

LAB1: EIGRP – IPv4

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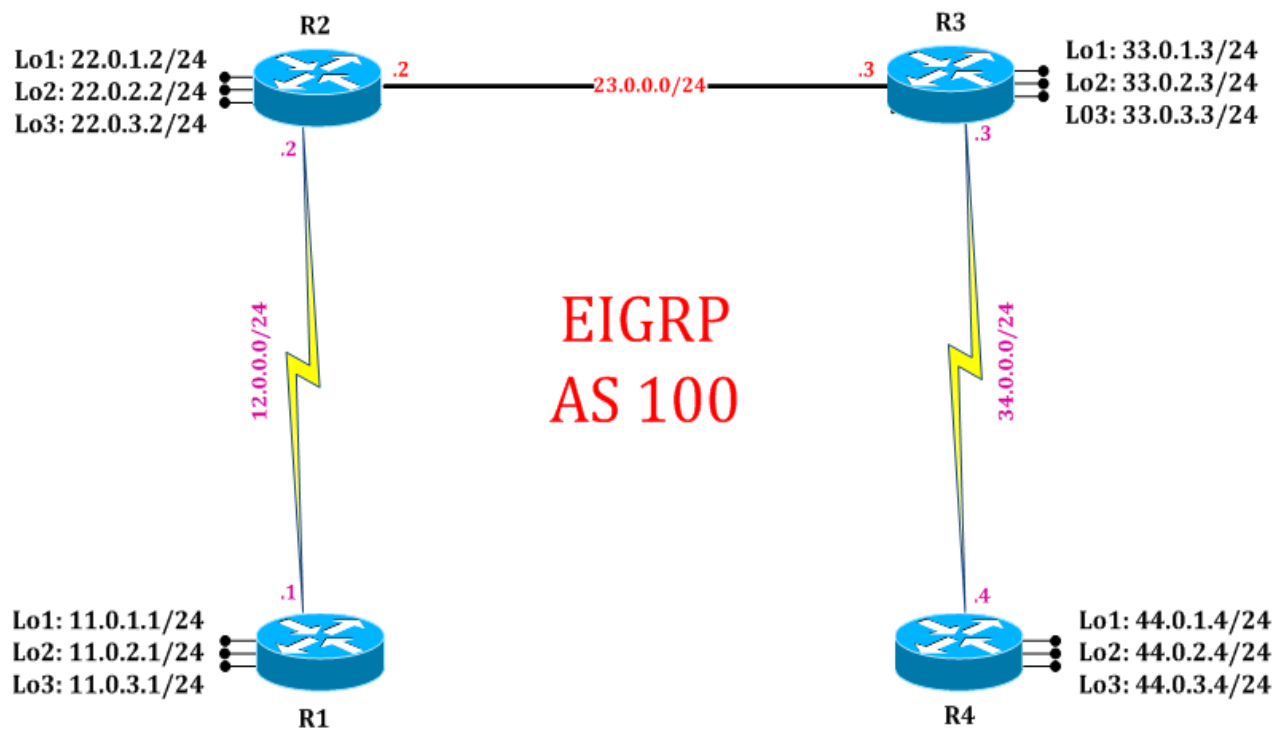
Routing
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EIGRP: Initial Config

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LAB 1: Diagram

Note: This Lab was developed on Cisco IOS Version 15.2(4) M1 ADVENTERPRISEK9-M.



LAB 1: Configure EIGRP FOR IPv4:

Task 1: Configure IPv4 EIGRP process for Autonomous

Step 1 In the configuration mode of router configure IPv4 EIGRP Process by following command:

R1:

```
router eigrp 100
network 12.0.0.1 255.255.255.0
network 11.0.1.1 255.255.255.0
network 11.0.2.1 255.255.255.0
network 11.0.3.1 255.255.255.0
```

**! Initiate EIGRP process for AS 100
! Send update on interface where these
networks are configured.**

R2:

```
router eigrp 100
network 12.0.0.2 255.255.255.0
network 23.0.0.2 255.255.255.0
network 22.0.1.2 255.255.255.0
network 22.0.2.2 255.255.255.0
network 22.0.3.2 255.255.255.0
```

R3:

```
router eigrp 100
network 23.0.0.3 255.255.255.0
network 34.0.0.3 255.255.255.0
network 33.0.1.3 255.255.255.0
network 33.0.2.3 255.255.255.0
network 33.0.3.3 255.255.255.0
```

R4:

```
router eigrp 100
network 34.0.0.4 255.255.255.0
network 44.0.1.4 255.255.255.0
network 44.0.2.4 255.255.255.0
network 44.0.3.4 255.255.255.0
```

Task 2: Verification:

Step 1 Verify IP protocols and its details by following command

R2#show ip protocols

! (Gives details of protocols running on router)

*** IP Routing is NSF aware ***

Routing Protocol is "eigrp 100"

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-IPv4 Protocol for AS(100)

Metric weight K1=1, K2=0, K3=1, K4=0, K5=0

NSF-aware route hold timer is 240

Router-ID: 22.0.3.2

Topology : 0 (base)

Active Timer: 3 min

Distance: internal 90 external 170

Maximum path: 4

Maximum hopcount 100

Maximum metric variance 1

Automatic Summarization: disabled

Maximum path: 4

Routing for Networks:

12.0.0.2/32

22.0.1.2/32

22.0.2.2/32

22.0.3.2/32

23.0.0.2/32

Routing Information Sources:

