Provision your storage system

SnapCenter Software 5.0

NetApp
October 15, 2025

This PDF was generated from https://docs.netapp.com/us-en/snapcenter-50/install/concept_configure_lun_storage.html on October 15, 2025. Always check docs.netapp.com for the latest.

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Provision your storage system

Provision storage on Windows hosts

Configure LUN storage

You can use SnapCenter to configure an FC-connected or iSCSI-connected LUN. You can also use SnapCenter to connect an existing LUN to a Windows host.

LUNs are the basic unit of storage in a SAN configuration. The Windows host sees LUNs on your system as virtual disks. For more information, see ONTAP 9 SAN Configuration Guide.

Establish an iSCSI session

If you are using iSCSI to connect to a LUN, you must establish an iSCSI session before you create the LUN to enable communication.

Before you begin

- You must have defined the storage system node as an iSCSI target.
- You must have started the iSCSI service on the storage system. Learn more

About this task

You can establish an iSCSI session only between the same IP versions, either from IPv6 to IPv6, or from IPv4 to IPv4.

You can use a link-local IPv6 address for iSCSI session management and for communication between a host and a target only when both are in the same subnet.

If you change the name of an iSCSI initiator, access to iSCSI targets is affected. After changing the name, you might require to reconfigure the targets accessed by the initiator so that they can recognize the new name. You must ensure to restart the host after changing the name of an iSCSI initiator.

If your host has more than one iSCSI interface, once you have established an iSCSI session to SnapCenter using an IP address on the first interface, you cannot establish an iSCSI session from another interface with a different IP address.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **iSCSI Session**.
3. From the **Storage Virtual Machine** drop-down list, select the storage virtual machine (SVM) for the iSCSI target.
4. From the **Host** drop-down list, select the host for the session.
5. Click **Establish Session**.

   The Establish Session wizard is displayed.

6. In the Establish Session wizard, identify the target:

In this field…	Enter…
Target node name	The node name of the iSCSI target If there is an existing target node name, the name is displayed in read-only format.
Target portal address	The IP address of the target network portal
Target portal port	The TCP port of the target network portal
Initiator portal address	The IP address of the initiator network portal

7. When you are satisfied with your entries, click **Connect**.

   SnapCenter establishes the iSCSI session.

8. Repeat this procedure to establish a session for each target.

Disconnect an iSCSI session

Occasionally, you might require to disconnect an iSCSI session from a target with which you have multiple sessions.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **iSCSI Session**.
3. From the **Storage Virtual Machine** drop-down list, select the storage virtual machine (SVM) for the iSCSI target.
4. From the **Host** drop-down list, select the host for the session.
5. From the list of iSCSI sessions, select the session that you want to disconnect and click **Disconnect Session**.
6. In the Disconnect Session dialog box, click **OK**.

   SnapCenter disconnects the iSCSI session.

Create and manage igroups

You create initiator groups (igroups) to specify which hosts can access a given LUN on the storage system. You can use SnapCenter to create, rename, modify, or delete an igroup on a Windows host.

Create an igroup

You can use SnapCenter to create an igroup on a Windows host. The igroup will be available in the Create Disk or Connect Disk wizard when you map the igroup to a LUN.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Igroup**.
3. In the Initiator Groups page, click **New**.
4. In the Create Igroup dialog box, define the igroup:

In this field…	Do this…
Storage System	Select the SVM for the LUN you will map to the igroup.
Host	Select the host on which you want to create the igroup.
Igroup Name	Enter the name of the igroup.
Initiators	Select the initiator.
Type	Select the initiator type, iSCSI, FCP, or mixed (FCP and iSCSI).

5. When you are satisfied with your entries, click **OK**.

   SnapCenter creates the igroup on the storage system.

Rename an igroup

You can use SnapCenter to rename an existing igroup.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Igroup**.
3. In the Initiator Groups page, click in the **Storage Virtual Machine** field to display a list of available SVMs, and then select the SVM for the igroup you want to rename.
4. In the list of igroups for the SVM, select the igroup you want to rename and click **Rename**.
5. In the Rename igroup dialog box, enter the new name for the igroup and click **Rename**.

Modify an igroup

You can use SnapCenter to add igroup initiators to an existing igroup. While creating an igroup you can add only one host. If you want to create an igroup for a cluster, you can modify the igroup to add other nodes to that igroup.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Igroup**.

