



Global Leader in Software-Defined Storage.

NexentaEdge

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About this Document

These are the release notes for version 2.1.2 of NexentaEdge. This document contains the following topics:

- [NexentaEdge Overview](#)
- [What's New In This Release](#)
- [NexentaEdge Hardware Compatibility](#)
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NexentaEdge Overview

NexentaEdge is Nexenta Systems' software-defined object storage system. It is designed to allow enterprises to store large amounts of object data securely, read and write that data efficiently, and add or remove storage capacity easily and inexpensively.

NexentaEdge is designed to be flexible, with support for the following protocols:

- Object protocols: OpenStack Swift, Amazon S3
- Block protocols: iSCSI, OpenStack Cinder, Network Block Device (NBD)
- File protocol: NFS

NexentaEdge is an *edge-directed* object storage system because decisions about how to store and retrieve data are based on information that comes from the storage gateways and data nodes themselves (the edge of the system), as opposed to software-defined rules or services running in a central location.

NexentaEdge Features

NexentaEdge offers a number of enhancements over other object storage systems. Key features of the NexentaEdge system are the Cloud Copy on Write (CCOW) storage system, Replicast communications protocol, and FlexHash dynamically updated hash allocation table. Within the NexentaEdge cluster, these features combine to provide automatic distributed deduplication, load balancing, and compression.

- Cloud Copy on Write (CCOW) allows for secure storage and efficient retrieval of data in the cluster while minimizing the network resources required for these functions.
- FlexHash allows information about server load and capacity to be taken into account when constructing the hash allocation table. For PUT operations, FlexHash maps chunks to multicast groups of servers that can store the chunk the fastest, based on the server load and capacity. For GET operations, FlexHash maps chunks to servers that can deliver the most recent version of the chunk the fastest.

- Replicast is NexentaEdge's unique technology for storing and transporting objects in the cluster. It serves as the communications protocol for the servers in the NexentaEdge cluster. Replicast uses information in the FlexHash table to determine the set of targets for PUT operations or the actual delivery server for GET operations. The result is that PUTs are directed to the least busy servers, and GETs are directed to the server that can provide the fastest response for the requested object.

See the *NexentaEdge User Guide* for information about the components that make up a NexentaEdge cluster.

NexentaEdge Documentation

In addition to these release notes, the NexentaEdge documentation consists of the following:

- *NexentaEdge Installation Guide* – Contains descriptions of the hardware and software components that make up a NexentaEdge cluster, system requirements for those components, and procedures for downloading and deploying the NexentaEdge software. Deployment examples show how to configure a NexentaEdge cluster to provide iSCSI, OpenStack Swift, and Amazon S3 storage services.
- *NexentaEdge User Guide* – Describes NexentaEdge features and contains information about administrative tasks for a NexentaEdge cluster, including adding new nodes and devices and configuring storage services.
- Command-line help – The tools for deploying and administering a NexentaEdge cluster, NEDEPLOY and NEADM, have help for individual commands. To list the available commands for each tool, type `neadm help` or `nedeploy help` at the command prompt on the workstation where these tools are installed.

To display help for a specific command, type `neadm help <command>` or `nedeploy help <command>`; for example, `neadm system help` or `nedeploy precheck help`.

- NexentaEdge GUI help – The HTML help system for the NexentaEdge administrative GUI includes step-by-step procedures for configuring storage services and monitoring your NexentaEdge cluster.

What's New In This Release

New features introduced in NexentaEdge 2.1.2 include the following:

- Identity services for tenants – NexentaEdge 2.1.2 supports the ability to check usernames/passwords configured for a tenant with external identity servers. Active Directory (AD), LDAP, and Keystone are supported. Identity service configuration is done on a per-tenant basis, so individual tenants can have different identity service settings. The system periodically checks a user's validity with the identity server and blocks access if the user's credentials become invalid.
- Bucket quotas – NexentaEdge 2.1.2 allows you to allocate a maximum amount of storage space for a bucket, as well as specify the maximum number of objects that can exist in a bucket.
- Configurable authentication version for Amazon S3 storage service groups – You can set the authentication version used for an Amazon S3 storage service group to either version 2 or version 4. Version 4 authentication takes the region setting into account.
- Access Control Lists (ACLs) for Amazon S3 services – NexentaEdge 2.1.2 supports ACLs for Amazon S3 storage service groups. ACLs are supported at the bucket level.
- Active Directory, LDAP, and Keystone authentication support for OpenStack Swift storage service groups – You can configure an OpenStack Swift storage service group to use Active Directory, LDAP, or Keystone authentication when accessing objects in the NexentaEdge cluster.
- Resource limits for containers used by storage service groups – You can optionally configure limits for memory and CPU usage for containers used by a storage service group. This allows you to limit resource consumption on nodes, as well as set hard limits for nodes that have many containers or services, or in hyper-converged setups.
- Upgrade procedure for nodes in the NexentaEdge cluster – The NEDEPLOY utility features an `--upgrade` option that allows you to upgrade individual nodes in the cluster to the NexentaEdge 2.1.2 software. See [Upgrading from a Previous Release](#).

NexentaEdge Hardware Compatibility

A NexentaEdge cluster consists of a deployment workstation, gateway nodes, data nodes, and networking hardware. See the document, *Configuration Guidelines for NexentaEdge*, available from Nexenta Systems, for specific hardware and software requirements for each component.

Upgrading from a Previous Release

For new installations, see the *NexentaEdge Installation Guide*.

