NetSim®
NETWORK SIMULATOR®

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Stand-Alone Lab: Variable-Length Subnet Masks

Objective

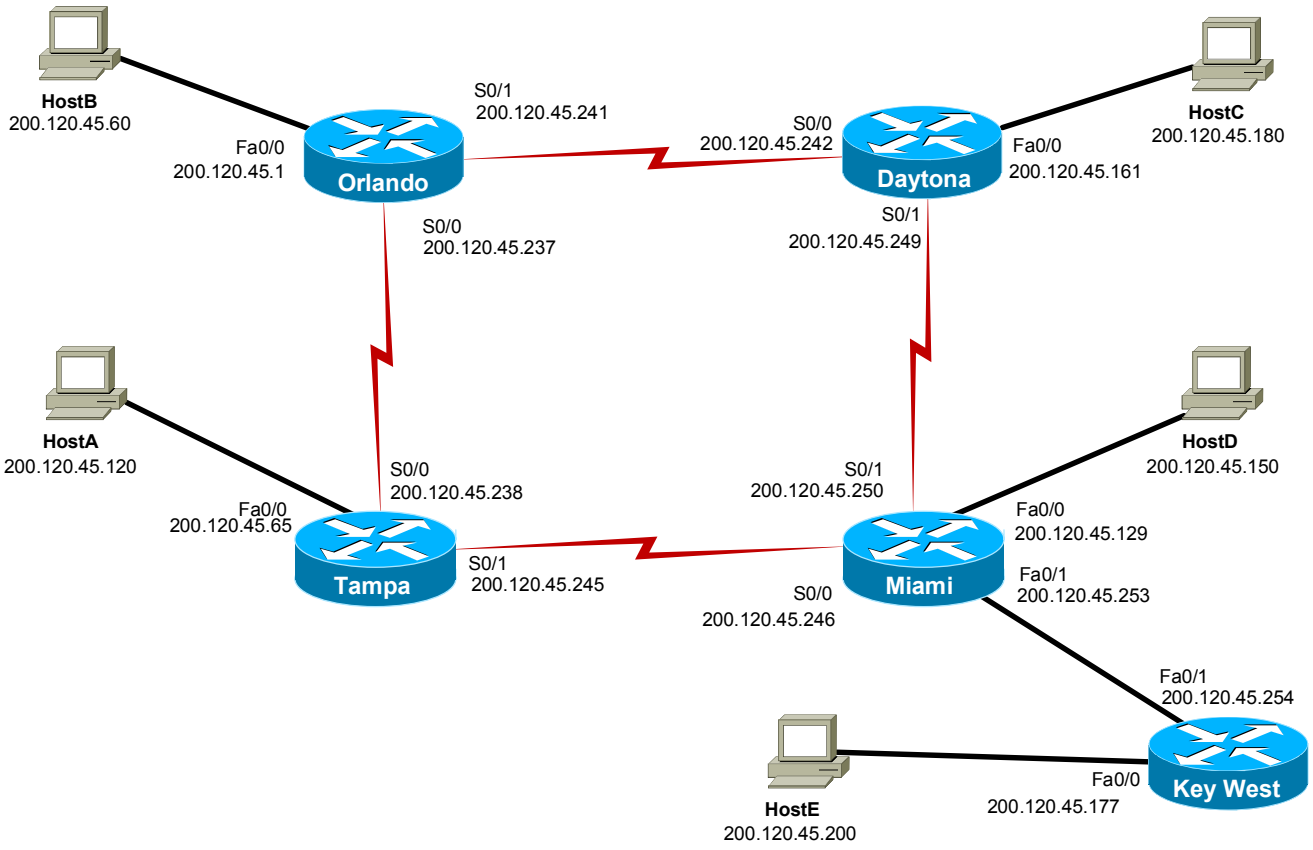
Examine the IP addressing that is already in place, and correct the errors that are preventing some hosts from communicating with other hosts. Your only access to the network is from the console of the Miami router or the console of the workstations. You should perform the steps in this lab using only HostD and the Miami router.

