Packet Tracer OSPF, EIGRP and BGP Redistribution

Tyler Chung

Purpose

The purpose of this lab was to set up OSPF on 2 networks, BGP on 2 networks, and EIGRP on 2 networks then redistribute between the routing protocols. I learned how to set up BGP and redistribute routing information’s between OSPF, BGP and EIGRP. I also gained troubleshooting skills in various routing protocols.

Background Information

BGP or Border Gateway Protocol is an exterior gateway protocol that was first created in 1989 and has been used in the internet since 1994. The current version of BGP that we use was published in 2006 which allowed for support of Classless Inter-Domain Routing. BGP works by establishing neighbors, called peers, through manual configuration to create a TCP session with another device. In order to interact with its peers, a device configured with BGP uses a Finite State Machine or FSM which has 6 different states: Idle, Connected, Active, OpenSent, OpenConfirm, and Established. BGP will have a variable that tracks which state the connection is in and the session defines what the peers can send to one another. In the Idle state, BGP initializes its resources and intiates the TCP connection between peers. In the Connect state the router awaits the TCP connection. If the connection is established, then the state changes to OpenSent. If this connection fails, it starts the ConnectRetry timer and, upon expiring changes to the Active state. In the Active state the ConnectRetry timer is reset and the state changes back to the connect state. In the OpenSent state, a peer sends and open message and awaits a return message from the other peer. If the return message is received, then the connection transitions to the OpenConfirm state. In the OpenConfirm state, the peers send Keepalive messages and when a successful receipt is received, the state transitioned into the Established state. In the Established state, the peers are able to send various message types: Keepalive, Update and Notification messages. BGP has two configurations, iBGP or Internal Border Gateway Protocol and eBGP or External Border Gateway Protocol. In this lab we used eBGP which uses two peers in different Autonomous Systems (AS). Routers that are on the end of an AS that connects to another AS is called a border router. eBGP is typically directly connected because eBGP goes from one AS to another meaning the border routers are likely connected. In a simple BGP configuration, the topology is a full mesh topology meaning that every router is a peer to another router. To avoid the full mesh topology, BGP uses Router Reflectors, which minimize the amount of connections in an AS. Route Reflectors follow the following rules: “If a route is received from a non-client peer, reflect to clients only and eBGP peers” and “if a route is received from a client peer, reflect to all non-client peers and also to client peers, except the originator of the route and reflect to eBGP peers.” This means that routes are filtered and will only be sent to specific devices depending on whether the route is received from a client or a non-client peer. BGP determines the best possible route through a complex process in which it tests for various things such as lowest preference value (for various routing protocols) and AS path value. Once BGP has found the shortest path it documents it in the routing table.

Lab Summary

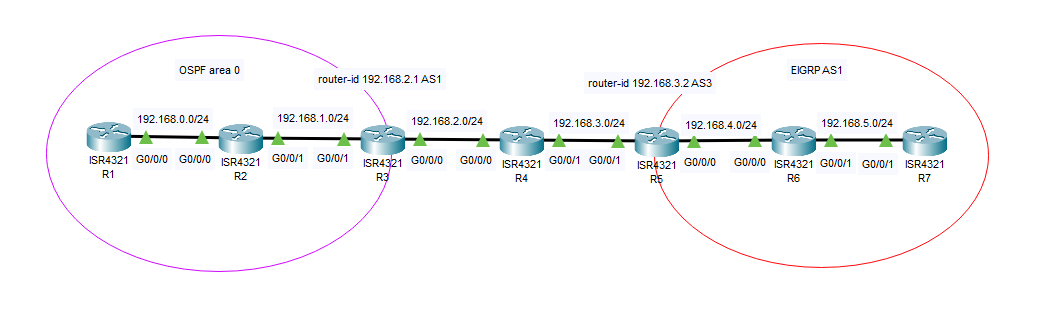
In Packet Tracer I set up a topology with 7 routers interconnected on their gigabit ethernet interfaces. I then set IPv4 addresses on each interface for a total of 6 networks. I then set up OSPF on R1, R2 and G0/0/1 on R3, BGP on G0/0/0 on R3, R4 and G0/0/0 on R5, and EIGRP on G0/0/1 on R5, R6 and R7. I then set up redistribution of the routing protocols on R3 and R5.

