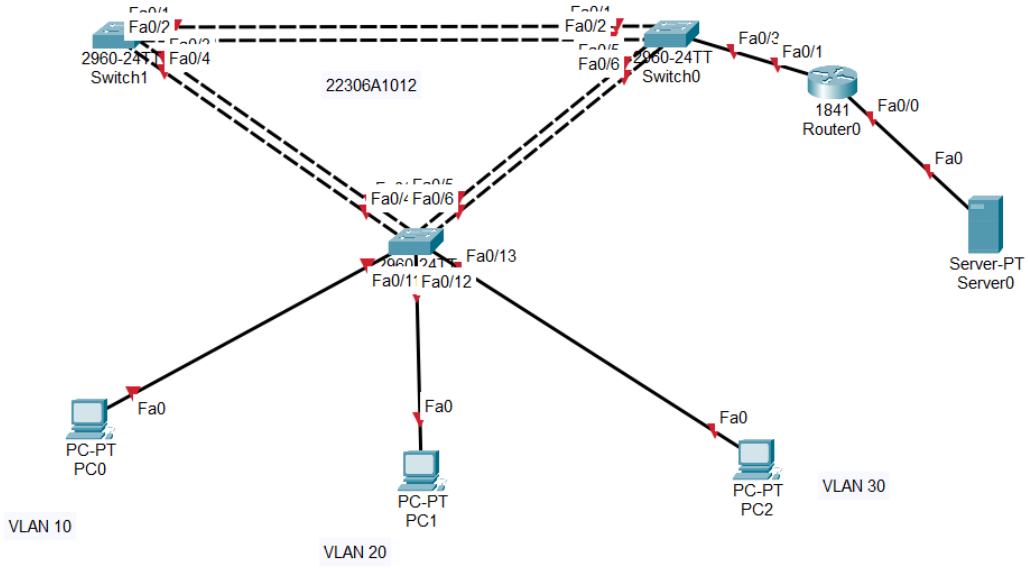
Practical No: 6 Ninad Karlekar 22306A1012 Date: 11/04/2023

AIM: Demonstrate inter vlan routing.



Task1: check VLAN config in each switch

type command for all switches:

en
show vlan br
CHECK IF ALL SWITCHES HAVE SAME VLAN (1002,1003,1004,1005...)

```
Switch>en
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
                                                 Gig0/1, Gig0/2
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
Switch#
Switch#
```

Task2: disable all ports on all the switches

commands for all switches:

conf t
interface range fa0/1-24
shutdown
interface range gi0/1-2
shutdown

```
Switch#
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface range fa0/1-24
Switch(config-if-range)#shutdown



%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down
```

```
Switch(config-if-range)#
Switch(config-if-range)#interface range gi0/1-2
Switch(config-if-range)#shutdown

%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to administratively down
Switch(config-if-range)#
Switch(config-if-range)#
```

Task3: Perform basic switch configurations like assign name to switches, password to switches as well as gateways.

commands for all switches:

exit
(config)
hostname s0
enable secret class
no ip domain-lookup
ip default-gateway 172.17.99.1
line console 0
(config-line)
password cisco
login
line vty 0 15
password cisco
login
end

```
Switch(config-if-range)#
Switch(config-if-range)#exit
Switch(config)#hostname s0
s0(config)#enable secret class
s0(config)#no ip domain-lookup
s0(config)#ip default-gateway 172.17.99.1
s0(config)#line console 0
s0(config-line)#password cisco
s0(config-line)#login
s0(config-line)#line vty 0 15
s0(config-line)#password cisco
s0(config-line)#login
s0(config-line)#end
s0#
```

Task4: On the interfaces of the switch 2 connect it to the PCs, configure access mode and enable

commands for s2:

(config)
int fa0/11
(config-if)
switchport mode access
no shutdown

int fa0/12
switchport mode access
no shutdown

int fa0/13
switchport mode access
no shutdown

```
s2#conf t
Enter configuration commands, one per line.  End with CN
s2(config)#int fa0/11
s2(config-if)#switchport mode access
s2(config-if)#no shutdown
```

```
s2(config-if)#int fa0/12
s2(config-if)#switchport mode access
s2(config-if)#no shutdown

s2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet
```

```
s2(config-if)#int fa0/13
s2(config-if)#switchport mode access
s2(config-if)#no shutdown

s2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0

%LINEPROTO-5-UPDOWN: Line protocol on In
state to up
```

