Creating VDCs

This chapter describes how to create virtual device contexts (VDCs) on Cisco NX-OS devices.

Finding Feature Information

Your software release might not support all the features documented in this module. For the latest caveats and feature information, see the Bug Search Tool at https://tools.cisco.com/bugsearch/ and the release notes for your software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "New and Changed Information" chapter or the Feature History table in this chapter.

Information About Creating VDCs

In Cisco NX-OS, only a user with the network-admin role can create VDCs.

Beginning with the Cisco NX-OS Release 5.2(1), you can run Fibre Channel over Ethernet (FCoE) on the Cisco Nexus 7000 Series devices. You must create a storage VDC to run FCoE. The storage VDC cannot be the default VDC. You can have one storage VDC on the device. See the Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500 for information on configuring FCoE.

Beginning with Cisco NX-OS Release 6.2(2), Supervisor 2e module supports the new Cisco Nexus 7718 switch and the Cisco Nexus 7710 switch. These switches supports F2e line cards only. For more information, see the *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*.

Storage VDCs

The storage VDC is one of the nondefault VDCs and it does need a license. However, a storage VDC does not need a VDC license because it relies on the FCoE license installed to enable the FCoE function on the modules. Beginning with Cisco NX-OS Release 5.2(1) for the Nexus 7000 Series devices, you can run FCoE on the F1, F2 and F2e Series modules, depending upon your specific release version. You can create separate storage VDCs to run FCoE. You can have only one storage VDC on the device, and you cannot configure the default VDC as a storage VDC.

Note You cannot perform multiple VLAN-VSAN mapping configuration in a single instance in Cisco NX-OS Release 8.4(1). You have to come out of the configuration mode after configuring a single VLAN-VSAN mapping and then re-enter the configuration mode to configure the next mapping.

Note Starting with Cisco NX-OS Release 6.2(2), we do not support the interoperability of F1 and F2 Series modules in any VDC, either in a dedicated mode or in a shared mode. If you have configured F1 and F2 Series modules as supported line cards in a storage VDC during an In-Service Software Upgrade (ISSU) to Cisco NX-OS Release 6.2(2) or later releases, before ISSU, reconfigure your storage VDC by using the limit-resource module-type command (for information, see the see the "Changing VDC Resource Limits" section) to avoid any unnecessary disruption to the system.

After you create the storage VDC, you assign specified FCoE VLANs. Finally, you configure interfaces on the Cisco Nexus 7000 Series device as either dedicated FCoE interfaces or as shared interfaces, which can carry both Ethernet and FCoE traffic. See the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500* for information on configuring FCoE.

High-Availability Policies

The high-availability (HA) policies for a VDC defines the action that the Cisco NX-OS software takes when an unrecoverable VDC fault occurs.

You can specify the HA policies for single supervisor module or dual supervisor module configurations when you create the VDC. The HA policy options are as follows:

- Single supervisor module configuration:

    - Bringdown—Puts the VDC in the failed state.

    - Reload— Reloads the supervisor module.

    - Restart—Takes down the VDC processes and interfaces and restarts them using the startup configuration.

- Dual supervisor module configuration:

- Bringdown—Puts the VDC in the failed state.

- Restart—Takes down the VDC processes and interfaces and restarts them using the startup configuration.

- Switchover— Initiates a supervisor module switchover.

The default HA policies for a nondefault VDC that you create is restart for a single supervisor module configuration and switchover for a dual supervisor module configuration. The default HA policy for the default VDC is reload for a single supervisor module configuration and switchover for a dual supervisor module configuration.

Allocating Interfaces

Note See the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500* for information on allocating interfaces for storage VDCs and FCoE.

The only physical resources that you can allocate to a VDC are the physical interfaces. You can assign an interface to only one VDC, except in the specific case of shared interfaces that carry both Fibre Channel and Ethernet traffic. You allocate a shared interface to both an Ethernet VDC and to the storage VDC. When you move an interface from one VDC to another VDC, the interface loses its configuration. The output of the **show running-config vdc** command has two entries for storage VDC. The first entry has details of all configurations except FCoE VLAN range and shared interfaces. The second entry, which appears at the bottom, has details of FCoE VLAN range and shared interfaces. This entry is placed at the bottom to avoid the configuration replay failure if the storage VDC is created before the ethernet VDC and the interface is shared from the ethernet VDC. You can create the ethernet VDC in any order if this entry is placed at the bottom.

