot below.



10. Click **Finish** to close the Wizard.

When you are finished, **High Availability Wizard** should look as shown in the screenshot below.



SHARING A FOLDER

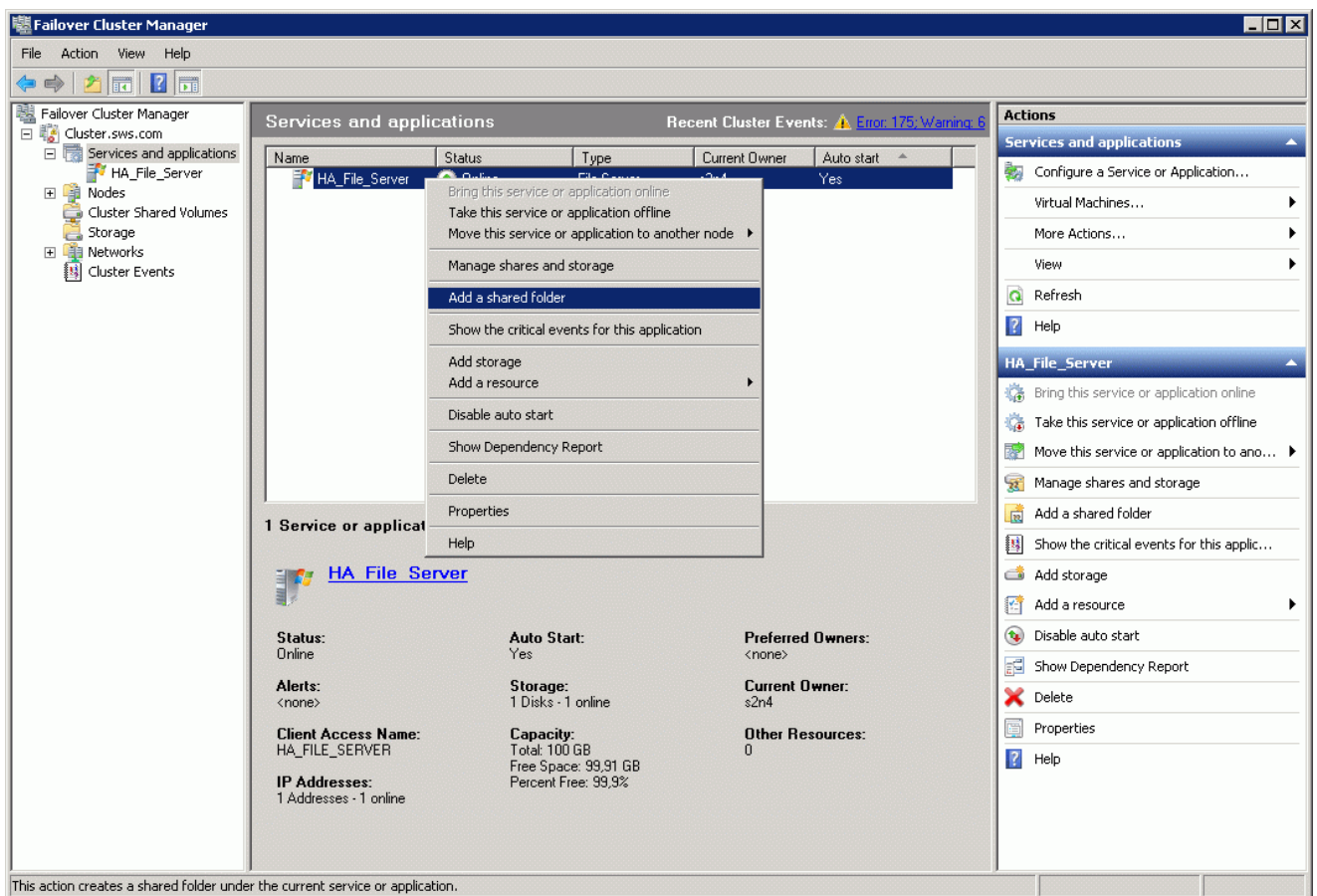
To share a folder:

1. If the cluster that you want to configure is not displayed in the **Failover Cluster Manager** snap-in, right click **Failover Cluster Manager** in the **Console tree**, and then click **Manage a Cluster**.

