CHAPTER 6

Working with Topology

This chapter describes how to use the Topology feature in Cisco Data Center Network Manager (DCNM).

This chapter includes the following topics:

Information About Topology

The Topology feature provides you with a topology map of the Cisco Nexus 7000 series devices and switches that run Cisco IOS software, such as the Catalyst 6500 series switches, that are linked by the Cisco Discovery Protocol (CDP). For Nexus devices, the map shows details about Virtual Device Contexts (VDCs).

When Cisco Data Center Network Manager (DCNM) receives new information, the DCNM client updates the map dynamically. By default, updates occur once a minute. You can see changes occur to the status of links and devices, such as links going down or VDC creation, deletion, or modification.

Because the map is always current, you can use it to troubleshoot ongoing network management issues.

You can modify and save the layout of device icons. The map also provides you quick access to configuring features for a managed device.

Licensing Requirements for Topology

The following table shows the licensing requirements for this feature:

Product	License Requirement
DCNM	Topology requires no license. Any feature not included in a license package is bundled with the Cisco DCNM and is provided at no charge to you. For a complete explanation of the DCNM licensing scheme, see the *Cisco DCNM Licensing Guide*.

Prerequisites for Topology

Topology has the following prerequisites:

- You should be familiar with the following:
  - Cisco NX-OS
  - Virtual Device Contexts (VDCs)
  - Cisco Nexus 7000 Series
  - Cisco Discovery Protocol (CDP)
- On devices shown in the topology map, CDP should be enabled both globally and specifically on interfaces used for device discovery.

Guidelines and Limitations

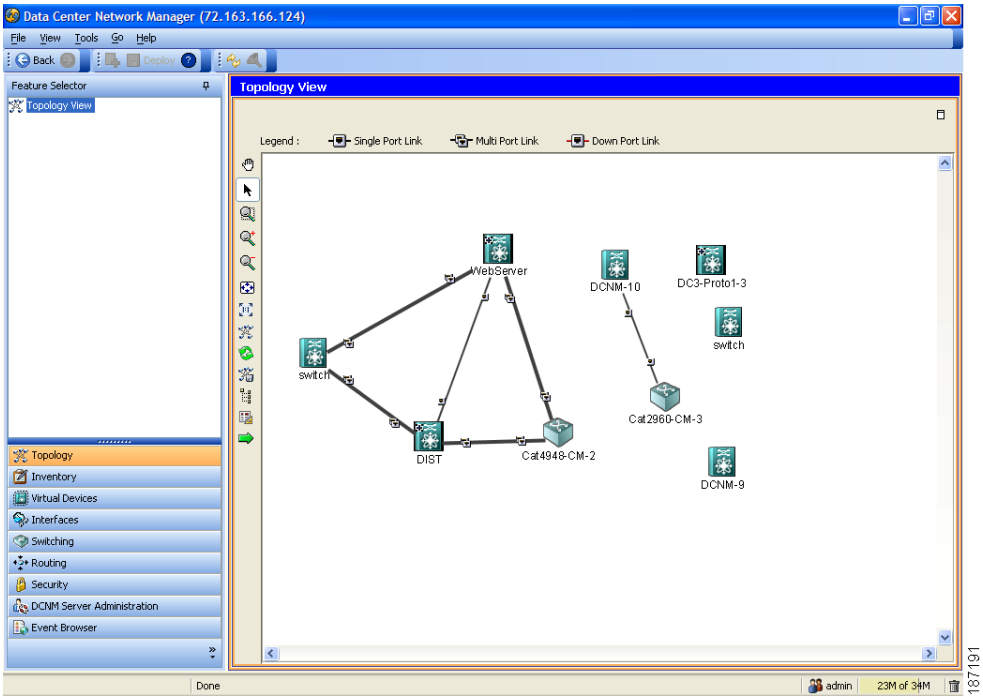
Topology has the following configuration guidelines and limitations:

- While the Topology feature is an unlicensed feature, you must have a LAN Enterprise license to manage non-default VDCs that appears in the topology.
- The Topology feature displays changes to the topology periodically as determined by the polling frequency for accounting and system logs. By default, the polling frequency is one minute.

