

COMUTER NETWORK

ASSINMENT 5



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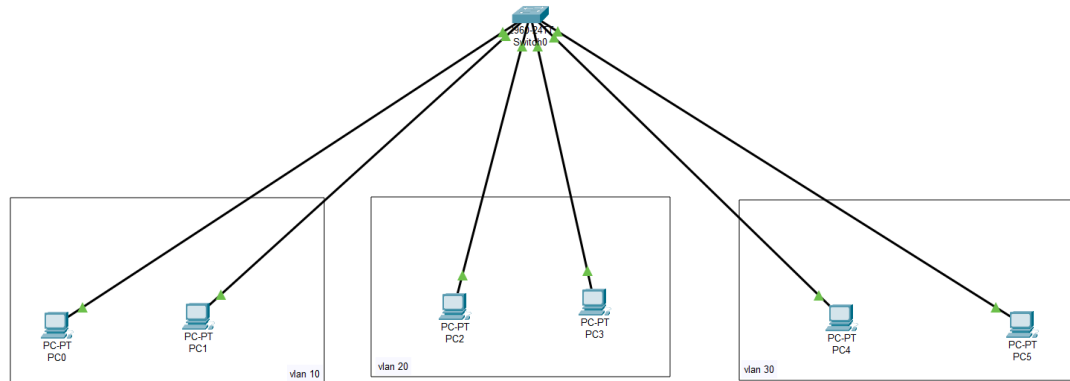
GROUP: A1

ID :4211063

2022

1- Router

Link device to the switch and divide them into three vlan



Vlan 10: IP 192.168.10.0 255.255.255.0

Vlan 30: IP 192.168.20.0 255.255.255.0

Vlan 30: IP 192.168.30.0 255.255.255.0

Switch configuration to divided the vlan :

```
Switch(config)#int rang fa0/1-8
Switch(config-if-range)#sw
Switch(config-if-range)#switchport acs
Switch(config-if-range)#switchport ac
Switch(config-if-range)#switchport access vl
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#s
Switch(config-if-range)#sw
Switch(config-if-range)#switchport mod
Switch(config-if-range)#switchport mode ac
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#int rang fa0/9-16
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#int rang fa0/17-24
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#exit
Switch(config)#sh run
```

Switch vlans:

```
Switch#sh vln br
^
% Invalid input detected at '^' marker.
Switch#sh vlan br
```

VLAN	Name	Status	Ports
1	default	active	Gig0/2
10	it	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6, Fa0/7, Fa0/8
20	20	active	Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15,
30	30	active	Fa0/17, Fa0/18, Fa0/19, Fa0/21, Fa0/22, Fa0/23,
99	manage	active	Gig0/1
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

```
Switch#
```

Now the vlan can't contact with each other:

```
C:\>ping 192.168.30.3

Pinging 192.168.30.3 with 32 bytes of data:

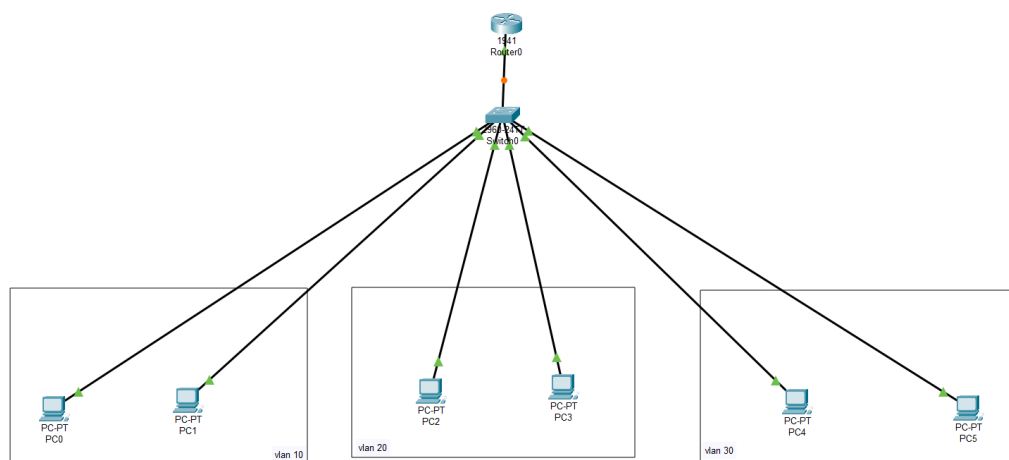
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

To connect with each other we used trunk mode on vlan:

Frist we need router to make them connect:



Then create on switch a vlan 99 to management to access trunk mode on it:

