

05_CVD: NVAIE Host Driver Prerequisites

Deploy NVIDIA Licensing Server

Deployment Steps:

1. Deploy a NVIDIA Licensing Server using [NVIDIA Licensing Portal](#) (NLP). A Delegated License System (DLS) is locally deployed for this solution. The remaining steps will be completed using different sections of the [NVIDIA Licensing System User Guide](#).

The screenshot shows the NVIDIA Licensing Application Hub interface. The left sidebar includes links for Dashboard, Entitlements, License Servers, Network Entitlements, Virtual Groups, User Management, Software Downloads (which is selected and highlighted in green), Events, Leases, Service Instances, API Keys, Support (which has a dropdown menu with 'Email' and 'Support'), and a collapsed sidebar. The main content area is titled 'Software Downloads' and displays a list of software downloads for the Cisco OEM Elite Parent Account. The list is filtered for 'Non-Driver downloads' under the 'DLS' category for 'VMware vSphere'. The columns are Platform, Description, and Release Date. Each entry includes a 'Download' link. The table rows are:

PLATFORM	DESCRIPTION	RELEASE DATE	ACTION
VMware vSphere	NLS License Server (DLS) 3.2 for VMware vSphere	Oct 20, 2023	Download
VMware vSphere	NLS License Server Security Patch (DLS) 3.1.1 for VMware vSphere	Oct 18, 2023	Download
VMware vSphere	NLS License Server (DLS) 3.1 for VMware vSphere	Jun 21, 2023	Download
VMware vSphere	NLS License Server (DLS) 2.1 for VMware vSphere	Jan 4, 2023	Download
VMware vSphere	NLS License Server (DLS) 2.0.1 for VMware vSphere	Aug 29, 2022	Download
VMware vSphere	NLS License Server (DLS) 1.1 for VMware vSphere	Feb 14, 2022	Download
VMware vSphere	NLS License Server (DLS) 1.0 for VMware vSphere	Aug 24, 2021	Download

2. Deploy a DLS instance in the FlashStack Infrastructure Management network using the steps outlined in the **Installing the DLS Virtual Appliance on VMware vSphere** section. The DLS instance is managed through the NVIDIA Licensing application on the DLS instance and through the NVIDIA Licensing Portal. Go to **DLS Instance Instructions** for the remaining configuration steps.
 3. To be able to allocate licenses using DLS, you must create at least one license server on the NVIDIA Licensing Portal to acquire a set of licenses that the on-prem DLS can use for allocating licenses -complete this using the **Creating a License Server on the NVIDIA Licensing Portal** section.
 4. To enable the DLS instance to be bound to a license server, you must register the instance with the NVIDIA Licensing Portal. Download a DLS Instance Token and upload it to NLP to register the local instance as outlined in the **Registering an on-Premises DLS Instance with the NVIDIA Licensing Portal** section.
 5. To ensure that licenses on the server are available only from that service instance, follow the steps outlined in the **Binding a License Server to a Service Instance** section.
 6. After binding a license server to a service instance, you must install the license server on the service instance to make the licenses on the server available to the instance as outlined in the **Installing a License Server on a DLS Instance** section.
 7. To allot the licenses on the new server to a license pools, complete the steps outlined in **Creating a License Pool** section.
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Deploy NVIDIA GPU Manager

NVIDIA GPU Manager for VMware vCenter enables you to manage NVIDIA GPUs from the vSphere client of VMware vCenter Server. You can download and install NVIDIA GPU drivers using a web-based tool integrated with the vSphere web client instead of executing commands on the hypervisor. NVIDIA GPU Manager for VMware vCenter consists of:

- **NVIDIA GPU Manager for VMware vCenter virtual appliance:** This consists of GPU Manager application responsible for registering GPU Manager with VMware vCenter, Drivers repository for storing downloaded drivers and web-based management interface.
- **vSphere client plugin for VMware vCenter**

Deployment Steps:

1. Deploy NVIDIA GPU Manager for VMware vCenter as outlined [here](#).
2. To register NVIDIA GPU Manager for VMware vCenter Administrator User, use a browser to navigate to NVIDIA GPU Manager VM. On the Register User Account page that opens, provide a password for the NVIDIA GPU Manager for VMware vCenter administrator user **vcp_admin**. Click **Register**. Save the local reset secret safely to reset the password in the future. Click **Continue to Login** and login as **vcp_admin**.
3. To register NVIDIA GPU Manager so that you can download and manage NVIDIA GPU drivers from vSphere client, use a browser to navigate to NVIDIA GPU Manager VM. From the left navigation menu, select **REGISTRATION**. The registration process will install the vSphere plugin for the GPU Manager in VMware vCenter. Provide VMware vCenter information and click on **REGISTER**. Verify the registration was successful by logging into VMware vCenter and verify that you can see the NVIDIA GPU Manager in the Client Plugins. Navigate to **Administration > Solutions > Client Plugins** to see the plugins.

