



Configuring External Control Plane

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Configuring External Control Plane

In Cisco routers, the route processor (RP) that runs the control plane is hosted in the router chassis along with line cards. Hence, there is a tight coupling of control and data planes. Cisco NCS 6000 supports running up to three SDRs on the same RP. With the external control plane (ECP) feature, two external servers are connected to the NCS 6000 chassis through the control ethernet. This ensures control plane reachability across the NCS 6000 chassis and both the servers and provides the additional system resources that are required to scale beyond the current restriction of three named SDRs.

Table 1: SDR Scale Information

Cisco IOS XR Release	Supported Scale	Supported Dell Server Model
Release 6.4.1	up to 4 named SDRs	Dell R630
Release 6.6.1	up to 6 named SDRs with ISSU	Dell R630
Release 7.0.1	up to 6 named SDRs with ISSU	Dell R640



Note The CLI command `hw-module location <card> bootmedia` is not supported for CC cards. Instead, use integrated Dell Remote Access Controller (iDRAC).

Pre-requisites

This section provides information about the hardware and software requirements for configuring the external control plane feature.

Hardware Requirements for NCS 6000 router

- Two Dell R630 or R640 PowerEdge Servers with enterprise version of integrated Dell Remote Access Controller (iDRAC)
- NCS 6008 Line Card Chassis (2T or 1T). For 2T line cards, ensure that the following hardware components are present:
 - Two FAN Trays (NC6-FANTRAY)
 - Universal Fabric Cards (NC6-FC2-U)
- Two Route Processor cards for NCS6008 (NC6-RP)
- Power Trays with 6 PEM for each Power Tray (NCS-AC-PWRTRAY)

Hardware Requirements for Dell R630 Server

- Dell PERC H730 Integrated RAID Controller with 1GB cache for Dell R630 Server

Hardware Requirements for Dell R640 Server

- Dell PERC H740P Mini (Embedded) with 8GB cache for Dell R640 Server

Pluggables common for the pair of Dell Servers

- Four Intel SFP optics for each Dell server (FTLX8571D3BCVIT1) of which two optics for the management connectivity and another two optics for the control ethernet connectivity.



Note Dell servers do not support Cisco Copper or SFP optics.

- Four LC to LC OM3 multimode cables required for the control ethernet connectivity. Two cables for the control Ethernet connectivity between each RP and two server NIC ports (used for Expansion Ethernet).
- Four Cisco SFP+ optics for control Ethernet connectivity (SFP-10G-SR) at the RPs
- Two Cisco 1000BASE-T Copper SFP optics for XR management port connectivity at the RP Sysadmin VM port.
- Four LC to LC OM3 multimode cables required for the management connectivity.

Software Requirements for Dell R630 Server

- Cisco IOS XR 6.4.1 latest version with the required packages.

- Dell iDRAC enterprise edition version 2.41.40.40 or later on the Dell servers.
- Dell server BIOS version 2.4.3 or later.
- Supported browser with latest Java or HTML5 plug-in installed for accessing Dell iDRAC's virtual console.

Software Requirements for Dell R640 Server

- Cisco IOS XR 7.0.1 latest version with the required packages.
- Dell iDRAC enterprise edition version 3.21.26.22 or later on the Dell servers.
- Dell server BIOS version 1.6.12 or later.
- NIC firmware version 18.8.9
- Supported browser with latest Java or HTML5 plug-in installed for accessing Dell iDRAC's virtual console.

Pre-configuration tasks

You should complete the following pre-configuration tasks before configuring the ECP feature:

- [Setting up the Connection Between the Router and the Servers](#) , on page 3
- [Configuring Dell iDRAC](#), on page 5
- [Setting Up Dell Servers for Enabling ECP](#), on page 6

Setting up the Connection Between the Router and the Servers

Before configuring ECP, you need to establish control Ethernet connectivity in mesh mode between control Ethernet ports of RPs in NCS6000 and NIC ports of the Dell servers. This step ensures control Ethernet fail over connectivity which ensures minimal loop avoidance protocol (MLAP) availability between the NCS6000 router and Dell servers. MLAP helps to avoid control Ethernet loops. You should use the LC-to-LC OM3 multimode cables to establish the connectivity.

