Configuring Transports

This module provides information about Nonstop Routing (NSR), Stream Control Transmission Protocol (SCTP), Transmission Control Protocol (TCP), User Datagram Protocol (UDP), and RAW Transports.

If you have specific requirements and need to adjust the NSR, SCTP, TCP, UDP, or RAW values, refer to the *Transport Stack Commands on IP Addresses and Services Command Reference for Cisco CRS Routers*.

Feature History for Configuring NSR, SCTP, TCP, UDP, and UDP RAW Transports on the Cisco IOS XR Software

Release	Modification
Release 3.6.0	The following features were introduced: • Nonstop Routing (NSR) • Stream Control Transmission Protocol (SCTP)

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Prerequisites for Configuring NSR, SCTP, TCP, UDP, and RAW Transports

The following prerequisites are required to implement NSR, SCTP, TCP, UDP, and RAW Transports:

You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Information About Configuring NSR, SCTP, TCP, UDP, and RAW Transports

To configure NSR, SCTP, TCP, UDP, and RAW transports, you must understand the following concepts:

NSR Overview

Nonstop Routing (NSR) is provided for Open Shortest Path First (OSPF) and Label Distribution Protocol (LDP) protocols for the following events:

- Route Processor (RP) or Distributed Route Processor (DRP) failover
- Process restart for either OSPF, LDP, or TCP
- Minimum Disruption Restart (MDR)
- Rack online insertion and removal (OIR) in a Cisco CRS-1 Multishelf System

In the case of the RP failover, NSR is achieved by for both TCP and the applications (OSPF or LDP).

NSR is a method to achieve High Availability (HA) of the routing protocols. TCP connections and the routing protocol sessions are migrated from the active RP to standby RP after the RP failover without letting the peers know about the failover. Currently, the sessions terminate and the protocols running on the standby RP reestablish the sessions after the standby RP goes active. Graceful Restart (GR) extensions are used in place of NSR to prevent traffic loss during an RP failover but GR has several drawbacks.

You can use the **nsr process-failures switchover** command to let the RP failover be used as a recovery action when the active TCP or active LDP restarts. When standby TCP or LDP restarts, only the NSR capability is lost till the standby instances come up and the sessions are resynchronized but the sessions do not go down. In the case of the process failure of an active OSPF, a fault-management policy is used. For more information, refer to *Implementing OSPF on Routing Configuration Guide for Cisco CRS Routers*.

SCTP Overview

Stream Control Transmission Protocol (SCTP) is a reliable transport protocol that provides multihoming, stream support, and partial reliability. Multihoming occurs when one (or both) endpoints of a connection can consist of more than one IP address, which enables transparent failover between redundant network paths. SCTP can transport multiple message-streams.

TCP Overview

TCP is a connection-oriented protocol that specifies the format of data and acknowledgments that two computer systems exchange to transfer data. TCP also specifies the procedures the computers use to ensure that the data arrives correctly. TCP allows multiple applications on a system to communicate concurrently, because it handles all demultiplexing of the incoming traffic among the application programs.

UDP Overview

The User Datagram Protocol (UDP) is a connectionless transport-layer protocol that belongs to the IP family. UDP is the transport protocol for several well-known application-layer protocols, including Network File System (NFS), Simple Network Management Protocol (SNMP), Domain Name System (DNS), and TFTP.

Any IP protocol other than TCP, UDP, or SCTP is known as a RAW protocol.

For most sites, the default settings for the TCP, UDP, and RAW transports need not be changed.

How to Configure Failover as a Recovery Action for NSR

This section contains the following procedure:

Configuring Failover as a Recovery Action for NSR

This task allows you to configure failover as a recovery action to process failures of active instances.

When the active TCP or the NSR client of the active TCP terminates or restarts, the TCP sessions go down. To continue to provide NSR, failover is configured as a recovery action. If failover is configured, a switchover is initiated if the active TCP or an active application (for example, LDP, OSPF, and so forth) restarts or terminates.

For information on how to configure MPLS Label Distribution Protocol (LDP) for NSR, refer to the *MPLS Configuration Guide for the Cisco CRS Routers*.

For information on how to configure NSR on a per-process level for each Open Shortest Path First (OSPF) process, refer to the *Routing Configuration Guide for Cisco CRS Routers*.

Note Before performing this procedure, enable RP isolation using the **isolation enable** command for improved troubleshooting. Without enabling RP isolation, the failing process will not generate the logs required to find the root cause of the failure.

SUMMARY STEPS

1. **configure**
2. nsr process-failures switchover
3. **commit**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure**	
Step 2	nsr process-failures switchover **Example:** `RP/0/RP0/CPU0:router(config)# nsr process-failures`	Configures failover as a recovery action for active instances to switch over to a standby route processor (RP) or a distributed route processor (DRP) to maintain nonstop routing (NSR).

	Command or Action	Purpose
	`switchover`	
Step 3	**commit**	

Additional References

The following sections provide references related to configuring NSR, SCTP, TCP, UDP, and RAW transports.

Related Documents

Related Topic	Document Title
the Cisco IOS XR Software Transport Stack commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	*Transport Stack Commands in the IP Addresses and Services Command Reference for Cisco CRS Routers*
the Cisco IOS XR Software MPLS LDP commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	*MPLS Label Distribution Protocol Commands in the MPLS Command Reference for the Cisco CRS Router*
the Cisco IOS XR Software OSPF commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	*OSPF Commands in the Routing Command Reference for Cisco CRS Routers*
MPLS Label Distribution Protocol feature information	*Implementing MPLS Label Distribution Protocol in the MPLS Configuration Guide for the Cisco CRS Routers*
OSPF feature information	*Implementing OSPF in the Routing Configuration Guide for Cisco CRS Routers*

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
—	To locate and download MIBs, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: https://mibs.cloudapps.cisco.com/ITDIT/MIBS/servlet/index

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport