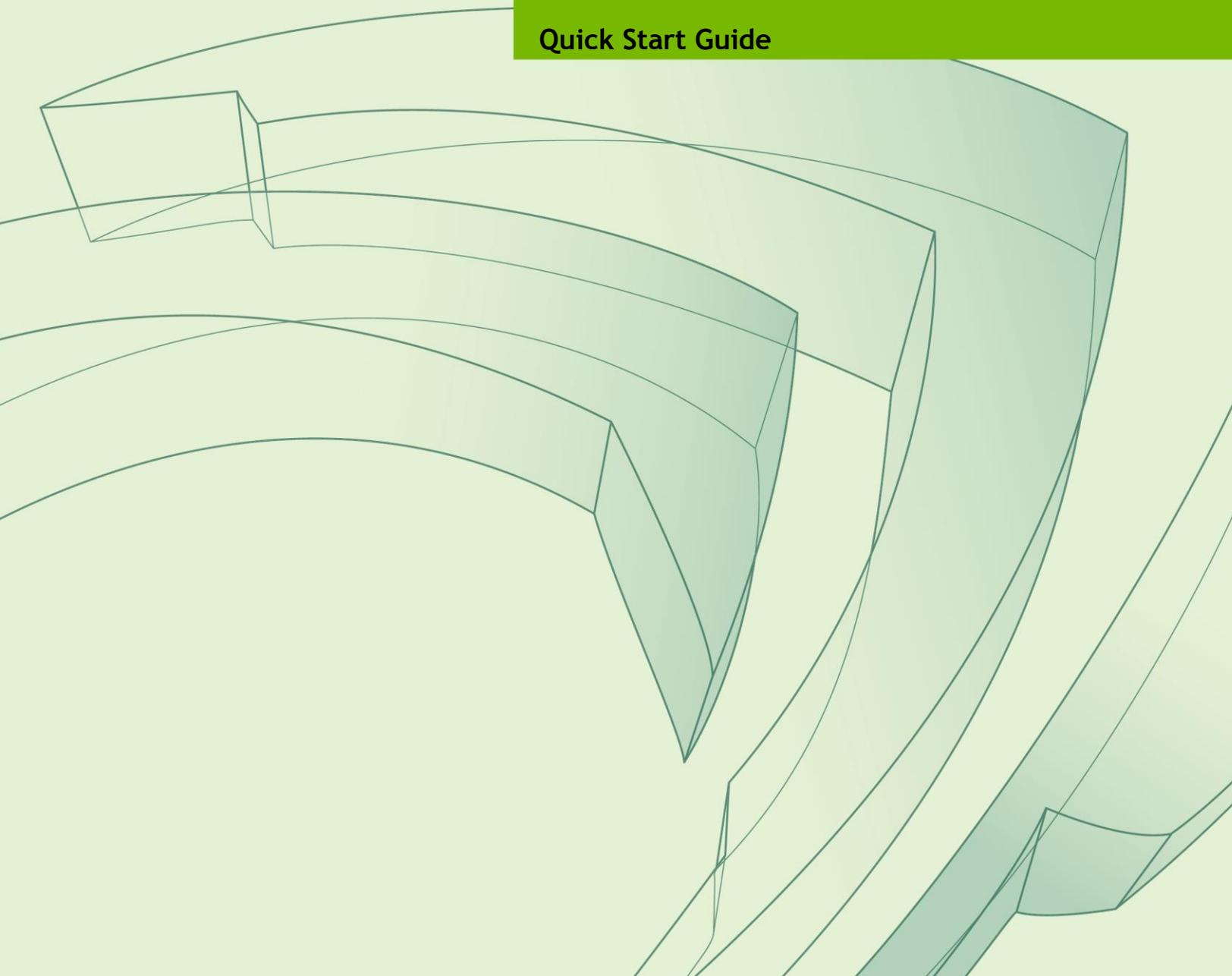




# NVIDIA GRID 2.0 ENTERPRISE SOFTWARE

QSG-07847-001\_v01 | October 2015

## Quick Start Guide



# REQUIREMENTS



**IMPORTANT:** This Quick Start Guide is intended for those who are technically comfortable with minimal instructions.

Read the release notes to verify that you have the correct build numbers for all of the virtualization software that has been tested for the specific NVIDIA GRID Software release you are downloading; as specified in the release notes. Other important version-specific information and known issues can also be found in the release notes.



