Working with Inventory

This chapter describes how to use the Inventory feature in Cisco Data Center Network Manager for LAN(DCNM-LAN).

This chapter includes the following sections:

Information About Inventory

The Inventory feature displays information about the components that comprise a selected managed device and power usage information for managed Cisco Nexus 7000 Series switches. In addition, it allows you to configure fundamental system parameters on virtual switches, such as the Cisco Nexus 1000V Series switch. For information about configuring virtual switches, see Chapter 18, "Managing Virtual Devices."

System-message logging levels for the Inventory feature must meet or exceed Cisco DCNM requirements. During device discovery, Cisco DCNM detects inadequate logging levels and raises them to the minimum requirements. Cisco Nexus 7000 Series switches that run Cisco NX-OS Release 4.0 are an exception. For Cisco NX-OS Release 4.0, prior to device discovery, use the command-line interface to configure logging levels to meet or exceed Cisco DCNM requirements. For more information, see the *Cisco DCNM Fundamentals Configuration Guide, Release 5.x*.

This section includes the following topics:

Understanding Inventory

The Inventory feature displays summary and detailed information about the chassis, modules, fan trays, and power supplies for managed devices.

Understanding Power Usage

Cisco DCNM displays information about the power usage of managed Cisco Nexus 7000 Series switches, including an aggregation of the power usage for all managed Cisco Nexus 7000 Series switches, summary information for a specific device, and graphical information for a selected device.

You can configure Cisco DCNM to collect power usage statistics for up to six managed devices.

Module Pre-Provisioning

Note   This feature is supported only on the Cisco Nexus 5000 Series switches.

The pre-provisioning feature allows you to preconfigure interfaces before inserting or attaching a module to a Cisco Nexus 5000 Series switch. If a module goes offline, you can use pre-provisioning to make changes to the interface configurations for the offline module. When a pre-provisioned module comes online, the pre-provisioning configurations are applied. If any configurations were not applied, a syslog is generated. The syslog lists the configurations that were not accepted.

In some Virtual Port Channel (vPC) topologies, pre-provisioning is required for the configuration synchronization feature. Pre-provisioning allows you to synchronize the configuration for an interface that is online with one peer but offline with another peer.

Supported Hardware

The pre-provisioning feature supports the following hardware:

- N2K-C2148T Fabric Extender 48x1G 4x10G Module
- N2K-C2232P Fabric Extender 32x10G Module
- N2K-C2248T Fabric Extender 48x1G 4x10G Module
- N51-M16EP Cisco 16x10-Gigabit Ethernet Expansion Module
- N51-M8E8FP Cisco 8-port 1/2/4/8G FC and 8 Port 10-Gigabit Ethernet Expansion Module
- N5K-M1008 Cisco 8-port Fiber Channel Expansion Module 8 x SFP
- N5K-M1060 Cisco 6-port Fiber Channel Expansion Module 6 x SFP
- N5K-M1404 Expansion Module 4 x 10GBase-T LAN, 4 x Fiber Channel
- N5K-M1600 Cisco 6-port 10-Gigabit Ethernet SFP Module 6 x SFP

Upgrades and Downgrades

When upgrading from Cisco NX-OS Release 4.2(1)N2(1) and earlier releases to Cisco NX-OS Release 5.0(2)N1(1), there are no configuration implications. When upgrading from a release that supports pre-provisioning to another release that supports the feature including in-service software upgrades (ISSUs), pre-provisioned configurations are retained across the upgrade.

When downgrading from an image that supports pre-provisioning to an image that does not support pre-provisioning, you are prompted to remove pre-provisioning configurations.

Licensing Requirements for Inventory

The following table shows the licensing requirements for this feature:

Product	License Requirement
Cisco DCNM	Inventory requires no license. Any feature not included in a license package is bundled with Cisco DCNM and is provided at no charge to you. For information about obtaining and installing a Cisco DCNM LAN Enterprise license, see the *Cisco DCNM Installation and Licensing Guide, Release 7.1.x*.
Cisco NX-OS	Inventory requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For an explanation of the Cisco NX-OS licensing scheme for your platform, see the licensing guide for your platform.

