VIRTUAL GPU SOFTWARE R384 FOR VMWARE VSPHERE

RN-07347-001 _v5.0 through 5.4 Revision 04 | May 2020

Release Notes

TABLE OF CONTENTS

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 VMware vSphere.

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

Software	5.0	5.1	5.2	5.3	5.4
NVIDIA Virtual GPU Manager for the VMware vSphere releases listed in Hypervisor Software Releases	384.73	384.99	384.111	384.137	384.155
NVIDIA Windows driver	385.41	385.90	386.09	386.37	386.57
NVIDIA Linux driver version	384.73	384.99	384.111	384.137	384.155

Caution

If you install the wrong package for the version of VMware vSphere you are using, NVIDIA Virtual GPU Manager will fail to load.

The releases of the vGPU Manager and guest VM drivers that you install must be compatible. Different versions of the vGPU Manager and guest VM driver from within the same main release branch can be used together. For example, you can use the vGPU Manager from release 5.1 with guest VM drivers from release 5.0. However, versions of the vGPU Manager and guest VM driver from different main release branches cannot be used together. For example, you cannot use the vGPU Manager from release 5.1 with guest VM drivers from release 4.4. See VM running older NVIDIA vGPU drivers fails to initialize vGPU when booted.

This requirement does not apply to the NVIDIA vGPU software license sever. All releases of NVIDIA vGPU software are compatible with **all** releases of the license server.

1.1. Updates in Release 5.0

New Features in Release 5.0

- New NVIDIA vGPU schedulers for GPUs based on the NVIDIA Pascal architecture
- Support for NVML and `nvidia-smi` on 32-bit Windows VMs
- Application-level monitoring of NVIDIA vGPU engine utilization
- Encoder session monitoring
- Support for NVENC on Linux NVIDIA vGPUs
- Support for vGPU metrics in VMware vRealize Operations through a separately available management pack
- Software enforcement of licensing requirements
- Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 5.0

- Support for GPUs based on the NVIDIA® Pascal™ architecture
- Compute mode support for NVIDIA vGPU and pass-through GPU on GPUs based on the NVIDIA Pascal architecture
- Support for VMware vSphere Hypervisor (ESXi) 6.0 update 3

Feature Support Withdrawn in Release 5.0

- GRID K1 and GRID K2 GPUs are no longer supported.
- Ubuntu 12.04 LTS is no longer supported.

1.2. Updates in Release 5.1

New Features in Release 5.1

- Miscellaneous bug fixes

1.3. Updates in Release 5.2

New Features in Release 5.2

- New default values for the license borrow time and license linger time:
  - The default license borrow time is reduced from 7 days to 1 day.
  - The default license linger time is reduced from 10 minutes to 0 minutes.
- New setting `LingerInterval` for overriding the default license linger time

- Miscellaneous bug fixes

1.4. Updates in Release 5.3

New Features in Release 5.3

- Plain-text logging on Windows of significant licensing events
- New setting `EnableLogging` for disabling or enabling logging of significant licensing events
- Miscellaneous bug fixes

1.5. Updates in Release 5.4

New Features in Release 5.4

- Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 5.4

- Support for VMware Horizon 7.5
- Support for Red Hat Enteprise Linux 7.5 and CentOS 7.5 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, VMware vSphere hypervisor software versions, and guest operating systems. It also supports the version of NVIDIA CUDA Toolkit that is compatible with R384 drivers.

2.1. Supported NVIDIA GPUs and Validated Server Platforms

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

- Tesla M6
- Tesla M10
- Tesla M60
- Tesla P4
- Tesla P6
- Tesla P40
- Tesla P100 (vSGA is **not** supported.)
- **Since 5.1:** Tesla P100 12GB (vSGA is **not** supported.)

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

Tesla M60 and M6 GPUs support compute mode and graphics mode. NVIDIA vGPU requires GPUs that support both modes to operate in graphics mode.

Recent Tesla M60 GPUs and M6 GPUs are supplied in graphics mode. However, your GPU might be in compute mode if it is an older Tesla M60 GPU or M6 GPU, or if its mode has previously been changed.

To configure the mode of Tesla M60 and M6 GPUs, use the `gpumodeswitch` tool provided with NVIDIA vGPU software releases.

Requirements for Using vGPU on GPUs Requiring 64 GB of MMIO Space with Large-Memory VMs

Some GPUs require 64 GB of MMIO space. When a vGPU on a GPU that requires 64 GB of MMIO space is assigned to a VM with 32 GB or more of memory on ESXi 6.0 Update 3 and later, or ESXi 6.5 and later updates, the VM's MMIO space must be increased to 64 GB. For more information, see VMware Knowledge Base Article: VMware vSphere VMDirectPath I/O: Requirements for Platforms and Devices (2142307).

The following GPUs require 64 GB of MMIO space:

- Tesla P6
- Tesla P40

Requirements for Using GPUs Based on the Pascal Architecture in Pass-Through Mode

- The Tesla P100 and Tesla P6 GPUs require 32 GB of MMIO space in pass-through mode.
- The Tesla P40 GPU requires 64 GB of MMIO space in pass-through mode.
- Pass through of GPUs with large BAR memory settings has some restrictions on VMware ESXi:
  - The guest OS must be a 64-bit OS.
  - 64-bit MMIO and EFI boot must be enabled for the VM.
  - The guest OS must be able to be installed in EFI boot mode.
  - The Tesla P100 and Tesla P6 require ESXi 6.0 Update 1 and later, or ESXi 6.5 and later.
  - Because it requires 64 GB of MMIO space, the Tesla P40 requires ESXi 6.0 Update 3 and later, or ESXi 6.5 and later.

    As a result, the VM's MMIO space must be increased to 64 GB as explained in VMware Knowledge Base Article: VMware vSphere VMDirectPath I/O: Requirements for Platforms and Devices (2142307).

2.2. Hypervisor Software Releases

Supported VMware vSphere Hypervisor (ESXi) Releases

This release is supported on the VMware vSphere Hypervisor (ESXi) releases listed in the table.

Support for NVIDIA vGPU software requires the Enterprise Plus Edition of VMware vSphere Hypervisor (ESXi). For details, see Compare VMware vSphere Editions (PDF).

Updates to a base release of VMware vSphere Hypervisor (ESXi) are compatible with the base release and can also be used with this version of NVIDIA vGPU software unless expressly stated otherwise.