You must be a registered user to access to the release notes.

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## Before You Begin

The NVIDIA GRID™ enterprise software is designed to run on select NVIDIA® Tesla® GPUs. Read through the following list before you begin the software installation:

- ▶ NVIDIA GRID Certified Servers. For a complete list of GRID certified servers, go to: <http://www.nvidia.com/object/grid-certified-servers.html>
- ▶ Required GPU hardware:  
Tesla M6 or M60
- ▶ A supported virtualization software stack

## Product Activation Keys (PAK)

Once your order is processed, you receive a Welcome email containing your product activation keys. The email details the types of licenses and the quantities of each along with your Product Activation Keys.

Following an example of the Welcome email:

Thank you for your NVIDIA GRID order!

The Product Activation Keys for your order are as follows:

AKHL-99840-09, Software, 25, Product Activation Key: 12345

Download your license file and NVIDIA GRID software by logging into the NVIDIA Licensing Portal here:

[Register](#)

If this is your first time visiting the NVIDIA Licensing Portal, you will be required to register.

If you already have an account, please [log in](#)

If you are registering more than one PAK, please complete the registration process for the first one, then click on "Register Additional Keys" link to register the additional PAKs.

Following registration, you will receive access information for the NVIDIA Enterprise Support Portal in a separate email.

Questions? Please visit our [enterprise support portal](#) or contact us at [enterprisesupport@nvidia.com](mailto:enterprisesupport@nvidia.com).

If you are an OEM or Reseller, please forward this message to the appropriate end customer for order number 12345 .

Thank you!

NVIDIA Customer Support Team

## PAK Registration

1. Select the [log in](#) link in the email if you already have an account.  
If you do not have an account, select **Register** in the email to create an account.  
You must log in to gain access to your licenses and access to the NVIDIA GRID 2.0.  
Once you have successfully logged in, the **License Key Registration** page displays.

HOME > NVIDIA SOFTWARE LICENSING CENTER > LICENSE KEY REGISTRATION

### License Key Registration

If you are a returning user, please [log in](#) and then navigate to the Register Additional Keys link on the NVIDIA Licensing Portal.

If you are registering more than one Product Activation Key, please complete the registration for the first one and then navigate to Register Additional Keys link to register them.

If you need assistance with Registration, installation or product usage, please email [enterprisesupport@nvidia.com](mailto:enterprisesupport@nvidia.com).

**Registration for License Key:** SAPORDER1234-DeliveryID1234

First Name: \*  Last Name: \*

Email: \*  Company: \*

Job Role: \* -- Please Choose One --  Phone: \*

Order ID:  Department:

Address Line 1: \*  Address Line 2:

City: \*  Country: \* --Please choose one--

Postal Code: \*  State / Province: \* --Please choose one--

Host ID:

Please read the [Terms and Conditions](#). Then click the acknowledgement check box to continue.

2. Fill in the License Key Registration page
3. Select Submit My Registration Information to display the **Product Information Software** page.
4. Register additional PAKs by selecting the Register Additional Keys link in the left pane of the **Product Information Software** page. The **License Key Registration** page displays for each additional key you request.

HOME > NVIDIA SOFTWARE LICENSING CENTER > PRODUCT INFORMATION : SOFTWARE

### Product Information

**Software**

Select a version.

Register Additional Keys

5. Select Submit My Registration Information for each key you request.
6. Agree to the terms and conditions when prompted.