3. In the Initiator Groups page, click in the **Storage Virtual Machine** field to display a drop-down list of available SVMs, then select the SVM for the igroup you want to modify.
4. In the list of igroups, select an igroup and click **Add Initiator to igroup**.
5. Select a host.
6. Select the initiators and click **OK**.

Delete an igroup

You can use SnapCenter to delete an igroup when you no longer need it.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Igroup**.
3. In the Initiator Groups page, click in the **Storage Virtual Machine** field to display a drop-down list of available SVMs, then select the SVM for the igroup you want to delete.
4. In the list of igroups for the SVM, select the igroup you want to delete and click **Delete**.
5. In the Delete igroup dialog box, click **OK**.

   SnapCenter deletes the igroup.

Create and manage disks

The Windows host sees LUNs on your storage system as virtual disks. You can use SnapCenter to create and configure an FC-connected or iSCSI-connected LUN.

- SnapCenter supports only basic disks. The dynamic disks are not supported.
- For GPT only one data partition and for MBR one primary partition is allowed that has one volume formatted with NTFS or CSVFS and has one mount path.
- Supported partition styles: GPT, MBR; in a VMware UEFI VM, only iSCSI disks are supported

SnapCenter does not support renaming a disk. If a disk that is managed by SnapCenter is renamed, SnapCenter operations will not succeed.

View the disks on a host

You can view the disks on each Windows host you manage with SnapCenter.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the **Host** drop-down list.

   The disks are listed.

View clustered disks

You can view clustered disks on the cluster that you manage with SnapCenter. The clustered disks are displayed only when you select the cluster from the Hosts drop-down.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the cluster from the **Host** drop-down list.

   The disks are listed.

Create FC-connected or iSCSI-connected LUNs or disks

The Windows host sees the LUNs on your storage system as virtual disks. You can use SnapCenter to create and configure an FC-connected or iSCSI-connected LUN.

If you want to create and format disks outside of SnapCenter, only NTFS and CSVFS file systems are supported.

Before you begin

- You must have created a volume for the LUN on your storage system.

  The volume should hold LUNs only, and only LUNs created with SnapCenter.

  > You cannot create a LUN on a SnapCenter-created clone volume unless the clone has already been split.

- You must have started the FC or iSCSI service on the storage system.
- If you are using iSCSI, you must have established an iSCSI session with the storage system.
- The SnapCenter Plug-ins Package for Windows must be installed only on the host on which you are creating the disk.

About this task

- You cannot connect a LUN to more than one host unless the LUN is shared by hosts in a Windows Server failover cluster.
- If a LUN is shared by hosts in a Windows Server failover cluster that uses CSV (Cluster Shared Volumes), you must create the disk on the host that owns the cluster group.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the **Host** drop-down list.
4. Click **New**.

   The Create Disk wizard opens.

5. In the LUN Name page, identify the LUN:

In this field…	Do this…
Storage System	Select the SVM for the LUN.
LUN path	Click **Browse** to select the full path of the folder containing the LUN.
LUN name	Enter the name of the LUN.
Cluster size	Select the LUN block allocation size for the cluster. Cluster size depends upon the operating system and applications.
LUN label	Optionally, enter descriptive text for the LUN.

6. In the Disk Type page, select the disk type:

Select…	If…
Dedicated disk	The LUN can be accessed by only one host. Ignore the **Resource Group** field.
Shared disk	The LUN is shared by hosts in a Windows Server failover cluster. Enter the name of the cluster resource group in the **Resource Group** field. You need to create the disk on only one host in the failover cluster.
Cluster Shared Volume (CSV)	The LUN is shared by hosts in a Windows Server failover cluster that uses CSV. Enter the name of the cluster resource group in the **Resource Group** field. Make sure that the host on which you are creating the disk is the owner of the cluster group.