When you first create a VDC, you can specifically allocate interfaces to it. All interfaces initially reside in the default VDC (VDC 1). After you allocate the interfaces to a VDC, you can only view and configure them from that specific VDC. You can also remove interfaces from a VDC by moving them back to the default VDC.

Caution When you move an interface, all configuration on the interface is lost and the interfaces are in the down state.

Note Beginning with Cisco NX-OS Release 5.2(1) for Nexus 7000 Series devices, all members of a port group are automatically allocated to the VDC when you allocate an interface.

You must be aware of the hardware architecture of your platform when allocating interfaces to a VDC. You can allocate the interfaces on your physical device in any combination.

Beginning with Cisco NX-OS Release 6.1, the following M2 Series modules are supported on Cisco Nexus 7000 Series platforms:

- 24-port 10G (N7K-M224XP-23L)

- 6-port 40G (N7K-M206FQ-23L)

• 2-port 100G (N7K-M202-CF-22L)

Note There is no port group restriction on M2 Series modules. Any port in M2 Series modules can be placed in any VDC.

Table 1: Port Numbers for Port Groups on the Cisco Nexus 7000 Series 32-Port, 10-Gbps Ethernet Module N7K-M132XP-12

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

You must allocate the interfaces on your physical device in the specified combination on the Cisco Nexus 7000 Series 32-port, 10-Gbps Ethernet module N7K-F132XP-15. This module has 16 port groups that consist of 2 ports each. You must assign the specified port pairs in the same VDC. The table below shows the port numbering for the port groups.

Table 2: Port Numbers for Port Groups on the Cisco Nexus 7000 Series 32-Port, 10-Gbps Ethernet Module N7K-F132XP-15

Port Group	Port Numbers
Group 1	1 and 2
Group 2	3 and 4
Group 3	5 and 6
Group 4	7 and 8
Group 5	9 and 10
Group 6	11 and 12

Port Group	Port Numbers
Group 7	13 and 14
Group 8	15 and 16
Group 9	17 and 18
Group 10	19 and 20
Group 11	21 and 22
Group 12	23 and 24
Group 13	25 and 26
Group 14	27 and 28
Group 15	29 and 30
Group 16	31 and 32

You must allocate the interfaces on your physical device in the specified combination on the Cisco Nexus 7000 Series 48-port, 10-Gbps Ethernet modules N7K-F248XP-25[E] and N7K-F248XT-25[E]. These modules have 12 port groups that consist of 4 ports each. You must assign all four ports in a port group to the same VDC. The table below shows the port numbering for the port groups.

Table 3: Port Numbers for Port Groups on the Cisco Nexus 7000 Series 10-Gbps Ethernet Module N7K-F248XP-25[E] and N7K -F248XT-25[E] and Cisco Nexus 7700 Series 48-Port 1 and 10-Gbps Ethernet Module N77-F248XP-23E

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

Port Group	Port Numbers
Group 9	33, 34, 35, 36
Group 10	37, 38, 39, 40
Group 11	41, 42, 43, 44
Group 12	45, 46, 47, 48

For more information about port groups on the Cisco Nexus 7000 Series 32-port, 10-Gbps Ethernet modules, see the *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*.

VDC Management Connections

The Cisco NX-OS software provides a virtual management (mgmt 0) interface for out-of-band management of each VDC. You can configure this interface with a separate IP address that is accessed through the physical mgmt 0 interface. You also use one of the Ethernet interfaces on the physical device for in-band management.

Initializing a New VDC

A new VDC is similar to a new physical device. You must set the VDC admin user account password and perform the basic configuration to establish connectivity to the VDC.

Prerequisites for Creating VDCs

VDCs have the following configuration guidelines and limitations:

- Standard VDCs cannot share interfaces, VLANs, Virtual Routing and Forwarding (VRF) tables, or port channels.

- Only users with the network-admin role can create VDCs.

- The following guidelines and limitations apply to the **switchto vdc** command:

  - Only users with the network-admin or network-operator role can use the **switchto vdc** command. No other users are permitted to use it.

  - No user can grant permission to another role to use the **switchto vdc** command.

