1. EIGRP

Question:

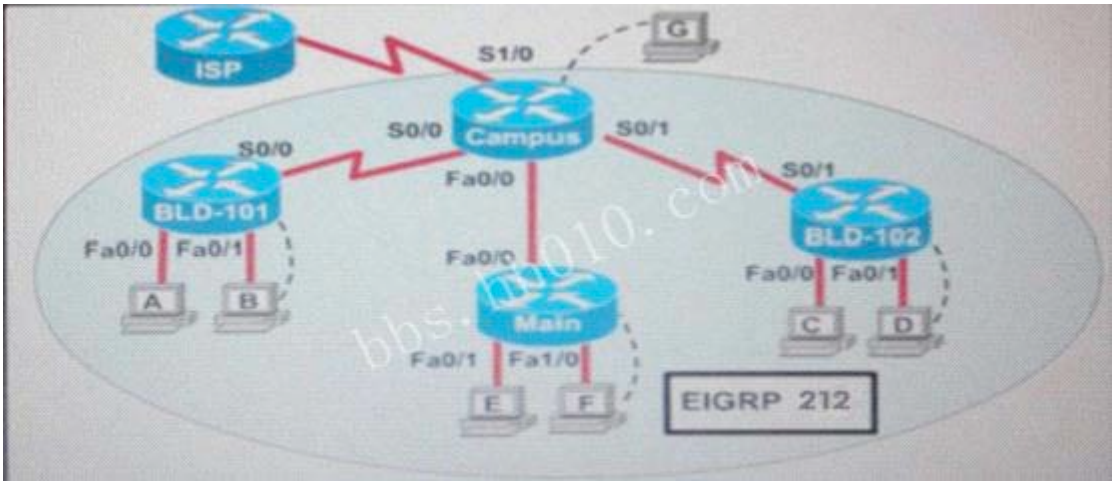
After adding **BLD-102** router, no routing updates are being exchanged between **BLD-102** and the new location. All other inter connectivity and Internet access for the existing locations of the company are working properly.

The task is to identify the fault(s) and correct the router configuration 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.

Campus	BLD-101
Fa0/0: 192.168.77.33	Fa0/0: 192.168.60.97
S0/0 : 192.168.36.13	Fa0/1: 192.168.60.113
S0/1: 192.168.60.25	S0/0: 192.168.36.14
S1/0: 198.0.18.6	
Main	BLD-102
Fa0/0: 192.168.77.34	Fa0/0: 192.168.22.129
Fa0/1: 192.168.60.65	Fa0/1: 192.168.60.145
Fa1/0: 192.168.60.81	S0/1: 192.168.60.26



答案：

EIGRP 實驗題是一道排錯題，通過 show run 找出拓撲中四台路由器 EIGRP 的配置錯誤改正做到內網全通即可，錯誤有兩種類型，一是網段宣告錯誤，二是 AS 號錯誤。

注意：在 Cisco Packet Tracer 模擬器中可以按兩下路由器進入命令介面，在考試中需要點路由器 console（虛線）連結的 PC 進入命令介面，比如上圖需要點 PC-D 來進入 BLD-102 的命令介面。其他實驗題也是如此。

BLD-102>enable (需要輸入密碼：cisco)
BLD-102#show run　(命令顯示不全，需要多按幾次空白鍵)

```
<output omitted>

!
router eigrp 22
 network 192.168.60.0
 network 192.168.22.0
 no auto-summary
!
<output omitted>
```

（AS 號錯誤，需要刪掉整個 eigrp，再重新宣告）
BLD-102#configure terminal　(可以簡寫為 conf t)
BLD-102(config)#no router eigrp 22
BLD-102(config)#router eigrp 212
BLD-102(config-router)#network 192.168.22.0
BLD-102(config-router)#network 192.168.60.0
BLD-102(config-router)#no auto-summary　（不要忘記關閉自動匯總）
BLD-102(config-router)#end
BLD-102#copy running-config startup-config
（最後不要忘記保存，可以使用簡寫 copy run start，考試不支援 write）

Campus>enable (需要輸入密碼：cisco)
Campus#configure terminal
Campus#show run　(命令顯示不全，需要多按幾次空白鍵)

```
<output omitted>
!
router eigrp 212
 passive-interface Serial1/0
 network 192.168.36.0
 network 198.0.18.0
 network 192.168.77.0
 network 192.168.22.0
 no auto-summary
!
<output omitted>
```

(宣告網段錯誤，路由中多了一個 192.168.22.0 的網段，卻少了一個 192.168.60.0 的 網段)

Campus(config)#router eigrp 212
Campus(config-router)#no network 192.168.22.0
Campus(config-router)#network 192.168.60.0
Campus(config-router)#end
Campus#copy running-config startup-config （不要忘記保存配置）

