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# Monitoring NVIDIA GPU

NVIDIA GPU PowerPack version 101

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# Chapter

# 1

## Introduction

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### Overview

This manual describes how to monitor NVIDIA GPU devices in Skylar One using the Dynamic Applications in the "NVIDIA GPU" PowerPack.

This chapter covers the following topics:

<i>What Does the NVIDIA GPU PowerPack Monitor?</i> .....	3
<i>Installing the NVIDIA GPU PowerPack</i> .....	4

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### What Does the NVIDIA GPU PowerPack Monitor?

To monitor NVIDIA GPUs using Skylar One, you can install the "NVIDIA GPU" PowerPack. This PowerPack enables you to align Dynamic Applications to NVIDIA GPU devices to collect data.

The "NVIDIA GPU" PowerPack includes:

- Dynamic Applications that enable Skylar One to align to and monitor NVIDIA GPU devices
- Event Policies that are triggered when NVIDIA GPU devices meet certain status criteria
- A sample SSH Credential ("Nvidia GPU Monitoring - Example") that you can use to create your own NVIDIA Credential
- A Device Template ("Nvidia GPU Monitor Template") that aligns NVIDIA Dynamic Applications with devices

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## Installing the NVIDIA GPU PowerPack

Before completing the steps in this manual, you must import and install the latest version of the "NVIDIA GPU" PowerPack.

**NOTE:** Starting with version 101 of the NVIDIA GPU PowerPack, GPU indexing now falls back to use the universally unique identifier (UUID) when the serial number is reported as N/A or unavailable. If you upgrade from version 100 of the PowerPack, and your environment previously reported N/A serial numbers, you may see changes in performance graphs and newly created GPU objects in Configuration views. This behavior is expected, and you should allow two to three polling cycles for data and graphs to fully normalize.

**TIP:** By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the **Enable Selective PowerPack Field Protection** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. For more information, see the section on [Global Settings](#).

**NOTE:** For details on upgrading Skylar One, see the relevant [Skylar One Platform Release Notes](#).

To download and install the PowerPack:

1. Search for and download the PowerPack from the **PowerPacks** page at the [ScienceLogic Support Center](#) (Skylar One > PowerPacks, login required).
2. In Skylar One, go to the **PowerPacks** page (System > Manage > PowerPacks).
3. Click the **[Actions]** button and choose *Import PowerPack*. The **Import PowerPack** dialog box appears.
4. Click **[Browse]** and navigate to the PowerPack file from step 1.
5. Select the PowerPack file and click **[Import]**. The **PowerPack Installer** modal displays a list of the PowerPack contents.
6. Click **[Install]**. The PowerPack is added to the **PowerPacks** page.

**NOTE:** If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPacks** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

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# Chapter

# 2

## Configuring NVIDIA GPU Monitoring

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### Overview

This section describes how to configure NVIDIA GPU devices for monitoring by Skylar One using the "NVIDIA GPU" PowerPack.

This chapter covers the following topics:

<i>Prerequisites for Monitoring NVIDIA GPU Devices</i> .....	6
<i>Creating an SSH/Key Credential for NVIDIA GPU</i> .....	7
<i>Discovering an NVIDIA GPU Device</i> .....	8
<i>Aligning Dynamic Applications to NVIDIA GPU Devices</i> .....	9

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### Prerequisites for Monitoring NVIDIA GPU Devices

To configure the Skylar One system to monitor NVIDIA GPU devices using the "NVIDIA GPU" PowerPack, you must first have the following information about NVIDIA GPU:

- SSH (Secure Shell) credentials with permissions to run the `nvidia-smi` command.
- Physical NVIDIA GPU devices that you can align with the Dynamic Applications included in this PowerPack.

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## Creating an SSH/Key Credential for NVIDIA GPU

To configure Skylar One to monitor NVIDIA GPU devices, you must first create an SSH/Key credential. This credential allows the Dynamic Applications in the "NVIDIA GPU" PowerPack to communicate with NVIDIA GPU devices.

The PowerPack includes an example SSH/Key credential that you can edit for your own use.

To configure an SSH/Key credential to access an NVIDIA GPU:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **Nvidia GPU Monitoring- Example** sample credential, click its **[Actions]** icon (⋮) and select **Duplicate**. A copy of the credential, called **Nvidia GPU Monitoring - Example copy** appears.
3. Click the **[Actions]** icon (⋮) for the **Nvidia GPU Monitoring - Example copy** credential and select **Edit**. The **Edit Credential** modal page appears.
4. Supply values in the following fields:
  - **Name**. Type a new name for the credential.
  - **Hostname/IP**. Type "%D". Skylar One will replace it with the device's IP.
  - **Timeout (ms)**. The time in milliseconds, after which Skylar One will stop trying to communicate with the monitored host.
  - **Username**. Type the SSH account username. This will be used to connect to the monitored host.
  - **Password**. Type the password for the SSH account.
  - **Private Key (PEM Format)**. Type the SSH private key.

**NOTE:** The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, Skylar One will validate that the private key entered is in the correct format. You will be able to save the credential only if the private key is correctly formatted.