The screenshot shows the vSphere Client interface with the 'Client Plugins' section open. The left sidebar shows the navigation menu with 'Client Plugins' selected. The main pane displays a table of installed client plugins:

Name	Type	Status	VMware Certified	Vendor
NVIDIA GPU Manager	Remote	Deployed	Yes	NVIDIA, Inc.
Pure Storage Manager	Remote	Deployed	Yes	Pure Storage, Inc.
VMware vCenter Server Lifecycle Manager	Remote	Deployed	No	VMware, Inc.
VMware vSphere Lifecycle Manager Client	Remote	Deployed	Yes	VMware, Inc.
VMware vRops Client Plugin	Local	Deployed	No	VMware, Inc.
VMware vSAN Plugin	Remote	Deployed	Yes	VMware, Inc.
VMware vSphere Lifecycle Manager	Local	Deployed	Yes	VMware, Inc.

At the bottom right of the table, it says '7 items'.

4. Also navigate to vCenter Life Cycle Manager settings and confirm that you can see the drivers repo in the table under **Administration > Patch Setup**.

The screenshot shows the vSphere Client interface with the 'Lifecycle Manager' tab selected. In the left navigation pane, 'Patch Setup' is highlighted under 'Administration'. The main content area displays a table titled 'Patches downloaded from the internet' with the following data:

Download Source	Enabled	Connectivity Status	Source	Component	Description
https://hostupdate.vmware.com/software...	Yes	Validating...	VMware	Host	Partner provided Ac...
https://hostupdate.vmware.com/software...	Yes	Validating...	VMware	Host	Download vSphere I...
https://hostupdate.vmware.com/software...	Yes	Validating...	VMware	Host	VMware Certified As...
https://hostupdate.vmware.com/software...	Yes	Validating...	VMware	Host	VMware Async Relo...
https://10.119.1.227/DriverRepo/Index.xml	Yes	Validating...	Custom	Host	NVIDIA GPU Manager...

Register GPU Manager with NVIDIA Licensing Portal

To dynamically download NVIDIA Host Drivers to GPU Manager repository from NVIDIA Licensing Portal (NLP) requires a software downloads API key for authentication that must be downloaded and installed on the GPU Manager as outlined in the steps below.

1. Use a browser to navigate and login to NVIDIA Licensing Portal (NLP).
2. In the left navigation pane of the NLP dashboard, click on **API KEYS**.
3. In the API Key Management pop-up window, click on **CREATE API KEY**.
4. In the Create API Key pop-up window, provide the necessary information and click on **CREATE API KEY**.
5. Provide a name for the API Key, specify the Access Type as **Software Downloads** and accept the license agreement.
6. In the **API Key Management** table, select the API key and click on **View API Key** to the right of it.

The screenshot shows the 'API Key Management' page of the NVIDIA Licensing application. The left sidebar includes links for Dashboard, Entitlements, License Servers, Network Entitlements, Virtual Groups, User Management, Software Downloads, Events, Leases, Service Instances, and API Keys. The main content area displays a table of API keys with columns for Name, Access, Creator, Expires, Key, and Status. The table shows three entries:

NAME	ACCESS	CREATOR	EXPIRES	KEY	STATUS
FSV-NV-API-Key2	Licensing State, Software Downloads, Enterprise	asharma@cisco.com	Oct 22, 2024 11:39 PM	view api key	ACTIVE
FSV-NV-API-Key1	Licensing State, Software Downloads, Enterprise	asharma@cisco.com	Oct 16, 2024 10:24 PM	view api key	ACTIVE
FSV-NV-API-Key	Licensing State, Software Downloads, Enterprise	asharma@cisco.com	Oct 16, 2024 9:59 PM	view api key	ACTIVE

7. Copy key to clipboard.
8. Navigate to VMware vCenter > GPU Manager and paste the key in the box provided and click Enter. The output should look as shown below.

The screenshot shows the vSphere Client interface with the NVIDIA GPU Manager tab selected. The top bar includes the vSphere Client logo, a search bar, and user navigation icons. The main content area shows the NVIDIA GPU Manager instance details and an 'NVIDIA Licensing Portal API Key' input field. The field contains a placeholder value, and a green 'APPLY' button is visible next to it. A status message 'NVIDIA Licensing Portal API Key is applied' with a checkmark is displayed in a green box.

9. Go to **Driver Download** tab to verify that you can see the host drivers in the GPU manager from NLP. Select a driver to download to GPU Manager repo so that you can use VMware Life Cycle Manager to deploy it.

NVIDIA GPU Manager INSTANCE 10.119.1.227:443

Driver Download Manage Drivers Events Support

NVIDIA Licensing Portal API Key

REFRESH CATALOG DOWNLOAD SELECTED

Global: 525.60 Search...

NAME	DRIVER VERSION	PRODUCT VERSION	PLATFORM	RELEASE DATE
NVIDIA_ESXi_8.0_VGPU_15.0_525.60.12	525.60.12	15.0	ESXi 8.0	2022-12-02
NVIDIA_ESXi_8.0_NVAIE_3.0_525.60.12	525.60.12	3.0	ESXi 8.0	2022-12-15

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Recent Tasks Alarms

10. Downloaded drivers can be seen in the **Manage Drivers** tab.

vSphere Client Search in all environments

NVIDIA GPU Manager INSTANCE 10.119.1.227:443

Driver Download Manage Drivers Events Support

Total Downloads 1 Storage 0.06 GB Used | 15 GB Total

X DELETE SELECTED DOWNLOADS

Search...

NAME	DRIVER VERS...	PRODUCT VE...	PLATFORM	RELEASE DATE
NVIDIA_ESXi_8.0_NVAIE_3.0_525.60.12	525.60.12	3.0	ESXi 8.0	2022-12-15

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