Quest® QoreStor™ 6.1

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.**

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

Contents

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
QoreStor Virtual Machine Deployment Guide	Provides information on deploying the QoreStor virtual machine on VMware ESX or Microsoft Hyper-V.
Additional whitepapers	Instructions and best practices for configuring additional Quest and third-party applications to work with QoreStor.

i **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	Decribes 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.

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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 - 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. Standalone licenses are available as either **perpetual** licenses (with no expiration), or **term** licenses, which expire after a specified period of time.

  - **i** | **NOTE:** Term licenses are intended for specific customer use cases, i.e., licensing according to yearly billing cycles. A perpetual license is appropriate for most customers.
-

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 standalone 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.**

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**.

ℹ **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.

ℹ **NOTE:** For information on available virtual machine configurations, refer to the topic "QoreStor VM Specifications" in Chapter 5.

System requirements

Installation requirements and platform support information is updated continually in the QoreStor Interoperability Guide. Please refer to that document for up-to-date information.

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 . These packages must be removed from the QoreStor server before installing QoreStor.

- If your operating system is distributed with a native NFS server, it must be disabled prior to installing QoreStor.

- QoreStor 6.1 requires the **mutt, nfs-utils**, **perl**, 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. Log in to your Quest Support account.

2. Navigate to the QoreStor portion of the Quest Support website: https://support.quest.com/qorestor

3. In the **Download Software** section, click **See all Downloads**.

4. Find the version of QoreStor you wish to download, and click the download icon.

5. 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 6.1 requires the **mutt, nfs-utils**, **perl**, 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.

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_6.1.0.833.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_6.1.0.833.bin -- -f -p <repository_path> -m <metadata_path> --mode=<demo|cloud-optimized|standard|large> --accept-eula --install-deps --install-vtl

   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 policycoreutils packages if they are not already installed

- --**install-vtl**: installs components required for VTL support.

OR

- `$ sudo ./qs_inst_6.1.0.833.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

  - [Optional] Install VTL support

  - add firewall exceptions

Logging in to QoreStor

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

To access the QoreStor UI

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!

To access the QoreStor command line interface

1. Using the terminal emulation application of your choice, connect to your QoreStor server.

2. At the system prompt, enter the username for an account with sufficient priveledges. By default this is the **qsadmin** account:

   - Type **qsadmin**

   - Press **<Enter>**

3. At the password prompt, enter the password for the qsadmin account (the default is St0r@ge!):

   - Type **St0r@ge!**

   - Press **<Enter>**

4. Enter the desired command at the prompt. To view the available QoreStor CLI commands, type help.

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Configuring QoreStor with the Configuration Menu

The sections below contain the steps and information required to configure the QoreStor server for the first time.

- Initial login and changing your password
- Initial network configuration
- Using the QoreStor Menu
  - QoreStor Administration
  - QoreStor Maintenance
  - QoreStor Statistics

Initial login and changing your password

After the QoreStor Installation is complete, you will be prompted to log in. When logging in for the first time with the default credentials, you are required to change the password.

1. Using the terminal emulation application of your choice, log on to the QoreStor server using the default credentials:
   username: **qsservice**

   password: **changeme**

2. You will be prompted to enter the current password. Enter **changeme.**

3. You will be prompted to enter your new password, and then to confirm it.

4. Continue to Initial network configuration.

Initial network configuration

After changing the default password, you will be prompted to provide the initial networking information for your environment.

1. At the **Change Hostname** page, enter a valid hostname or fully qualified domain name (FQDN).

   ℹ **NOTE:** Hostnames must comply with the standards RFC 1123 and RFC 952. Hostnames may only contain the letters a-z, the numbers 0-9, the "-" (hyphen), and the "." period (or dot).

2. At the **Edit Network Connections** page, you will be prompted to edit the network connections. If you are using DHCP, select **No**. If you are using Static IP, select **Yes**.

3. Follow the screen prompts to configure the required network entries and confirm the configuration settings.

4. After the required network settings are configured, QoreStor will run the initial configuration, which may take up to 3-4 minutes to complete.

