Lab – Configuring Basic EIGRP for IPv4 (Instructor Version)

**Instructor Note**: Red font color or Gray highlights indicate text that appears in the instructor copy only.

1. Topology

1. Addressing Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Device | Interface | IP Address | Subnet Mask | Default Gateway |
| R1 | G0/0 | 192.168.1.1 | 255.255.255.0 | N/A |
|  | S0/0/0 (DCE) | 10.1.1.1 | 255.255.255.252 | N/A |
|  | S0/0/1 | 10.3.3.1 | 255.255.255.252 | N/A |
| R2 | G0/0 | 192.168.2.1 | 255.255.255.0 | N/A |
|  | S0/0/0 | 10.1.1.2 | 255.255.255.252 | N/A |
|  | S0/0/1 (DCE) | 10.2.2.2 | 255.255.255.252 | N/A |
| R3 | G0/0 | 192.168.3.1 | 255.255.255.0 | N/A |
|  | S0/0/0 (DCE) | 10.3.3.2 | 255.255.255.252 | N/A |
|  | S0/0/1 | 10.2.2.1 | 255.255.255.252 | N/A |
| PC-A | NIC | 192.168.1.3 | 255.255.255.0 | 192.168.1.1 |
| PC-B | NIC | 192.168.2.3 | 255.255.255.0 | 192.168.2.1 |
| PC-C | NIC | 192.168.3.3 | 255.255.255.0 | 192.168.3.1 |

1. Objectives

Part 1: Build the Network and Verify Connectivity

Part 2: Configure EIGRP Routing

Part 3: Verify EIGRP Routing

Part 4: Configure Bandwidth and Passive Interfaces

1. Background / Scenario

Enhanced Interior Gateway Routing Protocol (EIGRP) is a powerful distance vector routing protocol and is relatively easy to configure for basic networks.

In this lab, you will configure EIGRP for the topology and networks shown above. You will modify bandwidth and configure passive interfaces to allow EIGRP to function more efficiently.

**Note**: The routers used with CCNA hands-on labs are Cisco 1941 Integrated Services Routers (ISRs) with Cisco IOS Release 15.2(4)M3 (universalk9 image). Other routers and Cisco IOS versions can be used. Depending on the model and Cisco IOS version, the commands available and output produced might vary from what is shown in the labs. Refer to the Router Interface Summary Table at the end of this lab for the correct interface identifiers.

**Note**: Make sure that the routers have been erased and have no startup configurations. If you are unsure, contact your instructor.

**Instructor Note**: Refer to the Instructor Lab Manual for the procedures to initialize and reload devices.

1. Required Resources
* 3 Routers (Cisco 1941 with Cisco IOS Release 15.2(4)M3 universal image or comparable)
* 3 PCs (Windows 7, Vista, or XP with terminal emulation program, such as Tera Term)
* Console cables to configure the Cisco IOS devices via the console ports
* Ethernet and serial cables as shown in the topology
1. Build the Network and Verify Connectivity

In Part 1, you will set up the network topology and configure basic settings, such as the interface IP addresses, device access, and passwords.

* 1. Cable the network as shown in the topology.
	2. Configure PC hosts.
	3. Initialize and reload the routers as necessary.
	4. Configure basic settings for each router.
		1. Disable DNS lookup.
		2. Configure IP addresses for the routers, as listed in the Addressing Table.
		3. Configure device name as shown in the topology.
		4. Assign **cisco** as the console and vty passwords.
		5. Assign **class** as the privileged EXEC password.
		6. Configure **logging synchronous** to prevent console and vty messages from interrupting command entry.
		7. Configure a message of the day.
		8. Copy the running configuration to the startup configuration.
	5. Verify connectivity.

The routers should be able to ping one another, and each PC should be able to ping its default gateway. The PCs will not be able to ping other PCs until EIGRP routing is configured. Verify and troubleshoot if necessary.

1. Configure EIGRP Routing
	1. Enable EIGRP routing on R1. Use AS number 10.

R1(config)# **router eigrp 10**

* 1. Advertise the directly connected networks on R1 using the wildcard mask.

R1(config-router)# **network 10.1.1.0 0.0.0.3**

R1(config-router)# **network 192.168.1.0 0.0.0.255**

R1(config-router)# **network 10.3.3.0 0.0.0.3**

Why is it a good practice to use wildcard masks when advertising networks? Could the mask have been omitted from any of the network statements above? If so, which one(s)?

