

Lab操作手冊

先佈置所需的設備佈置

貢寮國小:

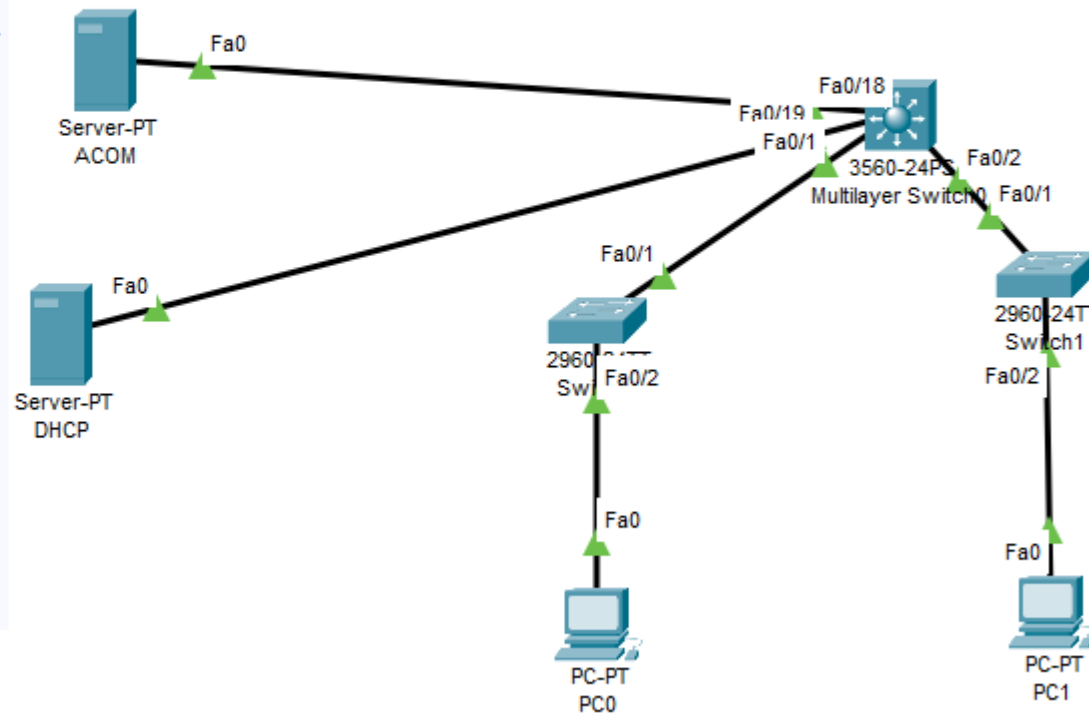
Gateway:10.229.12.254

LAN:163.20.53.192/24
intra-1: 10.232.12.0/24
intra-2:10.242.12.0/24
VoIP:10.244.12.0/24

無線用31-TANetRoaming:10.212.12.0/24
無線用32-NTPC-Mobile :10.214.12.0/24
無線用33-Eduroam :10.216.12.0/24
無線用34-class:10.218.12.0/24

WLC:10.229.12.1
admin/Admin123
DNS:203.72.153.153
DHCP:203.72.153.8
Acom:203.72.154.101

VLAN5-LAN
VLAN10-intra-1
VLAN20-intra-2
VLAN25-VOIP
VLAN121-DHCP-DNS
VLAN122-Acom



貢寮國小:

Gateway:10.229.12.254

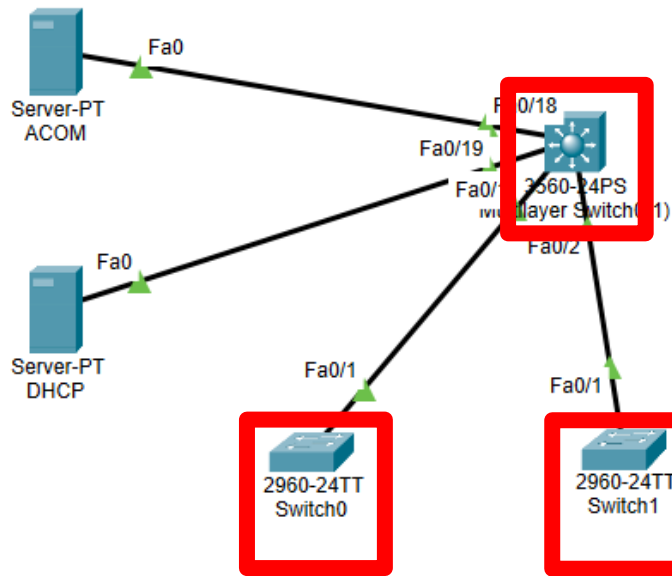
LAN:163.20.53.192/24
intra-1: 10.232.12.0/24
intra-2:10.242.12.0/24
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VLAN3-WLC
VLAN5-LAN
VLAN10-intra-1
VLAN20-intra-2
VLAN25-VOIP
VLAN31-TANetRoaming
VLAN32-NTPC-Mobile
VLAN33-eduroam
VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