Prerequisites

The Inventory feature has the following prerequisite (for a full list of feature-specific prerequisites, see the platform-specific documentation):

- System-message logging levels for the Inventory feature must meet or exceed Cisco DCNM requirements. During device discovery, Cisco DCNM detects inadequate logging levels and raises them to the minimum requirements. Cisco Nexus 7000 Series switches that run Cisco NX-OS Release 4.0 are an exception. For Cisco NX-OS Release 4.0, prior to device discovery, use the command-line interface to configure logging levels to meet or exceed Cisco DCNM requirements. For more information, see the *Fundamentals Configuration Guide, Cisco DCNM for LAN, Release 5.x* .

Platform Support

The following platforms support this feature but may implement it differently. For platform-specific information, including guidelines and limitations, system defaults, and configuration limits, see the corresponding documentation.

Platform	Documentation
Cisco Nexus 1000V Series switches[1]	Cisco Nexus 1000V Series Switch Documentation
Cisco Nexus 3000 Series switches	Cisco Nexus 3000 Series Switch Documentation

Platform	Documentation
Cisco Nexus 4000 Series switches[1]	Cisco Nexus 4000 Series Switch Documentation
Cisco Nexus 7000 Series switches	Cisco Nexus 7000 Series Switch Documentation

1. The power usage feature is supported only on the Cisco Nexus 7000 Series switch.

Configuring Module Pre-Provisioning

✎
Note   This feature is supported only on the Cisco Nexus 5000 Series switches.

The module pre-provisioning feature allows you to pre-provision a new module or a module that is present on the switch but is in a offline state.

This section includes the following topics:

- Pre-Provisioning Offline Modules, page 17-4
- Pre-Provisioning Online Modules, page 17-4
- Pre-Provisioning FEX Modules, page 17-5

Pre-Provisioning Offline Modules

✎
Note   This feature is supported only on the Cisco Nexus 5000 Series switches.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

The summary chassis information for each of the managed device is displayed in the Summary pane.

You can view the list of offline modules already configured for pre-provisioning.

Step 2   (Optional) From the Summary pane, in the Module Type drop-down list, choose the module type of the pre-provisioned slot you want to edit edit in the Details tab.

Step 3   Choose a chassis.

Step 4   Expand the chassis and click **Add New Provisioned Slot**.

Step 5   (Optional) In the pre-provisioned slot, expand the chassis and click **Delete Slot**.

The offline module is disabled.

Pre-Provisioning Online Modules

✎
Note   This feature is supported only on the Cisco Nexus 5000 Series switches.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

The summary chassis information for each of the managed device is displayed in the Summary pane.

Step 2   From the Summary pane, choose a chassis.

Step 3   Expand the chassis and choose a card type that corresponds to the online module.

Step 4   From the Details pane, click on the **pre-provisioning** drop-down list.

You can enable or disable the pre-provisioning.

Pre-Provisioning FEX Modules

Note   This feature is supported only on the Cisco Nexus 5000 Series switches.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

The summary chassis information for each of the managed device is displayed in the Summary pane.

Step 2   From the Summary pane, choose a FEX module.

Step 3   Expand the FEX chassis and choose a card type that corresponds to the online module.

Step 4   From the Details pane, click on the **pre-provisioning** drop-down list.

You can enable or disable the pre-provisioning.

Reloading a Line Card

Note   This feature is supported only on the Cisco Nexus 7000 Series device.

Beginning with Cisco DCNM Release 5.2(1), you can individually restart any line card in the device without affecting the operational state of other components in the switch.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

The summary chassis information for each of the managed device is displayed in the Summary pane.

Step 2   From the Summary pane, choose a chassis.

Step 3   Expand the chassis and choose a card type.

Step 4   Right-click the card type that you want and choose **Reload**.

