



CHAPTER 2

Configuring VDC Resource Templates

This chapter describes how to configure virtual device context (VDC) resource templates on NX-OS devices.

This chapter includes the following sections:

- [Information About VDC Resource Templates, page 2-1](#)
- [Licensing Requirements for VDC Templates, page 2-3](#)
- [Guidelines and Limitations, page 2-3](#)
- [Configuring VDC Resource Templates, page 2-3](#)
- [Field Descriptions for VDC Resource Templates, page 2-8](#)
- [Additional References, page 2-8](#)
- [Feature History for VDC Resource Templates, page 2-8](#)

Information About VDC Resource Templates

VDC resource templates set the minimum and maximum limits for shared physical device resources when you create the VDC. The Cisco NX-OS software reserves the minimum limit for the resource to the VDC. Any resources allocated to the VDC beyond the minimum are based on the maximum limit and availability on the device.

You can explicitly specify a VDC resource template or you can use the default VDC template provided by the NX-OS software. VDC templates set limits on the following resources:

- IPv4 route memory
- IPv6 route memory
- Port channels
- Switch Port Analyzer (SPAN) sessions
- VLANs
- Virtual routing and forwarding instances (VRFs)

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**Note**

The IPv4 and IPv6 route memory available for all VDCs on a physical device with 4 GB of memory is 256 MB. You can have approximately 11,000 routes, each with 16 next hops, in 13 MB of route memory. The **show routing memory estimate routes** *number-of-routes* **next-hops** *number-of-next-hops* command shows the amount of unicast RIB (IPv4 RIB and IPv6 RIB) shared memory needed to support the specified number of routes and next hops.

If you do not set a limit for a resource in a VDC resource template, the default limits for that resource are the same as those in the default VDC resource template. [Table 2-1](#) and [Table 2-2](#) list the default VDC resource template limits.

Table 2-1 *Default VDC Resource Template Limits for Cisco NX-OS Release 4.0(1a) and Earlier Releases*

Resource	Minimum	Maximum
IPv4 route memory ¹	8	256
IPv6 route memory ¹	4	256
Port channels	0	256
SPAN sessions	0	2
VLANs	16	4094
VRFs	16	8192

1. Route memory limits are in megabytes.

Table 2-2 *Default VDC Resource Template Limits for Cisco NX-OS Release 4.0(2) and Later Releases*

Resource	Minimum	Maximum
IPv4 route memory ¹	8	320
IPv6 route memory ¹	4	192
Port channels	0	256
SPAN sessions	0	2
VLANs	16	4094
VRFs	16	8192

1. Route memory limits are in megabytes.

**Note**

You cannot change the limits in the default VDC resource template.

**Note**

Only the network administrator can change a VDC template in the default VDC.

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Licensing Requirements for VDC Templates

The following table shows the licensing requirements for this feature:

Product	License Requirement
DCNM	VDC templates require 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 <i>Cisco DCNM Fundamentals Configuration Guide, Release 4.1</i> .
NX-OS	VDC templates require 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 a complete explanation of the NX-OS licensing scheme, see the <i>Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.1</i> .

Guidelines and Limitations

VDC templates have the following guidelines and limitations:

- VDC templates can only be created by the network administrator in the default VDC.
- You can create a maximum of 64 VDC templates.

Configuring VDC Resource Templates

The maximum amount of system resources assigned to a VDC is limited by the VDC resource template used when the VDC is created. You can create VDC resource templates to use when creating VDCs to use resource limits other than those provided in the default VDC resource template. You can create a maximum of 64 VDC resource templates.