5. Continue to Using the QoreStor Menu.

Using the QoreStor Menu

After the initial configuration, the QoreStor menu will be displayed.
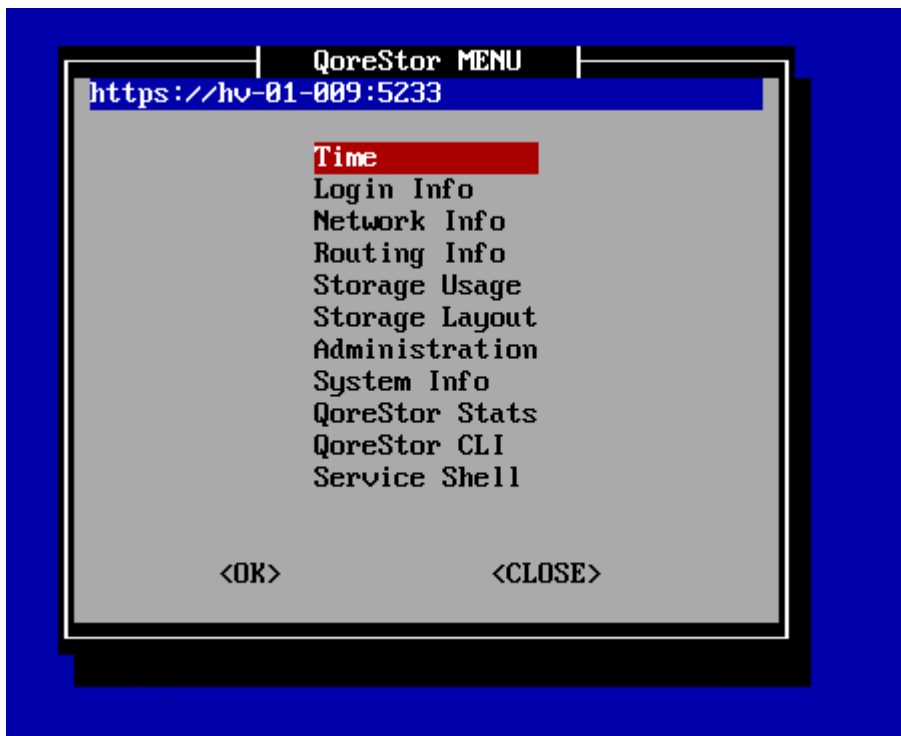
The table below details the configurations available for each menu item. The **Administration** , **QoreStor Maintenance**, and **QoreStor Stats** menu items provide access to additional sub-menues, and are documented separately in the topics linked to below.

i | **NOTE:** To navigate the menu, use the arrow keys to select an entry, then press **[Enter]**. To return to the menu, use the **[Tab]** key to select **Ok** or **Back**, then press **[Enter].**

Table 5:
QoreStor Menu options

Menu item	Available configurations
Time	• Show time and date configuration • Configure system clock • Sync time to pool.ntp.org • Show hardware clock • Set hardware clock to system time • Change time zone
Login Info	Displays information about which accounts are currently logged into the QoreStor server, and the processes those accounts are using.
Network Info	Displays the current network configuration.
Routing Info	Displays the current routing table.
Storage Usage	Displays the current storage configuration for each filesystem, including: • size • used space • available space • used percentage • mount path
Storage Layout	Displays the layout per storage device, including: • Device name • Filesystem type • Mountpoint • UUID • Schedule • Model
Administration	Provides options to configure networking, storage, application and operating system configurations. Refer to the section QoreStor Administration
System Info	Displays information about the QoreStor system, including: • output of the QoreStor system --show command • Management user interface information and credentials