7. Select **SET PASSWORD** once registration completes and the **License Information** page displays.

## License Information

Welcome to the NVIDIA LICENSING CENTER, an online software delivery service that helps you manage and stay current with your NVIDIA products.

Please set your password now - [SET PASSWORD](#). You will receive an email with instructions.

**Product:** GRID Virtual Workstation Edition, Perpetual License, 1 CCU (100+)  
**Effective Date:** Sep 17, 2015  
**Expiration Date:** Sep 17, 2016  
**Product Activation Key:** SAPORDER1234-DeliveryID1234  
**Order Date:** Sep 17, 2015  
**PO Number:**  
**Line Number:** 1  
 No licenses available for this Order.

## DOWNLOAD GRID SOFTWARE

1. Go back to the [NVIDIA SOFTWARE LICENSING CENTER](#) page and select **PRODUCT INFORMATION: SOFTWARE** from the list in the left pane to display the **Product Information** download page.

HOME > NVIDIA SOFTWARE LICENSING CENTER > PRODUCT INFORMATION : SOFTWARE

**Software & Services**

- Home
- Product Search
- Order History
- Search Line Items
- Recent Product Releases
- Register Additional Keys

**Ray Licensing**

- Search Licenses
- View Licenses By Host
- View Licenses Generated by User

**Grid Licensing**

- Search License Servers
- Create License Server

**Administration** \*

- Account Administrators
- Account Members
- Registration Information
- Change Password
- Email Preferences
- Product Preferences
- Your Profile

**Get Help** ?

- FAQs

## Product Information

### Software

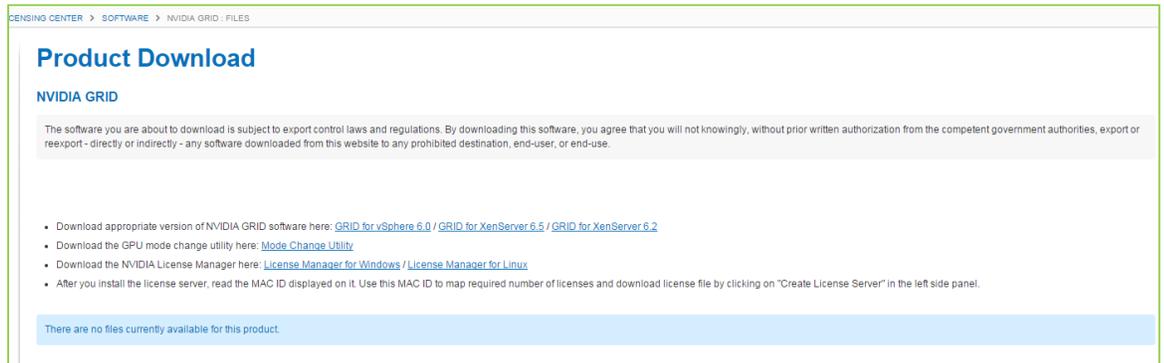
Select a version.

Current Releases

Archived Versions

Version	Description
2.0	<a href="#">NVIDIA GRID</a> <span style="font-size: x-small; color: #0070C0;">Click here to access your downloads</span>

2. Select the Current Releases tab.
3. Select the NVIDIA GRID link to access the **Product Download** page containing the following software download links:
  - **Host Driver Software:** Select the host driver software based on the hypervisor brand and version you are running. NVIDIA GRID vGPU is supported on the latest versions of Citrix XenServer and VMware vSphere ESXi (refer to the release notes for the specific version).
  - **GPU mode change utility:** The Tesla M60/M6 boards are shipped in *Compute Mode*. In order to run NVIDIA GRID 2.0 vGPU, the GPUs on the board, this must be changed to *Graphics Mode*. The GPU mode change utility is used to switch modes.
  - **NVIDIA License Manager Software:** The license manager software is required to enable the Guest OS to utilize the NVIDIA GRID 2.0 vGPU profiles by checking out a license at boot time.



