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NexentaStor

Installation Guide 4.0.4 FP1

Date: June, 2016

Subject: NexentaStor Installation Guide

Software: NexentaStor

Software Version: 4.0.4 FP1

Part Number: 2000-nxs-4.0.4 FP1-0000012-B

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Product Versions Applicable to this Documentation:

Product	Versions supported
NexentaStor^{TM}	4.0.4 FP1

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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.

Product Versions Applicable to this Documentation:

Revision	Date	Description
2000-nxs-4.0.4 FP1-0000012-A	October, 2015	GA
2000-nxs-4.0.4 FP1-0000012-B	June, 2016	Added a guidelines table for swap and dump volume size

Contacting Support

Methods for contacting support:

- Visit the Nexenta customer portal or partner portal. Log in and browse a knowledge base.
- Using the NexentaStor user interface, NMV (Nexenta Management View):
  a. Click **Support**.
  b. Select an action:
     - **Send by email**

       Send the support request to the Nexenta support email.
     - **Save to disk**

       Saves the support information to the `/var/tmp` directory on the NexentaStor appliance.
  c. Complete the request form.
  d. Click **Make 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.

Introduction

This chapter includes the following topics:

About NexentaStor

Nexenta provides enterprise class storage within the complexities of the enterprise environment. Business requirements constantly challenge IT management to provide a level of high availability, while simultaneously reducing costs. To this end, storage is a commodity, one where costs must decrease without negatively impacting availability.

NexentaStor provides the following:

- Easy management of extremely large storage pools

- Feature-rich software on a software appliance

- Easy to install and manage

- Online continuation of data for months and years, with tapes relegated to archival purposes only.

The appliance is targeted for second-tier NAS and iSCSI applications that provide low-cost storage and simplified provisioning, expansion, backup, replication and archiving. You can use NexentaStor as a primary NAS in businesses that want to expand.

NexentaStor Advantages

NexentaStor is built on the industry leading ZFS and provides the following features:

- Unlimited snapshots

- Multiple levels of RAID support (RAID-Z, RAID-Z2, RAID-Z3)

- Integrated replication

- Enhanced data protection

- Deduplication

- Data compression

NexentaStor features include:

- Thin provisioning

- Capabilities that reduce the time spent on integrated searches

- User-friendly Web GUI

- Fault management

- Reporting

Optional NexentaStor plugins support:

- High availability

- Replication

- Fibre Channel support

See Also:

- NexentaStor User Guide

- List of Supported Hardware

- For more information, contact sales@nexenta.com.

Versions

NexentaStor is available as:

- **NexentaStor Unified Appliance**

  CD image (ISO) that you can install on the following:

  - Virtualization platform, such as VMware ESXi

  - Unified appliance

| **Note:** | Unified appliance is a bare metal x86/64-bit computer with no virtual environments/ hypervisors. |

Nexenta recommends that you deploy the appliance on a single dedicated x86/64-bit based platform with at least 2GB of RAM.

The NexentaStor installer verifies the hardware compatibility before starting the installation.

NexentaStor Licenses

Nexenta provides the following licenses:

- **Free Trial**

  45-day free trial (ISO image) of Enterprise Edition.

- **Enterprise Edition** (Commercial version)

  Provides a perpetual license with a limitation based on quantity of terabytes used and technical support.

- **Community Edition**

  Major NexentaStor release with many features supported. Only 18 TB of storage available for use. Technical support is not available.

The following table lists the features available for each type of license.

Table 1-1: License Levels and Support

Feature	Free Trial Edition	Enterprise Edition	Community Edition
Time limitation	45 days	none	none
Storage capacity	unlimited	unlimited	18 TB
NexentaStor Plugins	yes	yes	no
Technical support	yes	yes	no
Maintenance agreement	no	yes	no
Storage upgrades	yes	yes	no

Browser Compatibility

NexentaStor and NexentaStor online help are compatible with the three major browsers:

- Microsoft Internet Explorer®

- Google Chrome®

- Mozilla Firefox®

- Apple Safari®

Mozilla Firefox has some compatibility problems with online help. Tables and wingdings characters do not display properly.

Note:	To ensure that NexentaStor appliance works correctly, verify that all browser extensions that block pop-up windows or flash are disabled. You may also add a rule to the browser settings that disables pop-up blocking for the NexentaStor appliance.

Logging In

NexentaStor provides the following administrative User accounts:

- `root`
- `admin`

After registering the appliance, Nexenta sends you the default password and product Registration Key in an auto-generated e-mail.

Make sure that you change the default password after you complete the installation.

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Prerequisites

This section includes the following topics:

- Hardware Prerequisites

- Network Prerequisites

- System Requirements

- Downloading NexentaStor Free Trial

Hardware Prerequisites

Nexenta recommends the following hardware for the NexentaStor appliance:

- 64-bit processor

- 2 GB RAM minimum for evaluation (recommend 4 to 8 GB), Production use 8 GB minimum plus 1 GB per 1 TB raw disk space minimum (depending on use-case more may be highly desirable), or 2 GB per 1 TB raw for high-end performance deployments. If planning to use deduplication, contact Nexenta Sales or Nexenta Support for sizing assistance.