在交換器/路由器上新增VLAN



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VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

Switch1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings

SWITCHING

- VLAN Database**

INTERFACE

- FastEthernet0/1
- FastEthernet0/2
- FastEthernet0/3
- FastEthernet0/4
- FastEthernet0/5
- FastEthernet0/6
- FastEthernet0/7
- FastEthernet0/8
- FastEthernet0/9
- FastEthernet0/10

VLAN Configuration

VLAN Number: 3

VLAN Name: WLC

Add Remove

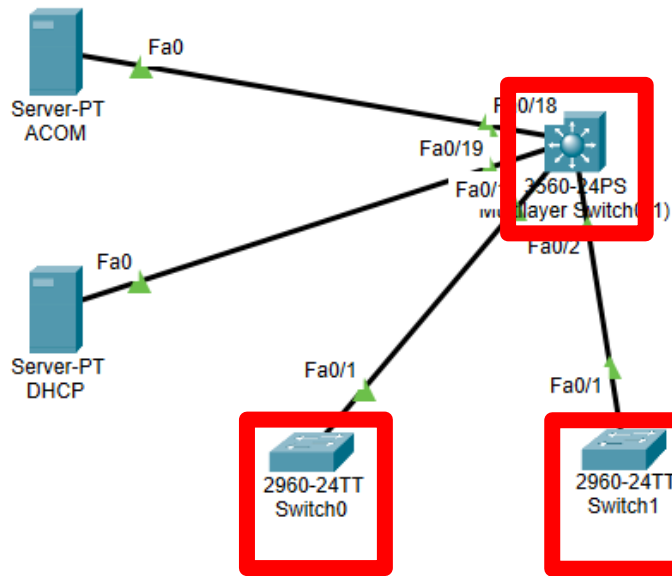
VLAN No	VLAN Name
1	default
1002	fddi-default
1003	token-ring-default
1004	fddinet-default
1005	trnet-default

Equivalent IOS Commands

```
Switch(vlan) #
```

Top

新增完成的結果



資察國小:
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VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

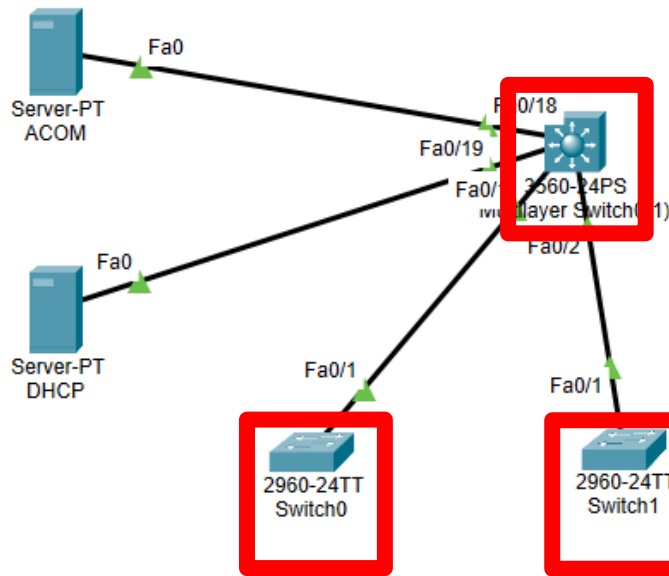
The screenshot shows the configuration window for Switch1. The 'Config' tab is active, and the 'VLAN Database' is being configured. The 'VLAN Configuration' section shows a table of VLANs:

VLAN No	VLAN Name
1	default
3	WLC
5	LAN
10	Intra-1
20	Intra-2
25	VoIP
31	TANetRoaming
32	NTPC-Mobile
33	eduroam
34	class

The 'Equivalent IOS Commands' section shows the following commands:

```
Switch(vlan) #
```

將模式切換成trunk mode



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VLAN32-NTPC-Mobile
VLAN33-eduroam
VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

