

# Dell EMC PowerEdge Systems Red Hat Enterprise Linux 8

Installation Guide

## Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# Overview

Red Hat Enterprise Linux 8 is available on the 64-bit Intel architecture.

Topics:

- [System configuration requirements](#)
- [Reviewing preconfiguration options](#)

## System configuration requirements

For detailed system configuration requirements for Red Hat Enterprise Linux (RHEL) 8, see the documentation at [www.redhat.com/support](http://www.redhat.com/support).

## Operating system architecture

Dell EMC supports the x86\_64 version of RHEL 8 on Dell EMC PowerEdge servers. To check if your PowerEdge system supports RHEL 8, see the operating systems support matrix at [Dell.com/ossupport](http://Dell.com/ossupport).

**NOTE: RHEL 8 does not support the 32 bit version of the operating system.**

## Memory

The following table lists the system memory requirements for the x86\_64 architecture of RHEL 8:

**Table 1. Memory requirements for x86\_64 architecture**

| Memory                            | Size                   |
|-----------------------------------|------------------------|
| Minimum recommended system memory | 1.5 GB per logical CPU |
| Maximum certified system memory   | 6 TB                   |

**NOTE: The maximum system memory that the kernel supports might be greater than the value listed in the table. For more information, see [www.access.redhat.com/articles/rhel-limits](http://www.access.redhat.com/articles/rhel-limits).**

## Bootable disk size

By default, RHEL 8 configures partitions based on the boot mode of the system.

**Table 2. Bootable disk size**

| Interface    | Disk/LUN            |
|--------------|---------------------|
| BIOS or UEFI | Less than 2.2 TB    |
| UEFI         | Greater than 2.2 TB |

# Reviewing preconfiguration options

The following sections describe packages and options that are installed or preconfigured by Dell EMC.

## Operating system packages preinstalled by Dell EMC

Dell EMC has preinstalled a set of operating packages on your system that provide the features that are required by system users. If you require additional features that are not provided by the packages, install additional packages from the Red Hat installation media or through Red Hat Network.

## Operating system language

The default language for RHEL 8 is English.

## Storage partitions

The following tables list the partition schemes for a preinstalled RHEL 8 operating system.

**Table 3. Preinstalled Red Hat Enterprise Linux partitions and mount points for legacy BIOS**

| Mount Point | Size (MB)                   | Partition Type |
|-------------|-----------------------------|----------------|
| /           | 50% of the remaining size   | XFS            |
| /boot       | 500                         | VFAT           |
| Swap        | Recommended size from Linux | Linux swap     |
| /home       | 50% of the remaining size   | XFS            |

**Table 4. Preinstalled Red Hat Enterprise Linux partitions and mount points for UEFI**

| Mount Point | Size (MB)                   | Partition Type |
|-------------|-----------------------------|----------------|
| /           | 50% of the remaining size   | XFS            |
| /boot/efi   | 500                         | VFAT           |
| Swap        | Recommended size from Linux | Linux swap     |
| /home       | 50% of the remaining size   | XFS            |

**NOTE:** The minimum swap size is 250 MB. For memory up to 4 GB, it is recommended that the minimum swap size of LVM is at least 2 GB. For the recommended swap size, see [www.access.redhat.com/documentation](http://www.access.redhat.com/documentation).

# Creating the RHEL 8 installer media

RHEL 8 installer ISOs are available for download at [www.access.redhat.com/documentation](http://www.access.redhat.com/documentation) for users with valid RHEL 8 subscription. For more information about the RHEL 8 subscription, see the *Red Hat Enterprise Linux Registration Activation* document at [www.dell.com/operatingsystemmanuals](http://www.dell.com/operatingsystemmanuals).

For systems ordered with factory installed RHEL 8, the installer ISOs and source ISOs are available at:

- Installer Binary and Source ISOs: `/var/iso_files/installer/`
- Packages Binary and Source ISOs: `/var/iso_files/packages/`

# Installing or reinstalling RHEL 8

## Important information before installing

Select the boot mode to be used for the system during installation. There are two boot modes available on Dell EMC PowerEdge servers.

- BIOS
- Unified Extensible Firmware Interface (UEFI)

**⚠ CAUTION:** Back up all the data from the system before installing or upgrading RHEL 8.

**ⓘ NOTE:** The boot configurations of UEFI and BIOS are different. Therefore, the installed system must boot using the same firmware that was used during installation. You cannot install RHEL 8 on a system that uses BIOS and then boot from a system that uses UEFI.