  Assign no more than 512 GB of memory per node. Any larger may affect performance.

- 2 identical small disks for high-availability system volume (optional)

- Additional drives/storage for data volumes presented directly to the system software (no hardware RAID)

Note:	Configurations intended for production deployments must be covered by Nexenta's Hardware Certification List.
	Contact Nexenta Sales or a Nexenta Authorized Reseller or more details.

Network Prerequisites

Network requirements:

- You must have access to the appliance through the network. You can set it up through direct connection or VPN.

- Domain Name Server (DNS)

  At least one reachable host in the zone must reside outside of NexentaStor. DNS is a prerequisite if you use Network File System (NFS).

- Storage network fabric must be composed of core switches. Do not use edge switches.

- Network aggregates and similar functionality will be dependent upon switching capabilities.

System Requirements

Your environment must meet the following system requirements:

- VMware Virtual Environment
- Unified Appliance

Note:	NexentaStor is based upon the illumos operating system. The installation formats and deletes everything on the hard disk drive. Therefore, you must only install NexentaStor on a dedicated system. You cannot share the system with any other software application.

VMware Virtual Environment

Nexenta recommends the following for a VMware™ environment:

- Must contain one of the following supported VMware products:

  - VMware Player 2.5.x or later

  - VMware Workstation v6.5 or later

  - VMware Server v1.0.4 or later

  - VMware ESX v3.5 Update 2 or later

  - VMware Fusion (for Mac OS X)

- x86/64 platform with 2GB of memory (512 MB minimum)

- Virtualized network interface

- vSphere Client downloaded and installed on all systems accessing the server

  Alternatively, use VMware vSphere Web Client.

- At least two physical and/or virtual disks, with at least 8GB free disk space

  NexentaStor uses one of the hard drives for a system disk – the disk that holds the system folder and all subsequent system upgrades.

  VMware can support direct access to local hard disks.

Note:	The NexentaStor ISO contains a configuration file that specifies 64-bit architecture. The Virtual Appliance, however, runs on 32-bit hardware architectures because the OS loader can automatically determine the architecture and load the corresponding 32-bit or 64-bit kernel.

See Also:

- http://www.vmware.com/products/vsphere

Unified Appliance

Nexenta Systems, Inc. recommends the following for a unified appliance:

- • 64-bit processor
- • 2 GB RAM minimum for evaluation (recommend 4 to 8 GB), Production use 8 GB minimum plus 1 GB per 1 TB raw disk space minimum (depending on use-case more may be highly desirable), or 2 GB per 1 TB raw for high-end performance deployments. If planning to use deduplication, contact Nexenta Sales or Nexenta Support for sizing assistance.
- • 2 identical small disks for high-availability system folder (optional)
- • Additional drives/storage for data volumes presented directly to the system software (no hardware RAID)

Use the following table as general sizing guidelines when allocating swap and crash dump space for your system type.

System Type	Swap Space	Dump Space
Approximately 4 GB of physical memory	1 GB	2 GB
8 GB of physical memory	2 GB	4 GB
16 to 128 GB of physical memory	4 GB	8 - 64 GB
> 128 GB of physical memory	1/4 of physical memory size	1/2 of physical memory size

Note:	You can install an ISO image on a new VMware Workstation or a Xen virtual machine (VM).

Downloading NexentaStor Free Trial

NexentaStor is provided as a CD image.

- ❖ *To download a free trial of NexentaStor:*
  - ◆ Download the NexentaStor image at www.nexenta.com.

For product evaluation, use the default settings and the documentation provided with the appliance.

Pre-production Checklist

All newly built or reconfigured systems must undergo a System Acceptance Check (SAC) to ensure that the NexentaStor appliance is implemented correctly. The objective of the SAC is to avoid future downtime and outages due to improper configuration and pre-existing issues. Support team reviews the SAC and accepts it before the system goes into production.

Prerequisites

To complete the SAC, Nexenta recommends the following as general prerequisites.

- You must have a valid production license key.

- Register all Nexenta technical contacts within SalesForce.

Note:	Customer's Account Team initially creates and maintains the account details. Account team enters all contacts into SalesForce and manages the portal users right to access the SalesForce cases. These tasks are completed with the support of the account manager.

- Install and configure NexentaStor on compatible and certified hardware.

- Provide Nexenta Support with the following:

    - A signed System Implementation Guide (SIG)

      You may need to communicate technical information to Nexenta using the SIG. Nexenta Support uses the SIG as a reference point for systems experiencing technical problems and to understand the environmental issues such as network, rack location, firmware versions contributing to a technical issue.

      Your sales engineer, or Nexenta Authorized Partner, may already have the SIG filled out for your installation. SIG details your installation when you contact Nexenta support for any problem.

Note:	Nexenta support needs a filled out SIG form to properly support the NexentaStor appliance after the installation.

    - Collector bundle from the system

      You can run the Nexenta Collector tool to gather the latest log bundle and store it on the NexentaStor appliance by using the `!nexenta-collector --no-upload` command for sites without access to the internet .   You must be in expert mode to use this command.