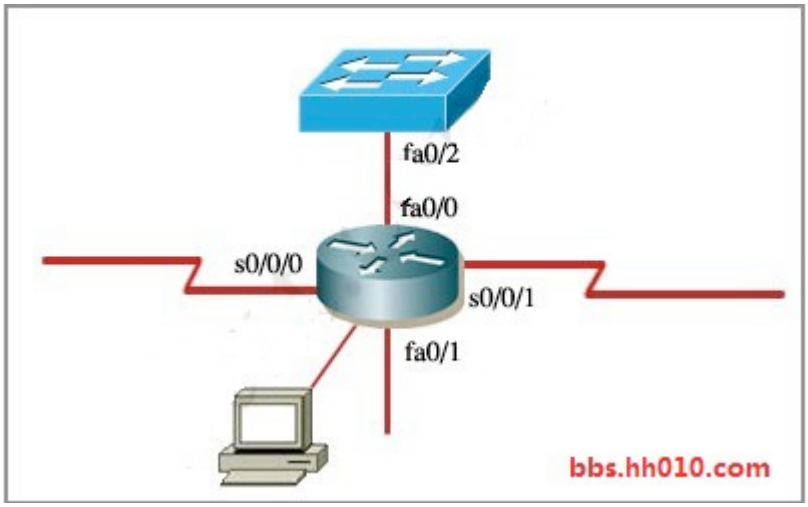
此路由器有 passive-interface S1/0 的配置，這裡沒有錯誤，不用處理

2 ACL-1

An administrator is trying to ping and telnet from Switch to Router with the results shown below:

```
Switch>
Switch> ping 10.4.4.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.4.4.3,timeout is 2 seconds:
.U.U.U
Success rate is 0 percent (0/5)
Switch>
Switch> telnet 10.4.4.3
Trying 10.4.4.3 …
% Destination unreachable; gateway or host down
Switch>
```

Click the console connected to Router and issue the appropriate commands to answer the questions.



注意：此題對應的 **PTK** 檔，因為部分命令模擬器不支援，所以配置和題庫不一樣，**PKT** 中 **ACL** 條目不夠，路由器配置以 **PDF** 題庫為准。

Router>enable (需要輸入密碼：cisco)

Router#show running-config

（命令顯示不全，多按幾次空白鍵即可）

```
<output omitted>

interface LoopbaCK1
 ip address 172.16.4.1 255.255.255.0

interface LoopbacK2
 ip address 10.145.145.1
 255.255.255.0 ipv6 address
 2001:410:2:3::/64 eui-64

interface FastEthernetO/0
 ip address 10.4.4.3
 255.255.255.0 ip access-group
 106 in
 duplex auto
 speed auto

interface FastEthernet)1;
 no ip address
 shutdown
 duplex auto
 speed auto

intf'rf盯乞丐'JrialO/0/0
 ban 'w'jth 64
 no ip address
 ip access-group 102 out
 encapsulation frame-relay
 ip ospf authentication
 ip ospf authentication-Key san-fran

interface Seria10/0/0.1 point-to-point
 ip address
 10.140.3.2255.255.255.0 ip
 authentication mode eigrp 100 md5
 ip authentication Key-chain eigrp 100 icndchain
 frame-relay interface-dlci 120

interface SerialO/0/
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
 ip authentication mode eigrp 100 md5
 ip authentication Key-chain eigrp 100 icndchain
 ip OSpf authentication
 ip ospf authentication-Key san-fran
 ipv6 address 2001:410:2:10::/64 eui-64
```

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```
rout百奇古育而百
  network 10.0.0.0
  network 172.16.0.0
  network
  192.168.2.0 no
  auto-summary

router ospf 100
  log-adjaCency-changes
  network 10.4.4.3 0.0.0.0 area 0
  network 10.45.45.1 0.0.0.0 area 0
  network 10.140.3.2 0.0.0.0 area 0
  network 192.168.2.620.0.O.O .''3 0

router rip
  version 2
  network 10.0_0.0
  network 172.1'3.':.'J

ip default-gatevay 10_1_1_2


ip htl戶 server
no ip http secure-server
```

```
access-list 102 permit tcp any any eq ftp
access-list 102 permit tcp any any eq ftp-data
access-list 102 deny tcp any any eq telnet
access-list 102 deny icmp any any echo-reply
access-list 102 permit ip any any

access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 deny icmp any any echo-reply
access-list 104 permit ip any any

access-list 106 permit tcp any any eq ftp
access-list 106 permit tcp any any eq ftp-data
access-list 106 deny tcp any any eq telnet
access-list 106 permit icmp any any echo-reply
access-list 110 permit udp any any eq domain
access-list 110 permit udp any eq domain any
access-list 110 permit tcp any any eq domain
access-list 110 permit tcp any eq domain any
access-list 110 permit tcp any any

access-list 114 permit ip 10.4.4.0 0.0.0.255 any

access-list 115 permit ip 0.0.0.0 255.255.255.0 any

access-list 122 deny tcp any any
access-list 122 deny Imp any any echo-reply
access-list 122 permit ip any any
!
<output omitted>
```

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Question 1:

Which will fix the issue and allow ONLY ping to work while keeping telnet disabled?

A – Correctly assign an IP address to interface fa0/1

B – Change the ip access-group command on fa0/0 from “in” to “out”

C – Remove *access-group 106 in* from interface fa0/0 and add access-group 115 in.

D – Remove access-group 102 out from interface s0/0/0 and add access-group 114 in

E – Remove access-group 106 in from interface fa0/0 and add access-group 104 in

Answer:E

Explanation:

問：哪一個修改能只允許 ping，保持拒絕 telnet？

我們來看一下 access list 104:

```
access-list 104 permit tcp any any eq ftp
access-list 104 permit tcp any any eq ftp-data
access-list 104 deny tcp any any eq telnet
access-list 104 permit icmp any any echo
access-list 104 deny icmp any any echo-reply
access-list 104 permit ip any any
```

題目沒有問關於 FTP 的流量，所以不用關心第一條和第二條。第三條拒絕了所有 telent，第四條允許所有 ping 請求包，第五條拒絕所有 ping 回應包。要注意 access list 104 應用的 in 方向，路由器回應 ping 的包是 out 方向，所有第五條不會影響 ping 路由器的 ICMP 流量，所以答案選 E。

Question 2:

What would be the effect of issuing the command ***ip access-group 114 in*** to the fa0/0 interface?

A – Attempts to telnet to the router would fail

B – It would allow all traffic from the 10.4.4.0 network

C – IP traffic would be passed through the interface but TCP and UDP traffic would not

D – Routing protocol updates for the 10.4.4.0 network would not be accepted from the fa0/0 interface

Answer: B

Explanation:

問：把 ip access-group 114 in 設置在 F0/0 埠，會有什麼影響？

access-list 114: access-list 114 permit ip 10.4.4.0 0.0.0.255 any

允許來自 10.4.4.0/24 網段的所有流量

Question 3:

What would be the effect of issuing the command **ip *access-group 115 in*** on the s0/0/1 interface?

A – No host could connect to Router through s0/0/1
B – Telnet and ping would work but routing updates would fail.
C – FTP, FTP-DATA, echo, and www would work but telnet would fail
D – Only traffic from the 10.4.4.0 network would pass through the interface

Answer: A

Explanation:

問：把命令 **ip access-group 115 in** 設置在 **S0/0/1** 埠，會有什麼影響？
首先 S0/0/1 埠已經配置了 ip access-group 102 in

