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Chapter 1. 
RELEASE NOTES

These Release Notes summarize current status, information on validated platforms, and known issues with NVIDIA vGPU software and associated hardware on Microsoft Windows Server.

The most current version of the documentation for this release of NVIDIA vGPU software can be found online at NVIDIA Virtual GPU Software Documentation.

The releases in this release family of NVIDIA vGPU software include the software listed in the following table:

<table>
<thead>
<tr>
<th>Software</th>
<th>10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVIDIA Windows driver</td>
<td>441.66</td>
</tr>
<tr>
<td>NVIDIA Linux driver</td>
<td>440.43</td>
</tr>
</tbody>
</table>

All releases of NVIDIA vGPU software are compatible with all releases of the license server.

1.1. Updates in Release 10.0

New Features in Release 10.0

- Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 10.0

- Support for passively cooled Quadro RTX 6000 and Quadro RTX 8000 GPUs
- Support for Tesla V100S PCIe 32GB GPUs
- Support for Windows 10 November 2019 Update (1909) as a guest OS
Chapter 2.
VALIDATED PLATFORMS

This release family of NVIDIA vGPU software provides support for several NVIDIA GPUs on validated server hardware platforms, Microsoft Windows Server hypervisor software versions, and guest operating systems.

2.1. Supported NVIDIA GPUs and Validated Server Platforms

This release of NVIDIA vGPU software provides support for the following NVIDIA GPUs on Microsoft Windows Server, running on validated server hardware platforms:

- GPUs based on the NVIDIA Maxwell™ graphic architecture:
  - Tesla M6
  - Tesla M10
  - Tesla M60
- GPUs based on the NVIDIA Pascal™ architecture:
  - Tesla P4
  - Tesla P6
  - Tesla P40
  - Tesla P100 PCIe 16 GB
  - Tesla P100 SXM2 16 GB
  - Tesla P100 PCIe 12GB
- GPUs based on the NVIDIA Volta architecture:
  - Tesla V100 SXM2
  - Tesla V100 SXM2 32GB
  - Tesla V100 PCIe
  - Tesla V100 PCIe 32GB
  - Tesla V100S PCIe 32GB
Validated Platforms

- Tesla V100 FHHL
- GPUs based on the NVIDIA Turing™ architecture:
  - Tesla T4
  - Quadro RTX 6000 in displayless mode
  - Quadro RTX 6000 passive in displayless mode
  - Quadro RTX 8000 in displayless mode
  - Quadro RTX 8000 passive in displayless mode

In displayless mode, local physical display connectors are disabled.

These GPUs are supported as a secondary device in a bare-metal deployment. Tesla M6 is also supported as the primary display device in a bare-metal deployment.

For a list of validated server platforms, refer to NVIDIA GRID Certified Servers.

2.2. Hypervisor Software Releases

This release supports only the hypervisor software versions listed in the table.

If a specific release, even an update release, is not listed, it’s not supported.

<table>
<thead>
<tr>
<th>Software</th>
<th>Version Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows Server</td>
<td>Windows Server 2019 with Hyper-V role</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2016 1803 with Hyper-V role</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2016 1709 with Hyper-V role</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2016 1607 with Hyper-V role</td>
</tr>
</tbody>
</table>

2.3. Guest OS Support

NVIDIA vGPU software supports several Windows releases and Linux distributions as a guest OS using GPU pass-through.

Microsoft Windows Server with Hyper-V role supports GPU pass-through over Microsoft Virtual PCI bus. This bus is supported through paravirtualized drivers.

Use only a guest OS release that is listed as supported by NVIDIA vGPU software with your virtualization software. To be listed as supported, a guest OS release must be supported not only by NVIDIA vGPU software, but also by your virtualization software. NVIDIA cannot support guest OS releases that your virtualization software does not support.
NVIDIA vGPU software supports only 64-bit guest operating systems. No 32-bit guest operating systems are supported.

