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H3C MSR3600 12500R Switch Router Series Instructions

Contents

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Introduction

This document provides IS-IS route summarization configuration examples.

Prerequisites

The configuration examples in this document were created and verified in a lab environment, and all the devices

were started with the factory default configuration. When you are working on a live network, make sure you understand the potential impact of every command on your network.

This document assumes that you have basic knowledge of IS-IS route summarization.

Network configuration

As shown in Figure 1, the five departments of a company use IS-IS to connect to the backbone network. The five departments are assigned the networks 192.168.1.0/24, 192.168.2.0/24, 192.168.3.0/24, 192.168.4.0/24, and 192.168.5.0/24. Configure IS-IS route summarization to reduce routing entries and save system resources for Device B.
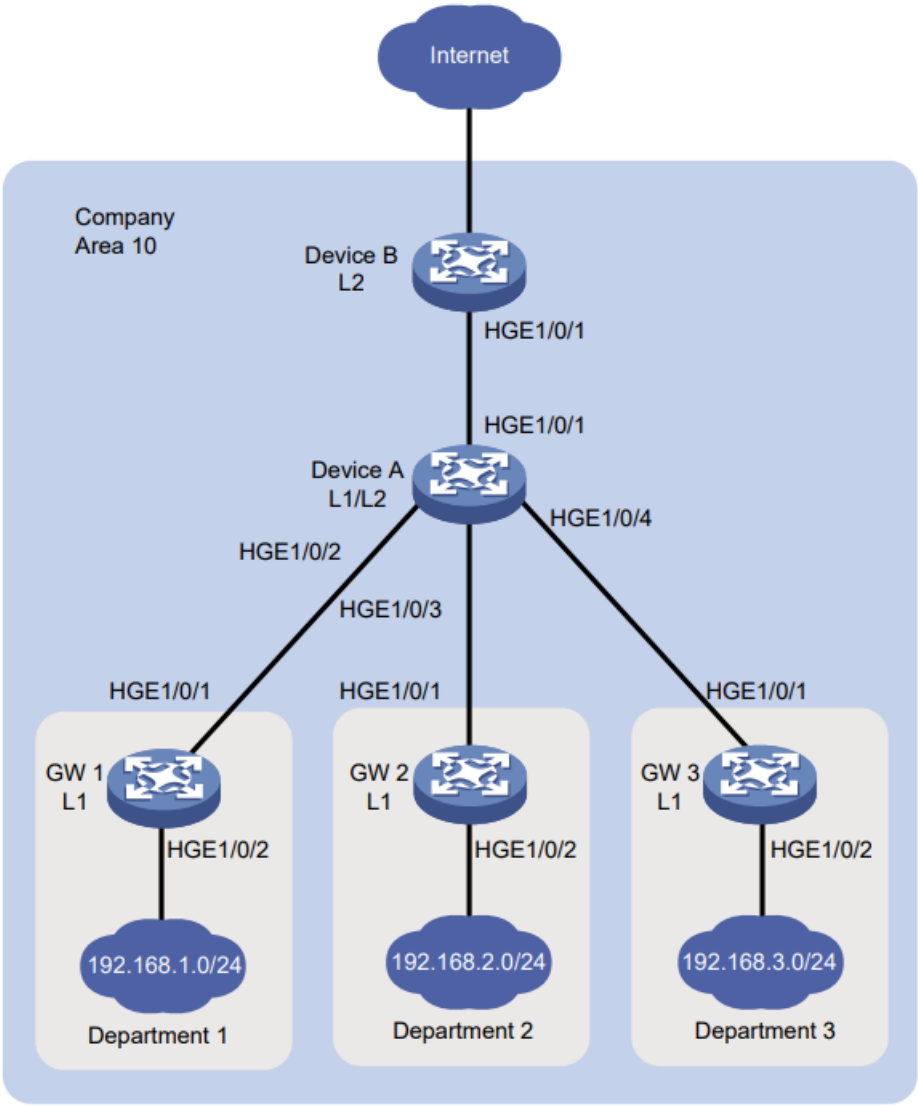
Figure 1 Network diagram

Table 1 Interface and IP address assignment

Device	Interface	IP address	Device	Interface	IP address
Device A	HundredGig E1/0/1	172.16.1.1/24	Device B	HundredGig E1/0/1	172.168.1.2/24
	HundredGig E1/0/2	10.1.1.1/24	GW 1	HundredGig E1/0/1	10.1.1.2/24
				HundredGig E1/0/2	192.168.1.1/24
	HundredGig E1/0/3	10.1.2.1/24	GW 2	HundredGig E1/0/1	10.1.2.2/24
				HundredGig E1/0/2	192.168.2.1/24
	HundredGig E1/0/4	10.1.3.1/24	GW3	HundredGig E1/0/1	10.1.3.2/24
				HundredGig E1/0/2	192.168.3.1/24

Analysis

Configure route summarization on Device A because route summarization applies only to locally generated LSPs. To avoid blackhole routes, set the summary route to 192.168.0.0/22.

Software versions used

This configuration example was created and verified on Release 3606.

Restrictions and guidelines

By default, interfaces on the device are disabled (in ADM or Administratively Down state). To have an interface operate, you must use the undo shutdown command to enable that interface.

Procedures

Configuring IP addresses for interfaces

Configure an IP address for the interface HundredGigE 1/0/1 on Device A.
<DeviceA> system-view
[DeviceA] interface hundredgige 1/0/1
[DeviceA-HundredGigE1/0/1] ip address 172.16.1.1 24
[DeviceA-HundredGigE1/0/1] undo shutdown
[DeviceA-HundredGigE1/0/1] quit
Configure IP addresses for other interfaces as shown in Figure 1 in the same way HundredGigE 1/0/1 is configured. (Details not shown.)