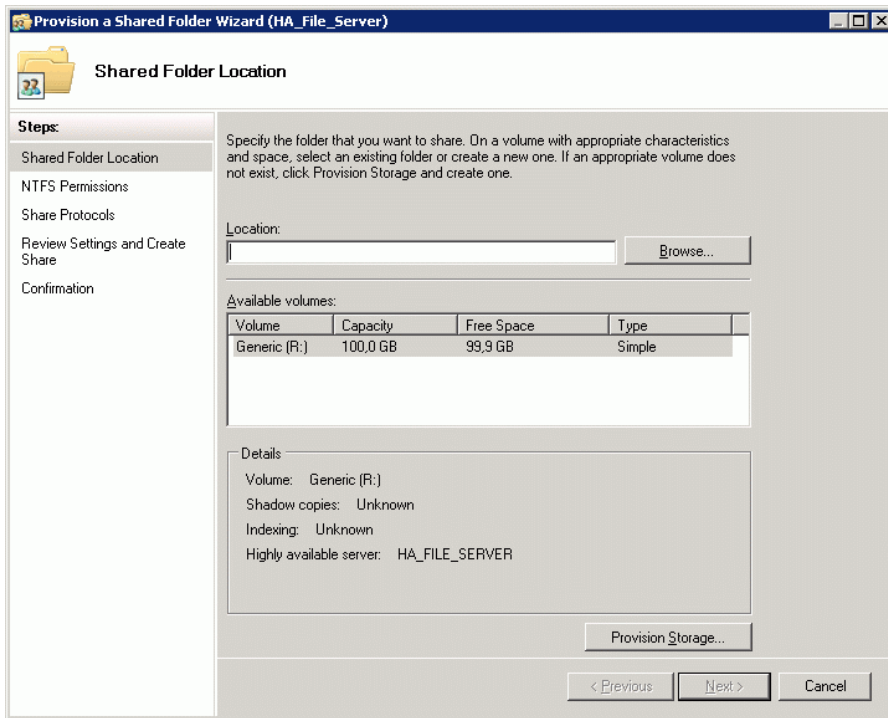
2. Select the need cluster.

If the **Console tree** is collapsed, expand it under the cluster to be configured. Expand **Services and applications**, and then select the clustered file server.

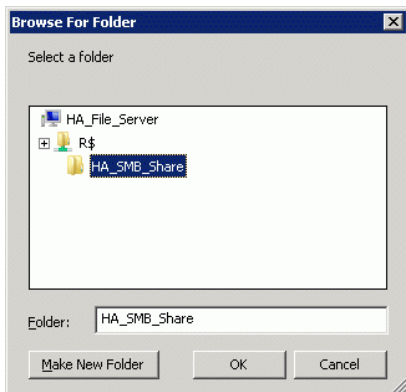
3. You can either click **Add a shared folder** in the left pane, or right click under the configured service, and select **Add a shared folder** from the shortcut menu.



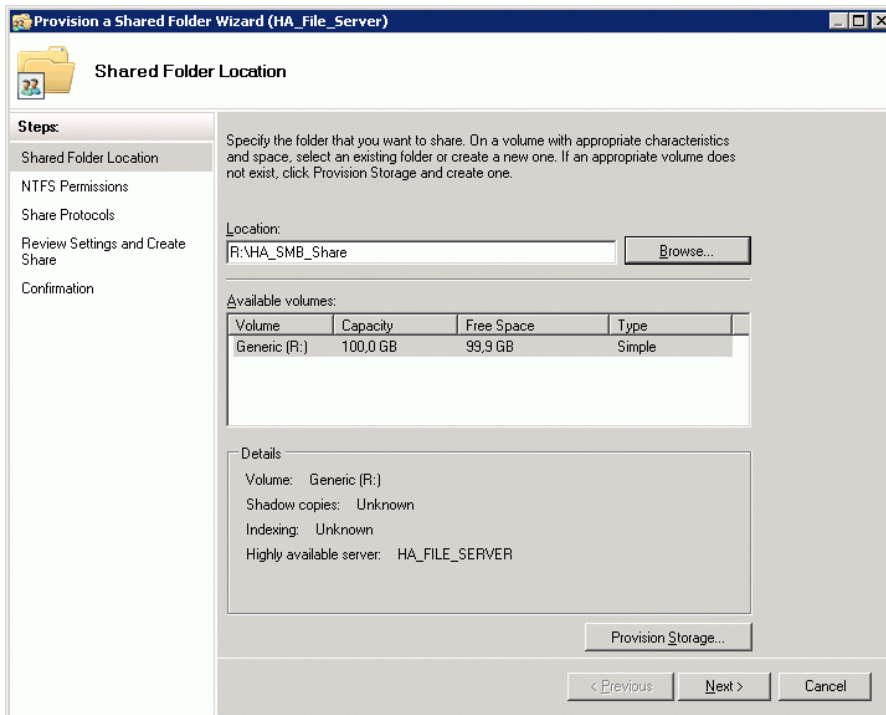
4. Click **Browse** in **Shared Folder Wizard**.