  - After a network-admin uses the **switchto vdc** command, this user becomes a vdc-admin for the new VDC. Similarly, after a network-operator uses the **switchto vdc** command, this user becomes a vdc-operator for the new VDC. Any other roles associated with the user are not valid after the **switchto vdc** command is entered.

- After a network-admin or network-operator uses the **switchto vdc** command, this user cannot use this command to switch to another VDC. The only option is to use the switchback command to return to the original VDC.

- Cisco NX-OS Release 6.2.2 introduced a separate F2e Series VDC type which must be entered to enable F2e Series support. In Cisco NX-OS Release 6.1, the F2 VDC type supports both F2 and F2e Series modules.

- F2 Series modules can exist with F2e Series modules in the same VDC. F2 Series modules cannot exist with any other module type in the VDC. This restriction applies to both LAN and storage VDCs. See the "Managing VDCs" chapter for more detailed information on module type restrictions and conditions.

- F2 and F2e Series modules support FCoE only with Supervisor 2 and Supervisor 2e modules.

- F2 and F3 Series modules in a specific VDC do not support OTV.

- F2 and F3 Series modules in a specific VDC do not support 64,000 unicast entries if the VPN routing and forwarding (VRF) instance is spread across the F2 and F3 Series modules.

Guidelines and Limitations for Creating VDCs

VDCs have the following configuration guidelines and limitations:

- Standard VDCs cannot share interfaces, VLANs, Virtual Routing and Forwarding (VRF) tables, or port channels.

- Only users with the network-admin role can create VDCs.

- On a Cisco Nexus 7000 Series switch, when a transceiver is removed or inserted on an interface in a VDC (for example VDC-1), a trap is sent to all the VDCs in the switch (including the VDC-1). This is applicable for a module removal or insertion and other physical entity events. Also, if there is a strict secure tenanted solution with multiple VDCs, this behavior can cause data leak to other tenants.

- The following guidelines and limitations apply to the **switchto vdc** command:

  - Only users with the network-admin or network-operator role can use the **switchto vdc** command. No other users are permitted to use it.

  - No user can grant permission to another role to use the **switchto vdc** command.

  - After a network-admin uses the **switchto vdc** command, this user becomes a vdc-admin for the new VDC. Similarly, after a network-operator uses the **switchto vdc** command, this user becomes a vdc-operator for the new VDC. Any other roles associated with the user are not valid after the **switchto vdc** command is entered.

  - After a network-admin or network-operator uses the **switchto vdc** command, this user cannot use this command to switch to another VDC. The only option is to use the switchback command to return to the original VDC.

- Cisco NX-OS Release 6.2.2 introduced a separate F2e Series VDC type which must be entered to enable F2e Series support. In Cisco NX-OS Release 6.1, the F2 VDC type supports both F2 and F2e Series modules.

• F2 Series modules can exist with F2e Series modules in the same VDC. F2 Series modules cannot exist with any other module type in the VDC. This restriction applies to both LAN and storage VDCs.

• F2 and F2e Series modules support FCoE only with Supervisor 2 and Supervisor 2e modules.

• The OTV feature is unavailable when interfaces from both an F2 and F3 Series module are allocated to a specific VDC.

• F2 and F3 Series modules in a specific VDC do not support 64,000 unicast entries if the VPN routing and forwarding (VRF) instance is spread across the F2 and F3 Series modules.

• The maximum number of port-channels across N7K for all VDCs is 768 (Inclusive of fex port-channels if created).

Default Settings for Creating VDCs

Table 4: Default VDC Parameter Settings

Parameters	Default
Default VDC HA policies	**reload** for single supervisor module configurations **switchover** for dual supervisor module configurations
Nondefault VDC HA policies	**reload** for single supervisor module configurations **switchover** for dual supervisor module configurations
VDC ID	First available

Process for Creating VDCs

To create VDCs, follow these steps:

Procedure

Step 1	If necessary, create a VDC resource template
Step 2	Create the VDC and allocate interfaces
Step 3	Initialize the VDC

• Allocating interfaces to a VDC is optional. You can allocate the interfaces after you have verified the VDC configuration.

• When creating an FCoE type VDC, you must enter the type storage command at the time the nondefault VDC is being created, because it cannot be specified later. You must also allocate specified VLANs as FCoE VLANs that will run only in the storage VDC. For details about implementing FCoE and allocating interfaces, see the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500*.

