Dell EMC PowerEdge Systems SUSE Linux Enterprise Server 12

Installation Instructions and Important Information

DELL EMC

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

SUSE Linux Enterprise Server 12 is available on the 64-bit Intel architecture.

Topics:

System configuration requirements

For more information on system configuration requirements for SUSE Linux Enterprise Server 12, see the documentation at www.suse.com/documentation.

Operating system architecture

Dell EMC supports the x86_64 version of SUSE Linux Enterprise Server 12 on all Dell EMC PowerEdge servers. To check if your PowerEdge system supports SUSE Linux Enterprise Server 12 , see the operating systems support matrix at Dell.com/ossupport.

NOTE: If you require the x86 version of the operating system, Dell EMC recommends that you run it as a VM on SUSE Linux Enterprise Server 12 x86_64 or an equivalent host. For information about installing a SUSE Linux Enterprise Server 12 virtualized guest, go to www.suse.com/documentation.

Memory

The following table lists the system memory requirements for the x86_64 architecture of SUSE Linux Enterprise Server 12 :

Table 1. Memory requirements for x86_64 architecture

Memory	Size
Minimum recommended system memory	512 MB per logical CPU
Maximum certified system memory	6 TB

Bootable disk size

By default, SUSE Linux Enterprise Server 12 configures partitions that are based on the boot mode of the system.

Table 2. Bootable disk size

Interface	Disk/LUN
BIOS or UEFI	Lesser 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.

Dell EMC preinstalled operating system packages

Dell EMC has preinstalled operating system packages on your system that provides the features that are required by the system users. If you require more features that are not provided by the packages, install more packages from the SUSE installation media or through SUSE Network.

Languages

Your system is preinstalled with the SUSE operating system for English language. However, the main system language can be selected by adjusting the required time zone.

Storage partitions

The following table lists the partition schemes for a preinstalled SUSE Linux Enterprise Server 12 operating system:

Table 3. Preinstalled SUSE Linux Enterprise Server partitions and mount points for primary hard drive

Mount Point	Size (MB)	Partition Type
/boot(Legacy Mode only)	500 MB	XFS
/	50% of disk space	XFS
/swap	Vendor recommended Remaining space after allocating to /, and **/boot** in Legacy Mode.	Linux swap
/home		XFS

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Creating SUSE Linux Enterprise Server 12 installer media

SUSE Linux Enterprise Server 12 installer ISOs are available for download at www.suse.com/download-linux/ for users with valid SUSE Linux Enterprise Server 12 subscription.

For systems ordered with factory installed SUSE Linux Enterprise Server 12, 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/`

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Installing or reinstalling SUSE Linux Enterprise Server

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
- UEFI

NOTE: The boot configurations of UEFI and BIOS are different. Hence, the installed system must boot using the same firmware that was used during installation. You cannot install the operating system on a system that uses BIOS and then boot this installation on a system that uses UEFI.

CAUTION: Back up all the data from the system before installing or upgrading the SUSE Linux Enterprise Server operating system.

To install or reinstall your operating system, use one of the following media or methods:

- Installing using the Lifecycle Controller (LC)
- Installing on the iSCSI storage
- Installing on Fibre Channel over Ethernet (FCoE) enabled storage

Topics:

Installing SUSE Linux Enterprise Server with Lifecycle Controller

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

NOTE: Lifecycle Controller (LC) may not provide the latest drivers that are required to complete the installation of the operating system. Download the drivers from https://downloads.dell.com, or use the *Dell Systems Management Tools and Documentation media*.

NOTE: Lifecycle Controller Enabled (LCE) comes with embedded drivers that are factory that is installed. Dell EMC recommends that you run the Platform Update wizard to ensure that you have the latest drivers before you install the operating system. For more information, see the Dell EMC *Lifecycle Controller User's Guide* available at www.dell.com/idracmanuals.

To begin installation by using the operating system deployment wizard:

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 continue with the installation of drivers.**

4 From the list of operating systems, select **SUSE Linux Enterprise Server 12x86_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 Select **BIOS** or **UEFI** when prompted, and click **Next**.
7 Insert the SUSE Linux Enterprise Server installation media, and click **Next**.
8 Click **Finish** to reboot the system, and continue with 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.**

Installing SUSE Linux Enterprise Server on systems with a Dell EMC Utility Partition

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

The Dell EMC Utility Partition contains diagnostics and other utilities that can be initiated during system boot. If you are installing or reinstalling SUSE Linux Enterprise Server 12 on a system with a Dell EMC Utility Partition, install the boot loader on the first sector of the boot partition. This retains the option of booting from the Dell EMC Utility Partition as the system does not overwrite the MBR.

To install SUSE Linux Enterprise Server 12:

1 Select the appropriate option in **Which type of installation would you like?**

> **NOTE: Such that the existing Dell EMC Utility Partition is not deleted.**

2 Select **Review and Modify partitioning layout** and click **Next**.
3 Review the partition setup and click **Next**.
4 Confirm to **Write changes to disk**.
5 When prompted to install the boot loader, click **Change Device**.
6 Select **First sector of boot partition** and click **OK**.
7 Follow the instructions on your screen and complete the installation.

> **NOTE: By default, the installer does not overwrite the utility partition.**

Installing SUSE Linux Enterprise Server on devices that support multipathing

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

1 Configure the storage array to enable multipathing.

To configure the storage array for your system, see the specific PowerVault system documentation at **Dell.com/powervaultmanuals**.

2 After the storage array is set up, follow the *Prerequisite Steps* for using multipath devices from the *Dell EMC PowerVault MD3200 and MD3220 Storage Arrays Owner's Manual* at **Dell.com/powervaultmanuals**.

3 During the operating system installation, select **Specialized Storage Devices** on the **Storage Devices** page.

4 Click **Next**.

5 On the **Storage Device Selection** page, click the **Multipath Devices** tab.

6 Select the multipath device that is displayed on this screen and continue with the installation.

Installing SUSE Linux Enterprise Server on iSCSI storage

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

SUSE Linux Enterprise Server 12-based systems can connect to an iSCSI storage array either through the 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 During the operating system installation, select **Specialized Storage Devices** in the **Storage Devices** window, and then click **Next**.

3 In the **Storage Device Selection** window, click **Other SAN Devices**.

4 Select the SAN device that is displayed in this window, and complete the installation.

Installing by using the Software iSCSI initiator

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

1 Configure the network interface controllers to access the iSCSI storage.

2 During the operating system installation, select **Specialized Storage Devices** on the **Storage Devices** screen, and then click **Next**.

3 On the **Storage Device Selection** screen, click **Advanced Storage Options** to connect to the iSCSI target or FCoE SAN.

4 Select **Add iSCSI Target** and click **Add Drive**.

5 On the **Configure iSCSI Parameters** screen, provide the required information, and click **Add Target** to connect to the iSCSI target.

Installing using the hardware iSCSI initiator

△ | **CAUTION: Back up all data from the system before installing or upgrading the operating system.**

1 Configure the network interface controllers to access the iSCSI storage.

2 During the operating system installation, select **Specialized Storage Devices** on the **Storage Devices** screen, and then click **Next.**

3 On the **Storage Device Selection** screen, click the **Other SAN Devices** tab.

4 Select the SAN device that is displayed on this screen and continue with the installation.

Installing SUSE Linux Enterprise Server on FCoE-enabled storage

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

1 During the operating system installation, select **Specialized Storage Devices** in the **Storage Devices** window, and then click **Next**.

2 In the **Storage Device Selection** window, click **Add Advanced Target**.

The **Advanced Storage Options** window is displayed. You can connect to the iSCSI target or the FCoE SAN through this window.

3 To configure FCoE SAN, select **Add FCoE SAN** and click **Add Drive**.
The **Configure FCoE Parameters** window is displayed.
4 Select the network interface that is connected to your FCoE switch and click **Add FCoE Disks**.

Add-on device drivers

All Dell EMC, add-on device driver packages that are not on the SUSE Linux Enterprise Server 12 media are packaged as kernel module packages (kmp). For devices that require updated drivers other than those present on the SUSE Linux Enterprise Server 12 media, see Dell.com/support/home.

