This article describes how to troubleshoot virtual device contexts (VDCs).

Contents

Information About Troubleshooting VDCs

Cisco NX-OS supports VDCs, which you can use to divide the physical NX-OS device into separate virtual devices. Each VDC appears as a unique device to the connected users. A VDC runs as a separate logical entity within the physical NX-OS device, maintains its own unique set of running software processes, has its own configuration, and can be managed by a separate administrator.

VDC issues may not be directly related to VDC management. See the troubleshooting chapter that reflects your symptoms to find other issues related to VDCs. For instance, if you configure a VDC template that limits the number of port channels in that VDC, you may experience problems if you try to create more port channels than the VDC template allows.

VDC templates set limits on the following features:

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

The minimum resource value configures the guaranteed limit for that feature. The maximum resource value represents oversubscription for the feature and is available on a first-come,first-served basis.

Note: When you allocate an interface to a VDC, Cisco NX-OS removes all configuration for that interface.

See the *Cisco NX-OS Virtual Device Context Configuration Guide* for more information on VDCs or for details on any VDC configuration changes recommended in this article.

Initial Troubleshooting Checklist

Begin troubleshooting VDC issues by checking the following issues first:

Checklist	Check off
Verify that you are logged into the device as network-admin if you are creating or modifying VDCs.	
Verify that you are in the correct VDC. You must be in the default VDC to configure VDCs.	
Verify that you have installed the Advanced Services license to configure VDCs.	
Verify that you are not attempting to create more than three VDCs.	

Use the following commands to display VDC information:

- **show vdc membership** - Displays information about which interfaces are assigned to a VDC.
- **show vdc resource** - Displays information about the resources assigned (Command is available only in the default VDC).
- **show vdc current-vdc** - Displays the VDC you are currently in.

VDC Issues

Problems with VDCs usually occur from logging into the incorrect VDC or misallocating resources for a VDC.

You Cannot Create a VDC

When you have a problem with creating a VDC, you may see one of the following system messages:

Error Message: VDC_MGR-2-VDC_BAD: vdc_mgr: There has been a failure at res_mgr

Explanation: You cannot create a VDC because not enough resources are available based on the template configuration. If no template is used, a default template is applied.

Recommended Action: Verify that you have sufficient resources available to create this VDC by using the **show vdc resources** [**detail**] or **show vdc resource template** command. Modify the template that you are using to create the VDC or create a new template with resource limits that are currently available.

Error Message: VDC_MGR-2-VDC_BAD: vdc_mgr: : There has been a failure at sys_mgr

Explanation: Some services crashed or failed to come up because of insufficient system resources other than what can be reserved using the resource templates. These dynamic resources are based on system utilization and may not be available to support a new VDC.

Recommended Action: Use the **show system internal sysmgr service running** command to determine what caused the failure.

Symptom	Possible Cause	Solution
You cannot create a VDC.	You are not logged in as network-admin.	Log into the device with an account that has network-admin privileges.
	You are not logged into the default VDC.	Use the **switchto** command to switch to the default VDC to allocate resources.
	There are not enough resources.	Use the **show vdc resources** [**detail**] or **show vdc resource template** command to determine your available resources. Modify your template or create a VDC with fewer resources by using the **limit-resource** command in VDC configuration mode.

You Cannot Log into a Device

You may have a problem when logging into a device.

Symptom	Possible Cause	Solution
You cannot log into a device.	There is no account information for the VDC.	Log into the device as network-admin and use the **switchto** command to switch to the VDC and configure the password and network connectivity for this VDC.
	You are using an incorrect VDC username.	Log into the device with the account created for that VDC.

You Cannot Switch to a VDC

You may have a problem when you switch to another VDC.

Symptom	Possible Cause	Solution
You cannot switch to a VDC.	You are not logged in as network-admin or network-operator.	Log into the device with an account that has the correct privileges.

You Cannot Delete a VDC

When you have a problem with deleting a VDC, you may see one of the following system messages:

Error Message: VDC_MGR-2-VDC_UNGRACEFUL: vdc_mgr: Ungraceful cleanup request received for vdc [dec], restart count for this vdc is [dec]

Explanation: Vdc_mgr has begun an ungraceful cleanup for a VDC.