• You can enable FCoE on F1 Series modules with Supervisor 1 modules. You can also enable FCoE on F1 Series modules and on the F248XP-25[E] Series with Supervisor 2 and Supervisor 2e modules.

• You cannot enable FCoE on F2 and F2e Series modules with Supervisor 1 modules.

Creating VDCs

Before you begin

You must create a VDC before you can use it.

Note VDC creation can take a few minutes to complete. Use the **show vdc** command to verify the completion of the create request.

Log in to the default or admin VDC as a network administrator.

Choose a VDC resource template if you want to use resource limits other than those limits provided in the default VDC resource template.

Note When creating an FCoE type VDC, you must enter the type storage command at the time the nondefault VDC is being created, because it cannot be specified later. For information on allocating FCoE VLANs and interfaces to the storage VDC, see the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500*.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **vdc** {**switch** | *vdc-name*} [**ha-policy** {**dual-sup** {**bringdown** | **restart** | **switchover**} [**single-sup** {**bringdown** | **reload** | **restart**}] [**id** *vdc-number*] [**template** *template-name*] [**template** *template-name*] [**type storage**]	Creates a VDC and enters the VDC configuration mode. The keywords and arguments are as follows: • **switch**—Specifies the default VDC. VDC number 1 is reserved for the default VDC. • *vdc-name*—Specifies a nondefault VDC. The VDC name can be a maximum of 32 characters. The VDC name cannot begin with a number. Nondefault VDC numbers are from 2 to 9. The next available number is assigned when creating a nondefault VDC. • **ha-policy dual-sup**:

	Command or Action	Purpose
		• **bringdown**—Puts the VDC in the failed state.
		• **restart**—Takes down the VDC processes and interfaces and restarts them using the startup configuration.
		• **switchover**—(Default) Initiates a supervisor module switchover.
		• **ha-policy single-sup**:
		• **bringdown**—Puts the VDC in the failed state.
		• **reload**—Reloads the supervisor module.
		• **restart**—(Default) Takes down the VDC processes and interfaces and restarts them using the startup configuration.
		• **id**—Specifies the VDC ID.
		• **template**—Specifies the VDC resource template. The default resource template is used if you do not specify one.
		• **type storage**—Specifies a nondefault VDC as a storage VDC.
		Note You must enter the **type storage** keyword when you create the nondefault VDC because you cannot specify this keyword after the nondefault VDC has been created. See the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500* for information on configuring FCoE.
Step 3	(Optional) switch(config-vdc)# [**no**] **allocate interface ethernet** *slot/port*	Allocates one interface to the VDC. The *slot/port* argument specifies the interface that you are allocating. Use the **no** option of the command to remove an interface from the VDC and place it in an unallocated pool.

	Command or Action	**Purpose**
Step 4	(Optional) switch(config-vdc)# [**no**] **allocate interface ethernet** *slot/port* **-** *last-port*	Allocates a range of interfaces on the same module to the VDC.
		The *slot* argument specifies the slot, the *port* argument specifies the first interface in the range, and the *last-port* argument specifies the last interface in the range that you are allocating.
Step 5	(Optional) switch(config-vdc)# [**no**] **allocate interface ethernet** *slot/port,* **ethernet** *slot/port,*	Allocates a list of interfaces to the VDC.
		The *slot/port* argument specifies the interface that you are allocating. You can specify several interfaces using commas as delimiters.
Step 6	(Optional) switch(config-vdc)# **show vdc membership**	Displays the interface membership for the VDCs.
Step 7	(Optional) switch(config-vdc)# **show vdc shared membership**	Displays the shared interface membership for the VDCs.
Step 8	switch(config-vdc)# **exit**	Exits the VDC configuration mode.
Step 9	(Optional) switch(config)# **show vdc**	Displays the VDC status information.
Step 10	(Optional) switch(config)# **copy running-config startup-config**	Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.
		Note After you create a VDC, you must copy the default VDC running configuration to the startup configuration so that a VDC user can copy the new VDC running configuration to the startup configuration.

Initializing a VDC

A newly created VDC is much like a new physical device. To access a VDC, you must first initialize it. The initialization process includes setting the VDC admin user account password and optionally running the setup script (see the "Configuration Example for Ethernet VDC Creation and Initialization" section). The setup script helps you to perform basic configuration tasks such as creating more user accounts and configuring the management interface.