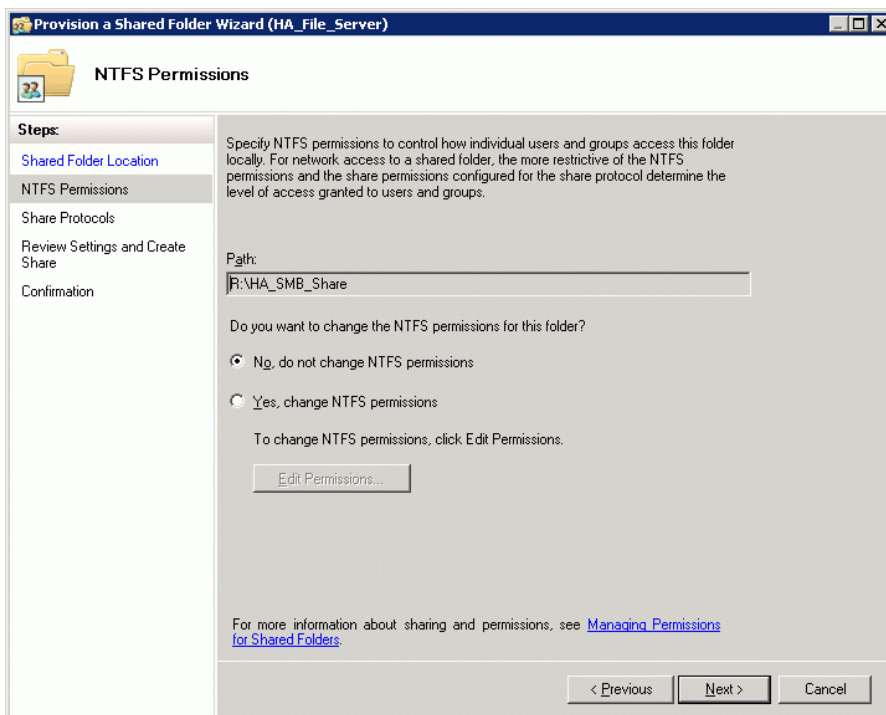
5. Select a folder, or create a new one. Click **OK**.