4. Select the software you need and download to your server.

## License Server Creation, Installation, and Management

The NVIDIA GRID License Server manages a pool of floating licenses to enable NVIDIA GRID licensed products. It is installed onsite and configured with licenses generated and retrieved from NVIDIA's Licensing Portal website (see Figure 1). The NVIDIA GRID 2.0 vGPU profiles are licensed features on NVIDIA Tesla GPUs. These features are activated during a Guest OS boot by acquiring a software license issued from an NVIDIA GRID license server. The license is returned to the license pool on the server when the Guest OS shuts down.

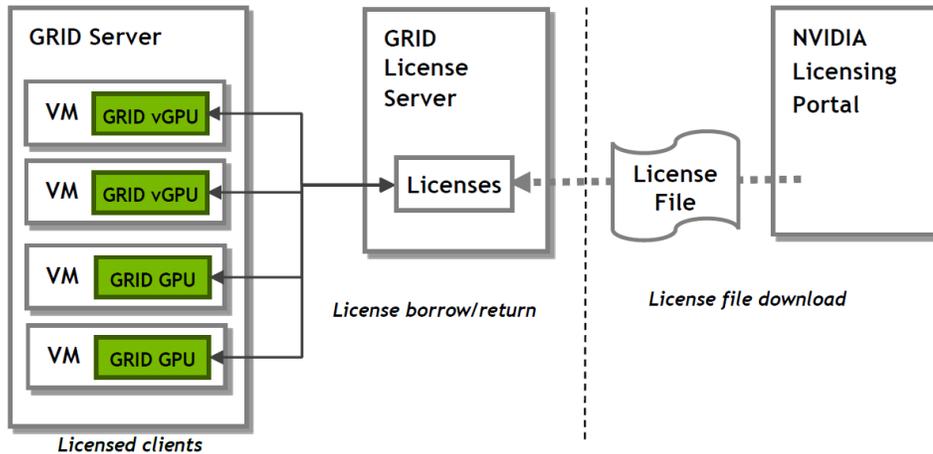


Figure 1. NVIDIA License Server

The license server requires a fixed IP address. The IP address may be assigned through DHCP or can be statically configured. The server's Ethernet MAC address is used as a unique identifier when registering the server and generating licenses in NVIDIA's licensing portal. The server runs on either Windows or Linux.



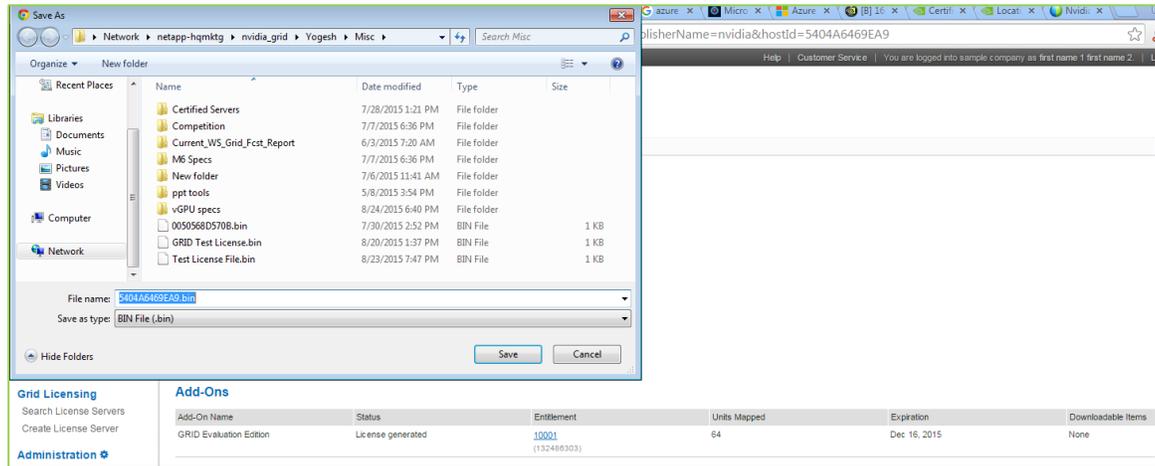
The system clock must to be accurate; NTP is recommended.