Recommended Action: No action is required.

Error Message: VDC_MGR-2-VDC_OFFLINE: vdc [dec] is now offline

Explanation: Vdc_mgr has finished deleting a VDC.

Recommended Action: No action is required.

Symptom	Possible Cause	Solution
You cannot delete a VDC.	You attempted to delete the default VDC.	You cannot delete the default VDC.
	Unknown errors occurred when deleting a VDC.	Use the **show tech-support VDC** command to gather more information.

You Cannot Allocate an Interface to a VDC

When you have a problem with creating a VDC, you may see the following system message:

Error Message: VDC_MGR-2-VDC_BAD: vdc_mgr: There has been a failure at gim (port_affected_list).

Explanation: An interface allocation has failed.

Recommended Action: Use the **show vdc membership status** or **show interface brief** command to gather more information.

Symptom	Possible Cause	Solution
You cannot allocate an interface to a VDC.	You are not logged in as network-admin.	Log into the device with an account that has the correct privileges.
	You are not logged into the correct VDC.	Use the **switchto** command to switch to the default VDC to allocate resources.
	The interface is part of a dedicated port group.	Use the **show interface capabilities** command to determine if the port is dedicated. All ports in a dedicated port group must be in the same VDC.
	The interface is on the Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet module (N7K-M132XP-12).	You must allocate all ports in a port group to the same VDC for this module. For information about the port number to port group mapping, see Table: Port Numbers for Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet module.
	The VDC allocation has failed.	Use the **show vdc membership** [**status**] or **show interface brief** command to gather more information.

Table: Port Numbers for Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet module. shows the port allocation requirements for the Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet module (N7K-M132XP-12).

Table: Port Numbers for Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet module

Port Group	Port Numbers
1	1, 3, 5, 7
2	2, 4, 6, 8
3	9, 11, 13, 15
4	10, 12, 14, 16
5	17, 19, 21, 23
6	18, 20, 22, 24
7	25, 27, 29, 31
8	26, 28, 30, 32

The VDC Does Not Reflect a Resource Template Change

You may have a problem when updating a resource template.

Symptom	Possible Cause	Solution
The VDC does not reflect a resource template change.	The template has not been reapplied to a VDC after a template change.	Use the **show vdc resource template** command to verify the template. Use the **template** command in VDC configuration mode to reapply the template to the VDC. You may have to use the **reload** command to reboot the device or force a stateful switchover to get the new resource limits.

The VDC Remains in a Failed State

You may have a problem when a VDC fails. You configure switchover and high availability (HA) policies for a VDC when you create the VDC. These policies determine what happens when the VDC fails or when a stateful switchover occurs to the standby supervisor.

Symptom	Possible Cause	Solution
The VDC remains in failed state.	The VDC failed and the HA policy was set to bring down the VDCs.	Use the **show vdc detail** command to verify the HA policy for this VDC. Use the **ha-policy** command in VDC configuration mode to change the HA policy.
	A supervisor switchover has occurred and the switchover policy was set to bring down the VDCs.	Use the **no vdc** command to delete the failed VDC. Recreate the VDC with a different switchover policy using the **sw-policy** keyword.

You Cannot Copy the Running-Config File to the Startup-Config File in a VDC

You may have a problem when trying to save the configuration in a VDC.

Symptom	Possible Cause	Solution
You cannot copy the running-config file to the startup-config file in a VDC.	The resource allocation was not saved in the default VDC.	You must save the resource allocation from the default VDC before you can save the configuration in a nondefault VDC. Log into the default VDC and use the **copy running-config startup-config** command to save the resource allocation. Log into the nondefault VDC and save the configuration or use the **copy running-config startup-config vdc-all** command in the default VDC to save the configuration in all VDCs.

See Also

Before Contacting Technical Support

Further Reading

The following links contain further information on this topic from Cisco.com:

Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide

Technical Overview of Virtual Device Contexts

Cisco Techwise TV: NXOS Virtual Devices (video)

External Links

External links contain content developed by external authors. Cisco does not review this content for accuracy.

Hands on with the Cisco Nexus, Part#2: Virtualization

NX-OS Intro - part 8 - VDCs (video)

NX-OS and VDCs