6. The **Location** text field now contains the folder path. Click **Next** to continue.

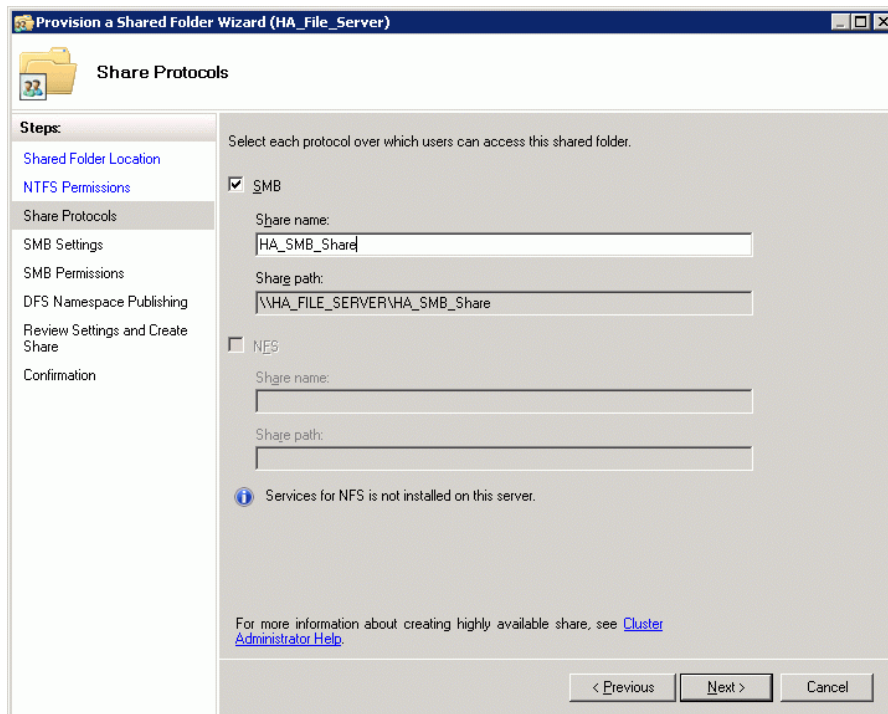


7. Specify **NTFS permissions** for the shared folder.



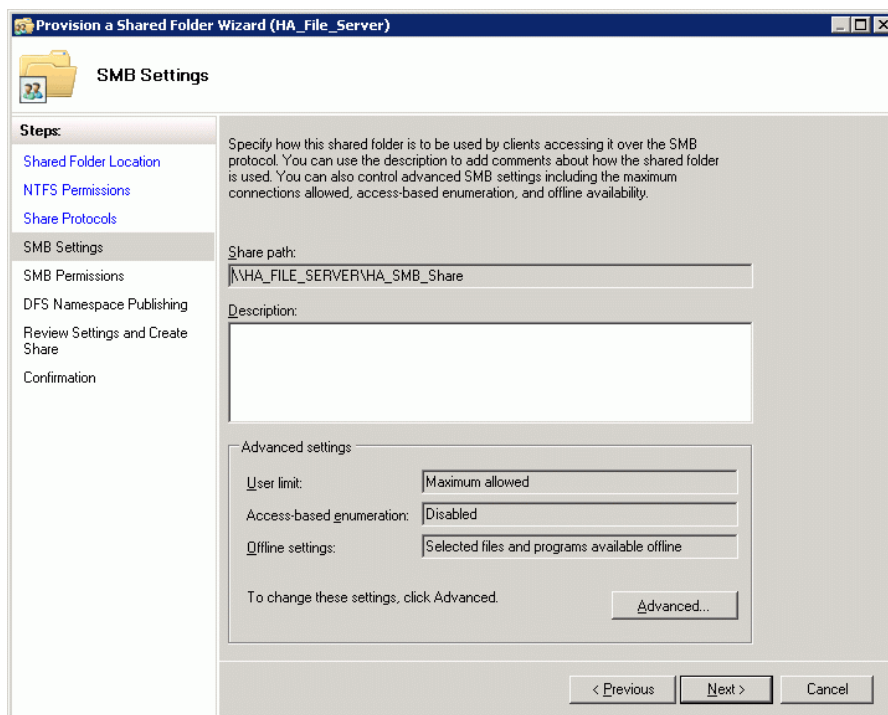
8. Click **Next** to continue.

9. Select the **SMB protocol** check box as a protocol to access this shared folder, and then specify share name in the corresponding text field.