Software	Release Supported	Notes
VMware vSphere Hypervisor (ESXi) 6.5	6.5 and compatible updates	All NVIDIA GPUs that support NVIDIA vGPU software are supported.
VMware vSphere Hypervisor (ESXi) 6.0	6.0 and compatible updates	All NVIDIA GPUs that support NVIDIA vGPU software are supported.
VMware vSphere Hypervisor (ESXi) 5.5	5.5 and compatible updates	vSGA is **not** supported. Only the following NVIDIA GPUs are supported: ▸ Tesla M6 ▸ Tesla M10 ▸ Tesla M60

Supported Management Software and Virtual Desktop Software Releases

This release is supported on the management software and virtual desktop software releases listed in the table.

Updates to a base release of VMware Horizon and VMware vCenter Server are compatible with the base release and can also be used with this version of NVIDIA vGPU software unless expressly stated otherwise.

Software	Releases Supported
VMware Horizon	**Since 5.4:** 7.5 and compatible 7.5.*x* updates **Since 5.1:** 7.3 and compatible 7.3.*x* updates 7.2 and compatible 7.2.*x* updates 7.1 and compatible 7.1.*x* updates 7.0 and compatible 7.0.*x* updates 6.2 and compatible 6.2.*x* updates
VMware vCenter Server	6.5 and compatible updates 6.0 and compatible updates

2.3. Guest OS Support

NVIDIA vGPU software supports several Windows releases and Linux distributions as a guest OS. The supported guest operating systems depend on the hypervisor software version.

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.

In pass-through mode, GPUs based on the Pascal architecture support only 64-bit guest operating systems. No 32-bit guest operating systems are supported in pass-through mode for these GPUs.

2.3.1. Windows Guest OS Support

NVIDIA vGPU software supports **only** the Windows releases listed in the table as a guest OS on VMware vSphere. The releases of VMware vSphere for which a Windows release is supported depend on whether NVIDIA vGPU or pass-through GPU is used.

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

Guest OS	NVIDIA vGPU - VMware vSphere Releases	Pass-Through GPU - VMware vSphere Releases
Windows Server 2016 1607, 1709	6.5, 6.0	6.5, 6.0, 5.5
Windows Server 2012 R2	6.5, 6.0	6.5, 6.0, 5.5
Windows Server 2008 R2	6.5, 6.0	6.5, 6.0, 5.5
Windows 10 RTM (1507), November Update (1511), Anniversary Update (1607), Creators Update (1703) (64-bit)	6.5, 6.0	6.5, 6.0, 5.5
Windows 10 RTM (1507), November Update (1511), Anniversary Update (1607), Creators Update (1703) (32-bit)	6.5, 6.0	6.5, 6.0, 5.5
Windows 8.1 Update (64-bit)	6.5, 6.0	6.5, 6.0, 5.5
Windows 8.1 Update (32-bit)	6.5, 6.0	6.5, 6.0, 5.5
Windows 8.1 (64-bit)	6.5, 6.0	-
Windows 8.1 (32-bit)	6.5, 6.0	-
Windows 8 (32/64-bit)	6.5, 6.0	-

Guest OS	NVIDIA vGPU - VMware vSphere Releases	Pass-Through GPU - VMware vSphere Releases
Windows 7 (32/64-bit)	6.5, 6.0	6.5, 6.0, 5.5

2.3.2. Linux Guest OS Support

NVIDIA vGPU software supports **only** the Linux distributions listed in the table as a guest OS on VMware vSphere. The releases of VMware vSphere for which a Linux release is supported depend on whether NVIDIA vGPU or pass-through GPU is used.

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

Guest OS	NVIDIA vGPU - VMware vSphere Releases	Pass-Through GPU - VMware vSphere Releases
Red Hat Enterprise Linux 7.0-7.5 and later compatible 7.*x* versions	6.5, 6.0	6.5, 6.0, 5.5
CentOS 7.0-7.5 and later compatible 7.*x* versions	6.5, 6.0	6.5, 6.0, 5.5
Red Hat Enterprise Linux 6.6 and later compatible 6.*x* versions	6.5, 6.0	6.5, 6.0, 5.5
CentOS 6.6 and later compatible 6.*x* versions	6.5, 6.0	6.5, 6.0, 5.5
Ubuntu 16.04 LTS	6.5, 6.0	6.5, 6.0, 5.5
Ubuntu 14.04 LTS	6.5, 6.0	6.5, 6.0, 5.5

2.4. NVIDIA CUDA Toolkit Version Support

The releases in this release family of NVIDIA vGPU software support NVIDIA CUDA Toolkit 9.0.

For more information about NVIDIA CUDA Toolkit, see CUDA Toolkit 9.0 Documentation.

Chapter 3.
KNOWN PRODUCT LIMITATIONS

Known product limitations for this release of NVIDIA vGPU software are described in the following sections.

3.1. vGPU profiles with 512 Mbytes or less of frame buffer support only 1 virtual display head on Windows 10

Description

To reduce the possibility of memory exhaustion, vGPU profiles with 512 Mbytes or less of frame buffer support only 1 virtual display head on a Windows 10 guest OS.

The following vGPU profiles have 512 Mbytes or less of frame buffer:

- Tesla M6-0B, M6-0Q
- Tesla M10-0B, M10-0Q
- Tesla M60-0B, M60-0Q

Workaround

Use a profile that supports more than 1 virtual display head and has at least 1 Gbyte of frame buffer.

3.2. NVENC requires at least 1 Gbyte of frame buffer

Description

Using the frame buffer for the NVIDIA hardware-based H.264/HEVC video encoder (NVENC) may cause memory exhaustion with vGPU profiles that have 512 Mbytes or less of frame buffer. To reduce the possibility of memory exhaustion, NVENC is disabled on profiles that have 512 Mbytes or less of frame buffer. Application GPU acceleration remains fully supported and available for all profiles, including profiles with 512 MBytes or less of frame buffer. NVENC support from both Citrix and VMware is a recent feature and, if you are using an older version, you should experience no change in functionality.

The following vGPU profiles have 512 Mbytes or less of frame buffer:

- Tesla M6-0B, M6-0Q
- Tesla M10-0B, M10-0Q
- Tesla M60-0B, M60-0Q

Workaround

If you require NVENC to be enabled, use a profile that has at least 1 Gbyte of frame buffer.

