Microsoft Windows Server 2019 for Dell EMC PowerEdge Servers

Release Notes
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.
Microsoft Windows Server 2019 is the follow-on Operating System (OS) release to the Windows Server 2016 operating system. Major enhancements in Windows Server 2019 are improvements in security and guest operating systems. Microsoft is targeting cloud and hosting providers specifically with this release.

For details about previous releases, click the following links:

- Windows Server 2016
- Windows Server 2012 R2

Release date

February 2019

Priority and recommendations

RECOMMENDED: Dell EMC recommends applying this update during your next scheduled update cycle. The update contains feature enhancements or changes that help keep your system software current and compatible with other system modules (firmware, BIOS, drivers, and software).
Compatibility

Topics:

- iDRAC, BIOS, system firmware, RAID controller driver versions
- Supported Dell EMC System Management application for Microsoft Windows Server 2019
- Devices with out-of-box driver support
- Drivers with inbox support

iDRAC, BIOS, system firmware, RAID controller driver versions

**NOTE:** The X indicates the PowerEdge servers on which the Microsoft 2019 operating system is supported.

For the latest list of Microsoft Windows Server operating systems supported on Dell EMC PowerEdge servers, see Dell.com/ossupport.

<table>
<thead>
<tr>
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Table 2. Supported platforms, and minimum supported BIOS and iDRAC version on Dell EMC 14th generation of Power Edge servers

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<th>Platforms</th>
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Supported Dell EMC System Management application for Microsoft Windows Server 2019

Dell OpenManage version 9.2.1 and later supports Microsoft Windows Server 2019. For more information about the installation of Dell OpenManage, see the OpenManage System Management Installation Guide at www.dell.com/openmanagemanuals.
Devices with out-of-box driver support

Following are the drivers with out-of-box support for Windows Server 2019:

- Intel Chipset drivers for 14th Generation (14G) PowerEdge servers
- Intel Chipset drivers for 13th Generation (13G) PowerEdge servers
- AMD Chipset drivers for 14th Generation (14G) PowerEdge servers
- Dell EMC PERC S130 drivers
- Broadcom NetXtreme drivers
- Emulex Network drivers

Drivers with inbox support

The drivers with inbox support for Windows Server 2019 are listed below:

- Dell EMC PERC 9 family of drivers
- Dell EMC PERC 10 family of drivers
- Broadcom NetXtreme drivers
- Emulex Network drivers
- Intel Network drivers
- Qlogic Network drivers
- Mellanox Network drivers

NOTE:

- For more information about drivers without inbox support, see OS and Applications Knowledge Base.
- For the latest driver updates, see Dell.com/support/drivers.
New and enhanced in Windows Server 2019 OS release

A high-level overview of the features that are introduced in this release are:

- Connect to Azure
  - Windows Azure stack
  - Seamless Hyper-V Network Virtualization (HNV)
  - Bottomless storage (StorSimple, and Azure Site Recovery (ASR))
- Cloud foundation
  - Software Defined Everything (SDS, SDN, and SDC)
- Assurance
  - Provides the most secure cloud computing environment
- Cloud operations
  - Hybrid cloud as the new norm
- Security
  - Host Guardian Service (HGS)
  - Network encryption
  - Shielded VMs—Linux
- Storage
  - Storage Spaces Direct
  - Storage Migration Service
  - Storage Replica

For more information about what is new and enhanced in this release, see https://docs.microsoft.com/en-us/windows-server/get-started-19/whats-new-19.
Not Applicable.
Not Applicable.
Known issues—To be fixed in future releases

Topics:
- I/O errors or unresponsive virtual machines
- BSOD is displayed when installing chipset driver by using a Broadcom network card
- BSOD is continuously displayed when installing chipset driver
- DPC is displayed when installing chipset driver by using a BRCM rNDC card
- Unable to delete NVDIMM storage pool
- Unable to delete virtual switch after NPAR and NPAR+SR-IOV mode in Intel X710 network card is enabled
- Generation 2 VM stops responding in the bootloader screen

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 machine goes to unresponsive or failed state. This issue may cause the Cluster Shared volume to go to failed state.

