

Microsoft Windows Server 2016 for Dell EMC PowerEdge Systems

Important Information 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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Important information about Microsoft Windows Server 2016

This document provides important information about Microsoft Windows Server 2016 for the Dell EMC PowerEdge systems.

iDRAC, BIOS, system firmware, RAID controller driver versions

Table 1. Minimum supported BIOS and iDRAC version on 14th generation of PowerEdge system

Platforms	Essentials	Standard	Datacenter	Supported iDRAC version	Supported BIOS version
PowerEdge C4140		Yes	Yes	3.21.21.21	1.2.6
PowerEdge C6420		Yes	Yes	3.00.00.00	1.0.8
PowerEdge FC640		Yes	Yes	3.15.15.15	1.0.1
PowerEdge M640		Yes	Yes	3.15.15.15	1.0.1
PowerEdge MX740c		Yes	Yes	3.20.20.20	1.0.1
PowerEdge MX840c		Yes	Yes	3.20.20.20	1.0.1
PowerEdge R240	Yes	Yes		3.23.23.23	1.0.1
PowerEdge R340	Yes	Yes		3.23.23.23	1.0.1
PowerEdge R440		Yes	Yes	3.11.11.11	1.0.1
PowerEdge R540		Yes	Yes	3.11.11.11	1.0.1
PowerEdge R640		Yes	Yes	3.00.00.00	1.0.7
PowerEdge R6415		Yes	Yes	3.17.17.17	1.0.7
PowerEdge R740 XD2		Yes	Yes	3.23.23.23	1.0.4
PowerEdge R740/XD		Yes	Yes	3.00.00.00	1.0.7
PowerEdge R7415		Yes	Yes	3.17.17.17	1.0.7
PowerEdge R7425		Yes	Yes	3.17.17.17	1.0.7
PowerEdge R840		Yes	Yes	3.19.19.19	1.0.0
PowerEdge R940		Yes	Yes	3.00.00.00	1.0.7
PowerEdge R940xa		Yes	Yes	3.19.19.19	1.0.0
PowerEdge T140	Yes	Yes		3.23.23.23	1.0.1

Platforms	Essentials	Standard	Datacenter	Supported iDRAC version	Supported BIOS version
PowerEdge T340	Yes	Yes		3.23.23.23	1.0.1
PowerEdge T440		Yes	Yes	3.11.11.11	1.0.1
PowerEdge T640		Yes	Yes	3.11.11.11	1.0.1

Table 2. Support for the iDRAC version (2.40.40.40) or later on 13th generation of PowerEdge system

Platforms	Essentials	Standard	Datacenter	Supported BIOS Versions
PowerEdge C4130		Yes	Yes	2.2.5
PowerEdge C6320		Yes	Yes	2.2.5
PowerEdge FC430		Yes	Yes	2.2.5
PowerEdge FC630		Yes	Yes	2.2.5
PowerEdge FC830		Yes	Yes	2.2.5
PowerEdge M630		Yes	Yes	2.2.5
PowerEdge M830		Yes	Yes	2.2.5
PowerEdge R230	Yes	Yes		1.4.5
PowerEdge R330	Yes	Yes		1.4.5
PowerEdge R430		Yes	Yes	2.2.5
PowerEdge R530		Yes	Yes	2.2.5
PowerEdge R630		Yes	Yes	2.2.5
PowerEdge R730		Yes	Yes	2.2.5
PowerEdge R730xd		Yes	Yes	2.2.5
PowerEdge R830		Yes	Yes	1.1.3
PowerEdge R930		Yes	Yes	2.1.3
PowerEdge T130	Yes	Yes		1.4.5
PowerEdge T330	Yes	Yes		1.4.5
PowerEdge T430		Yes	Yes	2.2.5
PowerEdge T630		Yes	Yes	2.2.5

Table 3. Support for the iDRAC version (2.40.40.40) or later on 12th generation of PowerEdge system

