nexenta™

Target FC User Guide

3.1.6

Product Versions Applicable to this Documentation:

Product	Versions supported
NexentaStor™	3.1.6
Target FC	3.1.6

Contents

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Preface

This documentation presents information specific to Nexenta products. The information is for reference purposes and is subject to change.

Intended Audience

This documentation is intended for Network Storage Administrators and assumes that you have experience with data storage concepts, such as NAS, SAN, NFS, and ZFS.

Documentation History

The following table lists the released revisions of this documentation.

Table 1: Documentation Revision History

Revision	Date	Description
3000-trg_fc-v3.1.6-000044-A	June, 2014	GA

Contacting Support

Choose a method for contacting support:

- Visit the Nexenta customer portal http://nexenta.force.com/customerportal or partner portal http://nexenta.force.com/partnerportal. Log in and browse a knowledge base.

- Using the NexentaStor user interface, NMV (Nexenta Management View):

  a. Click **Support**.

  b. Complete the request form.

  c. Click **Send Request**.

- Using the NexentaStor command line, NMC (Nexenta Management Console):

  a. At the command line, type `support`.

  b. Complete the support wizard.

Comments

Your comments and suggestions to improve this documentation are greatly appreciated. Send any feedback to doc.comments@nexenta.com and include the documentation title, number, and revision. Refer to specific pages, sections, and paragraphs whenever possible.

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Introduction to Target FC

This section includes the following topics:

- About Target FC
- About SCSI Target

About Target FC

You can use the Target FC plugin to create Fibre Channel ports that can be accessed over a storage network by FC initiator hosts.

The NexentaStor Target FC plugin provides the following features:

- Exposes one or more zvols, as Fibre Channel LUNs over the SAN.
- Enables you to manage the access to LUN through groups of targets and initiators.

After you install Target FC, the SCSI Target label in the GUI changes to SCSI Target Plus to indicate that NexentaStor now supports Fibre Channel protocol. When you select the SCSI Target Plus tab, a panel displays for Fibre Channel with the option to configure the Fibre Channel ports.

Unlike iSCSI, you do not configure targets with Fibre Channel, you configure ports, which can act as initiators or targets.

Configuring a Fibre Channel port means making it available to the system. This process is specific to the type of port you configure.

The following diagram shows a simple Target FC configuration.
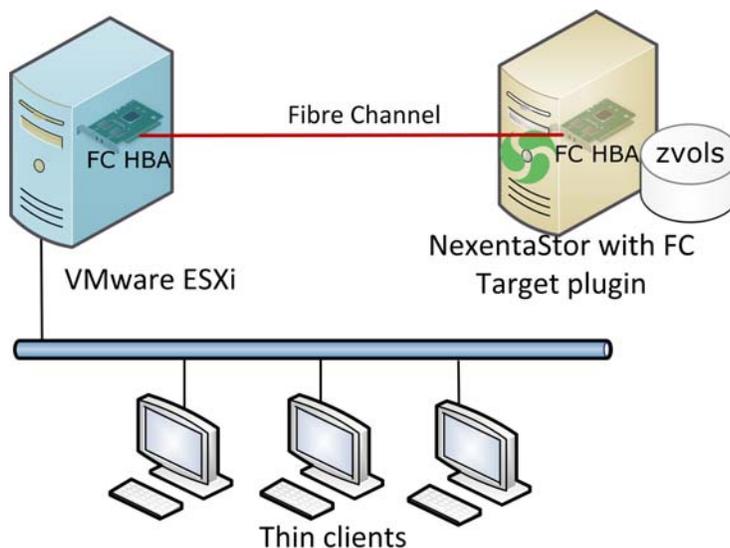
The following screenshot shows the Fibre Channel ports on NexentaStor:

FIBRE CHANNEL PORTS					
WWN	State	ID	Mode	Speed	Supported Speeds
21000024FF3F1773	online	ef	Target ▼	8Gb	2Gb 4Gb 8Gb
21000024FF3F1772	online	ef	Target ▼	8Gb	2Gb 4Gb 8Gb

See Also:

- [About SCSI Target](#)
- [Prerequisites](#)
- [Installing Target FC](#)

About SCSI Target

A SCSI Target is a generic term that represents different types of targets, such as iSCSI or Fibre Channel. The NexentaStor SCSI Target feature accesses all targets in the same manner.