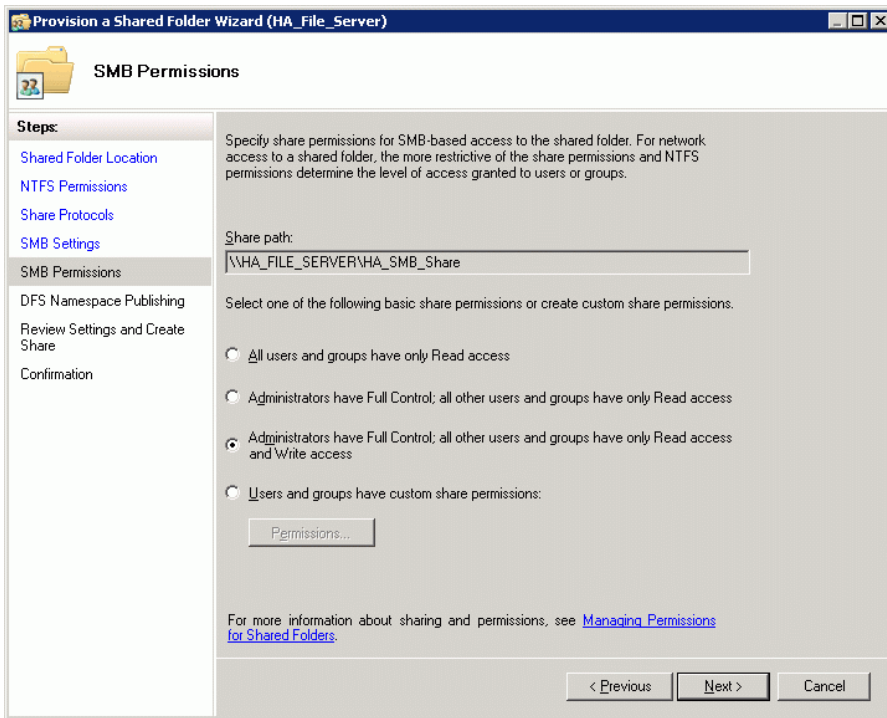
10. Click **Next** to continue.

11. Specify how this shared folder is to be used by clients accessing it over SMB protocol.



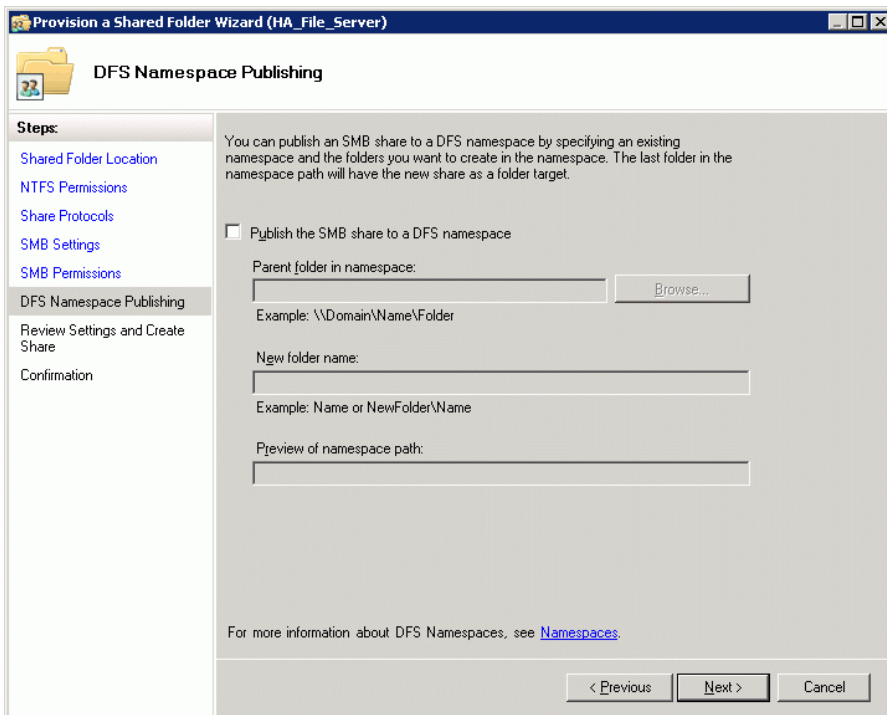
12. Click **Next** to continue.