- license information

QoreStor Stats	Provides access to QoreStor system statistics. Refer to QoreStor Statistics for more information.
QoreStor CLI	Allows access to the QoreStor CLI commands using the **qsadmin** account. Refer to the *QoreStor Command Line Reference Guide* for more information. To return to the QoreStor Menu from the CLI, type **exit** at the prompt. **i IMPORTANT:** You must be logged in as the **qsadmin** account when executing QoreStor commands.
Service Shell	Allows access to the Service Shell using the **qsservice** account. The Service Shell is intended for OS and storage maintenance, and as such, the **qsservice** account has sufficient privileges for those tasks. To return to the QoreStor Menu from the shell, type **exit** at the prompt. **i NOTE:** The **qsservice** account is not intended for executing QoreStor commands. To execute QoreStor commands you must use the **qsadmin** account. From the Service Shell, you must either change user accounts to the **qsadmin** account using `#sudo su - qsadmin` or **exit** to the QoreStor menu and select **QoreStor CLI**.

QoreStor Administration

The Administration Menu includes the options described in the table below. In addition, the Administration menu includes a status banner that indicates the status of the QoreStor service:

- Blue: Operational Mode
- Red: Manual Intervention
- Yellow: Maintenance Mode

Table 6: Operation menu options

Menu item	Available configurations
Network Config	Allows you to edit the network configuration.
Set Hostname	Allows you to change the hostname configuration.
QoreStor services	Provides options to check, stop, start, and restart QoreStor services.
QoreStor Update	Provides options to check for available QoreStor updates, download the Qorestor update package, and update QoreStor if the package is valid.
QoreStor Maintenance	Provides access to QoreStor filesystem maintenance utilities and diagnostic management. Refer to QoreStor Maintenance for more information.

QoreStor Advanced Features	Provides options to tune system performance:
	• **Replication Tuning** - allows you to configure the number of concurrent replication streams. Default value is 1. • **Buffers TCP Tuning** - allows you to change the system buffer configuration up to 1.5 GB. • **ActiveDS tuning** - allows you to enable or disable ActiveDS on the metadata location. • **O3E IO Thread tuning** - Enables IO thread tuning. This requires a restart of the QoreStor services. • **SMB Offload Copy** - Enables SMB Server Offload Copy support, used for Rapid CIFS-based Veeam Fast Clone backups. Enabling this option requires a restart of QoreStor services.
Troubleshooting tools	Provides tools to troubleshoot your QoreStor machine. Consult the documentation for each utility for more information.
	• **EPEL Repositor**y - Enables or disables the Oracle EPEL repository. • **top** - allows you to monitor processes and system resource usage. • **atop** - allows you to monitor processes and system resource usage. You will be prompted to install atop on first use. • **htop** - - allows you to monitor processes and system resource usage. You will be prompted to install htop on first use. • **iotop** - allows you to view I/O usage. • **iftop** - allows you to view bandwidth usage. You will be prompted to install iftop on first use. • **nmon** - allows you to monitor processes and system resource usage. You will be prompted to install nmon on first use. • **glances** - - allows you to monitor processes and system resource usage. You will be prompted to install glances on first use. • **tree** - provides a recursive directory listing with a depth-indented listing of files. You will be prompted to install tree on first use. ⓘ **NOTE:** To return to the Troubleshooting tools menu from the selected monitoring tool, press **q** to quit**.**

Operating System	Provides options to **update**, **restart**, and **shutdown** the operating system. Additionally, this menu provides options for removing and/or adding the built-in QoreStor accounts (**root**, **qsservice**, and **qsadmin**).
Terminal	Provides options to select from a list of terminal emulators. Options are: • XTERM • XTERM-256 • ANSI • VT220 • VT110
Color theme	Provides options to change the color theme settings.
Locale	Provides the option to select the locale for QoreStor. Currently, the only option is US English.
Proxy Settings	Provides the option to enable proxy settings. **i** | **NOTE:** Editing or disabling proxy settings requires QoreStor services to be restarted.

QoreStor Maintenance

The QoreStor System Maintenance menu provides access to both diagnostic and maintenance utilities for QoreStor. The QoreStor System Maintenance menu includes the utilities listed in the table below.