NCS6000 router supports:

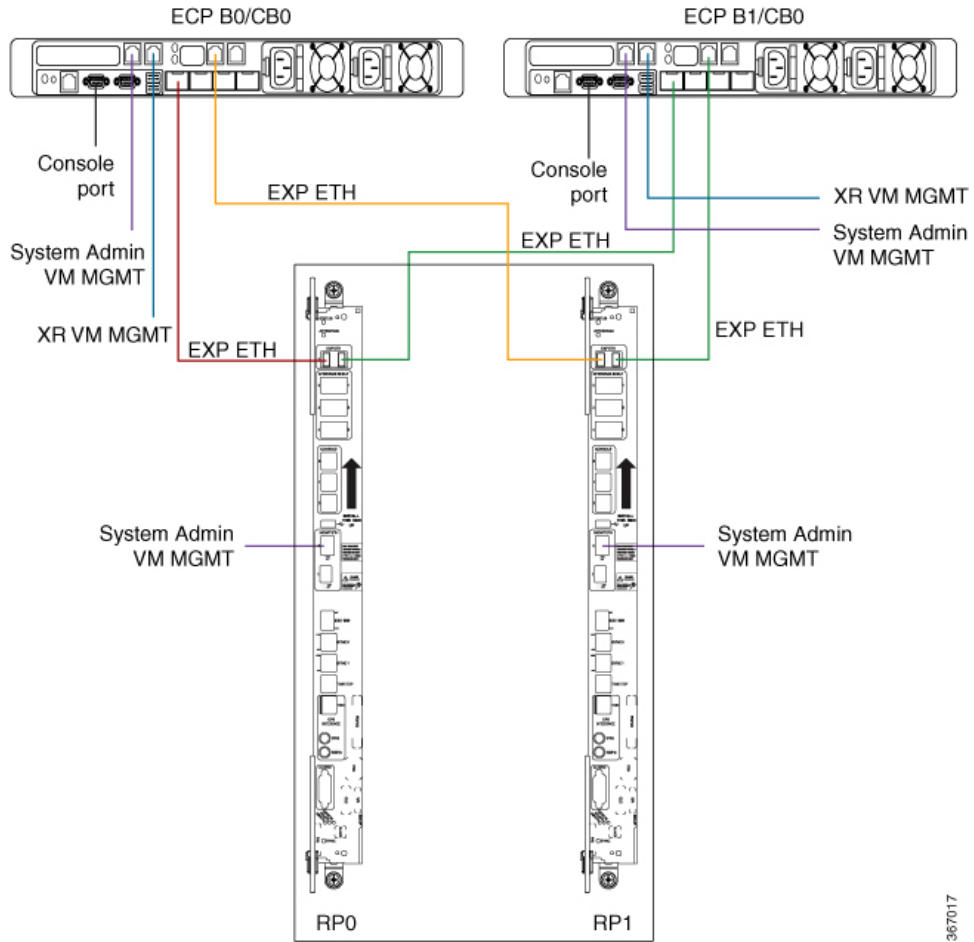
- Dell R630 in Cisco IOS XR Release 6.4.x
- Dell R630 in Cisco IOS XR Release 6.6.x
- Dell R640 in Cisco IOS XR Release 7.0.x



Note Do not use a combination of the Dell R630 and the R640 servers. Both servers must be of the same model (either R630 or R640).