Platforms	Essentials	Standard	Datacenter	Supported BIOS Versions
PowerEdge M420		Yes	Yes	2.4.2
PowerEdge M520		Yes	Yes	2.4.2
PowerEdge M620		Yes	Yes	2.5.4
PowerEdge M820		Yes	Yes	2.3.3
PowerEdge R220	Yes	Yes		1.9.0

Platforms	Essentials	Standard	Datacenter	Supported BIOS Versions
PowerEdge R320	Yes	Yes		2.4.2
PowerEdge R420		Yes	Yes	2.4.2
PowerEdge R520		Yes	Yes	2.4.2
PowerEdge R620		Yes	Yes	2.5.4
PowerEdge R720		Yes	Yes	2.5.4
PowerEdge R820		Yes	Yes	2.3.4
PowerEdge R920		Yes	Yes	1.6.2
PowerEdge T20	Yes	Yes		A09
PowerEdge T320	Yes	Yes		2.4.2
PowerEdge T420		Yes	Yes	2.4.2
PowerEdge T620		Yes	Yes	2.5.4

Systems Management support for Microsoft Windows Server 2016

Dell OpenManage 8.4 and later supports Microsoft Windows Server 2016. For more information about the installation of OpenManage, see the *OpenManage System Management Installation Guide* at Dell.com/openmanagemanuals.

Multilingual operating system media for Windows Server 2016

With the Windows Server 2016 release, the Dell EMC systems are shipped with a multilingual operating system interface that provides a list of supported languages. When you power on your system for the first time or reinstall the operating system using a Dell EMC provided media, you can select the language of your choice.

With the new multilingual operating system media, you have the flexibility to reinstall the operating system in the language of your choice.

Deploying operating system by using multilingual DVD media

To deploy the operating system by using the multilingual DVD media:

- 1 Boot to the operating system media.
- 2 Select the language of your choice from the **Language Selection** screen and follow the instructions.

NOTE: Simplified Chinese and Traditional Chinese images are provided in separate DVDs.

Pre-Installed Virtual Machine

If you select **enable hyper-v role** at **Dell.com**, you are provided with a pre-installed virtual machine. You can use the virtual machine files at **C:\Dell_OEM\VM** in your server along with the Hyper-V Manager to import virtual machines on this system, subject to Microsoft's license. For more information on the terms of licensing, see the *End User License Agreement* shipped with your product.

The VM at C:\Dell_OEM\VM allows you to select the appropriate language during the setup process. The virtual hard disk attached to this VM is of dynamically expanding type and can be converted to fixed type.

NOTE: The virtual hard disk (VHD) attached to the VM is of dynamically expanding type which can grow up to a maximum of 127 GB. To increase the virtual disk space, create a new virtual hard disk and attach it to the same VM. To convert the virtual hard disk, provided by Dell EMC, from a dynamically expanding to a fixed disk, ensure that you have a minimum of 127 GB of space in your server before conversion.

Importing virtual machine

- 1 Go to **Hyper-V Manager** in your operating system.
- 2 Select and right-click the server in the **Hyper-V Manager**.
- 3 Select **Import Virtual Machine**.
- 4 In **Import Virtual Machine Wizard** provide the path of the VM and import it.

To activate the VM created using the sysprepped the VHDx file, use the virtual product key on the certificate of authenticity (COA) sticker affixed on the system. If your server is shipped with the data center edition of the operating system, you can also auto activate the VM by using Automatic Virtual Machine Activation (AVMA) keys from Microsoft. For more information on how to activate the AVMA keys, see the article Automatic Virtual Machine Activation on www.Technet.microsoft.com.

You can perform security updates using standard methods before placing the system into production.

NOTE: It is recommended that you create a backup of the VM. If there is loss or damage, Dell EMC does not provide a replacement file.

Retrieving Integrated Dell Remote Access Controller (iDRAC) IP address

A PowerShell module `DellTools.psm1` is located in the C:\Dell_OEM\PSModule. This folder is installed at the factory, to assist with common tasks.

This module includes commands that allow you to access the iDRAC IP address from the operating system.

To retrieve the iDRAC IP Address, type the following command, and press ENTER.

```
Get-iDRACIPAddress
```

This function retrieves the IPv4 values only.