7. In the Drive Properties page, specify the drive properties:

Property	Description
Auto assign mount point	SnapCenter automatically assigns a volume mount point based on the system drive. For example, if your system drive is C:, auto assign creates a volume mount point under your C: drive (C:\scmnpt\). Auto assign is not supported for shared disks.
Assign drive letter	Mount the disk to the drive you select in the adjacent drop-down list.
Use volume mount point	Mount the disk to the drive path you specify in the adjacent field. The root of the volume mount point must be owned by the host on which you are creating the disk.
Do not assign drive letter or volume mount point	Choose this option if you prefer to mount the disk manually in Windows.
LUN size	Specify the LUN size; 150 MB minimum. Select MB, GB, or TB in the adjoining drop-down list.
Use thin provisioning for the volume hosting this LUN	Thin provision the LUN. Thin provisioning allocates only as much storage space as is needed at one time, allowing the LUN to grow efficiently to the maximum available capacity. Make sure there is enough space available on the volume to accommodate all the LUN storage you think you will need.
Choose partition type	Select GPT partition for a GUID Partition Table, or MBR partition for a Master Boot Record. MBR partitions might cause misalignment issues in Windows Server failover clusters. Unified extensible firmware interface (UEFI) partition disks are not supported.

8. In the Map LUN page, select the iSCSI or FC initiator on the host:

In this field…	Do this…
Host	Double-click the cluster group name to display a drop-down list that shows the hosts that belong to the cluster, and then select the host for the initiator. This field is displayed only if the LUN is shared by hosts in a Windows Server failover cluster.
Choose host initiator	Select **Fibre Channel** or **iSCSI**, and then select the initiator on the host. You can select multiple FC initiators if you are using FC with multipath I/O (MPIO).

9. In the Group Type page, specify whether you want to map an existing igroup to the LUN, or create a new igroup:

Select…	If…
Create new igroup for selected initiators	You want to create a new igroup for the selected initiators.
Choose an existing igroup or specify a new igroup for selected initiators	You want to specify an existing igroup for the selected initiators, or create a new igroup with the name you specify. Type the igroup name in the **igroup name** field. Type the first few letters of the existing igroup name to autocomplete the field.

10. In the Summary page, review your selections and then click **Finish**.

    SnapCenter creates the LUN and connects it to the specified drive or drive path on the host.

Resize a disk

You can increase or decrease the size of a disk as your storage system needs change.

About this task

- For thin provisioned LUN, the ONTAP lun geometry size is shown as the maximum size.
- For thick provisioned LUN, the expandable size (available size in the volume) is shown as the maximum size.
- LUNs with MBR-style partitions have a size limit of 2 TB.
- LUNs with GPT-style partitions have a storage system size limit of 16 TB.
- It is a good idea to make a Snapshot before resizing a LUN.
- If you need to restore a LUN from a Snapshot made before the LUN was resized, SnapCenter automatically resizes the LUN to the size of the Snapshot.

After the restore operation, data added to the LUN after it was resized must be restored from a Snapshot made after it was resized.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the Host drop-down list.

   The disks are listed.

4. Select the disk you want to resize and then click **Resize**.
5. In the Resize Disk dialog box, use the slider tool to specify the new size of the disk, or enter the new size in the Size field.

   If you enter the size manually, you need to click outside the Size field before the Shrink or Expand button is enabled appropriately. Also, you must click MB, GB, or TB to specify the unit of measurement.

6. When you are satisfied with your entries, click **Shrink** or **Expand**, as appropriate.

   SnapCenter resizes the disk.

Connect a disk

You can use the Connect Disk wizard to connect an existing LUN to a host, or to reconnect a LUN that has been disconnected.

Before you begin

- You must have started the FC or iSCSI service on the storage system.
- If you are using iSCSI, you must have established an iSCSI session with the storage system.
- You cannot connect a LUN to more than one host unless the LUN is shared by hosts in a Windows Server failover cluster.
- If the LUN is shared by hosts in a Windows Server failover cluster that uses CSV (Cluster Shared Volumes), then you must connect the disk on the host that owns the cluster group.
- The Plug-in for Windows needs to be installed only on the host on which you are connecting the disk.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the **Host** drop-down list.
4. Click **Connect**.

   The Connect Disk wizard opens.

5. In the LUN Name page, identify the LUN to connect to:

In this field…	Do this…
Storage System	Select the SVM for the LUN.
LUN path	Click **Browse** to select the full path of the volume containing the LUN.
LUN name	Enter the name of the LUN.
Cluster size	Select the LUN block allocation size for the cluster. Cluster size depends upon the operating system and applications.
LUN label	Optionally, enter descriptive text for the LUN.