Workaround
1. 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.
2. 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

Tracking number 103498

BSOD is displayed when installing chipset driver by using a Broadcom network card

Description
A Blue Screen of Death (BSOD) with Stop error code, DRIVER_IRQL_NOT_LESS_OR_EQUAL is displayed when installing chipset driver on to the Smart Under Test (SUT). BSOD error occurs only when all the network device ports are connected.

Workaround
Do one of the following:
1. Workaround 1: Extract the chipset drivers, and install using Command Line Interface (CLI).
   a. Right-click the chipset driver installer, and then click Run as administrator.
   b. Click Extract.
c Create a temporary folder on the desktop to extract the drivers.

For example: C:\Users\User_Name\Desktop\Driver\.

After extraction, the following content of the drivers is displayed:

![Figure 2. Contents of chipset drivers](image)

Windows Server 2019 chipset drivers are located at C:\Users\User_Name\Desktop\Driver\DriverFiles\production\Windows10-x64.

d Start Command Line Interface (CLI) by using the Run as administrator option.

e Run `pnputil /add-driver *.inf`. This option loads only the chipset drivers in the driver repository. It may take few minutes to load the chipset drivers.
Figure 3. Run `pnputil/add-driver`

1. Restart the host machine, and boot into the OS after the chipset drivers are loaded successfully.

2. Workaround 2:
   
   Disable all the network device ports in the operating system, and then install the chipset drivers.

3. Workaround 3:
   
   Disable Integrated Network Device in BIOS, and then install the chipset drivers. To disable integrated network device in BIOS:
   
   a. Click BIOS > Integrated Services.
   b. Select Disable Network Device, and then boot the operating system.

Affected Systems: All systems

Tracking number: 111848

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**BSOD is continuously displayed when installing chipset driver**

**Description**

The Blue Screen of Death (BSOD) error occurs during the following scenarios of chipset driver installation:

- On a server where an operating system is installed by using PowerEdge RAID Controller S140 as the storage controller
- QLogic as the network device

**Workaround**

Use either Onboard AHCI or PERC 9 or PERC 10 storage controller instead of S140.

**Affected Systems**

Dell EMC PowerEdge RAID Controller S140

**Tracking number**

111840

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**DPC is displayed when installing chipset driver by using a BRCM rNDC card**

**Description**

The Deferred Procedure Call (DPC) watchdog violation BSOD error is displayed when the chipset driver is installed on a system having a Broadcom network card.

**Workaround**

Do one of the following:

1. Workaround 1: Extract the chipset drivers, and install using Command Line Interface (CLI).
   a. Right-click the chipset driver installer, and then click **Run as administrator**.
   b. Click **Extract**.

Known issues—To be fixed in future releases
c Create a temporary folder on the desktop to extract the drivers.

For example: C:\Users\User_Name\Desktop\Driver\.

After extraction, the following content of the drivers is displayed:

Windows Server 2019 chipset drivers are located at C:\Users\User_Name\Desktop\Driver\DriverFiles\production\Windows10-x64.

d Start Command Line Interface (CLI) by using the Run as administrator option.

e Run `pnputil /add-driver *.inf`. This option loads only the chipset drivers in the driver repository. It may take few minutes to load the chipset drivers.
Figure 6. Run `pnputil` / `add-driver` to add the chipset drivers.

1. Restart the host machine, and boot into the OS after the chipset drivers are loaded successfully.

2. **Workaround 2:**
   Disable all the network device ports in the OS, and then install the chipset drivers.

3. **Workaround 3:**
   Disable Integrated Network Device in BIOS, and then install the chipset drivers. To disable integrated network device in BIOS:
   a. Click **BIOS > Integrated Services**.
   b. Select **Disable Network Device**, and then boot the OS.