A dialog box appears warning you that after the line card reload, the device will be rediscovered.

Step 5   Click **Yes** or **No** to confirm your decision.

Displaying Inventory Information

The Inventory feature displays summary and detailed information about the chassis, modules, fan trays, and power supplies for managed devices.

This section includes the following topics:

Displaying the Chassis Information

Cisco DCNM displays summary, detail, environmental, and event information for the chassis.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

Summary chassis information for each managed device appears in the Summary pane.

Step 2   To display additional information about a chassis, click the device.

Tabs appear in the Details pane with the Details tab selected.

Step 3   Click one of the following tabs:

- **Details**—Displays detailed hardware and software information.

- **Environmental Status**—Displays power usage and redundancy information.

- **CPU Utilization**—Displays collected statistics showing the percentage of utilization devoted to user or kernel functions. For more information on collecting statistics for this feature, see the "Working with Statistics and Charts" section on page 14-11.

- **Memory Utilization**—Displays collected statistics showing the memory utilization within specific thresholds. For more information on collecting statistics for this feature, see the "Working with Statistics and Charts" section on page 14-11.

- **Events**—Displays the chassis events, which includes the source, time, severity, message, and status of the event. To see details for the event, select the event in the Details pane and click the up arrow at the bottom of the details pane.

Displaying the Module Information

Cisco DCNM displays summary, detail, environmental, and event information for the supervisor modules, I/O modules, and fabric modules.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

Summary chassis information, including module description, product ID, serial number, hardware version, software version, status, temperature, and events, for each managed device appears in the Summary pane.

Step 2   From the Summary pane, expand the device.

The device listing expands to include a summary of each module, power supply, and fan tray in the chassis.

Step 3   Click the module.

Tabs appear in the Details pane with the Details tab selected.

Step 4   Click one of the following tabs:

- **Details**—Displays general identification information and special information for the selected module type.

- **Environmental Status**—Displays environmental status information for the selected supervisor module, I/O module, or fabric module. To see textual temperature information, expand the Temperature Status Table section. To see graphical temperature information, expand the Temperature Status Thermometer section.

- **TCAM Statistics**—Displays collected information about TCAM usage on the module. For more information on collecting statistics for this feature, see the "Working with Statistics and Charts" section on page 14-11.

- **Events**—Displays event information for the selected supervisor module, I/O module, or fabric module. To see details for an event, click on the event and click the up arrow button at the bottom of the pane.

Displaying the Power Supply Information

Cisco DCNM displays summary information, general details, and events for power supplies.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

Summary chassis information for each managed device appears in the Summary pane.

Step 2   From the Summary pane, expand the device.

The device listing expands to include a summary of each module, power supply, and fan tray in the chassis.

Step 3   Click the power supply.

Tabs appear in the Details pane with the Details tab selected.

Step 4   Click one of the following tabs:

- **Details**—Displays information including general identification information, power (watts), and current (Amps).

- **Events**—Displays event information, including source, time, severity, message, and status information for the events. To see details for an event, click on the event and click the up arrow button at the bottom of the pane. A field opens to display detailed event information.

RELATED TOPICS

Displaying the Fan Tray Information

Cisco DCNM displays summary information, general details, and events for fan trays.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory**.

Chassis summary information for the device appears in the Summary pane.

Step 2   From the Summary pane, expand the device.

A list of modules, power supplies, and fan trays appears under the device in the Summary pane. Each row includes summary information for the component.

Step 3   Click a fan tray.

Tabs appear in the Details pane with the Details tab selected.

Step 4   Click one of the following tabs:

- **Details**—Displays descriptive information and status for the fan tray.

- **Events**—Displays event information including the source, time, severity, message, and status of the event. You can display details for each event.

RELATED TOPICS

Displaying Power Usage Information

Cisco DCNM displays summary and detailed information about the power usage for one or more managed devices in your network. It also displays the aggregated power usage information of all the managed Cisco Nexus 7000 Series switches. You can configure Cisco DCNM to collect power usage statistics for up to six managed devices.