Switch1

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/7

FastEthernet0/8

FastEthernet0/9

FastEthernet0/10

FastEthernet0/1

Port Status On

Bandwidth 100 Mbps 10 Mbps Auto

Duplex Half Duplex Full Duplex Auto

Trunk

LAN 1-1005

Tx Ring Limit 10

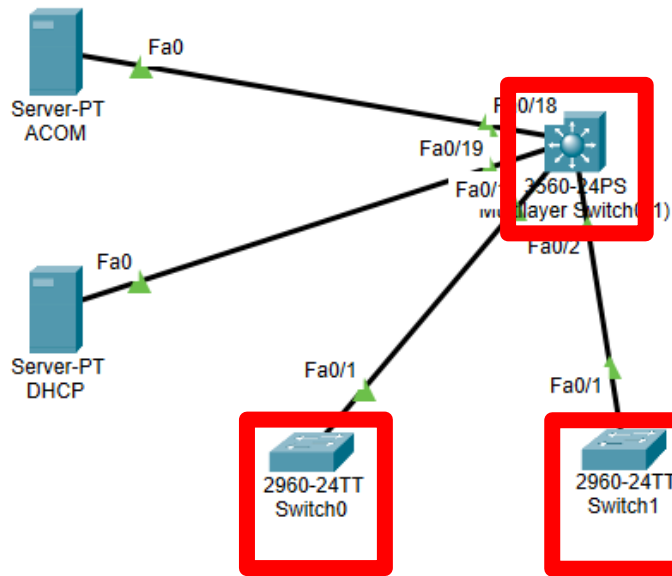
Equivalent IOS Commands

```
Switch(config-if)#  
Switch(config-if)#exit  
Switch(config)#interface FastEthernet0/1  
Switch(config-if)#
```

使用CLI進入介面設定trunk vlan

```
Switch(config)#interface FastEthernet0/1 ← 進入port設定
Switch(config-if)#sw
Switch(config-if)#switchport t
Switch(config-if)#switchport trunk al
Switch(config-if)#switchport trunk allowed vl
Switch(config-if)#switchport trunk allowed vlan
3,5,10,20,25,31-34,121-122 ← Trunk 所想要的vlan
Switch(config-if)#exit ← 退出port設定
```

查看trunk vlan是否設定成功



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VoIP:10.244.12.0/24

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VLAN32-NTPC-Mobile
VLAN33-eduroam
VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

Switch1

Physical **Config** CLI Attributes

FastEthernet0/1

Port Status On

Bandwidth 100 Mbps 10 Mbps Auto

Duplex Half Duplex Full Duplex Auto

Trunk VLAN **3-3,5-5,10-10,20-20,25-25,31-34,121-122**

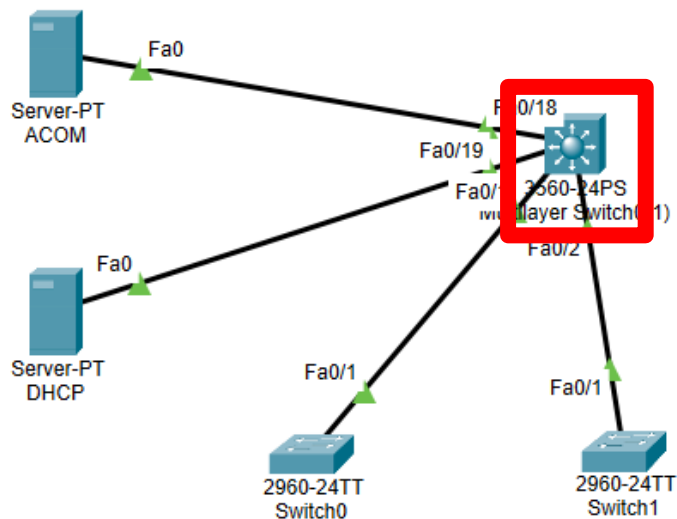
Tx Ring Limit 10

Equivalent IOS Commands

```
Switch(config-if)#exit
Switch(config)#interface FastEthernet0/1
Switch(config-if)#
```

Top

路由器需多新增interface vlan介面



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WLC:10.229.12.1
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VLAN31-TANetRoaming
VLAN32-NTPC-Mobile
VLAN33-eduroam
VLAN34-class
VLAN121-DHCP-DNS
VLAN122-Acom

設定vlan gateway

```
Switch(config)#interface vlan 3
Switch(config-if)#ip ad
Switch(config-if)#ip address 10.229.12.254 255.255.255.0
Switch(config-if)#ip helper
Switch(config-if)#ip helper-address 203.72.153.8
Switch(config-if)#exit
Switch(config)#
Switch(config)#
```