Using the Topology Feature

Figure 6-1 shows the Topology Contents pane.

Figure 6-1 Topology Contents pane



This section includes the following topics:

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- Showing and Hiding Other Views, page 6-4
- Accessing Other DCNM Features from the Topology Map, page 6-5
- Moving Devices in the Topology Map, page 6-6
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- Exporting the Topology as a JPG Image, page 6-7
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Viewing the Topology Map

You can view the topology map. The DCNM client also provides you with tools to zoom and pan the map.

The map shows Nexus 7000 series devices, switches that run Cisco IOS software, and CDP links between devices. The link colors have the following meanings:

- Dark gray—The physical link between the two devices is active.
- Light gray—One of the devices is not reachable.

- Red—All physical links between the two devices are down.

The map also indicates whether a link is a single port link or a multiple port link, as follows:

- Single port link—When one link connects two devices, the map connects the two devices with a thin line. The port icon at either end of the line shows a single port.
- Multiple port link—When more than one link connect two devices, the map connects the two devices with a thick line. The port icon at either end of the line shows two ports.

DETAILED STEPS

To view the topology, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 If you want to move, or pan, the map, from the topology toolbar, click the icon, and then click anywhere on the topology map, hold down the mouse button, drag the map in any direction, and release the mouse button.

Step 3 If you want to control the magnification, or zoom, of the view, do one of the following:

- To zoom to a specific portion of the map, from the topology toolbar, click the icon, then click on the map and drag a rectangle over the area that you want to see, and release the mouse button.
- To zoom in, from the topology toolbar, click the icon.
- To zoom out, from the topology toolbar, click the icon.
- To fit the entire topology map in the Contents pane, click the icon.
- To reset the zoom to the default magnification, click the icon.

Step 4 If you want to show or hide VDCs in all Nexus devices, right-click on a blank part of the map and choose **Show All VDCs** or **Hide All VDC**, as desired.

Step 5 If you want to show or hide the VDCs in a single Nexus device, right-click on a Nexus device icon and choose **Show VDC** or **Hide VDC**, as desired.

Showing and Hiding Other Views

You can show or hide the following three additional views of the topology:

- Topology tree
- Device properties
- Device overview

You can toggle between showing and hiding each of these views by clicking to select or clicking to clear the topology toolbar icon for the view.

DETAILED STEPS

To show or hide other views, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 If you want to show or hide the topology tree, click the icon.

The Topology Tree pane appears between the topology toolbar and map.

Step 3 If you want to show or hide device properties, click the icon.

The Device Properties pane appears between the topology toolbar and map.

Step 4 If you want to show or hide the device overview, click the icon.

The Device Overview pane appears between the topology toolbar and map.

Accessing Other DCNM Features from the Topology Map

You can use the topology map to access DCNM features for managed devices. The feature or feature groups that you can access are as follows:

- Inventory
- VDCs
- Interfaces
- Switching
- Security

You can also use the topology map to access the Device Discovery feature.

DETAILED STEPS

To access a feature from the topology map, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 To access a DCNM feature for a specific managed device, do the following:

a. Find the device in the topology map. For more assistance, see the "Viewing the Topology Map" section on page 6-3.

b. Right-click the device and choose the feature that you want to configure.

   The feature that you selected appears in the Contents pane. The device that you selected on the topology map is selected in the Summary table for the feature.

c. (Optional) If you want to view context-sensitive help with the selected feature, press **F1**.

Step 3 (Optional) To access the Device Discovery feature, right-click a blank area on the map and choose **Discover Device**.

The Device Discovery feature appears in the Contents pane.

Moving Devices in the Topology Map

You can move device icons that are shown in the topology map.

You can also save the layout, which you can reload later if you make additional changes and want to revert to your last save. For more information, see the "Reloading the Previous Layout" section on page 6-7.

The saved layout becomes the default layout that you see in the topology map when you start the DCNM client.