Table 7: QoreStor Maintenance menu options

Menu item	Available configurations
QoreStor Diagnostics	• Diagnostics Show • Diagnostics Collect • Diagnostics Delete • Diagnostics Delete All
Maintenance Filesystem	• Filesystem Scan Status • Filesystem Scan Report • Filesystem Scan Start • Filesystem Scan Restart • Filesystem Scan Stop • Filesystem Repair Start • Filesystem Repair Progress

- Filesystem Repair History

- Filesystem Clear Quarantine

- Filesystem Start Cleaner

- Filesystem Stop Cleaner

QoreStor Statistics

The QoreStor Stats menu provides access to QoreStor system statistics. The QoreStor Stats menu includes the statistics listed below:

- System

- CPU

- Memory

- Container

- Storage Group

- Replication

- Cleaner

- Clients

- Servers

- Seed

Upgrading your QoreStor software

There are multiple options for upgrading your QoreStor software, allowing for flexibility to fit your environment and your comfort level with working in the Linux command line. Regardless of the method chosen, the QoreStor upgrade requires that the new binaries be downloaded from the Quest website and executed on the QoreStor server. The upgrade methods accomplish this in different ways:

- The **QoreStor Menu** - the QoreStor menu provides a simple, assisted method to check for available updates, download the software to the QoreStor server, and executed the installer. Refer to Upgrading QoreStor Software using the QoreStor Menu

- The **QoreStor CLI** - Through the QoreStor CLI you can manually upload the binaries, verify and change file permissions, and execute the installer with additional parameters. Refer to Upgrading your QoreStor Software using the QoreStor Command Line

- The **QoreStor UI** - In circumstances where access to the QoreStor server is restricted (or for those that choose not to upload the QoreStor binaries via the command line), you may use the QoreStor UI to upload the QoreStor binary and signature files from your workstation. After uploading the files, you must execute the upgrade from the QoreStor CLI. Refer to Upgrading QoreStor Software using the QoreStor UI.

Before upgrading,review the best practices and recommendations in Before you upgrade.

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.

- There are some preliminary configuration steps that must be followed to prepare your DR Series for upgrade. Refer to Preparing your DR Series for migrationfor more information.

i **IMPORTANT:**QoreStor6.1 includes support for VTL protocols. To upgrade to QoreStor6.1 and enable VTL support, you must first uninstall your existing version of QoreStor, then install QoreStor, enabling VTL during the installation.

For information on safely uninstalling QoreStor, refer to Uninstalling QoreStor.

If you do not wish to enable VTL support, follow the upgrade procedure below.

Upgrading QoreStor instances on Microsoft Azure

For QoreStor instances running on Microsoft Azure, perform the actions below before upgrading to 6.1.0.833.

- At the prompt, execute the following commands:

```
curl -o azureclient.rpm https://rhui-1.microsoft.com/pulp/repos/microsoft-azure-
rhel7/rhui-azure-rhel7-2.2-74.noarch.rpm

sudo rpm -U azureclient.rpm

sudo yum clean all
```

Downloading the QoreStor Software

The QoreStor software can be downloaded from the Quest website:

Download the new QoreStor executable from the Quest Support Portal following the steps below.

1. Log into the Quest Support Portal at https://support.quest.com/qorestor.

2. In the Download Software section, click **See All Downloads**.

3. Under the Platform Install section, find the row containing the appropriate version of QoreStor. Click **Download**.

4. Select the appropriate QoreStor installer, and click either **Download Now** to download the software immediately, or **Add to my Downloads**.

5. If you selected **Add to my Downloads**, click the **My Downloads** icon to view your download cart.

6. Select the software to download and click **Download Selected**.

Upgrading your QoreStor Software using the QoreStor Command Line

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

1. Download the new QoreStor executable. Refer to Downloading the QoreStor Software for detailed information.

2. Using the appropriate utility (pscp on Windows / scp on Mac or Linux) copy the QoreStor installation files to the server.

   i **NOTE:** You may use the **Upgrade** page of the QoreStorto UI to upload binaries to the QoreStor server.

3. Set execution permission on the installation files using **chmod**. For example,

   ```
   $ chmod a+x qs_inst_6.1.0.833.bin
   ```

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

   ```
   $ sudo ./qs_inst_6.1.0.833.bin
   ```

   and follow the prompts to complete the upgrade.