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You should only advertise networks that you control. In earlier versions of EIGRP, classful boundaries were assumed meaning that the whole network space was advertised. For example, when advertising the 10.1.1.0 network, the 10.0.0.0/8 could be assumed. The wildcard mask could have been omitted from the 192.168.1.0 network statement because EIGRP would automatically assume the 0.0.0.255 classful mask.

* 1. Enable EIGRP routing and advertise the directly connected networks on R2 and R3.

You will see neighbor adjacency messages as interfaces are added to the EIGRP routing process. The messages on R2 are displayed as an example.

\*Apr 14 15:24:59.543: %DUAL-5-NBRCHANGE: EIGRP-IPv4 10: Neighbor 10.1.1.1 (Serial0/0/0) is up: new adjacency

* 1. Verify end-to-end connectivity.

All devices should be able to ping each other if EIGRP is configured correctly.

**Note**: Depending on the operating system, it may be necessary to disable the firewall for the pings to the host PCs to be successful.

1. Verify EIGRP Routing
	1. Examine the EIGRP neighbor table.

On R1, issue the **show ip eigrp neighbors** command to verify that the adjacency has been established with its neighboring routers.

R1# **show ip eigrp neighbors**

EIGRP-IPv4 Neighbors for AS(10)

H Address Interface Hold Uptime SRTT RTO Q Seq

 (sec) (ms) Cnt Num

1 10.3.3.2 Se0/0/1 13 00:24:58 8 100 0 17

0 10.1.1.2 Se0/0/0 13 00:29:23 7 100 0 23

* 1. Examine the IP EIGRP routing table.

R1# **show ip route eigrp**

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

 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

D 10.2.2.0/30 [90/2681856] via 10.3.3.2, 00:29:01, Serial0/0/1

 [90/2681856] via 10.1.1.2, 00:29:01, Serial0/0/0

D 192.168.2.0/24 [90/2172416] via 10.1.1.2, 00:29:01, Serial0/0/0

D 192.168.3.0/24 [90/2172416] via 10.3.3.2, 00:27:56, Serial0/0/1

Why does R1 have two paths to the 10.2.2.0/30 network?

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EIGRP automatically does equal-cost load balancing. R1 has two ways to reach the 10.2.2.0/30 network.

* 1. Examine the EIGRP topology table.

R1# **show ip eigrp topology**

EIGRP-IPv4 Topology Table for AS(10)/ID(192.168.1.1)

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

 r - reply Status, s - sia Status

P 192.168.3.0/24, 1 successors, FD is 2172416

 via 10.3.3.2 (2172416/28160), Serial0/0/1

P 192.168.2.0/24, 1 successors, FD is 2172416

 via 10.1.1.2 (2172416/28160), Serial0/0/0

P 10.2.2.0/30, 2 successors, FD is 2681856

 via 10.1.1.2 (2681856/2169856), Serial0/0/0

 via 10.3.3.2 (2681856/2169856), Serial0/0/1

P 10.3.3.0/30, 1 successors, FD is 2169856

 via Connected, Serial0/0/1

P 192.168.1.0/24, 1 successors, FD is 2816

 via Connected, GigabitEthernet0/0

P 10.1.1.0/30, 1 successors, FD is 2169856

 via Connected, Serial0/0/0

Why are there no feasible successors listed in the R1 topology table?

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The feasibility condition (FC) has not been met.

* 1. Verify the EIGRP routing parameters and networks advertised.

Issue the **show ip protocols** command to verify the EIGRP routing parameters used.

R1# **show ip protocols**

\*\*\* IP Routing is NSF aware \*\*\*

Routing Protocol is "eigrp 10"

 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(10)

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

 NSF-aware route hold timer is 240

 Router-ID: 192.168.1.1

 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:

 10.1.1.0/30

 10.3.3.0/30

 192.168.1.0

 Routing Information Sources:

 Gateway Distance Last Update

 10.3.3.2 90 02:38:34

 10.1.1.2 90 02:38:34

 Distance: internal 90 external 170

Based on the output of issuing the **show ip protocols** command, answer the following questions.

What AS number is used? \_\_\_\_\_ 10

What networks are advertised?

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10.1.1.0/30, 10.3.3.0/30, and 192.168.1.0/24

What is the administrative distance for EIGRP? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 90 internal and 170 external

How many equal cost paths does EIGRP use by default? \_\_\_\_\_ 4

1. Configure Bandwidth and Passive Interfaces

EIGRP uses a default bandwidth based on the type of interface in the router. In Part 4, you will modify the bandwidth so that the link between R1 and R3 has a lower bandwidth than the link between R1/R2 and R2/R3. In addition, you will set passive interfaces on each router.