NOTE: This script must be tested with all your applications and supported the Server Core roles before using it in a production environment.

Operating system support matrix for Dell EMC PowerEdge servers

Windows Server OS can be installed only on selected Dell EMC PowerEdge servers. For a list of the Dell EMC supported PowerEdge servers and OS combinations, see the *Operating System Support Matrix for Dell EMC PowerEdge Systems* at Dell.com/ossupport.

Microsoft Windows videos for Dell EMC PowerEdge servers

Table 4. Microsoft Windows videos for Dell EMC PowerEdge servers

Video title	Links
Installing Microsoft Windows 2019 operating system in UEFI mode by using Dell Lifecycle Controller	https://www.youtube.com/watch?v=3uCuQKNIQpY
Manually Installing Microsoft Windows 2019 OS in UEFI mode	https://www.youtube.com/watch?v=R52bPpl3rnk

Known Issues

Administrative template errors occur when starting local group policy editor

- Description:** Administrative template errors occur when Dell EMC customized multilingual image is used and the Japanese language is installed on the system. The following errors occur twice when starting local group policy editor after the operating system is installed:
- Error 1:
Resource '\$(string.NewTab_AboutNewsFeed)' (Browse attribute of displayName) was not found.
File C:\Windows\PolicyDefinitions\inetres.admx, line 2975, column 61
 - Error 2:
Policy presentation element 'CorpWUContentHost_Name' in referenced presentation 'CorpWuURL' does not exist.
File C:\Windows\PolicyDefinitions\WindowsUpdate.admx, line 368, column 99
- Workaround:** Microsoft already released the KB which carries the fix. Perform the following steps to resolve the issue:
- 1 Download and install the KB4343887 MSU file.
 - 2 Restart the system to complete the update.

I/O errors or unresponsive virtual machines

- Description** The issue occurs on Dell EMC hardware that is configured for failover cluster and have attached shared storage hosting multiple virtual machines with Multipath I/O (MPIO) enabled. If you perform multiple removals and installations of the PowerEdge MX5016s storage expander module, or if you remove and install the PowerEdge MX5000s SAS I/O module, I/O errors occur and the virtual machines goes to unresponsive or failed state. This issue may cause the Cluster Shared volume to go to failed state.
- Workaround**
- 1 For servers running Shared Storage Cluster on Windows Server 2016, install Microsoft KB4457127 or a latest update package from Windows Update service on all the nodes that are part of the cluster.
 - 2 Create a registry key, Reg_DWORD with a value 0x1 in the following registry path on all the cluster nodes:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\StorPort\QoSFlags.
 - 3 Restart the nodes to enable the registry key.
- Affected Systems**
- PowerEdge MX7000 chassis with PowerEdge MX740c or PowerEdge MX840c compute nodes and PowerEdge MX5016s storage sleds
 - Any Rx4x or Tx4x PowerEdge servers with external storage array attached

Cluster VD errors logged during I/O operation

Description: Cluster VD errors are logged during I/O operation when PowerEdge MX740c or PowerEdge MX840c compute nodes and PowerEdge MX5016s servers are configured with Storage Spaces clustering and shared storage with Multi-Path I/O.

Workaround: This is a known issue in Windows Server 2016, and Microsoft is aware of this issue. This issue is fixed in the September 2018 monthly update of Windows Server 2016. You must install this patch before configuring the PowerEdge MX5016s server in a shared storage mode (Enclosure Mode).

Bus type of NVDIMMs displayed as Unknown

Description: NVDIMMs are displayed as *Unknown* under Bus type in Windows Server 2016 storage spaces graphical interface.

Workaround: This is a known issue in Windows Server 2016 and Microsoft is aware of this issue. This issue is planned to be fixed in future Windows updates. As a workaround, to view the Bus type of the NVDIMMs run the following shell command: **Get-PhysicalDisk | fl**
On running the above command, the correct Bus type for NVDIMMs is displayed: **SCM**.