```
Switch>
Switch>
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with
CNTL/Z.
Switch(config)#vlan 99
Switch(config-vlan)#name management
Switch(config-vlan)#exit
```

Then access trunk mode on the port of g0/1 and allow the vlans that access to the management vlan:

```
Switch>
Switch>
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 99
Switch(config-vlan)#name management
Switch(config-vlan)#exit
Switch(config)#interface g0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk native vlan 99
Switch(config-if)#switchport trunk allowed vlan 10,20,30
Switch(config-if)#exit
Switch(config)#|
```

Then go to router configuration:

We will divide the port of g0/0 to three supports

To send message from device to other the message will encapsulation and we will use the dot1Q type of the encapsulation:

```
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with
CNTL/Z.
Router(config)#interface g0/0.10
Router(config-subif)#enca
Router(config-subif)#encapsulation d
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#exit
Router(config)#int g0/0.20
Router(config-subif)#enca
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#
```

```
Router(config)#
Router(config)#int g0/0.30
Router(config-subif)#enca
Router(config-subif)#encapsulation do
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip address 192.168.30.1 255.255.255.0
Router(config-subif)#exit
Router(config)#
Router(config)#
Router(config)#
Router(config)#
```

Then we need to make no shutdown on the port of g0/0 :

```
Router(config)#int g0/0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/0.10, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0.10, changed state to up
```

Now make default gateway

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	<input type="text" value="192.168.20.2"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.20.1"/>
DNS Server	<input type="text" value="0.0.0.0"/>

IPv6 Configuration

Now the device will contact with each other

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3

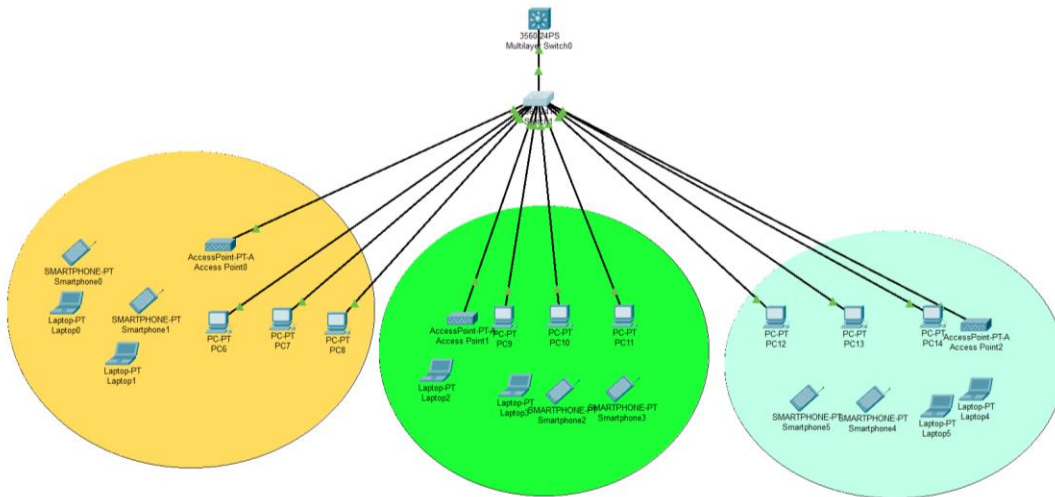
Pinging 192.168.30.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```


