

Quest® QoreStor™ 5.0

Installation Guide



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Legend

 **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

 **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

Contents

About this Installation Guide	1
Other information you may need	1
Information on compatible products	2
Getting started with QoreStor	4
Introducing Quest® QoreStor™	4
Licensing QoreStor	5
Evaluating QoreStor	5
Installing a license	5
QoreStor installation modes	6
System requirements	6
Hardware requirements for installation	7
Supported installation platforms	8
Supported file systems	8
Networking requirements	9
Port configuration	9
Verify connectivity	9
Supported backup software	9
Installing QoreStor	11
Pre-installation configurations	11
Downloading the software	11
Installing QoreStor	11
Logging in to QoreStor	13
Upgrading your QoreStor software	14
Before you upgrade	14
Upgrading QoreStor	14
Uninstalling QoreStor	16
Before uninstalling QoreStor	16
Uninstalling QoreStor	16
About us	17
Contacting Quest	17
Technical support resources	17

About this Installation Guide

The Quest® QoreStor™ Installation Guide provides instructions and reference information needed for a successful QoreStor installation. This guide contains information on:

- Hardware and software requirements for the QoreStor installation machine
- Infrastructure requirements
- Port configurations
- Pre-installation requirements
- Installation procedures
- Removal procedures

Other information you may need

The following table lists the documentation available for QoreStor. The documents listed in this table are available on the Quest support website by selecting your specific QoreStor version at:

<http://support.quest.com/QoreStor>

Table 1: QoreStor documentation

Document	Description
QoreStor Installation Guide	Provides information on installation and operation requirements, supported platforms as well as procedures for installing QoreStor.
QoreStor User Guide	Provides information on configuring and using QoreStor.
QoreStor Release Notes	Provides the latest information about new features and known issues with a specific product release.
QoreStor Command Line Reference Guide	Provides information about managing QoreStor data backup and replication operations using the QoreStor command line interface (CLI).
QoreStor Interoperability Guide	Provides information on supported infrastructure components.

Document	Description
Additional whitepapers	Instructions and best practices for configuring additional Quest and third-party applications to work with QoreStor.

NOTE: Check for the latest documentation updates and release notes at <http://support.quest.com/qorestor>. Read the release notes first because they contain the most recently documented information about known issues with a specific product release.

Information on compatible products

QoreStor offers direct integration with Quest Software's NetVault® Backup and vRanger®, as well as Veritas NetBackup and Backup Exec. For more information on those products refer to the documents below.

Table 2: Quest NetVault Backup documentation

Document	Description
NetVault Backup Installation Guide	Provides information about installing and upgrading the NetVault Backup server and client software.
NetVault Backup Administration Guide	Describes how to configure and use NetVault Backup to protect your data. This document also provides information on configuring QoreStor repositories and migrating NetVault SmartDisk data to the new QoreStor repository.
NetVault Backup Release Notes	Provides the latest information about new features and known issues with a specific product release.

i | **NOTE:** See the complete NetVault Backup documentation at <https://support.quest.com/netvault-backup>.

Table 3: Quest vRanger documentation

Document	Description
vRanger Installation/Upgrade Guide	This document provides information on supported platforms, system requirements, and instructions on installing and upgrading vRanger.
vRanger User Guide	This document provides information and procedures on configuring and using vRanger to protect virtual and physical environments.
vRanger Release Notes	This document details the issues resolved in this release, the known issues as of this release, and the third party components in vRanger.

i | **NOTE:** See the complete vRanger documentation at <https://support.quest.com/vranger>.

Table 4: Veritas documentation

Document	Description
Veritas NetBackup	For information on Veritas NetBackup, refer to the NetBackup product documentation .
Veritas Backup Exec	For information on Veritas Backup Exec, refer to the Backup Exec product documentation .

Getting started with QoreStor

This chapter provides an introduction to QoreStor, and provides other important information that you may need before you begin to deploy the application. Information on the following topics is included:

- [Introducing Quest® QoreStor™](#) - provides an introductory description of the QoreStor application.
- [System requirements](#) - provides information on the hardware and software requirements for installation, as well as compatibility information for the larger QoreStor infrastructure.
- [Licensing QoreStor](#) - provides information about how to properly license your QoreStor deployment.