13. Specify share permissions for SMB-based access to the shared folder.



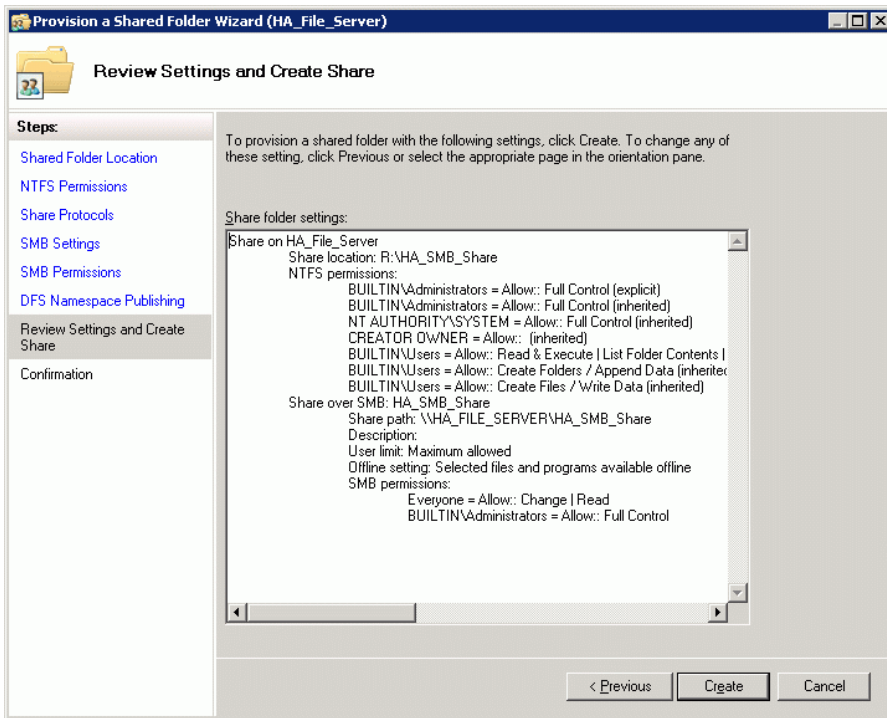
14. Click **Next** to continue.

15. If needed to publish the SMB share to a DFS namespace, select the corresponding check box.



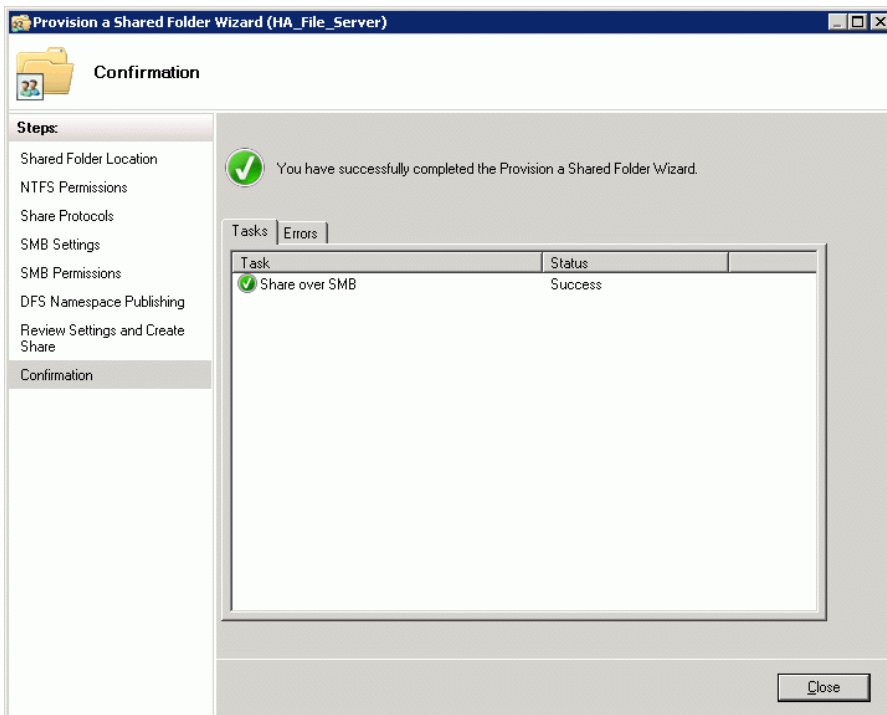
16. Click **Next** to continue.