To upgrade the NexentaEdge software running on the data and gateway nodes, download and extract the new versions of NEADM and NEDEPLOY to the Deployment Workstation, then run the `nedeploy deploy solo` command with the `--upgrade` option to install the updated software on the nodes in the cluster.

You can determine the version of NexentaEdge installed on the Deployment Workstation by entering the following command:

```
$ neadm system version
```

System response:

```
NexentaEdge Version: 2.0.0-1177
NexentaEdge Build #: 1177
```

To determine the version of the NexentaEdge software installed on a specific node, add the node's hostname to the command; for example.

```
$ neadm system version node101
```

System response:

```
NexentaEdge Version: 2.0.0-1177
NexentaEdge Build #: 1177
```

To extract the NEDEPLOY and NEADM archive files to the home directory:

```
$ cd ~
$ tar -xzf <download-directory>/nedeploy-linux_2.1.2-6164_x64.tar.gz
$ tar -xzf <download-directory>/neadm-linux_2.1.2-6164_x64.tar.gz
```

To set the PATH environment variable to use the directories where you extracted the archives:

```
$ PATH=$PATH:~/nedeploy
$ PATH=$PATH:~/neadm
```

To upgrade NexentaEdge on the nodes in the cluster, use the `nedeploy deploy solo` command and specify the `--upgrade` option:

```
$ nedeploy deploy solo {<ip-address>[:port] | <nodename>} <username:password>
  -i <interface> [-I <interface>] [-t <profile>] [-x <disks-to-exclude>]
  [-X <disks-to-reserve>] [-z <zone>] [-F <filesystem-type>] [-m]
  [--docker] [--data-container] [-d <TBs>] [-P <number-of-partitions>] [--upgrade]
```

For information about how to use the `nedeploy` command, see the *NexentaEdge Installation Guide*.

Licensing Information

To activate NexentaEdge, you must install a license for the product. To install a license, you need the activation key you received from Nexenta Systems when you downloaded the software.

NexentaEdge has the following types of licenses:

- Enterprise license – Enables all NexentaEdge features. Depending on the type of Enterprise license you purchase from Nexenta Systems, there may be limitations on the amount of time NexentaEdge can be used or the amount of storage capacity that can exist in the cluster.

The following options are available for enterprise licenses:

- Trial – Allows full functionality for 45 days after activation. After the trial period expires, you must install a perpetual or subscription license in order to keep using the product. A trial license does not have any limitation on the amount of storage in the cluster.

- Perpetual – Allows full functionality and does not expire. For a perpetual license, you can specify the amount of storage that can be added to the cluster, either as raw capacity or usable capacity.

If you move from a trial license to a perpetual license, make sure the perpetual license allows at least as much storage capacity in the cluster as you have already deployed with your trial license.

NexentaEdge supports either online or offline license installation. See the *NexentaEdge Installation Guide* for information about how to install your NexentaEdge license.

Usage Notes

- NexentaEdge is currently limited to using one Replicast port per node. If redundancy is required, a bonded network interface should be used.

- Maximum replication count is 4

The replication count is a read-write property and can be changed at any time on a per-cluster, tenant, bucket or object level by modifying the object's metadata. The maximum recommended value is 4; default is 3. Note that if you change the replication count for a given level (such as a per-cluster level), it does not propagate the new replication count to objects below it.

- Maximum recommended chunk size is 4M

Chunk size is a creation-only property. It can be set per object. The maximum recommended value is 4M.

- Maximum number of LUNs per iSCSI service is 256

NexentaEdge can be configured with more than one iSCSI service. However, the number of LUNs each service can serve has a limitation; the maximum value is 256 LUNs.

- For RedHat/CentOS 7.3 installations, the [ELRepo repository](#) is required.
- To achieve best performance for largely sequential workloads, Nexenta recommends utilizing large chunk sizes (minimum 128KB) for iSCSI and NBD LUNs.
- The Cinder driver packaged for NexentaEdge utilizes 16K as the block size for iSCSI LUNs, rather than the standard default of 32K.
- It is important that the time be consistent on all the nodes in the cluster. Nexenta recommends that you configure each node to synchronize with a Network Time Protocol (NTP) server.

Autosupport Information

The NexentaEdge Autosupport feature collects information about cluster-related processes running on each node. By default, the nodes in the cluster send the collected information to Nexenta, where it may be useful to Nexenta Technical Support personnel when troubleshooting problems with the NexentaEdge cluster and Nexenta Product Development for improving future versions of NexentaEdge.

Note that Autosupport anonymizes the information prior to sending it to Nexenta. No site-specific information, such as node IP addresses or usernames/passwords, is included in Autosupport reports.

You can optionally configure Autosupport to periodically send the information it collects to a specified

destination, such as an HTTP server or an e-mail address. See the *NexentaEdge User Guide* for information about how to configure Autosupport and how to disable the feature if necessary.

Known Issues

This section lists known issues as of this release.

Table 1: Known Issues in This Release

Key	Description	Workaround
NED-4479	When using SAS media for the root filesystem on Ubuntu 16.04, NexentaEdge installation may time out and fail.	For NexentaEdge installations on Ubuntu 16.04, use a SATA disk for the root filesystem.
NED-4536	The message <code>Error: Command failed: tgtadm: out of memory</code> appears when creating an iSCSI LUN.	Restart the iSCSI service.
NED-4542	The NexentaEdge GUI allows removal of the VIP address in an HA configuration after the iSCSI service was enabled.	Do not remove the VIP address from an enabled iSCSI HA configuration.

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