6. In the Disk Type page, select the disk type:

Select…	If…
Dedicated disk	The LUN can be accessed by only one host.
Shared disk	The LUN is shared by hosts in a Windows Server failover cluster. You need only connect the disk to one host in the failover cluster.
Cluster Shared Volume (CSV)	The LUN is shared by hosts in a Windows Server failover cluster that uses CSV. Make sure that the host on which you are connecting to the disk is the owner of the cluster group.

7. In the Drive Properties page, specify the drive properties:

Property	Description
Auto assign	Let SnapCenter automatically assign a volume mount point based on the system drive. For example, if your system drive is C:, the auto assign property creates a volume mount point under your C: drive (C:\scmnpt\). The auto assign property is not supported for shared disks.
Assign drive letter	Mount the disk to the drive you select in the adjoining drop-down list.

Property	Description
Use volume mount point	Mount the disk to the drive path you specify in the adjoining field. The root of the volume mount point must be owned by the host on which you are creating the disk.
Do not assign drive letter or volume mount point	Choose this option if you prefer to mount the disk manually in Windows.

8. In the Map LUN page, select the iSCSI or FC initiator on the host:

In this field…	Do this…
Host	Double-click the cluster group name to display a drop-down list that shows the hosts that belong to the cluster, then select the host for the initiator. This field is displayed only if the LUN is shared by hosts in a Windows Server failover cluster.
Choose host initiator	Select **Fibre Channel** or **iSCSI**, and then select the initiator on the host. You can select multiple FC initiators if you are using FC with MPIO.

9. In the Group Type page, specify whether you want to map an existing igroup to the LUN or create a new igroup:

Select…	If…
Create new igroup for selected initiators	You want to create a new igroup for the selected initiators.
Choose an existing igroup or specify a new igroup for selected initiators	You want to specify an existing igroup for the selected initiators, or create a new igroup with the name you specify. Type the igroup name in the **igroup name** field. Type the first few letters of the existing igroup name to automatically complete the field.

10. In the Summary page, review your selections and click **Finish**.

    SnapCenter connects the LUN to the specified drive or drive path on the host.

Disconnect a disk

You can disconnect a LUN from a host without affecting the contents of the LUN, with one exception: If you disconnect a clone before it has been split off, you lose the contents of the clone.

Before you begin

- Make sure that the LUN is not in use by any application.
- Make sure that the LUN is not being monitored with monitoring software.
- If the LUN is shared, make sure to remove the cluster resource dependencies from the LUN and verify that all nodes in the cluster are powered on, functioning properly, and available to SnapCenter.

About this task

If you disconnect a LUN in a FlexClone volume that SnapCenter has created and no other LUNs on the volume are connected, SnapCenter deletes the volume. Before disconnecting the LUN, SnapCenter displays a message warning you that the FlexClone volume might be deleted.

To avoid automatic deletion of the FlexClone volume, you should rename the volume before disconnecting the last LUN. When you rename the volume, make sure that you change multiple characters than just the last character in the name.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the **Host** drop-down list.

   The disks are listed.

4. Select the disk you want to disconnect, and then click **Disconnect**.
5. In the Disconnect Disk dialog box, click **OK**.

   SnapCenter disconnects the disk.

Delete a disk

You can delete a disk when you no longer need it. After you delete a disk, you cannot undelete it.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Disks**.
3. Select the host from the **Host** drop-down list.

   The disks are listed.

4. Select the disk you want to delete, and then click **Delete**.
5. In the Delete Disk dialog box, click **OK**.

   SnapCenter deletes the disk.

Create and manage SMB shares

To configure an SMB3 share on a storage virtual machine (SVM), you can use either the SnapCenter user interface or PowerShell cmdlets.

Best Practice: Using the cmdlets is recommended because it enables you to take advantage of templates provided with SnapCenter to automate share configuration.

The templates encapsulate best practices for volume and share configuration. You can find the templates in the Templates folder in the installation folder for the SnapCenter Plug-ins Package for Windows.

If you feel comfortable doing so, you can create your own templates following the models provided. You should review the parameters in the cmdlet documentation before creating a custom template.

Create an SMB share

You can use the SnapCenter Shares page to create an SMB3 share on a storage virtual machine (SVM).

You cannot use SnapCenter to back up databases on SMB shares. SMB support is limited to provisioning only.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Shares**.
3. Select the SVM from the **Storage Virtual Machine** drop-down list.
4. Click **New**.

   The New Share dialog opens.