3.3. VM failures or crashes on servers with 1 TB or more of system memory

Description

Support for vGPU and vSGA is limited to servers with less than 1 TB of system memory. On servers with 1 TB or more of system memory, VM failures or crashes may occur. For example, when Citrix XenDesktop is used with a Windows 7 guest OS, a blue screen crash may occur. However, support for vDGA is not affected by this limitation.

This limitation applies only to systems with supported GPUs based on the Maxwell architecture: Tesla M6, Tesla M10, and Tesla M60.

Resolution

1. Limit the amount of system memory on the server to 1 TB minus 16 GB by setting `memmapMaxRAMMB` to 1032192, which is equal to 1048576 minus 16384.

2. Reboot the server.

If the problem persists, contact your server vendor for the recommended system memory configuration with NVIDIA GPUs.

3.4. VM running older NVIDIA vGPU drivers fails to initialize vGPU when booted

Description

A VM running a version of the NVIDIA guest VM drivers from a previous main release branch, for example release 4.4, will fail to initialize vGPU when booted on a VMware vSphere platform running the current release of Virtual GPU Manager.

In this scenario, the VM boots in standard VGA mode with reduced resolution and color depth. The NVIDIA virtual GPU is present in **Windows Device Manager** but displays a warning sign, and the following device status:

```
Windows has stopped this device because it has reported problems. (Code 43)
```

Depending on the versions of drivers in use, the VMware vSphere VM's log file reports one of the following errors:

- A version mismatch between guest and host drivers:

```
vthread-10| E105: vmiop_log: Guest VGX version(2.0) and Host VGX
 version(2.1) do not match
```

- A signature mismatch:

```
vthread-10| E105: vmiop_log: VGPU message signature mismatch.
```

Resolution

Install the current NVIDIA guest VM driver in the VM.

3.5. Virtual GPU fails to start if ECC is enabled

Description

Tesla M60, Tesla M6, and GPUs based on the Pascal GPU architecture, for example Tesla P100 or Tesla P4, support error correcting code (ECC) memory for improved data integrity. Tesla M60 and M6 GPUs in graphics mode are supplied with ECC memory disabled by default, but it may subsequently be enabled using `nvidia-smi`. GPUs based on the Pascal GPU architecture are supplied with ECC memory enabled.

However, NVIDIA vGPU does not support ECC memory. If ECC memory is enabled, NVIDIA vGPU fails to start.

The following error is logged in the VMware vSphere VM's log file:

```
vthread10|E105: Initialization: VGX not supported with ECC Enabled.
```

Resolution

Ensure that ECC is disabled on all GPUs.

Before you begin, ensure that NVIDIA Virtual GPU Manager is installed on your hypervisor.

1. Use `nvidia-smi` to list the status of all GPUs, and check for ECC noted as enabled on GPUs.

```
# nvidia-smi -q

==============NVSMI LOG==============

Timestamp                           : Tue Dec 19 18:36:45 2017
Driver Version                      : 384.99

Attached GPUs                       : 1
GPU 0000:02:00.0

[...]

    Ecc Mode
        Current                     : Enabled
        Pending                     : Enabled

[...]
```

2. Change the ECC status to off on each GPU for which ECC is enabled.
   - If you want to change the ECC status to off for all GPUs on your host machine, run this command:

     ```
     # nvidia-smi -e 0
     ```
   - If you want to change the ECC status to off for a specific GPU, run this command:

     ```
     # nvidia-smi -i id -e 0
     ```

     id is the index of the GPU as reported by `nvidia-smi`.

     This example disables ECC for the GPU with index `0000:02:00.0`.

     ```
     # nvidia-smi -i 0000:02:00.0 -e 0
     ```
3. Reboot the host.
4. Confirm that ECC is now disabled for the GPU.

```
# nvidia-smi -q

==============NVSMI LOG==============

Timestamp                           : Tue Dec 19 18:37:53 2017
Driver Version                      : 384.99

Attached GPUs                       : 1
```

```
GPU 0000:02:00.0
[...]

    Ecc Mode
        Current                     : Disabled
        Pending                     : Disabled

[...]
```

If you later need to enable ECC on your GPUs, run one of the following commands:

- If you want to change the ECC status to on for all GPUs on your host machine, run this command:

```
# nvidia-smi -e 1
```

- If you want to change the ECC status to on for a specific GPU, run this command:

```
# nvidia-smi -i id -e 1
```

id is the index of the GPU as reported by `nvidia-smi`.

This example enables ECC for the GPU with index `0000:02:00.0`.

```
# nvidia-smi -i 0000:02:00.0 -e 1
```

After changing the ECC status to on, reboot the host.

3.6. Single vGPU benchmark scores are lower than pass-through GPU

Description

A single vGPU configured on a physical GPU produces lower benchmark scores than the physical GPU run in pass-through mode.

Aside from performance differences that may be attributed to a vGPU's smaller frame buffer size, vGPU incorporates a performance balancing feature known as Frame Rate Limiter (FRL). On vGPUs that use the best-effort scheduler, FRL is enabled. On vGPUs that use the fixed share or equal share scheduler, FRL is disabled.

FRL is used to ensure balanced performance across multiple vGPUs that are resident on the same physical GPU. The FRL setting is designed to give good interactive remote graphics experience but may reduce scores in benchmarks that depend on measuring frame rendering rates, as compared to the same benchmarks running on a pass-through GPU.