Gateway	Distance	Last Update
---------	----------	-------------

12.0.0.1	90	00:03:32
----------	----	----------

23.0.0.3	90	00:03:32
----------	----	----------

Distance: internal 90 external 170

Step 2 Verify EIGRP updates are sent on relevant interfaces by following command:

R2#show ip eigrp interfaces

! (Gives detailed list of interfaces on which EIGRP is sending updates)

EIGRP-IPv4 Interfaces for AS(100)

Interface	Peers	Xmit Queue Un/Reliable	PeerQ Un/Reliable	Mean SRTT	Pacing Time Un/Reliable	Multicast Flow Timer	Pending Routes
Se2/0	1	0/0	0/0	17	0/16	100	0
Et0/0	1	0/0	0/0	9	0/2	50	0
Lo1	0	0/0	0/0	0	0/0	0	0
Lo2	0	0/0	0/0	0	0/0	0	0
Lo3	0	0/0	0/0	0	0/0	0	0

Step 3 Verify EIGRP neighborship by following command:

```
R2#show ip eigrp neighbors
```

! (Gives details and list of EIGRP neighbors)

```
EIGRP-IPv4 Neighbors for AS(100)
```

H	Address	Interface	Hold (sec)	Uptime	SRTT (ms)	RTO	Q Cnt	Seq Num
1	23.0.0.3	Et0/0	12	00:16:57	9	100	0	7
0	12.0.0.1	Se2/0	12	00:17:43	17	102	0	5

Step 4 Verify EIGRP topology table by following command:

```
R2#show ip eigrp topology
```

! (Displays the EIGRP topology table)

```
EIGRP-IPv4 Topology Table for AS(100)/ID(22.0.3.2)
```

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,

r - reply Status, s - sia Status

```
P 11.0.1.0/24, 1 successors, FD is 2297856
  via 12.0.0.1 (2297856/128256), Serial2/0
P 11.0.2.0/24, 1 successors, FD is 2297856
  via 12.0.0.1 (2297856/128256), Serial2/0
P 11.0.3.0/24, 1 successors, FD is 2297856
  via 12.0.0.1 (2297856/128256), Serial2/0
P 12.0.0.0/24, 1 successors, FD is 2169856
  via Connected, Serial2/0
P 22.0.1.0/24, 1 successors, FD is 128256
  via Connected, Loopback1
P 22.0.2.0/24, 1 successors, FD is 128256
  via Connected, Loopback2
P 22.0.3.0/24, 1 successors, FD is 128256
  via Connected, Loopback3
P 23.0.0.0/24, 1 successors, FD is 281600
  via Connected, Ethernet0/0
P 33.0.1.0/24, 1 successors, FD is 409600
  via 23.0.0.3 (409600/128256), Ethernet0/0
P 33.0.2.0/24, 1 successors, FD is 409600
  via 23.0.0.3 (409600/128256), Ethernet0/0
P 33.0.3.0/24, 1 successors, FD is 409600
  via 23.0.0.3 (409600/128256), Ethernet0/0
P 34.0.0.0/24, 1 successors, FD is 2195456
  via 23.0.0.3 (2195456/2169856), Ethernet0/0
P 44.0.1.0/24, 1 successors, FD is 2323456
  via 23.0.0.3 (2323456/2297856), Ethernet0/0
P 44.0.2.0/24, 1 successors, FD is 2323456
  via 23.0.0.3 (2323456/2297856), Ethernet0/0
P 44.0.3.0/24, 1 successors, FD is 2323456
  via 23.0.0.3 (2323456/2297856), Ethernet0/0
```

Step 5 Verify routing table and EIGRP route entries by following command:

```
R2#show ip route
```

! (Shows router's routing table and IPv4 entries)

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
+ - replicated route, % - next hop override

Gateway of last resort is not set

```
11.0.0.0/24 is subnetted, 3 subnets
D    11.0.1.0 [90/2297856] via 12.0.0.1, 00:21:10, Serial2/0
D    11.0.2.0 [90/2297856] via 12.0.0.1, 00:21:10, Serial2/0
D    11.0.3.0 [90/2297856] via 12.0.0.1, 00:21:10, Serial2/0
12.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    12.0.0.0/24 is directly connected, Serial2/0
L    12.0.0.2/32 is directly connected, Serial2/0
22.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
C    22.0.1.0/24 is directly connected, Loopback1
L    22.0.1.2/32 is directly connected, Loopback1
C    22.0.2.0/24 is directly connected, Loopback2
L    22.0.2.2/32 is directly connected, Loopback2
C    22.0.3.0/24 is directly connected, Loopback3
L    22.0.3.2/32 is directly connected, Loopback3
23.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C    23.0.0.0/24 is directly connected, Ethernet0/0
L    23.0.0.2/32 is directly connected, Ethernet0/0
33.0.0.0/24 is subnetted, 3 subnets
D    33.0.1.0 [90/409600] via 23.0.0.3, 00:20:19, Ethernet0/0
D    33.0.2.0 [90/409600] via 23.0.0.3, 00:20:19, Ethernet0/0
D    33.0.3.0 [90/409600] via 23.0.0.3, 00:20:19, Ethernet0/0
34.0.0.0/24 is subnetted, 1 subnets
D    34.0.0.0 [90/2195456] via 23.0.0.3, 00:20:19, Ethernet0/0
44.0.0.0/24 is subnetted, 3 subnets
D    44.0.1.0 [90/2323456] via 23.0.0.3, 00:19:39, Ethernet0/0
D    44.0.2.0 [90/2323456] via 23.0.0.3, 00:19:39, Ethernet0/0
D    44.0.3.0 [90/2323456] via 23.0.0.3, 00:19:39, Ethernet0/0
```