* 1. Observe the current routing settings.
		1. Issue the **show interface s0/0/0** command on R1.

R1# **show interface s0/0/0**

Serial0/0/0 is up, line protocol is up

 Hardware is WIC MBRD Serial

 Internet address is 10.1.1.1/30

 MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,

 reliability 255/255, txload 1/255, rxload 1/255

 Encapsulation HDLC, loopback not set

 Keepalive set (10 sec)

 Last input 00:00:01, output 00:00:02, output hang never

 Last clearing of "show interface" counters 03:43:45

 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0

 Queueing strategy: fifo

 Output queue: 0/40 (size/max)

 5 minute input rate 0 bits/sec, 0 packets/sec

 5 minute output rate 0 bits/sec, 0 packets/sec

 4050 packets input, 270294 bytes, 0 no buffer

 Received 1554 broadcasts (0 IP multicasts)

 0 runts, 0 giants, 0 throttles

 1 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 1 abort

 4044 packets output, 271278 bytes, 0 underruns

 0 output errors, 0 collisions, 5 interface resets

 4 unknown protocol drops

 0 output buffer failures, 0 output buffers swapped out

 12 carrier transitions

 DCD=up DSR=up DTR=up RTS=up CTS=up

What is the default bandwidth for this serial interface?

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Answers will vary based on serial card in router. Based on output here, bandwidth is 1544 Kbps.

* + 1. How many routes are listed in the routing table to reach the 10.2.2.0/30 network? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2

R1# **show ip route eigrp**

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

 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

D 10.2.2.0/30 [90/2681856] via 10.3.3.2, 00:29:01, Serial0/0/1

 [90/2681856] via 10.1.1.2, 00:29:01, Serial0/0/0

D 192.168.2.0/24 [90/2172416] via 10.1.1.2, 00:29:01, Serial0/0/0

D 192.168.3.0/24 [90/2172416] via 10.3.3.2, 00:27:56, Serial0/0/1

* 1. Modify the bandwidth on the routers.
		1. Modify the bandwidth on R1 for the serial interfaces.

R1(config)# **interface s0/0/0**

R1(config-if)# **bandwidth 2000**

R1(config-if)# **interface s0/0/1**

R1(config-if)# **bandwidth 64**

Issue **show ip route** command on R1. Is there a difference in the routing table? If so, what is it?

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

 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks

C 10.1.1.0/30 is directly connected, Serial0/0/0

L 10.1.1.1/32 is directly connected, Serial0/0/0

D 10.2.2.0/30 [90/2681856] via 10.1.1.2, 00:03:09, Serial0/0/0

C 10.3.3.0/30 is directly connected, Serial0/0/1

L 10.3.3.1/32 is directly connected, Serial0/0/1

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

C 192.168.1.0/24 is directly connected, GigabitEthernet0/0

L 192.168.1.1/32 is directly connected, GigabitEthernet0/0

D 192.168.2.0/24 [90/1794560] via 10.1.1.2, 00:03:09, Serial0/0/0

D 192.168.3.0/24 [90/2684416] via 10.1.1.2, 00:03:08, Serial0/0/0

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After the change in bandwidth, there is only one route showing for the 10.2.2.0/30 network via 10.1.1.2 and S0/0/0. This is the preferred link because it is a faster link. Before the change in bandwidth, there were two equal cost paths to the destination; therefore, there were two entries in the routing table.

* + 1. Modify the bandwidth on the R2 and R3 serial interfaces.

R2(config)# **interface s0/0/0**

R2(config-if)# **bandwidth 2000**

R2(config-if)# **interface s0/0/1**

R2(config-if)# **bandwidth 2000**

R3(config)# **interface s0/0/0**

R3(config-if)# **bandwidth 64**

R3(config-if)# **interface s0/0/1**

R3(config-if)# **bandwidth 2000**

* 1. Verify the bandwidth modifications.
		1. Verify bandwidth modifications. Issue a **show interface serial 0/0/x** command, with x being the appropriate serial interface on all three routers to verify that bandwidth is set correctly. R1 is shown as an example.