      To run collector, in bash, with updated `collector.conf` from www.nexenta.com use ! `nexenta-collector -g` command and send Nexenta Support the output.

    - The output of the AutoSAC script.

      To support a specific installation of NexentaStor, Nexenta Support requires a Support Acceptance Check to be performed on the system. AutoSAC is an automated script that is available from Nexenta Field Engineers. After running the AutoSAC script with the help of a Field Engineer, you need to provide the output of the AutoSAC script to the Nexenta Support team. The Nexenta Support team reviews the output of these programs and checks for issues that may cause difficulty supporting the installation in the future..

Note:	Nexenta Field Engineer will assist with further knowledge and documentation necessary to complete the SAC process.

Validation Checklist

As part of SAC, Nexenta reviews the following:

- Failover capabilities of HA Cluster (if applicable).

- Any outstanding hardware issues.

- Verify the hardware is supportable and is on the HSL.

- Functional feasibility of the pool for its intended use.

The SAC must pass review by Nexenta before the system is accepted into support.

VMware vSphere Environment

This section includes the following topics:

- About Virtual Environments
- Setting Up vSphere Client
- Creating a Virtual Machine

Note:	VMware vSphere^TM is a third party product. The software is subject to change without notice. Therefore, these instructions may not be applicable in your environment. If they do not, consult VMware's website at www.vmware.com.

About Virtual Environments

There is a lot of information on the Web and in print about deploying and managing virtual machines. This section focuses on using NexentaStor in a vSphere environment.

See Also:

- VMware Technical Resources

Setting Up vSphere Client

To deploy a NexentaStor virtual machine, you must have the VMware vSphere server installed in your environment.

Consult with your IT department for access and permissions to the VMware vSphere server.

NexentaStor can run on VMware vSphere server version 4 or later.

When you remotely access the server using vSphere Client, you must know the following information:

- IP address of the VMware server
- User ID
- Password

❖ *To setup vSphere Client:*

1. From a client computer, open a browser and type the following in the URL address field:

   `<vSphere_server_IP_address>`

2. Download vSphere client.

3. Install the application.

Creating a Virtual Machine

The following section describes creating and setting up a VM in vSphere.

❖ *To create a VM:*

1. Log in to your VMware server with vSphere client.

2. Upload the NexentaStor CD image to the vSphere datastore.

3. Click **VMs and Templates**.

   The server displays all current VMs.

4. Click **Create a new virtual machine**.

5. Select **Typical**. Click **Next**.

6. Type a name for the VM. Click **Next**.

7. If the server is set up with Hosts and Clusters, select an inventory location.

   • If it is not set up with Hosts and Clusters, go to Step 10.

8. Select the Host/Cluster on which to install the VM.

9. Choose a specific host within the Cluster.

10. Select a datastore in which to store the VM. Click **Next**.

    A datastore represents a storage location for virtual machine files. It is platform-independent and host-independent.

11. For **Guest Operating system**, click **Other**.

12. Select **Oracle Solaris 11 (64-bit)**. Click **Next**.

13. In the NIC field, select 2 from the dropdown menu.

14. Do not change the defaults: VM network and e1000g. Click **Next**.

15. Select an appropriate virtual disk size. Click **Next**.

16. Select **Edit the virtual machine settings before completion**. Click **Continue**.
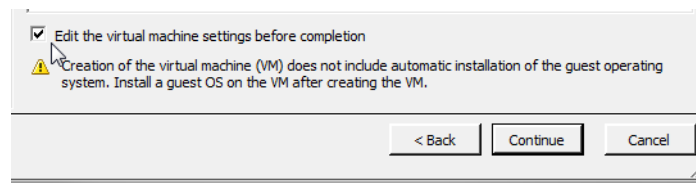
17. Select **New CD/DVD (adding)**.

18. Select **DataStore ISO file**.

19. Browse to the location of the NexentaStor ISO file and select it.

20. Select **Connect at power on**.
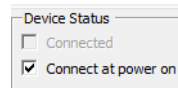
21. Click **Options**.

22. In the Settings section, select **Boot options**.

23. In the Force BIOS setup, select **The next time the virtual machine boots, force entry into the BIOS setup screen**.
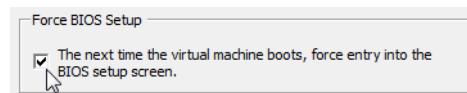
24. Add additional disks, networks interfaces, SCSI controllers according to your environment requirements.

25. When done, click **Finish**. VMware creates the VM.

26. Go to Installation to install NexentaStor.

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Unified Appliance

This section includes the following topics:

- Installing NexentaStor on Unified Appliance

Installing NexentaStor on Unified Appliance

A unified appliance is an x86/64-bit computer with no virtual environments/hypervisors. When using a unified appliance, you can install NexentaStor from any of the following devices:

- Internal CD-ROM
- External CD-ROM attached directly to the system
- Virtual CD-ROM attached through IPMI

Installing NexentaStor from a CD-ROM

When you load from an internal or external CD-ROM, the installation process is identical.