Lab Commands

* Router OSPF: Indicates the beginning of the OSPF configuration on the router
* Network area: Advertise the interfaces whose addresses fill in the specified network command
* Show IP OSPF interface: Displays the OSPF configuration for the certain interface
* Show IP route: Displays the IPv4 configurations and routes between the interfaces and routers
* Interface: Allows you to configure an interface
* Clock rate: Synchronizing routers to connect to the same rate
* Area # stub: Changes that area to be a stubby area
* Area # stub no-summary: Changes the area to be a totally stubby area
* Area # NSSA: Changes the area to be an NSSA area
* Redistribute OSPF: Redistributes OPSF to be used with other routing protocols
* Redistribute EIGRP: Redistributes EIGRP to be used with other routing protocols
* Redistribute BGP: Redistributes BGP to be used with other routing protocols
* Router BGP: Allows you to go into the BGP configuration on the router
* Router EIGRP: Allows you to go into the EIGRP configuration on the router

Network Diagram with IP’s

|  |  |  |  |
| --- | --- | --- | --- |
| R1 | G0/0/0 | 192.168.0.1/24 | Area 0 |
| R2 | G0/0/0 | 192.168.0.2/24 | Area 0 |
|  | G0/0/1 | 192.168.1.1/24 | Area 0 |
| R3 | G0/0/0 | 192.168.2.1/24 | BGP AS 1 |
|  | G0/0/1 | 192.168.1.2/24 | Area 0 |
| R4 | G0/0/0 | 192.168.2.2/24 | BGP AS 2 |
|  | G0/0/1 | 192.168.3.1/24 | BGP AS 2 |
| R5 | G0/0/0 | 192.168.4.1/24 | AS 1 |
|  | G0/0/1 | 192.168.3.2/24 | BGP AS 3 |
| R6 | G0/0/0 | 192.168.4.2/24 | AS 1 |
|  | G0/0/1 | 192.168.5.1/24 | AS 1 |
| R7 | G0/0/1 | 192.168.5.2/24 | AS 1 |



Configurations

Router 1

Show run

interface GigabitEthernet0/0/0

ip address 192.168.0.1 255.255.255.0

duplex auto

speed auto

router ospf 1

log-adjacency-changes

network 192.168.0.0 0.0.0.255 area 0

Show ip route

192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.0.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.0.1/32 is directly connected, GigabitEthernet0/0/0

O 192.168.1.0/24 [110/2] via 192.168.0.2, 00:09:12, GigabitEthernet0/0/0

O E2 192.168.2.0/24 [110/1] via 192.168.0.2, 00:09:12, GigabitEthernet0/0/0

O E2 192.168.3.0/24 [110/1] via 192.168.0.2, 00:09:12, GigabitEthernet0/0/0

O E2 192.168.4.0/24 [110/1] via 192.168.0.2, 00:09:12, GigabitEthernet0/0/0

O E2 192.168.5.0/24 [110/1] via 192.168.0.2, 00:09:12, GigabitEthernet0/0/0

Show ip ospf interface

GigabitEthernet0/0/0 is up, line protocol is up

Internet address is 192.168.0.1/24, Area 0

Process ID 1, Router ID 192.168.0.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State BDR, Priority 1

Designated Router (ID) 192.168.1.1, Interface address 192.168.0.2

Backup Designated Router (ID) 192.168.0.1, Interface address 192.168.0.1

Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5

Hello due in 00:00:04

Index 1/1, flood queue length 0

Next 0x0(0)/0x0(0)

Last flood scan length is 1, maximum is 1

Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacent neighbor count is 1

Adjacent with neighbor 192.168.1.1 (Designated Router)

Suppress hello for 0 neighbor(s)

Show ip protocols

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 192.168.0.1

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

192.168.0.0 0.0.0.255 area 0

Routing Information Sources:

Gateway Distance Last Update

192.168.0.1 110 00:10:25

192.168.1.1 110 00:10:20

192.168.2.1 110 00:10:20

Distance: (default is 110)

Show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

192.168.1.1 1 FULL/DR 00:00:35 192.168.0.2 GigabitEthernet0/0/0

Router 2

Show run

interface GigabitEthernet0/0/0

ip address 192.168.0.2 255.255.255.0

duplex auto

speed auto

interface GigabitEthernet0/0/1

ip address 192.168.1.1 255.255.255.0

duplex auto

speed auto

router ospf 1

log-adjacency-changes

network 192.168.0.0 0.0.0.255 area 0

network 192.168.1.0 0.0.0.255 area 0

Show ip route

192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.0.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.0.2/32 is directly connected, GigabitEthernet0/0/0

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.1.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.1.1/32 is directly connected, GigabitEthernet0/0/1

O E2 192.168.2.0/24 [110/1] via 192.168.1.2, 00:11:41, GigabitEthernet0/0/1

O E2 192.168.3.0/24 [110/1] via 192.168.1.2, 00:11:41, GigabitEthernet0/0/1

O E2 192.168.4.0/24 [110/1] via 192.168.1.2, 00:11:41, GigabitEthernet0/0/1

O E2 192.168.5.0/24 [110/1] via 192.168.1.2, 00:11:41, GigabitEthernet0/0/1

Show ip ospf interface

GigabitEthernet0/0/0 is up, line protocol is up

Internet address is 192.168.0.2/24, Area 0

Process ID 1, Router ID 192.168.1.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State DR, Priority 1

Designated Router (ID) 192.168.1.1, Interface address 192.168.0.2

Backup Designated Router (ID) 192.168.0.1, Interface address 192.168.0.1

Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5

Hello due in 00:00:09

Index 1/1, flood queue length 0

Next 0x0(0)/0x0(0)

Last flood scan length is 1, maximum is 1

Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacent neighbor count is 1

Adjacent with neighbor 192.168.0.1 (Backup Designated Router)

Suppress hello for 0 neighbor(s)

GigabitEthernet0/0/1 is up, line protocol is up

Internet address is 192.168.1.1/24, Area 0

Process ID 1, Router ID 192.168.1.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State BDR, Priority 1

Designated Router (ID) 192.168.2.1, Interface address 192.168.1.2

Backup Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5

Hello due in 00:00:09

Index 2/2, flood queue length 0

Next 0x0(0)/0x0(0)

Last flood scan length is 1, maximum is 1

Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacent neighbor count is 1

Adjacent with neighbor 192.168.2.1 (Designated Router)

Suppress hello for 0 neighbor(s)

Show ip protocols

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 192.168.1.1

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

192.168.0.0 0.0.0.255 area 0

192.168.1.0 0.0.0.255 area 0

Routing Information Sources:

Gateway Distance Last Update

192.168.0.1 110 00:13:34

192.168.1.1 110 00:13:29

192.168.2.1 110 00:13:29

Distance: (default is 110)

Show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

192.168.0.1 1 FULL/BDR 00:00:35 192.168.0.1 GigabitEthernet0/0/0

192.168.2.1 1 FULL/DR 00:00:35 192.168.1.2 GigabitEthernet0/0/1

Router 3

Show run

interface GigabitEthernet0/0/0

ip address 192.168.2.1 255.255.255.0

duplex auto

speed auto

interface GigabitEthernet0/0/1

ip address 192.168.1.2 255.255.255.0

duplex auto

speed auto

router ospf 1

log-adjacency-changes

redistribute bgp 1 metric 1

network 192.168.1.0 0.0.0.255 area 0

router bgp 1

bgp log-neighbor-changes

no synchronization

neighbor 192.168.2.2 remote-as 2

network 192.168.2.0

redistribute ospf 1

Show ip route

O 192.168.0.0/24 [110/2] via 192.168.1.1, 00:14:35, GigabitEthernet0/0/1

192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.1.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.1.2/32 is directly connected, GigabitEthernet0/0/1