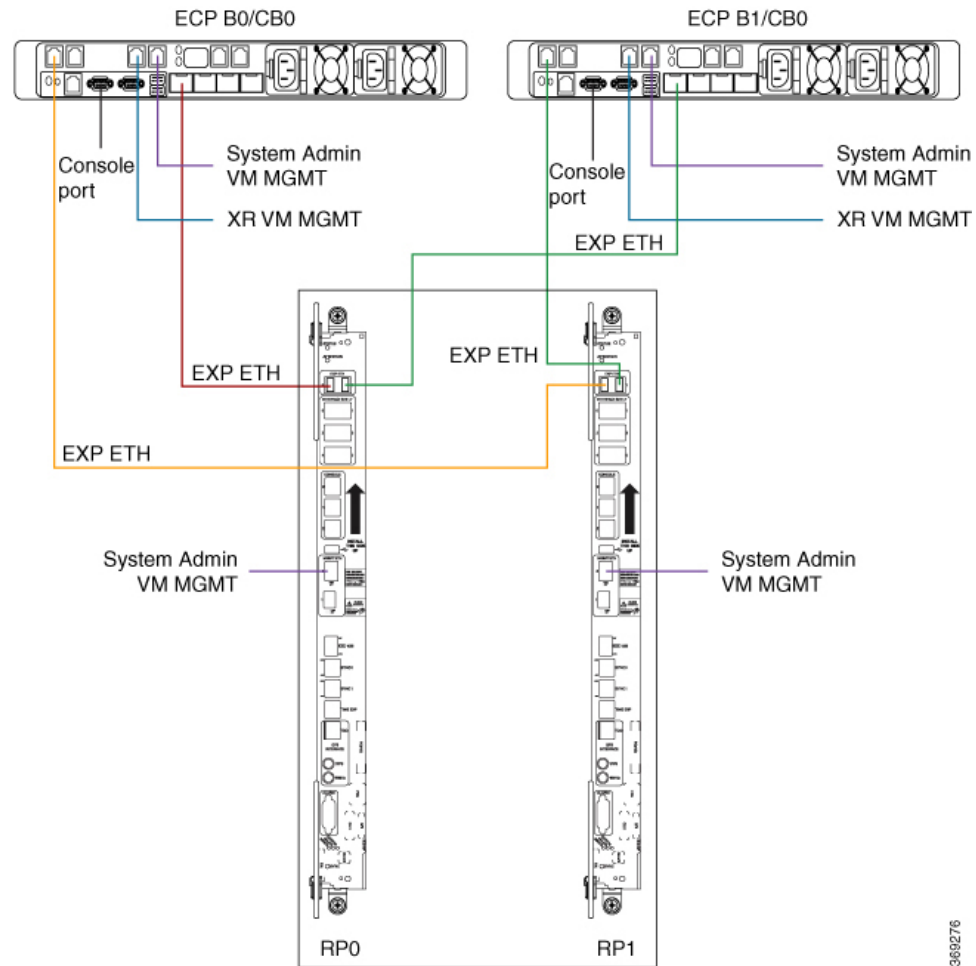
The control Ethernet connections between the NCS6000 line card chassis and Dell servers needs to be established as per the following figures:

Figure 1: Control Ethernet and Management Connections for Dell R630



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Figure 2: Control Ethernet and Management Connections for Dell R640



Note In Dell R640, the ports connecting to XR VM and System Admin VM are placed in a different location when compared to Dell R630.

You can use one of the following options to connect to the console port on the Dell server:

- RJ-45 to DB-9 Female cable
- RJ-45-to-DB-9 Adapter

Once the Dell servers are powered on, ensure that the power supply LEDs at the cable end of both the AC power supplies display solid green light which indicates that power supplies are working or in good state.

Configuring Dell iDRAC

This section provides information about how to configure the Integrated Dell Remote Access Controller (iDRAC) for Dell servers. The Dell iDRAC allows system administrators to manage the Dell servers remotely.

1. Configure an IP address for iDRAC on the Dell server.
2. Access the iDRAC web interface by specifying the IP address (<https://iDRAC-IP-address>) in the browser address bar.
3. Log in using the default credentials and then create your log in credentials when prompted.
 - Default user name : root
 - Default password : calvin



Note The root user should change the default iDRAC password to ensure secure login to iDRAC.

4. Note down the service tag information for the Dell server from the system summary page. The service tag information is required to update the chassis serial number during the rack configuration.
5. Ensure that iDRAC and BIOS firmware versions on both the servers are same by selecting **System Inventory > Firmware Inventory**. Update the firmware versions if required.



Note For more information about firmware update, see <http://www.support.dell.com>.

Setting Up Dell Servers for Enabling ECP

This section provides information about setting up the Dell servers for enabling ECP. The configuration tasks include:

- Configuring the Dell LifeCycle Controller.
- Using the Dell LifeCycle Controller to configure the following:
 - Serial communication settings in BIOS.
 - Single root I/O virtualization (SR-IOV) mode for NIC ports.
 - Hard disk drive Configuration.
 - NIC Configuration.

Perform the following steps to set up the Dell servers for enabling ECP.

Configuring Dell LifeCycle Controller

Perform the following steps to configure Dell LifeCycle Controller.

1. Launch the iDRAC web interface of the Dell server and log in to iDRAC.
2. In the System Summary, locate **Virtual Console Preview** and click **Launch** to launch the virtual console.
3. In the iDRAC Virtual Console, select **Next Boot > LifeCycle Controller** and then click **OK**.