To install or reinstall RHEL 8, use one of the following media or methods:

- Install with Lifecycle Controller (LC)
- Install on iSCSI storage
- Install using software iSCSI initiator
- Install using hardware iSCSI initiator
- Install on Fibre Channel over Ethernet (FCoE) enabled storage

Topics:

- [Install RHEL 8 with Lifecycle Controller](#)
- [Install RHEL 8 on iSCSI storage](#)
- [Install RHEL 8 on FCoE-enabled storage](#)
- [Add-on device drivers](#)
- [Updating your system packages using the Red Hat Network](#)

## Install RHEL 8 with Lifecycle Controller

**⚠ CAUTION:** Ensure that you back up all the data from the system before installing or upgrading the operating system.

Lifecycle Controller (LC) provides an OS Deployment wizard that assists you with the installation of RHEL 8.

**ⓘ NOTE:** LC may not provide the latest drivers that are required to complete the installation of RHEL 8. Download the drivers from the Dell EMC FTP website at <https://downloads.dell.com>, or use the *Dell Systems Management Tools and Documentation* media.

**ⓘ NOTE:** Lifecycle Controller (LC) comes with embedded drivers that are factory installed. It is recommended that you run the Platform Update wizard to ensure that you have the latest drivers before you install RHEL 8. For more information, see *Dell Remote Access Configuration Tool User's Guide* at [www.dell.com/idracmanuals](http://www.dell.com/idracmanuals).

- 1 Boot the system, and press F10.  
The Dell EMC logo is displayed.
- 2 In the left pane, click **OS Deployment**.
- 3 In the right pane, click **Deploy OS**.

**NOTE:** If your system has a RAID controller, you must configure RAID before you install the drivers.

- 4 From the list of operating systems, select **Red Hat Enterprise Linux 8x86\_64 bit**.  
LC extracts the driver update disk to an internal USB drive labeled **OEMDRV**.

After the drivers are extracted, LC prompts you to insert the operating system installation media.

- 5 Click **Next**.
- 6 When prompted, select **BIOS** or **UEFI**, and then click **Next**.
- 7 Insert the Red Hat Enterprise Linux installation media, and then click **Next**.
- 8 Click **Finish** to reboot the system and go to the operating system installation by booting to the operating system media.

**NOTE:** After reboot, the system prompts you to press a key to boot to the operating system media. If you do not press a key, the system boots to the hard drive.

**NOTE:** All the copied drivers are removed after 18 hours. Complete the operating system installation within 18 hours. To remove the drivers before 18 hours, reboot the system, press **F10**, and reenter LC.

## Install RHEL 8 on iSCSI storage

**CAUTION:** Ensure that you back up all the data from the system before installing or upgrading the operating system.

RHEL 8 based systems can connect to an iSCSI storage array either through an iSCSI software stack, an iSCSI Host Bus Adapter (HBA), or an iSCSI offload hardware.

- 1 Configure the network interface controllers to access the iSCSI storage.
- 2 Select the installation destination in the **Installation Destination** window.
- 3 Click **Add a disk** in the **Specialized & Network Disks** section.
- 4 In the **Storage Device Selection** window, click the **Other SAN Devices** tab.
- 5 Select the SAN device, and then click **Done** to continue with the installation.

## Install RHEL 8 using software iSCSI initiator

**CAUTION:** Ensure that you back up all the data from the system before installing or upgrading the operating system.

- 1 Configure the network interface controllers to access the iSCSI storage.
- 2 Select the installation destination in the **Installation Destination** window.
- 3 Click **Add a disk** in the **Specialized & Network Disks** section.
- 4 Click **Add iSCSI Target**.
- 5 In the **ADD iSCSI STORAGE TARGET** window, enter the **Target IP Address** and **iSCSI Initiator Name**, and then select the **Discovery Authentication Type**.
- 6 Click **Start Discovery**.
- 7 Select the **Node name**, and then click **Log In**.
- 8 Click **OK**.
- 9 Select the iSCSI drive, and then click **Done**.
- 10 In the **Storage Device Selection** window, click **Other SAN Devices** tab.
- 11 Select the SAN device, and then click **Done** to continue with the installation.