2.3.1. Windows Guest OS Support

NVIDIA vGPU software supports only the 64-bit Windows releases listed as a guest OS on Microsoft Windows Server.

If a specific release, even an update release, is not listed, it’s not supported.

- Windows Server 2019
- Windows Server 2016 1607, 1709
- Windows Server 2012 R2 with patch Windows8.1-KB3133690-x64.msu
- Windows 10
  - November 2019 Update (1909)
  - May 2019 Update (1903)
  - October 2018 Update (1809)
  - Spring Creators Update (1803)
  - Fall Creators Update (1709)
  - Creators Update (1703)
  - Anniversary Update (1607)
  - November Update (1511)
  - RTM (1507)

2.3.2. Linux Guest OS Support

NVIDIA vGPU software supports only the 64-bit Linux distributions listed as a guest OS on Microsoft Windows Server.

If a specific release, even an update release, is not listed, it’s not supported.

- Red Hat Enterprise Linux 7.0-7.7
- CentOS 7.0-7.7
- Ubuntu 18.04 LTS
- Ubuntu 16.04 LTS
- SUSE Linux Enterprise Server 12 SP2
3.1. Blue screen crash occurs or no devices are found after VM reset

Description
If a VM on Microsoft Windows Server with Hyper-V role is reset from the hypervisor host, a blue screen crash (BSOD) occurs on Windows VMs and the `nvidia-smi` command reports `No devices were found` on Linux VMs. This issue occurs only with Tesla T4 GPUs with SRIOV enabled, Quadro RTX 8000 passive GPUs, and Quadro RTX 6000 passive GPUs.

Workaround
Perform a manual secondary bus reset (SBR) and restart the VM.

Status
Not an NVIDIA bug

Ref. #
200567935
3.2. Publisher not verified warning during Windows 7 driver installation

Description
During installation of the NVIDIA vGPU software graphics driver for Windows on Windows 7, Windows warns that it can't verify the publisher of the driver software. If Device Manager is used to install the driver, Device Manager warns that the driver is not digitally signed. If you install the driver, error 52 (CM_PROB_UNSIGNED_DRIVER) occurs.

This issue occurs because Microsoft is no longer dual signing WHQL-tested software binary files by using the SHA-1 and SHA-2 hash algorithms. Instead, WHQL-tested software binary files are signed only by using the SHA-2 hash algorithm. All NVIDIA vGPU software graphics drivers for Windows are WHQL tested.

By default, Windows 7 systems cannot recognize signatures that were created by using the SHA-2 hash algorithm. As a result, software binary files that are signed only by using the SHA-2 hash algorithm are considered unsigned.

For more information, see 2019 SHA-2 Code Signing Support requirement for Windows and WSUS on the Microsoft Windows support website.

Version
Windows 7

Workaround
If you experience this issue, install the following updates and restart the VM or host before installing the driver:

- Servicing stack update (SSU) (KB4490628)
- SHA-2 update (KB4474419)

Status
Not a bug
3.3. Frame capture while the interactive logon message is displayed returns blank screen

**Description**

Because of a known limitation with NvFBC, a frame capture while the interactive logon message is displayed returns a blank screen.

An NvFBC session can capture screen updates that occur after the session is created. Before the logon message appears, there is no screen update after the message is shown and, therefore, a black screen is returned instead. If the NvFBC session is created after this update has occurred, NvFBC cannot get a frame to capture.

**Workaround**

Press **Enter** or wait for the screen to update for NvFBC to capture the frame.

**Status**

Not a bug

**Ref. #**

2115733

3.4. RDS sessions do not use the GPU with some Microsoft Windows Server releases

**Description**

When some releases of Windows Server are used as a guest OS, Remote Desktop Services (RDS) sessions do not use the GPU. With these releases, the RDS sessions by default use the Microsoft Basic Render Driver instead of the GPU. This default setting enables 2D DirectX applications such as Microsoft Office to use software rendering, which can be more efficient than using the GPU for rendering. However, as a result, 3D applications that use DirectX are prevented from using the GPU.