```
interface Serial0/0/1
 bandwidth 64
 ip address 10.45.45.1 255.255.255.0
 ip access-group 102 in
 ip authentication mode eigrp 100 md5
 ip authentication key-chain eigrp 100 icndchain
 ip ospf authentication
 ip ospf authentication-key san-fran
 ipv6 address 2001:410:2:10::/64 eui-64
```

因為一個埠在一個方向只能設置一個 ACL，所以當我們設置 ip access-group 115 in，原先的 ip access-group 102 in 就被覆蓋了。

access-list 115: access-list 114 permit ip 0.0.0.0 255.255.255.0 any

允許來自 x.x.x.0 網路的流量。

x.x.x.0 看上去像一個網路位址，所以選 A，因為網路位址不能作為 host 的 IP 位址。 但是如果遮罩小於 24 位，x.x.x.0 也可能不是網路位址，比如 10.45.44.0/16，這樣看來 A 也不是非常準確。BCD 是肯定不對，排除法，考試還要選 A。

3.ACL-2

A network associate is adding security to the configuration of the Corp1 router. The user on host C 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 a numbered access-list with no more than three statements that will allow ONLY host C web access to the Finance Web Server. No other hosts will have web access to the Finance Web Server. All other traffic is permitted.

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

All passwords have been temporarily set to "cisco".

The Core connection uses an IP address of 198.18.196.65

(Corp1 路由器的 S 口的 IP，考試時要 show 下 IP 對不對，不對就改)

The computers in the Hosts LAN have been assigned addresses of 192.168.33.1 – 192.168.33.254

Host	A	192.168.33.1
Host	B	192.168.33.2
Host	C	192.168.33.3
Host	D	192.168.33.4

The servers in the Server LAN have been assigned addresses of 172.22.242.17 – 172.22.242.30

The Finance Web Server is assigned an IP address of 172.22.242.23.

The Public Web Server is assigned an IP address of 172.22.242.17

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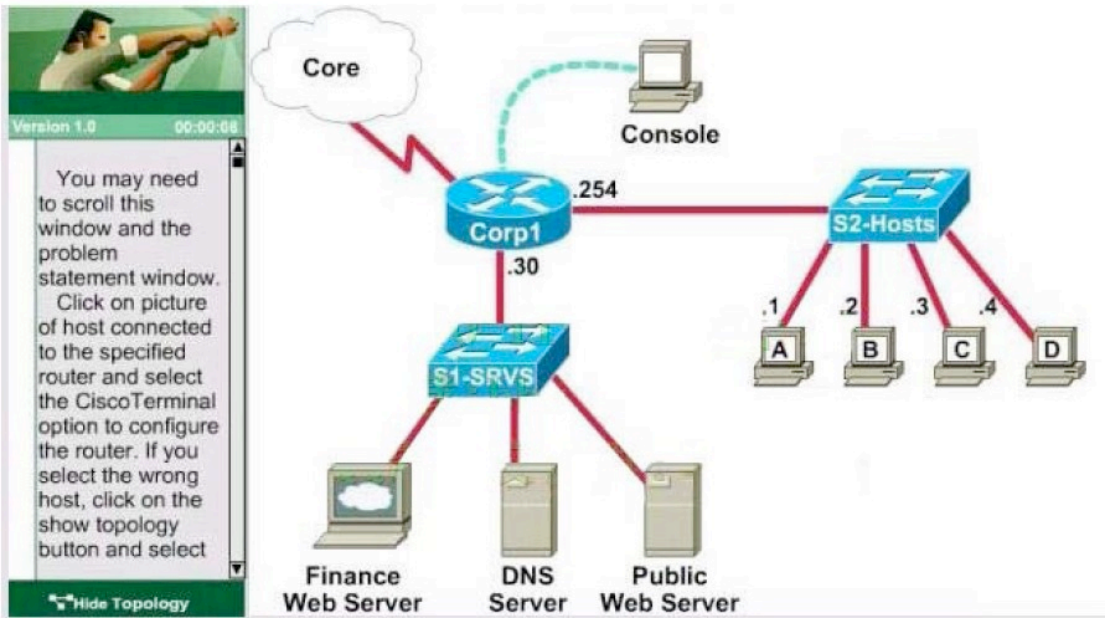

Corp1 路由器的 S 口的 IP，考試時要 show 下 IP 對不對，不對就改，修改 IP 命令

Corp1>enable

Corp1#configure terminal

Corp1(config)#int s1/0(具體埠號自己 show run 看一下)

Corp1(config-if)#ip add 198.18.196.65 255.255.255.252(ip 改為題目給的，遮罩用 show run 得到的原先錯誤 IP 的遮

罩) Corp1(config-if)#end

這裡可以不用刪掉錯誤的 IP 位址，直接輸入新的可以將舊 IP 覆蓋，最後別忘記保 存。

Corp1>enable (需要輸入密碼 cisco)

Corp1#show running-config