Note   The VDC admin user account in the nondefault VDC is separate from the network admin user account in the default VDC. The VDC admin user account has its own password and user role.

Before you begin

- Log in to the default or admin VDC as a network administrator.

- Obtain an IPv4 or IPv6 address for the management interface (mgmt 0) if you want to use out-of-band management for the VDC.

Procedure

	Command or Action	Purpose
Step 1	switch# **switchto vdc** *vdc-name*	Switches to the VDC.
Step 2	(Optional) switch-NewVDC# **show vdc current-vdc**	Displays the current VDC number.

Verifying the VDC Configuration

To display the VDC configuration, perform one of the following tasks:

Command	Purpose
show running-config {**vdc** | **vdc-all**}	Displays the VDC information in the running configuration.
show vdc [*vdc-name*]	Displays the VDC configuration information.
show vdc detail	Displays the detailed information about many VDC parameters.
show vdc current-vdc	Displays the current VDC number.
show vdc membership [**status**]	Displays the VDC interface membership information.
show vdc resource template	Displays the VDC template configuration.
show resource	Displays the VDC resource configuration for the current VDC.
show vdc [*vdc-name*] **resource** [*resource-name*]	Displays the VDC resource configuration for all VDCs.
show mac vdc {*vdc-id*}	Displays the MAC address for a specific VDC.

For detailed information about the fields in the output from these commands, see the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Command Reference*.

Configuration Example for Ethernet VDC Creation and Initialization

Beginning with the Cisco NX-OS Release 5.2(1), you can run FCoE on the Cisco Nexus Series 7000 devices. You must create a separate storage VDC to run FCoE. See the *Cisco NX-OS FCoE Configuration Guide for Cisco Nexus 7000 and Cisco MDS 9500* for an example of configuring a storage VDC.

This example shows how to create and initialize a VDC:

```
switch# config t
switch(config)# vdc test
switch(config-vdc)# allocate interface ethernet 2/46
Moving ports will cause all config associated to them in source vdc to be removed. Are you
 sure you want to move the ports? [yes] yes
switch(config-vdc)# exit
switch(config)# switchto vdc test

---- System Admin Account Setup ----
Do you want to enforce secure password standard (yes/no) [y]: y
Enter the password for "admin":<password>
Confirm the password for "admin":<password>

---- Basic System Configuration Dialog ----
This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.
Please register Cisco Nexus7000 Family devices promptly with your
supplier. Failure to register may affect response times for initial
service calls. Nexus7000 devices must be registered to receive
entitled support services.
Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.
Would you like to enter the basic configuration dialog (yes/no): yes
Create another login account (yes/no) [n]: n
Configure read-only SNMP community string (yes/no) [n]: n
Configure read-write SNMP community string (yes/no) [n]: n
Enter the switch name : Test
Continue with Out-of-band (mgmt0) management configuration? (yes/no) [y]:

Mgmt0 IPv4 address : 10.10.5.5
Mgmt0 IPv4 netmask : 255.255.254.0
Configure the default gateway? (yes/no) [y]: y
IPv4 address of the default gateway : 10.10.5.1
Configure advanced IP options? (yes/no) [n]:
Enable the telnet service? (yes/no) [y]:
Enable the ssh service? (yes/no) [n]: y
Type of ssh key you would like to generate (dsa/rsa/rsa1) : rsa
Number of key bits <768-2048> : 768
Configure the ntp server? (yes/no) [n]:
Configure default switchport interface state (shut/noshut) [shut]:
Configure default switchport trunk mode (on/off/auto) [on]:
The following configuration will be applied:
switchname Test
interface mgmt0
ip address 10.10.5.5 255.255.254.0
no shutdown
exit
vrf context management
```

```
ip route 0.0.0.0/0 10.10.5.1
exit
telnet server enable
ssh key rsa 768 force
ssh server enable
system default switchport shutdown
system default switchport trunk mode on
Would you like to edit the configuration? (yes/no) [n]:
Use this configuration and save it? (yes/no) [y]:

[#######################################] 100%

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TAC support: http://www.cisco.com/tac
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http://www.gnu.org/licenses/gpl.html and
http://www.gnu.org/licenses/lgpl.html
switch-test# exit
switch
```