❖ *To install NexentaStor through an internal or external CD-ROM drive:*

1. Download theNexentaStor image from the NexentaStor Product page.
2. Burn it onto a CD-ROM.
3. Set the system BIOS to load from the CD-ROM first.
4. Reboot the system.
5. Go to Installation to install NexentaStor.

Installing NexentaStor from a Virtual CD-ROM Drive

Virtual Media provides a virtual CD/DVD-ROM drive, which you can use to install NexentaStor from standard media from anywhere on the network.

❖ *To install NexentaStor through a virtual CD-ROM drive, using IPMI:*

1. Set up the system with IPMI to create an IPMI server.
2. Download the NexentaStor CD image from www.nexenta.com to the IPMI server, or a system that contains a CD-ROM that is sharable across the network.
3. Open a web browser and log in to IPMI.
4. Mount the CD-ROM as virtual media.

1. Set the system to boot from the virtual media first.

2. Reboot the system.

3. After installation, set the system to boot from the hard drive first.

4. Go to Installation to install NexentaStor

Installation

This section includes the following topics:

- Downloading NexentaStor
- Booting from a Storage Device
- Selecting the Serial Port
- Installing NexentaStor

Downloading NexentaStor

Prior to installation, you must download the ISO file from the Nexenta Website.

❖ *To download the NexentaStor ISO image:*

1. Go to www.nexenta.com.
2. In the title bar, select **Products > NexentaStor**.
3. Select the NexentaStor to download.
4. Burn or copy the software to a bootable media device:
   - CD-ROM
   - External hard drive

Booting from a Storage Device

To install the software, you must set the BIOS boot option to boot from the storage device containing NexentaStor.

❖ *To change the Boot option in the BIOS:*

1. Boot into the system BIOS.
   - Unified Appliance
     - Restart the system and follow the on-screen instructions to enter the BIOS.
   - vSphere
     1) Right-click the VM and select **Power > Power On**.
     2) Click **Edit Settings > Boot options**.

3) In the Force BIOS setup, select **The next time the virtual machine boots, force entry into the BIOS setup screen**.

4) Reboot.

5) Click **Console** to view the BIOS.

2. Using the arrow keys, move to the Boot menu.

3. Follow the on-screen instructions to promote the storage device containing NexentaStor to be the first boot device.

4. Click **F10 Save and Exit**.

Note:	After installation, repeat the steps in this section and set the hard drive to be the first boot device.

Selecting the Serial Port

You can install the appliance using one of the following methods:

- keyboard/monitor
- serial port COM1

By default, the boot manager uses the serial port if your BIOS supports keyboard/monitor to serial port redirection.

❖ *To install the appliance by using the serial port:*

1. Boot into the system BIOS.

2. Refer to your vendor's documentation to set the BIOS to use the serial port.

3. Select the following serial port parameters:

- 9600
- 8
- N
- 1

4. Reboot and insert the NexentaStor Installation CD. The Nexenta Installation welcome message displays on the remotely connected terminal window.

5. Set the remote terminal client to support ANSI or VT100 emulation.

See Also:

- [Booting from a Storage Device](#)

Installing NexentaStor

This section describes the initial steps for installing NexentaStor. After installing the software, you obtain a license and configure the software.

❖ *To install NexentaStor:*

1. Read the product license and click **I Agree** to accept.

2. Connect the storage device containing NexentaStor to the appliance. Click **OK**.

3. Specify your location, country or region and time zone.

   To select, press the spacebar.

4. Confirm the time zone settings by clicking **Yes**.

5. Select the disk on which to install the NexentaStor Operating System.

   • For mirrored ZFS-boot configuration, select two or more equal-sized disks.

	Nexenta recommends setting up a mirror set for the system volume.
Note:	
	NexentaStor does not support more than three drives for the syspool.

6. NexentaStor warns that the installation repartitions the disk and destroys all current information on the disk.

   • Click **Yes** to allow repartitioning

   • Click **No,** and select another disk, to not allow repartitioning

7. NexentaStor installs on the drive. Click **OK** when complete.

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Registering the Appliance

This section includes the following topics:

- Registering the Appliance
- Obtaining a Registration Key

Registering the Appliance

After installation, you must obtain a NexentaStor license key.

❖ *To register the appliance:*

1. Boot the NexentaStor appliance.

2. In the Appliance window, select:

    `Boot from local hard drive...`

3. After the appliance boots, review the NexentaStor software license agreement.

4. Press Enter key to accept the license.

Obtaining a Registration Key

During the installation process, you must register your software on the Web and receive a license through email. Then you can configure the appliance.

Note:	If you are registering an Enterprise Edition, you must have your sales order number to complete the registration.

❖ *To obtain a registration key:*

1. Go to the Product Registration page for your edition at to obtain a registration key:

    - Trial/Enterprise Edition — http://nexenta.com/products/downloads/register-nexentastor

    - Community Edition — http://nexenta.com/products/downloads/community-edition-registration

Note:	The Machine Signature displays on the appliance's console. This value identifies the machine. For each registration, enter the exact value for the Machine Signature to register the software.

2. Fill out the registration form.

3. Click **Submit Request**. Nexenta generates a unique license key and e-mails it to you for activation.

Note:	For the Enterprise Edition, install the free trial. You convert your free trial license to a commercial license by entering the license key you receive, though email, after you have purchased an Enterprise license. The registration key for the Community edition does not work for the Enterprise edition. Likewise, the Enterprise registration key does not work for the Community edition.

Configuring NexentaStor

This section includes the following topics:

- Applying the Registration Key
- Accessing the NexentaStor Appliance
- Basic Configuration
- Advanced Configuration Wizard
- Manually Running a Wizard

Applying the Registration Key

After obtaining the registration key, you can continue with registration and configure the appliance.

❖ *To apply the registration key:*

1. Enter the product registration key exactly as it appears in the registration email.

Note:	The registration key is case sensitive. Make sure to enter the key exactly as specified in the auto-generated e-mail. Enter the dash separating groups of key characters.
	You can connect to the system through the stated address if you configure a client on the same network.

2. Select Y to configure your network interface.

   • Select **N** skip reconfiguration.

3. Proceed to Setting up the Network Interface.

Setting up the Network Interface

To facilitate initial configuration of the primary network interface, Nexenta pre-configures the appliance with a random static IP address in range from 192.168.10.10 to 192.168.210.210 with the subnet mask 255.255.0.0.

You can change the NexentaStor appliance to operate on your company's network interface.

❖ *To set the network interface:*

1. Select a network card to configure.

2. Choose DHCP or static configuration method.

3. Proceed to Configuring the Network Protocol and Port.

Configuring the Network Protocol and Port

To access the NexentaStor graphical user interface, configure the network protocol and port number. Depending on your environment prerequisites, you can configure http or https network protocols.

You can specify any port number available in your network or use the default setting. Consult with your network administrator to verify available port numbers.

❖ *To configure the network protocol and port:*

1. Select the transport protocol for NexentaStor Web GUI (NMV):

    - HTTP — Fast and (plain text), but unsecured

    - HTTPS — Secured, but slower

2. Specify a Web GUI port. The default is **8457**. Do not change to a value used by other services.

Note:	At this stage, you can ping the appliance from an external host.

3. Select an action from the following options:

    - If you need to setup the HA Cluster, proceed to Creating the HA Cluster.

    - If you need to access the NexentaStor GUI, proceed to Accessing the NexentaStor Appliance.

Creating the HA Cluster

If you do not want to set up an HA Cluster, skip this section and proceed to Accessing the NexentaStor Appliance

HA Cluster is a NexentaStor plugin that combines two NexentaStor appliances in a highly available cluster that provides continuous access to a shared storage.

HA Cluster is pre-installed on the basic NexentaStor software. However, in order to use it, you must set up the HA Cluster configuration.

You can also install HA Cluster any time later.

The *NexentaStor HA Cluster User Guide* provides detailed information about recommended HA Cluster configuration.

When you create an HA Cluster, the following configuration is applied:

• NexentaStor adds the following entries for the failover network interfaces to the `/etc/hosts` file:

```
169.254.123.101 ha-node-1
169.254.123.102 ha-node-2
```

For more information, see *NexentaStor HA Cluster User Guide*.

Note:	To verify the host table configuration, type: **nmc:/$** `show appliance hosts` Example: ``` ::1 localhost 127.0.0.1 nodeA nodeA.eng.nexenta.corp loghost 169.254.123.101 ha-node-1 169.254.123.102 ha-node-2 127.0.0.1 localhost ```

• SSH-bindings are created between two NexentaStor appliances using the heartbeat host names.

See Also:

• About the HA Cluster Installation

• Creating the HA Cluster

About the HA Cluster Installation

You can configure NexentaStor as HA cluster using the following options:

• **Repository**

You can install the latest version of the HA cluster plugin from the Nexenta Systems, Inc. repository and configure both HA nodes. This option requires an Internet connection.

• **USB**

You may want to use this option, if your appliance does not have access to the Internet. You must have other NexentaStor node configured to set up the cluster.

Configuring HA Cluster

After configuring network protocol and port, NexentaStor prompts you to configure HA Cluster.

To configure HA Cluster, you must have another NexentaStor appliance available and not included into any cluster group.

❖ *To install HA Cluster:*

1. When prompted, type **y** to the following:

   Is appliance a part of HA Cluster?

2. Select the HA Cluster license:

- Repository

- USB

For more information, see About the HA Cluster Installation.

System response:

Is this appliance the first node of a cluster?

3. Select `First`.

4. Select the network interface that cluster will use for network hearbeats.

System response:

```
First node has been configured.
```
Continue configuration on the second node and confirm the configuration

5. Install another NexentaStor appliance the same way you have installed this appliance.

6. When prompted, type `y` for the following:

Is appliance a part of HA Cluster?

7. Select the same license type as for the first appliance.

System response:

Is this appliance the first node of a cluster?

8. Select `Second`.

9. Select the network interface that cluster will use for network hearbeats.

System response:

```
Second node has been configured.
```
Continue configuration on the First node and confirm configuration (y/n)

10. Type `y`.

System response:

```
SSH-bound created.
Make sure that you see the same message on the other node and press Y.
```
Continue ? (y/n)

11. Log in to the first HA Cluster node.

12. Type `y`.

System response:

```
Verifying the network connection to the remote host ha-node-2...
...
SSH bound created.
Make sure that you see the same message on the other node and press Y.
```
Continue?