R1# **show interface s0/0/0**

Serial0/0/0 is up, line protocol is up

 Hardware is WIC MBRD Serial

 Internet address is 10.1.1.1/30

 MTU 1500 bytes, BW 2000 Kbit/sec, DLY 20000 usec,

 reliability 255/255, txload 1/255, rxload 1/255

 Encapsulation HDLC, loopback not set

 Keepalive set (10 sec)

 Last input 00:00:01, output 00:00:02, output hang never

 Last clearing of "show interface" counters 04:06:06

 Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0

 Queueing strategy: fifo

 Output queue: 0/40 (size/max)

 5 minute input rate 0 bits/sec, 0 packets/sec

 5 minute output rate 0 bits/sec, 0 packets/sec

 4767 packets input, 317155 bytes, 0 no buffer

 Received 1713 broadcasts (0 IP multicasts)

 0 runts, 0 giants, 0 throttles

 1 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 1 abort

 4825 packets output, 316451 bytes, 0 underruns

 0 output errors, 0 collisions, 5 interface resets

 4 unknown protocol drops

 0 output buffer failures, 0 output buffers swapped out

 12 carrier transitions

 DCD=up DSR=up DTR=up RTS=up CTS=up

Based on your bandwidth configuration, try and determine what the R2 and R3 routing tables will look like before you issue a **show ip route** command. Are their routing tables the same or different?

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R2 routing table will be the same as before. It will still have 2 equal cost routes to the 10.3.3.0/30 network. R3 routing table will now only have 1 route to the 10.1.1.0/30 network via R2.

* 1. Configure G0/0 interface as passive on R1, R2, and R3.

A passive interface does not allow outgoing and incoming routing updates over the configured interface. The **passive-interface** *interface* command causes the router to stop sending and receiving Hello packets over an interface; however, the network associated with the interface is still advertised to other routers through the non-passive interfaces. Router interfaces connected to LANs are typically configured as passive.

R1(config)# **router eigrp 10**

R1(config-router)# **passive-interface g0/0**

R2(config)# **router eigrp 10**

R2(config-router)# **passive-interface g0/0**

R3(config)# **router eigrp 10**

R3(config-router)# **passive-interface g0/0**

* 1. Verify the passive interface configuration.

Issue a **show ip protocols** command on R1, R2, and R3 and verify that G0/0 has been configured as passive.

R1# **show ip protocols**

\*\*\* IP Routing is NSF aware \*\*\*

Routing Protocol is "eigrp 10"

 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(10)

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

 NSF-aware route hold timer is 240

 Router-ID: 192.168.1.1

 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:

 10.1.1.0/30

 10.3.3.0/30

 192.168.1.0

 Passive Interface(s):

 GigabitEthernet0/0

 Routing Information Sources:

 Gateway Distance Last Update

 10.3.3.2 90 00:48:09

 10.1.1.2 90 00:48:26

 Distance: internal 90 external 170

1. Reflection

You could have used only static routing for this lab. What is an advantage of using EIGRP?

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EIGRP can automatically adjust for network topology changes such as adding networks, or networks going down. EIGRP automatically picks the best path when the bandwidth of a link is modified, and it will automatically load balance across multiple equal cost paths.

1. Router Interface Summary Table

|  |
| --- |
| Router Interface Summary |
| Router Model | Ethernet Interface #1 | Ethernet Interface #2 | Serial Interface #1 | Serial Interface #2 |
| 1800 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 1900 | Gigabit Ethernet 0/0 (G0/0) | Gigabit Ethernet 0/1 (G0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 2801 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/1/0 (S0/1/0) | Serial 0/1/1 (S0/1/1) |
| 2811 | Fast Ethernet 0/0 (F0/0) | Fast Ethernet 0/1 (F0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| 2900 | Gigabit Ethernet 0/0 (G0/0) | Gigabit Ethernet 0/1 (G0/1) | Serial 0/0/0 (S0/0/0) | Serial 0/0/1 (S0/0/1) |
| **Note**: To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. There is no way to effectively list all the combinations of configurations for each router class. This table includes identifiers for the possible combinations of Ethernet and Serial interfaces in the device. The table does not include any other type of interface, even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface. |

1. Device Configs
2. Router R1

R1#sh run

Building configuration...

Current configuration : 1455 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname R1

!

!

enable secret 4 06YFDUHH61wAE/kLkDq9BGho1QM5EnRtoyr8cHAUg.2

!

no aaa new-model

no ip domain lookup

ip cef

no ipv6 cef

multilink bundle-name authenticated

!

!