5. In the New Share dialog, define the share:

In this field…	Do this…
Description	Enter descriptive text for the share.
Share name	Enter the share name, for example, test_share. The name you enter for the share will also be used as the volume name. The share name: • Must be a UTF-8 string. • Must not include the following characters: control characters from 0x00 to 0x1F (both inclusive), 0x22 (double quotes), and the special characters `\ / [ ] : (vertical bar) < > + = ; , ?`

In this field…	Do this…
Share path	• Click in the field to enter a new file system path, for example, /. • Double-click in the field to select from a list of existing file system paths.

6. When you are satisfied with your entries, click **OK**.

   SnapCenter creates the SMB share on the SVM.

Delete an SMB share

You can delete an SMB share when you no longer need it.

Steps

1. In the left navigation pane, click **Hosts**.
2. In the Hosts page, click **Shares**.
3. In the Shares page, click in the **Storage Virtual Machine** field to display a drop-down with a list of available storage virtual machines (SVMs), then select the SVM for the share you want to delete.
4. From the list of shares on the SVM, select the share you want to delete and click **Delete**.
5. In the Delete Share dialog box, click **OK**.

   SnapCenter deletes the SMB share from the SVM.

Reclaim space on the storage system

Although NTFS tracks the available space on a LUN when files are deleted or modified, it does not report the new information to the storage system. You can run the space reclamation PowerShell cmdlet on the Plug-in for Windows host to ensure that newly freed blocks are marked as available in storage.

If you are running the cmdlet on a remote plug-in host, you must have run the SnapCenterOpen-SMConnection cmdlet to open a connection to the SnapCenter Server.

Before you begin

- You must ensure that the space reclamation process has completed before performing a restore operation.
- If the LUN is shared by hosts in a Windows Server failover cluster, you must perform space reclamation on the host that owns the cluster group.
- For optimum storage performance, you should perform space reclamation as often as possible.

  You should ensure that the entire NTFS file system has been scanned.

About this task

- Space reclamation is time-consuming and CPU-intensive, so it is usually best to run the operation when storage system and Windows host usage is low.

- Space reclamation reclaims nearly all available space, but not 100 percent.
- You should not run disk defragmentation at the same time as you are performing space reclamation.

  Doing so can slow the reclamation process.

Step

From the application server PowerShell command prompt, enter the following command:

```
Invoke-SdHostVolumeSpaceReclaim -Path drive_path
```

drive_path is the drive path mapped to the LUN.

Provision storage using PowerShell cmdlets

If you do not want to use the SnapCenter GUI to perform host provisioning and space reclamation jobs, you can use the PowerShell cmdlets that are provided by SnapCenter Plug-in for Microsoft Windows. You can use cmdlets directly or add them to scripts.

If you are running the cmdlets on a remote plug-in host, you must run the SnapCenter Open-SMConnection cmdlet to open a connection to the SnapCenter Server.

The information regarding the parameters that can be used with the cmdlet and their descriptions can be obtained by running *Get-Help command_name*. Alternatively, you can also refer to the SnapCenter Software Cmdlet Reference Guide.

If SnapCenter PowerShell cmdlets are broken due to removal of SnapDrive for Windows from the server, refer to SnapCenter cmdlets broken when SnapDrive for Windows is uninstalled.

Provision storage in VMware environments

You can use the SnapCenter Plug-in for Microsoft Windows in VMware environments to create and manage LUNs and manage Snapshots.

Supported VMware guest OS platforms

- Supported versions of Windows Server
- Microsoft cluster configurations

  Support for up to a maximum of 16 nodes supported on VMware when using the Microsoft iSCSI Software Initiator, or up to two nodes using FC

- RDM LUNs

  Support for a maximum of 56 RDM LUNs with four LSI Logic SCSI controllers for normal RDMS, or 42 RDM LUNs with three LSI Logic SCSI controllers on a VMware VM MSCS box-to-box Plug-in for Windows configuration

  Supports VMware ParaVirtual SCSI Controller. 256 disks can be supported on RDM disks.

For the latest information about supported versions, see NetApp Interoperability Matrix Tool.

VMware ESXi server-related limitations

- Installing the Plug-in for Windows on a Microsoft cluster on virtual machines using ESXi credentials is not supported.

  You should use your vCenter credentials when installing the Plug-in for Windows on clustered virtual machines.