### Affected Systems
- Systems with Broadcom network card

### Tracking number
- 106976

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### Unable to delete NVDIMM storage pool

**Description**
A storage pool is created by converting NVDIMMs into storage drives. When you delete the storage pool, the pool state indicates the status as deleted, but the storage pool reappears after rescanning the drives.

**Workaround**
Run the `Initialize-PmemPhysicalDisk` PowerShell command for NVDIMM drives.

**Affected Systems**
- All systems

**Tracking number**
- 113286

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### Unable to delete virtual switch after NPAR and NPAR + SR-IOV mode in Intel X710 network card is enabled

**Description**
After enabling NPAR, and NPAR + SRIOV for Intel X710 network card, operations such as creation and deletion of virtual switch fail. The process stops responding at the creation or deletion screen, and has to be forcibly ended by using the task manager.

**Workaround**
No workaround.

**Affected Systems**
- All systems

**Tracking number**
- 111722

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### Generation 2 VM stops responding in the bootloader screen

**Description**
The 2nd generation VM stops responding at the bootloader screen every time you restart the VM. Resume the VM by manually pressing the Enter button.

**Workaround**
Disable the bootloader screen display in the operating system settings.

**Affected Systems**
- All systems

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**Known issues—To be fixed in future releases**
Limitations

Not Applicable.
Installing and upgrading Windows Server 2019

Topics:
• Multilingual operating system media for Windows Server 2019
• Pre-installed VM
• Installing Microsoft Windows Server 2019 on PowerEdge servers
• Upgrading from earlier versions of Windows Server to Windows Server 2019

Multilingual operating system media for Windows Server 2019

With the Windows Server 2019 release, the PowerEdge servers 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 by using a Dell EMC provided media, you can select the language of your choice.

Deploy operating system by using multilingual DVD media

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

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

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

Pre-installed VM

If you select Hyper-V role enabled while ordering a server at www.dell.com/en-us/work/shop/ecat/enterprise-products, you are provided with a pre-installed virtual machine. You can use the virtual machine files available at C:\Dell_OEM\VM in your server along with the Hyper-V Manager to import virtual machines on this system, under the normal licensing restrictions of Microsoft. For more information about the terms of licensing, see the End User License Agreement that is shipped with your product.

The VM available at C:\Dell_OEM\VM allows you to select the appropriate language during the setup process. The Virtual Drive (VD) attached to this VM is of dynamically expanding type and can be converted to fixed type.
NOTE:

- The VD attached to the VM is of dynamically expanding type which can grow up to a maximum of 127 GB. To increase the VD space, create a VD and attach to the same VM. To convert the VD provided by Dell EMC, from a dynamically expanding to a fixed drive, ensure that you have a minimum of 127 GB of disk space in your server before conversion.
- Windows Server Datacenter edition has the right to include unlimited number of VM instances. These VMs are activated automatically using Automatic Virtual Machine Activation (AVMA) process by Microsoft. For more information, see Automatic virtual machine activation section at www.docs.microsoft.com/en-us/windows-server/get-started-19/vm-activation-19.
- The Windows Server Standard Edition includes the right to two VM instances. However, extra VM licensing, in increments of two VMs, is available and can be purchased separately.

Using the virtual machine

To use the VM:

1. Go to Hyper-V Manager in your operating system.
2. Select and right-click the server in the Hyper-V Manager.
4. In the Import Virtual Machine Wizard, go to the path where the virtual machine is created, and open the respective file.

To activate the VM, created by using the sysprepped VHDx file, use the virtual product key on the Certificate of Authenticity (COA) sticker that is affixed on the system. If your server is shipped with the data center edition of the operating system, you can auto activate the VM by using Automatic Virtual Machine Activation (AVMA) keys from Microsoft. For more information about 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.

