



# Secure Domain Router Commands on the Cisco IOS XR Software

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Secure domain routers (SDRs) provide a means of partitioning a router into multiple, independent routers. SDRs perform routing functions in the same manner as a physical router but share resources with the rest of the system. For example, the applications, configurations, protocols, and routing tables assigned to an SDR belong to that SDR only, but other functions such as chassis control, switch fabric, and partitioning are shared with the rest of the system.

For detailed information about secure domain router concepts, configuration tasks, and examples, see the *Configuring Secure Domain Routers on Cisco IOS XR Software* module in *Cisco IOS XR System Management Configuration Guide for the Cisco XR 12000 Series Router*.

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## location (SDR)

To assign a node to a secure domain router (SDR), use the **location** command in SDR configuration mode. To remove a node from an SDR and return the node to the owner SDR, use the **no** form of this command.

**location** *partially-qualified-nodeid* [**primary**]

**no location** *partially-qualified-nodeid*

### Syntax Description

<i>partially-qualified-nodeid</i>	Node to be assigned to the specified secure domain router. Refer to the Usage Guidelines for the syntax required in each router platform.
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### Command Default

All nodes are assigned to the owner SDR.

### Command Modes

SDR configuration

### Command History

Release	Modification
Release 3.2	This command was introduced.
Release 3.3.0	The term logical router (LR) was changed to secure domain router (SDR).
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.
Release 3.8.0	No modification.
Release 3.9.0	No modification.

### Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **location** command to assign a node to an SDR. By default, all nodes belong to the owner SDR. When a node is assigned to a non-owner SDR, it is automatically removed from the owner SDR inventory.

Use the **no** form of the **location** command to remove a node from an SDR. Removing a node from an SDR implicitly returns it to the owner SDR. When a node has been removed from an SDR, it can be reassigned to another SDR. To remove the designated secure domain router system controller (DSDRSC), you must first remove all other nodes in the SDR. You cannot remove the designated system controller (DSC) from the owner SDR.



**Note** Removing all nodes from an SDR deletes the secure domain router from the configuration.

### Usage Notes

- Enter the value of the *partially-qualified-nodeid* argument to specify a single node. The value of the *nodeid* argument is entered in the *rack/slot/\** notation. Node IDs are always specified at the slot level, so the wildcard (\*) is used to specify the CPU.
- The first RP you assign to the SDR will become the DSDRSC. To add a redundant standby RP to the configuration, install a second RP in the adjacent redundancy slot and add it to the SDR configuration. For more information, see *Configuring Secure Domain Routers on Cisco IOS XR Software*.

### Task ID

Task ID	Operations
system	read, write

### Examples

The following example shows how to create an SDR, and assign RPs in adjacent redundancy slots to be the DSDRSC:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# sdr rname
RP/0/0/CPU0:router(admin-config-sdr:rname)# location 0/2/*
RP/0/0/CPU0:router(admin-config-sdr:rname)# location 0/3/*
RP/0/0/CPU0:router(admin-config-sdr:rname)# commit
RP/0/0/CPU0:router(admin-config-sdr:rname)# end
```

The following example shows how to add a node to an SDR:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# sdr rname
RP/0/0/CPU0:router(admin-config-sdr:rname)# location 0/5/*
RP/0/0/CPU0:router(admin-config-sdr:rname2)# end
```

The following example shows how to remove a node from an SDR:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# sdr rname
RP/0/0/CPU0:router(admin-config-sdr:rname)# no location 0/5/*
RP/0/0/CPU0:router(admin-config-sdr:rname2)# end
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<a href="#">sdr</a>	Creates a secure domain router (SDR) and enters SDR configuration mode.

# sdr

To create a secure domain router (SDR) and enter SDR configuration mode, use the **sdr** command in administration configuration mode. To remove a secure domain router from the configuration, use the **no** form of this command.

**sdr** *sdr-name*

**no sdr** *sdr-name*

## Syntax Description

<i>sdr-name</i>	Name of the SDR to be created or modified.
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## Command Default

The system comes configured as a single secure domain router known as the *owner SDR*.

## Command Modes

Administration configuration

## Command History

Release	Modification
Release 3.2	This command was introduced.
Release 3.3.0	The term logical router (LR) was changed to secure domain router (SDR).
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.
Release 3.8.0	No modification.
Release 3.9.0	No modification.

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **sdr** command to create an SDR or modify an existing SDR.

**Note**

The *sdr-name* argument creates an SDR if the SDR specified for the *sdr-name* argument does not exist.

By default, a router running Cisco IOS XR software contains one SDR, the owner SDR. You cannot create the owner SDR because it always exists—nor can you completely remove it because it is necessary for managing the router.