13. Log in to the other HA Cluster node and verify the message.

14. Log in back to the first appliance and type `y`.

> *Verifying the ssh-bound from First to Second nodes. Continue anyway?*

15. Type `y`.

System response:

```
Verifying the ssh-bound from Second to First nodes.
All checks completed.
Maker sure that you see the same message on the other node.
Please press Y on one of nodes and N on another. (y/n)
```

16. Type `y`.

17. Log in to other HA Cluster node and type `n`.

18. Proceed to <u>Accessing the NexentaStor Appliance</u>.

Accessing the NexentaStor Appliance

After a successful installation, NMC displays the IP address with port number of the NexentaStor appliance that you just created. After you open NexentaStor GUI in browser, you then configure the software.

❖ *To access the NexentaStor appliance:*

1. Point a browser to the URL in the message.

2. Proceed to <u>Basic Configuration</u>.

Note:	If your Internet Browser does not connect to the appliance, the primary networking interface may be configured incorrectly. Verify or fix the configuration by logging in to the NMC and typing: `nmc:/$ setup appliance init`

Basic Configuration

At this stage in the installation, the appliance contains a web interface ready for initial configuration through the NexentaStor GUI-based Configuration Wizard. The Wizard guides you through essential appliance configuration steps.

The NexentaStor Configuration Wizard is subdivided into two guided stages:

• Stage I — Basic Configuration

Note:	You must perform all Wizard-guided steps of the Basic Configuration.

• Stage II — Advanced Configuration

❖ *To configure the appliance:*

1. After connecting through a secure connection, the security certificate displays. Click **OK** to accept the certificate.

2. Change the following basic information as needed for your network:

- Host name

- Domain name

- Time zone

- NTP server

- Keyboard layout

3. In Step 2, type the `root` and `admin` passwords.

4. Alternatively, leave these fields blank and click **Next**.

   NexentaStor uses the default password for the `root` and `admin` accounts. Default password is `nexenta`.

5. Configure the Mailer settings in Step #3.

   It is important to set up a mail server and a mailing address for reporting system notifications, reports, and faults. Part of the NexentaStor appliance's Fault Management and Reporting is managed through notifications. Nexenta recommends that you configure either the appliance's mailer or enable the appliance's inbox.

   If you do not configure the mailer or enable the Inbox, the appliance fails to notify you of important events. The notifications only display in the appliance's log.

   You can specify separate e-mail addresses for the following:

   - **Statistics**

   Volumes reports, Network Statistics, NFS Statistics

   - **Notifications**

   System reports with status: Notice and Info

   - **Faults**

   System reports with status Warning and Critical

Note:	You can run both stage I and stage II of the Wizard again, at any time, to modify the configuration. You can also manually review the changes and apply or edit them.

6. Optionally, click **Test** to send a test e-mail to the specified e-mail address.

7. Review the settings and click **Save**.

   After saving the configuration, the second installation wizard opens.

Advanced Configuration Wizard

Stage-II Wizard contains a number of optional steps to setup the network and storage, data volumes, folders and zvols.

❖ *To configure the advanced features of the appliance:*

1. Add a network interface, if needed.

2. Setup or change the default gateway and name servers.

   The field contains the default information from the installation.

3. Configure the iSCSI Initiator to use virtual LUNs exported through iSCSI target. The appliance supports the following types of iSCSI discovery:

   • Target Address Discovery

   • Static Configuration

   • iSNS Discovery

4. Review and assign the available disks. You can assign the disks to be used for the following:

   • Data

   • Cache

   • Log

   For example, you can assign some of your SSDs as data devices and others as cache or log devices.

5. Create a volume configuration by selecting one of the following volume types:

   • **Performance**

   This type of volume is dedicated for a heavy IOPS environment, such as cloud storage, databases, virtualization, and so on.

   • **Balanced**

   You should select the balanced type of volume if the average number of read and write IOPS is equal.

   • **Capacity**

   This type of volume is recommended for the environments where the number of write operations is significantly higher, than the number of read operations. For example, a backup/ archiving server, a disaster recovery server, and so on.

Note:	You must have at least 4 drives of the same capacity available as data devices to use the volume configuration wizard. If you do not have 4 drives in your system, **switch to manual mode**.

Before you create a volume, verify that the disks that you plan to use for the volume do not contain any old volume labels, i.e. they are not included in any other volume configuration.

6. Adjust the number of disks for each device using vertical scroll bars.

Note:	If you have disks that are included in an exported volume, the **Use disks with data** checkbox is displayed. You can use these disks for the new volume. However, data on these disks will be overwritten and the old volume will be destroyed.

7. If you use a JBOD or chassis, select a Failure domain.

   For more information, see *Failure Domain* in the *NexentaStor User Guide*.

8. Optionally, view the graphical representation of disk layout.

   The layout shows how disks are spread across JBODs.