The plugin supports direct-attached SCSI, SAS, and SATA disks, and disks remotely connected through iSCSI or Fibre Channel.

See Also:

- *NexentaStor User Guide*

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Installation

This section includes the following topics:

- Prerequisites
- Installing Target FC

Prerequisites

You need the following minimum prerequisites to configure a NexentaStor with Target FC:

- Software:
  - NexentaStor v3.1.x
  - Target FC plugin
- Hardware:
  - SCSI storage, such as SAS
  - Fibre Channel Host Bus Adapter (HBA)

    NexentaStor supports 2G, 4G, and 8G FC HBAs.
  - Fibre Channel Cable

To configure an HA Cluster with Fibre Channel shared storage, you need the following:

- 2 x NexentaStor appliances v3.1.x with Fibre Channel HBAs
- Fibre Channel switch
- Fibre Channel Cable
- Shared JBOD

  For more reliability, Nexenta recommends that you mirror the devices between the JBODs.

See Also:

- *NexentaStor Installation Guide*
- Hardware Supported List

Installing Target FC

After you configure the hardware and install NexentaStor, you must install the Target FC plugin. You can install the Target FC plugin through either NMC or NMV.

❖ *To install the Target FC plugin, using NMV:*

1. Click **Settings > Appliance.**

2. In the Administration panel, click **Plugins**.

3. In the list of Remotely Available plugins, click `scsitarget-fc`.

4. In the confirmation window, click **OK**.

5. Installation may take some time.

⚠️ **Note:**	Once uploaded, the Target FC plugin may not be immediately available from the NexentaStor repository. It can take up to six hours to become available.

❖ *To install the Target FC plugin, using NMC:*

1. Type:

```
nmc:/$ setup plugin install scsitarget-fc
```

⚠️ **Note:**	Target FC is available for installation after you purchase the plugin.

See Also:

- [Prerequisites](#)
- [About Target FC](#)
- [Installing Target FC](#)

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Configuring Fibre Channel Targets

- [Configuring the Fibre Channel Port Mode](#)
- [About Statuses of Fibre Channel Ports](#)
- [Creating a Zvol](#)
- [Viewing and Changing Zvol Properties](#)
- [Destroying a Zvol](#)
- [Creating a Target Group](#)
- [Creating an Initiator Group](#)
- [About LUN Mapping](#)
- [Creating a LUN Mapping](#)

Configuring the Fibre Channel Port Mode

When you connect FC ports to a NexentaStor appliance, Target FC automatically detects the ports.

Fibre Channel ports operate in the following modes:

- **Initiator**

  Enables NexentaStor to access remote FC targets. For example, you can connect LUNs from other NexentaStor appliances.

- **Target**

  Provides the access to NexentaStor FC targets for remote clients.

By default, NexentaStor sets FC ports to the Initiator mode. To use the NexentaStor LUNs as FC targets, change the FC port to *Target* mode.

❖ *To configure FC port mode:*

1. Click **Data Management > SCSI Target Plus**.

2. In the **Fibre Channel** panel, click **Ports**.

3. Change the FC port mode by selecting the required option in the **Mode** drop-down list.

4. Confirm the operation by clicking **OK**.

5. Reboot the NexentaStor appliance.

See Also:

- Prerequisites

- Installing Target FC

- About Statuses of Fibre Channel Ports

About Statuses of Fibre Channel Ports

On the Fibre Channel Ports page, you can view the following information about an FC port:

- World Wide Name (WWN)

- State

- ID

- Mode

- Speed

- Supported speeds

- Model

- Manufacturer

You can view additional information about FC ports by clicking on the magnifying glass icon to the left of the WWN.

See Also:

- Configuring the Fibre Channel Port Mode

- Creating a Zvol

- Viewing and Changing Zvol Properties

Creating a Zvol

A zvol is a virtual block device on a volume. In effect, it is a LUN that is remotely accessible through SCSI. The zvol can be managed, compressed, replicated, have snapshots taken of it, and so on.