4. Select **Power > Power Cycle System (cold boot)** and then click **Yes** in the confirmation window to complete the power cycle.
5. On the LifeCycle Controller page, select the required **Language** and **Keyboard** type and then click **Next**.
6. On the Product Overview page, click **Next**.
7. Enter the network settings on the LifeCycle Controller Network Settings page and then click **Next**.
8. Once the settings are applied, click **Finish**. LifeCycle Controller page is displayed.

Configure the Serial Communication and NIC Port Virtualization Settings Using Dell LifeCycle Controller

Once you configure the Dell Lifecycle Controller, perform the following steps to set the serial communication and NIC port virtualization settings using the Dell LifeCycle Controller. You need to set the virtualization mode as single root I/O virtualization (SR-IOV) mode in both NIC ports.

1. Select **System Setup** and then click **Advanced Hardware Configuration**.
2. In the System BIOS page, click **Serial Communication** and ensure that the following settings are correct.
 - Serial Communication: Auto.
 - Serial Port Address: Serial Device1=COM2, Serial Device2=COM1
 - External Serial Connector: Serial Device1
 - Failsafe Baud Rate: 115200
 - Remote Terminal Type: VT100/VT220
 - Redirection After Boot: Enabled
3. In the System BIOS page, select **Integrated Devices** and ensure that the **SR-IOV Global Enable** setting is **Enabled**.
4. Click **Back** to return to System Setup page.
5. On the Main Configuration page, click **Finish**.
6. Click **Yes** to confirm the changes. The success window appears confirming settings are applied.
7. Click **OK** to return to Device Settings page.

Converting Physical Disks to RAID Capable Mode

Once you complete configuring the NIC port virtualization settings, you need to prepare the disk storage for the NCS 6008 software image installation. First, the physical disk drives need to be converted to RAID capable mode and then virtual hard disks are created. Perform the following steps to convert physical disk drives to RAID capable mode.



Note To configure RAID, a minimum of 4 physical disks are required in the system which can be grouped in to 2 virtual disks.

1. On the Device Settings page, select:

- **Integrated RAID Controller Dell PERC <PERC H730 Mini> Configuration Utility** for Dell R630 server.
- **Integrated RAID Controller Dell PERC <PERC H740 Mini> Configuration Utility** for Dell R640 server.

2. For Dell R630 server:

- Select **Advanced Controller Management** in the Integrated RAID Controller Dell PERC <PERC H730 Mini> Configuration Utility page

For Dell R640 server:

- Select **Advanced Controller Management** in the Integrated RAID Controller Dell PERC <PERC H740 Mini> Configuration Utility page

3. On the Advanced Controller Management page, ensure that the controller mode is RAID.



Note If the controller mode is host bus adapter (HBA), you need to change the controller mode to RAID by selecting **Switch to RAID mode** and then reboot the server.

4. Return to the **Integrated RAID Controller Dell PERC Configuration Utility** page and then select **Configuration Management**.
5. Select **Convert to RAID Capable** to convert the drives as RAID capable. The eligible non-RAID disks are listed.
6. From the list of physical disks, select all the physical disks and then click **OK**.
7. Select **Confirm** and then click **Yes** to confirm the changes.
8. Click **Back** to return to **Configuration Management**.

Creating Virtual Disks

Perform the steps in this procedure to create virtual disks out of the RAID capable disks. In this task, two virtual disks are created. The first RAID 1 virtual disk is created to be hosted on the Solid-State Drive (SSD) units in the Dell servers. A second virtual disk is created with the remaining physical drives so that the first virtual disk appear first while loading the Cisco software.

1. On the Configuration Management page, select **Create Virtual Disk**.
2. Select the RAID level as **RAID 1**, select physical disks from **Unconfigured Capacity**, and then click **Select Physical Disks**.
3. Select the following configuration settings for the physical disks:
 - Select Media Type:
 - SSD**
 - Select Interface Type:
 - Both**
 - Logical Sector Size: **Both**