Use the following procedure to create a server interface:

1. Select Create License Server from under GRID Licensing in the left pane of the **NVIDIA Software Licensing Center** page to display the **Create Server** page.

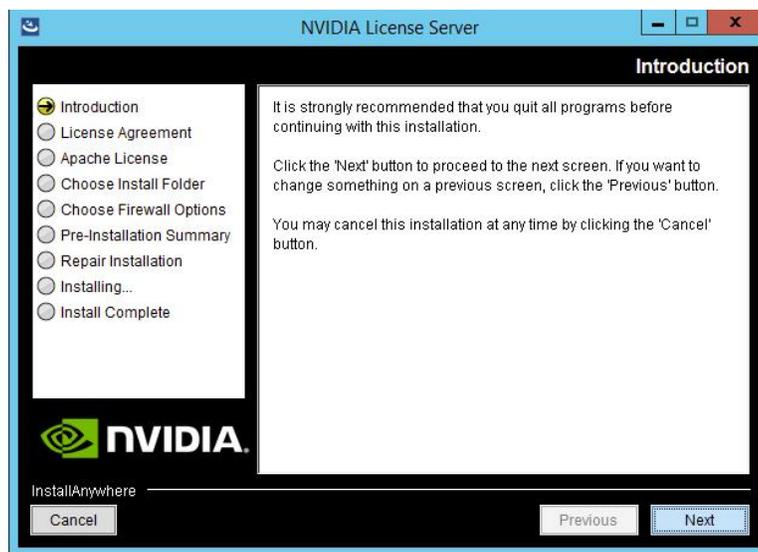
2. Fill in your server details on the Create Server page.

Save the **.bin** file onto your license server for installation.  
Java is required to install the NVIDIA GRID License Server. The package comes in a **.zip** file.

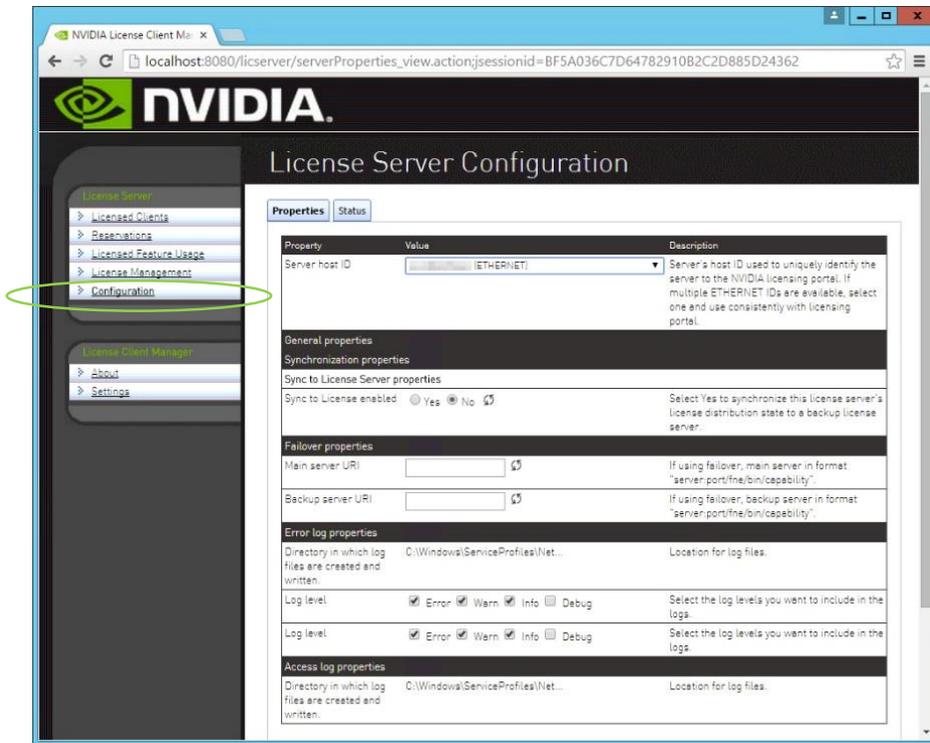


**IMPORTANT:** The **.bin** file downloaded to your server is valid for 24 hours. If you do not install the **.bin** file within those 24 hours, you need to download the file again.