The main four routers in this lab each have a FastEthernet interface connected to the local area network (LAN) and two Serial interfaces that connect the routers to the wide area network (WAN) in such a way that each router is connected to two other main routers. A single PC host computer is connected to each LAN.

A fifth router with a FastEthernet interface is also connected to the network. Connectivity problems were observed soon after the KeyWest router was connected to the network.

Lab Topology

The topology diagram below represents the NetMap in the Simulator.



Command Summary

Command	Description
configure terminal	enters global configuration mode from privileged EXEC mode
enable	enters privileged EXEC mode
end	ends and exits configuration mode
exit	exits one level in the menu structure
interface *type number*	changes from global configuration mode to interface configuration mode
ip address *ip-address subnet-mask*	assigns an IP address to an interface
ipconfig	is used in NetSim to display the currently configured IP address, subnet mask, and default gateway on a workstation
ping *ip-address*	sends an Internet Control Message Protocol (ICMP) echo request to the specified address
show ip interface	displays IP information for an interface
show ip route	displays the IP routing table
show running-config	displays the active configuration file
telnet *ip-address*	starts the terminal emulation program from a PC, router, or switch; permits you to access devices remotely over the network

The IP addresses and subnet masks used in this lab are shown in the tables below:

IP Addresses

Device	Interface	IP Address	Subnet Mask
Orlando	Serial 0/0 Serial 0/1 FastEthernet 0/0	200.120.45.237 200.120.45.241 200.120.45.1	255.255.255.252 255.255.255.252 255.255.255.192
Tampa	Serial 0/0 Serial 0/1 FastEthernet 0/0	200.120.45.238 200.120.45.245 200.120.45.65	255.255.255.252 255.255.255.252 255.255.255.192
KeyWest	FastEthernet 0/0 FastEthernet 0/1	200.120.45.177 200.120.45.254	255.255.255.240 255.255.255.252
Daytona	Serial 0/0 Serial 0/1 FastEthernet 0/0	200.120.45.242 200.120.45.249 200.120.45.161	255.255.255.252 255.255.255.252 255.255.255.224
Miami	Serial 0/0 Serial 0/1 FastEthernet 0/1 FastEthernet 0/0	200.120.45.246 200.120.45.250 200.120.45.253 200.120.45.129	255.255.255.252 255.255.255.252 255.255.255.252 255.255.255.224

Device	IP Address	Subnet Mask	Default Gateway
HostA	200.120.45.120	255.255.255.192	200.120.45.65
HostB	200.120.45.60	255.255.255.192	200.120.45.1
HostC	200.120.45.180	255.255.255.224	200.120.45.161
HostD	200.120.45.150	255.255.255.224	200.120.45.129
HostE	200.120.45.200	255.255.255.240	200.120.45.193

Lab Tasks

Task 1: Examine the Initial Network Configuration

All Telnet passwords have been set to **sanfran**. The console password and the enable secret password for the Miami router have been set to **cisco**. The console passwords for all other routers have been configured to prevent you from accessing them during this lab.

A. Examine the Initial Network Addressing Plan

1. All IP addresses in the network topology fall within the 200.120.45.0/24 network. What is significant about the /24 notation used to define this network? _____
   _____

2. Examine the topology diagram; how many networks exist? Your count should include both LANs and WANs. _____

3. Briefly explain how it is possible to address all these networks, given that you are only allocated the 200.120.45.0/24 network. _____
   _____

4. Examine the IP addresses assigned to each router interface and each PC host. Later, you will use this information to calculate the maximum number of host addresses that are available on each network. What additional information do you need in order to perform these calculations? _____
   _____

5. Calculate the network address, broadcast address, first valid host IP addresses, last valid host IP addresses, and maximum number of hosts for each network in the simulated topology. Write this information on the lab topology diagram for later reference.

B. Examine the Initial Network Connectivity

1. From the Miami router, attempt to ping the devices in the table below. Indicate whether the pings were successful or not.