5. After the upgrade script completes, some QoreStor processes will continue behind the scenes. The system will not be operational until these processes complete. Execute the command **watch /opt/QoreStor/bin/system —show** to monitor the progress of QoreStor services.

   i **NOTE:** In some instances, some DMAs may experience timeout errors when trying to access QoreStor containers after an upgrade. If this occurs, wait until QoreStor is fully online, then restart the DMA.

Upgrading QoreStor Software using the QoreStor Menu

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

1. Using the terminal emulation application of your choice, log on to the QoreStor server using the the **qsservice** account. The QoreStor Menu will be displayed.

2. On the QoreStor Menu, arrow down to Administration and press **[Enter]**. The Administration menu will be displayed.

3. On the **Administration** menu, arrow down to **QoreStor Update** and press **[Enter]**.

4. QoreStor will check for available updates. If one is available, you will be prompted to continue with the discovered build or point QoreStor to a different binary. Choose one of the options below:

   - Select **Continue** to process the discovered build.
   - Select **Options** point QoreStor to a different installation file.
     - Select either curl or wget and enter the URL to the QoreStor binary. Repeat for the signature file
     - Select **Continue** to use the downloaded packages.

5. The installation will proceed. When completed, a Service Status page will display the status of the QoreStor system.

6. Select **Done**.

7. Select **Close.**

Upgrading QoreStor Software using the QoreStor UI

The QoreStor user interface includes the option to upload the new QoreStor binary and signature files to the QoreStor server via the browser. To upgrade a current installation of QoreStor, follow the steps below:

1. Download the new QoreStor executable and signature file. Refer to Downloading the QoreStor Software for detailed information.

2. In the QoreStor UI, click System to expand the menu. Click **Upload**.

3. On the **Upload** page, perform one of the following actions:
   - Drag the QoreStor binary and signature file to the Add new binary package area
   - Click **Upload binary package** to open a file explorer. Browse to select the QoreStor binary and signature file and click **Open**.

4. Connect to machine via ssh, launch the installer and follow the installer steps.

Upgrading the QoreStor Operating System

Review the requirements and considerations below before upgrading the operating system on the QoreStor server.

- Ensure that the OS version and kernel version are supported. Refer to the QoreStor Interoperability Guide for up-to-date information.

- When VTL support is enabled during the QoreStor installation, modules are installed that are specific to the kernel version at the time of installation. If the operating system on the QoreStor server is updated, these modules may not work correctly. When updating the operating system on the VTL-enabled QoreStor server, perform the actions below:
  - Upgrade QoreStor to the latest version. Refer to Upgrading your QoreStor software
  - If you are using Oracle Enterprise Linux, before upgrading the operating system, execute the command below

    ```
    yum install yum-utils; yum-config-manager --disable ol7_UEKR*
    ```

  - Upgrade the operating system using the command

    ```
    yum upgrade --disableexcludes=all
    ```

  - After the OS upgrade is complete, reboot the QoreStor system to boot into the new kernel . Based on the QoreStor installation, the VTL modules are installed into the new kernel at the time of Qorestor startup.

  - **i** | **NOTE:** If QoreStor was installed without enabling VTL support, this procedure is not required.

Migrating a DR Series Appliance to QoreStor

Starting with QoreStor 6.0, it is possible to perform an in-place upgrade that converts your DR Series appliance to a QoreStor server. This in-place process preserves your data and storage configuration, and migrates any applicable settings without the need for an intermediate staging server.

> **i** | **IMPORTANT:** The procedures in this section are provided for reference only. To ensure a proper migration, you must contact Quest Sales to ensure proper licensing and for further guidance in the migration process.

Upgrade overview

The in-place upgrade process utilizes a bootable image that can be used with either a USB key or as iDRAC virtual media. The image includes:

- Oracle Linux 7.3
- QoreStor 6.1
- Upgrade and migration scripts.