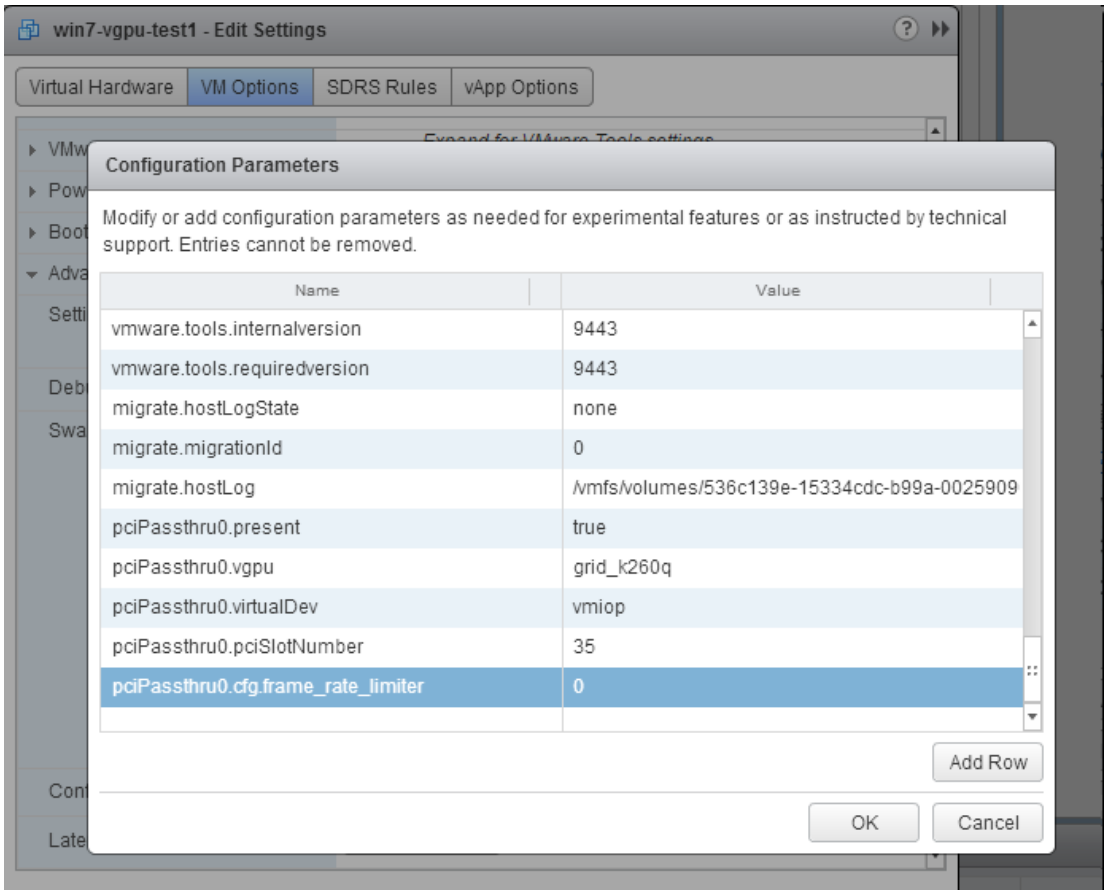
Resolution

FRL is controlled by an internal vGPU setting. On vGPUs that use the best-effort scheduler, NVIDIA does not validate vGPU with FRL disabled, but for validation of benchmark performance, FRL can be temporarily disabled by adding the configuration

parameter `pciPassthru0.cfg.frame_rate_limiter` in the VM's advanced configuration options.

This setting can only be changed when the VM is powered off.

1. Select **Edit Settings**.
2. In **Edit Settings** window, select the **VM Options** tab.
3. From the **Advanced** drop-down list, select **Edit Configuration**.
4. In the **Configuration Parameters** dialog box, click **Add Row**.
5. In the **Name** field, type the parameter name `pciPassthru0.cfg.frame_rate_limiter`, in the **Value** field type 0, and click **OK**.



With this setting in place, the VM's vGPU will run without any frame rate limit. The FRL can be reverted back to its default setting by setting `pciPassthru0.cfg.frame_rate_limiter` to 1 or by removing the parameter from the advanced settings.

3.7. VMs configured with large memory fail to initialize vGPU when booted

Description

When starting multiple VMs configured with large amounts of RAM (typically more than 32GB per VM), a VM may fail to initialize vGPU. In this scenario, the VM boots in VMware SVGA mode and doesn't load the NVIDIA driver. The NVIDIA vGPU software GPU is present in **Windows Device Manager** but displays a warning sign, and the following device status:

```
Windows has stopped this device because it has reported problems. (Code 43)
```

The VMware vSphere VM's log file contains these error messages:

```
vthread10|E105: NVOS status 0x29
vthread10|E105: Assertion Failed at 0x7620fd4b:179
vthread10|E105: 8 frames returned by backtrace
 ...
vthread10|E105: VGPU message 12 failed, result code: 0x29
...
vthread10|E105: NVOS status 0x8
vthread10|E105: Assertion Failed at 0x7620c8df:280
vthread10|E105: 8 frames returned by backtrace
...
vthread10|E105: VGPU message 26 failed, result code: 0x8
```

Resolution

vGPU reserves a portion of the VM's framebuffer for use in GPU mapping of VM system memory. The reservation is sufficient to support up to 32GB of system memory, and may be increased to accommodate up to 64GB by adding the configuration parameter `pciPassthru0.cfg.enable_large_sys_mem` in the VM's advanced configuration options

This setting can only be changed when the VM is powered off.

1. Select **Edit Settings**.
2. In **Edit Settings** window, select the **VM Options** tab.
3. From the **Advanced** drop-down list, select **Edit Configuration**.
4. In the **Configuration Parameters** dialog box, click **Add Row**.
5. In the **Name** field, type the parameter name `pciPassthru0.cfg.enable_large_sys_mem`, in the **Value** field type 1, and click **OK**.

With this setting in place, less GPU framebuffer is available to applications running in the VM. To accommodate system memory larger than 64GB, the reservation can

be further increased by adding `pciPassthru0.cfg.extra_fb_reservation` in the VM's advanced configuration options, and setting its value to the desired reservation size in megabytes. The default value of 64M is sufficient to support 64 GB of RAM. We recommend adding 2 M of reservation for each additional 1 GB of system memory. For example, to support 96 GB of RAM, set `pciPassthru0.cfg.extra_fb_reservation` to 128.

The reservation can be reverted back to its default setting by setting `pciPassthru0.cfg.enable_large_sys_mem` to 0, or by removing the parameter from the advanced settings.

Chapter 4. RESOLVED ISSUES

Only resolved issues that have been previously noted as known issues or had a noticeable user impact are listed. The summary and description for each resolved issue indicate the effect of the issue on NVIDIA vGPU software **before the issue was resolved**.

Issues Resolved in Release 5.0

No resolved issues are reported in this release for VMware vSphere.

Issues Resolved in Release 5.1

Bug ID	Summary and Description
1967625	**NVIDIA vGPU utilization in guest VMs is incorrectly reported for vGPUs using a fixed share scheduler** 3D engine utilization in guest VMs should be reported as a percentage of the maximum physical GPU utilization the vGPU can consume. However, the utilization for vGPUs using a fixed share scheduler does not correctly account for the vGPU's fixed share of the physical GPU cycles. Furthermore, the utilization reported by `nvidia-smi pmon` is inconsistent with the utilization reported by `nvidia-smi dmon`.