5. Click **[Save & Close]**.

## Creating an SSH/Key Credential for NVIDIA GPU in the Skylar One Classic User Interface

To configure Skylar One to monitor NVIDIA GPU devices, you must first create an SSH/Key credential. This credential allows the Dynamic Applications in the "NVIDIA GPU" PowerPack to communicate with NVIDIA GPU devices.

The PowerPack includes an example SSH/Key credential that you can copy and edit for your own use.

To configure an SSH/Key credential to access an NVIDIA GPU:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Locate the **Nvidia GPU Monitoring- Example** credential, then click its wrench icon (). The **Edit SSH/Key Credential** modal page appears:
3. Complete the following fields:
  - **Name**. Type a new name for the credential.
  - **Hostname/IP**. Type "%D". Skylar One will replace it with the device's IP.
  - **Timeout (ms)**. The time in milliseconds, after which Skylar One will stop trying to communicate with the monitored host.
  - **Username**. Type the SSH account username. This will be used to connect to the monitored host.
  - **Password**. Type the password for the SSH account.
  - **Private Key (PEM Format)**. Type the SSH private key.

**NOTE:** The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, Skylar One will validate that the private key entered is in the correct format. You will be able to save the credential only if the private key is correctly formatted.

4. Click the **[Save As]** button.

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## Discovering an NVIDIA GPU Device

To create and run a discovery session that will discover an NVIDIA GPU root device, perform the following steps:

1. On the **Devices** page () or the **Discovery Sessions** page (Devices > Discovery Sessions), click the **[Add Devices]** button. The **Select** page appears.
2. Click the **[Unguided Network Discovery]** button. Additional information about the requirements for discovery appears in the **General Information** pane to the right.
3. Click **[Select]**. The three step discovery wizard appears, starting with the **Basic Information** page.
4. Complete the following fields:
  - **Name**. Type a unique name for this discovery session. This name is displayed in the list of discovery sessions on the **[Discovery Sessions]** tab.
  - **Description**. Optional. Type a short description of the discovery session. You can use the text in this description to search for the discovery session on the **[Discovery Sessions]** tab.
  - **Select the organization to add discovered devices to**. Select the name of the organization to which you want to add the discovered devices.

5. Click **[Next]**. The **Credential Selection** page of the wizard appears.
6. On the **Credential Selection** page, locate and select the [SSH/ Key credential](#) you created.
7. Click **[Next]**. The **Discovery Session Details** page of the **Add Devices** wizard appears:
8. Complete the following fields:
  - **List of IPs/Hostnames**. Type the IP address for the NVIDIA GPU root device.
  - **Which collector will discover these devices?**. Select an existing collector to monitor the discovered devices. Required.
  - **Run after save**. Select this option to run this discovery session as soon as you click **[Save and Close]**.
9. Click **[Save and Close]** to save the discovery session. The **Discovery Sessions** page (Devices > Discovery Sessions) displays the new discovery session.
10. If you selected the **Run after save** option on this page, the discovery session runs, and the **Discovery Logs** page displays any relevant log messages. If the discovery session locates and adds any devices, the **Discovery Logs** page includes a link to the **Device Investigator** page for the discovered device.

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## Aligning Dynamic Applications to NVIDIA GPU Devices

A **device template** allows you to save a device configuration and apply it to multiple devices. The "NVIDIA GPU" PowerPack includes the "Nvidia GPU Monitor Template" which enables Skylar One to align all Dynamic Applications to the root component device.

### Configuring the Device Template

Before you can use the "Nvidia GPU Monitor Template" you need to configure the template so that each dynamic application in the template aligns with the [credential you created earlier](#).

To configure the device template:

1. Go to the **Configuration Templates** page (Devices > Templates).
2. Locate the "Nvidia GPU Monitor Template" and click its wrench icon (). The **Device Template Editor** modal page appears.
3. Change the name of the template and click **[Save As]**. This will create a copy of the template.
4. Click the **[Dyn Apps]** tab. The **Editing Dynamic Application Subtemplates** page appears.
5. In the **Credentials** drop-down list, select the credential that you created for NVIDIA GPU.
6. Click the next Dynamic Application listed in the **Subtemplate Selection** section on the left side of the page and then select the credential you created in the **Credentials** field.
7. Repeat step 5 until you have selected that credential in the **Credentials** field for all of the Dynamic Applications listed in the **Subtemplate Selection** section.
8. Click **[Save]**.

## Using the Device Template to Align Dynamic Applications to NVIDIA GPU Devices

To align the NVIDIA GPU Dynamic Applications to NVIDIA GPU devices:

1. Go to the **Device Manager** page (Devices > Classic Devices, or Registry > Devices > Device Manager in the classic SL1 user interface).
2. On the **Device Manager** page, select the checkbox for all devices where you want to align the NVIDIA GPU Dynamic Applications.
3. In the **Select Actions** field, in the lower right, select the option *MODIFY by Template* and click the **[Go]** button. The **Device Template Editor** page appears:
4. Complete the following fields:
  - In the **Template** drop-down list, select the name of the device template you configured earlier.
  - In the **Credentials** drop-down list, select the credential you created earlier.
5. Click the **[Apply]** button, and then click **[Confirm]** to align the Dynamic Applications to the selected devices.
6. Confirm that the Dynamic Applications were aligned with the selected devices by clicking on a device's wrench icon (🔧) and selecting the **[Collections]** tab. Any aligned Dynamic Applications will be listed.

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