Ctrl+F6 to exit CLI focus

Copy

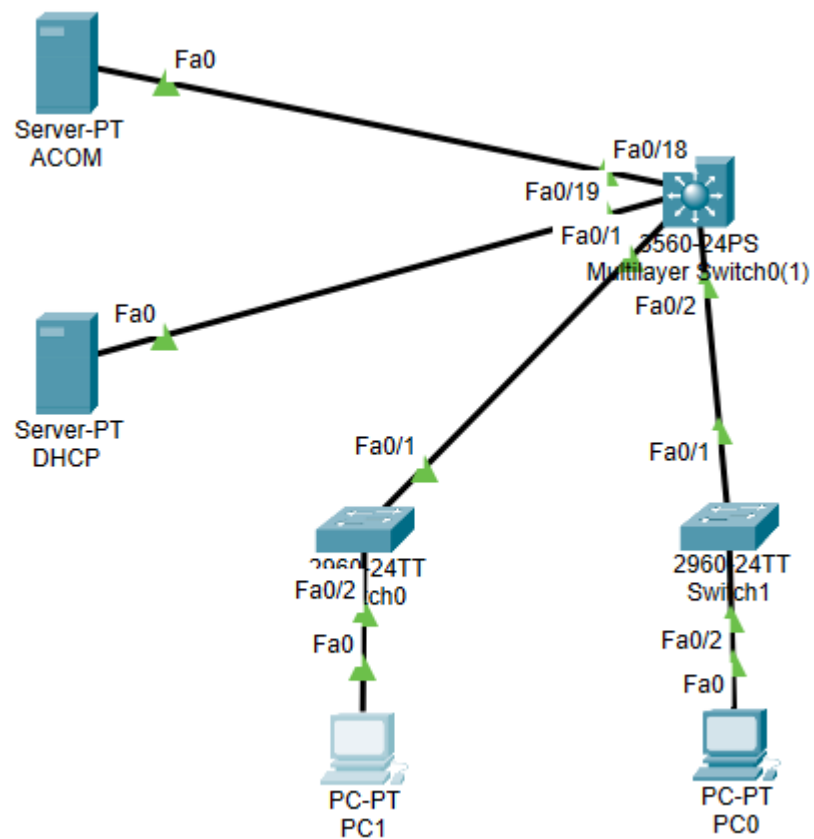
Paste

轉送DHCP request

