New and Changed Information

This chapter provides release-specific information for each new and changed feature in the *Cisco Nexus 9000 Series NX-OS Unicast Routing Configuration Guide, Release 7.x*

remote router must send all nonlocal traffic, regardless of its destination, to the distribution router. To configure a true stub network, you should configure the distribution router to send only a default route to the remote router.

OSPF supports stub areas, and the Enhanced Interior Gateway Routing Protocol (EIGRP) supports stub routers.

Routing Algorithms

Routing algorithms determine how a router gathers and reports reachability information, how it deals with topology changes, and how it determines the optimal route to a destination. Various types of routing algorithms exist, and each algorithm has a different impact on network and router resources. Routing

Distance Vector Protocols

Distance vector protocols use distance vector algorithms (also known as Bellman-Ford algorithms) that call for each router to send all or some portion of its routing table to its neighbors. Distance vector

CHAPTER

Configuring 64-Bit ALPM Routing Mode (Cisco Nexus 9500 Series Switches Only)

DETAILED STEPS

Configuring LPM Heavy Routing Mode (Cisco Nexus 9200 and 9300-EX Series Switches and X9732C-EX Line Card Only)

Beginning with Cisco NX-OS Release 7.0(3)I4(4), you can configure LPM heavy routing mode in order to support significantly more LPM route entries. Only the Cisco Nexus 9200 and 9300-EX Series switches and the Cisco Nexus 9508 switch with an X9732C-EX line card support this routing mode.

Configuring the Interface IP Address for the ICMP Source IP Field

Table 3-3 lists the extension header types and their Next Header field values.

DNS for IPv6

DETAILED STEPS

This example shows how to configure an IPv6 address:

```
switch# configure terminal
```

DETAILED STEPS

Configuring 64-Bit ALPM Routing Mode (Cisco Nexus 9500 Series Switches Only)

You can use the 64-bit algorithmic longest prefix match (ALPM) feature to manage IPv4 and IPv6 route

The backbone Area 0 cannot be an NSSA.

Virtual Links

Virtual links allow you to connect an OSPFv2 area ABR to a backbone area ABR when a direct physical connection is not available. Figure 5-4 shows a virtual link that connects Ar.3()7(i 0)43 .6(ual1.7(t3hat 7(nneeckbo

This example shows how to create an OSPFv2 instance:

BEFORE YOU BEGIN

3. **[no] table-map**

DETAILED STEPS

	Command	Purpose

Step 1	**configure terminal**
	
	Example:
	`switch# configure terminal`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**vrf context** *vrf-name*
	
	Example:
	`switch(config)# vrf context RemoteOfficeVRF`
	`switch(config-vrf)#`	

The Hello packet contains information about the or

- Active supervisor removal
- Active supervisor reload using the **reload module** *active-sup* command

Multiple OSPFv3 Instances

Cisco NX-OS supports multiple instances of the OSPFv3 protocol. By

To remove the OSPFv3 instance and all associat

DETAILED STEPS

This example shows how to create summary addresses between areas on an ABR:

```
switch# configure terminal
switch(config)# router ospfv3 201
switch(config-router)# address-family ipv6 unicast
switch(config-router)# area 0.0.0.10 range 2001:0DB8::/48
switch(config-router)# copy running-config startup-config
```

This example shows how to create summary addresses on an ASBR:

```
switch# configure terminal
switch(config)# router ospf 201
switch(config-router)# address-family ipv6 unicast area 0.0.0.10 range 2001:0DB8::/48
```

This example shows how to control LSA flooding with the lsa-group-pacing option:

```
switch#
```

EIGRP Components

EIGRP has the following basic components:

Reliable Transport Protocol

The Reliable Transport Protocol guarantees ordered delivery of

BFD

Configuring a Passive Interface for EIGRP

You can configure a passive interface for EIGRP. A passive interface does not participate in EIGRP adjacency, but the network address for the interface25.1(ssi6-3.1(cmai)4.7(esin Et5.6(nh-1.3(teEIGRP) t)4.7(rp

DETAILED STEPS

	Command	Purpose
Step 1	**configure terminal** **Example:** switch# configure terminal switch(config)#	Enters global configuration mode.
Step 2		

This example shows how to limit the number of redistributed routes into EIGRP:

```
switch# configure terminal
switch(config)# router eigrp Test1
switch(config-router)# redistribute bgp route-map FilterExternalBGP
switch(config-router)# redistribute maximum-prefix 1000 75
```

DETAILED STEPS

Adjusting the Interval Between Hello Packets and the Hold Time

You can adjust the interval between Hello messages and the hold time.

By default, Hello messages are sent every 5 seconds. The hold time is advertised in Hello messages and indicates to neighbors the length of time that they should consider the sender valid. The default hold time is three times the hello interval, or 15 seconds.

To change the interval between hello packets, us

Enabling Wide Metrics

CHAPTER

A stateful restart is used in the following scenarios:

- First recovery attempt after

Note You must also remove any IS-IS commands that are configured in interface mode to completely remove

Restarting an IS-IS Instance

You can restart an IS-IS instance. This action clears all neighbors for the instance.

To restart an IS-IS instance and remove all associated neighbors, use the following command:

Shutting Down IS-IS

You can shut down the IS-IS instance. This action disables this IS-IS instance and retains the configuration.

To shut down the IS-IS instance, use the following command in router configuration mode:

Configuring IS-IS on an Interface

You can add an interface to an IS-IS instance.

BEFORE YOU BEGIN

You must enable IS-IS (see the "Enabling the IS-IS Feature" section on page 8-9).