4. Select the two SSD drives and then click **Apply Changes**.
5. Set the virtual disk size as 200 GB and then click **Create Virtual Disk**.
6. Select **Confirm** and then click **Yes** to confirm the changes. The first virtual disk is created.
7. Click **OK** and return to **Configuration Management** to create the second virtual disk.
8. On the Configuration Management page, select **Create Virtual Disk**.
9. Select the RAID level as **RAID 1**, select physical disks from **Free Capacity**, and then click **Select Disk Groups**.
10. Click **Apply Changes** and then **OK**.
11. Use the free space on the disk group for the second virtual disk and then click **Create Virtual Disk**.
12. Select **Confirm** and then click **Yes** to confirm the changes. The second virtual disk is created.
13. Return to **Dashboard View > Configuration Management** page.
In the Dashboard View page, under Properties area the number of Virtual Disks value should be 2.
14. Return to **Device Settings** page.
15. Click **Finish** and return to **System Setup Main Menu** page.
16. Click **Finish** and return to **System Setup** page.
17. Click **Exit** and Virtual Console window opens.

This completes the storage settings required for the ECP feature configuration on Dell server.

Repeat the above steps on the second Dell server as well to complete the configuration steps in BIOS and Device Settings page.

Changing the BIOS Boot Sequence

Perform the following steps to change the BIOS boot sequence.

1. Select **System BIOS > Boot Settings > BIOS Boot Settings**.
2. In BIOS Boot Settings, click **Boot Sequence**.
3. Move **Hard drive C:** to the top of the boot order and then click **OK**.
4. Under **Boot Option Enable/Disable**, uncheck the options except **Hard drive C:** and then click **Back** to return to System BIOS setting.
5. In the System BIOS Settings page, click **Finish** and then click **Yes** to save the changes and click **OK** to the save successful message.
6. On the System Setup page, click **Finish** and then click **Yes** in the confirmation message to reboot the server and the changed BIOS settings to take effect.

Configuring NIC Ports

Perform the following steps to configure NIC ports settings in the Dell Lifecycle Controller for ECP.

1. Launch the iDRAC web interface of the Dell server and log in to iDRAC.

2. In the System Summary, locate **Virtual Console Preview** and click **Launch** to launch the virtual console.
3. In the iDRAC Virtual Console, select **Next Boot > LifeCycle Controller** and then click **OK**.
4. Select **System Settings** and then click **Device Settings**.
5. On the Device setting page, click **Integrated NIC 1 Port 1: Intel®Ethernet 10G 4P X710 /i350 rNDC**
6. Click **Device Level Configuration** and select the **Virtualization Mode** setting as **SR-IOV**.
7. Return to the **Device Settings** page
8. On the Device Settings page, click **NIC in Slot 1 Port 1: Intel® Ethernet Converged Network Adapter X710** .
9. Click **Device Level Configuration** and select the **Virtualization Mode** setting as **SR-IOV**.
10. Return to the **Device Settings** page.
11. Repeat the Step 8 and Step 9 for the below two NIC ports participating in the ECP feature:
 - NIC in Slot 2 Port 1: Intel® Ethernet Converged Network Adapter X710
 - NIC in Slot 2 Port 2: Intel® Ethernet Converged Network Adapter X710

This ensures that the Virtualization Mode is set to SR-IOV for all NIC ports relevant to the ECP feature.



Note

- Integrated NIC 1 Port 1: Intel®Ethernet 10G 4P X710 /i350 rNDC is used for Control Ethernet connectivity
 - NIC in Slot 1 Port 1: Intel® Ethernet Converged Network Adapter X710 is used for Control Ethernet connectivity
 - NIC in Slot 2 Port 1: Intel® Ethernet Converged Network Adapter X710 is used for Management connectivity
 - NIC in Slot 2 Port 2: Intel® Ethernet Converged Network Adapter X710 is used for Management connectivity
-

Bringing Up the NCS 6008 Router and Dell Servers for Enabling ECP

Perform the steps in this task to bring up the NCS 6008 router chassis and Dell servers for enabling ECP.



Note

You need to complete the pre-configuration tasks before performing these steps.

1. Power down both the Dell servers.

2. Ensure that the IOS-XR image running on the chassis supports the ECP feature and any relevant fixes are installed.
3. After the NCS 6008 chassis comes up, ensure that the right version is installed by issuing the **show version** command.
4. Use the **show install active** command to confirm that same version is installed on all nodes.
5. Update the chassis serial numbers of NCS 6008 and Dell servers in the Sysadmin VM running configuration.

```
sysadmin-vm:0_RP0(config)# chassis serial FMP12020050
sysadmin-vm:0_RP0(config-serial-FMP12020050)# rack 0
sysadmin-vm:0_RP0(config)# chassis serial 2YC4JH2
sysadmin-vm:0_RP0(config-serial-2YC4JH2)# rack B0
sysadmin-vm:0_RP0(config)# chassis serial 2YB5JH2
sysadmin-vm:0_RP0(config-serial-2YB5JH2)# rack B1
sysadmin-vm:0_RP0(config)# commit
```