Windows Blue Screen error while booting from iSCSI target and Intel i350 initiator

Description: Using Windows 2016 in-box Intel iSCSI drivers for boot from the iSCSI target, an error is encountered: **STOP 0x7B Inaccessible Boot Device Blue Screen while booting from Intel i350-t Adapter initiator**. This issue is limited to the in-box Intel i350 driver in the Windows 2016 operating system installation media images.

Workaround: Dell EMC has released a new out of the box Intel i350 driver package that carries the fix for this issue. Download the drivers from the Dell support site for your respective server. By performing the following steps, you can manually choose Intel iSCSI driver during the Windows installation:

- 1 Unzip the files from the **Network_Driver_3PT51_WN64_18.0.0_A00.exe** Dell Update Package (DUP) to a USB thumb drive by running following command from an elevated command prompt:
`Network_Driver_XXXXX_WN64_XX.X.X_A00.exe /s /drivers=C:\mydir`
- 2 Click **Load Driver** and choose the new driver from the USB drive that you had unzipped.
- 3 Complete the installation using this new driver.

For detailed information, see [Windows Blue Screen booting from iSCSI Target and Intel i350 Initiator](#).

Drivers without inbox support

The following table lists the drivers without inbox support for Windows Server 2016:

Table 5. Drivers without inbox support

Windows 2016
AMD and NVIDIA Add-On display driver for Dell's 12 th , 13 th and 14 th generation of PowerEdge systems
Software RAID PERC S110, S130 and S140
Matrox G200W and G200eR embedded video controllers
BCM57402 NetXtreme-E Dual-port 10 Gb Ethernet (Broadcom)

Windows 2016
BCM57404 NetXtreme-E Dual-port 10 Gb/25 Gb Ethernet (Broadcom)
BCM57406 NetXtreme-E Dual-port 10 GbBase-T Ethernet (Broadcom)
Emulex Engine (XE) 100 series (Skyhawk)—NIC and FCoE drivers are inbox, only for iSCSI hardware offload out of box drivers are needed

① | **NOTE:** For more information on drivers without inbox support, go to [Dell TechCenter](#).

① | **NOTE:** For the latest driver updates, go to Dell.com/support/drivers.

Operating system name is displayed incorrectly

Description: The Special Administration Console (SAC) interface redirects text output from features, like Recovery Console through the out-of-band port. iDRAC is the out-of-band port, which connects to a remote computer running a terminal emulation software (Command prompt, in this scenario). The system with Windows Server 2016 operating system displays the product name as Windows Server 2012 R2 in the SAC interface by issuing `ipd` command.

Workaround: The fix is available in the 9D Cumulative Update for Microsoft Windows Server 2016. For more information about this update, download the Windows update catalog server details listed at [Microsoft Knowledge Base Article 3192366](#).

Unable to convert Windows Server Core to OS with Desktop Experience

Description: Unlike previous versions of Windows Server, Microsoft Windows Server 2016 does not support the conversion between Windows Server and Server with Desktop Experience.

Workaround: To change the operating system type, reinstall the Windows Server 2016 operating system. For more information about installation options for Windows Server 2016, see [Windows Server 2016](#) documentation.

Unable to boot into Windows Server 2016 if Host Guardian Hyper-V Support or Device Guard is enabled on PERC H330

Description: When you enable **Host Guardian Hyper-V Support** or **Device Guard** on PERC H330, the system does not able to boot in to Windows 2016 operating system. It requires reimaging the operating system or restoring from backup. Although the failure regularly occurs on a virtual disk with RAID 5, it also could occur for other RAID levels with different circumstances, such as a RAID 1 VD in degraded state. All partitions created on the H330 controller may be affected.

Workaround: Do not enable the **Host Guardian Hyper-V Support**, or **Device Guard** feature (through Group Policy). For more information, see the [Dell Knowledge Base page QNA44045](#).

When NVMe device is attached to a running VM, the device is not enumerated

Description: When NVMe device is attached to a virtual machine through Discrete Device Assignment (DDA) feature, the NVMe device is not enumerated successfully after it is hot removed and hot plugged.

Workaround:

Reattach the NVME device to the Virtual Machine.

