

LAB2: Named EIGRP – IPv4

Disclaimer

This Configuration Guide is designed to assist members to enhance their skills in respective technology area. While every effort has been made to ensure that all material is as complete and accurate as possible, the enclosed material is presented on an “as is” basis. Neither the authors nor Forum assume any liability or responsibility to any person or entity with respect to loss or damages incurred from the information contained in this guide. This Lab Guide was developed by RSTForum. Any similarities between material presented in this configuration guide and any other material is completely coincidental.



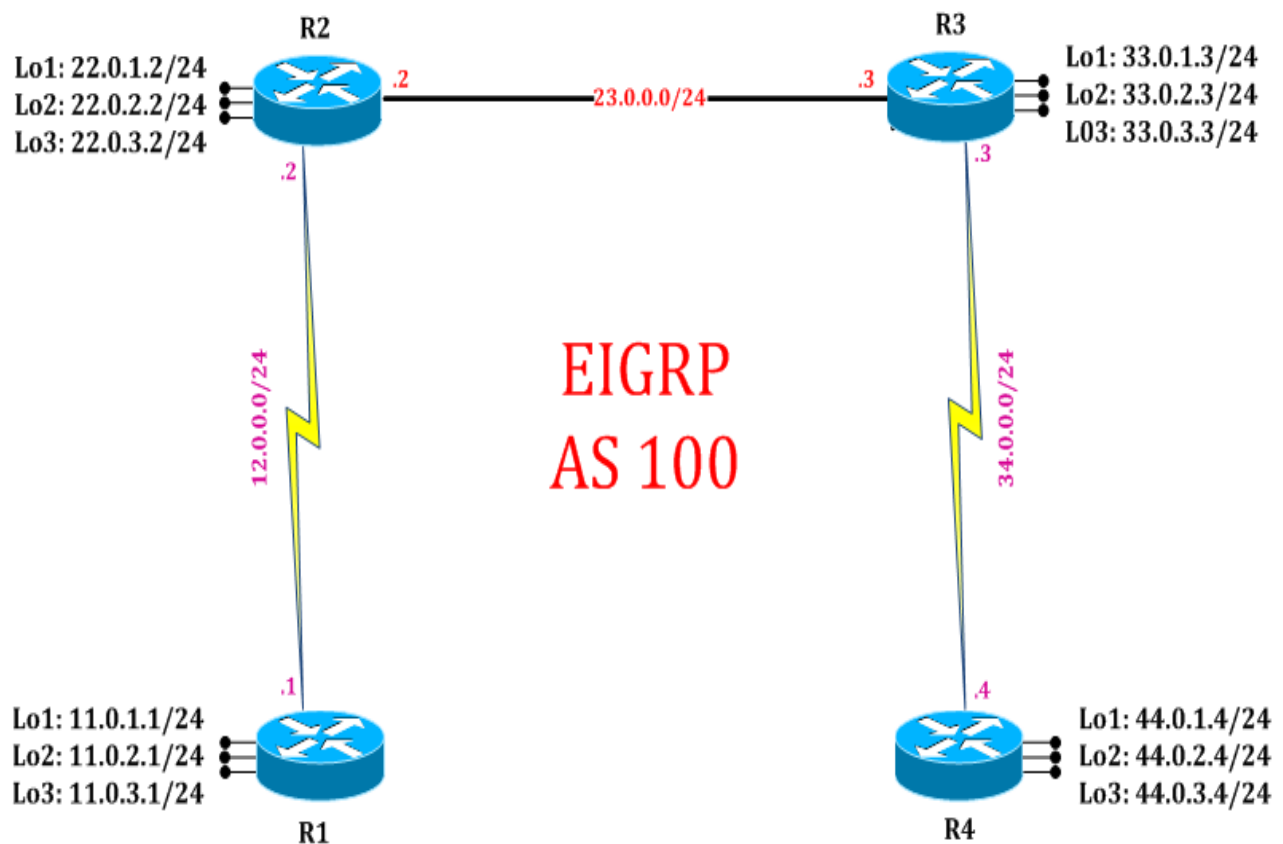
Routing
Switching
Tigers
Forum

EIGRP: Initial Config

||| www.rstforum.net

LAB 2: Diagram

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



LAB 2: Configure EIGRP FOR IPv4 using named configuration:

Task 1: Configure IPv4 EIGRP process with Autonomous name

Step 1 In the configuration mode of router configure EIGRP process with name by following command

R1:

```
router eigrp cisco
address-family ipv4 autonomous-system 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
exit
```

R2:

```
router eigrp cisco
address-family ipv4 autonomous-system 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
exit
```

R3:

```
router eigrp cisco
address-family ipv4 autonomous-system 100
network 34.0.0.3 255.255.255.0
network 23.0.0.3 255.255.255.0
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
exit
```

R4:

```
router eigrp cisco
address-family ipv4 autonomous-system 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
exit
```