Issues Resolved in Release 5.2

Bug ID	Summary and Description
200359618	**On GPUs based on the Pascal architecture, Ubuntu 16.04 VMs run slowly after acquiring a license** On GPUs based on the Pascal architecture, Ubuntu VMs to which an NVIDIA vGPU or pass-through GPU is assigned run slowly after acquiring a license. Ubuntu VMs that have not been assigned an NVIDIA vGPU or pass-through GPU run noticeably faster.

Bug ID	Summary and Description
200359624	**The Apply button is disabled after change to unlicensed mode** After the mode is changed from licensed **Quadro Virtual Datacenter Workstation Edition** mode to **Unlicensed Tesla** mode, the **Apply** button on the **Manage GRID License** page is disabled. As a result, **NVIDIA X Server Settings** cannot be used to switch to **Tesla (Unlicensed)** mode on a licensed system.

Issues Resolved in Release 5.3

Bug ID	Summary and Description
200334648	**Multiple display heads are not detected by Ubuntu 14.04 guest VMs** After an Ubuntu 14.04 guest VM has acquired a license, multiple display heads connected to the VM are not detected.
2075467	**The displays flicker each time a license is requested or renewed in Linux guest VMs** Whenever a license is requested or renewed in Linux guest VMs, the displays are reconfigured and rescanned. Rescanning the displays causes the remoting solution to momentarily drop the connection and, as a result, the displays flicker.
200376678	**The license expires prematurely in Linux guest VMs** In Linux guest VMs, the license expires before the default borrow period has elapsed. In normal operation, the license is renewed periodically at an interval that depends on the license borrow period. As a result, a failure to renew the license may cause the license to expire before the default borrow period has elapsed.
200391532	**Issues in remote desktop sessions if a license is acquired after a session is started** A VM might acquire a license for NVIDIA vGPU software after a remote desktop session has connected to the VM. In this situation, some licensed features and capabilities are not available to a properly licensed vGPU or pass-through GPU in the session. For example, the updated maximum resolution supported is not available.

Issues Resolved in Release 5.4

No resolved issues are reported in this release for VMware vSphere.

Chapter 5. NVIDIA SOFTWARE SECURITY UPDATES

For more information about NVIDIA's vulnerability management, visit the NVIDIA Product Security page.

NVIDIA Software Security Updates in Release 5.2

CVE ID	NVIDIA Issue Number	Description
CVE-2017-5753	CVE-2017-5753	Computer systems with microprocessors utilizing speculative execution and branch prediction may allow unauthorized disclosure of information to an attacker with local user access via a side-channel analysis.

NVIDIA Software Security Updates in Release 5.3

No NVIDIA software security updates are reported in this release for VMware vSphere.

NVIDIA Software Security Updates in Release 5.4

No NVIDIA software security updates are reported in this release for VMware vSphere.

Chapter 6. KNOWN ISSUES

6.1. Cloned VMs configured with a vGPU type different than the type in the master image fail to start

Description

Cloned VMs configured with a vGPU type different than the type in the master image fail to start.

When a Windows 10 VM is booted, the VM becomes stuck in a loop and alternately displays `Getting devices ready: 50%` and `Preparation in progress`.

Workaround

Create one master image for each vGPU type that you want to use. Do not attempt to configure a cloned VM with a vGPU type different than the type in the master image.

Status

Not an NVIDIA bug

Ref.

2285306

6.2. VMs with 32 GB or more of RAM fail to boot with GPUs requiring 64 GB of MMIO space

Description

VMs with 32 GB or more of RAM fail to boot with GPUs that require 64 GB of MMIO space. VMs boot successfully with RAM allocations of less than 32 GB.

The following GPUs require 64 GB of MMIO space:

- Tesla P6
- Tesla P40

Version

This issue affects the following versions of VMware vSphere ESXi:

- 6.0 Update 3 and later updates
- 6.5 and later updates

Workaround

If you want to use a VM with 32 GB or more of RAM with GPUs that require 64 GB of MMIO space, use this workaround:

1. Create a VM to which less than 32 GB of RAM is allocated.
2. Choose **VM Options** > **Advanced** and set `pciPassthru.use64bitMMIO="TRUE"`.
3. Allocate the required amount of RAM to the VM.

For more information, see VMware Knowledge Base Article: VMware vSphere VMDirectPath I/O: Requirements for Platforms and Devices (2142307).

Status

Not an NVIDIA bug

Ref.

2043171

6.3. 5.1, 5.2 Only: Issues in remote desktop sessions if a license is acquired after a session is started

Description

A VM might acquire a license for NVIDIA vGPU software after a remote desktop session has connected to the VM. In this situation, some licensed features and capabilities are not available to a properly licensed vGPU or pass-through GPU in the session. For example, the updated maximum resolution supported is not available.

Workaround

Before attempting this workaround, confirm that the VM has obtained the correct license for NVIDIA vGPU software.

1. After installing the guest VM driver package and configuring required license settings on the VM (or on the master image used for VM deployment), set the `IgnoreSP` property to 1.
   - On Windows, add the following registry setting:

     ```
     [HKEY_LOCAL_MACHINE\SOFTWARE\NVIDIA Corporation\Global\GridLicensing]
     "IgnoreSP"=dword:00000001
     ```
   - On Linux, add the following setting to the file `/etc/nvidia/gridd.conf`:

     ```
     IgnoreSP=1
     ```
2. Restart the VM.

Status

Resolved in NVIDIA vGPU software release 5.3.

Ref.

200391532

6.4. License settings configured through a GPO are ignored

Description

License settings configured through a Windows Group Policy Object (GPO) are ignored. Windows Registry settings applied through a GPO are set after the NVIDIA vGPU

software graphics driver service is started. Therefore, NVIDIA vGPU software cannot be configured through a GPO.

Workaround

Use the Registry Editor to set the Windows Registry keys for license settings individually.

Status

Open

Ref. #

2010398

6.5. Licensing pop-up windows contain the text `microsoft.explorer.notification`

Description

On Windows 10 Creators Update (1703), licensing pop-up windows contain the text `microsoft.explorer.notification`.