This example displays the prompt to choose admin VDC during the switch bootup:

```
n7k-ts-2# show vdc
vdc_id   vdc_name   state   mac
------   --------   -----   ----------
1        n7k-ts-2   active  00:22:55:7a:72:c1
2        c2         active  00:22:55:7a:72:c2
3        d2         active  00:22:55:7a:72:c3 <----! current name is 'd2'
4        dcn-sv     active  00:22:55:7a:72:c4

n7k-ts-2# switchto vdc d2

n7k-ts-2-d2(config)# hostname d2-new

n7k-ts-2-d2-new# 2010 Mar 16 18:40:40 n7k-ts-2-d2-new %$ VDC-3 %$
%VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by on console0

n7k-ts-2-d2-new# exit

n7k-ts-2# show vdc

vdc_id   vdc_name   state   mac
------   --------   -----   ----------
1        n7k-ts-2   active  00:22:55:7a:72:c1
2        c2         active  00:22:55:7a:72:c2
3        d2-new     active  00:22:55:7a:72:c3 <-----!!! VDC name changed
4        dcn-sv     active  00:22:55:7a:72:c4

n7k-ts-2# show running-config vdc
!Command: show running-config vdc
vdc d2-new id 3 <------------------ VDC name changed!!!!
allocate interface
Ethernet1/1-9,Ethernet1/11,Ethernet1/13,Ethernet1/15,Ethern
et1/25,Ethernet1/27,Ethernet1/29,Ethernet1/31
allocate interface Ethernet2/2-12
boot-order 1
limit-resource vlan minimum 16 maximum 4094
limit-resource monitor-session minimum 0 maximum 2
limit-resource vrf minimum 16 maximum 200
```

```
limit-resource port-channel minimum 0 maximum 768
limit-resource u4route-mem minimum 8 maximum 8
```

This running configuration example shows how a shared interface appears:

```
switch# show running-config vdc

!Command: show running-config vdc
no system admin-vdc
vdc N7710 id 1
limit-resource module-type f2e
allow feature-set fex
cpu-share 5
limit-resource vlan minimum 16 maximum 4094
limit-resource monitor-session-erspan-dst minimum 0 maximum 23
limit-resource vrf minimum 2 maximum 4096
limit-resource port-channel minimum 0 maximum 768
limit-resource u4route-mem minimum 96 maximum 96
limit-resource u6route-mem minimum 24 maximum 24
limit-resource m4route-mem minimum 58 maximum 58
limit-resource m6route-mem minimum 8 maximum 8
limit-resource monitor-session-inband-src minimum 0 maximum 1
limit-resource anycast_bundleid minimum 0 maximum 16
limit-resource monitor-session-extended minimum 0 maximum 16
limit-resource monitor-rbs-filter minimum 0 maximum 16
limit-resource monitor-rbs-product minimum 0 maximum 16


vdc storage id 2 type storage
limit-resource module-type f2e f3
allow feature-set fcoe
allow feature-set fex
cpu-share 5
allocate interface Ethernet2/17-20,Ethernet2/25-40
boot-order 1
limit-resource vlan minimum 16 maximum 4094
limit-resource monitor-session-erspan-dst minimum 0 maximum 23
limit-resource vrf minimum 2 maximum 4096
limit-resource port-channel minimum 0 maximum 768
limit-resource u4route-mem minimum 8 maximum 8
limit-resource u6route-mem minimum 4 maximum 4
limit-resource m4route-mem minimum 8 maximum 8
limit-resource m6route-mem minimum 5 maximum 5
limit-resource monitor-session-inband-src minimum 0 maximum 1
limit-resource anycast_bundleid minimum 0 maximum 16
limit-resource monitor-session-extended minimum 0 maximum 16
limit-resource monitor-rbs-filter minimum 0 maximum 16
limit-resource monitor-rbs-product minimum 0 maximum 16


vdc ethernet id 3
limit-resource module-type f2e f3
allow feature-set fex
cpu-share 5
allocate interface
Ethernet2/1-16,Ethernet2/21-24,Ethernet2/41-48
boot-order 1
limit-resource vlan minimum 16 maximum 4094
limit-resource monitor-session-erspan-dst minimum 0 maximum 23
limit-resource vrf minimum 2 maximum 4096
limit-resource port-channel minimum 0 maximum 768
limit-resource u4route-mem minimum 8 maximum 8
limit-resource u6route-mem minimum 4 maximum 4
limit-resource m4route-mem minimum 8 maximum 8
limit-resource m6route-mem minimum 5 maximum 5
limit-resource monitor-session-inband-src minimum 0 maximum 1
limit-resource anycast_bundleid minimum 0 maximum 16
```

```
limit-resource monitor-session-extended minimum 0 maximum 16
limit-resource monitor-rbs-filter minimum 0 maximum 16
limit-resource monitor-rbs-product minimum 0 maximum 16

vdc storage id 2
allocate fcoe-vlan-range 30-50 from vdcs ethernet
allocate fcoe-vlan-range 100 from vdcs ethernet
allocate fcoe-vlan-range 400 from vdcs ethernet
allocate shared interface Ethernet2/41-48
```