Device and Interface	Result	Device and Interface	Result	Device and Interface	Result
Daytona Serial 0/0 (200.120.45.242)		KeyWest FastEthernet 0/1 (200.120.45.254)		HostB (200.120.45.60)	
Daytona Serial 0/1 (200.120.45.249)		Orlando Serial 0/0 (200.120.45.237)		HostC (200.120.45.180)	
Daytona FastEthernet 0/0 (200.120.45.161)		Orlando Serial 0/1 (200.120.45.241)		HostE (200.120.45.200)	

2. Perform some basic troubleshooting for the hosts and router interfaces that fail the ping test. Do you see anything obvious, such as interfaces that are administratively down or clocking that is incorrectly configured on the Serial interfaces? _____
_____

Task 2: Correct Configuration Issues

A. Examine the Specific Points of Failure

1. Refer to your network examination. Were you able to ping from Miami to HostC (200.120.45.180)?
_____

2. Issue the **telnet** command from Miami to open a virtual console session on Daytona (200.120.45.242). Attempt to ping HostC (200.120.45.180) from Daytona. Is this ping successful?
_____

3. Why would a ping to a directly connected host fail if all interfaces are up and operating properly?
_____
_____

4. Examine the routing table on the Daytona router. Do you see any reasons why a ping to a directly connected host is failing? _____

5. From the Miami router, attempt to ping Daytona's FastEthernet 0/0 interface (200.120.45.161). Is this ping successful? _____

6. If a ping from Miami to Daytona's FastEthernet 0/0 interface is successful and the ping to HostC (200.120.45.180), which is the PC host connected to this interface, fails, what conclusion can you draw? _____
_____

7. From Miami, attempt to ping KeyWest's FastEthernet 0/0 interface (200.120.45.177). Is this ping successful? _____

8. From Miami, attempt to ping HostE (200.120.45.200). Is this ping successful? _____

9. Based on the information you have gathered so far, briefly explain what you think is the root cause of the connectivity problems that you have observed. _____

10. Are all IP addresses on KeyWest configured correctly? _____

B. Correct the Configuration

1. On which device does the configuration error exist? _____

2. How is this configuration error causing the connectivity problems that you have observed? _____
_____

3. Fix the configuration error you noted.

Task 3: Verify the Configuration

A. Verify Connectivity

1. From Miami, retry the pings that failed earlier. Are the pings successful now? _____

2. Verify that Miami has connectivity to all hosts and router interfaces. Do any devices on the network fail to respond to a ping? _____

B. Verify Routing

1. Examine the contents of Miami's IP routing table.

2. How have the contents of the IP routing table changed? _____
_____

3. What effect does this have on network connectivity? _____
_____

Lab Solutions

Task 1: Examine the Initial Network Configuration All Telnet passwords have been set to **sanfran**. The console password and the enable secret password for the Miami router have been set to **cisco**. The console passwords for all other routers have been configured to prevent you from accessing them during this lab.

A. Examine the Initial Network Addressing Plan

1. The significance of the /24 notation used to define the 200.120.45.0/24 network is that it is written in Classless Inter-Domain Routing (CIDR) format. The /24 indicates the prefix length. A 24-bit prefix indicates that the first 24 bits of the 32-bit IP address represent the network portion of the address. The remaining 8 bits represent the host address. A /24 prefix is equivalent to a Class C mask of 255.255.255.0. The CIDR notation differs from classful addresses; in CIDR notation, the prefix can be of any length and does not necessarily fall on an octet boundary. Prefix lengths of 8, 16, and 24 bits correspond to classful masks of 255.0.0.0, 255.255.0.0, and 255.255.255.0, respectively.

2. The topology for this lab includes five LANs and five WANs, for a total of 10 networks in the topology.

3. It is possible to take the 200.120.45.0/24 network and subdivide it further by using variable length subnet masking (VLSM). VLSM is the process of “borrowing” bits from the host portion of the assigned address space to create subnetworks of varying sizes.