Introducing Quest® QoreStor™

Quest® QoreStor™ is a software-defined secondary storage platform based on Quest's proven DR Appliance's resilient deduplication and replication technologies. With QoreStor, you can break free of backup appliances and accelerate backup performance, reduce storage requirements and costs, and replicate safer and faster to the cloud for data archiving, disaster recovery and business continuity.

QoreStor supports all of the major backup software applications in use today and can lower your backup storage costs to as little as \$.16/GB while reducing your total cost of ownership. QoreStor achieves these results using patented Rapid technology as well as built-in, variable block-based deduplication and compression.

Lower costs and maximize the return on your IT investment by leveraging virtually any storage hardware, virtualization platform or cloud provider. QoreStor also supports many backup software solutions — so it's not just for Quest. Simple to deploy and easy to manage, QoreStor enables you to shrink replication time, improve data security and address compliance requirements.

QoreStor helps you to:

- Reduce on-premises and cloud storage costs with industry-leading deduplication and compression.
- Accelerate backup completion with protocol accelerators and dedupe.
- Shrink replication time by transmitting only changed data.
- Improve data security and comply with FIPS 140-2.
- Maximize return on investment for existing data protection technologies.
- Lower total cost of ownership through all-inclusive licensing.

QoreStor includes the following features:

- Hardware- and software-agnostic platform
- Next-generation storage dedupe engine
- Built-in protocol accelerators
- Support for a wide variety of data backup installations and environments.

Licensing QoreStor

QoreStor offers a backend capacity licensing model to allow for simple integration with other Quest Data Protection products.

- **Standalone license** - QoreStor is licensed by the amount of backend capacity required.

QoreStor licenses are additive, meaning that if you purchase a 5TB license now, and a 10TB license in the future, you will have 15TB total capacity.

i | **NOTE:** Licenses for QoreStor are specific to the QoreStor server. When installing a license, the System ID for your QoreStor server is required. You can obtain the System ID with the command `system --show | grep "System ID"`

Evaluating QoreStor

QoreStor offers two methods for evaluation:

- **Default installation** - If no license is installed, QoreStor defaults to a no-cost, 1TB capacity installation supported by the QoreStor Community. This option requires no license and does not expire.
 - If a license is applied to a server running in this mode, the free 1TB is **not** added to the purchased license capacity.
 - When installed in Demo mode, the capacity is limited to 100GB.
- **Full capacity trial** - available on the Quest Software Trial site, which provides a 30-day evaluation license for up to 360TB and access to Quest Support. After the evaluation period has expired, the QoreStor server will operate in Manual Intervention mode until a license is applied. To use QoreStor beyond that time frame, you will need to purchase a perpetual standalone license.
 - If installed in Demo mode, the capacity is limited to 100GB
 - If a longer trial period is required, please contact Quest Sales.

If you have purchased a perpetual license, you can install it using the `system --license` command, as described in the *QoreStor Command Line Reference Guide*.

i | **NOTE:** When ordering a license, the System ID for your QoreStor server is required. You can obtain the System ID with the command `system --show | grep "System ID"`

Installing a license

You can add a license to QoreStor through either the QoreStor GUI or the command line interface.

To install a license:

1. In the navigation menu click **System Configuration**
2. Scroll to the **License Information** section at the bottom of the page.
3. Click **Upload License**.
4. Click **Choose File** and select the license file. Click **Open**.
5. Click **Apply**.



NOTE: You may also install a QoreStor license from the command line interface using the command:

```
system --license [--show] [--verbose] [--validate] [--file <path>] [--add] [--file <path>]
```

Refer to the *QoreStor Command Line Reference Guide* for more information.

QoreStor installation modes

QoreStor can be installed in one of four installation modes, each with different hardware requirements and expected performance levels.

