Managing VNX File Storage

This chapter contains the following sections:

About VNX File Storage Management

For VNX File (and VNX Unified) accounts, you can use either Common Internet File System (CIFS) or Network File System (NFS) Export.

For CIFS, you create and manage the following:

- CIFS servers—Server type, computer, NetBIOS name, aliases, and domain. You can choose to join a domain, enable local users, and select interfaces.
- CIFS shares—CIFS share name, file systems, path, CIFS server, user limit, and comments.
- DNS domains—Name, DNS servers, and protocol (UDP or TCP).

For NFS Export, you create and manage the following:

- Storage pools for files—Name, description, and subnet mask for the interface. You can create from a metavolume or a storage pool. Optionally, you can slice pool volumes by default.
- Volumes—Name, type (stripe, meta, slice), stripe size (32, 64, 256), and which volumes to select. You can mount volumes to the Datastore.
- File systems—Name, storage pool, storage capacity, capacity units (GB, MB, TB). You can optionally create a file system from a storage pool or volume to contain slices. You can mount file systems to the data store.
- Data mover interfaces—Name, device name, address, subnet mask, maximum transmission unit (MTU), and VLAN ID
- NFS export—File systems, read/write hosts, root hosts, and an option to host access read-only export

> • Mounts—Path, file system name, server, read-only or read/write, and access-checking policy (NT, UNIX, Secure, Native, Mixed, or Mixed and Compatible). You can choose to enable virus checking, enable CIFS oplocks, and set advanced options.

The read-only report includes the following information:

> • System overview summary—Data center, account, host, role, and mode
>
> • CIFS server and shares detail
>
> • DNS domain detail
>
> • For NFS, storage pool for files, file system, NFS export, and data mover detail

Summary of Steps

Step 1   Add the VNX file account(s).

Step 2   Choose either **CIFS** or **NFS Export**.

> • For CIFS, create the CIFS servers, CIFS shares, and DNS domains.
>
> • For NFS Export, create the following:

a) Storage pools for files
b) Volumes
c) File systems
d) Interfaces
e) NFS export information
f) Mounts

Step 3   Review reports.

Using CIFS

In Cisco UCS Director, you can use CIFS to export files or directories. A client can mount any server-exported directory.

To use CIFS, you create the CIFS servers, CIFS shares, and DNS domains.

CIFS Servers

A CIFS server requires the following parameters:

> • Server type
>
> • Computer name

- NetBIOS name

- Aliases

- Domain

- Option to join a domain

- Option to enable local users

- Interfaces

You click buttons on the **CIFS Server** tab for the following actions:

Button Name	Description
Add	Creates a new CIFS server.
Delete	Deletes a selected CIFS server.
Modify	Modifies attributes of a selected CIFS server.

Creating a CIFS Server

Step 1 On the menu bar, choose **Physical > Storage**.

Step 2 On the **Storage** pane, choose the VNX data center where you want to create a CIFS server.

Step 3 Click the **Data Movers** tab.

Step 4 In the **Data Movers** list, choose the server.

Step 5 Click **View Details**.

Step 6 Click the **CIFS Servers** tab.

Step 7 Click **Add**.

Step 8 In the **Create CIFS Server** dialog box, complete the following fields:

Name	Description
Server Type drop-down list	Choose the server type.
Computer Name field	The computer name.
NetBIOS Name field	The NetBIOS name for this server.
Aliases field	The alias names for this server.
Domain field	The server domain name.
Join Domain check box	Check this check box to enable the server to join another domain. If you checked this check box, go to Step 9.

Name	Description
Enable Local Users check box	Check this check box to enable local users on this server. If you checked this check box, go to Step 10.
Interfaces field	Click **Select** to choose an interface(s). Go to Step 11.

Step 9 To join the server to another domain, complete the following additional fields:

Name	Description
Domain Admin field	The domain administrator username for this server.
Domain Password field	The server domain password.
Organizational Unit field	The server's organizational unit.

Step 10 If you want to enable local users, complete the following additional fields:

Name	Description
Set Local Admin Password field	The local administrator password for this server.
Confirm Local Admin Password field	The confirmation of the local administrator password.

Step 11 In the **Select Items** dialog box, choose one of the following options:

- Check the individual items in the list
- **Check All** to use all interfaces
- **Check None** to us no interfaces

Step 12 Click **Select**.

Step 13 In the **Create CIFS Server** dialog box, click **Submit**.

CIFS Shares

A CIFS share requires the following parameters:

- CIFS share name

- File system

- Path

- CIFS server

- User limit

- Comments

You click buttons on the **CIFS Share** tab for the following actions:

Button Name	Description
Add	Adds a new CIFS share.
Delete	Deletes a selected CIFS share.

Creating CIFS Shares

Before You Begin

A CIFS server must exist in the system.

Step 1   On the menu bar, choose **Physical > Storage**.

Step 2   Choose the VNX data center where you want to create the CIFS shares.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **CIFS Shares** tab.