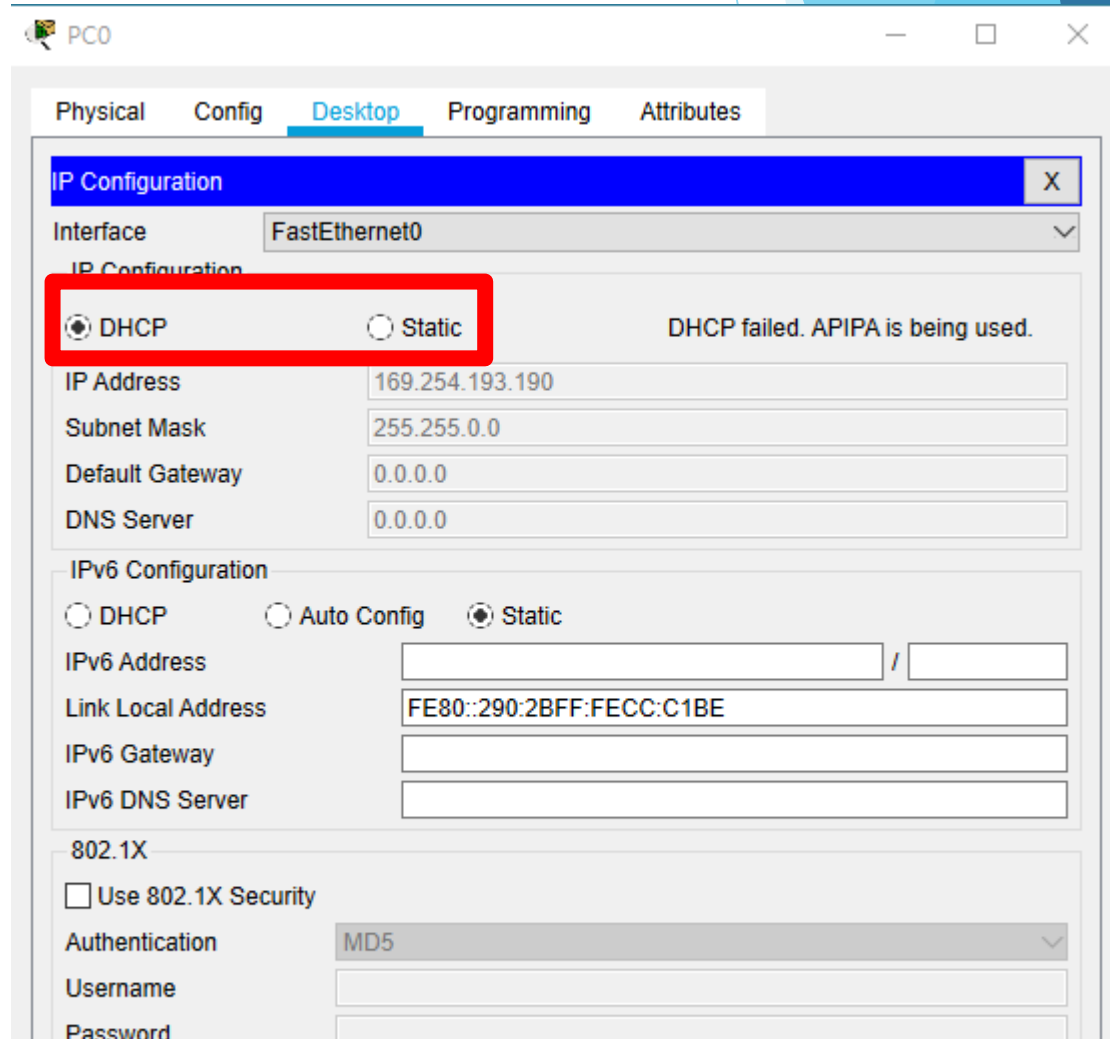
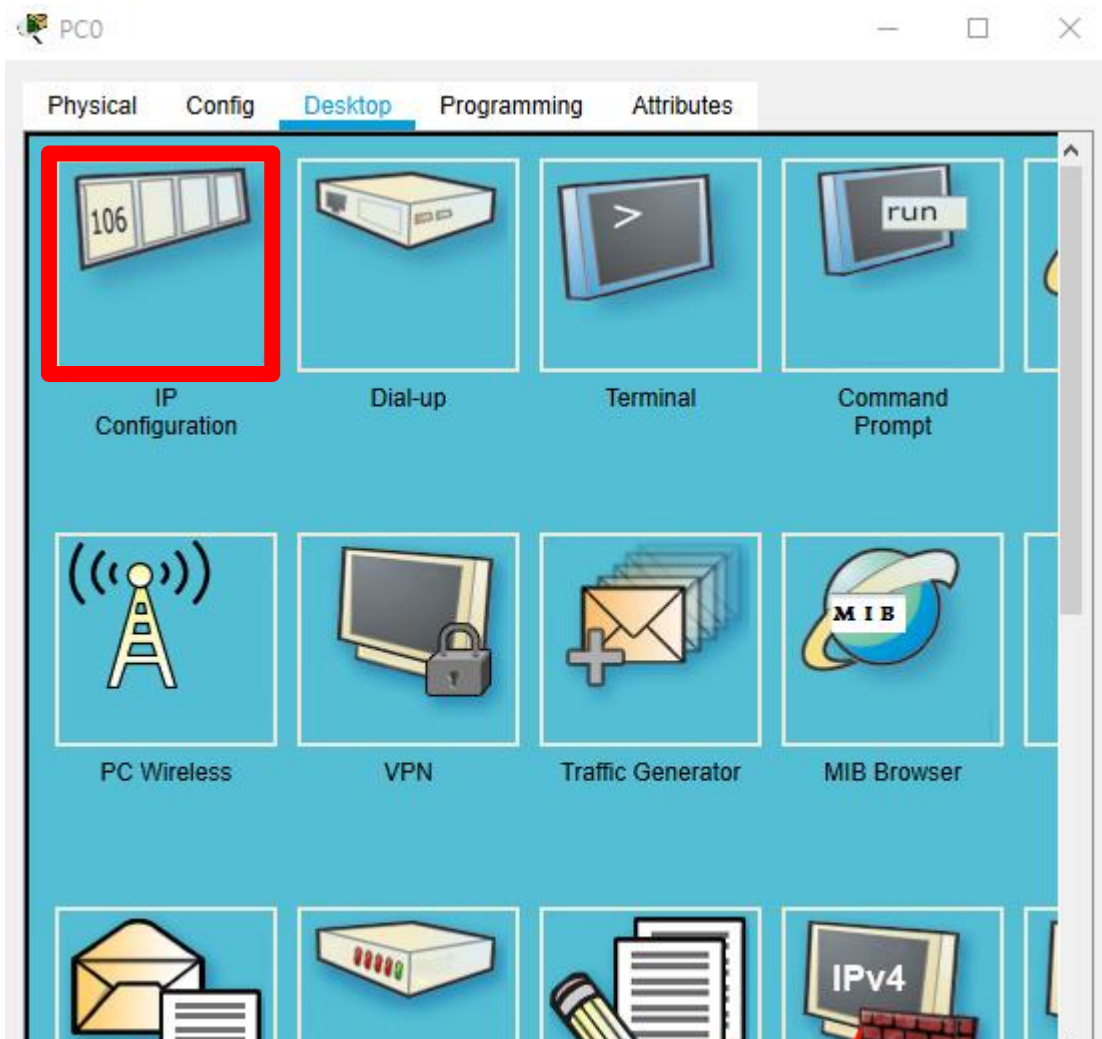
vlan 121,122不需設定ip helper-address