9. If you want to create a volume that consist of SSDs only, select the **Use SSD disks only** checkbox.

10. Optionally, import volumes from another ZFS-based system.

11. Create folders and/or nested folders.

    A NexentaStor folder is a ZFS file system.

12. Specify the necessary attributes.

    Each attribute is defined in the UI.

13. Review your selections. Make any changes needed.

14. If you set up the HA-Cluster, NexentaStor prompts you to accept the HA Cluster license.

Manually Running a Wizard

You may need to run the initial or advanced configuration wizards after the installation.

❖ *To run the wizards after the initial setup:*

◆ Point your Browser to the appropriate URL:

```
http://<ip_address>:<port_number>/wizard1
```

```
http://<ip_address>:<port_number>/wizard2
```

❖ *To run the wizards after the initial setup using NMV:*

• Click **Settings > Appliance > Wizard1 | Wizard2**

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Plugins

This section includes the following topics:

- About Plugins
- Accessing the Repository
- Accessing the Plugins
- Installing Plugins
- Removing Plugins

About Plugins

You can add and remove a NexentaStor pluggable module, or plugin. Plugins extend NexentaStor's functionality and use the same Storage Appliance API (SA-API) as the other software components. During installation, the plugin integrates into the NexentaStor core software.

For Free Trial users, commercial plugins are available **upon request**. When requesting, please specify:

- NexentaStor license key
- Plugin name

Accessing the Repository

Plugins are **not** downloadable from the website. Once purchased, your Nexenta sales representative uploads the plugins to your company's Nexenta repository, from which you can download them.

❖ *To view the repository, using NMC:*

◆ Type:

```
nmc:/$ show appliance repository
```

Accessing the Plugins

Plugins are available remotely and locally.

❖ *To list plugins available for installation, using NMC:*

◆ Type:

```
nmc:/$ show plugin

nmc:/$ show plugin remotely-available
```

❖ *To list plugins available for installation, using NMV:*

1. Click **Settings > Appliance.**

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

Installing Plugins

You can install and manage plugins through both NMC and NMV.

❖ *To manage an existing plugin or install a new one, using NMC:*

1. Type:

```
nmc:/$ setup plugin install <plugin_name>
```

2. Confirm or cancel the installation.

❖ *To manage an existing plugin or install a new one, using NMV:*

1. Click **Settings > Appliance.**

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

Note:	The plugins may not be immediately available from your NexentaStor repository once uploaded. They can take up to six hours to become available.

3. Click **Add Plugin** in the Remotely-available plugins section.

4. Confirm Plugin installation.

See Also:

• Nexenta products

Removing Plugins

You can remove plugins in NMC or NMV.

❖ *To remove an existing plugin, using NMC:*

1. Type:

   `nmc:/$ setup plugin <plugin_name> uninstall`

   System response:

   `Uninstall plugin <plugin_name>? (y/n)`

2. Confirm or cancel removal.

❖ *To remove plugins, using NMV:*

1. Click **Settings > Appliance.**

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

3. Click **Uninstall Plugin** in the Installed Plugins section.

4. Confirm or cancel removal.

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Upgrading

This section includes the following topics:

- Upgrading the Appliance

- About Upgrading from Version 3.1.6 to Version 4.0.4

Upgrading the Appliance

After migrating to version 4.0, you can upgrade the NexentaStor appliance with patches, new minor versions and various options, using NMC.

❖ *To upgrade NexentaStor:*

1. Type:

```
nmc:/$ setup appliance upgrade
```

2. Select **Yes** to delete the cache files on the appliance.

Upgrading the Data Volume

You must upgrade your data volume to the latest version.

❖ *To upgrade the data volume:*

◆ Type:

```
nmc:/$ setup volume <volume_name> version-upgrade
```

Upgrading Folders

You can upgrade all folders, a specific folder, or a specific folder and its sub-folders.

❖ *To upgrade all folders to the latest version:*

◆ Type:

```
nmc:/$ setup folder version-upgrade
```

❖ *To upgrade only one specified folder to the latest version:*

◆ Type:

```
nmc:/$ setup folder <folder_name> version-upgrade
```

❖ *To upgrade a specified folder and all of its subfolders to the latest version:*

◆ Type:

```
nmc:/$ setup folder <fol_name> version-upgrade -r
```

About Upgrading from Version 3.1.6 to Version 4.0.4

To upgrade NexentaStor from version 3.1.6 to 4.0.4, you must first upgrade to version 3.1.6 or later 3.x version.

During the upgrade, NexentaStor services and volumes remain available to network clients. The upgrade operation requires system restart. Therefore, it is recommended that the upgrade process is scheduled during a system maintenance window. All NexentaStor services and volumes are not available during the restart.

Fo instruction on how to upgrade the HA Cluster plugin, see: NexentaStor HA Cluster User Guide.

If you need to upgrade from NexentaStor 4.0.3 to 4.0.4, follow the steps in Upgrading the Appliance.