- Unzip the license server installer.
- Run **setup.exe** and follow the installation wizard.



5. Go to <http://<FQDN of the license Server>:8080/licserver> to display the License Server Configuration page. You will need the License Server's MAC Address to generate a license **.bin** file on the portal.



6. Select Configuration from the menu in the left pane.
7. Use the License Server Configuration menu to install the **.bin** file:
  - a) Select Choose File.
  - b) Use the file browser to locate the **.bin** file downloaded from the licensing portal web site.

## GPU Mode Switch Utility

The mode of the GPU is established at power-on from settings stored in the GPU's non-volatile memory. The command **gpumodeswitch** is used to program the mode of the GPU by updating the GPU's non-volatile memory settings.

The utility can be run in a Windows 64-bit command prompt or in a Linux 32/64-bit shell, including Citrix XenServer dom0.)

If the server platform hosting the Tesla GPUs does not natively run any of the supported environments, we recommend temporarily booting Linux on the server. The package includes bootable Linux images for this purpose.

To switch a GPU's mode, use the **--gpumode** command. For example:

- ▶ **gpumodeswitch --gpumode graphics** switches all the GPUs to graphics mode
- ▶ **gpumodeswitch --gpumode compute** switches all GPUs to compute mode.

A reboot is required after the mode has been changed.

## INSTALL HOST DRIVER

Before NVIDIA GRID vGPU-enabled Guests can be configured, the NVIDIA GRID Host software must be installed into the Hypervisor. Citrix XenServer utilizes an **.rpm** file and VMware vSphere ESXi utilizes a **.vib** file.

Use the following procedure to install the host driver:

1. Copy the NVIDIA Driver file to the Host Server.
2. Install the Driver into the Hypervisor.
3. Reboot the Host Server.
4. Verify successful installation.

### Hypervisor-specific Steps

1. For vSphere, copy the **.vib** file to the ESXi host and put the host in Maintenance Mode:
 

```
$ esxcli system maintenanceMode set --enable true
```
2. Install the **Nvidia vib** file by running the following command:
 

```
$ esxcli software vib install -v /tmp/NVIDIA**.vib
```

**NVIDIA\*\*** should be the full NVIDIA vib file name.

3. Exit out of the maintenance mode using the following command:  

```
$ esxcli system maintenanceMode set --enable false  
$ reboot
```

The ESXi host is rebooted.

4. Verify the NVIDIA GPU card after the reboot using the following command:  

```
$ nvidia-smi
```

For XenServer, the GRID vGPU Manager runs in XenServer's Control Domain (dom0). It is installed as an RPM file which is copied to the XenServer and installed.

1. Copy the RPM file to the Host Server
2. Use the rpm command to install the package:  

```
[root@xenserver ~]# rpm -iv NVIDIA-*.rpm
```
3. Reboot the XenServer host  

```
[root@xenserver ~]# shutdown -r now
```
4. Verify that the GRID package has loaded after the XenServer host has rebooted  

```
[root@xenserver ~]# lsmod |grep nvidia  
nvidia 8152994 0  
i2c_core 20294 2 nvidia,i2c_
```

Refer to the appropriate *NVIDIA GRID vGPU Deployment Guide* for detailed instructions.