該如何實驗是否成功

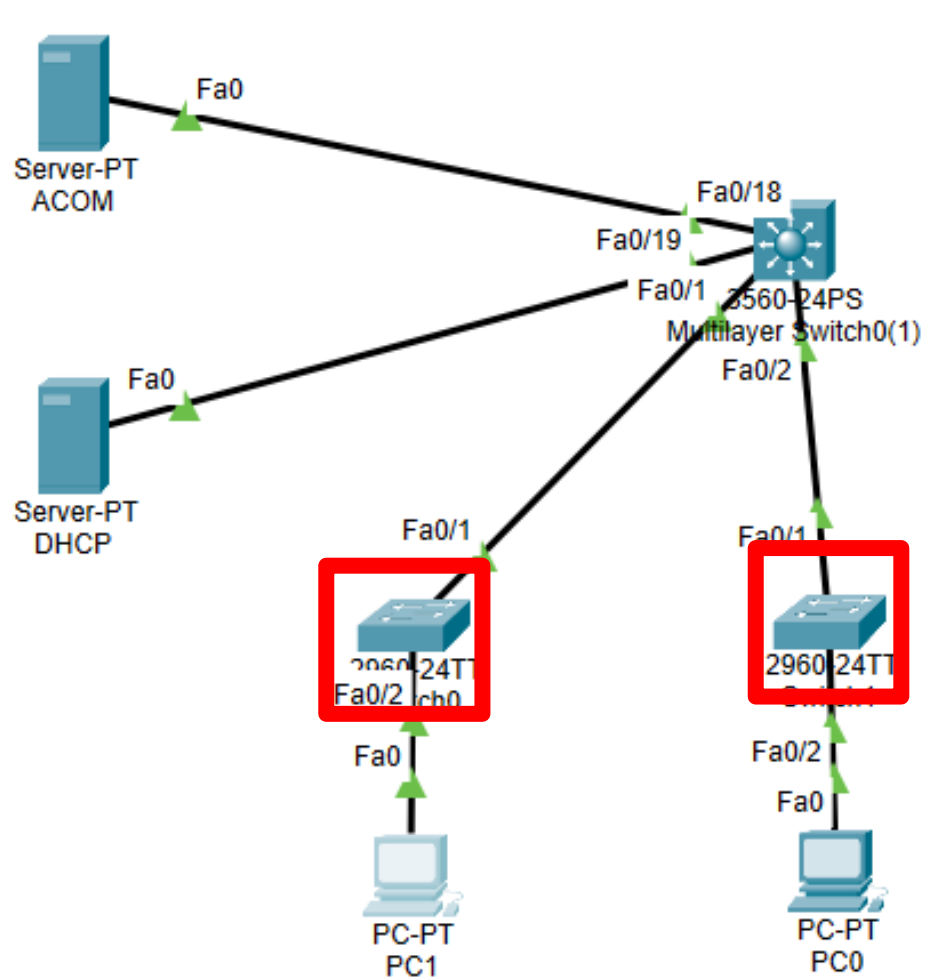
新增兩台電腦分別接於交換器上



將ip配送設置為DHCP自動取得



將交換器與電腦連接的端口設為access 將VLAN ID設為相同



Switch1

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/1

FastEthernet0/2

FastEthernet0/3

FastEthernet0/4

FastEthernet0/5

FastEthernet0/6

FastEthernet0/7

FastEthernet0/8

FastEthernet0/9

FastEthernet0/10

FastEthernet0/2

Port Status On

Bandwidth 100 Mbps 10 Mbps Auto

Duplex Half Duplex Full Duplex Auto

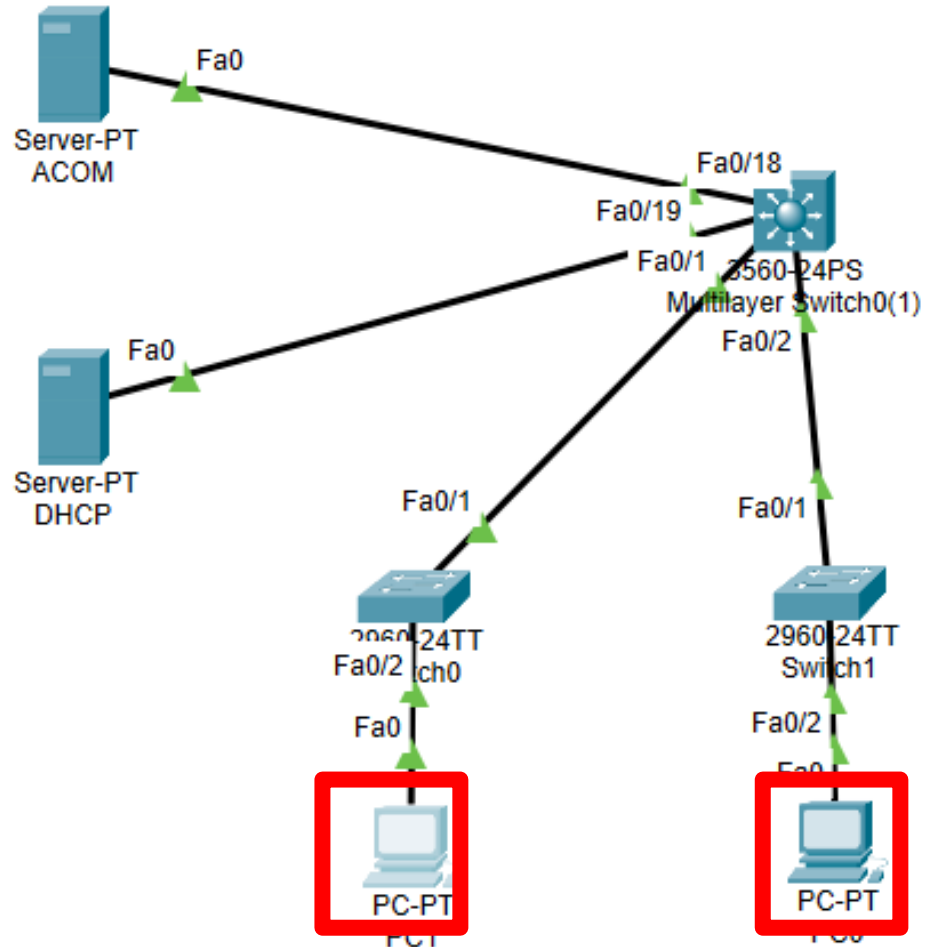
Access VLAN 3

Tx Ring Limit 10

Equivalent IOS Commands

```
Switch(config-if) #  
Switch(config-if) #switchport access vlan 3  
Switch(config-if) #
```

設置好後查看電腦是否自動取得ip



PC0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

- DHCP Static
- IP Address: 10.229.12.10
- Subnet Mask: 255.255.255.0
- Default Gateway: 10.229.12.254
- DNS Server: 203.72.153.153

