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Introduction

This document describes how to configure Enhanced Interior Gateway Routing Protocol (EIGRP) for IPv6. EIGRP is an enhanced version of the IGRP developed by Cisco. It is an enhanced distance vector protocol that relies on the Diffused Update Algorithm (DUAL) to calculate the shortest path to a destination within a network. EIGRP for IPv6 works in the same way as EIGRP IPv4 where they can be configured and managed separately.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Basic knowledge of EIGRPv4
- Basic knowledge of IPv6 addressing

Restrictions

The configuration of EIGRP for IPv6 has some restrictions; which are:

- The interfaces can be directly configured with EIGRP for IPv6, without the use of a global IPv6 address. There is no network statement in EIGRP for IPv6.
- The router ID needs to be configured for an EIGRPv6 protocol instance before it can run.
- EIGRP for IPv6 has a shutdown feature. Ensure that the routing process is in "no shut" mode in order to run the protocol.

Components Used

The configurations in this document are based on the Cisco 3700 Series router on Cisco IOS Software Release 12.4 (15)T 13.

The information in this document was created from the devices in a specific lab environment. All of

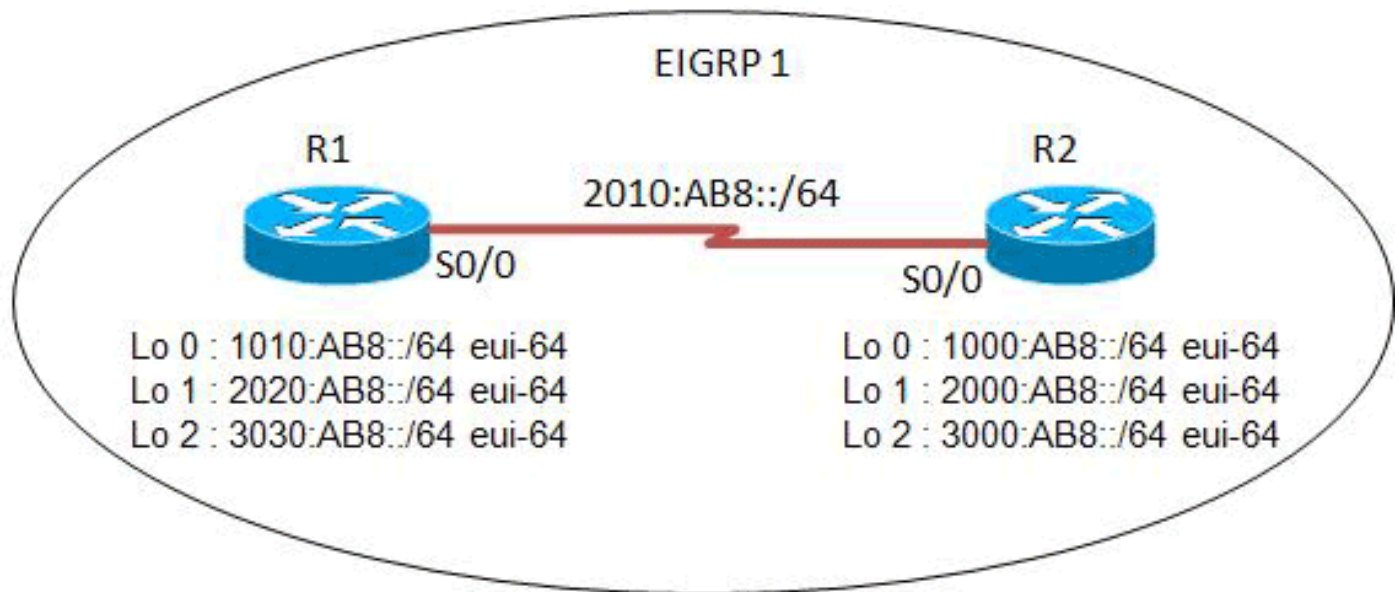
the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

In this example, two routers (R1 and R2) are configured with IPv6 address. Loopback addresses are assigned in both routers, and they are configured to be in EIGRP1. The EIGRPv6 is enabled per interface level with this command: [ipv6 eigrp as-number](#).

Network Diagram

This example uses this network setup:



Configurations

This example uses these configurations:

- [Router R1 Configuration](#)
- [Router R2 Configuration](#)

R1 Configuration

R2 Configuration

Verify

Use this section to confirm that your configuration works properly.

The [Cisco CLI Analyzer](#) ([registered](#) customers only) supports certain **show** commands. Use the Cisco CLI Analyzer to view an analysis of **show** command output.

Show Commands

The [show ipv6 eigrp neighbors](#) command displays the neighbors discovered by the EIGRPv6.

Show ipv6 eigrp neighbors Router R1 Router R2

The [show ipv6 route eigrp](#) command shows the content of the IPv6 routing table that includes the routes specific to EIGRP.

show ipv6 route eigrp

Router R1 R1#show ipv6 route eigrp

IPv6 Routing Table - 12 entries

Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP

U - Per-user Static route, M - MIPv6

I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary

O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2

ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2

D - EIGRP, EX - EIGRP external

D 1000:AB8::/64 [90/2297856]

via FE80::2, Serial0/0

D 2000:AB8::/64 [90/2297856]

via FE80::2, Serial0/0

D 3000:AB8::/64 [90/2297856]

via FE80::2, Serial0/0

!--- This command shows IPv6-specific EIGRP routes. **Router R2** R2#show ipv6 route eigrp

IPv6 Routing Table - 12 entries

Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP

U - Per-user Static route, M - MIPv6

I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary

O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2

ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2

D - EIGRP, EX - EIGRP external

D 1010:AB8::/64 [90/2297856]

via FE80::1, Serial0/0

D 2020:AB8::/64 [90/2297856]

via FE80::1, Serial0/0

D 3030:AB8::/64 [90/2297856]

via FE80::1, Serial0/0

The [show ipv6 eigrp interfaces](#) command displays the information about the interfaces that are configured for EIGRP.

show ipv6 eigrp interfaces

Router R1 R1#show ipv6 eigrp 1 interface

IPv6-EIGRP interfaces for process 1

Interface	Peers	Xmit Queue Un/Reliable	Mean SRTT	Pacing Time Un/Reliable	Multicast Flow Timer	Pending Routes
Se0/0	1	0/0	44	0/15	199	0
Lo0	0	0/0	0	0/1	0	0
Lo1	0	0/0	0	0/1	0	0
Lo2	0	0/0	0	0/1	0	0

!--- This command determines which interface EIGRP is active. **Router R2** R2#show ipv6 eigrp 1 interface
IPv6-EIGRP interfaces for process 1

Interface	Peers	Xmit Queue Un/Reliable	Mean SRTT	Pacing Time Un/Reliable	Multicast Flow Timer	Pending Routes
Se0/0	1	0/0	30	0/15	135	0
Lo0	0	0/0	0	0/1	0	0
Lo1	0	0/0	0	0/1	0	0
Lo2	0	0/0	0	0/1	0	0

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [EIGRP Support Page](#)
- [Cisco IOS IPv6 Command Reference](#)
- [IPv6 Technology Support](#)
- [Technical Support & Documentation - Cisco Systems](#)