192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.2.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.2.1/32 is directly connected, GigabitEthernet0/0/0

B 192.168.3.0/24 [20/0] via 192.168.2.2, 00:00:00

B 192.168.4.0/24 [20/0] via 192.168.2.2, 00:00:00

B 192.168.5.0/24 [20/0] via 192.168.2.2, 00:00:00

Show ip ospf interface

GigabitEthernet0/0/1 is up, line protocol is up

Internet address is 192.168.1.2/24, Area 0

Process ID 1, Router ID 192.168.2.1, Network Type BROADCAST, Cost: 1

Transmit Delay is 1 sec, State DR, Priority 1

Designated Router (ID) 192.168.2.1, Interface address 192.168.1.2

Backup Designated Router (ID) 192.168.1.1, Interface address 192.168.1.1

Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5

Hello due in 00:00:07

Index 1/1, flood queue length 0

Next 0x0(0)/0x0(0)

Last flood scan length is 1, maximum is 1

Last flood scan time is 0 msec, maximum is 0 msec

Neighbor Count is 1, Adjacent neighbor count is 1

Adjacent with neighbor 192.168.1.1 (Backup Designated Router)

Suppress hello for 0 neighbor(s)

Show ip protocols

Routing Protocol is "bgp 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

192.168.2.2

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

192.168.2.2 20 00:00:00

Distance: external 20 internal 200 local 200

Routing Protocol is "ospf 1"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Router ID 192.168.2.1

It is an autonomous system boundary router

Redistributing External Routes from,

bgp 1

Number of areas in this router is 1. 1 normal 0 stub 0 nssa

Maximum path: 4

Routing for Networks:

192.168.1.0 0.0.0.255 area 0

Routing Information Sources:

Gateway Distance Last Update

192.168.0.1 110 00:15:57

192.168.1.1 110 00:15:52

192.168.2.1 110 00:15:52

Distance: (default is 110)

Show ip ospf neighbor

Neighbor ID Pri State Dead Time Address Interface

192.168.1.1 1 FULL/BDR 00:00:39 192.168.1.1 GigabitEthernet0/0/1

Router 4

Show run

interface GigabitEthernet0/0/0

ip address 192.168.2.2 255.255.255.0

duplex auto

speed auto

interface GigabitEthernet0/0/1

ip address 192.168.3.1 255.255.255.0

duplex auto

speed auto

router bgp 2

bgp log-neighbor-changes

no synchronization

neighbor 192.168.2.1 remote-as 1

neighbor 192.168.3.2 remote-as 3

network 192.168.2.0

network 192.168.3.0

Show ip route

B 192.168.0.0/24 [20/2] via 192.168.2.1, 00:00:00

B 192.168.1.0/24 [20/20] via 192.168.2.1, 00:00:00

192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.2.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.2.2/32 is directly connected, GigabitEthernet0/0/0

192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.3.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.3.1/32 is directly connected, GigabitEthernet0/0/1

B 192.168.4.0/24 [20/2816] via 192.168.3.2, 00:00:00

B 192.168.5.0/24 [20/3072] via 192.168.3.2, 00:00:00

Show ip protocols

Routing Protocol is "bgp 2"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

192.168.2.1

192.168.3.2

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

192.168.2.1 20 00:00:00

192.168.3.2 20 00:00:00

Distance: external 20 internal 200 local 200

Router 5

Show run

interface GigabitEthernet0/0/0

ip address 192.168.4.1 255.255.255.0

duplex auto

speed auto

interface GigabitEthernet0/0/1

ip address 192.168.3.2 255.255.255.0

duplex auto

speed auto

router eigrp 1

redistribute bgp 3 metric 1000000 1000 255 20 4

network 192.168.4.0

router bgp 3

bgp log-neighbor-changes

no synchronization

neighbor 192.168.3.1 remote-as 2

network 192.168.3.0

redistribute eigrp 1

Show ip route

B 192.168.0.0/24 [20/0] via 192.168.3.1, 00:00:00

B 192.168.1.0/24 [20/0] via 192.168.3.1, 00:00:00

B 192.168.2.0/24 [20/0] via 192.168.3.1, 00:00:00

192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.3.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.3.2/32 is directly connected, GigabitEthernet0/0/1