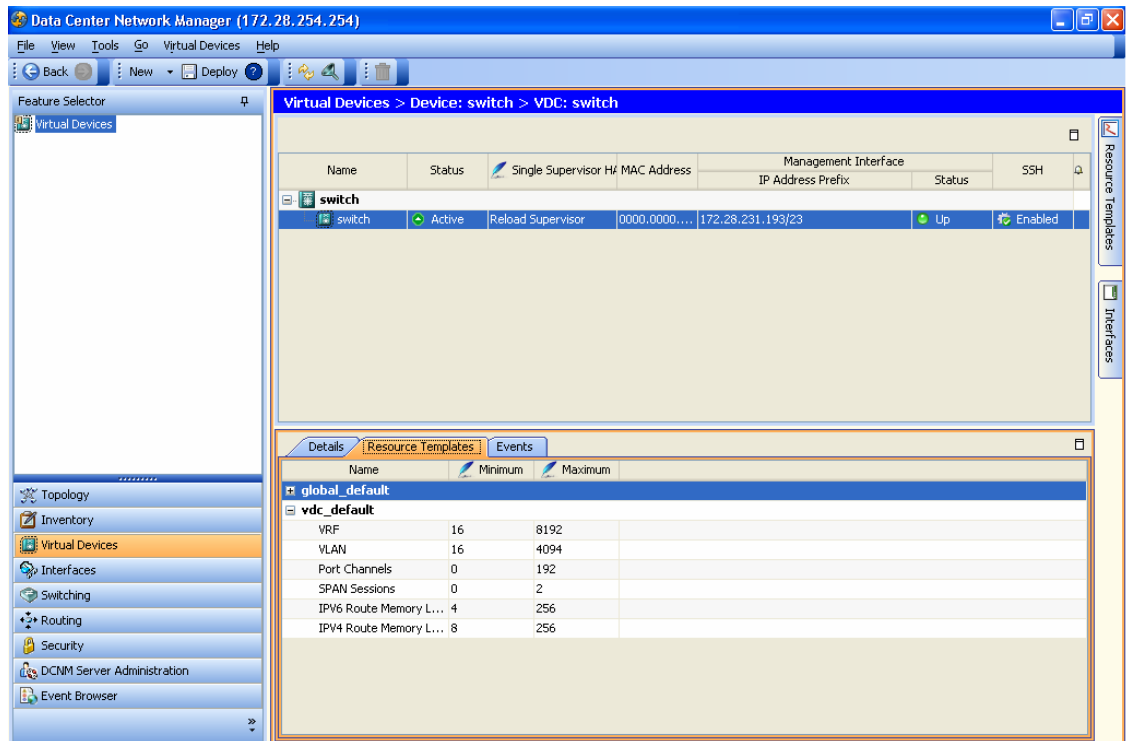
Note

If you do not set limits for a resource in a VDC resource template, the default limits are the limits for that resource in the default VDC resource template (see [Table 2-1 on page 2-2](#)).

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Figure 2-1 shows the Virtual Devices pane.

Figure 2-1 Virtual Devices Pane



Adding a VDC Resource Template


You can add a VDC resource template. You can add a maximum of 64 resource templates.

BEFORE YOU BEGIN

Ensure that you have discovered the physical device using a username that has the network-admin role.

DETAILED STEPS

To add a VDC resource template, follow these steps:

- Step 1** From the Feature Selector pane, choose **Virtual Devices**.
- Step 2** From the Summary pane, double-click the device to display the list of VDCs.
- Step 3** Click the default VDC with the  icon.
- Step 4** From the Details pane, click the Resource Templates tab.
- Step 5** Right-click in the Details pane and choose **Add Template** from the pop-up menu.
- Step 6** At the cursor, enter the new VDC resource template name and press the **Enter** key.

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Step 7 From the menu bar, choose **File > Deploy** to apply your changes to the device.

Adding a Resource Limit to a VDC Resource Template

You can add a resource limit to a VDC resource template.



Note


You cannot change the configuration of the default templates.

BEFORE YOU BEGIN

Ensure that you have discovered the physical device using a username that has the network-admin role. Create a VDC resource template (see the [“Adding a VDC Resource Template”](#) section on page 2-4).

DETAILED STEPS

To add a resource limit to a VDC resource template, follow these steps:

- Step 1** From the Feature Selector pane, choose **Virtual Devices**.
 - Step 2** From the Summary pane, double-click the device to display the list of VDCs.
 - Step 3** Click the default VDC with the  icon.
 - Step 4** From the Details pane, click the **Resource Templates** tab.
 - Step 5** Double-click the VDC resource template.
 - Step 6** Right-click on the VDC resource template and choose **Add Resource Limit** from the pop-up menu.
 - Step 7** Choose a VDC resource from the drop-down menu.
 - Step 8** In the limit cell under Minimum, enter the minimum limit.
 - Step 9** In the limit cell under Maximum, enter the maximum limit.
 - Step 10** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Changing a Resource Limit in a VDC Resource Template

You can change the values of a resource limit in a VDC resource template.



Note

You can have a maximum of two SPAN monitoring sessions on your physical device.