# Install RHEL 8 using hardware iSCSI initiator

**CAUTION:** Ensure that you back up all the data from the system before installing or upgrading the operating system.

- 1 Configure the network interface controllers to access the iSCSI storage.
- 2 Select the installation destination in the **Installation Destination** window.
- 3 Click **Add a disk** in the **Specialized & Network Disks** section.
- 4 In the **Storage Device Selection** window, click the **Other SAN Devices** tab.
- 5 Select the SAN device, and then click **Done** to continue with the installation.

# Install RHEL 8 on FCoE-enabled storage

**CAUTION:** Ensure that you back up all the data from the system before installing or upgrading the operating system.

**NOTE:** The `fcoc.ko` kernel module is no longer available for creating software FCoE interfaces over Ethernet adapters and drivers. RHEL 8 installation is supported only on hardware based FCoE-enabled storage.

- 1 Select the installation destination in the **Installation Destination** window.
- 2 Click **Add a disk** in the Specialized & Network Disks section.
- 3 Click **Add FCoE SAN**, and then click **Add Drive**.  
The **Configure FCoE Parameters** window is displayed.
- 4 Select the network interface that is connected to your FCoE switch, and then click **Add FCoE Disk(s)**.

# Add-on device drivers

All Dell EMC add-on device driver packages that are not on the RHEL 8 media are packaged as Kernel Module Packages (KMPs). For devices that require updated drivers other than what is present on the RHEL 8 media, see [Dell.com/support/home](http://Dell.com/support/home).

**NOTE:** If there are no driver packages available on [Dell.com/support/home](http://Dell.com/support/home), this indicates that your system does not require a driver update.

For a list of add-on device drivers that are installed on your system, type the following command at the command prompt: `rpm -qa | grep kmp`

**NOTE:** For more information about add-on drivers, see the RHEL 8 driver update program at [www.drivers.suse.com](http://www.drivers.suse.com).

# Updating your system packages using the Red Hat Network

**NOTE:** To update your system with the latest operating system packages using Red Hat Subscription Manager (RHSM) service, see [www.rhn.redhat.com](http://www.rhn.redhat.com).

Red Hat periodically releases software updates to fix issues, address security issues, and add new features and hardware support. You can download updated operating system packages and the latest kernel releases and updates:

- By performing a manual download from the RHSM service at [www.rhn.redhat.com](http://www.rhn.redhat.com)
- By using the `yum` utility

It is recommended that you use the RHSM service to update your system software to the latest revisions before deploying your system.

# Getting help

Topics:

- [Contacting Dell EMC](#)
- [Related documentation for Linux](#)
- [Documentation resources](#)
- [Download the drivers and firmware](#)
- [Documentation feedback](#)

## Contacting Dell EMC

**NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell EMC product catalog.

Dell EMC provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell EMC for sales, technical support, or customer service issues:

- 1 Go to [www.dell.com/support](http://www.dell.com/support).
- 2 Select your support category.
- 3 Verify your country or region in the **Choose a Country/Region** list at the bottom of the page.
- 4 Select the appropriate service or support link based on your need.

## Related documentation for Linux

**NOTE:** For information on deploying Red Hat Enterprise Virtualization, see the product documentation available at [www.access.redhat.com/documentation](http://www.access.redhat.com/documentation).

Product documentation from Dell EMC includes:

- [Installation Instructions and Important Information Guide](#)
- [Release Notes](#)

**NOTE:** For more information on Dell EMC PowerEdge servers compatibility with supported operating systems, see [Dell.com/ossupport](http://Dell.com/ossupport).

## Documentation resources

This section provides information about the documentation resources for your server.

**Table 5. Additional documentation resources for your server**

| Task                   | Document   | Location   |
|------------------------|--|--|
| Setting up your server | For information about installing the server into a rack, see the Rack documentation included with your rack solution or the <i>Getting Started</i> | <a href="http://www.dell.com/poweredgemanuals">www.dell.com/poweredgemanuals</a> |