Perform the following steps to reattach the NVMe device to the Virtual Machine:

- 1 Open a Power Shell with admin privileges.
- 2 After hot plugging the device, run `Get-PnpDevice` to identify the device and get the location path.
- 3 Remove the VMHost assignable device by running the following command:

```
Remove-VMAssignableDevice -locationpath $locationpath -VMName "VM-Name"
```

\$locationpath is the location path from the step 2 and VM-Name is the name of the VM, where device was attached.

- 4 Attach the device back to the VM by running the following command:

```
Add-VMHostAssignableDevice -locationpath $locationpath -VMName "VM-Name"
```

Unable to modify or create TPM password, system displays error message

Description:

When you want to create or modify the TPM password, you require the TPM owner password.

Workaround:

To perform this, first enable the **TPM** option under **BIOS setup**, and reboot to Windows Server 2016. Then, launch the **Windows TPM Software** (tpm.msc), and click **Change Owner Password**, a message is displayed as Supply your current TPM owner password to change to a new TPM owner password. Microsoft has made changes to the TPM owner password feature in Windows Server 2016, and it is in line with the Windows 10 client OS TPM feature. For more information, go to [Change the TPM owner password](#).

Getting help

Topics:

- [Contacting Dell EMC](#)
- [Documentation and video resources](#)
- [Download the drivers and firmware](#)
- [Documentation feedback](#)

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.

Documentation and video resources

Table 6. Additional documentation and video resources for your server

Task	Description	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> document that is shipped with your server.	www.dell.com/poweredgemanuals
	For information about turning on the server and the technical specifications of your server, see the <i>Getting Started</i> document that is shipped with your server.	www.dell.com/poweredgemanuals
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> .	www.dell.com/idracmanuals
	For information about installing the operating system, see the operating system documentation.	www.dell.com/operatingsystemmanuals
	For information about understanding Remote Access Controller Admin	www.dell.com/idracmanuals

Task	Description	Location
Managing your server	(RACADM) subcommands and supported RACADM interfaces, see the <i>RACADM Command Line Reference Guide for iDRAC</i> .	
	For information about updating drivers and firmware, see the "Download drivers and firmware" section in this document.	Dell.com/support/drivers
	For information about servers management software offered by Dell, see the <i>Dell OpenManage Systems Management Overview Guide</i> .	www.dell.com/openmanagemanuals
	For information about setting up, using, and troubleshooting OpenManage, see the <i>Dell OpenManage Server Administrator User's Guide</i> .	www.dell.com/openmanagemanuals
	For information about installing, using, and troubleshooting Dell OpenManage Essentials, see the <i>Dell OpenManage Essentials User's Guide</i> .	www.dell.com/openmanagemanuals
	For information about installing and using Dell System E-Support Tool (DSET), see the <i>Dell System E-Support Tool (DSET) User's Guide</i> .	www.dell.com/supportassist
	For information about installing and using Active System Manager (ASM), see the <i>Active System Manager User's Guide</i> .	Dell.com/asmdocs
	For understanding the features of Dell Lifecycle Controller (LCC), see the <i>Dell Lifecycle Controller User's Guide</i> .	www.dell.com/idracmanuals
	For information about partner programs enterprise systems management, see the <i>OpenManage Connections Enterprise Systems Management</i> documents.	www.dell.com/OME-modular
	For information about connections and client systems management, see the <i>OpenManage Connections Client Systems Management</i> documentation.	www.dell.com/omconnectionsclient
	For information about viewing inventory, performing configuration, and monitoring tasks, remotely	www.dell.com/cmcmmanuals

Task	Description	Location
	turning on or off servers, and enabling alerts for events on servers and components using the Dell Chassis Management Controller (CMC), see the CMC User's Guide.	
Working with the Dell PowerEdge RAID controllers	For information about understanding the features of the Dell 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 <i>Dell Event and Error Messages Reference Guide</i> .	www.dell.com/openmanagemanuals
Installing MS Windows Server OS in UEFI Mode using Lifecycle Controller		www.youtube.com/watch?v=3uCuQKNlQpY
Manually installing MS Windows Server OS in UEFI Mode		www.youtube.com/watch?v=R52bPpl3rnk

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.