Note

You cannot change the configuration of the default resource templates.

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BEFORE YOU BEGIN


Ensure that you have discovered the physical device using a username that has the network-admin role.

Ensure that a VDC resource template has been created in the default VDC (see the “[Adding a VDC Resource Template](#)” section on page 2-4).

Ensure that resource limits have been added to the VDC resource template (see the “[Adding a Resource Limit to a VDC Resource Template](#)” section on page 2-5).

DETAILED STEPS

To change a resource limit in a VDC resource template, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Virtual Devices**.
 - Step 2** From the Summary pane, double-click the device to display the list of VDCs.
 - Step 3** Click the default VDC with the  icon.
 - Step 4** From the Details pane, click the **Resource Templates** tab.
 - Step 5** Double-click the VDC resource template.
 - Step 6** Click the limits to change and enter the new values.
 - Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
-

Deleting a Resource Limit from a VDC Resource Template

You can delete a resource limit from a VDC resource template.



Note

You cannot change the configuration of the default resource templates.

BEFORE YOU BEGIN


Ensure that you have discovered the physical device using a username that has the network-admin role.

Ensure that a VDC resource template has been created in the default VDC (see the “[Adding a VDC Resource Template](#)” section on page 2-4).

Ensure that resource limits have been added to the VDC resource template (see the “[Adding a Resource Limit to a VDC Resource Template](#)” section on page 2-5).

DETAILED STEPS

To delete a resource limit from a VDC resource template, follow these steps:

-
- Step 1** From the Feature Selector pane, choose **Virtual Devices**.
 - Step 2** From the Summary pane, double-click the device to display the list of VDCs.
 - Step 3** Click the default VDC with the  icon.
 - Step 4** From the Details pane, click the **Resource Templates** tab.

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- Step 5** Double-click the VDC resource template to display the resource limits.
 - Step 6** Click the resource limit to delete.
 - Step 7** In the Details pane, right-click and choose **Delete Resource Limit** from the pop-up menu.
 - Step 8** From the menu bar, choose **File > Deploy** to apply your changes to the device.
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Deleting a VDC Resource Template

You can delete a VDC resource template.



Note


You cannot delete the default resource templates.

BEFORE YOU BEGIN

Ensure that you have discovered the physical device using a username that has the network-admin role. Ensure that a VDC resource template has been created in the default VDC (see the [“Adding a VDC Resource Template”](#) section on page 2-4).

DETAILED STEPS

To delete a VDC resource template, follow these steps:

- Step 1** From the Feature Selector pane, choose **Virtual Devices**.
 - Step 2** From the Summary pane, double-click the device to display the list of VDCs.
 - Step 3** Click the default VDC with the  icon.
 - Step 4** From the Details pane, click the Resource Templates tab.
 - Step 5** Click the VDC resource template.
 - Step 6** In the Details Pane, right-click and choose **Delete Template** from the pop-up menu.
 - Step 7** From the menu bar, choose **File > Deploy** to apply your changes to the device.
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Field Descriptions for VDC Resource Templates

This section includes the following topic:

- [Field Description: Virtual Devices: Default VDC: Resource Template Tab, page 2-8](#)

Field Description: Virtual Devices: Default VDC: Resource Template Tab

This tab allows you to configure VDC resource templates for the physical device.

Table 2-3 *Field Description: Virtual Devices: Default VDC: Resource Template Tab*

Element	Description
Name	Resource name
Minimum	Minimum limit. The minimum limit is reserved for the VDC.
Maximum	Maximum limit. The maximum limit is allocated on a first-come, first-server basis.

Additional References

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

- [Related Documents, page 2-8](#)

Related Documents

Related Topic	Document Title
DCNM Licensing	<i>Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.1</i>
NX-OS Licensing	<i>Cisco DCNM Fundamentals Configuration Guide, Release 4.1</i>
VDC commands	<i>Cisco Nexus 7000 Series NX-OS Virtual Device Context Command Reference, Release 4.1</i>

Feature History for VDC Resource Templates

[Table 2-4](#) lists the release history for this feature.

Table 2-4 *Feature History for VDC Resource Templates*

Feature Name	Releases	Feature Information
IPv4 unicast route memory resource	4.0(2)	Changed the default maximum value from 256 to 320.
IPv6 unicast route memory resource	4.0(2)	Changed the default maximum value from 256 to 192.