| Task                    | Document   | Location   |
|-------------------------|--|--|
|                         | <i>With Your System</i> document that is shipped with your server.   |  |
|                         | For information about turning on the server and the technical specifications of your server, see the <i>Getting Started With Your System</i> document that is shipped with your server.  | <a href="http://www.dell.com/poweredge manuals">www.dell.com/poweredge manuals</a>             |
| Configuring your server | For information about the iDRAC features, configuring and logging in to iDRAC, and managing your server remotely, see the <i>Integrated Dell Remote Access Controller User's Guide</i> . | <a href="http://www.dell.com/idrac manuals">www.dell.com/idrac manuals</a>                     |
|                         | For information about installing the operating system, see the operating system documentation.   | <a href="http://www.dell.com/operatingsystem manuals">www.dell.com/operatingsystem manuals</a> |
|                         | For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the RACADM Command Line Reference Guide for iDRAC.          | <a href="http://www.dell.com/idrac manuals">www.dell.com/idrac manuals</a>                     |
|                         | For information about updating drivers and firmware, see <a href="#">Downloading the drivers and firmware</a> topic in this document.  | <a href="http://Dell.com/support/drivers">Dell.com/support/drivers</a>                         |
| Managing your server    | For information about server management software offered by Dell EMC, see the <i>Dell EMC OpenManage Systems Management Overview Guide</i> .   | <a href="http://www.dell.com/openmanage manuals">www.dell.com/openmanage manuals</a>           |
|                         | For information about setting up, using, and troubleshooting OpenManage, see the <i>Dell EMC OpenManage Server Administrator User's Guide</i> .  | <a href="http://www.dell.com/openmanage manuals">www.dell.com/openmanage manuals</a>           |
|                         | For information about installing, using, and troubleshooting Dell EMC OpenManage Essentials, see the <i>Dell EMC OpenManage Essentials User's Guide</i> .                                | <a href="http://www.dell.com/openmanage manuals">www.dell.com/openmanage manuals</a>           |
|                         | For information about installing and using Dell EMC SupportAssist, see the <i>Dell EMC SupportAssist Enterprise User's Guide</i> .   | <a href="http://www.dell.com/serviceability tools">www.dell.com/serviceability tools</a>       |
|                         | For understanding the features of Dell EMC Lifecycle Controller (LC),  | <a href="http://www.dell.com/idrac manuals">www.dell.com/idrac manuals</a>                     |

| Task   | Document  | Location   |
|--|---|--|
|  | see the <i>Lifecycle Controller User's Guide</i> .  |  |
|  | For information about partner programs enterprise systems management, see the <i>OpenManage Connections Enterprise Systems Management</i> documents.  | <a href="http://www.dell.com/openmanagemanuals">www.dell.com/openmanagemanuals</a>       |
|  | For information about viewing inventory, performing configuration, and monitoring tasks, remotely turning on or off servers, and enabling alerts for events on servers and components using the Dell EMC Chassis Management Controller (CMC), see the CMC User's Guide. | <a href="http://www.dell.com/esmmanuals">www.dell.com/esmmanuals</a>                     |
| Working with the Dell EMC PowerEdge RAID controllers | For information about understanding the features of the Dell EMC PowerEdge RAID controllers (PERC) and deploying the PERC cards, see the storage controller documentation.  | <a href="http://Dell.com/storagecontrollermanuals">Dell.com/storagecontrollermanuals</a> |
| Understanding event and error messages               | For information about checking the event and error messages that are generated by the system firmware and agents that monitor server components, see the <i>Dell EMC Event and Error Messages Reference Guide</i> .   | <a href="http://www.dell.com/openmanagemanuals">www.dell.com/openmanagemanuals</a>       |
| Troubleshooting your system                          | For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.  | <a href="http://www.dell.com/poweredgemanuals">www.dell.com/poweredgemanuals</a>         |

## Download the drivers and firmware

It is recommended that you download and install the latest BIOS, drivers, and systems management firmware on your system. Ensure that you clear the web browser cache before downloading the drivers and firmware.

- 1 Go to [Dell.com/support/drivers](http://Dell.com/support/drivers).
- 2 In the **Drivers & Downloads** section, enter the Service Tag of your system in the **Enter a Dell Service Tag, Dell EMC Product ID, or Model** field, and then click **Submit**.
  - NOTE:** If you do not have the Service Tag, click **Detect PC** to allow the system to automatically detect your Service Tag.
- 3 Click **Drivers & Downloads**.  
A list of applicable downloads is displayed.
- 4 Download the drivers or firmware to a USB drive, CD, or DVD.

# Documentation feedback

You can rate the documentation or write your feedback on any of our Dell EMC documentation pages and click **Send Feedback** to send your feedback.