



Lenovo NexentaStor 5.0

Installation QuickStart Guide

This document includes the instructions to complete a customer install for NexentaStor 5.0 based upon the Lenovo bld 43 factory imaged appliance. This document covers the following tasks:

- Ensure that the NexentaStor pre- installation requirements are met.
- Preliminary appliance check
- Activate the NexentaStor license
- Basic appliance set and configuration
- Upgrade to the latest NexentaStor software version
- Verify installation

Document History

Date	Revision	Description
September, 2016	v0.1	Initial Version
October, 2016	v0.2	Clean up

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Setting up NexentaStor 5.0.0.43 Lenovo DX8200N based on Lenovo factory image

NexentaStor is a software-based storage appliance providing network-attached storage (NAS) and storage-attached network (SAN) solutions. NexentaStor supports file and block services and a variety of advanced storage features such as replication between various storage systems and unlimited snapshots.

The sequence of steps to install the NexentaStor image is outlined below.

System Requirements

The Lenovo NexentaStor Lenovo DX8200N appliance comes with the base software imaged at the factory.

General Pre-requisites:

- Will require product activation key
- Will require knowledge of the admin password supplied during factory install

When imaging the appliance in the factory, the following steps should have been completed:

- Setting of admin password (this can later be changed by customer)
- Ensuring that bge0 IP port is enabled and set to dhcp

Reserved Ports

NexentaStor 5.0 appliance uses the listed ports in Table 1. You must add these ports as exceptions when configuring your firewall to allow connections to the corresponding NexentaStor services.

Table 1: List of Network Ports for Firewall Exception Rules

Protocols and Services	Port Number
NexentaStor Management	TCP ports 22, 6557, 5557, 8443
FTP	TCP port 21
SMTP	TCP port 25
Replication Data Protocol	TCP port 6000 by default but can be changed
Cluster HA Services	UDP and TCP port 1195
iSCSI Target	TCP port 3260
SMB	UDP ports: 137, 138, TCP ports 137, 139
CIFS	UDP and TCP port 445
ICAP	Port 1344

NTP	UDP port 123
NFSv3	UDP ports: 111, 2049, 32764:32769 TCP ports: 111, 2049, 32764:32769
NFSv4	TCP port 2049

Preliminary Setup and Check Actions

1. Login to Appliance console as Admin with the password set when the appliance was imaged in factory.
2. Validate the software version.

```
CLI@nexenta> software version

Host name                smc-53-152
Version                  5.0.1
Cluster name            Not clustered
Management IP address   10.3.53.152:8443
```

3. Validate the existence of bge0 interface and dhcp type.

```
CLI@nexenta> ip list

NAME      TYPE      STATE      ADDRESS
bge0/v4   dhcp      ok         <valid IP address and netmask>
```

4. Ensure that the network access is available.

```
CLI@nexenta> route list

DESTINATION  GATEWAY          PROTOCOL  INTERFACE  REFS  USE      STATIC
default      <local gateway>  ipv4      bge0       4     878773  no
```

5. If no default gateway, then use:

```
CLI@nexenta> route create default <local gateway IP/netmask>
```

6. Validate network access. A valid path to the internet must exist for both licensing as well as upgrade if being done online.

```
CLI@nexenta> net list dns

NAMESERVER  PROTOCOL
10.3.40.245  ipv4
8.8.8.8     ipv4
```

Note, the above are merely examples. Final validation is to ensure you can ping a remote web site from the NexentaStor console.

Activating License

License activation is an online process that requires an activation key that you should have received from Nexenta.

Note: Contact Nexenta Support for offline license activation.

To activate the license online:

Use online license activate on the deployment node that has access to the Internet.

1. Activate the product license using activation key.

```
CLI@nexenta> license activate < KEY >
```

License activate contacts the Nexenta license server, which uses the activation key to generate your license.