2- Multilayer switch

1- Connect the devices to the switch



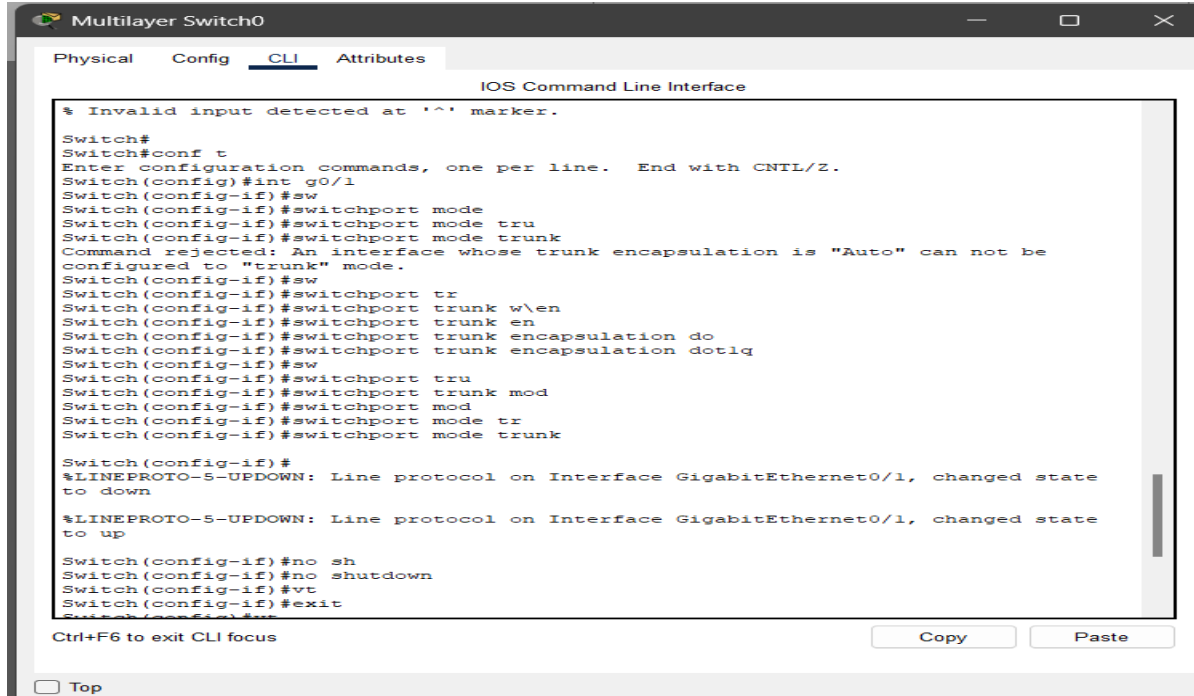
2- Divided the vlans on layer 3 switch:

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name it
Switch(config-vlan)#vlan 20
Switch(config-vlan)#name manager
Switch(config-vlan)#vlan 30
Switch(config-vlan)#name 30
Switch(config-vlan)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vl br

VLAN Name                Status    Ports
-----
1    default                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                           Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                           Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                           Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                           Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                           Gig0/1, Gig0/2
10   it                    active
20   manager              active
30   30                   active
1002 fddi-default        active
1003 token-ring-default  active
1004 fddinet-default     active
1005 trnet-default       active
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#sh vtp st
```

3- Make the connect between 2 switches trunk & make vlans go switch by VTP:



Multilayer Switch0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
% Invalid input detected at '^' marker.

Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int g0/1
Switch(config-if)#sw
Switch(config-if)#switchport mode
Switch(config-if)#switchport mode tru
Switch(config-if)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is "Auto" can not be
configured to "trunk" mode.
Switch(config-if)#sw
Switch(config-if)#switchport tr
Switch(config-if)#switchport trunk w/en
Switch(config-if)#switchport trunk en
Switch(config-if)#switchport trunk encapsulation do
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#sw
Switch(config-if)#switchport tru
Switch(config-if)#switchport trunk mod
Switch(config-if)#switchport mod
Switch(config-if)#switchport mode tr
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state
to down