4. In addition to the IP addresses assigned to each router interface and each PC host, you also need to know the value of the subnet mask to calculate the maximum number of host addresses that are available on each network. You can find the value of the subnet mask by issuing the **show running-config** command on the routers and the **ipconfig** command on the PC hosts. Sample output from the **show running-config** command issued on Miami is shown below:

```
Password:cisco
Miami>enable
Password:cisco
Miami#show running-config
Building configuration...
Current configuration : 1077 bytes
!
<output omitted>
!
interface Serial0/0
 description ToTampa
 ip address 200.120.45.246 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
```

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```
interface Serial0/1
 description toDaytona
 ip address 200.120.45.250 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
interface FastEthernet0/0
 description MiamiLAN
 ip address 200.120.45.129 255.255.255.224
 no ip directed-broadcast
!
interface FastEthernet0/1
 description toKeyWest
 ip address 200.120.45.253 255.255.255.252
 no ip directed-broadcast
 bandwidth 512
!
<output omitted>
```

Sample output from the **ipconfig** command issued on HostC is shown below:

```
C:>ipconfig

<output omitted>

  Boson BOSS 5.0 IP Configuration
     Ethernet adapter Local Area Connection:
        Connection-specific DNS Suffix  . :
        IP Address. . . . . . . . . . . . : 200.120.45.180
        Subnet Mask . . . . . . . . . . . : 255.255.255.224
        Default Gateway . . . . . . . . . : 200.120.45.161
```

5. The following tables display the network address, broadcast address, first valid host IP addresses, last valid host IP addresses, and maximum number of hosts for each network that was configured when the simulated topology was loaded:

WAN	Network	First Host	Last Host	Broadcast	Hosts	CIDR
Orlando–Daytona	200.120.45.240	200.120.45.241	200.120.45.242	200.120.45.243	2	/30
Orlando–Tampa	200.120.45.236	200.120.45.237	200.120.45.238	200.120.45.239	2	/30
Tampa–Miami	200.120.45.244	200.120.45.245	200.120.45.246	200.120.45.247	2	/30
Miami–KeyWest	200.120.45.252	200.120.45.253	200.120.45.254	200.120.45.255	2	/30
Miami–Daytona	200.120.45.248	200.120.45.249	200.120.45.250	200.120.45.251	2	/30

LAN	Network	First Host	Last Host	Broadcast	Hosts	CIDR
Orlando	200.120.45.0	200.120.45.1	200.120.45.62	200.120.45.63	62	/26
Daytona	200.120.45.160	200.120.45.161	200.120.45.190	200.120.45.191	30	/27
Tampa	200.120.45.64	200.120.45.65	200.120.45.126	200.120.45.127	62	/26
Miami	200.120.45.128	200.120.45.129	200.120.45.158	200.120.45.159	30	/27
KeyWest	200.120.45.176	200.120.45.177	200.120.45.190	200.120.45.191	14	/28

B. Examine the Initial Network Connectivity

1. Pings from Miami to Daytona, KeyWest, Orlando, HostB, HostC, and HostE have the following results:

Device and Interface	Result	Device and Interface	Result	Device and Interface	Result
Daytona Serial 0/0 (200.120.45.242)	Succeeds	KeyWest FastEthernet 0/1 (200.120.45.254)	Succeeds	HostB (200.120.45.60)	Succeeds
Daytona Serial 0/1 (200.120.45.249)	Succeeds	Orlando Serial 0/0 (200.120.45.237)	Succeeds	HostC (200.120.45.180)	Fails
Daytona FastEthernet 0/0 (200.120.45.161)	Succeeds	Orlando Serial 0/1 (200.120.45.241)	Succeeds	HostE (200.120.45.200)	Fails

2. You should issue the **show running-config** command to begin troubleshooting for the hosts and router interfaces that fail the ping test. Output from the **show running-config** command shows that all interfaces are configured with IP addresses and that clocking is correctly configured on the Serial links. Sample output is shown below:

```
Miami#show running-config
Building configuration...
!
<output omitted>
!
interface Serial0/0
 description ToTampa
 ip address 200.120.45.246 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
interface Serial0/1
 description toDaytona
 ip address 200.120.45.250 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
```

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```
interface FastEthernet0/0
 description MiamiLAN
 ip address 200.120.45.129 255.255.255.224
 no ip directed-broadcast
!
interface FastEthernet0/1
 description toKeyWest
 ip address 200.120.45.253 255.255.255.252
 no ip directed-broadcast
 bandwidth 512
!
<output omitted>
```

You should issue the **show ip interface brief** command to continue basic troubleshooting. Output from the **show ip interface brief** command issued on Miami shows that all interfaces are configured with IP addresses and that all interfaces are `up`/`up`. Sample output is shown below:

```
Miami#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
Serial0/0              200.120.45.246  YES unset  up                    up
Serial0/1              200.120.45.250  YES unset  up                    up
FastEthernet0/0        200.120.45.129  YES unset  up                    up
FastEthernet0/1        200.120.45.253  YES unset  up                    up
```

You can also use output from the **show controllers** command to verify the Serial interface clocking.

Task 2: Correct Configuration Issues

A. Examine the Specific Points of Failure

1. A ping from Miami to HostC fails:

```
Miami#ping 200.120.45.180
```

2. A ping from Daytona (200.120.45.242) to HostC (200.120.45.180) via a Telnet session on Miami fails:

```
Miami#telnet 200.120.45.242
Trying 200.120.45.242 ... Open
Password:sanfran
Daytona>ping 200.120.45.180
```

3. A ping to a directly connected host could fail if an erroneous route in the routing table diverts the traffic to an invalid destination, where the traffic is ultimately dropped.

4. A ping from Daytona to a directly connected host (HostC) fails because Daytona has more than one route to HostC's IP address. The IP address for HostC (200.120.45.180/27) falls within two of the routes listed in Daytona's routing table: the 200.120.45.160/27 subnet and the 200.120.45.176/28 subnet. Daytona has a route to one subnet via FastEthernet 0/0 and another route via Serial 0/1. The route via the Serial 0/1 interface is more specific, so Daytona sends packets addressed to HostC out that interface. This causes a routing loop between Daytona and Miami, which ultimately causes the packet to be dropped. Output from the **show ip route** command issued on Daytona displays connected routes; sample output is shown below:

```
Daytona>enable
Password:cisco
Daytona#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route

Gateway of last resort is not set

     200.120.45.0/24 is variably subnetted, 10 subnets
C       200.120.45.240/30 is directly connected, Serial0/0
C       200.120.45.248/30 is directly connected, Serial0/1
C       200.120.45.160/27 is directly connected, FastEthernet0/0
D       200.120.45.176/28 [90/5517056] via 200.120.45.250, 09:37:06, Serial0/1
D       200.120.45.252/30 [90/5514496] via 200.120.45.250, 09:37:06, Serial0/1
D       200.120.45.244/30 [90/6023936] via 200.120.45.250, 09:37:06, Serial0/1
D       200.120.45.64/26 [90/6026496] via 200.120.45.250, 09:37:06, Serial0/1
D       200.120.45.128/27 [90/5514496] via 200.120.45.250, 09:37:06, Serial0/1
D       200.120.45.236/30 [90/6535936] via 200.120.45.250, 00:03:59, Serial0/1
D       200.120.45.0/26 [90/6538496] via 200.120.45.250, 00:03:59, Serial0/1
```

5. A ping from Miami to Daytona's FastEthernet 0/0 interface is successful:

```
Daytona#exit
[Connection to 200.120.45.242 closed by foreign host]
Miami#ping 200.120.45.161
```

6. The IP address configured on Daytona's FastEthernet 0/0 interface does not require the ping packets to be routed. The pings to HostC are routed by Daytona because the IP address is not configured on one of Daytona's physical interfaces. You can conclude that an IP address or subnet mask misconfiguration is causing a ping from Miami to Daytona's FastEthernet 0/0 interface to succeed and a ping from Miami to HostC to fail.