Step 2 Enter topology base mode for manipulation set

R2:

```
router eigrp cisco
address-family ipv4 autonomous-system 100
topology base
exit
```

R2#show run

```
router eigrp cisco
!
address-family ipv4 unicast autonomous-system 100
!
topology base
network 12.0.0.2 255.255.255.0
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
network 23.0.0.2 255.255.255.0
!
```

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 VR (cisco) Address-Family Protocol for AS(100)

Metric weight K1=1, K2=0, K3=1, K4=0, K5=0 K6=0

Metric rib-scale 128

Metric version 64bit

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
Total Prefix Count: 15
Total Redist Count: 0
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	00:05:32
23.0.0.3	90	00:05:33

Distance: internal 90 external 170

Step 2 Verify EIGRP updates are sent on relevant interfaces:

R2#show ip eigrp interfaces

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

EIGRP-IPv4 VR(cisco) Address-Family Interfaces for AS(100)

Interface	Peers	Xmit Queue		PeerQ		Mean Pacing Time		Multicast Flow Timer	Pending Routes
		Un/Reliable	Un/Reliable	Un/Reliable	SRTT	Un/Reliable	SRTT		
Se2/0	1	0/0	0/0	0/0	11	0/16	56	0	
Et0/0	1	0/0	0/0	0/0	1	0/2	50	0	
Lo1	0	0/0	0/0	0/0	0	0/0	0	0	
Lo2	0	0/0	0/0	0/0	0	0/0	0	0	
Lo3	0	0/0	0/0	0/0	0	0/0	0	0	

Step 3 Verify EIGRP neighborship:

R2#show ip eigrp neighbors

! (Gives details and list of EIGRP neighbors)

EIGRP-IPv4 VR(cisco) Address-Family 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	00:13:54	1	100	0	15
0	12.0.0.1	Se2/0	11	00:19:33	11	100	0	13

Step 4 Verify EIGRP topology table:

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

! (Displays the EIGRP topology table)

```
EIGRP-IPv4 VR(cisco) 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 1735257878
   via 12.0.0.1 (1735257878/163840), Serial2/0
P 11.0.2.0/24, 1 successors, FD is 1735257878
   via 12.0.0.1 (1735257878/163840), Serial2/0
P 11.0.3.0/24, 1 successors, FD is 1735257878
   via 12.0.0.1 (1735257878/163840), Serial2/0
P 12.0.0.0/24, 1 successors, FD is 1735175958
   via Connected, Serial2/0
P 22.0.1.0/24, 1 successors, FD is 163840
   via Connected, Loopback1
P 22.0.2.0/24, 1 successors, FD is 163840
   via Connected, Loopback2
P 22.0.3.0/24, 1 successors, FD is 163840
   via Connected, Loopback3
P 23.0.0.0/24, 1 successors, FD is 131072000
   via Connected, Ethernet0/0
P 33.0.1.0/24, 1 successors, FD is 131153920
   via 23.0.0.3 (131153920/163840), Ethernet0/0
P 33.0.2.0/24, 1 successors, FD is 131153920
   via 23.0.0.3 (131153920/163840), Ethernet0/0
P 33.0.3.0/24, 1 successors, FD is 131153920
   via 23.0.0.3 (131153920/163840), Ethernet0/0
P 34.0.0.0/24, 1 successors, FD is 1800711958
   via 23.0.0.3 (1800711958/1735175958), Ethernet0/0
P 44.0.1.0/24, 1 successors, FD is 1800793878
   via 23.0.0.3 (1800793878/1735257878), Ethernet0/0
P 44.0.2.0/24, 1 successors, FD is 1800793878
   via 23.0.0.3 (1800793878/1735257878), Ethernet0/0
P 44.0.3.0/24, 1 successors, FD is 1800793878
   via 23.0.0.3 (1800793878/1735257878), Ethernet0/0
```



Step 5 Verify routing table and EIGRP routes entries:

```
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 [90/13556702] via 12.0.0.1, 00:30:40, Serial2/0
D   11.0.2.0 [90/13556702] via 12.0.0.1, 00:30:40, Serial2/0
D   11.0.3.0 [90/13556702] via 12.0.0.1, 00:30:40, 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 [90/1024640] via 23.0.0.3, 00:24:36, Ethernet0/0
D   33.0.2.0 [90/1024640] via 23.0.0.3, 00:24:32, Ethernet0/0
D   33.0.3.0 [90/1024640] via 23.0.0.3, 00:24:28, Ethernet0/0
34.0.0.0/24 is subnetted, 1 subnets
D   34.0.0.0 [90/14068062] via 23.0.0.3, 00:24:45, Ethernet0/0
44.0.0.0/24 is subnetted, 3 subnets
D   44.0.1.0 [90/14068702] via 23.0.0.3, 00:23:43, Ethernet0/0
D   44.0.2.0 [90/14068702] via 23.0.0.3, 00:23:39, Ethernet0/0
D   44.0.3.0 [90/14068702] via 23.0.0.3, 00:21:54, Ethernet0/0
```