

200-120: Cisco Certified Network Associate 2014

1.

Which of the following correctly describe steps in the OSI data encapsulation process? (Choose two.)

- A. The transport layer divides a data stream into segments and may add reliability and flow control information.
- B. The data link layer adds physical source and destination addresses and an FCS to the segment.
- C. Packets are created when the network layer encapsulates a frame with source and destination host addresses and protocol-related control information.
- D. Packets are created when the network layer adds Layer 3 addresses and control information to a segment.
- E. The presentation layer translates bits into voltages for transmission across the physical link

Answer: A, D

2.

What are two characteristics of Telnet? (Choose two.)

- A. It sends data in clear text format.
- B. It is no longer supported on Cisco network devices.
- C. It is more secure than SSH.
- D. It requires an enterprise license in order to be implemented.
- E. It requires that the destination device be configured to support Telnet connections.

Answer: A, E

3.

Which of the following describe private IP addresses? (Choose two.)

- A. addresses chosen by a company to communicate with the Internet
- B. addresses that cannot be routed through the public Internet
- C. addresses that can be routed through the public Internet
- D. a scheme to conserve public addresses
- E. addresses licensed to enterprises or ISPs by an Internet registry organization

Answer: B, D

4.

What is an appropriate use of a default route?

- A. to provide routing to a local web server
- B. to provide routing from an ISP to a stub network
- C. to provide routing that will override the configured dynamic routing protocol
- D. to provide routing to a destination that is not specified in the routing table and which is outside the local network

Answer: D

5.

Given a subnet mask of 255.255.255.224, which of the following addresses can be assigned to network hosts? (Choose three.)

- A. 15.234.118.63
- B. 92.11.178.93
- C. 134.178.18.56
- D. 192.168.16.87
- E. 201.45.118.159
- F. 217.63.12.192

Answer: B, C, D

6.

Which of the following IP addresses fall into the CIDR block of 115.64.4.0/22? (Choose three.)

- A. 115.64.8.32
- B. 115.64.7.64
- C. 115.64.6.255
- D. 115.64.3.255
- E. 115.64.5.128
- F. 115.64.12.128

Answer: B, C, E

7.

Which three IP addresses can be assigned to hosts if the subnet mask is /27 and subnet zero is usable? (Choose three.)

- A. 10.15.32.17
- B. 17.15.66.128
- C. 66.55.128.1
- D. 135.1.64.34
- E. 129.33.192.192
- F. 192.168.5.63

Answer: A, C, D

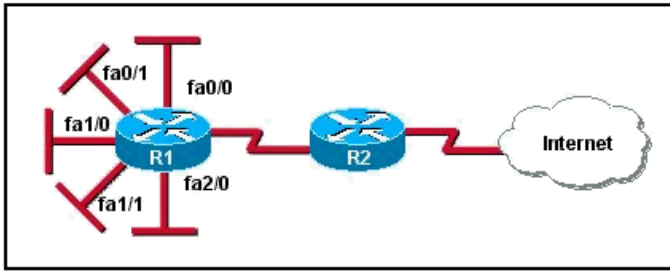
8.

What functions do routers perform in a network? (Choose two.)

- A. packet switching
- B. access layer security
- C. path selection
- D. VLAN membership assignment
- E. bridging between LAN segments
- F. microsegmentation of broadcast domains

Answer: A, C

9.



The Ethernet networks connected to router R1 in the graphic have been summarized for router R2 as 192.1.144.0/20. Which of the following packet destination addresses will R2 forward to R1, according to this summary? (Choose two.)

- A. 192.1.159.2
- B. 192.1.160.11
- C. 192.1.138.41
- D. 192.1.151.254
- E. 192.1.143.145
- F. 192.1.1.144

Answer: A, D

10.

For what two purposes does the Ethernet protocol use physical addresses? (Choose two.)

- A. to uniquely identify devices at Layer 2
- B. to allow communication with devices on a different network
- C. to differentiate a Layer 2 frame from a Layer 3 packet
- D. to establish a priority system to determine which device gets to transmit first
- E. to allow communication between different devices on the same network
- F. to allow detection of a remote device when its physical address is unknown

Answer: A, E

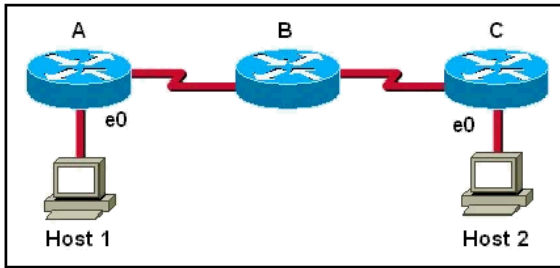
11.

Which two devices can interfere with the operation of a wireless network because they operate on similar frequencies? (Choose two.)

- A. copier
- B. microwave oven
- C. toaster
- D. cordless phone
- E. IP phone
- F. AM radio

Answer: B, D

12.



Host 1 is trying to communicate with Host 2. The e0 interface on Router C is down. Which of the following are true? (Choose two.)

- A. Router C will use ICMP to inform Host 1 that Host 2 cannot be reached.
- B. Router C will use ICMP to inform Router B that Host 2 cannot be reached.
- C. Router C will use ICMP to inform Host 1, Router A, and Router B that Host 2 cannot be reached.
- D. Router C will send a Destination Unreachable message type.
- E. Router C will send a Router Selection message type.
- F. Router C will send a Source Quench message type.