To validate the license and it's features:

```
CLI@nexenta> license show
```

```
PROPERTY      VALUE
guid          00000000-0000-0000-0000-002590e963d4
valid         yes
status        ok
type          ENTERPRISE-TRIAL(Nexenta Internal)
product       NexentaStor
version       5.x
licensee     Nexenta-abcd@nexenta.com
serial        SR-DEV-NS-201618586
features      highAvailability, continuousReplication, fibrechannel,
scheduledReplication, allFlash
issued        Sun Oct 16 17:00:00 2016
expires       Wed Nov 30 16:00:00 2016
capacity      no limit
maintenance   Sun Oct 16 17:00:00 2016 - Wed Nov 30 16:00:00 2016
(valid)
```

Configuring Network

1. If you have already assigned an IP address, destroy the IP address and then assign a new IP. Change bgeo network to static. The following steps assume you are still logged in at the console.

```
CLI@nexenta> ip destroy bge0/v4
```

```
CLI@nexenta> ip create static bge0/v4 <IP address>/24
```

Creating Network Route and DNS

2. If the default route is missing, setup the default route now.

```
CLI@nexenta> route create default <local gateway>
```

3. Verify the dns.

Note: a valid dns will be required for online upgrade.

```
CLI@nexenta> net list dns
```

Ensure that the dns listed is a valid address.

4. Set up dns as needed.

```
CLI@nexenta> net create dns <address>
```

Configuring Host

To configure new hostname:

1. Check the host name to determine if you need to change it.

```
CLI@nexenta> config get all system.hostName
```

2. Rename the host using the following command if you decide to change it.

```
CLI@nexenta> config set system.hostName=<new host name>
```

3. Verify the changes, if you renamed the host.

```
CLI@nexenta> config get all system.hostName
```

To set IP for the new hostname:

4. Now to change the host file, destroy the old host and recreate it.

```
CLI@nexenta> net destroy host <address>
```

When you recreate the host, use the new host name you provided in the second step.

```
CLI@nexenta> net create host <address> <hostname>
```

5. Verify the host file.

```
CLI@nexenta> net list host
```

To see the new node name, exit the console and log in again.

Configuring Time Zone

1. Verify the time zone.

```
CLI@nexenta> config get all system.timeZone
```

2. Change the time zone if needed.

```
CLI@nexenta> config set system.timeZone=<Region name>
```

3. Set up NTP

```
CLI@nexenta> svc set servers=pool.ntp.org ntp
```

```
CLI@nexenta> svc list ntp
```

```
NAME DESCRIPTION STATE
ntp NTP client online

CLI@nexenta> config list system.date
```

4. Validate that it is set.

```
CLI@nexenta> svc get ntp

Name Value
servers ['pool.ntp.org']
```

Note – Now you may establish an ssh session as opposed to direct console login.

Upgrading to the Latest Version

With Internet Connection

1. Upgrade to the latest version – Note, for bld 43 starting point this is NOT optional.

If starting from bld 43, it is required that the publishers be updated to utilize http (default now is https). This is accomplished as follows:

```
CLI@nexenta> publisher list
```

This will provide the current set of publishers that you will need in follow on steps.

```
CLI@nexenta> publisher list
```

PUBLISHER	STATUS	LOCATION
nexenta	online	https://prodpkg.nexenta.com/nstor/pkg5/
HighAvailability	online	https://prodpkg.nexenta.com/thirdparty/HAC/rsf/pkg5/

2. Remove the existing publishers.

```
CLI@nexenta> publisher destroy nexenta
```

```
CLI@nexenta> publisher destroy HighAvailability
```

3. Reestablish publishers with http (not https).

```
CLI@nexenta> publisher create nexenta
http://prodpkg.nexenta.com/nstor/pkg5/
```

```
CLI@nexenta> publisher create HighAvailability
http://prodpkg.nexenta.com/thirdparty/HAC/rsf/pkg5/
```