Step 7   Click **Add**.

Step 8   In the **Create CIFS Shares** dialog box, complete the following fields:

Name	Description
CIFS Share Name field	The CIFS share name.
File Systems drop-down list	Choose the **File Systems** type.
Path field	The path.
CIFS Server field	**Click Select.** Go to Step 9.
User Limit field	The alias names for this server.
Comments field	Any comments regarding CIFS shares.

Step 9   To choose CIFS shares, complete the following additional fields in the **Select Items** dialog box:

- Check the individual items in the list.

- **Check All** to us all interfaces

- **Check None** to use no interfaces

- Check individual interfaces in the list

Step 10   Click **Select**.

Step 11   In the **Create CIFS Shares** dialog box, click **Submit**.

DNS Domains

A DNS domain requires the following parameters:

- Name

- DNS servers

- Protocol

You click buttons on the **DNS Domains** tab for the following actions:

Button Name	Description
Add	Adds a new DNS domain.
Delete	Deletes a selected DNS domain.

Creating a DNS Domain

Step 1   On the menu bar choose **Physical > Storage** .

Step 2   On the **Storage** pane, choose the VNX data center where you want to create a DNS Domain.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **DNS Domain** tab.

Step 7   Click **Add**.

Step 8   In the **Add DNS Domain** dialog box, complete the following fields:

Name	Description
Name field	The DNS domain name.

Name	Description
DNS Servers field	The DNS server names.
Protocol drop-down list	Choose the protocol.

Step 9   Click **Submit**.

Using NFS Export

In Cisco UCS Director, you can use NFS to export files or directories. A client can mount any server-exported directory.

To use NFS Export, you create the storage pools for files, volumes, file systems, interfaces, NFS export information, and add the mounts.

Storage Pools for Files

An NFS storage pool for files requires the following parameters:

- Name
- Create from—Metavolume or storage pool
- Description
- Volumes—Subnet mask
- Slice pool volumes by default—Checked or unchecked

You click buttons on the **Storage Pools for Files** tab for the following actions:

Button Name	Description
Create	Creates a new NFS storage pool for files.
View Details	Views details about the selected NFS storage pool for files.
Delete	Deletes a selected storage pool for files.

Creating a Storage Pool for Files

Step 1   On the menu bar choose **Physical > Storage**.

Step 2   Choose the VNX data center where you want to create a storage pool for files.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **Storage Pools for File** tab.

Step 7   Click **Create**.

Step 8   In the **Create Storage Pool** dialog box, complete the following fields:

Name	Description
Name field	The storage pool name.
Create from drop-down list	Choose **Meta Volume** or **Storage Pool**. If you chose **Storage Pool**, go to Step 9.
Description field	The description for this storage pool.
Volumes drop-down list	The volumes for this storage pool.
Slice Pool Volumes by Default check box	Check this check box to slice pool volumes by default.

Step 9   To create this storage pool from another storage pool, complete the following additional fields in the same dialog box:

Name	Description
Template Pool drop-down list	Choose the template pool.
Minimum Pool Size (MB) field	The minimum pool size (MB).
Stripe Size (KB) field	The stripe size (KB).

Step 10   Click **Submit**.

Volumes

An NFS volume requires the following parameters:

- Name

- Type

- Volumes

- Stripe size—32, 64, 256

You click buttons on the **Volumes** tab for the following actions:

Button Name	Description
Delete	Deletes a selected volume.

Creating a Volume

Step 1   On the menu bar, Click **Physical > Storage**

Step 2   Choose the VNX data center where you want to create a volume.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **Volumes** tab.

Step 7   Click **Create**.

Step 8   In the **Create Volume** dialog box, complete the following fields:

Name	Description
Name field	The NFS volume name.

Type drop-down list	Choose the type for this volume. This can be on of the following:
	
	    • Stripe
	
	    • Meta
	
	    • Slice

Volumes drop-down list	Choose **Select**. Go to Step 9.
Stripe Size (KB) drop-down list	Choose the **Stripe Size** from the list (256, 32, or 64 KB). Go to Step 9.

Step 9   In the **Select Items** dialog box, choose one of the following options:

    • Click the individual volumes in the list.

      • **Check All** to use all volumes in the list.

      • **Check None** to use no volumes in the list.

Step 10   Click **Select**.

Step 11   In the **Create Volume** dialog box, click **Submit**.

File Systems

An NFS file system has the following parameters:

      • Name

      • Create from a volume or storage pool

      • Storage pool

      • Storage capacity

      • Capacity units

      • Option to contain slices

You click buttons on the **File Systems** tab for the following actions:

Button Name	Description
Create	Creates a new file system.
Extend	Extends a file system.
View Details	Views details about the selected file system.
Delete	Deletes a selected file system.