Version

Windows 10 Creators Update (1703)

Status

Open

Ref. #

200346607

6.6. 5.2 Only: The license expires prematurely in Linux guest VMs

Description

In Linux guest VMs, the license expires before the default borrow period has elapsed. In normal operation, the license is renewed periodically at an interval that depends on the

license borrow period. As a result, a failure to renew the license may cause the license to expire before the default borrow period has elapsed.

Workaround

To reduce the possibility of license-renewal failures caused by transient network issues, increase the license borrow period to a value of about 7 days.

Status

Resolved in NVIDIA vGPU software release 5.3.

Ref.

200376678

6.7. Multiple display heads are not detected by Ubuntu 14.04 guest VMs

Description

After an Ubuntu 14.04 guest VM has acquired a license, multiple display heads connected to the VM are not detected.

Version

Ubuntu 14.04

Workaround

To see all the connected display heads after the VM has acquired a license, open the **Displays** settings window and click **Detect displays**.

Status

Resolved in NVIDIA vGPU software release 5.3.

Ref.

200334648

6.8. Since 5.1: On GPUs based on the Pascal architecture, Ubuntu 16.04 VMs run slowly after acquiring a license

Description

On GPUs based on the Pascal architecture, Ubuntu VMs to which an NVIDIA vGPU or pass-through GPU is assigned run slowly after acquiring a license. Ubuntu VMs that have not been assigned an NVIDIA vGPU or pass-through GPU run noticeably faster.

Workaround

After the VM has acquired a license, restart the `lightdm` service.

Status

Resolved in NVIDIA vGPU software release 5.2.

Ref.

200359618

6.9. 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

6.10. On Tesla P40, P6, and P4 GPUs, the default ECC setting prevents NVIDIA vGPU from starting

Description

On Tesla P40, Tesla P6, and Tesla P4 GPUs, the default error-correcting code (ECC) memory setting prevents NVIDIA vGPU from starting. By default, ECC memory is enabled on these GPUs, but NVIDIA vGPU does not support ECC memory.

Workaround

Before running NVIDIA vGPU, disable ECC memory as explained in *Virtual GPU Software User Guide*.

Status

Closed.

Ref.

200269717

6.11. Tesla P40 cannot be used in pass-through mode

Description

Pass-through mode on Tesla P40 GPUs and other GPUs based on the Pascal architecture does not work as expected. In some situations, after the VM is powered on, the guest OS crashes or fails to boot.

Workaround

Ensure that your GPUs are configured as described in Requirements for Using GPUs Based on the Pascal Architecture in Pass-Through Mode

Status

Not a bug

Ref.

1944539

6.12. NVIDIA vGPU utilization in guest VMs is incorrectly reported for vGPUs using a fixed share scheduler

Description

NVIDIA vGPU utilization in guest VMs is incorrectly reported for vGPUs using a fixed share scheduler.

3D engine utilization in guest VMs should be reported as a percentage of the maximum physical GPU utilization the vGPU can consume. For example, a vGPU that is allocated a 25% share of the physical GPU should be reported as fully utilized (100%) when it is consuming 25% of the physical GPU's cycles. However, the utilization for vGPUs using a fixed share scheduler does not correctly account for the vGPU's fixed share of the physical GPU cycles.

Furthermore, the utilization reported by `nvidia-smi pmon` is inconsistent with the utilization reported by `nvidia-smi dmon`.

Status

Resloved in version 5.1

Ref.

1967625

6.13. NVIDIA vGPU encoder and process utilization counters don't work with Windows Performance Counters

Description

GPU encoder and process utilization counter groups are listed in Windows Performance Counters, but no instances of the counters are available. The counters are disabled by default and must be enabled.

Workaround

Enable the counters by running the following sequence of commands from a command shell:

```
wmic /namespace:nv path System call enableProcessUtilizationPerfCounter
```

```
wmic /namespace:nv path System call enableEncoderSessionsPerfCounter
```

If you need to disable the counters, run the following sequence of commands from a command shell:

```
wmic /namespace:nv path System call disableProcessUtilizationPerfCounter
```

```
wmic /namespace:nv path System call disableEncoderSessionsPerfCounter
```

Status

Open

Ref.

1971698

6.14. On Linux, 3D applications run slowly when windows are dragged

Description

When windows for 3D applications on Linux are dragged, the frame rate drops substantially and the application runs slowly.

This issue does not affect 2D applications.

Status

Open

Ref.

1949482

6.15. 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.

Since 5.1: The GUI for licensing is disabled by default.

Version

Red Hat Enterprise Linux 6.8 and 6.9

CentOS 6.8 and 6.9

NVIDIA vGPU software 5.0

5.0 Only: Workaround

This workaround requires `sudo` privileges.

1. As root, edit the `/etc/nvidia/gridd.conf` file to set the `EnableUI` option to `FALSE`.
2. Start the `nvidia-gridd` service.

```
# sudo service nvidia-gridd start
```

3. Confirm that the `nvidia-gridd` service has obtained a license by examining the log messages written to `/var/log/messages`.

```
# sudo grep gridd /var/log/messages
…
Aug 5 15:40:06 localhost nvidia-gridd: Started (4293)
Aug 5 15:40:24 localhost nvidia-gridd: License acquired successfully.
```

Status

Open

Ref.

- 200358191
- 200319854
- 1895945

6.16. Since 5.1: 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.

Version

NVIDIA vGPU software 5.1

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.

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

6.17. Since 5.1: The `nvidia-gridd` service fails because the required configuration is not provided

Description

The `nvidia-gridd` service exits with an error because the required configuration is not provided.

The known issue described in A segmentation fault in DBus code causes nvidia-gridd to exit on Red Hat Enterprise Linux and CentOS causes the **NVIDIA X Server Settings** page for managing licensing settings through a GUI to be disabled by default. As a

result, if the required license configuration is not provided through the configuration file, the service exits with an error.