- **Large** - This is the mode of installation that will yield the highest capacity and performance. Large mode supports a back-end capacity of up to 360 TB. It also requires that the data and metadata volumes are on separate RAID sets.
- **Standard** - This is the mode of installation that will suit most environments as it supports a back end capacity of up to 150TB.
- **Cloud Optimized** - This is a smaller footprint installation designed to maximize cost-effectiveness for operation in cloud environments. The data dictionary size is reduced to reflect the lower backend capacity limit of 43TB.
- **Demo** - Demo mode is the least hardware-intensive option used for initial evaluation or lightweight testing. Demo mode can easily be installed on a virtual machine running on most workstations. Demo mode is not suitable for any production application and does not allow any license expansion. Demo mode supports a back end capacity of up to 100GB.

System requirements

This chapter provides information on the hardware and software requirements for installation of QoreStor, as well as platform compatibility information necessary to ensure an optimized QoreStor infrastructure. Information on the following topics is included:

- [Hardware requirements for installation](#) - provides information the hardware specifications necessary to install and run QoreStor.
- [Supported installation platforms](#) - provides information on the operating systems supported for installation, and any additional software that is required.
- [Networking requirements](#) - details the network configurations required for a successful QoreStor deployment.

- [Supported backup software](#) - provides information on the Quest and third-party applications compatible with QoreStor.

Hardware requirements for installation

QoreStor can be installed in one of four modes: Large, Standard, Cloud Optimized, and Demo. Each installation mode has different minimum installation requirements, as described below. Refer to [QoreStor installation modes](#) for more information on the installation modes.

i **NOTE:** The table below lists the minimum hardware requirements for installation. Refer to "QoreStor Sizing Guidelines" in the *QoreStor Interoperability Guide* for information on sizing your QoreStor server.

Table 5: Hardware requirements for installation

	Large Mode	Standard Mode	Cloud Optimized Mode	Demo Mode
CPU cores	32	4	4	4
RAM	64 GB	24 GB	14 GB	6 GB
Storage capacity	<ul style="list-style-type: none"> • Minimum of 500GB free space on repository volume. • Minimum of 700GB free space on metadata volume 	Minimum of 500GB free space on repository volume.	Minimum of 500GB free space on repository volume.	Minimum of 50GB free space on repository volume.

Additional storage requirements

- Storage back-end should support 100,000 IOPS for sequential writes and 20,000 IOPS with random writes.
 - Recommended back-end configuration is:
 - RAID 6 with 48 to 60 disks for repository
 - RAID1 or RAID10 with 2 to 4 drives for metadata.
 - Maximum supported physical capacity is 360TB
- Storage back-end should support 2000 IOPS for sequential writes and 850 IOPS with random writes.
 - Recommended back-end configuration is RAID 6 with 12 disks.
 - Maximum supported physical capacity is 150TB
- Storage back-end should support 2000 IOPS for sequential writes and 850 IOPS with random writes.
 - Recommended back-end configuration is RAID 6 with 6 disks.
 - Maximum supported physical capacity is 43TB
- When installing in Demo mode, QoreStor does not perform a pre-check for IOPS
Maximum supported physical capacity is 100GB

Supported installation platforms

QoreStor is supported on the following platforms:

Table 6: Operating systems supported for installation

Operating System	Bit level
CentOS Linux 7.3 or higher	64-bit
RHEL Linux 7.3 or higher	64-bit

Supported file systems

Only the file system listed below is supported for the QoreStor server.

- XFS

Networking requirements

The following network configurations need to be made in order to successfully install and run QoreStor.

i | **NOTE:** If you install QoreStor with the **-f** option, or answer **yes** to the prompt regarding firewall changes, the QoreStor installer will ensure these ports are open.

Port configuration

The ports below need to be available for the QoreStor service:

- 5233
- 9901
- 9904
- 9911
- 9915
- 9916
- 9920
- 11000
- 10011
- 12000-12127

Verify connectivity

The usage of the QoreStor repository requires stable TCP/IP connectivity between the backup application server and the QoreStor repository server.

i | **NOTE:** The QoreStor repository and backup application server need to be on the same local network.

Supported backup software

This section lists the supported backup applications and protocols for QoreStor.