NOTE: If there are no driver packages available on Dell.com/support/home, 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 on add-on drivers, see the SUSE Linux Enterprise Server 12 driver update program at www.drivers.suse.com.

Updating your system packages by using SUSE Customer Center or Repository Mirroring tool

SUSE 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 using Repository Mirroring tool
- By using the `Zypper utility`

Dell EMC recommends using the SUSE service to update your system software to the latest revisions before deploying your system.

Important information

biosdevname utility

In the earlier versions of SUSE Linux Enterprise Server, the interface names that are assigned by the operating system did not map to the corresponding ports on the system board or on the add-in network adapters. For example, `eth0` need not necessarily be associated with `port0` on the system board.

The `biosdevname utility` enables the operating system to logically assign and map Ethernet interface names with the respective physical ports on the system board or the add-in network adapters.

The new naming convention is as follows:

Lan-On-Motherboard interfaces	*em <port number>* (ethernet-on-motherboard <1,2,..>)
PCI add-in interfaces	*p<slot number>p<port number>_<virtual function instance>*

For more information on the `biosdevname utility` and the new naming scheme, see www.linux.dell.com/files/whitepapers.

NOTE: If you do not want to use the new naming scheme, you can turn if off during installation or post installation by passing the kernel command line parameter `biosdevname=0`. The new naming scheme is enforced by default at the time of installation and run time on supported Dell EMC systems.

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Getting help

Topics:

Contacting Dell EMC

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

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

Related documentation for Linux

NOTE: For information on deploying SUSE Linux Enterprise Server Virtualization, see the product documentation available at www.suse.com.

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.

Documentation resources

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

Table 4. 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 *Getting Started Guide* that is shipped with your server.	www.dell.com/poweredgemanuals
	For information about turning on the server and the technical	www.dell.com/poweredgemanuals

Task	Document	Location
	specifications of your server, see the *Getting Started Guide* that is shipped with your server.	
Configuring your server	For information about the iDRAC features, configuring and logging in to iDRAC, and managing your server remotely, see the *Integrated Dell Remote Access Configuration Tool User's Guide*	www.dell.com/idracmanuals
	For information about installing the operating system, see operating system documentation.	www.dell.com/operatingsystemmanuals
	For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the *iDRAC RACADM CLI Guide*.	www.dell.com/idracmanuals
	For information about updating drivers and firmware, see Downloading the drivers and firmware topic in this document.	Dell.com/support/drivers
Managing your server	For information about server management software offered by Dell EMC, see the Dell EMC *Systems Management Overview Guide*.	www.dell.com/openmanagemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the Dell EMC *OpenManage Server Administrator User's Guide*.	www.dell.com/openmanagemanuals
	For information about installing, using, and troubleshooting Dell EMC OpenManage Essentials, see the Dell EMC *Dell.com/openmanagemanuals* > *OpenManage Essentials User's Guide*.	www.dell.com/openmanagemanuals
	For information about installing and using Dell SupportAssist, see the Dell EMC *SupportAssist Enterprise User's Guide*.	www.dell.com/serviceabilitytools
	For understanding the features of Dell EMC Lifecycle Controller (LC), see the *Lifecycle Controller User's Guide*.	www.dell.com/idracmanuals

Task	Document	Location
	For information about partner programs enterprise systems management, see the *OpenManage Connections Enterprise Systems Management* documents.	www.dell.com/esmmanuals
	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 *Chassis Management Controller User's Guide* .	www.dell.com/esmmanuals
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.	Dell.com/storagecontrollermanuals
Understanding event and error messages	For information about checking the event and error messages generated by the system firmware and agents that monitor server components, see the Dell EMC *Event and Error Message Reference Guide for 14th Generation Dell EMC PowerEdge Servers* .	Dell.com/openmanagemanuals
Troubleshooting your system	For information about identifying and troubleshooting the PowerEdge server issues, see the *PowerEdge Servers Troubleshooting Guide*.	www.dell.com/poweredgemanuals

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.

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.