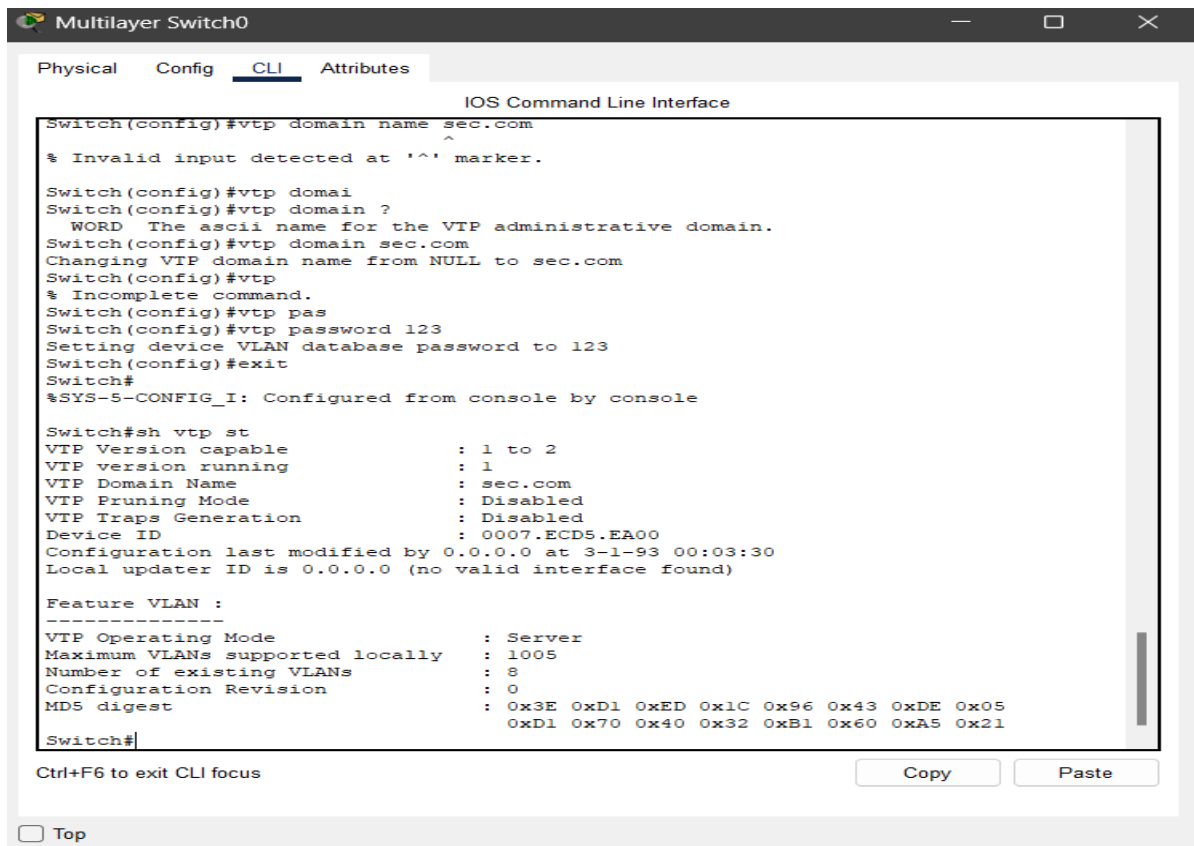
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state
to up