Note To identify the serial numbers of the remotely managed Dell servers, see [Configuring Dell iDRAC, on page 5](#)

6. Power on the Dell servers and load the NCS 6008 image using the virtual media option by performing the following steps:
 - a. Launch the Dell iDRAC Virtual Console and then click **Virtual Media > Connect Virtual Media**.
 - b. Click **Virtual Media > Map Removable Disk**.
 - c. On the **Virtual Media - Map Removable Disk** dialog box, browse the client system, and select the NCS 6008 bootable IMG image and then click **Map Device**.
 - d. In the Virtual Console, click **Next Boot > Virtual Floppy** and then click **Ok** to set virtual floppy as the next boot device.
 - e. In the Virtual Console, click **Power > Power on System** to reboot the server.

After the server is powered on, NCS 6008 software image installation starts from the mapped software image.

Connecting to Sysadmin VM on the Dell Server through iDRAC SSH

To access terminal console of sysadmin VM running at Dell servers, the root user should establish a SSH connection to the iDRAC IP address from a client running Windows, Linux, or Mac OS which is reachable to the network in which servers are present. Once the SSH connection is established, execute the **console com2** command at the SSH prompt to connect to the server console.



Note After executing the **console com2** command, you may have to press the enter key multiple times to get the redirected console output of the server at the terminal console.

Creating Named SDRs for the ECP Enabled System

Perform the steps in this task to configure a named-SDR and allocate inventory in an ECP enabled system with Dell PowerEdge servers. The inventory includes RP resources (memory and CPU) and line cards. You can repeat the steps to create multiple named-SDRs.

Step 1 **config****Example:**

```
sysadmin-vm:0_RP0# config
```

Enters system administration configuration mode.

Step 2 **sdr *sdr-name*****Example:**

```
sysadmin-vm:0_RP0(config)# sdr sdr1
```

Creates a named-SDR and Enters SDR configuration mode.

Step 3 **pairing mode inter-rack****Example:**

```
sysadmin-vm:0_RP0(config-sdr-sdr1)# pairing mode inter-rack
```

Sets the RP pairing to inter-rack mode.

Step 4 **resources card-type cc****Example:**

```
sysadmin-vm:0_RP0(config-sdr-sdr1)# resources card-type cc
```

Enters RP resources allocation mode for Dell servers. Dell servers are modeled as Compute Container (CC) card in the ECP enabled system.

Step 5 **location *node-id*****Example:**

```
sysadmin-vm:0_RP0(config-sdr-sdr1)# location B0/CB0
```

Allocates first RP to the named-SDR based on the specified RP location. Here, B0 is the Dell server.

Step 6 **location *node-id*****Example:**

```
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
```

Allocates second RP to the named-SDR to be used for redundancy. Here B1 is the second Dell server.

Step 7 **exit****Example:**

```
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
```

Exits the RP configuration mode and returns to named-SDR configuration mode.

Step 8 `location` *node-id***Example:**

```
sysadmin-vm:0_RP0(config-sdr-sdr1)# location 0/0
```

Allocates line card to the named-SDR based on the specified line card location.

Step 9 `commit`**Example:**

```
sysadmin-vm:0_RP0(config-location-0/0)# commit
```

Example: Creating Named SDRs for ECP

This example shows how to configure named SDRs in a ECP enabled system with external servers. In this example, 4 SDRs are created.

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# no sdr default-sdr
sysadmin-vm:0_RP0(config)# commit
sysadmin-vm:0_RP0(config)# sdr sdr1
sysadmin-vm:0_RP0(config-sdr-sdr1)# pairing mode inter-rack
sysadmin-vm:0_RP0(config-sdr-sdr1)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr1)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr1)# location 0/0
sysadmin-vm:0_RP0(config-location-0/0)# commit

sysadmin-vm:0_RP0(config)# sdr sdr2
sysadmin-vm:0_RP0(config-sdr-sdr2)# pairing mode inter-rack
sysadmin-vm:0_RP0(config-sdr-sdr2)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr2)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr2)# location 0/3
sysadmin-vm:0_RP0(config-location-0/3)# commit