192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.4.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.4.1/32 is directly connected, GigabitEthernet0/0/0

D 192.168.5.0/24 [90/3072] via 192.168.4.2, 00:19:50, GigabitEthernet0/0/0

Show ip eigrp interface

IP-EIGRP interfaces for process 1

Xmit Queue Mean Pacing Time Multicast Pending

Interface Peers Un/Reliable SRTT Un/Reliable Flow Timer Routes

Gig0/0/0 1 0/0 1236 0/10 0 0

Show ip protocols

Routing Protocol is "eigrp 1 "

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Default networks flagged in outgoing updates

Default networks accepted from incoming updates

EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0

EIGRP maximum hopcount 100

EIGRP maximum metric variance 1

Redistributing: eigrp 1, bpg 3

Automatic network summarization is not in effect

Maximum path: 4

Routing for Networks:

192.168.4.0

Routing Information Sources:

Gateway Distance Last Update

192.168.4.2 90 0

Distance: internal 90 external 170

Routing Protocol is "bgp 3"

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

IGP synchronization is disabled

Automatic route summarization is disabled

Neighbor(s):

Address FiltIn FiltOut DistIn DistOut Weight RouteMap

192.168.3.1

Maximum path: 1

Routing Information Sources:

Gateway Distance Last Update

192.168.3.1 20 00:00:00

Distance: external 20 internal 200 local 200

Show ip eigrp neighbor

IP-EIGRP neighbors for process 1

H Address Interface Hold Uptime SRTT RTO Q Seq

(sec) (ms) Cnt Num

0 192.168.4.2 Gig0/0/0 10 00:21:13 40 1000 0 10

Router 6

Show run

interface GigabitEthernet0/0/0

ip address 192.168.4.2 255.255.255.0

duplex auto

speed auto

interface GigabitEthernet0/0/1

ip address 192.168.5.1 255.255.255.0

duplex auto

speed auto

router eigrp 1

network 192.168.4.0

network 192.168.5.0

Show ip route

D EX 192.168.0.0/24 [170/2562816] via 192.168.4.1, 00:21:18, GigabitEthernet0/0/0

D EX 192.168.1.0/24 [170/2562816] via 192.168.4.1, 00:22:07, GigabitEthernet0/0/0

D EX 192.168.2.0/24 [170/2562816] via 192.168.4.1, 00:22:07, GigabitEthernet0/0/0

D EX 192.168.3.0/24 [170/2562816] via 192.168.4.1, 00:22:07, GigabitEthernet0/0/0

192.168.4.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.4.0/24 is directly connected, GigabitEthernet0/0/0

L 192.168.4.2/32 is directly connected, GigabitEthernet0/0/0

192.168.5.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.5.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.5.1/32 is directly connected, GigabitEthernet0/0/1

Show ip eigrp interface

IP-EIGRP interfaces for process 1

Xmit Queue Mean Pacing Time Multicast Pending

Interface Peers Un/Reliable SRTT Un/Reliable Flow Timer Routes

Gig0/0/0 1 0/0 1236 0/10 0 0

Gig0/0/1 1 0/0 1236 0/10 0 0

Show ip protocols

Routing Protocol is "eigrp 1 "

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Default networks flagged in outgoing updates

Default networks accepted from incoming updates

EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0

EIGRP maximum hopcount 100

EIGRP maximum metric variance 1

Redistributing: eigrp 1

Automatic network summarization is not in effect

Maximum path: 4

Routing for Networks:

192.168.4.0

192.168.5.0

Routing Information Sources:

Gateway Distance Last Update

192.168.4.1 90 0

192.168.5.2 90 0

Distance: internal 90 external 170

Show ip eigrp neighbor

IP-EIGRP neighbors for process 1

H Address Interface Hold Uptime SRTT RTO Q Seq

(sec) (ms) Cnt Num

0 192.168.4.1 Gig0/0/0 10 00:23:22 40 1000 0 8

1 192.168.5.2 Gig0/0/1 14 00:23:22 40 1000 0 11

Router 7

Show run

interface GigabitEthernet0/0/1

ip address 192.168.5.2 255.255.255.0

duplex auto

speed auto

router eigrp 1

network 192.168.5.0

Show ip route

D EX 192.168.0.0/24 [170/2563072] via 192.168.5.1, 00:23:23, GigabitEthernet0/0/1

D EX 192.168.1.0/24 [170/2563072] via 192.168.5.1, 00:24:12, GigabitEthernet0/0/1

D EX 192.168.2.0/24 [170/2563072] via 192.168.5.1, 00:24:12, GigabitEthernet0/0/1

D EX 192.168.3.0/24 [170/2563072] via 192.168.5.1, 00:24:12, GigabitEthernet0/0/1

D 192.168.4.0/24 [90/3072] via 192.168.5.1, 00:24:12, GigabitEthernet0/0/1

192.168.5.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.5.0/24 is directly connected, GigabitEthernet0/0/1

L 192.168.5.2/32 is directly connected, GigabitEthernet0/0/1

Show ip eigrp interface

IP-EIGRP interfaces for process 1

Xmit Queue Mean Pacing Time Multicast Pending

Interface Peers Un/Reliable SRTT Un/Reliable Flow Timer Routes

Gig0/0/1 1 0/0 1236 0/10 0 0

Show ip protocols

Routing Protocol is "eigrp 1 "

Outgoing update filter list for all interfaces is not set

Incoming update filter list for all interfaces is not set

Default networks flagged in outgoing updates

Default networks accepted from incoming updates

EIGRP metric weight K1=1, K2=0, K3=1, K4=0, K5=0

EIGRP maximum hopcount 100

EIGRP maximum metric variance 1

Redistributing: eigrp 1

Automatic network summarization is not in effect

Maximum path: 4

Routing for Networks:

192.168.5.0

Routing Information Sources:

Gateway Distance Last Update

192.168.5.1 90 0

Distance: internal 90 external 170

Show ip eigrp neighbor

IP-EIGRP neighbors for process 1

H Address Interface Hold Uptime SRTT RTO Q Seq

(sec) (ms) Cnt Num

0 192.168.5.1 Gig0/0/1 14 00:25:20 40 1000 0 9

Problems

The first problem I experienced was I put the wrong IP on R5 and used that incorrect IP to set up EIGRP. This resulted in incorrect routes which prevented the EIGRP portion from connecting with the rest of the network. I discovered this mistake by using the **show run** command on R5 and noticing that the IP on g0/0/0 was set as 192.168.0.1 instead of 192.168.4.1. I corrected my mistake using the **no ip address** command and then setting the correct IP. I also had to go to the EIGRP interface and change the IP of the network using the **no network** command.

Another problem I faced was I forgot to write a redistribute command on the EIGRP int of R5. This resulted in missing routes which caused me to not be able to ping that side of the network. I discovered this error using the **show run** command. I then when to the EIGRP interface of R5 and added a redistribution command. When I first set the redistribution command, I made a mistake and wrote **redistribute bgp 3** which does not include the metrics. I then fixed this by using the **no** command to remove the original redistribution command then typed **redistribute bgp 3 metric 1000000 1000 255 20 4** which included the metrics.

Another problem I faced was my routes weren’t appearing on the proper routers. This resulted in pings not getting sent to their destinations as there were no routes there. I solved this problem by issuing the **copy run start** command on each router then doing a power cycle. This eventually solved my issue of the routes not appearing.

Conclusion

In this lab I learned how to set up BGP and redistribute between OSPF and BGP, and EIGRP and BGP. This lab utilized my ability to set up OSPF and EIGRP as well as my troubleshooting skill. I had issues with redistribution and routes, but these problems helped farther my troubleshooting skills. All in all, this lab taught me about BGP and redistribution between various routing protocols.