Creating an NFS File System

Step 1	On the menu bar, choose **Physical > Storage**.
Step 2	On the **Storage** pane, choose the VNX pod where you want to create an NFS File System.
Step 3	Click the **Data Movers** tab.
Step 4	In the **Data Movers** list, choose the server.
Step 5	Click **View Details**.
Step 6	Click the **File Systems** tab.
Step 7	Click **Create**.
Step 8	In the **Create File System** dialog box, complete the following fields:

Name	Description
Name field	The NFS file system name.
Create from drop-down list	Choose either **Storage Pool** or **Volume** as the source for the file system.
Storage Pool drop-down list	Choose the storage pool for this file system.
Storage Capacity field	The storage capacity to allocate for this file system.
Capacity Units drop-down list	Choose the capacity units type. This can be one of the following: • **GB** • **MB** • **TB**
Contain Slices check box	Check this check box to enable the file system to contain slices.

Step 9	Click **Submit**.

What to Do Next

You can mount the file system as a Datastore.

Data Mover Interfaces

An NFS data mover interface requires the following parameters:

• Name

• Device name

- Address

- Subnet mask

- MTU

- VLAN ID

You click buttons on the **Interfaces** tab for the following actions:

Button Name	Description
Create	Creates a data mover interface.
View Details	Views details about the selected interface.
Delete	Deletes a selected data mover interface.

Creating a Data Mover Interface

Step 1	On the menu bar, choose **Physical > Storage**.
Step 2	On the **Storage** pane, choose the VNX pod where you want to create a Data Mover Interface.
Step 3	Click the **Data Movers** tab.
Step 4	In the **Data Movers** list, choose the server.
Step 5	Click **View Details**.
Step 6	Click the **Interfaces** tab.
Step 7	Click **Create**.
Step 8	In the **Create Data Mover Interface** dialog box, complete the following fields:

Name	Description
Name field	The interface name.
Device Name drop-down list	Choose the device name for this interface.
Address field	The interface address.
Subnet Mask field	The subnet mask for this interface.
MTU field	The maximum transmission unit (MTU) for this interface.
VLAN ID field	The VLAN ID for this interface.

Step 9	Click **Submit**.

NFS Export

NFS Export requires the following parameters:

- File system
- Read/write hosts
- Root hosts
- Option to host access read-only export

You click buttons on the **NFS Export** tab for the following actions:

Button Name	Description
Create	Creates an NFS export.
Edit	Edits an NFS export.
View Details	Views details about the selected NFS export.
Delete	Deletes a selected NFS export.

Exporting an NFS File System

Step 1	On the menu bar, choose **Physical > Storage**.
Step 2	On the **Storage** pane, choose the VNX pod where you want to add an NFS File System.
Step 3	Click the **Data Movers** tab.
Step 4	In the **Data Movers** list, choose the server.
Step 5	Click **View Details**.
Step 6	Click the **NFS Exports** tab.
Step 7	Click **Add**.
Step 8	In the **Add NFS Export** dialog box, complete the following fields:

Name	Description
File Systems drop-down list	Choose the **File Systems** type for NFS Export.
Read/Write Hosts field	The read/write hosts for NFS Export.
Root Hosts field	The root hosts for NFS Export.
Host Access Read-only Export check box	Check this check box if you want host access read-only export.

Step 9   Click **Submit**.

Mounts

An NFS mount requires the following parameters:

- Path

- File system name

- Mount server

- Read-only or read and write

- Access checking policy

- Option to enable virus checking

- Option to enable CIFS oplocks

- Option to enable advanced options

You click buttons on the **Mounts** tab for the following actions:

Button Name	Description
Modify	Modifies the attributes of a selected mount.
Delete	Deletes a selected mount.

Modify a File System

Step 1   On the menu bar, choose **Physical > Storage**.

Step 2   On the **Storage** pane, choose the VNX pod where the file system is located.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **Mounts** tab.

Step 7   Choose a file system.

Step 8   Click **Modify**.

Step 9   In the **Modify Mount** dialog box, complete the following fields:

Name	Description
Path field	The path for this mount.

Name	Description
File System Name drop-down list	Choose the file system name for this mount.
Mount On drop-down list	Choose the server for this mount.
Read Only drop-down list	Choose the Read Only or Read and Write option for this mount.
Access-Checking Policy drop-down list	Choose the access-checking policy for this mount.
Virus Checking Enabled check box	Check this check box if you want virus checking enabled.
CIFS Oplocks Enabled check box	Check this check box if you want CIFS Oplocks enabled.
Set Advanced Options check box	Check this check box if you want to set advanced options.

Step 10   Click **Submit**.

Deleting a File System

Step 1   On the menu bar, choose **Physical > Storage**.

Step 2   On the **Storage** pane, choose the VNX pod containing the file system you want to delete.

Step 3   Click the **Data Movers** tab.

Step 4   In the **Data Movers** list, choose the server.

Step 5   Click **View Details**.

Step 6   Click the **Mounts** tab.

Step 7   Choose a file system.

Step 8   Click **Delete**.

Step 9   Click **Delete** once again.