**Version**

- Windows Server 2016
- Windows Server 2012
Solution

Change the local computer policy to use the hardware graphics adapter for all RDS sessions.

2. Set the **Use the hardware default graphics adapter for all Remote Desktop Services sessions** option.

3.5. Resolution is not updated after a VM acquires a license and is restarted

Description

In a Red Enterprise Linux 7.3 guest VM, an increase in resolution from 1024×768 to 2560×1600 is not applied after a license is acquired and the **gridd** service is restarted. This issue occurs if the multimonitor parameter is added to the **xorg.conf** file.

Version

Red Enterprise Linux 7.3

Status

Open

Ref. #

200275925

3.6. A segmentation fault in DBus code causes **nvidia-gridd** to exit on Red Hat Enterprise Linux and CentOS

Description

On Red Hat Enterprise Linux 6.8 and 6.9, and CentOS 6.8 and 6.9, a segmentation fault in DBus code causes the **nvidia-gridd** service to exit.

The **nvidia-gridd** service uses DBus for communication with **NVIDIA X Server Settings** to display licensing information through the **Manage License** page. Disabling the GUI for licensing resolves this issue.
To prevent this issue, the GUI for licensing is disabled by default. You might encounter this issue if you have enabled the GUI for licensing and are using Red Hat Enterprise Linux 6.8 or 6.9, or CentOS 6.8 and 6.9.

Version
Red Hat Enterprise Linux 6.8 and 6.9
CentOS 6.8 and 6.9

Status
Open

Ref. #
- 200358191
- 200319854
- 1895945

3.7. No Manage License option available in NVIDIA X Server Settings by default

Description
By default, the Manage License option is not available in NVIDIA X Server Settings. This option is missing because the GUI for licensing on Linux is disabled by default to work around the issue that is described in A segmentation fault in DBus code causes nvidia-gridd to exit on Red Hat Enterprise Linux and CentOS.

Workaround
This workaround requires sudo privileges.

Do not use this workaround with Red Hat Enterprise Linux 6.8 and 6.9 or CentOS 6.8 and 6.9. To prevent a segmentation fault in DBus code from causing the nvidia-gridd service from exiting, the GUI for licensing must be disabled with these OS versions.

If you are licensing a physical GPU for vComputeServer, you must use the configuration file /etc/nvidia/gridd.conf.

1. If NVIDIA X Server Settings is running, shut it down.
2. If the /etc/nvidia/gridd.conf file does not already exist, create it by copying the supplied template file /etc/nvidia/gridd.conf.template.
3. As root, edit the /etc/nvidia/gridd.conf file to set the EnableUI option to TRUE.

4. Start the nvidia-gridd service.

   # sudo service nvidia-gridd start

When NVIDIA X Server Settings is restarted, the Manage License option is now available.

**Status**

Open

### 3.8. Licenses remain checked out when VMs are forcibly powered off

**Description**

NVIDIA vGPU software licenses remain checked out on the license server when non-persistent VMs are forcibly powered off.

The NVIDIA service running in a VM returns checked out licenses when the VM is shut down. In environments where non-persistent licensed VMs are not cleanly shut down, licenses on the license server can become exhausted. For example, this issue can occur in automated test environments where VMs are frequently changing and are not guaranteed to be cleanly shut down. The licenses from such VMs remain checked out against their MAC address for seven days before they time out and become available to other VMs.

**Resolution**

If VMs are routinely being powered off without clean shutdown in your environment, you can avoid this issue by shortening the license borrow period. To shorten the license borrow period, set the LicenseInterval configuration setting in your VM image. For details, refer to Virtual GPU Client Licensing User Guide.

**Status**

Closed

**Ref. #**

1694975
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