Note The DCNM client saves topology layouts as local user data on the computer that runs the client. When you are using the DCNM client, you do not have access to topology layouts that you saved on other computers or that you saved while logged in to the computer under a different username.

DETAILED STEPS

To move devices in the topology map, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 From the topology toolbar, choose the  icon.

Step 3 Find and move device icons as needed. To move an icon, click on the device icon, hold down the mouse button, drag the icon to the new location, and release the mouse button.

You can zoom and pan as needed to find icons. For more information, see the "Viewing the Topology Map" section on page 6-3.

Step 4 (Optional) If you want to save the changes to the device icon layout, click the icon.

Reloading the Previous Layout

You can load the most recent saved layout. This feature allows you to undo changes to device arrangement that you have made since you last saved the layout.

Note The DCNM client saves topology layouts as local user data on the computer that runs the client. When you are using the DCNM client, you do not have access to topology layouts that you saved on other computers or that you saved while logged in to the computer under a different username.

DETAILED STEPS

To save the topology layout, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 From the topology toolbar, choose the icon.

The topology map changes to the most recent layout that you saved.

Exporting the Topology as a JPG Image

You can export, or save, a JPG image of the topology map. The JPG image created shows only the portion of the topology that appears in the DCNM client at the moment that you save the JPG file.

DETAILED STEPS

To export the visible portion of the topology map as a JPG image, follow these steps:

Step 1 From the Feature Selector pane, choose **Topology > Topology View**.

The topology map appears in the Contents pane. The topology toolbar appears on the left side of the topology map.

Note To see the names of topology toolbar icons, move the mouse pointer to the icon and wait briefly for the name of the icon to appear.

Step 2 View the portion of the topology map that you want to save. For more information, see the "Viewing the Topology Map" section on page 6-3.

Step 3 Arrange the device icons as desired. For more information, see the "Moving Devices in the Topology Map" section on page 6-6.

Step 4 From the topology toolbar, click the icon.

A dialog box appears.

Step 5 Specify the location and filename of the JPG image and click **Save**.

The JPG image of the visible portion of the topology map is saved.

Configuring the Polling Frequency for Accounting and System Logs

You can configure how frequently the DCNM server fetches accounting and system logs from managed devices. This setting affects how frequently the Topology feature in the DCNM client is updated with changes to the topology.

DETAILED STEPS

To configure the polling frequency for accounting and system logs, follow these steps:

Step 1 From the menu bar, choose **Tools > Preferences**.

The Global Preferences dialog box appears. Under Administration, the Polling Frequency for Accounting and System Log drop-down list displays the current polling frequency.

The default polling frequency is one minute.

Step 2 From the Polling Frequency for Accounting and System Log drop-down list, choose the new polling frequency.

Step 3 Click **Ok**.

Field Descriptions for Topology

This section includes the following field descriptions for Topology:

Topology Toolbar

Table 6-1 Topology Toolbar

Field	Description
Pan	Allows you to click and drag the topology map.
Select	Allows you to select network devices.
Zoom in Rect	Magnifies the topology map to the area that you identify by clicking and dragging the mouse pointer on the topology map.
Zoom In	Magnifies the topology map.
Zoom Out	Reduces the topology map.
Fit to View	Magnifies or reduces the entire topology map so that it fits in the Contents pane.
Reset Zoom	Changes the magnification of the topology map to the default level.
Hide/Show Overview	Hides or shows the overview pane.
Reload Previous Layout	Reloads the most recent saved topology layout.
Save Layout	Saves the layout of the network devices in the topology map.
Hide/Show Topology Tree	Hides or shows the topology tree pane.
Hide/Show Properties	Hides or shows the properties pane.
Export as JPG	Exports the visible portion of the topology map as a JPG image file.

Related Documents

For additional information related to implementing Topology, see the following sections:

Related Topic	Document Title
VDCs	*Cisco DCNM Virtual Device Context Configuration Guide*
Cisco Nexus 7000 series devices	*Cisco Nexus 7000 Series Hardware Installation and Reference Guide*
Device discovery	Administering Device Discovery, page 9-1