Details of the error can be obtained by checking the status of the `nvidia-gridd` service.

```
# service nvidia-gridd status
nvidia-gridd.service - NVIDIA Grid Daemon
Loaded: loaded (/usr/lib/systemd/system/nvidia-gridd.service; enabled; vendor
 preset: disabled)
   Active: failed (Result: exit-code) since Wed 2017-11-01 19:25:07 IST; 27s ago
  Process: 11990 ExecStopPost=/bin/rm -rf /var/run/nvidia-gridd (code=exited,
 status=0/SUCCESS)
  Process: 11905 ExecStart=/usr/bin/nvidia-gridd (code=exited, status=0/SUCCESS)
Main PID: 11906 (code=exited, status=1/FAILURE)
Nov 01 19:24:35 localhost.localdomain systemd[1]: Starting NVIDIA Grid Daemon...
Nov 01 19:24:35 localhost.localdomain nvidia-gridd[11906]: Started (11906)
Nov 01 19:24:35 localhost.localdomain systemd[1]: Started NVIDIA Grid Daemon.
Nov 01 19:24:36 localhost.localdomain nvidia-gridd[11906]:  Failed to open
 config file : /etc/nvidia/gridd.conf error :No such file or directory
Nov 01 19:25:07 localhost.localdomain nvidia-gridd[11906]: Service provider
 detection complete.
Nov 01 19:25:07 localhost.localdomain nvidia-gridd[11906]: Shutdown (11906)
Nov 01 19:25:07 localhost.localdomain systemd[1]: nvidia-gridd.service: main
 process exited, code=exited, status=1/FAILURE
Nov 01 19:25:07 localhost.localdomain systemd[1]: Unit nvidia-gridd.service
 entered failed state.
Nov 01 19:25:07 localhost.localdomain systemd[1]: nvidia-gridd.service failed.
```

Workaround

Use a configuration file to license NVIDIA vGPU software on Linux as explained in *Virtual GPU Client Licensing User Guide*.

Status

Open

Ref.

200359469

6.18. Since 5.1: The **Apply** button is disabled after change to unlicensed mode

Description

After the mode is changed from licensed **Quadro Virtual Datacenter Workstation Edition** mode to **Unlicensed Tesla** mode, the **Apply** button on the **Manage GRID License** page is disabled. As a result, **NVIDIA X Server Settings** cannot be used to switch to **Tesla (Unlicensed)** mode on a licensed system.

Workaround

1. Start **NVIDIA X Server Settings** by using the method for launching applications provided by your Linux distribution.
2. In the **NVIDIA X Server Settings** window that opens, click **Manage GRID License**.
3. Clear the **Primary Server** field.
4. Select the **Tesla (unlicensed)** option.
5. Click **Apply**.

Status

Resolved in NVIDIA vGPU software release 5.2.

Ref.

200359624

6.19. 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

6.20. Memory exhaustion can occur with vGPU profiles that have 512 Mbytes or less of frame buffer

Description

Memory exhaustion can occur with vGPU profiles that have 512 Mbytes or less of frame buffer.

This issue typically occurs in the following situations:

- Full screen 1080p video content is playing in a browser. In this situation, the session hangs and session reconnection fails.
- Multiple display heads are used with Citrix XenDesktop or VMware Horizon on a Windows 10 guest VM.
- Higher resolution monitors are used.
- Applications that are frame-buffer intensive are used.
- NVENC is in use.

To reduce the possibility of memory exhaustion, NVENC is disabled on profiles that have 512 Mbytes or less of frame buffer.

When memory exhaustion occurs, the NVIDIA host driver reports Xid error 31 and Xid error 43 in the VMware vSphere log file `vmware.log` in the guest VM's storage directory.

The following vGPU profiles have 512 Mbytes or less of frame buffer:

- Tesla M6-0B, M6-0Q
- Tesla M10-0B, M10-0Q
- Tesla M60-0B, M60-0Q

The root cause is a known issue associated with changes to the way that recent Microsoft operating systems handle and allow access to overprovisioning messages and errors. If your systems are provisioned with enough frame buffer to support your use cases, you should not encounter these issues.

Workaround

- Use an appropriately sized vGPU to ensure that the frame buffer supplied to a VM through the vGPU is adequate for your workloads.
- Monitor your frame buffer usage.

- If you are using Windows 10, consider these workarounds and solutions:
  - Use a profile that has 1 Gbyte of frame buffer.
  - Optimize your Windows 10 resource usage.

    To obtain information about best practices for improved user experience using Windows 10 in virtual environments, complete the NVIDIA GRID vGPU Profile Sizing Guide for Windows 10 download request form.

    Additionally, you can use the VMware OS Optimization Tool to make and apply optimization recommendations for Windows 10 and other operating systems.

Status

Open

Ref. #

- 200130864
- 1803861

6.21. vGPU VM fails to boot in ESXi 6.5 if the graphics type is Shared

Description

If vSGA is being used, this issue shouldn't be encountered and changing the default graphics type is not necessary.

On VMware vSphere Hypervisor (ESXi) 6.5, after vGPU is configured, VMs to which a vGPU is assigned may fail to start and the following error message may be displayed:

```
The amount of graphics resource available in the parent resource pool is
 insufficient for the operation.
```

The vGPU Manager VIB provides vSGA and vGPU functionality in a single VIB. After this VIB is installed, the default graphics type is Shared, which provides vSGA functionality. To enable vGPU support for VMs in VMware vSphere 6.5, you must change the default graphics type to Shared Direct. If you do not change the default graphics type you will encounter this issue.

Version

VMware vSphere Hypervisor (ESXi) 6.5

Workaround

Change the default graphics type to Shared Direct as explained in *Virtual GPU Software User Guide*.

Status

Open

Ref.

200256224

6.22. ESXi 6.5 web client shows high memory usage even when VMs are idle

Description

On VMware vSphere Hypervisor (ESXi) 6.5, the web client shows a memory usage alarm with critical severity for VMs to which a vGPU is attached even when the VMs are idle. When memory usage is monitored from inside the VM, no memory usage alarm is shown. The web client does not show a memory usage alarm for the same VMs without an attached vGPU.

Version

VMware vSphere Hypervisor (ESXi) 6.5

Workaround

Avoid using the VMware vSphere Hypervisor (ESXi) 6.5 web client to monitor memory usage for VMs to which a vGPU is attached.

Status

Not an NVIDIA bug

Ref.