To provision a piece of storage over SCSI, you must create a zvol on an existing volume.

❖ *To create a zvol, using NMV:*

1. Click **Data Management > SCSI Target Plus**.

2. In the **zvols** panel, click **Create**.

3. In the **Create a New zvol** window, fill in the required fields and click **Create**.

❖ *To create a zvol, using NMC:*

1. Type:

   nmc:/$ setup zvol create

2. Follow the prompts to enter the volume name, size, and other properties.

   The following table shows the zvol properties.

Table 3-1: Zvol Properties

Name (NMV)	Name (NMC)	Description
Volume	`zvol volume`	Name of the volume
Name	`zvol name`	Name of a zvol. Consists of the name of a volume and a unique zvol name, separated by a forward slash (/).
Size	`zvol size (volsize)`	Size of a zvol. If you decrease the zvol size after you create a zvol you may lose your data.
Block size	`block size`	Block size of a disk. The default value is 128 K.
Initial reservation	`Create a thin provisioned device?`	**Yes** — Creates a zvol with an assigned and a reserved size. **No** — Creates a thin provisioned zvol which grows gradually.
Description	`nms:description`	Short description of the zvol (optional).
Compression	`compression`	Controls the compression algorithm used for this dataset.
Deduplication	`dedup`	Controls the management of data copies.
Log Bias	`logbias`	Manages synchronous requests in the dataset. Logbias properties: **Latency** — Sends data to a separate log device to proceed with low latency. **Throughput** — Writes data directly to the pool device at high performance and the write workloads spread.
Number of copies	`copies`	Specifies the number of copies stored for this dataset
Sync	`sync`	Controls synchronous requests: **Standard** — all synchronous requests are written to stable storage **Always** — every file system transaction is written and flushed to stable storage by system call return **Disabled** — synchronous requests are disabled
Advanced Settings (available in NMC)		

Table 3-1: Zvol Properties (Continued)

Name (NMV)	Name (NMC)	Description
	`checksum`	Checksum calculation algorithm. The options are: • **on** • **off** • **fletcher2** • **fletcher4** • **sha256**
	`primarycache`	This property controls what data to cache in the primary cache. The options are: • **All** — user and metadata is cached • **None** — no data is cached • **Metadata** — metadata is cached
	`readonly`	The property controls the access to the zvol. The options are: • **on** • **off**
	`reservation`	Reserve a specified amount of disk space for the zvol. The options are: • **<size>** • **none**
	`secondarycache`	This property controls what data to cache in the secondary cache (L2ARC). The options are: • **All** — user and metadata is cashed • **None** — no data is cached • **Metadata** — metadata is cached

See Also:

- [Configuring the Fibre Channel Port Mode](#)
- [Viewing and Changing Zvol Properties](#)

Viewing and Changing Zvol Properties

You can view and change the properties of a zvol.

⚠️ **Note:**
The **Size** value must be a multiple of the **Block Size**.

Use caution when reducing the size of a zvol. If the new size is smaller than the current amount of data in the zvol, some data might be lost.

❖ *To view and change the properties of a zvol, using NMV:*

   1. Click **Data Management > SCSI Target Plus**.

   2. In the **zvols** panel, click **View**.

   3. In the **View zvols** window, click the name of the zvol.

   4. Modify the appropriate property field.

   5. Click **Save**.

❖ *To view the properties of a zvol, using NMC:*

   ◆ Type:

   nmc:/$ show zvol *<vol_name/zvol_name>* -v

❖ *To change the properties of a zvol, using NMC:*

   1. Type:

   nmc:/$ setup zvol *<vol_name/zvol_name>* property

   2. Type the appropriate property name and press `Enter`.

   Example:

   nmc:/$ setup zvol *<vol_name/zvol_name>* property volsize

   3. Follow the onscreen prompts to modify the value.

See Also:

- [Creating a Zvol](#)
- [Destroying a Zvol](#)
- [About LUN Mapping](#)

Destroying a Zvol

You can destroy/delete a zvol.