Switch(config-if)#no sh
Switch(config-if)#no shutdown
Switch(config-if)#vt
Switch(config-if)#exit
Switch(config-if)#
```

Ctrl+F6 to exit CLI focus

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Multilayer Switch0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch(config)#vtp domain name sec.com
^
% Invalid input detected at '^' marker.

Switch(config)#vtp domai
Switch(config)#vtp domain ?
WORD The ascii name for the VTP administrative domain.
Switch(config)#vtp domain sec.com
Changing VTP domain name from NULL to sec.com
Switch(config)#vtp
% Incomplete command.
Switch(config)#vtp pas
Switch(config)#vtp password 123
Setting device VLAN database password to 123
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vtp st
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : sec.com
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                 : 0007.ECD5.EA00
Configuration last modified by 0.0.0.0 at 3-1-93 00:03:30
Local updater ID is 0.0.0.0 (no valid interface found)

Feature VLAN :
-----
VTP Operating Mode       : Server
Maximum VLANs supported locally : 1005
Number of existing VLANs : 8
Configuration Revision   : 0
MD5 digest               : 0x3E 0xD1 0xED 0x1C 0x96 0x43 0xDE 0x05
                          0xD1 0x70 0x40 0x32 0xB1 0x60 0xA5 0x21

Switch#
```

Ctrl+F6 to exit CLI focus

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Switch0

Physical
Config
CLI
Attributes

IOS Command Line Interface

```

Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vtp mo
Switch(config)#vtp mode c1
Switch(config)#vtp mode client
Setting device to VTP CLIENT mode.
Switch(config)#vtp pass
Switch(config)#vtp password 123
Setting device VLAN database password to 123
Switch(config)#
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vtp st
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : sec.com
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                : 00E0.A3C9.A800
Configuration last modified by 0.0.0.0 at 3-1-93 00:03:30

Feature VLAN :
-----
VTP Operating Mode       : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
Configuration Revision   : 0
MD5 digest               : 0x3E 0xD1 0xED 0x1C 0x96 0x43 0xDE 0x05
                          0xD1 0x70 0x40 0x32 0xB1 0x60 0xA5 0x21

Switch#sh vlan br

VLAN Name                Status      Ports
-----
1    default              active      Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                           Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                           Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                           Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                           Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                           Gig0/2

10   it                  active
20   manager             active
30   30                  active
1002 fddi-default        active
1003 token-ring-default  active
1004 fddinet-default     active
1005 trnet-default       active
Switch#

```

Ctrl+F6 to exit CLI focus
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Divide port on vlans:

Switch(config)#int range fa0/1-8
Switch(config-if-range)#sw
Switch(config-if-range)#switchport mod
Switch(config-if-range)#switchport mode ac
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#sw
Switch(config-if-range)#switchport acc
Switch(config-if-range)#switchport access vl
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#int range fa0/9-16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#int range fa0/17-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vlav br
^
% Invalid input detected at '^' marker.

Switch#sh vlan br

VLAN Name Status Ports

1 default active Gig0/2
10 it active Fa0/1, Fa0/2, Fa0/3, Fa0/4
 Fa0/5, Fa0/6, Fa0/7, Fa0/8
 Fa0/9, Fa0/10, Fa0/11, Fa0/12
 Fa0/13, Fa0/14, Fa0/15, Fa0/16
 Fa0/17, Fa0/18, Fa0/19, Fa0/20
 Fa0/21, Fa0/22, Fa0/23, Fa0/24

20 manager active
30 30 active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
Switch#

4- Enable IP routing in l3 switch:

Vlan 10 ➔ 192.168.10.1 255.255.255.0

Vlan 20 ➔ 192.168.20.1 255.255.255.0

Vlan 30 ➔ 192.168.30.1 255.255.255.0

IOS Command Line Interface

```
Switch(config)#ip routing
Switch(config)#int vl
Switch(config)#int vlan 10
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up

Switch(config-if)#ip add 192.168.10.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int 20
Switch(config)#
^
% Invalid input detected at '^' marker.

Switch(config)#int vlan 20
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan20, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

Switch(config-if)#ip add 192.168.20.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#int vlan 30
Switch(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up

Switch(config-if)#ip add 192.168.30.1 255.255.255.0
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#sh ip rou
Switch#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

C    192.168.10.0/24 is directly connected, Vlan10
C    192.168.20.0/24 is directly connected, Vlan20
C    192.168.30.0/24 is directly connected, Vlan30

Switch#
```

5- Test connection: -

PC0

Physical Config Desktop Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.30.3

Pinging 192.168.30.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127
Reply from 192.168.30.3: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

packet on GitHub: [link](#)