- All clustered nodes must use the same target ID (on the virtual SCSI adapter) for the same clustered disk.
- When you create an RDM LUN outside of the Plug-in for Windows, you must restart the plug-in service to enable it to recognize the newly created disk.
- You cannot use iSCSI and FC initiators at the same time on a VMware guest OS.

Minimum vCenter privileges required for SnapCenter RDM operations

You should have the following vCenter privileges on the host to perform RDM operations in a guest OS:

- Datastore: Remove File
- Host: Configuration > Storage Partition Configuration
- Virtual Machine: Configuration

You must assign these privileges to a role at the Virtual Center Server level. The role to which you assign these privileges cannot be assigned to any user without root privileges.

After you assign these privileges, you can install the Plug-in for Windows on the guest OS.

Manage FC RDM LUNs in a Microsoft cluster

You can use the Plug-in for Windows to manage a Microsoft cluster using FC RDM LUNs, but you must first create the shared RDM quorum and shared storage outside the plug-in, and then add the disks to the virtual machines in the cluster.

Starting with ESXi 5.5, you can also use ESX iSCSI and FCoE hardware to manage a Microsoft cluster. The Plug-in for Windows includes out-of-box support for Microsoft clusters.

Requirements

The Plug-in for Windows provides support for Microsoft clusters using FC RDM LUNs on two different virtual machines that belong to two different ESX or ESXi servers, also known as cluster across boxes, when you meet specific configuration requirements.

- The virtual machines (VMs) must be running the same Windows Server version.
- ESX or ESXi server versions must be the same for each VMware parent host.
- Each parent host must have at least two network adapters.
- There must be at least one VMware Virtual Machine File System (VMFS) datastore shared between the two ESX or ESXi servers.
- VMware recommends that the shared datastore be created on an FC SAN.

  If necessary, the shared datastore can also be created over iSCSI.

- The shared RDM LUN must be in physical compatibility mode.

- The shared RDM LUN must be created manually outside of the Plug-in for Windows.

  You cannot use virtual disks for shared storage.

- A SCSI controller must be configured on each virtual machine in the cluster in physical compatibility mode:

  Windows Server 2008 R2 requires you to configure the LSI Logic SAS SCSI controller on each virtual machine. Shared LUNs cannot use the existing LSI Logic SAS controller if only one of its type exists and it is already attached to the C: drive.

  SCSI controllers of type paravirtual are not supported on VMware Microsoft clusters.

  When you add a SCSI controller to a shared LUN on a virtual machine in physical compatibility mode, you must select the **Raw Device Mappings** (RDM) option and not the **Create a new disk** option in the VMware Infrastructure Client.

- Microsoft virtual machine clusters cannot be part of a VMware cluster.
- You must use vCenter credentials and not ESX or ESXi credentials when you install the Plug-in for Windows on virtual machines that belongs to a Microsoft cluster.
- The Plug-in for Windows cannot create a single igroup with initiators from multiple hosts.

  The igroup containing the initiators from all ESXi hosts must be created on the storage controller prior to creating the RDM LUNs that will be used as shared cluster disks.

- Ensure that you create an RDM LUN on ESXi 5.0 using an FC initiator.

  When you create an RDM LUN, an initiator group is created with ALUA.

Limitations

The Plug-in for Windows supports Microsoft clusters using FC/iSCSI RDM LUNs on different virtual machines belonging to different ESX or ESXi servers.

This feature is not supported in releases before ESX 5.5i.

- The Plug-in for Windows does not support clusters on ESX iSCSI and NFS datastores.
- The Plug-in for Windows does not support mixed initiators in a cluster environment.

  Initiators must be either FC or Microsoft iSCSI, but not both.

- ESX iSCSI initiators and HBAs are not supported on shared disks in a Microsoft cluster.
- The Plug-in for Windows does not support virtual machine migration with vMotion if the virtual machine is part of a Microsoft cluster.
- The Plug-in for Windows does not support MPIO on virtual machines in a Microsoft cluster.

Create a shared FC RDM LUN

Before you can use FC RDM LUNs to share storage between nodes in a Microsoft cluster, you must first create the shared quorum disk and shared storage disk, and then add them to both virtual machines in the cluster.

The shared disk is not created using the Plug-in for Windows. You should create and then add the shared LUN

to each virtual machine in the cluster. For information, see Cluster Virtual Machines Across Physical Hosts.

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