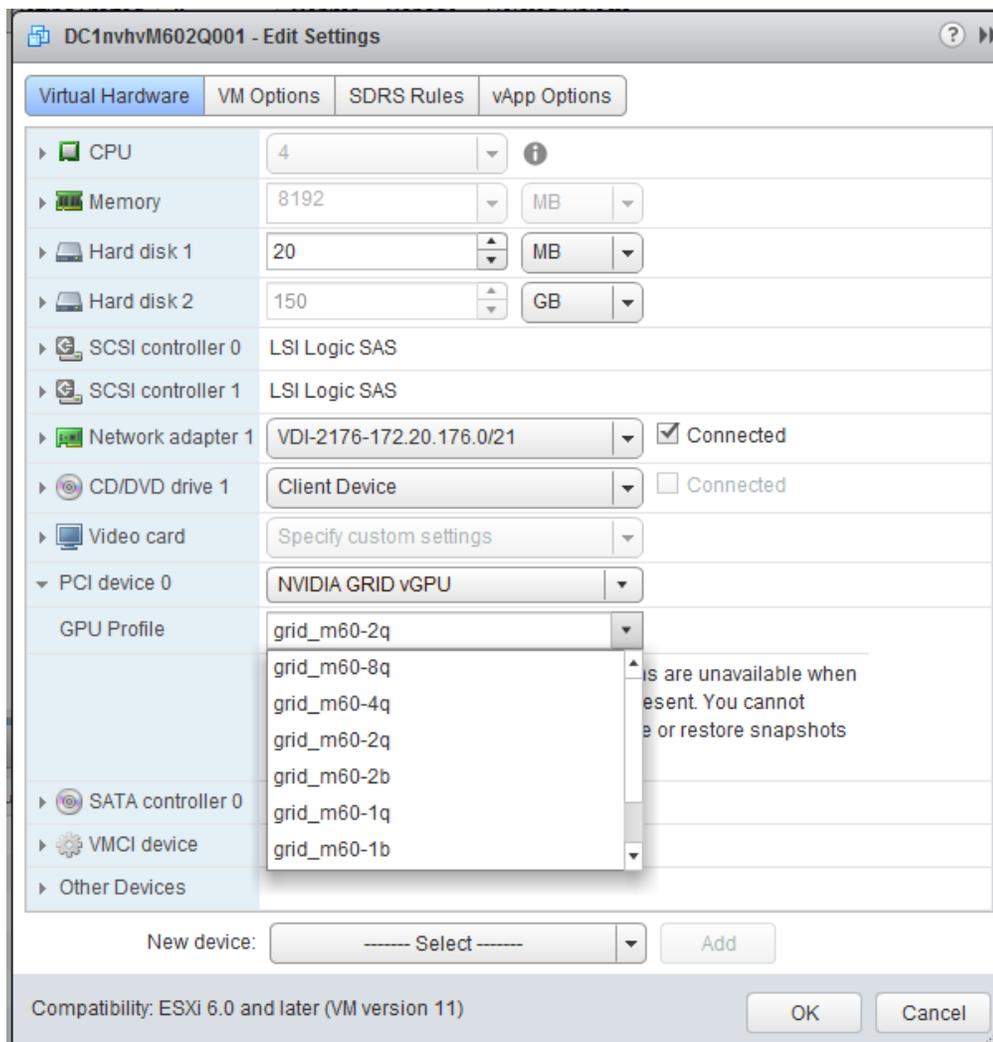
## Attach vGPU Profile to a VM

To have an attached vGPU profile you must configure the Virtual Machine Hardware.

### vSphere

For vSphere, use the following procedure:

1. Open vCenter.
2. Go to Edit VM settings.
3. Add Shared PCI Device under New Device.
4. Select Add.
5. Select GPU profile, then select OK.
6. Start VM.



## XenServer

For XenServer use the following procedure:

1. Select New VM using XenCenter and step through the New VM wizard.
2. Select the Installation Media, Home Server, CPU & Memory option. GPU-enabled servers display a GPU configuration page
3. Select either Passthrough whole or a vGPU type from the GPU Type dropdown list (unavailable vGPU types are greyed out).
4. Click Next to configure Storage and Networking
5. Select Create Now when your configuration has completed.