Configuration Examples for Default and Nondefault VDCs

Example Running Configuration from the Default VDC

This example shows a nondefault VDC configuration from the running configuration of the default VDC:

```
vdc payroll id 2
 limit-resource vlan minimum 16 maximum 4094
 limit-resource monitor-session minimum 0 maximum 2
 limit-resource vrf minimum 16 maximum 1000
 limit-resource port-channel minimum 0 maximum 192
 limit-resource u4route-mem minimum 8 maximum 80
 limit-resource u6route-mem minimum 4 maximum 48
```

Example Running Configuration from a Nondefault VDC

This example shows the initial running configuration from a nondefault VDC:

```
version 4.0(1)
username admin password 5 $1$/CsUmTw5$/.3SZpb8LRsk9HdWAsQ501 role vdc-admin
telnet server enable
ssh key rsa 768 force
aaa group server radius aaa-private-sg
  use-vrf management
snmp-server user admin vdc-admin auth md5 0x061d8e733d8261dfb2713a713a95e87c priv
0x061d8e733d8261dfb2713a713a95e87c localizedkey
vrf context management
 ip route 0.0.0.0/0 10.10.5.1

interface Ethernet2/46

interface mgmt0
 ip address 10.10.5.5/23
```

Related Documents for Creating VDCs

Related Topic	Document Title
Cisco NX-OS licensing	*Cisco Nexus 7000 Series NX-OS Unicast Routing Command Reference*
Cisco Nexus 7000 Series 32-port 10-Gbps Ethernet modules	*Cisco Nexus 7000 Series Hardware Installation and Reference Guide*

Related Topic	Document Title
VDC commands	*Cisco Nexus 7000 Series NX-OS Virtual Device Context Command Reference*
FCoE commands	*Cisco NX-OS FCoE Command Reference for Cisco Nexus 7000 and Cisco MDS 9500*

Feature History for Creating VDCs

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Table 5: Feature History for Creating VDCs

Feature Name	Release	Feature Information
Cisco Nexus 7710 switch and Cisco Nexus 7718 switch	6.2(2)	Added support for the Cisco Nexus 7710 switch and the Cisco Nexus 7718 switch on the Supervisor 2e module.
Admin VDC on Supervisor 1 module	6.2(2)	Added support for admin VDC on the Supervisor 1 module.
F2e Series modules	6.2(2)	Added the ability to enable the F2e Series module (a new configurable VDC module type, independent from and separate to the F2 VDC module type) on the chassis.
F2e Series modules	6.1(2)	Added support for storage VDCs on F2e Series modules
Supervisor modules, Number of VDCs, and the VDC license	6.1(1)	Added support for the new supervisor modules and increased number of VDCs, support for storage VDCs on F2 Series modules, and the VDC license requirement for Supervisor 2 and additional VDCs.
F2 Series module	6.0(1)	Added support for the F2 Series module.
Creating VDCs	6.0(1)	No change from Cisco NX-OS Release 5.2.
FCoE	5.2(1)	Added support for storage VDCs and the FCoE feature.
N7K-F132XP-15 module	5.1(1)	Added support for the N7K-F132XP-15 module.
Creating VDCs	4.2(1)	No change from Cisco NX-OS Release 4.1(2).
IPv4 unicast route memory resource	4.1(2)	Changed the default maximum value from 256 to 8.

Feature Name	Release	Feature Information
IPv6 unicast route memory resource	4.1(2)	Changed the default maximum value from 256 to 4.
Multicast route memory resources	4.1(2)	Added IPv4 and IPv6 multicast route memory resources.
Port channel resources	4.1(2)	Changed the default maximum value from 256 to 768.
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.