Configuring basic IS-IS

Configuring Device A

Enable IS-IS on Device A and configure Device A as a Level-1-2 router.
[DeviceA] isis 1

[DeviceA-isis-1] network-entity 10.0000.0000.0001.00
[DeviceA-isis-1] is-level level-1-2
[DeviceA-isis-1] quit
Enable IS-IS on the interface HundredGigE 1/0/1.
[DeviceA] interface hundredgige 1/0/1
[DeviceA–HundredGigE1/0/1] isis enable 1
[DeviceA–HundredGigE1/0/1] quit
Configure other interfaces in the same way HundredGigE 1/0/1 is configured. (Details not shown.)

Configuring Device B

Enable IS-IS on Device B and configure Device B as a Level-2 router. [DeviceB] isis 1
[DeviceB-isis-1] network-entity 10.0000.0000.0002.00
[DeviceB-isis-1] is-level level-2
[DeviceB-isis-1] quit
Enable IS-IS on the interface HundredGigE 1/0/1.
[DeviceB] interface hundredgige 1/0/1
[DeviceB–HundredGigE1/0/1] isis enable 1 [DeviceB–HundredGigE1/0/1] quit

Configuring the gateways

Enable IS-IS on GW 1 and configure GW 1 as a Level-1 router.
[GW1] isis 1
[GW1-isis-1] network-entity 10.0001.0001.0001.00
[GW1-isis-1] is-level level-1
[GW1-isis-1] quit
Enable IS-IS on the interface HundredGigE 1/0/1.
[GW1] interface hundredgige 1/0/1
[GW1–HundredGigE1/0/1] isis enable 1
[GW1–HundredGigE1/0/1] quit
Configure other gateways in the same way GW 1 is configured. (Details not shown.)

Displaying IS-IS routing information on Device B

Display IS-IS routing information on Device B to view the network address of each department.
[DeviceB] display isis route

```
                         Route information for IS-IS(1)
                         -----------------------------


                         Level-2 IPv4 Forwarding Table
                         -----------------------------
```

IPv4 Destination	IntCost	ExtCost	ExitInterface	NextHop	Flags
192.168.1.0/24	30	NULL	HGE1/0/1	172.16.1.1	R/-/-
10.1.1.0/24	20	NULL	HGE1/0/1	172.16.1.1	R/-/-
192.168.2.0/24	30	NULL	HGE1/0/1	172.16.1.1	R/-/-
10.1.2.0/24	20	NULL	HGE1/0/1	172.16.1.1	R/-/-
192.168.3.0/24	30	NULL	HGE1/0/1	172.16.1.1	R/-/-
10.1.3.0/24	20	NULL	HGE1/0/1	172.16.1.1	R/-/-
172.16.1.0/24	10	NULL	HGE1/0/1	Direct	D/L/-

Configuring IS-IS route summarization

\# Configure IS-IS route summarization on Device A.
[DeviceA] isis 1
[DeviceA] address-family ipv4
[DeviceA-isis-1-ipv4]summary 192.168.0.0 22

Verifying the configuration

\# Display IS-IS routing information on Device B.
[DeviceB] display isis route

```
                        Route information for IS-IS(1)
                        -----------------------------


                        Level-2 IPv4 Forwarding Table
                        -----------------------------


   IPv4 Destination      IntCost      ExtCost ExitInterface   NextHop         Flags
   ------------------------------------------------------------------------------
   10.1.1.0/24           20           NULL    HGE1/0/1        172.16.1.1      R/-/-
   10.1.2.0/24           20           NULL    HGE1/0/1        172.16.1.1      R/-/-
   10.1.3.0/24           20           NULL    HGE1/0/1        172.16.1.1      R/-/-
   172.16.1.0/24         10           NULL    HGE1/0/1        Direct          D/L/-
   192.168.0.0/22        30           NULL    HGE1/0/1        172.16.1.1      R/-/-
```

Configuration files

- **Device A:**

```
#
isis 1
 network-entity 10.0000.0000.0001.00
 #
 address-family ipv4 unicast
  summary 192.168.0.0 255.255.252.0
#
interface HundredGigE1/0/1
 ip address 172.16.1.1 255.255.255.0
 isis enable 1
#
interface HundredGigE1/0/2
 ip address 10.1.1.1 255.255.255.0
 isis enable 1
#
interface HundredGigE1/0/3
 ip address 10.1.2.1 255.255.255.0
 isis enable 1
#
interface HundredGigE1/0/4
 ip address 10.1.3.1 255.255.255.0
 isis enable 1
#
```

- **Device B:**

```
#
isis 1
 is-level level-2

 network-entity 10.0000.0000.0002.00
 #
 interface HundredGigE1/0/1
  ip address 172.16.1.2 255.255.255.0
  isis enable 1
 #
```

- **GW 1:**

```
#
isis 1
 is-level level-1
 network-entity 10.0001.0001.0001.00
#
interface HundredGigE1/0/1
 ip address 10.1.1.2 255.255.255.0
 isis enable 1
#
interface HundredGigE1/0/2
 ip address 192.168.1.1 255.255.255.0
 isis enable 1
#
```

- The configuration files for other gateways are similar to the configuration file for GW 1. (Details not shown.)

Related documentation

- • H3C S12500R Switch Router Series Layer 3—IP Routing Command Reference-R3606
  • H3C S12500R Switch Router Series Layer 3—IP Routing Configuration Guide-R3606

Documents / Resources

H3C 12500R Switch Router Series IS-IS Route Summarization Configuration Examples	**H3C MSR3600 12500R Switch Router Series** [pdf] Instructions MSR3600, 12500R Switch Router Series, MSR3600 12500R Switch Router Series