Answer: A, D

13.

What are three basic parameters to configure on a wireless access point? (Choose three.)

- A. SSID
- B. RTS/CTS
- C. AES-CCMP
- D. TKIP/MIC
- E. RF channel
- F. authentication method

Answer: A, E, F

14.

To configure the VLAN trunking protocol to communicate VLAN information between two switches, what two requirements must be met? (Choose two.)

- A. Each end of the trunk line must be set to IEEE 802.1E encapsulation.
- B. The VTP management domain name of both switches must be set the same.
- C. All ports on both the switches must be set as access ports.
- D. One of the two switches must be configured as a VTP server.
- E. A rollover cable is required to connect the two switches together.
- F. A router must be used to forward VTP traffic between VLANs.

Answer: B, D

15.

```
Router1# show ip arp
```

Protocol	Address	Age(min)	Hardware Addr	Type	Interface
Internet	192.168.20.5	9	0000.0c07.f892	ARPA	FastEthernet0/0
Internet	192.168.60.5	8	0000.0c07.ac00	ARPA	FastEthernet0/1
Internet	192.168.20.1	-	0000.0c63.ae45	ARPA	FastEthernet0/0
Internet	192.168.40.5	9	0000.0c07.4320	ARPA	FastEthernet0/2
Internet	192.168.60.1	-	0000.0c63.1300	ARPA	FastEthernet0/1
Internet	192.168.40.1	-	0000.0c36.6965	ARPA	FastEthernet0/2

Data Frame:

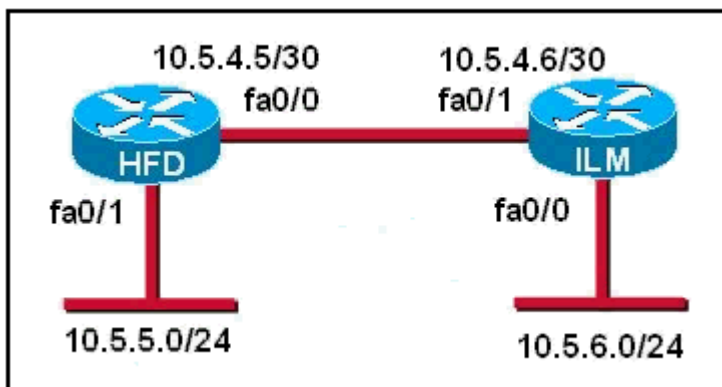
Source MAC	Source IP	Destination MAC	Destination IP
0000.0c07.f892	192.168.20.5	0000.0c63.ae45	192.168.40.5

Refer to the exhibit. What will Router1 do when it receives the data frame shown? (Choose three.)

- A. Router1 will strip off the source MAC address and replace it with the MAC address 0000.0c36.6965.
- B. Router1 will strip off the source IP address and replace it with the IP address 192.168.40.1.
- C. Router1 will strip off the destination MAC address and replace it with the MAC address 0000.0c07.4320.
- D. Router1 will strip off the destination IP address and replace it with the IP address of 192.168.40.1.
- E. Router1 will forward the data packet out interface FastEthernet0/1.
- F. Router1 will forward the data packet out interface FastEthernet0/2.

Answer: A, C, F

16.

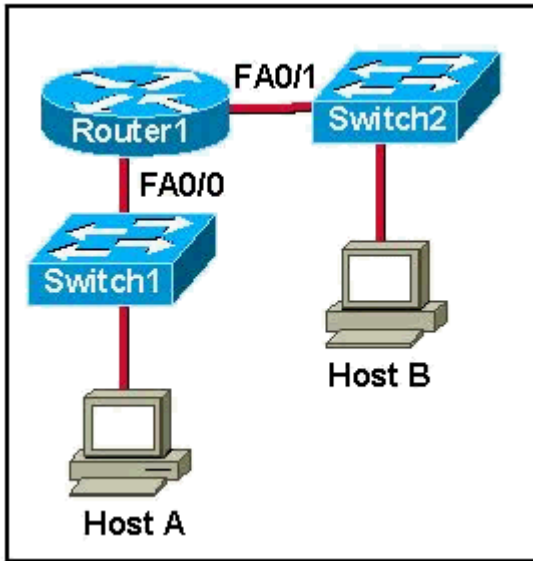


Refer to the graphic. A static route to the 10.5.6.0/24 network is to be configured on the HFD router. Which commands will accomplish this? (Choose two.)

- A. HFD(config)# ip route 10.5.6.0 0.0.0.255 fa0/0
- B. HFD(config)# ip route 10.5.6.0 0.0.0.255 10.5.4.6
- C. HFD(config)# ip route 10.5.6.0 255.255.255.0 fa0/0
- D. HFD(config)# ip route 10.5.6.0 255.255.255.0 10.5.4.6
- E. HFD(config)# ip route 10.5.4.6 0.0.0.255 10.5.6.0
- F. HFD(config)# ip route 10.5.4.6 255.255.255.0 10.5.6.0

Answer: C, D

17.