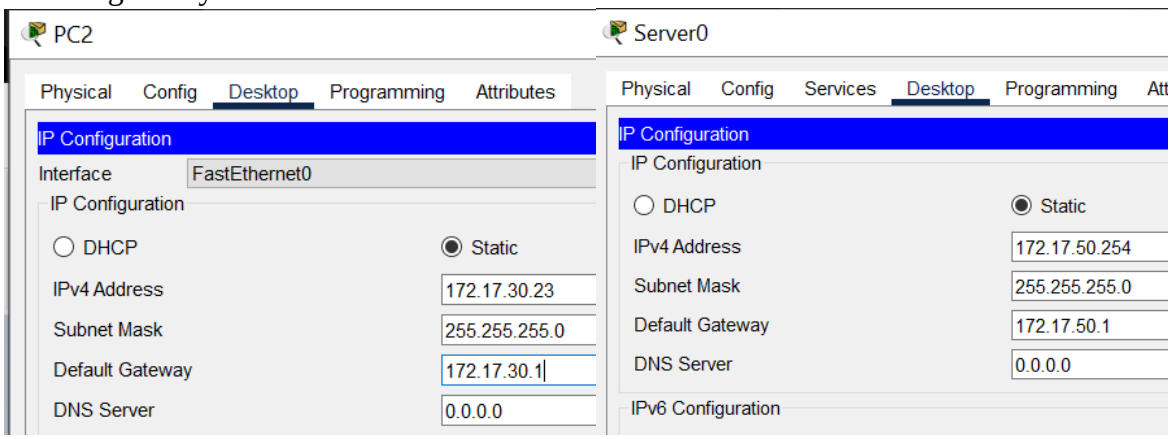
Task5: Configure IP addresses on the three PCs and the server

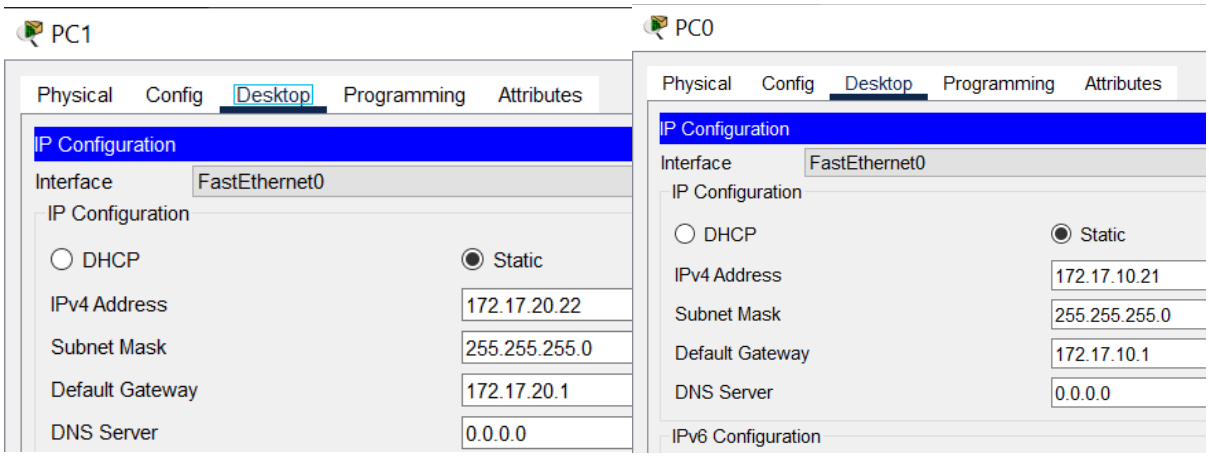
PC0-> Desktop -> IP config
IP: 172.17.10.21 255.255.255.0
Default gateway: 172.17.10.1

PC1-> Desktop -> IP config
IP: 172.17.20.22 255.255.255.0
Default gateway: 172.17.20.1

PC2-> Desktop -> IP config
IP: 172.17.30.23 255.255.255.0
Default gateway: 172. 17.30.1

Server -> Desktop -> IP config
IP: 172.17.50.254 255.255.255.0
Default gateway: 172.17.50.1



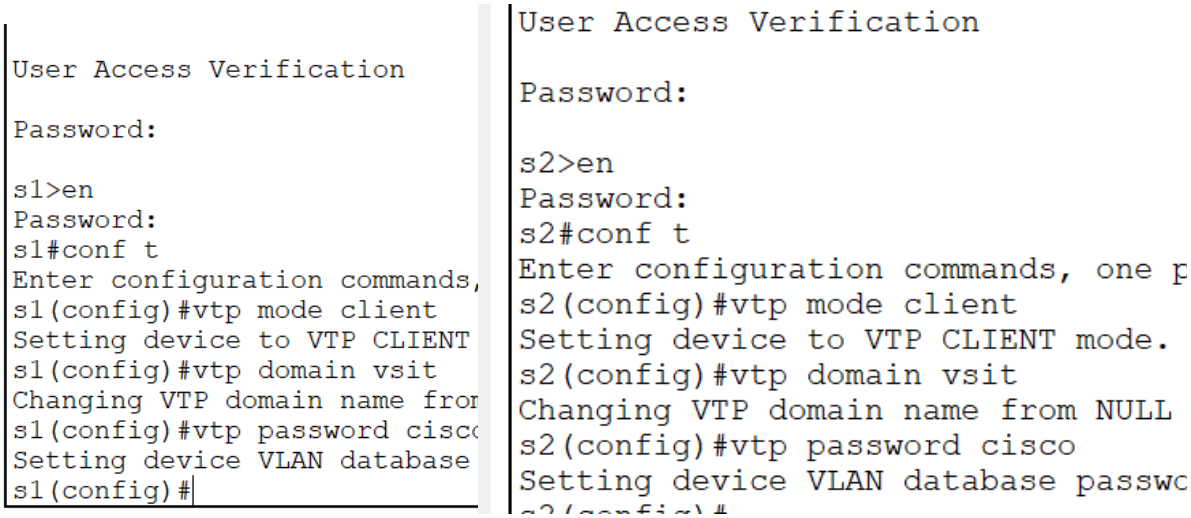


Task6: Configure VTP protocol on the switches.

s0 will be VTP server, s1 & s2 will be VTP client

s0:
Password: class
en
(#)
Password:
conf t
(config)
vtp mode server
vtp domain vsit
vtp password cisco
s1:
Password:
en
#
Password:
conf t
(config)
vtp mode client
vtp domain vsit
vtp password cisco
s2:
Password:
en
#
Password:
conf t
(config)
vtp mode client
vtp domain vsit
vtp password cisco

```
s0>en
Password:
s0#conf t
Enter configuration commands, c
s0(config)#vtp mode server
Device mode already VTP SERVER.
s0(config)#vtp domain vsit
Changing VTP domain name from N
s0(config)#vtp password cisco
Setting device VLAN database pa
s0(config)#
```



Task7: Configure trunking codes on all connections between switches and enable them

s0:
(config)
int range fa0/1-3
(config-if)
switchport mode trunk
switchport trunk native vlan 99
no shutdown

int range fa0/5-6
switchport mode trunk
switchport trunk native vlan 99
no shutdown

s2:
(config)
int range fa0/3-6
(config-if)
switchport mode trunk
switchport trunk native vlan 99
no sh

s1:
(config)
int range fa0/1-4
(config-if)
switchport mode trunk
switchport trunk native vlan 99

no sh

s0:
(config-if-range)
exit
(config)
vlan 99
name management
(config-vlan)
vlan 10
name staff
vlan 20
name students
vlan 30
name guests

exit
do sh vlan br (On s0 and s2)

```
s0(config)#
s0(config)#
s0(config)#int range fa0/1-3
s0(config-if-range)#switchport mode trunk
s0(config-if-range)#switchport trunk native vlan 99
s0(config-if-range)#no shutdown
```

```
s1(config)#
s1(config)#int range fa0/1-4
s1(config-if-range)#switchport mode trunk
s1(config-if-range)#switchport trunk native vlan 99
s1(config-if-range)#no sh
```

```
Setting device VLAN database password to cisco
s2(config)#
s2(config)#
s2(config)#int range fa0/3-6
s2(config-if-range)#switchport mode trunk
s2(config-if-range)#switchport trunk native vlan 99
s2(config-if-range)#no sh
```

```
s0(config)#vlan 99
s0(config-vlan)#name management
s0(config-vlan)#vlan 10
s0(config-vlan)#name staff
s0(config-vlan)#vlan 20
s0(config-vlan)#name students
s0(config-vlan)#vlan 30
s0(config-vlan)#name guests
s0(config-vlan)#exit
s0(config)#do sh vlan br
```

```
s0(config)#do sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- ---------
------------------------------
1    default                           active    Fa0/3, Fa0/4, 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   staff                             active
20   students                          active
30   guests                            active
99   management                        active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
s0(config)#
```

```
s2(config-if-range)#exit
s2(config)#do sh vlan br

VLAN Name                              Status    Ports
---- --------------------------------- ---------
------------------------------
1    default                           active    Fa0/1, Fa0/2, 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   staff                             active
20   students                          active
30   guests                            active
99   management                        active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active
s2(config)#
```