This example shows how to limit the number of redistributed routes into IS-IS:

```
switch# configure terminal
switch(config)# router eigrp isis Enterprise
switch(config-router)# redistribute bgp route-map FilterExternalBGP
switch(config-router)# redistribute maximum-prefix 1000 75
```

Disabling Strict Adjacency Mode

When both IPv4 and IPv6 address families are enabled, strict adjacency mode is enabled by default. In

DETAILED STEPS

Command	Purpose

Step 1 **configure terminal**
 	
Example:
`switch# configure terminal`
`switch(config)#`
	Enters global configuration mode.

Step 2 **router isis** *instance-tag*
 	
Example:
`switch(config)# router isis Enterprise`
`switch(confige`	

Configuring a Graceful Restart

You can configure a graceful restart for IS-IS.

Configuring Virtualization

You can configure multiple IS-IS instances and mult

BGP also supports load balancing or equal-cost multipath (ECMP). See the "Load Sharing and Multipath" section on page 10-6 for more information.

This section includes the following topics:

BGP Autonomous Systems

An autonomous system (AS) is a network controlled by a single administration entity. An autonomous

BEFORE YOU BEGIN

You must enable BGP (see the "Enabling BGP" section on page 9-11).

CHAPTER

Route Policies and Resetting BGP Sessions

You can associate a route policy to a BGP peer. Route policies use route maps to control or modify the routes that BGP recognizes. You can configure a route policy for inbound or outbound route updates. The route policies can match on different criteria, such

A peer-session template can inherit from one other peer-session template. You can configure the second

log-neighbor-changes

Example:
```
switch(config-router)#
log-neighbor-changes
```

Generates a system message when any neighbor changes state.

Note To suppress neighbor status change

To tune BGP, use the following optional commands in router address-family configuration mode:

CHAPTER

DETAILED STEPS

To disable the RIP feature and remove all associated configurations, use the following command in

Configuring a Passive Interface

DETAILED STEPS

CHAPTER 12

This section includes the following topics:

•

Figure 13-2 shows an SNMP server that is reachable over the management VRF. You configure Router

Default Settings

Table 13-1 lists the default settings for VRF parameters.

Configuring VRFs

This section contains the following topics:

Assigning VRF Membership to an Interface

You can make an interface a member of a VRF.

BEFORE YOU BEGIN

Assign the IP address for an interface after you have configured the interface for a VRF.

SUMMARY STEPS

1. **configure terminal**
2. **interface** *interface-type slot/port*
3. **vrf member** *vrf-name*
4. **ip-address**

CHAPTER

- Clearing Forwarding Information in the FIB, page 14-8
-

Verifying the Unicast RIB and FIB

Configuring Route Policy Manager

This section includes the following topics:

Verifying the Route Policy Manager Configuration

To display route policy manager configuration information, perform one of the following tasks:

DETAILED STEPS

Configuring a Route Policy

You can use route maps in policy-based routing to assign routing policies to the inbound interface. Cisco NX-OS routes the packets as soon as it finds a next hop and an interface.

BEFORE YOU BEGIN

You must configure the IPv6 RACL TCAM region (using TCAM carving) before you apply the policy-based routing policy for IPv6 traffic. For instructions, see the “Configuring ACL TCAM Region Sizes” and “Configuring TCAM Carving - For Cisco NX-OS Release 6.1(2)I2(1) and Later Releases” sections in the *Cisco Nexus 9000 Series NX-OS Security Configuration Guide*.

Verifying the Policy-Based Routing Configuration

Figure 17-1 HSRP Topology with Two Enabled Routers

The virtual router does not physically exist but represents the common default router for interfaces that are configured to provide backup to each other. You do not need to configure the hosts on the LAN with

To customize HSRP, use the following commands in interface configuration mode:

Configuring Extended Hold Timers for HSRP

-

Virtual router redundancy service (VRRS) improves the scalability of VRRPv3 by providing a stateless redundancy service to VRRS pathways and VRRS clients by monitoring VRRPv3. VRRPv3 acts as a VRRS server that pushes VRRPv3 status information (such as current and previous redundancy states, active and inactive Layer 2 and Layer 3 addresses, a

Licensing Requirements for VRRP

The following table shows the licensing requirements for this feature:

Guidelines and Limitations for VRRP

VRRP has the following configuration guidelines and limitations:

- You cannot configure VRRP on the management interface.
- When VRRP is enabled, you should replicate the VRRP configuration across devices in your network.
- We recommend that you do not configure more than one first-hop redundancy protocol on the same interface.
- You must con.re13t3(hor-)6.3(.1( )2)24an Iedresr VRRe reqac8(:)]T5.9pliconfcros6.1led, y8(:)]T.9interfe.plicc

5. **no shutdown**
6. (Optional) **show vrrp**
7. (Optional)

DETAILED STEPS

Configuring Time Intervals for Advertisement Packets

SUMMARY STEPS

Step 5

BEFORE YOU BEGIN

Make sure that VRRPv3 is enabled.

Make sure that you have configured an IP address on the interface.

SUMMARY STEPS

1. **configure terminal**
2. **interface ethernet** *slot/port*
3. **ip address** *ip-address mask* [**secondary**]
4. **vrrs pathway** *vrrs-tag*
5. **mac address** {*mac-address* | **inherit**}
6. **address** *ip-address*
7. (Optional) **show vrrs pathway** *interface-type interface-number*
8. (Optional) **copy running-config startup-config**

DETAILED STEPS

APPENDIX B

Configuration Limits for Cisco NX-OS Layer 3