```
Corp1# show running-config
<output omitted>
!
interface FastEthernet0/0
 ip address 192.168.33.254 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 172.22.242.30 255.255.255.240
 duplex auto
 speed auto
!
<output omitted>
```

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確定連接伺服器的介面為 F0/1

Corp1#configure terminal

Corp1(config)#access-list 100 permit tcp host 192.168.33.3 host 172.22.242.23 eq 80

(允許從源主機為 IP：192.168.33.3 到目的主機 IP 為：172.22.252.34 的 web 流 量。這裡不必要糾結擴展清單使用的數位 100 還是 128，只要是 100-199 範圍內的 都可以使用。)
Corp1(config)#access-list 100 deny tcp any host 172.22.242.23 eq 80

（禁止所有源主機訪問目的主機 IP 為：172.22.242.23 的 web 流量 ）

Corp1(config)#access-list 100 permit ip any any

（允許所有流量）

Corp1(config)#interface fa0/1
Corp1(config-if)#ip access-group 100 out

（在 F0/1 的 OUT 方向應用 ACL 100.這裡必須要在連結伺服器的埠使用 out 方向，這樣才能控制來自 Core 的流量）

Corp1(config-if)#end
Corp1#copy run start

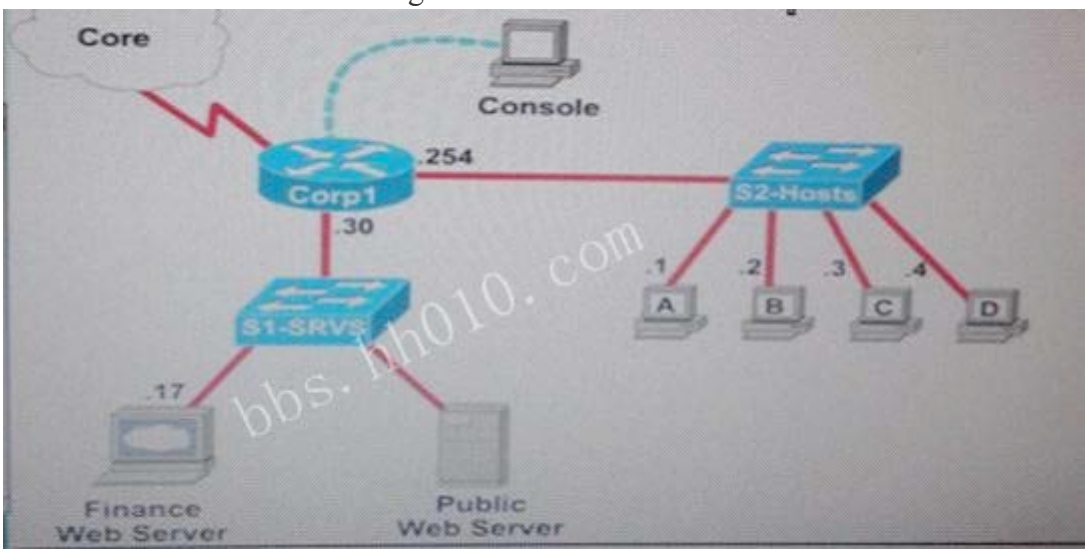
（最後記得保存）

檢測試驗結果用 PC 的流覽器輸入伺服器的 IP 位
址

4.ACL-3

（此題與 ACL-2 類似，ACL-2 中要求禁止其他主機 web 訪問 Finance Web Server.，ACL-3 中要就禁止其他主機訪問 Finance Web Server.）
Question
A corporation wants to add security to its network.The requirements are:
>Host C should be able to use a web browser(HTTP)to access the Finance Web Server.
>Other types of access from host C to the Finance Web Server should be blocked.
>All access from hosts in the Core or local LAN to the Finance Web Server should be blocked.

>All hosts in the Core and on local LAN should be to access the Public Web Server. You have been tasked to create and apply a numberd access list to a single outbound interface.They can contain no more than three statements that meets these requirements.
Access to the router CLI can be gained by clicking on the appropriate host.
All passwords have been temporarily set to "cisco".
The Core connection uses an IP address of 198.18.196.65←Corp1 路由器的 S 口的 IP，考試時要 show 下 IP 對不對，不對就改
The computers in the Hosts LAN have been assigned addresses of 192.168.33.1 - 192.168.33.254
Host A 192.168.33.1
Host B 192.168.33.2
Host C 192.168.33.3
Host D 192.168.33.4
The servers in the Server LAN have been assigned addresses of 172.22.242.17 - 172.22.242.30
The Finance Web Server is assigned an IP address of 172.22.242.23.



Answer：

Corp1 路由器的 S 口的 IP，考試時要 show 下 IP 對不對，不對就改，修改 IP 命令

Corp1#configure terminal

Corp1(config)#int s1/0(具體埠號自己 show run 看一下)
Corp1(config-if)#ip add 198.18.196.65 255.255.255.252(ip 改為題目給的，遮罩用 show run 得到的原先錯誤 IP 的遮
罩) Corp1(config-if)#end
這裡可以不用刪掉錯誤的 IP 位址，直接輸入新的可以將舊 IP 覆蓋，最後別忘記保 存。

Corp1#show running-config

```
Corp1# show running-config
<output omitted>
!
interface FastEthernet0/0
 ip address 192.168.33.254 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 172.22.242.30 255.255.255.240
 duplex auto
 speed auto
!
<output omitted>
```

確定連接伺服器的介面為 F0/1

Corp1#configure terminal
Corp1(config)#access-list 100 permit tcp host 192.168.33.3 host 172.22.242.23 eq 80
Corp1(config)#access-list 100 deny ip any host 172.22.242.23
Corp1(config)#access-list 100 permit ip any any
Corp1(config)#interface fa0/1
Corp1(config-if)#ip access-group 100 out
Corp1(config-if)#end
Corp1#copy running-config startup-config

命令解釋：

1. Corp1(config)# access-list 100 permit tcp host 192.168.33.3 host 172.22.242.23 eq 80
創建一條擴展列表，允許 TCP 流量 從源主機為 IP：192.168.33.3 到目的主機 IP 為：172.22.242.23 的 80 埠。eq 的意思是 等於埠號。 這裡不必要糾結擴展清單使用的數位 100 還是 128，只要是 100-199 範圍內的都可 以使用。
2. Corp1(config)#access-list 100 deny ip any host 172.22.242.23
創建一條擴展列表，禁止 所有流量從所有源主機訪問目的主機 IP 為：172.22.242.23 。 IP 是指所有協議。
3. Corp1(config)#access-list 100 permit ip any any
創建一條擴展列表，允許 IP 流量從所有源主機到所有目的主機。
4. Corp1#show running-config
Show run 是為了找出 .30 的 IP 是在哪個介面，圖裡給出了 .30 只要 show run 找出 IP 為 .30 的介面就 OK 了然後把 ACL 的清單應用到介面上。
5. Corp1(config)#interface fa0/1
Corp1(config-if)#ip access-group 100 out

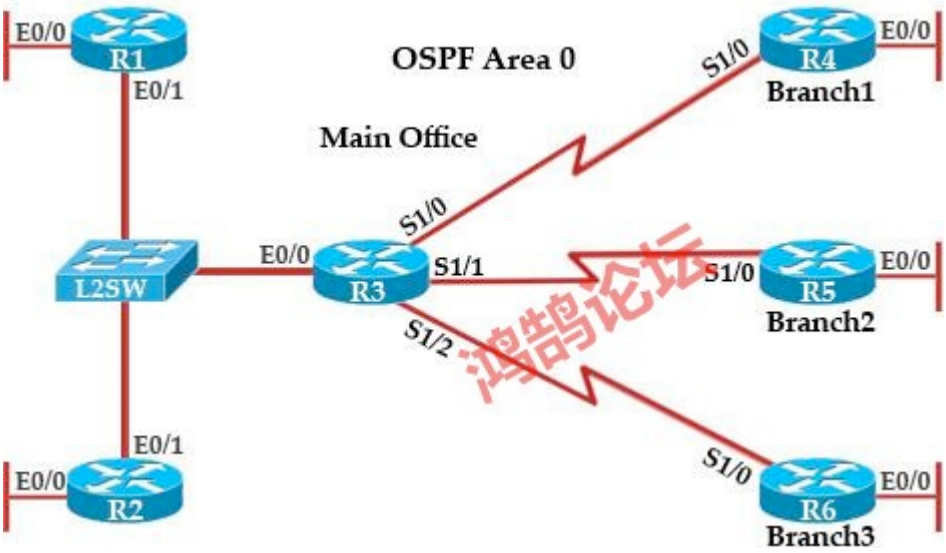
最後就是這 2 條命令了，上面已經 Show run 找出來 .30 的 IP 為 172.22.242.30, 是在 f0/1 口上。直接進入 F0/1 口
把創建的擴展列表應用進去，最後千萬記得 Copy run Start。

總結來說還是挺簡單的，考試的時候實驗題會變的就是 IP 位址和主機，他可能會將主機 C 變為主機 B，還有就是 IP 變掉就是，其他的不會改變的，看好題就 OK 了。

5.OSPF Neighbor

Question

Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch



offices.

Question 1

An OSPF neighbor adjacency is not formed between R3 in the main office and R4 in the Branch1 office. What is causing the problem?

A. There is an area ID mismatch.
B. There is a Layer 2 issue; an encapsulation mismatch on serial links.
C. There is an OSPF hello and dead interval mismatch.
D. The R3 router ID is configured on R4.

Answer: A

Explanation

R3 和 R4 不能建立鄰居，通過 show run 命令來查看 R3 和 R4 的配置

```
R3#show running-config
<<output omitted>>
!
interface Serial1/0
  description **Connected to R4-Branch1 office**
  ip address 10.10.240.1 255.255.255.252
  encapsulation ppp
  ip ospf 3 area 0
!
<<output omitted>>
```

```
R4#show running-config
<<output omitted>>
!
interface Serial1/0
  description **Connected to R3-Main Branch office**
  ip address 10.10.240.2 255.255.255.252
  encapsulation ppp
  ip ospf 4 area 2
!
<<output omitted>>
```

通過資訊可以看到區域 ID 不一樣。R3 的 S1/0 在 area 0，但是 R4 的 S1/0 在 area 2。

Question 2

An OSPF neighbor adjacency is not formed between R3 in the main office and R5 in the Branch2 office. What is causing the problem?

A. There is an area ID mismatch.
B. There is a PPP authentication issue; a password mismatch.
C. There is an OSPF hello and dead interval mismatch.
D. There is a missing network command in the OSPF process on R5.

Answer: C

Explanation

鸿鹄论坛：http://bbs.hh010.com/

```
R3#show running-config
<<output omitted>>
!
interface Serial1/1
  description **Connected to R5-Branch2 office**
  ip address 10.10.240.5 255.255.255.252
  encapsulation ppp
  ip ospf hello-interval 50
  ip ospf 3 area 0
!
<<output omitted>>
```

```
R5#show running-config
<<output omitted>>
!
interface Serial1/0
  description **Connected to R3-Main Branch office**
  ip address 10.10.240.6 255.255.255.252
  encapsulation ppp
  ip ospf 5 area 0
!
<<output omitted>>
```

通過 R3 R5 的 show run 資訊可以看到 R3 配置了一個 ip ospf hello-interval 50，這個命令修改了默認的 hello 包發送間隔時間。R5 使用的是默認的 hello-interval 10 seconds 。所以是 hello-interval 不匹配導致的問題。可以通過 show ip ospf interface <interface>”查看

```
R3#sh ip ospf int s1/1
Serial1/1 is up, line protocol is up
  Internet Address 10.10.240.5/30, Area 0
  Process ID 3, Router ID 192.168.3.3, Network Type POINT_TO_POINT, Cost: 64
  Enabled by interface config, including secondary ip addresses
  Transmit Delay is 1 sec, State POINT_TO_POINT,
  Timer intervals configured, Hello 50, Dead 200, Wait 200, Retransmit 5
  oob-resync timeout 200
  Hello due in 00:00:28
  Supports Link-local Signaling (LLS)
  Index 2/2, flood queue length 0
  Next 0×0(0)/0×0(0)
  Last flood scan length is 0, maximum is 0
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
```

```
R5#sh ip ospf int s1/0
```

鸿鹄论坛：http://bbs.hh010.com/

```
Serial1/0 is up, line protocol is up
  Internet Address 10.10.240.6/30, Area 0
  Process ID 5, Router ID 10.10.240.6, Network Type POINT_TO_POINT, Cost: 64
  Enabled by interface config, including secondary ip addresses
  Transmit Delay is 1 sec, State POINT_TO_POINT,
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  oob-resync timeout 40
  Hello due in 00:00:04
  Supports Link-local Signaling (LLS)
  Index 1/1, flood queue length 0
  Next 0×0(0)/0×0(0)
  Last flood scan length is 0, maximum is 0
  Last flood scan time is 0 msec, maximum is 0 msec
  Neighbor Count is 0, Adjacent neighbor count is 0
  Suppress hello for 0 neighbor(s)
```

可以看到 hello 和 dead 都不一樣，因為 dead time 一直是 hello 的 4 倍。

Question 3

R1 does not form an OSPF neighbor adjacency with R2. Which option would fix the issue?

A. R1 ethernet0/1 is shutdown. Configure no shutdown command.
B. R1 ethernet0/1 configured with a non-default OSPF hello interval of 25; configure no ip ospf hello-interval 25
C. R2 ethernet0/1 and R3 ethernet0/0 are configured with a non-default OSPF hello interval of 25; configure no ip ospf hello-interval 25
D. Enable OSPF for R1 ethernet0/1; configure ip ospf 1 area 0 command under ethernet0/1

Answer: B

Explanation

```
R1#show running-config
<<output omitted>>
!
interface Ethernet0/1
  description **Connected to L2SW**
  ip address 10.10.230.1 255.255.255.0
  ip ospf hello-interval 25
  ip ospf 1 area 0
!
<<output omitted>>
```

鸿鹄论坛：http://bbs.hh010.com/

```
R2#show running-config
<<output omitted>>
!
interface Ethernet0/1
  description **Connected to L2SW**
  ip address 10.10.230.2 255.255.255.0
  ip ospf 2 area 0
!
<<output omitted>>
```

R1 設置了 ip ospf hello-interval 25 導致和 R2 的 hello 和 dead 時間不一樣。所以需要再 R1 上配置 no ip ospf hello-interval 25，使用預設的 hello 時間。

Question 4

An OSPF neighbor adjacency is not formed between R3 in the main office and R6 in the Branch3 office. What is causing the problem?

A. There is an area ID mismatch.
B. There is a PPP authentication issue; the username is not configured on R3 and R6.
C. There is an OSPF hello and dead interval mismatch.
D. The R3 router ID is configured on R6.

Answer: D

Explanation

```
R3#show running-config
<<output omitted>>
username R6 password CISCO36
!
interface Serial1/2
  description **Connected to R6-Branch3 office**
  ip address 10.10.240.9 255.255.255.252
  encapsulation ppp
  ip ospf 3 area 0
  ppp authentication chap
!
<<output omitted>>
!
router ospf 3
  router-id 192.168.3.3
!
<<output omitted>>
```

鸿鹄论坛：http://bbs.hh010.com/

```
R6#show running-config
<<output omitted>>
username R3 password CISCO36
!
interface Serial1/0
  description **Connected to R3-Main Branch office**
  ip address 10.10.240.10 255.255.255.252
  encapsulation ppp
  ip ospf 6 area 0
  ppp authentication chap
!
<<output omitted>>
!
router ospf 6
  router-id 192.168.3.3
!
<<output omitted>>
```

R6 使用了跟 R3 相同的 router-id 192.168.3.3，所以鄰居不能建立。

6.EIGRP Troubleshooting

Question

Refer to the topology. Your company has connected the routers R1, R2 and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

The EIGRP routing protocol is configured. You are required to troubleshoot and resolve the EIGRP issues between the various routers. Use the appropriate show commands to troubleshoot the issues.

鸿鹄论坛：http://bbs.hh010.com/

Instead of posting the output of "show run" commands we post here the commands entered on each router to reduce some useless lines. Also you can try solving questions by yourself before reading the answers.

R1: int lo0 ip address 10.1.1.1 255.255.255.255 int e0/0 ip address 192.168.16.1 255.255.255.0 no shut int s1/1 ip address 192.168.13.1 255.255.255.0 bandwidth 1000 no shut int s1/3 ip address 192.168.12.1 255.255.255.0 no shut ! router eigrp 1 network 192.168.12.0 network 192.168.13.0 network 192.168.16.0	**R2:** int lo0 ip address 10.2.2.2 255.255.255.255 int e0/0 ip address 192.168.123.2 255.255.255.0 int s2/1 ip address 192.168.12.2 255.255.255.0 ! router eigrp 1 network 10.2.2.2 0.0.0.0 network 192.168.12.0 network 192.168.123.0	**R3:** int lo0 ip address 10.3.3.3 255.255.255.255 int e0/0 ip address 192.168.123.3 255.255.255.0 int s2/1 ip address 192.168.13.3 255.255.255.0 ! router eigrp 1 network 10.3.3.3 0.0.0.0 network 192.168.13.0 network 192.168.123.0
R4: int lo0 ip address 10.4.4.4 255.255.255.255 int lo1 ip address 10.4.4.5	**R5:** int lo0 ip address 10.5.5.5 255.255.255.255 int lo1 ip address 10.5.5.55	**R6:** int lo0 ip address 10.6.6.6 255.255.255.255 int e0/0 ip address 192.168.16.6

鸿鹄论坛：http://bbs.hh010.com/

255.255.255.255 int lo2 ip address 10.4.4.6 255.255.255.255 int e0/0 ip address 192.168.123.4 255.255.255.0 ! router eigrp 2 network 10.4.4.4 0.0.0.0 network 10.4.4.5 0.0.0.0 network 10.4.4.6 0.0.0.0 network 192.168.123.0	255.255.255.255 int e0/0 ip address 192.168.123.5 255.255.255.0 ! router eigrp 1 network 10.5.5.5 0.0.0.0 network 10.5.5.55 0.0.0.0 network 10.10.10.0 0.0.0.255 network 192.168.123.0	255.255.255.0 ! router eigrp 1 network 10.6.6.6 0.0.0.0

Note: In the exam, this sim uses IOS version 15 so "no auto-summary" is the default setting of EIGRP. You don't have to type it.

（注意：在考試中使用的 IOS 版本 15，所以"no auto-summary"是默認設置的。不需要再去配置它。）

Question 1

The loopback interfaces on R4 with the IP addresses of 10.4.4.4/32, 10.4.4.5/32 and 10.4.4.6/32 are not appearing in the routing table of R5. Why are the interfaces missing?

A. The interfaces are shutdown, so they are not being advertised.
B. R4 has been incorrectly configured to be in another AS, so it does not peer with R5.
C. Automatic summarization is enabled, so only the 10.0.0.0 network is displayed.
D. The loopback addresses haven't been advertised, and the network command is missing on R4.

Answer: B

Explanation

R4 的 EIGRP 區域號設置的是 AS 2，其他路由器設置的是 AS 1。

Question 2

Which path does traffic take from R1 to R5?

A. The traffic goes through R2.
B. The traffic goes through R3.

C. The traffic is equally load-balanced over R2 and R3.
D. The traffic is unequally load-balanced over R2 and R3.

Answer: A

Explanation

題目問從 R1 到 R5 的路徑，在 R1 上通過 show ip route 查看 R1 的路由表

```
R1#sh 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, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/32 is subnetted, 5 subnets
C       10.1.1.1 is directly connected, Loopback0
D       10.2.2.2 [90/2297856] via 192.168.12.2, 00:17:44, Serial1/3
D       10.3.3.3 [90/2298880] via 192.168.13.3, 00:00:04, Serial1/1
D       10.5.5.5 [90/2300416] via 192.168.12.2, 00:17:44, Serial1/3
D       10.5.5.55 [90/2300416] via 192.168.12.2, 00:17:44, Serial1/3
C    192.168.12.0/24 is directly connected, Serial1/3
C    192.168.13.0/24 is directly connected, Serial1/1
C    192.168.16.0/24 is directly connected, Ethernet0/0
D    192.168.123.0/24 [90/2172416] via 192.168.12.2, 00:17:44, Serial1/3
```

路由表顯示到達 R5 Loopback0: 10.5.5.5 ; Loopback1: 10.5.5.55 的下一跳位址 192.168.12.2，出埠是 S1/3,所以是通過 R2 到達 R5.

Question 3

Router R6 does not form an EIGRP neighbor relationship correctly with router R1. What is the cause for this misconfiguration?

A. The K values mismatch.
B. The AS does not match.
C. The network command is missing.
D. The passive-interface command is enabled.

Answer: C

Explanation

R6 沒有 network 192.168.16.0，不能與 R1 形成鄰居關係

Question 4

Study the following output taken on R1:

```
R1#ping 10.5.5.55 source 10.1.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.5.5.55, timeout is 2 seconds:
Packet sent with a source address of 10.1.1.1
. . . . .
Success rate is 0 percent (0/5)
```

Why are the pings failing?

A. The network statement is missing on R5.
B. The loopback interface is shut down on R5.
C. The network statement is missing on R1.
D. The IP address that is configured on the Lo1 interface on R5 is incorrect.

Answer: C

Explanation

R1 並沒有將 10.1.1.1 宣告進 EIGRP，所以 R5 沒有到達 10.1.1.1 的路由，以 10.1.1.1 為源地址 ping R5 不通。

鸿鹄论坛：http://bbs.hh010.com/