4. Perform the upgrade.

```
CLI@nexenta> software upgrade
```

5. Confirm that the upgrade version is activated and to see your boot environment list.

```
CLI@nexenta> software list
```

NAME	SPACE	ACTIVENOW	ACTIVEAFTERREBOOT	CREATIONTIME
nexenta	6.3M	no	no	Sep 6 16:29:04
nexentastor-1	2.77G	yes	yes	Sep 19 15:02:56

6. Reboot the appliance.

7. Validate the software version.

```
CLI@nexenta> software version
```

PUBLISHER	VERSION	PACKAGINGDATE
nexenta	5.0.1	Wed Oct 5 08:49:24 2016

8. Configure publishers back to https.

Remove the existing publishers.

```
CLI@nexenta> publisher destroy nexenta
```

```
CLI@nexenta> publisher destroy HighAvailability
```

Reestablish publishers with https.

```
CLI@nexenta> publisher create nexenta
https://prodpkg.nexenta.com/nstor/pkg5/
```

```
CLI@nexenta> publisher create HighAvailability
https://prodpkg.nexenta.com/thirdparty/HAC/rsf/pkg5/
```

Without Internet Connection

You can upgrade to the latest NexentaStor 5.0 from the darksite CD provided by Nexenta.

1. Log in to the NexentaStor node that does not have internet connection.
2. Mount the dark site CDROM.

To upgrade the NexentaStor ISO:

1. From the CLI, update the publisher origin.
 - Destroy the publisher first.

```
CLI@nexenta> publisher destroy <publisher of the repository to remove>
```

- Set the publisher to pick the ISO from the dark site CD.

```
CLI@nexenta> publisher create nexenta <ISO_Mountpoint/Repo_Directory>
```

- Verify the publisher list.

```
CLI@nexenta> publisher list
```

PUBLISHER	STATUS	LOCATION
nexenta	online	<ISO_Mountpoint/Repo_Directory>
HighAvailability	online	<ISO_Mountpoint/Repo_Directory>

2. Now run the upgrade.

```
CLI@nexenta> software upgrade
```

3. Confirm that the upgrade version is activated and to see your boot environment list.

```
CLI@nexenta> software list
```

NAME	SPACE	ACTIVENOW	ACTIVEAFTERREBOOT	CREATIONTIME
nexenta	6.3M	no	no	Sep 6 16:29:04
nexentastor-1	2.77G	yes	yes	Sep 19 15:02:56

4. Reboot the appliance.
5. Validate the software version.

```
CLI@nexenta> software version

PUBLISHER  VERSION  PACKAGINGDATE

nexenta    5.0.1    Wed Oct 5 08:49:24 2016
```

To upgrade the NexentaStor HighAvailability feature:

1. From the CLI, update the publisher origin.

- Destroy the publisher first.

```
CLI@nexenta> publisher destroy <publisher of the repository to remove>
```

- Set the publisher to pick the HighAvailability image from the dark site CD.

```
CLI@nexenta> publisher create HighAvailability
<ISO_Mountpoint/Repo_Directory>
```

- Verify the publisher list.

```
CLI@nexenta> publisher list

PUBLISHER          STATUS  LOCATION

nexenta             online  <ISO_Mountpoint/Repo_Directory>

HighAvailability    online  <ISO_Mountpoint/Repo_Directory>
```

2. Now run the upgrade.

```
CLI@nexenta> software upgrade
```

3. Confirm that the upgrade version is activated and to see your boot environment list.

```
CLI@nexenta> software list

NAME          SPACE  ACTIVENOW  ACTIVEAFTERREBOOT  CREATIONTIME
nexenta       6.3M   no         no                 Sep  6 16:29:04
nexentastor-1 2.77G  yes        yes                 Sep 19 15:02:56
```

4. Reboot.

Now that you have upgraded to the latest NexentaStor version you can start exploring the appliance using the CLI.

5. Validate the software version.

```
CLI@nexenta> software version

PUBLISHER  VERSION  PACKAGINGDATE

nexenta    5.0.1    Wed Oct 5 08:49:24 2016
```

Verifying NexentaStor Lenovo DX8200N Installation

The following commands will help you troubleshoot your NexentaStor deployment:

- CLI@nexenta> `journal list -o name,file` - to list installation and syslog message logs.

NAME	FILE
install/caiman	/var/log/install/install_log
install/nef	/var/log/install/nef_log
install/messages	/var/log/install/messages
messages	/var/adm/messages
- CLI@nexenta> `config list` - to view values for the system parameters
- CLI@nexenta> `software version` and `software list` - to query what version of NexentaStor was installed and whether it is activated
- CLI@nexenta> `license show` - to display license terms
- CLI@nexenta> `system status` - to get a summary of system metrics

Exploring CLI

To start executing the NexentaStor CLI commands:

1. Log in using `admin` and the password you set during installation.
2. Type `help` to see the list of available CLI commands and utilities.
3. Type `man <command>` to see the man page for a specific command.
4. Type `<command> <subcommand> --help` to see usage information on a specific subcommand.

Updating System Passwords and Profile

Should you want to change the values for the following entities from the values you entered during installation, use these commands:

CLI@nexenta> `profile activate <profile name>` Selects a different system profile. Values are `Default` for hybrid or all-HDD systems, or `AllFlash` to use preset kernel settings to optimize performance for an all-SSD appliance.

CLI@nexenta> `user passwd -p <passwd> <username>` Resets the admin user password.

CLI@nexenta> `hpr password-set -password=<string>` Resets the replication password. The replication password must be the same for all nodes in the replication group for the data protection feature to work.

Note: Passwords should be at least 9 characters long and contain at least 3 of the following classes of characters: lowercase, uppercase, numeric, and special (for example, !, @, CLI@nexenta>,\$, %, ^). Passwords should not be based on English dictionary or slang words, nor English first names or surnames.

Exploring REST API

Once you successfully installed NexentaStor, you can get online access to the REST API documentation using the static IP address you set up during the NexentaStor installation.

Note: The API online documentation is a developmental tool and access is disabled by default. Enabling access in a production environment is not recommended.

If you must enable access to the detailed REST API documentation, follow these steps:

1. Run `config set rest.useSwagger=true` (case-sensitive parameter)
2. Point your browser to <https://<NexentaStorStaticIPAddress>:8443/docs/>

Additional Resources

After installing NexentaStor 5.0, use the resources listed in the Table for more information. These documents are posted in <https://nexenta.com/products/downloads/nexentastor>.

Table : Related Documents

Document Name	Description
NexentaStor 5.0	
CLI Configuration QuickStart	Provides basic information and instructions for: <ul style="list-style-type: none"> • Configuring the network and snapshots. • Creating pools, file systems, volume groups, and volumes. • Sharing file systems and volumes.
CLI Reference Guide	Includes: <ul style="list-style-type: none"> • A list of NexentaStor commands, subcommands, and descriptions. • A list of UNIX-like utilities to use in NexentaStor.
VVOL Admin Guide	Documents a policy-based approach for managing external storage in virtualized environments by allowing automated provisioning of VMs.
vCenter Plugin QuickStart Guide	Provides information on how to use the vCenter Web Client plugin to manage multiple NexentaStor 5.0 appliances.
HA Admin Guide	Includes CLI steps to configure clusters for high availability (HA).
REST APIs QuickStart Guide	Contains instructions to get online REST API documentation to configure and manage your appliances.
Product Guide	Provides an overview of the NexentaStor capabilities.
Openstack Cinder and Manila driver	docs.openstack.org and search for NexentaStor 5
Docker volume driver	https://github.com/Nexenta/nexenta-docker-driver/blob/master/README.md
NexentaFusion 1.0	
	The NexentaFusion User Guide and GUI online help (click HELP under the COG wheel icon in the top menu bar) are available.