The migration requires that you boot the DR Series system to the migration image. At that point, the installer will capture your DR Series settings and configuration, install the operating system and QoreStor application, and import your storage and configuration details. After the installation, QoreStor will be in maintenance mode for some time while consistency checks are performed.

After migration, the QoreStor server will contain three default accounts, with the default credentials as listed below. You must change the default credentials upon logging in.

- **root** - the default password is generated in the format of "qorestor-<SERVICE TAG>". As an example, a machine with a service tag of 2ZQYBX1 would have a default root password of **qorestor-2ZQYBX1**. Root logins over SSH are disabled. Only console logins are allowed.
- **qsadmin** - the default password is St0r@ge!
- **qsservice** - the default password is "changeme", and must be changed after logging in. Refer to Initial login and changing your password.

> **i** | **IMPORTANT:** You must have a valid QoreStor license sufficient for the converted capacity before beginning the conversion process.

Prerequisites for migration

Before migrating your DR Series appliance to QoreStor, ensure that the following prerequisites are met:

- You must have a valid QoreStor license for the desired capacity prior to migration. The converted QoreStor server must be licensed before operations can resume. Contact Quest Sales to ensure that you have the appropriate licensing.

- Your DR Series appliance must be one of the versions below supported for migration:
    - DR4100 (with WAM-2)
    - DR4300
    - DR4300e
    - DR6000
    - DR6300
- Your DR Series software version must be updated with the patch 4.0.3218.1p. This patch includes preparation scripts necessary for the migration.
- Certain configurations are not supported by the migration process, and will cause the migration pre-checks to fail.
    - Storage groups containing more than 63 containers
    - Cascaded replications
    - Fibre channel connections.
    - Rapid Air Gap

        > **i** | **NOTE:** This list is not exhaustive. Any configuration that causes the migration pre-checks to fail must be corrected before migration can continue.

- Your DR Series must be connected to the internet.
- All data ingests must be completed.

Preparing your DR Series for migration

Before migrating your DR Series, you will need to upgrade the DR software to the latest patch (4.0.3218.1p), then prepare your DR Series using commands available in the new patch.

Upgrading your DR Series software

Before upgrading your DR Series system to QoreStor 6.0, you install the DR Series upgrade file 4.0.3218.1p using the steps below.

You can obtain the latest DR Series system software binary package from the Quest website. You would then upload this file in the DR Series system GUI for the system software upgrade.

> **i** | **NOTE:** The DR Series system only supports the copying of upgrade images and diagnostics files to and from the system using WinSCP. The DR Series system does not support the copying or deleting of any other file types using WinSCP. To use WinSCP to copy DR Series software upgrade and diagnostics log files, ensure that the File Protocol mode is set to SCP (Secure Copy) mode.

> **i** | **NOTE:** You can use other SCP tools with the DR Series system, but you cannot use these other SCP tools to copy other types of files to or from the DR Series system.

To upgrade the DR Series system software, complete the following steps.

1. Using your browser, go to support.quest.com/dr-series, select your specific DR model and then navigate to **Download Software** and click **See All Downloads**.

2. Under **Upgrade File**, locate the version you want to download, and click the **Download** button. If you are not logged in, you may be prompted to log in with your registered Quest account.

3. Save the latest system software upgrade file to a network location accessible by the DR Series system that is running the browser session started by the DR Series administrator.

4. In the DR Series system GUI, in the left navigation menu, click **Support > Software Upgrade**. The Software Upgrade page is displayed.

5. Click the button, Select **DR Binary Package**.

6. Browse to the location of the of the file you downloaded , select the file, and click **Open**. The system verifies that the file is the proper format.

7. Once the file has been uploaded, on the Software Upgrade page, click **Start Upgrade**.

Preparing for migration

After updating the DR Series software to patch 4.0.3218.1p, follow the steps below to prepare your DR Series for migration.

1. [Optional] From the DR command line interface, execute the command below. This command evaluates the system to ensure that migration requirements are met. These pre-checks are also performed by the --prepareMigration command during the preparation process.