200191065

6.23. VMs configured with NVIDIA vGPU must not be on a host in a VMware DRS cluster

Description

The ESXi host on which VMs configured with NVIDIA vGPU reside must not be a member of a VMware Distributed Resource Scheduler (DRS) cluster. The installer for the NVIDIA driver for NVIDIA vGPU software cannot locate the NVIDIA vGPU software GPU card on a host in a VMware DRS Cluster. Any attempt to install the driver on a VM on a host in a DRS cluster fails with the following error:

```
NVIDIA Installer cannot continue
This graphics driver could not find compatible graphics hardware.
```

Furthermore, you **cannot** overcome this limitation by configuring a VM with NVIDIA vGPU and installing the driver on the VM on a host outside a DRS cluster and moving the host into the DRS cluster after configuring it.

Workaround

Move each VM configured with NVIDIA vGPU to a host outside the DRS cluster.

1. Remove NVIDIA Virtual GPU Manager from the host in the DRS cluster.
2. Create a cluster of VMware ESXi hosts outside the DRS domain.
3. Install the NVIDIA Virtual GPU Manager on an ESXi host in the cluster that you created in the previous step.
4. Create a vSphere VM for use with NVIDIA vGPU.
5. Configure the vSphere VM with NVIDIA vGPU.
6. Boot the vSphere VM and install the NVIDIA driver for NVIDIA vGPU.

For instructions for performing these tasks, refer to *Virtual GPU Software User Guide*.

Status

Open

Ref.

1933449

6.24. GNOME Display Manager (GDM) fails to start on Red Hat Enterprise Linux 7.2 and CentOS 7.0

Description

GDM fails to start on Red Hat Enterprise Linux 7.2 and CentOS 7.0 with the following error:

```
Oh no! Something has gone wrong!
```

Workaround

Permanently enable permissive mode for Security Enhanced Linux (SELinux).

1. As root, edit the `/etc/selinux/config` file to set `SELINUX` to `permissive`.
   ```
   SELINUX=permissive
   ```
2. Reboot the system.
   ```
   ~]# reboot
   ```

For more information, see Permissive Mode in *Red Hat Enterprise Linux 7 SELinux User's and Administrator's Guide*.

Status

Not an NVIDIA bug

Ref.

200167868

6.25. NVIDIA Control Panel fails to start and reports that "you are not currently using a display that is attached to an Nvidia GPU"

Description

When you launch NVIDIA Control Panel on a VM configured with vGPU, it fails to start and reports that you are not using a display attached to an NVIDIA GPU. This happens because Windows is using VMware's SVGA device instead of NVIDIA vGPU.

Fix

Make NVIDIA vGPU the primary display adapter.

Use Windows screen resolution control panel to make the second display, identified as "2" and corresponding to NVIDIA vGPU, to be the active display and select the Show desktop only on 2 option. Click Apply to accept the configuration.

You may need to click on the Detect button for Windows to recognize the display connected to NVIDIA vGPU.

If the VMware Horizon/View agent is installed in the VM, the NVIDIA GPU is automatically selected in preference to the SVGA device.

Status

Open

Ref. #

6.26. VM configured with more than one vGPU fails to initialize vGPU when booted

Description

Using the current VMware vCenter user interface, it is possible to configure a VM with more than one vGPU device. When booted, the VM boots in VMware SVGA mode and doesn't load the NVIDIA driver. The additional vGPU devices are present in Windows Device Manager but display a warning sign, and the following device status:

```
Windows has stopped this device because it has reported problems. (Code 43)
```

Workaround

NVIDIA vGPU currently supports a single virtual GPU device per VM. Remove any additional vGPUs from the VM configuration before booting the VM.

Status

Open

Ref. #

6.27. A VM configured with both a vGPU and a passthrough GPU fails to start the passthrough GPU

Description

Using the current VMware vCenter user interface, it is possible to configure a VM with a vGPU device and a passthrough (direct path) GPU device. This is not a currently supported configuration for vGPU. The passthrough GPU appears in Windows Device Manager with a warning sign, and the following device status:

```
Windows has stopped this device because it has reported problems. (Code 43)
```

Workaround

Do not assign vGPU and passthrough GPUs to a VM simultaneously.

Status

Open

Ref.

1735002

6.28. vGPU allocation policy fails when multiple VMs are started simultaneously

Description

If multiple VMs are started simultaneously, vSphere may not adhere to the placement policy currently in effect. For example, if the default placement policy (breadth-first) is in effect, and 4 physical GPUs are available with no resident vGPUs, then starting 4 VMs simultaneously should result in one vGPU on each GPU. In practice, more than one vGPU may end up resident on a GPU.

Workaround

Start VMs individually.

Status

Not an NVIDIA bug

Ref. #

200042690

6.29. Before Horizon agent is installed inside a VM, the Start menu's sleep option is available

Description

When a VM is configured with a vGPU, the **Sleep** option remains available in the **Windows Start** menu. Sleep is not supported on vGPU and attempts to use it will lead to undefined behavior.

Workaround

Do not use Sleep with vGPU.

Installing the VMware Horizon agent will disable the **Sleep** option.

Status

Closed

Ref. #

200043405

6.30. vGPU-enabled VMs fail to start, `nvidia-smi` fails when VMs are configured with too high a proportion of the server's memory.

Description

If vGPU-enabled VMs are assigned too high a proportion of the server's total memory, the following errors occur:

- One or more of the VMs may fail to start with the following error:

```
The available Memory resources in the parent resource pool are insufficient
 for the operation
```

- When run in the host shell, the `nvidia-smi` utility returns this error:

```
-sh: can't fork
```

For example, on a server configured with 256G of memory, these errors may occur if vGPU-enabled VMs are assigned more than 243G of memory.

Workaround

Reduce the total amount of system memory assigned to the VMs.

Status

Closed

Ref.

200060499

6.31. On reset or restart VMs fail to start with the error `VMIOP: no graphics device is available for vGPU…`

Description

On a system running a maximal configuration, that is, with the maximum number of vGPU VMs the server can support, some VMs might fail to start post a reset or restart operation.

Fix

Upgrade to ESXi 6.0 Update 1.

Status

Closed

Ref.

200097546

6.32. `nvidia-smi` shows high GPU utilization for vGPU VMs with active Horizon sessions

Description

vGPU VMs with an active Horizon connection utilize a high percentage of the GPU on the ESXi host. The GPU utilization remains high for the duration of the Horizon session even if there are no active applications running on the VM.

Workaround

None

Status

Open

Partially resolved for Horizon 7.0.1:

- For Blast connections, GPU utilization is no longer high.
- For PCoIP connections, utilization remains high.

Ref.

1735009

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