Task8: Configure interface vlan 99 on all the switches

s0:
(config)
int vlan 99
(config-if)
ip add 172.17.99.11 255.255.255.0

end

s2:
(config)
int vlan 99
(config-if)
ip add 172.17.99.12 255.255.255.0
end

s1:
(config)
int vlan 99
(config-if)
ip add 172.17.99.13 255.255.255.0
end

```
s0(config)#
s0(config)#int vlan 99
s0(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, ch
up

s0(config-if)#ip add 172.17.99.11 255.255.255.0
s0(config-if)#end
s0#
%SYS-5-CONFIG_I: Configured from console by console

s0#
```

```
1005 trnet-default                   active
s2(config)#
s2(config)#int vlan 99
s2(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state to
up

s2(config-if)#ip add 172.17.99.12 255.255.255.0
s2(config-if)#end
s2#
%SYS-5-CONFIG_I: Configured from console by console

s2#
```

```
s1(config)#
s1(config)#
s1(config)#int vlan 99
s1(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99,
up

s1(config-if)#ip add 172.17.99.13 255.255.255.0
s1(config-if)#end
s1#
%SYS-5-CONFIG_I: Configured from console by console

s1#
```

Task9: Configure vlan 10, vlan 20 and vlan 30 on switch 2

s2:

(config)
int fa0/11
(config-if)
switchport access vlan 10
int fa0/12
switchport access vlan 20
int fa0/13
switchport access vlan 30

```
s2#conf t
Enter configuration commands, one per line
s2(config)#int fa0/11
s2(config-if)#switchport access vlan 10
s2(config-if)#int fa0/12
s2(config-if)#switchport access vlan 20
s2(config-if)#int fa0/13
s2(config-if)#switchport access vlan 30
s2(config-if)#
```

Task10: perform configuration on router

Router:
en
conf t
hostname r1
no ip domain-lookup
line console 0
(config-line)
password cisco
login
line vty 0 15
password cisco
login
end

conf t
(config)
enable secret class
int fa0/1
no sh

int fa0/1.1
(config-subif)
encapsulation dot1q 1
ip add 172.17.1.1 255.255.255.0
int fa0/1.10
encapsulation dot1q 10
ip add 172.17.10.1 255.255.255.0
int fa0/1.20
encapsulation dot1q 20

ip add 172.17.20.1 255.255.255.0
int fa0/1.30
encapsulation dot1q 30
ip add 172.17.30.1 255.255.255.0
int fa0/1.99
encapsulation dot1q 99 native
ip add 172.17.99.1 255.255.255.0

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/
Router(config)#hostname r1
r1(config)#no ip domain-lookup
r1(config)#line console 0
r1(config-line)#password cisco
r1(config-line)#login
r1(config-line)#line vty 0 15
r1(config-line)#password cisco
r1(config-line)#login
r1(config-line)#end
```

```
r1#
r1#conf t
Enter configuration commands, one per l
r1(config)#enable secret class
r1(config)#int fa0/1
r1(config-if)#no sh
```

```
r1(config-if)#int fa0/1.1
r1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.1, change

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

r1(config-subif)#encapsulation dot1q 1
r1(config-subif)#ip add 172.17.1.1 255.255.255.0
r1(config-subif)#int fa0/1.10
r1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.10, chang

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

r1(config-subif)#encapsulation dot1q 10
r1(config-subif)#ip add 172.17.10.1 255.255.255.0
r1(config-subif)#int fa0/1.20
r1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.20, chang

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

r1(config-subif)#encapsulation dot1q 20
r1(config-subif)#ip add 172.17.20.1 255.255.255.0
```

```
r1(config-subif)#encapsulation dot1q 30
r1(config-subif)#ip add 172.17.30.1 255.255.255.0
r1(config-subif)#int fa0/1.99
r1(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.99, changed s

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

r1(config-subif)#encapsulation dot1q 99 native
r1(config-subif)#ip add 172.17.99.1 255.255.255.0
r1(config-subif)#exit
r1(config)#
```

```
r1(config)#do sh ip int br
Interface              IP-Address      OK? Method Status
Protocol
FastEthernet0/0        unassigned      YES unset  administratively down
down
FastEthernet0/1        unassigned      YES unset  up
up
FastEthernet0/1.1      172.17.1.1      YES manual up
up
FastEthernet0/1.10     172.17.10.1     YES manual up
up
FastEthernet0/1.20     172.17.20.1     YES manual up
up
FastEthernet0/1.30     172.17.30.1     YES manual up
up
FastEthernet0/1.99     172.17.99.1     YES manual up
up
Vlan1                  unassigned      YES unset  administratively down
down
r1(config)#
```