   ```
   maintenance --hardware --migrationPreChecks
   ```

2. From the DR command line interface, execute the command below.

   ```
   maintenance --hardware --prepareMigration
   ```

   The prompt below will be displayed

   ```
   This operation will make the filesystem read-only until migrated to QS and pause
   all active replications.

   Do you want to continue (yes/no) [n]?
   ```

3. Type "y" to continue, "n" to exit. The preparation process will continue, and the DR Series will shutdown when complete.

Performing the DR Series Migration

Follow the steps in the sections below to migrate your DR Series appliance. You may boot the image using either a USB key or as virtual media using iDRAC.

Creating the DR Series Migration USB

To create a DR Series Migration Image USB key, you must first contact Quest Sales to ensure proper licensing and obtain the DR Series Migration Image (.iso file). You may then transfer the image to a USB key. The USB key must be a minimum of 8 GB (Gigabytes) in size or larger.

Windows USB image tools can be used to transfer the DR Series Migration Image when they meet the following conditions:

- Support using the .iso file format
- Support using a direct block-to-block device copy to ensure that the USB key is bootable

i | **NOTE:** There are no native Windows® utilities for creating a bootable USB drive from an IMG file. Follow the instructions for your third-party application.

To transfer the DR Series Migration Image to the USB key on a Linux or Unix system, perform the following:

1. Copy the downloaded DR Series Migration Image iso file to a Linux or Unix system.

2. Insert the USB key into an available USB port on the Linux or Unix system. Make note of the device name that is reported by the operating system (for example, /dev/sdc4).

3. Do not locally mount the USB device to a file system at this time.

4. Copy the DR Series Migration Image to the USB key using the **dd** command, where sdX is the device name for the USB key:

   ```
   dd if=QoreStor_Migration_6.0.0.586.iso of=/dev/sdX bs=1M
   ```

   For example:

   ```
   dd if=/root/QoreStor_Migration_6.0.0.586.iso of=/dev/sdc4 bs=4096
   ```

Migrating your DR Series Appliance using a USB key.

1. Insert the DR Series Migration Image USB key into an available USB port on the system.

2. Boot the DR Series system using the DR Series Migration Image USB key.

3. During the time when the Power-On Self-Test (POST) screen displays, press F11 to load the Boot Manager.

4. Within the Boot Manager, navigate to the system hard drive (C:), select the USB key as the boot device, and press <Enter>.

5. The DR Series Migration Image loads and immediately begins the migration.

6. After multiple reboots, QoreStor will initially be maintenance mode to fix refcounts, after which the server will move to operational mode.

7. Refer to the section Initial login and changing your password for information on accessing QoreStor for the first time. Refer to Configuring QoreStor with the Configuration Menu for information on making any required configuration changes.

8. After migration, the QoreStor server will contain three default accounts, with the default credentials as listed below. You must change the default credentials upon logging in.

   - **root** - the default password is generated in the format of "qorestor-<SERVICE TAG>". As an example, a machine with a service tag of 2ZQYBX1 would have a default root password of **qorestor-2ZQYBX1**. Root logins over SSH are disabled. Only console logins are allowed.

   - **qsadmin** - the default password is St0r@ge!

   - **qsservice** - the default password is "changeme", and must be changed after logging in. Refer to Initial login and changing your password.

Migrating your DR Series Appliance using iDRAC virtual media.

The iDRAC connection requires a network connection between the integrated Dell Remote Access Control (iDRAC) management port on the DR Series system and another computer running the iDRAC remote console session in a supported browser. Refer to the section **iDRAC connection** in the *DR Series System Administrator's Guide*.

1. Using the iDRAC web interface, open the Virtual Console.

2. Click on **Virtual Media**, then **Launch Virtual Media.**

3. Click **Add Image**. Select the DR Series Migration Image iso file, then click **Open**.

4. Select **Mapped** for connect the virtual image to the DR Series appliance.

5. Restart the system. During the time when the Power-On Self-Test (POST) screen displays, press F11 to load the Boot Manager.

6. Within the Boot Manager, navigate to the system hard drive (C:), select the USB key as the boot device, and press <Enter>.