Table 7: Supported backup applications and protocols

Data Management Application (DMA)	RDA	OST	NFS	RDNFS	CIFS	RDCIFS
NetVault Backup1						
v11.4.5	✓					
v12.0	✓					
v12.0.1	✓					
vRanger1						

Data Management Application (DMA)	RDA	OST	NFS	RDNFS	CIFS	RDCIFS
v7.6	✓					
v7.6.5	✓					
Backup Exec						
v16		✓				✓
v20		✓				✓
NetBackup						
v8.0		✓				✓
v8.1		✓				✓
CommVault Simpana						
10			✓	✓	✓	✓
11			✓	✓	✓	✓
DELL EMC NetWorker						
9.1			✓	✓	✓	✓
Microsoft SQL Server Backup						
2016					✓	✓
Oracle RMAN						
Oracle Linux 12c			✓	✓		
Oracle 12c for Windows					✓	✓
VEEAM						
9.0					✓	✓
9.5 U3					✓	✓

¹Refer to "NetVault Backup and vRanger Feature Compatibility" in the *QoreStor Interoperability Guide* for more detailed information on NetVault Backup and vRanger Support

Installing QoreStor

The process of installing QoreStor involves these steps:

- Review the [System requirements](#) and verify your intended installation platform satisfies these requirements.
- Download the QoreStor software.
- Obtain your QoreStor license key.
- Install QoreStor.
- Add your new QoreStor repository to a supported backup product.

Pre-installation configurations

- Set appropriate OS permissions on target machines to allow users to install software.
- Select multiuser run level
- Verify storage devices are properly connected to the QoreStor server.
- The **Samba4**, **windbind**, and **libwbclient** packages are incompatible with QoreStor 5.0. These packages must be removed from the QoreStor server before installing QoreStor.
- QoreStor 5.0 requires the **nfs-utils** and **policycoreutils** packages to be installed as prerequisites. If they are not installed, the installer will prompt for permission to download and install these packages before installing or upgrading QoreStor.

Downloading the software

The QoreStor installer is available for download from the Quest website.

1. Navigate to the QoreStor portion of the Quest Support website: <https://support.quest.com/qorestor>
2. In the **Download Software** section, click **See all Downloads**.
3. Find the version of QoreStor you wish to download, and click the download icon.
4. Log in to your Quest Support account.
5. Select the appropriate QoreStor installer, and click either **Download Now** to download the software immediately, or **Add to my Downloads**.
6. If you selected **Add to my Downloads**, click the **My Downloads** icon to view your download cart.
7. Select the software to download and click **Download Selected**.

Installing QoreStor

Before installing QoreStor, refer to [System requirements](#) and [Installing QoreStor](#) for additional information.

i | **NOTE:** QoreStor 5.0 requires the **nfs-utils** and **polycoreutils** packages to be installed as prerequisites. If they are not installed, the installer will prompt for permission to download and install these packages before installing or upgrading QoreStor.

To install QoreStor

1. Copy the QoreStor installation files to the server.
2. Set execution permission on the installation files using **chmod**. For example,

```
$ chmod a+x qs_inst_5.0.0.156.bin
```

3. With elevated privileges (either as root or with the sudo command), execute the installation script according to one of the two options below

- `qs_inst_5.0.0.156.bin -- -f -p <repository_path> -m <metadata_path> --mode=<demo|cloud-optimized|standard|large> --accept-eula --install deps`

where

- **-f** specifies that the installer should automatically apply firewall rules to open the necessary ports
- **-p <repository_path>** specifies the repository path
- **-m <metadata_path>** specifies where the dictionary and journals should be stored. If not specified, the repository path will be used.
- **--mode=<demo|cloud-optimized|standard|large>** specifies the installation mode. Refer to [QoreStor installation modes](#) for more information.
 - **demo:** 100GB max storage, 1GB dictionary
 - **cloud-optimized:** 43TB max storage, 64GB dictionary
 - **standard:** 150TB max. storage, 256GB dictionary
 - **Large:** 360TB max storage; 256GB dictionary
- **--accept-eula:** implicitly accepts the EULA and bypasses the prompt to accept the terms and conditions of the EULA
- **--install-deps:** implicit permission to download and install the `nfs-utils` and `polycoreutils` packages if they are not already installed

OR

- `$ sudo ./qs_inst_5.0.0.156.bin`

and follow the prompts to :

- provide a path for the storage directory
- [Optional] provide a separate path for metadata storage
- select an installation mode. Refer to [QoreStor installation modes](#) for more information
- add firewall exceptions

Logging in to QoreStor

To access the UI, you must connect via a supported browser.