sysadmin-vm:0_RP0(config)# sdr sdr3
sysadmin-vm:0_RP0(config-sdr-sdr3)# pairing mode inter-rack
sysadmin-vm:0_RP0(config-sdr-sdr3)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr3)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr3)# location 0/4
sysadmin-vm:0_RP0(config-location-0/4)# commit

sysadmin-vm:0_RP0(config)# sdr sdr4
sysadmin-vm:0_RP0(config-sdr-sdr4)# pairing mode inter-rack
sysadmin-vm:0_RP0(config-sdr-sdr4)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr4)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr4)# location 0/5
sysadmin-vm:0_RP0(config-location-0/5)# commit

sysadmin-vm:0_RP0(config)# sdr sdr5
sysadmin-vm:0_RP0(config-sdr-sdr5)# pairing mode inter-rack
```

```

sysadmin-vm:0_RP0(config-sdr-sdr5)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr5)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr5)# location 0/6
sysadmin-vm:0_RP0(config-location-0/6)# commit

sysadmin-vm:0_RP0(config)# sdr sdr6
sysadmin-vm:0_RP0(config-sdr-sdr6)# pairing mode inter-rack
sysadmin-vm:0_RP0(config-sdr-sdr6)# resources card-type cc
sysadmin-vm:0_RP0(config-sdr-sdr6)# location B0/CB0
sysadmin-vm:0_RP0(config-location-B0/CB0)# location B1/CB0
sysadmin-vm:0_RP0(config-location-B1/CB0)# exit
sysadmin-vm:0_RP0(config-sdr-sdr6)# location 0/7
sysadmin-vm:0_RP0(config-location-0/7)# commit

```

What to do next

After the named-SDR are created, verify the VM state for each SDR.

Execute the **show sdr** command to check that the Status is "RUNNING" for all VMs in each SDR.

```
sysadmin-vm:0_RP0# show sdr
```

```
Wed Nov 08 16:01:06.626 UTC
```

```
SDR: SDR1
```

Location	IP Address	Status	Boot Count	Time Started
B0/CB0/VM1	192.0.0.4	RUNNING	1	08/11/2017 00:33:12
B1/CB0/VM1	192.0.4.4	RUNNING	1	08/11/2017 00:33:01
0/1/VM1	192.0.88.3	RUNNING	1	08/11/2017 00:32:48

```
SDR: SDR2
```

Location	IP Address	Status	Boot Count	Time Started
B0/CB0/VM2	192.0.0.6	RUNNING	2	08/11/2017 03:24:43
B1/CB0/VM2	192.0.4.6	RUNNING	2	08/11/2017 03:24:32
0/3/VM2	192.0.68.3	RUNNING	2	08/11/2017 03:25:26

```
SDR: SDR3
```

Location	IP Address	Status	Boot Count	Time Started
B0/CB0/VM3	192.0.0.8	RUNNING	2	08/11/2017 02:32:15
B1/CB0/VM3	192.0.4.8	RUNNING	2	08/11/2017 02:32:23
0/4/VM3	192.0.64.3	RUNNING	2	08/11/2017 02:32:40

```
SDR: SDR4
```

Location	IP Address	Status	Boot Count	Time Started
B0/CB0/VM4	192.0.0.10	RUNNING	2	08/11/2017 04:32:23
B1/CB0/VM4	192.0.4.10	RUNNING	2	08/11/2017 04:32:32
0/5/VM4	192.0.60.3	RUNNING	2	08/11/2017 04:33:40

```
SDR: SDR5
```

Location	IP Address	Status	Boot Count	Time Started
B0/CB0/VM5	192.0.0.12	RUNNING	2	08/11/2017 02:32:17
B1/CB0/VM5	192.0.4.10	RUNNING	2	08/11/2017 02:32:25
0/6/VM5	192.0.66.3	RUNNING	2	08/11/2017 02:32:49

```
SDR: SDR6
```

Location	IP Address	Status	Boot Count	Time Started
----------	------------	--------	------------	--------------

```
-----  
B0/CB0/VM6 192.0.0.14 RUNNING 2 08/11/2017 04:32:25  
B1/CB0/VM6 192.0.4.12 RUNNING 2 08/11/2017 04:32:37  
0/7/VM6 192.0.68.3 RUNNING 2 08/11/2017 04:33:50
```