Upgrading from Version 3.1.6 to 4.0.4 with an Internet Connection

Before you upgrade the NexentaStor appliance from version 3.1.6 to version 4.0.4, obtain the license from http://nexenta.com/products/downloads/register-nexentastor and verify that your environment meets the following prerequisites:

• The network interface card is included to the hardware compatibility list for NexentaStor 4.0.4.

• No third party applications or packages are present on your NexentaStor appliance. You may have third party packages installed if you changed repository sources on your NexentaStor appliance. Upgrade will result in the loss of components that are not included with the NexentaStor build.

❖ *To upgrade from version 3.1.6. to 4.0.4, using NMC:*

1. If you have not upgraded to NexentaStor 3.1.6, upgrade by typing:

   nmc:/$ setup appliance upgrade

2. Disable multi-NMS

   Type:

   ```
   nmc:/$ setup appliance nms property srvpool_cnt_initial -p 0
   nmc:/$ setup appliance nms restart
   ```

3. Upgrade to NexentaStor 4.0.3 by typing:

   ```
   nmc:/$ setup nexentastor upgrade
   ```

Note:	Close all browsers connected to the Nexenta Management View (NMV) during the upgrade process.

System response:

```
Upgrade NexentaStor Appliance from version 3 to version 4.
This process include upgrade kernel, drivers, base system and appliance.
```

```
WARNING: We can't guarantee third-party software will continue to work
properly after upgrade.
WARNING: The system should be restarted at the end of the process.
Proceed?
```

4. Type y.

   The upgrade process may take some time.

   During the upgrade, do not switch off or restart the NexentaStor appliance.

5. NexentaStor notifies you about the upgrade process.

```
The first phase of upgrade has completed successfully
Reboot now to finish upgrade to 4.0?
```

6. Continue to work using NexentaStor 3.1.6 or reboot to activate NexentaStor 4.0.3

   Nexenta does not recommend to continue to work using NexentaStor 3.1.6 after the first stage of upgrade is completed. You may postpone the restart if you have incomplete archiving tasks. Otherwise, proceed with the reboot. When rebooting all NexentaStor services and datasets are unavailable for network clients.A

Warning:	After you upgrade the volume version, back up your system. Backups created for mirrored pools with earlier volume versions may not be available after the upgrade.

7. Optionally, upgrade NexentaStor volumes to version 28 by typing:

   ```
   nmc:/$ setup volume <volname> version-upgrade
   ```

8. Repeat Step 7 for all NexentaStor volumes.

9. Verify that syspool is mounted:

   1. In NMV, click **Settings > Appliance**.

   2. In the **Upgrade Checkpoints** pane, click **View**.

      You should see the list of upgrade checkpoints.

   3. If you do not see any upgrade checkpoints:

      1) Log in to NMC.

      2) Switch to bash.

         nmc:/$ option expert_mode =1

         nmc:/$!bash

      3) Type:

         # mkdir /syspool

         # mount -f zfs syspool /syspool

      4) Open the /etc/vfstab file for editing:

         # vi /etc/vfstab

      5) To ensure syspool is mounted on every boot, add the following line:

         ```
         syspool -   /syspool   zfs - yes -
         ```

Example:

```
#device          device          mount          FS        fsck     mount    mount
#to mount        to fsck         point          type      pass     at boot  options

syspool          -               /syspool       zfs       -        yes      -
```

Note:	Use <TAB> to separate entries.

6) Save the changes:

`:!wq`

10. Upgrade from 4.0.3 to 4.0.4.

Upgrading from Version 3.1.6 to 4.0.4 with no Internet Connection

Before you upgrade your appliance with no Internet Connection, review section Upgrading from Version 3.1.6 to 4.0.4 with an Internet Connection. Verify that your environment meets all prerequisites described in this section.

❖ *To upgrade from Version 3.1.6 to 4.0.4 with no Internet Connection:*

1. If you are unable to connect to the Internet to upgrade your system, contact support@nexenta.com.

2. Mount or burn the ISO image.

Complete Step 2 to Step 9 from section Upgrading from Version 3.1.6 to 4.0.4 with an Internet Connection.

Re-running the Upgrade from Version 3.1.6 to 4.0.4

Generally, Nexenta does not recommend to roll back a NexentaStor appliance to version 3.1.6 after the upgrade to 4.0.4 on a production system. During the system upgrade, you may have upgraded the volume version. In this case, the data and system volumes will be unavailable in version 3.1.6, since volume version 28 is not supported in the NexentaStor 3.1.6.

Rollback and upgrade is somewhat acceptable on a testing system.

During the upgrade, NexentaStor creates a flag file `/volumes/.config/.3_to_4_upgrade`. If you try to run the upgrade after rolling back to version 3.1.6, the upgrade fails.

To re-run the upgrade to version 4.0.4, delete the `/volumes/.config/.3_to_4_upgrade file` and run the `setup nexentastor upgrade` command again.

❖ *To rerun the upgrade from version 3.1.6 to 4.0.4, using NMC:*

1. Log in to bash:

`nmc:/$ option expert_mode=1`

`nmc:/$ !bash`

2. Type:

`# rm /.config/.3_to_4_upgrade`

3. Exit bash by typing:

   # exit

4. Run:

   nmc:/$ setup nexentastor upgrade

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