1. In a supported browser, navigate to **https://<hostname:5233>**

i | **NOTE:** You can use either the host IP or hostname.

2. Log in with the default credentials:

- username: admin
- password: St0r@ge!

Upgrading your QoreStor software

You can obtain the latest QoreStor software binary package from the Quest Support website. To upgrade a QoreStor server, you must upload the binary package to the QoreStor server and execute the upgrade locally. See [Upgrading QoreStor](#) for the upgrade procedure.

Before you upgrade

Before upgrading your QoreStor instance, please review and follow the guidelines below:

- Make sure that all backup jobs which use the QoreStor server as a target are paused for the duration of the upgrade.
- Make sure that the QoreStor system has at least 1GB of free space on the root partition.

Upgrading QoreStor

To upgrade a current installation of QoreStor, follow the steps below:

1. Download the new QoreStor executable from the Quest Support Portal following the steps below.
 - a. Log into the Quest Support Portal at <https://support.quest.com/qorestor>.
 - b. In the Download Software section, click **See All Downloads**.
 - c. Under the Platform Install section, find the row containing the appropriate version of QoreStor. Click **Download**.
 - d. Select the appropriate QoreStor installer, and click either **Download Now** to download the software immediately, or **Add to my Downloads**.
 - e. If you selected **Add to my Downloads**, click the **My Downloads** icon to view your download cart.
 - f. Select the software to download and click **Download Selected**.
2. Copy the QoreStor installation files to the server.
3. Set execution permission on the installation files using **chmod**. For example,

```
$ chmod a+x qs_inst_5.0.0.xxx.bin
```

4. With elevated privileges (either as root or with the sudo command), execute the installation script according to one of the two options below

- \$ sudo ./qs_inst_5.0.0.xxx.bin

Uninstalling QoreStor

This section provides information about uninstalling QoreStor.

Before uninstalling QoreStor

! CAUTION: Uninstalling QoreStor will remove all installation and configuration files as well as any data in the repository. Before uninstalling QoreStor, you should first carefully consider whether you still need the data in the repository. Before uninstalling QoreStor, you should take steps to preserve this data using another means of long-term retention. Once QoreStor is uninstalled, the deduplicated data cannot be retrieved.

Uninstalling QoreStor

QoreStor can be removed by executing the script `qs_uninst` located in the `/opt/qorestor/bin` directory. The script can be executed unmodified to retain your QoreStor data, or with the argument `-a` to delete all data.

■ WARNING: Once QoreStor data is deleted it cannot be recovered. Exercise caution when uninstalling QoreStor.

To uninstall QoreStor

1. The QoreStor uninstall script is located in the `/opt/qorestor/bin` directory. In order to execute the uninstall script, you must either:
 - a. Use the absolute path to the command (`# /opt/qorestor/bin/qs_uninst`, for example)
 - b. Change directory to `/opt/qorestor/bin` and execute commands by prepending with `./` (`./qs_uninst`, for example)

2. Execute the script by entering

```
./qs_uninst
```

OR

```
./qs_uninst -a
```

■ WARNING: This option will remove all QoreStor data. This is an irreversible operation.

3. Confirm the uninstall by entering **Yes** at the prompt.

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We are on a quest to make your information technology work harder for you. That is why we build community-driven software solutions that help you spend less time on IT administration and more time on business innovation. We help you modernize your data center, get you to the cloud quicker and provide the expertise, security and accessibility you need to grow your data-driven business. Combined with Quest's invitation to the global community to be a part of its innovation, and our firm commitment to ensuring customer satisfaction, we continue to deliver solutions that have a real impact on our customers today and leave a legacy we are proud of. We are challenging the status quo by transforming into a new software company. And as your partner, we work tirelessly to make sure your information technology is designed for you and by you. This is our mission, and we are in this together. Welcome to a new Quest. You are invited to Join the Innovation™.

Our brand, our vision. Together.

Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece — you — to the community, to the new Quest.

Contacting Quest

For sales or other inquiries, visit www.quest.com/contact.

Technical support resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at <https://support.quest.com>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product