17. Check whether specified settings are correct. Click **Previous** to make any changes.



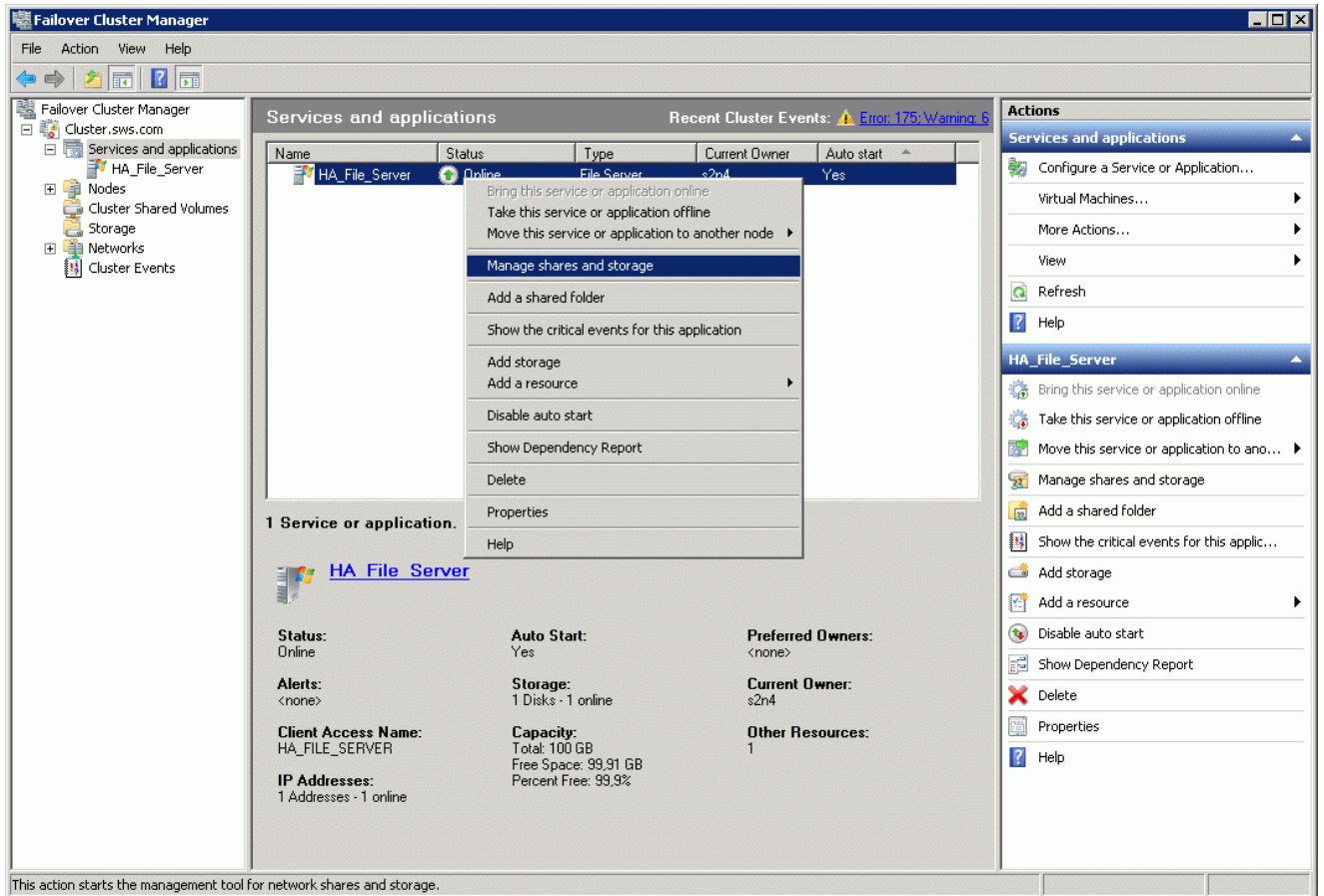
18. Click **Create** to proceed the creation of a shared folder .

19. Check a summary, and click **Close** to close the Wizard.



To manage created shares:

1. Start **Server Manager**.
2. Go to **Features->Failover Cluster Manager->"Cluster_name.domain"->Services and applications**.
3. Right click the just created file server and select **Manage shares and storage** from the shortcut menu.



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