This section includes the following topics:

Displaying Power Usage Summary Information

Cisco DCNM displays summary information about the total power capacity and the power drawn, allocated, and available for aggregated power usage information of all the managed Cisco Nexus 7000 Series devices and for each managed device.

DETAILED STEPS

To display power usage summary information, from the Feature Selector pane, choose **Inventory > Power Usage**. Aggregated power usage information for all managed Cisco Nexus 7000 Series switches and power usage information for each managed device displays in the Summary pane.

RELATED TOPICS

Displaying Power Usage Details

You can display graphical details about the power usage for one or more managed devices in your network. The graphical information includes bar and pie charts. The bar chart shows the total capacity (watts), total allocated (watts), and total drawn/usage (watts) for the top or bottom five devices based on the power consumed by the devices. The top five starts with the device that consumes the maximum power. The pie chart shows the total drawn/used power and unused power for the selected devices.

DETAILED STEPS

Step 1   From the Feature Selector pane, choose **Inventory > Power Usage**.

Summary power usage information for the entire network and each managed device displays in the Summary pane.

Step 2   From the Summary pane, click the entire network or one or more devices.

The Details tab displays graphical details about the power usage for selected devices.

RELATED TOPICS

- Displaying Power Usage Summary Information, page 17-9
- Displaying Power Usage Statistics, page 17-10

Displaying Power Usage Statistics

The following window appears in the Statistics tab:

- Power Usage Statistics Chart—Displays statistics on the total capacity (watts), total drawn (watts), total allocated (watts), and total available (watts) for up to six managed devices.

RELATED TOPICS

- Displaying Power Usage Summary Information, page 17-9
- Displaying Power Usage Details, page 17-9

Field Descriptions

This section includes the following field descriptions for the Inventory and Power Usage features:

- Inventory: Details: Hardware Section, page 17-10
- Inventory: Details: Software Section, page 17-11
- Inventory: Power Usage, page 17-11

Inventory: Details: Hardware Section

Table 17-1   Inventory: Details: Hardware Section

Field	Description
Switch Name	Hostname assigned to the device.
Description	Word or phrase that describes the device.
Product ID	ID number for the device.
Serial Number	Serial number of the device.

Inventory: Details: Software Section

Table 17-2   Inventory: Details: Software Section

Field	Description
System Uptime	Date and time when the device was last uploaded.
System Image	
Image Name	Name of the image running on the device.
Location	Directory where the system image resides.
Version	Version number of the image running on the device.
Kickstart Image	
Image Name	Name of the kickstart image file.
Location	Directory where the kickstart image resides.
Version	Version number of the kickstart image file.

Inventory: Power Usage

Table 17-3   Inventory: Power Usage

Field	Description
Name	Name of the device group or device.
Total Capacity (Watts)	Total power capacity for all devices in the group or total power capacity of a device.
Total Drawn/Usage (Watts)	Total power used by all devices in the group or total power used by all the modules in a device.
Total Drawn/Usage (%)	Percentage of power used by all devices in the group or percentage of power used by all modules in a device.
Total Allocated (Watts)	Total power allocated for all devices in the group or total power allocated for all the modules in a device.
Total Available (Watts)	Total power available for all devices in the group or total power available for additional modules in a device.
Last Refresh Time	Time when the power usage information was last updated in Cisco DCNM.

Feature History for Inventory

Table 17-4 lists the release history for this feature.

Table 17-4   *Feature History for Inventory*

Feature Name	Releases	Feature Information
Module Pre-provisioning	5.2(1)	Support was added only for the Cisco Nexus 5000 Series switches.
Inventory	5.2(1)	Support was added for Cisco Nexus 3000 Series switches.
Inventory	5.1(1)	No change from Release 5.0.
Power Usage	5.0(2)	This feature was introduced.
Inventory	4.2(1)	Support was added for Cisco Nexus 5000 Series switches and Nexus 2000 Series Fabric Extenders.