7. A ping from Miami to KeyWest's FastEthernet 0/0 interface is successful:

```
Miami#ping 200.120.45.177
```

8. A ping from Miami to HostE fails:

```
Miami#ping 200.120.45.200
```

9. The output of the **show ip route** command issued on the Miami router shows that all routes to the 200.120.45.176/28 network point toward KeyWest's FastEthernet 0/0 interface. This causes a problem with traffic addressed to HostC, which is connected to the Daytona router. Further examination reveals that the IP addresses of HostE and of KeyWest's FastEthernet 0/0 interface fall into different networks; therefore, traffic addressed to HostE can never be delivered. Sample output from the **show ip route** command is shown below:

```
Miami#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route

Gateway of last resort is not set

  200.120.45.0/24 is variably subnetted, 10 subnets
C  200.120.45.244/30 is directly connected, Serial0/0
C  200.120.45.248/30 is directly connected, Serial0/1
C  200.120.45.128/27 is directly connected, FastEthernet0/0
C  200.120.45.252/30 is directly connected, FastEthernet0/1
D  200.120.45.240/30 [90/6023936] via 200.120.45.249, 00:00:15, Serial0/1
D  200.120.45.176/28 [90/5005056] via 200.120.45.254, 00:00:15, FastEthernet0/1
D  200.120.45.160/27 [90/5514496] via 200.120.45.249, 00:00:15, Serial0/1
D  200.120.45.236/30 [90/6023936] via 200.120.45.245, 00:00:15, Serial0/0
D  200.120.45.64/26 [90/5514496] via 200.120.45.245, 00:00:15, Serial0/0
D  200.120.45.0/26 [90/6026496] via 200.120.45.245, 00:00:15, Serial0/0
```

10. The IP addresses on KeyWest are not all assigned correctly. KeyWest's FastEthernet 0/0 interface is configured with an incorrect IP address.

B. Correct the Configuration

1. The configuration error exists on KeyWest.

2. KeyWest's FastEthernet 0/0 interface is configured with an incorrect IP address. This interface is configured with an IP address of 200.120.45.177 and a subnet mask of 255.255.255.240.

   This causes two problems. The first problem is that the IP address of KeyWest's FastEthernet 0/0 interface and the IP address of HostE, which is connected to KeyWest, are in different networks and therefore cannot communicate. This prevents the rest of the network from reaching HostE.

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The second problem is that the IP address that is currently assigned to KeyWest's FastEthernet 0/0 interface overlaps the network assigned to the Daytona LAN. The Daytona LAN is configured with a 27-bit prefix (mask 255.255.255.224) and has an address range from 200.120.45.160 through 200.120.45.191. KeyWest's FastEthernet 0/0 interface is configured with an IP address of 200.120.45.177 with a 28-bit prefix (mask 255.255.255.240).

LAN	Network	First Host	Last Host	Broadcast	Hosts	CIDR
Daytona	200.120.45.160	200.120.45.161	200.120.45.190	200.120.45.191	30	/27
KeyWest	200.120.45.176	200.120.45.177	200.120.45.190	200.120.45.191	14	/28

This causes KeyWest to announce via Enhanced Interior Gateway Routing Protocol (EIGRP) a network that overlaps half of the Daytona LAN network. The network that KeyWest announces has a 28-bit prefix and is preferred over the overlapping network with the shorter prefix, which Daytona advertises. The result is that half of the Daytona LAN's network addresses are unreachable.

3. You should issue the following commands to correct the configuration on KeyWest.

```
Miami#telnet 200.120.45.254
Trying 200.120.45.254 ... Open
Password:sanfran
KeyWest>enable
Password:cisco
KeyWest#configure terminal
KeyWest(config)#interface fastethernet 0/0
KeyWest(config-if)#ip address 200.120.45.193 255.255.255.240
```

The change to the IP address of KeyWest will prevent the KeyWest network from overlapping the Daytona network, as shown in the table below:

LAN	Network	First Host	Last Host	Broadcast	Hosts	CIDR
Daytona	200.120.45.160	200.120.45.161	200.120.45.190	200.120.45.191	30	/27
KeyWest	200.120.45.192	200.120.45.193	200.120.45.206	200.120.45.207	14	/28