After the **sdr** command is used, the router enters SDR configuration mode. From SDR configuration mode, you can add nodes to the SDR or remove nodes from the SDR using the **location** (SDR) command.

Use the **no** form of the command to remove a non-owner SDR configuration. When an SDR is removed from the router configuration, all nodes included in the SDR configuration are returned to the owner SDR inventory. The owner SDR cannot be removed.

**Maximum Number of SDR Configurations**

We recommend a maximum of four SDRs, including one owner SDR and up to three non-owner SDRs.

**Task ID**

Task ID	Operations
system	read, write

**Examples**

The following example shows how to enter SDR configuration mode to configure an SDR.

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# configure
RP/0/0/CPU0:router(admin-config)# sdr rname
RP/0/0/CPU0:router(admin-config-sdr:rname)# location 0/0/*
RP/0/0/CPU0:router(admin-config-sdr:rname)# location 0/5/*
RP/0/0/CPU0:router(admin-config-sdr:rname)# end
```

**Related Commands**

Command	Description
location (DRP)	Assigns nodes to a DRP pair.
pairing (DRP)	Specifies a distributed router processor (DRP) pair and enters DRP pairing configuration mode.
<a href="#">location (SDR)</a>	Assigns a node to a secure domain router.

# show sdr

To display information about the currently defined secure domain routers (SDRs), use the **show sdr** command in EXEC mode or administration EXEC mode.

## Administration EXEC Mode

```
show sdr [name sdr-name [detail]] summary]
```

## EXEC Mode

```
show sdr [detail]
```

### Syntax Description

<b>name</b> <i>sdr-name</i>	(Optional. Administration EXEC mode only) Specifies a specific SDR.
<b>detail</b>	(Optional) Displays more detailed information for a specific SDR.
<b>summary</b>	(Optional. Administration EXEC mode only) Displays summary information about all SDRs in the system.

### Command Default

Administration EXEC mode:

- Displays information for the Owner SDR.
- If you are logged into a specific SDR as the admin user, then information about the local SDR is displayed.

EXEC mode:

- Displays information about the local SDR.

### Command Modes

EXEC

Administration EXEC

### Command History

Release	Modification
Release 3.5.0	This command was introduced.
Release 3.6.0	No modification.
Release 3.7.0	No modification.
Release 3.8.0	No modification.
Release 3.9.0	No modification.

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show sdr** command in administration EXEC mode to display the inventory of nodes in the Owner SDR or in a specific named SDR. The **show sdr** command in EXEC mode displays the inventory of nodes in the current SDR.

**Task ID**

Task ID	Operations
system	read

**Examples**

This example shows sample output from the **show sdr** command in EXEC mode:

```
RP/0/5/CPU0:router# show sdr
Mon Sep 28 19:55:31.905 DST
```

```
SDR Inventory
-----
```

Type	NodeName	NodeState	RedState	PartnerName
LC (2)	0/0/CPU0	UNPOWERED	NONE	NONE
LC (2)	0/1/CPU0	UNPOWERED	NONE	NONE
LC (2)	0/2/CPU0	IOS XR RUN	NONE	NONE
LC (2)	0/3/CPU0	IOS XR RUN	NONE	NONE
LC (2)	0/4/CPU0	IOS XR RUN	NONE	NONE
RP (0)	0/5/CPU0	IOS XR RUN	Active	NONE

**Table 1: show sdr Field Descriptions**

Field	Description
Type	Type of card, which can be Linecard, RP, or DRP.
NodeName	Name of the node, expressed in the <i>rack/slot/module</i> notation.
NodeState	Run state of the card, which can be failure, present, booting, running, and so on.
RedState	Redundancy state of the card, which can be active, standby, or none.
PartnerName	Partner of the card, expressed in the <i>rack/slot/module</i> notation.



This example shows sample output from the **show sdr** command in administration EXEC mode with the **summary** keyword:

```
RP/0/5/CPU0:router(admin)# show sdr summary
Mon Sep 28 19:57:36.929 DST

SDRs Configured:
SDR-Names                               SDRid dSDRSC           StbydSDRSC  MacAddr
-----
Owner                                     0      0/5/CPU0         NONE         0019.aaa3.3df0
```

**Table 2: show sdr summary Field Descriptions**

Field	Description
SDRid	Identifier of the SDR.
dSDRSC	Designated secure domain router shelf controller. This refers to the controller of the SDR.
StbydSDRSC	Standby DSDRSC. This refers to the standby controller of the SDR.
Primary1	Configured primary node.
Primary2	Configured primary node pair.
MacAddr	MAC address associated with the SDR.