7. The DR Series Migration Image loads and immediately begins the migration.

8. After multiple reboots, QoreStor will initially be maintenance mode to fix refcounts, after which the server will move to operational mode.

9. Refer to the section Initial login and changing your password for information on accessing QoreStor for the first time. Refer to Configuring QoreStor with the Configuration Menu for information on making any required configuration changes.

10. After migration, the QoreStor server will contain three default accounts, with the default credentials as listed below. You must change the default credentials upon logging in.

    - **root** - the default password is generated in the format of "qorestor-<SERVICE TAG>". As an example, a machine with a service tag of 2ZQYBX1 would have a default root password of **qorestor-2ZQYBX1**. Root logins over SSH are disabled. Only console logins are allowed.

    - **qsadmin** - the default password is St0r@ge!

    - **qsservice** - the default password is "changeme", and must be changed after logging in. Refer to Initial login and changing your password.

Post-migration configurations and considerations

Some configuration data is not maintained during the migration. After the migration completes, some additional configurations may be required.

- Domain membership is not maintained. Your new QoreStor system must be added to your domain after the migration. Refer to **Configuring Active Directory Settings** in the *QoreStor User Guide.*

- Advanced network configurations, such as MTU configurations and NIC bonding must be reconfigured.

- Any network changes made in the *sysctl.conf* filemust be reconfigured after migration.

- In addition, QoreStor uses different data display conventions than the DR Series. Historical data for DR Series graphs not used in QoreStor is not maintained after migration.

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_unininst** 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.

Uninstalling QoreStor while maintaining configuration data

Follow the procedure below to maintain your data repositories, application, and configuration data.

1. Starting with QoreStor 5.1, the **qsadmin** account is configured with direct access to QoreStor commands. If you log into the QoreStor 5.1 (or later) system with the **qsadmin** account, you can execute the QoreStor commands directly from the prompt.

   To uninstall a previous version of QoreStor, execute the uninstall script with one of the options below:

- Use the absolute path to the command - **# /opt/qorestor/bin/qs_uninst** .

- Change directory to **/opt/qorestor/bin** and execute commands by prepending with "./", as in **./qs_uninst.**

To uninstall QoreStor 5.1, login to QoreStor with the **qsadmin** account and execute the command **qs_uninst**

2. You will receive the prompt below.

```
To completely remove the application, user data, and configuration files, answer
'no' below,
and rerun the uninstaller with the '-a' option.
Do you wish to continue? yes\no [no]:
```

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

Uninstalling QoreStor and removing configuration data

Follow the procedure below to uninstall QoreStor and remove all application and repository data.

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

1. Starting with QoreStor 5.1, the **qsadmin** account is configured with direct access to QoreStor commands. If you log into the QoreStor 5.1 (or later) system with the **qsadmin** account, you can execute the QoreStor commands directly from the prompt.

    To uninstall a previous version of QoreStor, execute the uninstall script with one of the options below:

    - Use the absolute path to the command - **# /opt/qorestor/bin/qs_uninst -a** .

    - Change directory to **/opt/qorestor/bin** and execute commands by prepending with "./", as in **./qs_uninst -a.**

    To uninstall QoreStor 5.1, login to QoreStor with the **qsadmin** account and execute the command **qs_uninst -a**

2. You will receive the prompt below.

```
This operation will remove the application as well as all repository,
dictionary, and journal data.
This operation is not recoverable.
 Do you wish to continue? yes\no [no]:
```

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

> ! **CAUTION: This operation is not recoverable.**

Quest provides software solutions for the rapidly-changing world of enterprise IT. We help simplify the challenges caused by data explosion, cloud expansion, hybrid datacenters, security threats, and regulatory requirements. We are a global provider to 130,000 companies across 100 countries, including 95% of the Fortune 500 and 90% of the Global 1000. Since 1987, we have built a portfolio of solutions that now includes database management, data protection, identity and access management, Microsoft platform management, and unified endpoint management. With Quest, organizations spend less time on IT administration and more time on business innovation. For more information, visit www.quest.com.

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