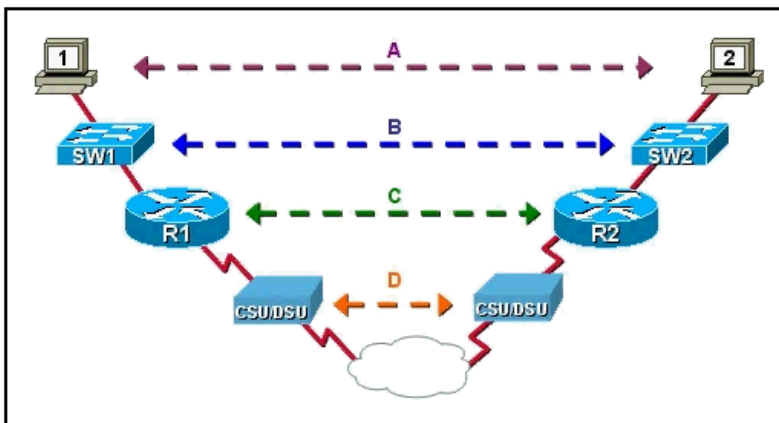


Refer to the exhibit. Which destination addresses will Host A use to send data to Host B? (Choose two.)

- A. the IP address of Switch1
- B. the IP address of Router1 Fa0/0
- C. the IP address of HostB
- D. the MAC address of Switch1
- E. the MAC address of Router1 Fa0/0
- F. the MAC address of HostB

Answer: C, E

18.



Refer to the exhibit. In the communication between host 1 and host 2 over the point-to-point WAN, which protocol or technology is represented by dashed line A?

- A. IP
- B. T1
- C. PPP
- D. IEEE 802.3

Answer: A

Router Simulation: EIGRP Routing (Set 1)

After adding Interior router, no routing updates are being exchanged between Perimeter and the new location. All other interconnectivity and Internet access for the existing locations of the company are working properly.

The task is to identify the fault(s) and correct the router configurations to provide full connectivity between the routers.

Access to the router CLI can be gained by clicking on the appropriate host.

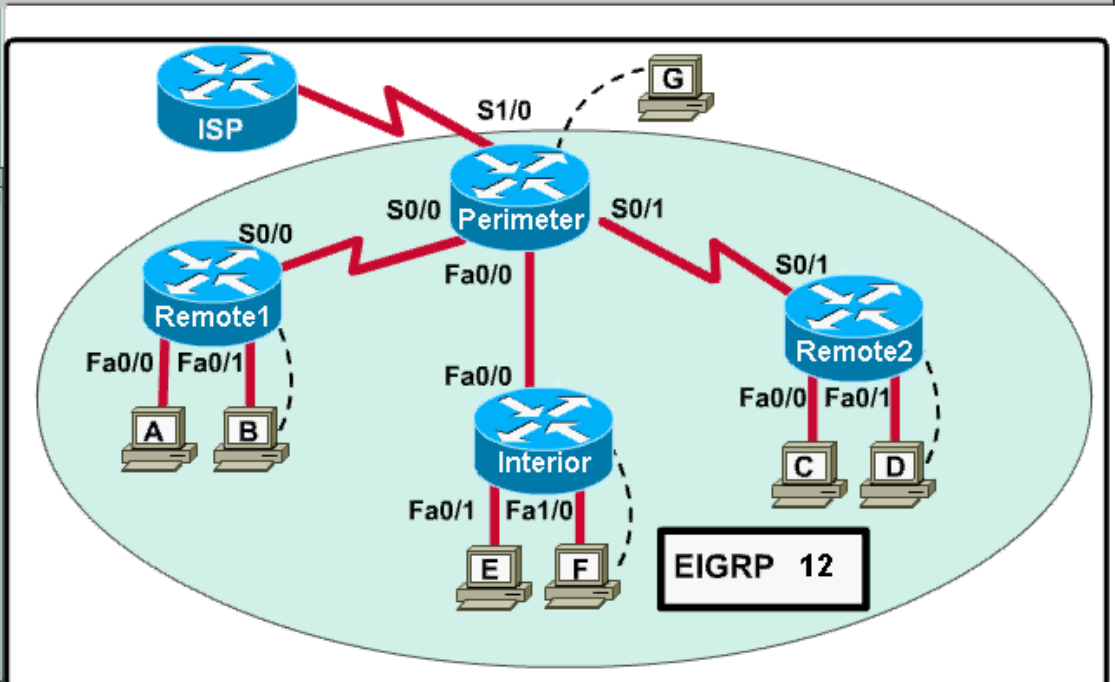
All passwords on all routers are **cisco**.

IP addresses are listed in the chart below.

Perimeter	Interior	Remote1	Remote2
Fa0/0 - 192.168.66.29	Fa0/0 - 192.168.66.30	Fa0/0 - 192.168.24.49	Fa0/0 - 192.168.24.81
S1/0 - 198.0.18.6	Fa1/0 - 192.168.24.33	Fa0/1 - 192.168.24.65	Fa0/1 - 192.168.24.97
S0/0 - 192.168.72.29	Fa0/1 - 192.168.24.17	S0/0 - 192.168.72.30	S0/1 - 192.168.70.30
S0/1 - 192.168.70.29			

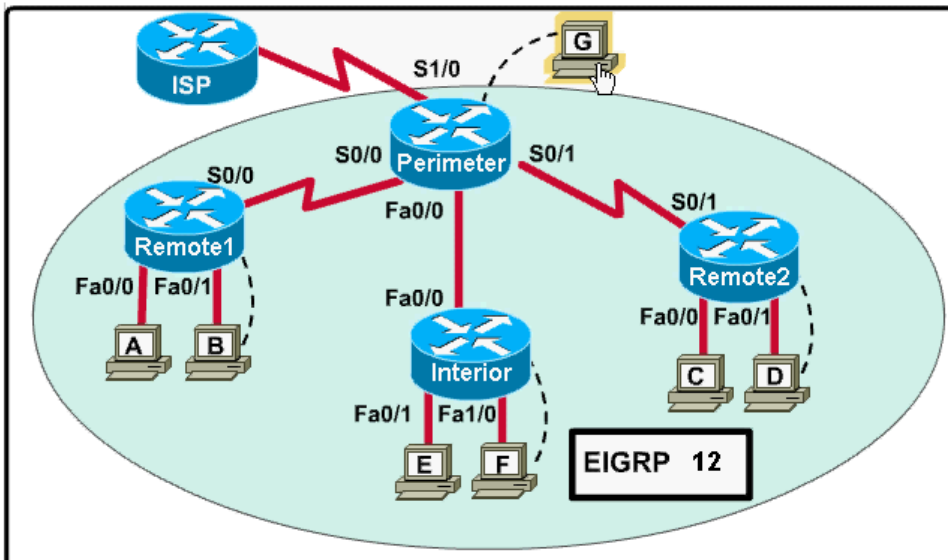


- You may need to scroll this window and the problem statement window.
- Click on picture of host connected to the specified router and select the CiscoTerminal option to configure the router. If you select the wrong host, click on the show topology



Hide Topology

- 用滑鼠 click 向 **Host G** 使用 **Console** 方式連接 Router “**Perimeter**” 進行設定



- 進入後須輸入 Console 密碼 “cisco”，然後再輸入“enable” 指令進入 Privileged Mode，用 “show run” 指令 EIGRP 的設定。

```
CiscoTerminal
Perimeter#show run
Building configuration...
Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Perimeter
!
ip subnet-zero
!
!
interface FastEthernet0/0
 ip address 192.168.66.29 255.255.255.252
!
interface Serial1/0
 ip address 198.0.18.6 255.255.255.0
!
interface Serial0/0
 ip address 192.168.72.29 255.255.255.252
 clockrate 64000
!
interface Serial0/1
 ip address 192.168.70.29 255.255.255.252
 clockrate 64000
!
interface Serial1/1
 no ip address
 shutdown
!
interface Serial1/2
 no ip address
 shutdown
!
interface Serial1/3
 no ip address
 shutdown
!
router eigrp 12
 network 192.168.70.0
 network 192.168.72.0
 network 192.168.74.0
 network 198.0.18.0
 no auto-summary
!
ip classless
ip default-network 198.0.18.0
ip route 0.0.0.0 0.0.0.0 198.0.18.5
ip http server
!
line con 0
 exec-timeout 20 0
 password cisco
 login
line aux 0
line vty 0 4
 exec-timeout 20 0
 password cisco
 logging synchronous
 login
!
end
```


- 根據以上設定, EIGRP 的設定有部份錯誤, **Perimeter Router** 連接的網絡應該是 192.168.66.0, 192.168.72.0 及 192.168.70.0, (可看以下 IP 圖表), 所以要用 “no network 192.168.74.0” 將錯誤的網絡移除, 改回正確的 “network 192.168.66.0”

Perimeter	Interior	Remote1	Remote2
Fa0/0 - 192.168.66.29	Fa0/0 - 192.168.66.30	Fa0/0 - 192.168.24.49	Fa0/0 - 192.168.24.81
S1/0 - 198.0.18.6	Fa1/0 - 192.168.24.33	Fa0/1 - 192.168.24.65	Fa0/1 - 192.168.24.97
S0/0 - 192.168.72.29	Fa0/1 - 192.168.24.17	S0/0 - 192.168.72.30	S0/1 - 192.168.70.30
S0/1 - 192.168.70.29			

```

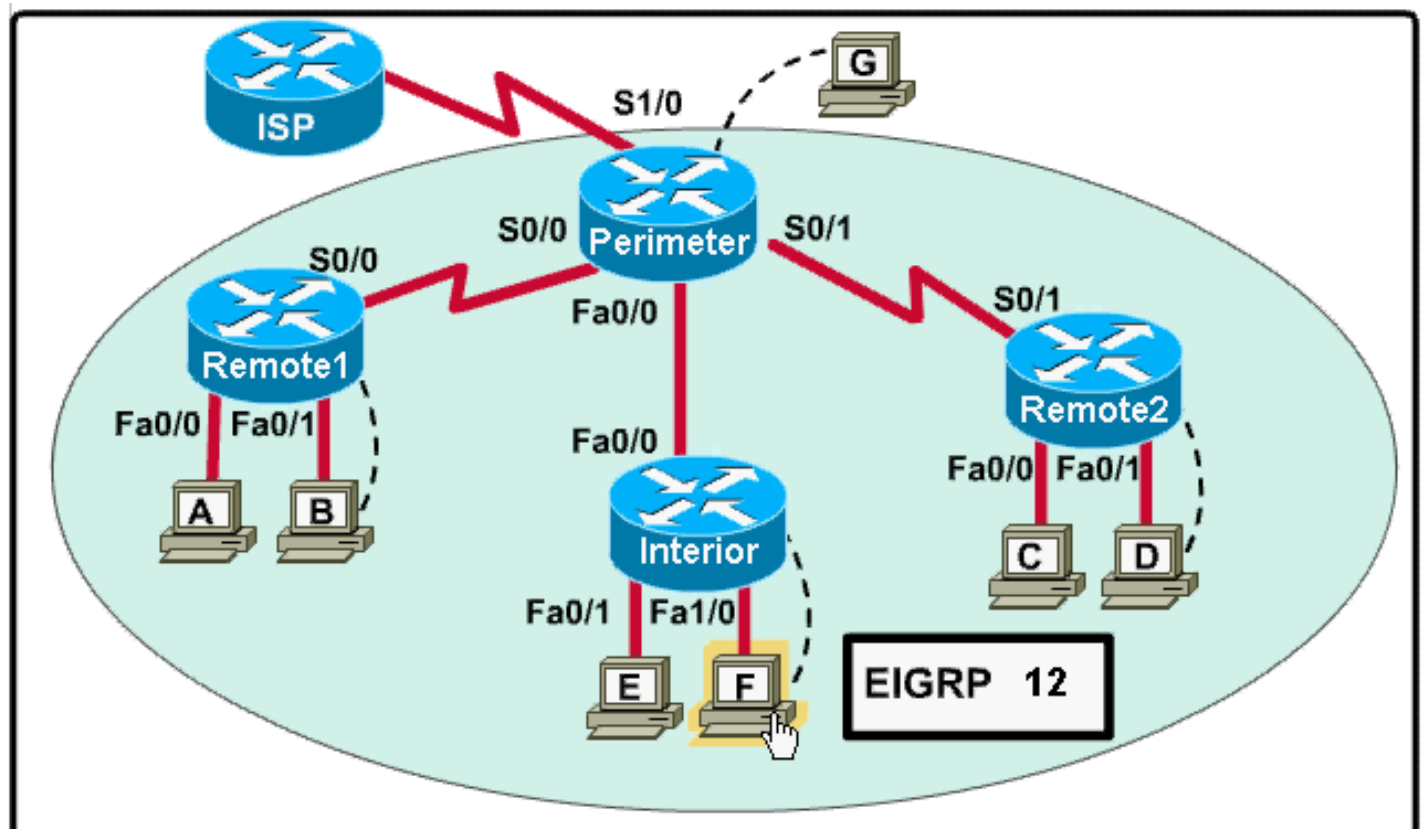
CiscoTerminal
Perimeter#config t
Enter configuration commands, one per line.  End with END.
Perimeter(config)#router eigrp 12
Perimeter(config-router)#no network 192.168.74.0
Perimeter(config-router)#network 192.168.66.0
1d10h: %DUAL-5-NBRCHANGE: IP-EIGRP 22: Neighbor 192.168.66.30 (FastEthernet0/0)
is up: new adjacency
Perimeter(config-router)#^Z
00:01:11: %SYS-5-CONFIG_I: Configured from console by console

Perimeter#copy run start
Destination filename [startup-config]?
Building configuration...

[OK]

```

- 再 click 向 **Host F** 使用 **Console** 方式連接 Router “Interior” 進行設定



- 用“show run”指令顯示 EIGRP 的設定。

CiscoTerminal

```
Interior#show run
Building configuration...
Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Interior
!
!
ip subnet-zero
!
!
interface FastEthernet0/0
 ip address 192.168.66.30 255.255.255.252
!
interface FastEthernet0/1
 ip address 192.168.24.17 255.255.255.240
!
interface FastEthernet1/0
 ip address 192.168.24.33 255.255.255.240
!
!
router eigrp 22
 network 192.168.24.0
 network 192.168.66.0
 no auto-summary
!
ip classless
ip http server
!
line con 0
 exec-timeout 20 0
 password cisco
 login
line aux 0
line vty 0 4
 exec-timeout 20 0
 password cisco
 logging synchronous
 login
!
end
```

- 根據以上內容, EIGRP 的 AS 編號出錯, 正確的 AS 應該是 12, 不是 22, 所以要用 “no router eigrp 22” 移除全組內容, 再重新設定 “router eigrp 12”。

Perimeter	Interior	Remote1	Remote2
Fa0/0 - 192.168.66.29	Fa0/0 - 192.168.66.30	Fa0/0 - 192.168.24.49	Fa0/0 - 192.168.24.81
S1/0 - 198.0.18.6	Fa1/0 - 192.168.24.33	Fa0/1 - 192.168.24.65	Fa0/1 - 192.168.24.97
S0/0 - 192.168.72.29	Fa0/1 - 192.168.24.17	S0/0 - 192.168.72.30	S0/1 - 192.168.70.30
S0/1 - 192.168.70.29			

```

CiscoTerminal
Interior#config t
Enter configuration commands, one per line.  End with END.
Interior(config)#no router eigrp 22
Interior(config)#router eigrp 12
Interior(config-router)#network 192.168.66.0
ld10h: %DUAL-5-NBRCHANGE: IP-EIGRP 12: Neighbor 192.168.66.29 (FastEthernet0/0)
is up: new adjacency
Interior(config-router)#network 192.168.24.0
Interior(config-router)#^Z

Interior#show ip eigrp neighbors
IP-EIGRP neighbors for process 12

H   Address                Interface    Hold Uptime   SRTT  RTO  Q  Seq Type
   (sec)                   (ms)
0   192.168.66.29           Fa0/0       01:43:21     3    200  0  15

```

- 用 show ip route 確認是否接收完整的 Routing Table。

```

CiscoTerminal
Interior#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
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       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, o - ODR

Gateway of last resort is 192.168.66.29 to network 198.0.18.5

192.168.24.0/28 is subnetted, 6 subnets
C    192.168.24.32 is directly connected, FastEthernet1/0
C    192.168.24.16 is directly connected, FastEthernet0/1
D    192.168.24.80 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
D    192.168.24.96 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
D    192.168.24.48 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
D    192.168.24.64 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
192.168.66.0/30 is subnetted, 1 subnets
C    192.168.66.28 is directly connected, FastEthernet0/0
192.168.72.0/30 is subnetted, 1 subnets
D    192.168.72.28 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
192.168.70.0/30 is subnetted, 1 subnets
D    192.168.70.28 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0
D*   198.0.18.0 [90/21026560] via 192.168.66.29, 00:00:57, FastEthernet0/0

```

- 用 **ping** 指令測試 Router 之間的連線是否正常，成功的話便代表一切設定正常，大功告成 !! 再用 **copy run start** 離開。

```
CiscoTerminal

Interior#ping 192.168.24.81
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.24.81, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/33/36 ms
Interior#ping 192.168.24.7
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.24.7, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
Interior#ping 192.168.24.97
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 192.168.24.97, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 32/33/36 ms

Interior#copy run start
Destination filename [startup-config]?
Building configuration...

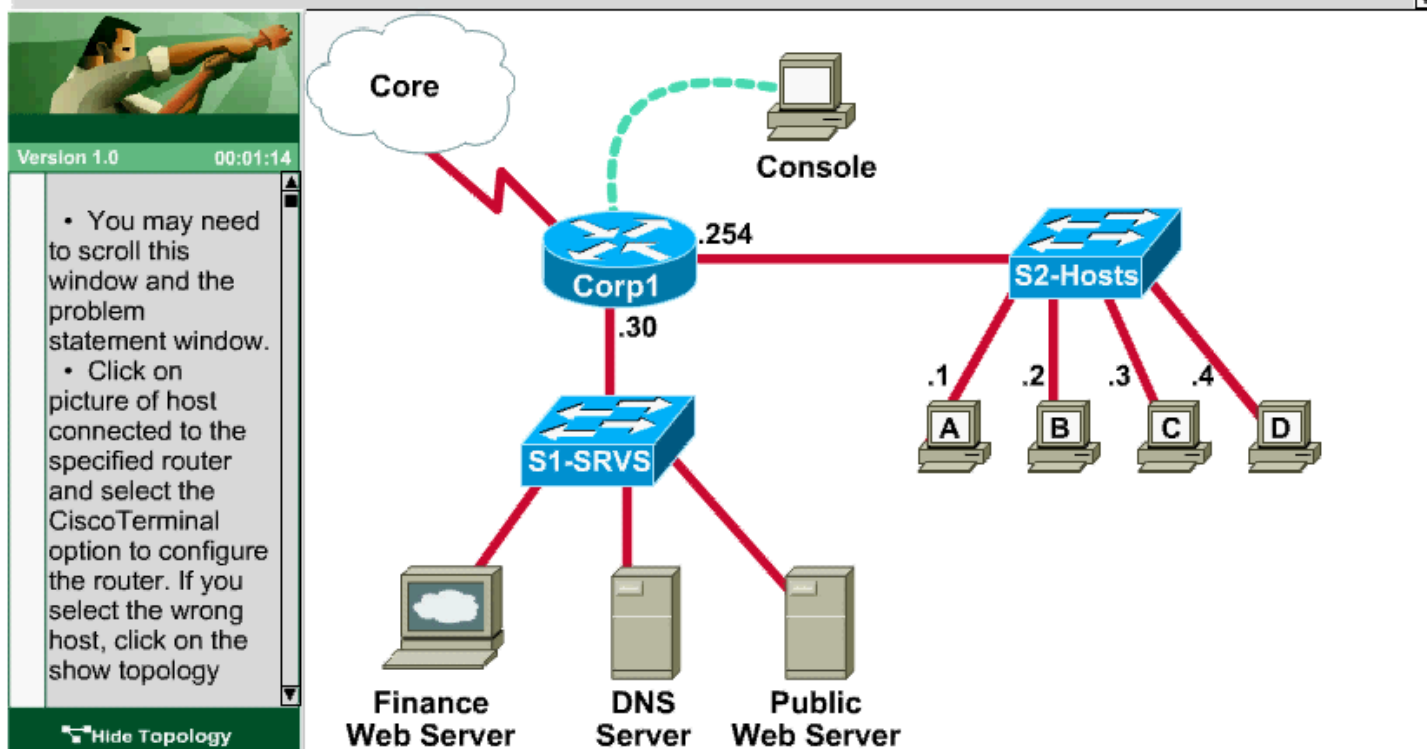
[OK]
Interior#
```

CCNA Simulation: Access List Configuration

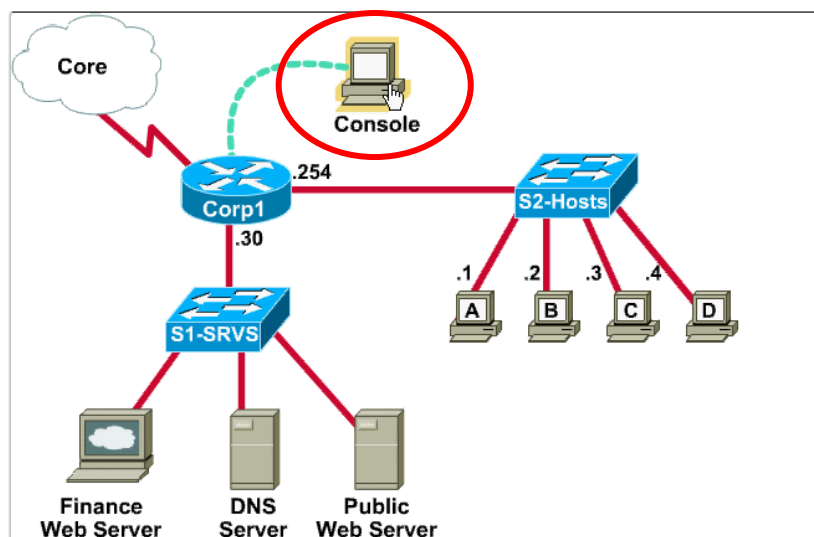
A network associate is adding security to the configuration of the Corp1 router. The user on host B should be able to use a web browser to access financial information from the Finance Web Server. No other hosts from the LAN nor the Core should be able to use a web browser to access this server. Since there are multiple resources for the corporation at this location including other resources on the Finance Web Server, all other traffic should be allowed.

The task is to create and apply an access-list with no more than three statements that will allow ONLY host B web access to the Finance Web Server. No other hosts will have web access to the Finance Web Server. All other traffic is permitted.

- All passwords have been temporarily set to "cisco".
- The Core connection uses an IP address of 198.18.102.65
- The computers in the Hosts LAN have been assigned addresses of 192.168.16.1 - 192.168.16.254.
 - o host A 192.168.16.1
 - o host B 192.168.16.2
 - o host C 192.168.16.3
 - o host D 192.168.16.4
- The servers in the Server LAN have been assigned addresses of 172.22.188.17 - 172.22.188.30
- The Finance Web Server is assigned an IP address of 172.22.188.25



- 用滑鼠 click 向連接著 Router “Corp1” 的 Console 電腦。



- 輸入“show run”查看 router 的各項基本設定，並分清 Router 的那一個介面連接着 Host B，那一個介面連接着 Finance Web Server，方便較後時間懂得選擇那一個介面執行 Access List。

```
CiscoTerminal

Corpl con0 is now available

Press RETURN to get started.

User Access Verification

Password:
Corpl>enable
Password:

Corpl#show running-config
Building configuration...
Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Corpl
!
enable secret 5 $1$0/yW$toqA0XRiCtY8gh7pM06fS0
!
ip subnet-zero
!
interface FastEthernet0/0
  description Description connection to Hosts LAN
  ip address 192.168.16.254 255.255.255.0
  no shutdown
!
interface FastEthernet0/1
  description Description connection to Servers LAN
  ip address 192.168.188.30 255.255.255.240
  no shutdown
!
interface Serial0/0
  description Description connection to Core
  ip address 192.168.102.65 255.255.255.252
  no shutdown
  clockrate 64000
!
ip classless
!
line con 0
  transport input none
  password cisco
  login
line aux 0
line vty 0 4
  session-timeout 60
  password cisco
  login
!
end
```

f0/0 介面連接着 Host B

f0/1 介面連接着 Finance Web Server

- 輸入 “enable” 指令進入 Privileged Mode，密碼為 “cisco”，然後進入 Configure Mode 設定 Access List。

```

User Access Verification
Password:
Corpl>enable
Password:

Corpl#config t
Corpl(config)#access-list 100 permit tcp host 192.168.16.2 host 172.22.188.25 eq 80
Corpl(config)#access-list 100 deny tcp any host 172.22.188.25 eq 80
Corpl(config)#access-list 100 permit ip any any
Corpl(config)#int f0/1
Corpl(config-if)#ip access-group 100 out

Corpl(config)#^Z
00:00:18:31: %SYS-5-CONFIG_I: Configur
Corpl#show access-list
Extended IP access list 100
  permit tcp host 192.168.16.2 host 172.22.188.25 eq 80
  deny tcp any host 172.22.188.25 eq 80
  permit ip any any
Corpl#
  
```

Annotations:

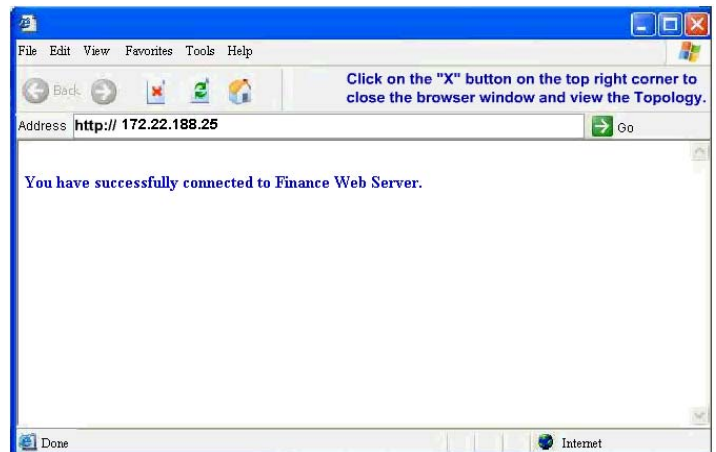
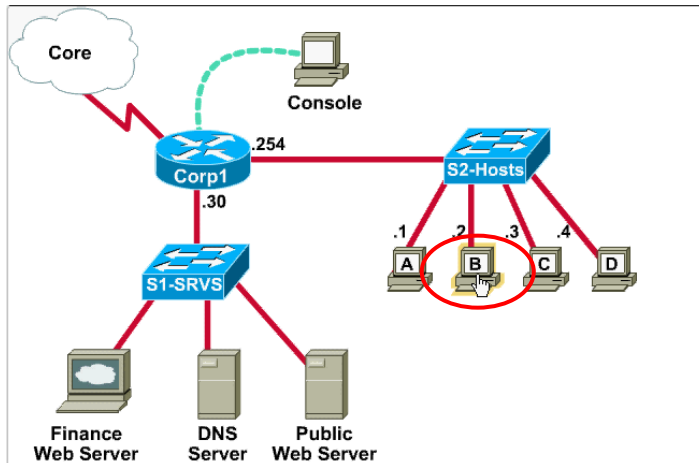
- Extended Access List 編號 100-199
- 來源地: Host B
- 目的地: Finance Web Server
- Port # 80: HTTP
- 最後容許其他 Packet 通過
- 選擇 f0/1 介面 “out” 的方向執行 Access List
- “deny” 攔截 “tcp” HTTP 使用 TCP Protocol
“any” 來源地: (任何電腦)
“host 172.22.188.25” 目的地: (Finance Web Server)
“eq 80” HTTP port number

- 輸入 “show ip int f0/1” 指令查看 Access List 是否在此介面執行。
- Outgoing access list is 100

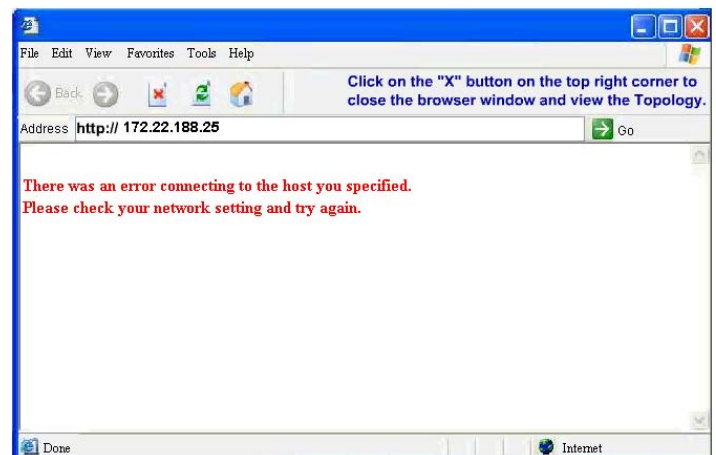
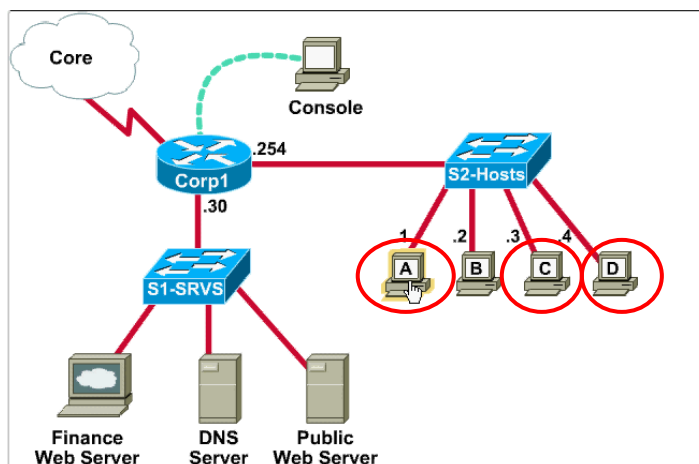
```

Corpl#show ip int f0/1
FastEthernet0/1 is Up, line protocol is Up
  Internet address is 192.168.188.30/28
  Broadcast address is 255.255.255.255
  Address determined by non-volatile memory
  MTU is 1500 bytes
  Helper address is not set
  Directed broadcast forwarding is enabled
  Multicast reserved groups joined: 224.0.0.9
  Outgoing access list is 100
  Inbound access list is not set
  Proxy ARP is enabled
  Security level is default
  Split horizon is enabled
  ICMP redirects are always sent
  ICMP unreachable are always sent
  ICMP mask replies are never sent
  IP fast switching is enabled
  IP fast switching on the same interface is enabled
  IP multicast fast switching is enabled
  Router Discovery is disabled
  IP output packet accounting is disabled
  IP access violation accounting is disabled
  
```

- 用滑鼠 click 向 **Host B**，畫面便會出現一個網頁瀏覽器 (Browser)，然後輸入 “http://172.22.188.25” 測試 “Host B” 是否成功連接到 “Finance Web Server”，成功的話會顯示以下訊息 “You have successfully connected to Finance Web Server.”。



- 然後再 click 向 **Host A**、**Host C**、**Host D**、打開網頁瀏覽器 (Browser) 測試其餘這三部電腦是否成功被所設定的 Access List 攔截到 “Finance Web Server”，成功攔截的話會顯示以下訊息 “There was an error connecting to the host you specified. Please check your network setting and try again.”。



- 最後返回 Router 用 “copy run start” 指令複製所有設定至 NVRAM，輸入 “exit” 離開。