❖ *To delete a zvol, using NMV:*

   1. Click **Data Management > SCSI Target Plus**.

   2. In the **Zvols** panel, click **View**.

   3. In the **View zvols** window, select the appropriate zvol and click **Delete**.

❖ *To delete a zvol, using NMC:*

   ◆ Type:

   nmc:/$ setup zvol *<vol_name/zvol_name>* destroy

See Also:

- [Creating a Zvol](#)
- [Viewing and Changing Zvol Properties](#)
- [About LUN Mapping](#)

Creating a Target Group

You can create a target group and include FC ports in this group. These logical groups help to control the access of initiator hosts.

⚠️ **Note:**	To include an FC port in a target group, you must set the port mode to **Target**. See [Configuring the Fibre Channel Port Mode](#)

❖ *To create a target group, using NMV:*

1. Click **Data Management > SCSI Target Plus**.

2. In the **SCSI Target** panel, click **Target groups**.

3. In the **Manage Target Groups** window, click **here**.

4. In the **Create New Target Group** panel:

   • Type a Group Name

   • Select an FC target (WWN)

5. Click **Create**.

See Also:

• [Creating an Initiator Group](#)

• [About LUN Mapping](#)

• [Creating a LUN Mapping](#)

Creating an Initiator Group

You can use initiator groups to restrict the access of various initiators to NexentaStor targets and to certain data located in specified volumes.

❖ *To create an Initiator group, using NMV:*

1. Click **Data Management > SCSI Target Plus**.

2. In the **SCSI Target** panel, click **Initiator Groups**.

3. In the **Manage Groups of Remote Initiators** window, click **here**.

4. In the field **Group Name**:

   • Specify a custom group name

   • Select an initiator

   • Optionally, specify **Additional Initiators**

5. Click **Create**.

See Also:

- [Creating a Target Group](#)
- [About LUN Mapping](#)
- [Creating a LUN Mapping](#)

About LUN Mapping

LUN mapping allows you to restrict access to particular LUNs to specific initiators. You can use target and initiator groups to manage the access to specific zvols.

LUN mapping works as follows.
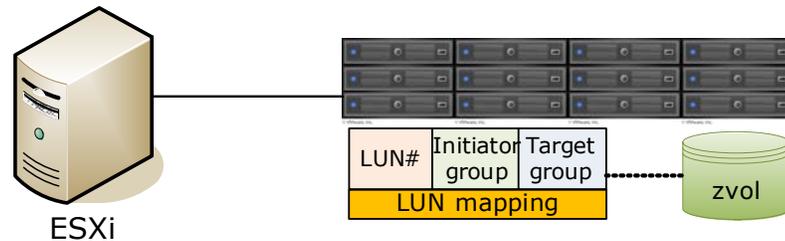
#	Description
1	Initiator connects to a specific WWN address.
2	Initiator acquires the list of LUNs available for the FC port.
3	Initiator acquires the LUN mapping information and connects to the available LUN.

See Also:

- [About LUN Mapping](#)
- [Creating a Target Group](#)
- [Creating an Initiator Group](#)

Creating a LUN Mapping

LUN mappings enable you to select which SCSI targets export the current LUN and which initiators can see it. In the simplest configuration, all initiators can see all targets.

> ⚠️ **Note:** You can create LUN mappings only in NMV.

❖ *To create a LUN mapping, using NMV:*

1. Click **Data Management > SCSI Target Plus**.
2. In the **SCSI Target** panel, click **Mappings**.

3. In the **Manage Mappings** window, click **here**.

4. In the **Create New Mapping** dialog:

    ● Select a zvol

    ● Select an initiator group

    ● Select a target group

    ● Type a LUN number (optional)

    ● Type a serial number (optional)

    If you do not have an Initiator or Target group, you can create All-to-All mapping. This configures all initiators to see this zvol and configures all targets to expose it. You can add as many mappings as you need to configure the required access control list.

5. Click **Create**.

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Tip:

You can also share a zvol to all the hosts and initiators by marking the appropriate zvol and clicking **Share** on the **View Zvols** page. This creates a new zvol entry on the LUN Mappings page that all the initiators and all the targets can see.

See Also:

•   [About LUN Mapping](#)

•   [Creating a Target Group](#)

•   [Creating an Initiator Group](#)

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