## Install the NVIDIA driver into a VM

Before the VM can utilize the NVIDIA vGPU in your VM, you need to install the NVIDIA Graphics Driver into the Guest OS.

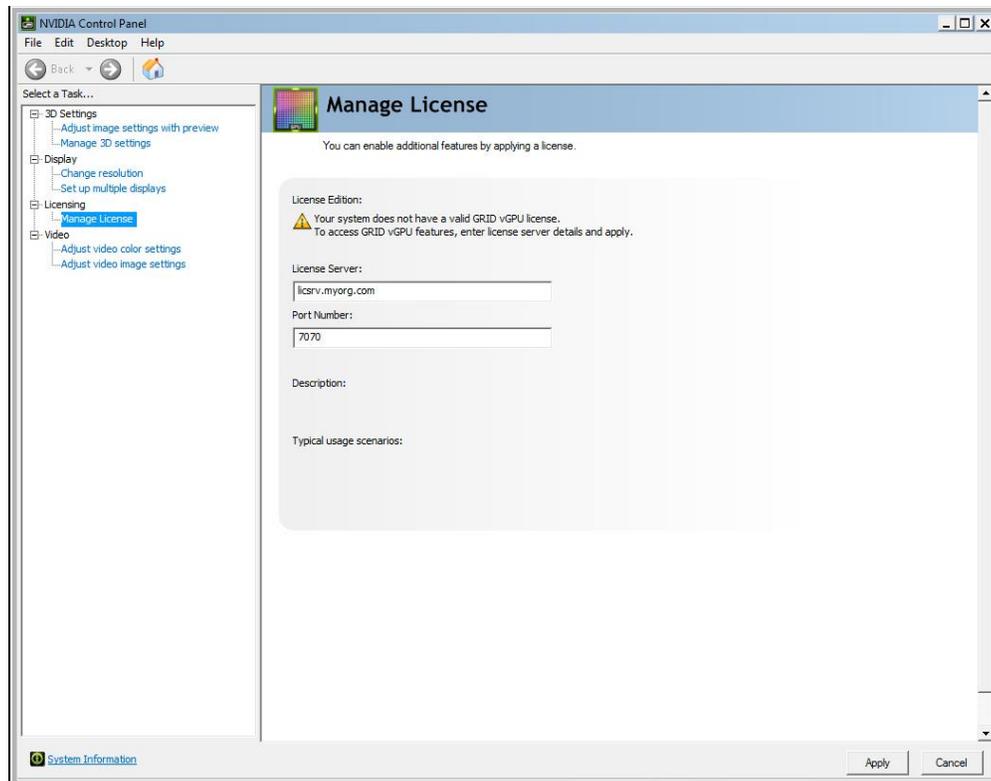
1. Install NVIDIA vGPU driver.
2. Select Custom (Advanced).
3. Select Clean installation.
4. Restart VM and connect to VM.



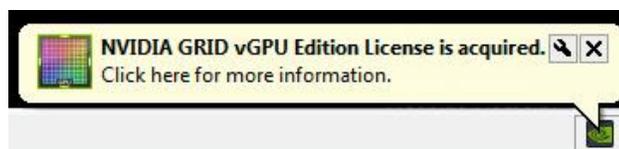
## Configure a VM for an NVIDIA GRID vGPU License

To enable a VM access to an NVIDIA GRID vGPU license, you need to configure the Manage License Feature from the NVIDIA Control Panel (right-click on your desktop to access the NVIDIA Control Panel). Select enter the license server address and port. These settings can be preloaded through register keys. The license settings persist across reboots. A license is obtained prior to the user logging into the VM.

1. Go to the NVIDIA Control Panel (right-click on your desktop).



2. Select Manage License from the left pane.
3. Enter your license server address and port.  
These settings can be preloaded through register keys. The license settings persist across reboots. A license is obtained prior to the user logging into the VM.
4. Select Apply.



**Congratulations. You have now completed the installation off the NVIDIA GRID Enterprise software.**

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