Task 3: Verify the Configuration

A. Verify Connectivity

1. You should observe that the pings from Miami to HostC (200.120.45.180) and HostE (200.120.45.200), which failed before, are now successful:

```
KeyWest(config-if)#end
KeyWest#exit
[Connection to 200.120.45.254 closed by foreign host]
Miami#ping 200.120.45.180
Miami#ping 200.120.45.200
```

2. Pings from Miami to all devices on the network are now successful.

B. Verify Routing

1. You should issue the **show ip route** command on Miami to examine the contents of the IP routing table. Sample output is shown below:

```
Miami#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route

Gateway of last resort is not set

  200.120.45.0/24 is variably subnetted, 10 subnets
C  200.120.45.244/30 is directly connected, Serial0/0
C  200.120.45.248/30 is directly connected, Serial0/1
C  200.120.45.252/30 is directly connected, Serial1/1
C  200.120.45.128/27 is directly connected, Ethernet0
D  200.120.45.240/30 [90/6023936] via 200.120.45.249, 00:28:14, Serial0/1
D  200.120.45.160/27 [90/5514496] via 200.120.45.249, 00:28:14, Serial0/1
D  200.120.45.64/26 [90/5514496] via 200.120.45.245, 00:28:10, Serial0/0
D  200.120.45.236/30 [90/6023936] via 200.120.45.245, 00:28:10, Serial0/0
D  200.120.45.0/26 [90/6026496] via 200.120.45.245, 00:28:10, Serial0/0
D  200.120.45.192/28 [90/5005056] via 200.120.45.254, 00:00:20, FastEthernet0/1
```

2. Output from the **show ip route** command issued on Miami now shows that the route to the 200.120.45.176/28 network, which points toward KeyWest, is gone and has been replaced by the correct route to the 200.120.45.160/27 network, which points toward Daytona.

3. The routing table update to Miami enables the rest of the network to reach HostC and HostE.

Sample Configuration Scripts

Miami

```
Miami#show running-config
Building configuration...
Current configuration : 1066 bytes
!
Version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Miami
enable secret 5 $sdf$6978yhg$jnb76sd
!
ip subnet-zero
!
ip cef
no ip domain-lookup
!
interface Serial0/0
 description ToTampa
 ip address 200.120.45.246 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
interface Serial0/1
 description toDaytona
 ip address 200.120.45.250 255.255.255.252
 no ip directed-broadcast
 clock rate 64000
 bandwidth 512
!
```

Miami (continued)

```
interface FastEthernet0/0
 description MiamiLAN
 ip address 200.120.45.129 255.255.255.224
 no ip directed-broadcast
!
interface FastEthernet0/1
 description toKeyWest
 ip address 200.120.45.253 255.255.255.252
 no ip directed-broadcast
!
router eigrp 100
 network 200.120.45.0
!
ip classless
no ip http server
!
line con 0
 login
 password cisco
line aux 0
line vty 0 4
 login
 password sanfran
!
no scheduler allocate
end
```

KeyWest

```
KeyWest#show running-config
Building configuration...
Current configuration : 899 bytes
!
Version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname KeyWest
enable secret 5 $sdf$6978yhg$jnb76sd
!
ip subnet-zero
!
ip cef
no ip domain-lookup
!
interface Serial0/0
 no ip address
 no ip directed-broadcast
!
interface Serial0/1
 no ip address
 no ip directed-broadcast
!
interface FastEthernet0/0
 description KeyWestLAN
 ip address 200.120.45.193 255.255.255.240
 no ip directed-broadcast
!
```

KeyWest (continued)

```
interface FastEthernet0/1
 description toMiami
 ip address 200.120.45.254 255.255.255.252
 no ip directed-broadcast
 bandwidth 512
 fair-queue
!
router eigrp 100
 network 200.120.45.0
!
ip classless
no ip http server
!
line con 0
 login
 password <intentionally hidden>
line aux 0
line vty 0 4
 login
 password sanfran
!
no scheduler allocate
end
```