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

Retrieve Integrated Dell Remote Access Controller (iDRAC) IP address

To retrieve the iDRAC IP address, open PowerShell, and run the following command at the CLI:

```
Get-PCSDevice | fl IPV4Address
```

Installing Microsoft Windows Server 2019 on PowerEdge servers


Upgrading from earlier versions of Windows Server to Windows Server 2019

Dell EMC does not support in-place upgrade from Windows Server 2012 R2 or Windows Server 2016 to Windows Server 2019.
Operating system support matrix for Dell EMC PowerEdge servers

Windows Server operating system can be installed only on selected Dell EMC PowerEdge servers. For the list of Dell EMC PowerEdge servers and supported operating systems, see Microsoft Server operating systems supported on specific PowerEdge models available at Dell.com/ossupport.

Microsoft Windows Server 2019 videos for Dell EMC PowerEdge servers

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Documentation resources

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

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<thead>
<tr>
<th>Task</th>
<th>Document</th>
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<td>Setting up your server</td>
<td>For information about installing the server into a rack, see the Rack documentation included with your rack solution or the Getting Started With Your System document that is shipped with your server.</td>
<td><a href="http://www.dell.com/poweredgemanuals">www.dell.com/poweredgemanuals</a></td>
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<td>For information about turning on the server and the technical specifications of your server, see the Getting Started With Your System document that is shipped with your server.</td>
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<td></td>
<td>For information about understanding Remote Access Controller Admin (RACADM) subcommands and supported RACADM interfaces, see the <em>RACADM Command Line Reference Guide for iDRAC.</em></td>
<td><a href="http://www.dell.com/idracmanuals">www.dell.com/idracmanuals</a></td>
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<td>For information about updating drivers and firmware, see “Downloading the drivers and firmware” topic in this document.</td>
<td><a href="http://Dell.com/support/drivers">Dell.com/support/drivers</a></td>
</tr>
<tr>
<td>Managing your server</td>
<td>For information about server management software offered by Dell EMC, see the Dell EMC OpenManage Systems Management Overview Guide.</td>
<td><a href="http://www.dell.com/openmanagemanuals">www.dell.com/openmanagemanuals</a></td>
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<td>For information about setting up, using, and troubleshooting OpenManage, see the Dell EMC <em>OpenManage Server Administrator User’s Guide.</em></td>
<td><a href="http://www.dell.com/openmanagemanuals">www.dell.com/openmanagemanuals</a></td>
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<td>For information about installing, using, and troubleshooting Dell EMC OpenManage Essentials, see the <em>Dell EMC OpenManage Essentials User’s Guide.</em></td>
<td><a href="http://www.dell.com/openmanagemanuals">www.dell.com/openmanagemanuals</a></td>
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<td>For information about installing and using Dell SupportAssist, see the <em>Dell EMC SupportAssist Enterprise User’s Guide.</em></td>
<td><a href="http://www.dell.com/serviceabilitytools">www.dell.com/serviceabilitytools</a></td>
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<td>For understanding the features of Dell EMC Lifecycle Controller (LC), see the <em>Lifecycle Controller User’s Guide.</em></td>
<td><a href="http://www.dell.com/idracmanuals">www.dell.com/idracmanuals</a></td>
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<td>For information about partner programs enterprise systems management, see the <em>OpenManage Connections Enterprise Systems Management documents.</em></td>
<td><a href="http://www.dell.com/esmmanuals">www.dell.com/esmmanuals</a></td>
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<td>For information about viewing inventory, performing configuration, and monitoring tasks, remotely turning on or off servers, and</td>
<td><a href="http://www.dell.com/esmmanuals">www.dell.com/esmmanuals</a></td>
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enabling alerts for events on servers and components using the Dell EMC Chassis Management Controller (CMC), see the CMC User’s Guide.

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.

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 Messages Reference Guide.

Troubleshooting your system
For information about identifying and troubleshooting the PowerEdge server issues, see the Server Troubleshooting Guide.

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.
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.