IPv6 Configuration

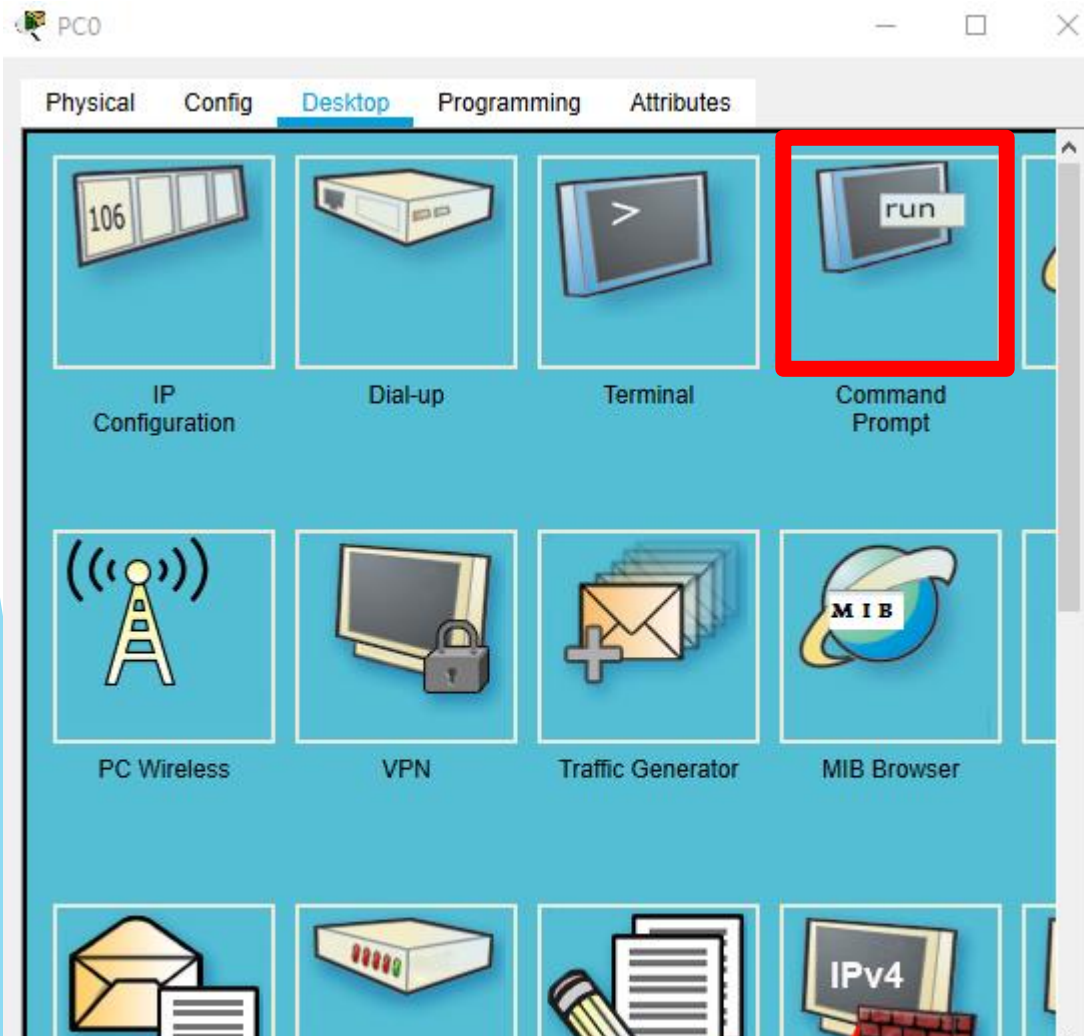
- DHCP Auto Config Static
- IPv6 Address: [] / []
- Link Local Address: FE80::290:2BFF:FECC:C1BE
- IPv6 Gateway: []
- IPv6 DNS Server: []

802.1X

- Use 802.1X Security
- Authentication: MD5
- Username: []
- Password: []

Top

若有取得ip可嘗試互相ping對方



```
C:\>ping 10.229.12.10
```

```
Pinging 10.229.12.10 with 32 bytes of data:
```

```
Reply from 10.229.12.10: bytes=32 time=4ms TTL=128  
Reply from 10.229.12.10: bytes=32 time=3ms TTL=128  
Reply from 10.229.12.10: bytes=32 time<1ms TTL=128  
Reply from 10.229.12.10: bytes=32 time=5ms TTL=128
```

```
Ping statistics for 10.229.12.10:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 5ms, Average = 3ms
```

```
C:\>ping 10.229.12.254
```

```
Pinging 10.229.12.254 with 32 bytes of data:
```

```
Reply from 10.229.12.254: bytes=32 time<1ms TTL=255  
Reply from 10.229.12.254: bytes=32 time<1ms TTL=255  
Reply from 10.229.12.254: bytes=32 time<1ms TTL=255  
Reply from 10.229.12.254: bytes=32 time=4ms TTL=255
```

```
Ping statistics for 10.229.12.254:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 4ms, Average = 1ms
```

```
C:\>ping 10.229.12.11
```

```
Pinging 10.229.12.11 with 32 bytes of data:
```

```
Reply from 10.229.12.11: bytes=32 time<1ms TTL=128  
Reply from 10.229.12.11: bytes=32 time<1ms TTL=128  
Reply from 10.229.12.11: bytes=32 time<1ms TTL=128  
Reply from 10.229.12.11: bytes=32 time<1ms TTL=128
```

```
Ping statistics for 10.229.12.11:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
Minimum = 0ms, Maximum = 0ms, Average = 0ms
```