!

interface Embedded-Service-Engine0/0

 no ip address

 shutdown

!

interface GigabitEthernet0/0

 ip address 192.168.1.1 255.255.255.0

 duplex auto

 speed auto

!

interface GigabitEthernet0/1

 no ip address

 shutdown

 duplex auto

 speed auto

!

interface Serial0/0/0

 bandwidth 2000

 ip address 10.1.1.1 255.255.255.252

 clock rate 128000

!

interface Serial0/0/1

 bandwidth 64

 ip address 10.3.3.1 255.255.255.252

!

!

router eigrp 10

 network 10.1.1.0 0.0.0.3

 network 10.3.3.0 0.0.0.3

 network 192.168.1.0

 passive-interface GigabitEthernet0/0

!

ip forward-protocol nd

!

no ip http server

no ip http secure-server

!

control-plane

!

!

line con 0

 password cisco

 logging synchronous

 login

line aux 0

line 2

 no activation-character

 no exec

 transport preferred none

 transport input all

 transport output pad telnet rlogin lapb-ta mop udptn v120 ssh

 stopbits 1

line vty 0 4

 password cisco

 logging synchronous

 login

 transport input all

!

scheduler allocate 20000 1000

!

end

1. Router R2

R2#sh run

Building configuration...

Current configuration : 1457 bytes

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname R2

!

boot-start-marker

boot-end-marker

!

!

enable secret 4 06YFDUHH61wAE/kLkDq9BGho1QM5EnRtoyr8cHAUg.2

!

no aaa new-model

!

!

!

no ip domain lookup

ip cef

no ipv6 cef

multilink bundle-name authenticated

!

!

interface Embedded-Service-Engine0/0

 no ip address

 shutdown

!

interface GigabitEthernet0/0

 ip address 192.168.2.1 255.255.255.0

 duplex auto

 speed auto

!

interface GigabitEthernet0/1

 no ip address

 shutdown

 duplex auto

 speed auto

!

interface Serial0/0/0

 bandwidth 2000

 ip address 10.1.1.2 255.255.255.252

!

interface Serial0/0/1

 bandwidth 2000

 ip address 10.2.2.2 255.255.255.252

 clock rate 128000

!

!

router eigrp 10

 network 10.1.1.0 0.0.0.3

 network 10.2.2.0 0.0.0.3

 network 192.168.2.0

 passive-interface GigabitEthernet0/0

!

ip forward-protocol nd

!

no ip http server

no ip http secure-server

!

control-plane

!

line con 0

 password cisco

 logging synchronous

 login

line aux 0

line 2

 no activation-character

 no exec

 transport preferred none

 transport input all

 transport output pad telnet rlogin lapb-ta mop udptn v120 ssh

 stopbits 1

line vty 0 4

 password cisco

 logging synchronous

 login

 transport input all

!

scheduler allocate 20000 1000

!

end

1. Router R3

R3#sh run

Building configuration...

Current configuration : 1455 bytes

!

version 15.2

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname R3

!

boot-start-marker

boot-end-marker

!

!

enable secret 4 06YFDUHH61wAE/kLkDq9BGho1QM5EnRtoyr8cHAUg.2

!

no aaa new-model

!

!

no ip domain lookup

ip cef

no ipv6 cef

multilink bundle-name authenticated

!

!

interface Embedded-Service-Engine0/0

 no ip address

 shutdown

!

interface GigabitEthernet0/0

 ip address 192.168.3.1 255.255.255.0

 duplex auto

 speed auto

!

interface GigabitEthernet0/1

 no ip address

 shutdown

 duplex auto

 speed auto

!

interface Serial0/0/0

 bandwidth 64

 ip address 10.3.3.2 255.255.255.252

 clock rate 128000

!

interface Serial0/0/1

 bandwidth 2000

 ip address 10.2.2.1 255.255.255.252

!

!

router eigrp 10

 network 10.2.2.0 0.0.0.3

 network 10.3.3.0 0.0.0.3

 network 192.168.3.0

 passive-interface GigabitEthernet0/0

!

ip forward-protocol nd

!

no ip http server

no ip http secure-server

!

!

control-plane

!

!

line con 0

 password cisco

 logging synchronous

 login

line aux 0

line 2

 no activation-character

 no exec

 transport preferred none

 transport input all

 transport output pad telnet rlogin lapb-ta mop udptn v120 ssh

 stopbits 1

line vty 0 4

 password cisco

 logging synchronous

 login

 transport input all

!

scheduler allocate 20000 1000

!

end