

NAME: AYAMBA BLESS BISSONG

MAT No: FE20A018

COURSE CODE: CEF 453

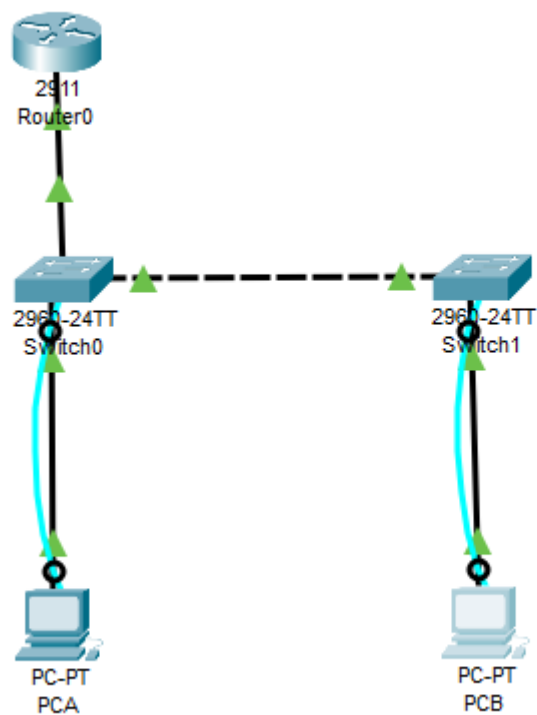
COURSE TITLE: NETWORK DESIGN AND SIMULATION

INSTRUCTOR: Mme Ines Djouela

PRACTICAL 1. Basic switching, routing, and VLANS configurations

Part II

Topology:



Objectives:

- A. Edit the network and the basic configuration settings of each device
- B. Edit switches configuration Switches (VLANs and Trunking)
- C. Configure Trunked-based Inter-VLAN Routing

A. Edit the network and the basic configuration settings of each device

Step 1. Edit the network topology.

Answer: the network topology has been edited as shown above

Step 2. Check (and edit if necessary) the IP addresses of switches interface

Step 3. Check (and edit if necessary) the IP addresses of PC-A and PC-B

The image displays two screenshots of a network configuration interface, likely from a Cisco Packet Tracer simulation. Both windows show the 'IP Configuration' tab for a device's 'FastEthernet0' interface.

PC-A Configuration:

- Interface: FastEthernet0
- IP Configuration: Static (selected)
- IPv4 Address: 192.168.10.3
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.10.1
- DNS Server: 0.0.0.0

PC-B Configuration:

- Interface: FastEthernet0
- IP Configuration: Static (selected)
- IPv4 Address: 192.168.20.3
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.20.1
- DNS Server: 0.0.0.0

B. Edit switches configuration Switches (VLANs and Trunking)

Step 1. Edit VLANs on S1

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname Bless_s1
Bless_s1(config)#vlan 10
Bless_s1(config-vlan)#name student
Bless_s1(config-vlan)#exit
Bless_s1(config)#int vlan 10
Bless_s1(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up

Bless_s1(config-if)#ip address 192.168.10.10 255.255.255.0
Bless_s1(config-if)#no shut
Bless_s1(config-if)#exit
Bless_s1(config)#int f0/6
Bless_s1(config-if)#switchport mode access
Bless_s1(config-if)#switchport access vlan 10
Bless_s1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up

Bless_s1(config-if)#exit
Bless_s1(config)#int f0/6
Bless_s1(config-if)#switchport mode trunk

Bless_s1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up

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

Step 2. Edit VLANs on S2

```
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname Bless_s2
Bless_s2(config)#vlan 20
Bless_s2(config-vlan)#name faculty
Bless_s2(config-vlan)#exit
Bless_s2(config)#int f0/18
Bless_s2(config-if)#switchport mode access
Bless_s2(config-if)#switchport access vlan 20
Bless_s2(config-if)#exit
Bless_s2(config)#int f0/1
Bless_s2(config-if)#switchport mode trunk

Bless_s2(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Bless_s2(config-if)#
```

```

Bless_s2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Bless_s2(config)#int vlan 10
Bless_s2(config-if)#ip address 192.168.10.3 255.255.255.0
Bless_s2(config-if)#exit
Bless_s2(config)#exit
Bless_s2#
%SYS-5-CONFIG_I: Configured from console by console

Bless_s2#show int trunk
Port      Mode      Encapsulation  Status      Native vlan
Fa0/1     on        802.1q         trunking    1

Port      Vlans allowed on trunk
Fa0/1     1-1005

Port      Vlans allowed and active in management domain
Fa0/1     1,20

Port      Vlans in spanning tree forwarding state and not pruned
Fa0/1     1,20

Bless_s2#

```

C. Configure Trunked-based Inter-VLAN Routing

Step 1: Configure a subinterface for Vlan 1

```

Router(config)#int g0/1.1
Router(config-subif)#description default gateway of vlan 1
Router(config-subif)#encapsulation dot1q 1
Router(config-subif)#ip address 192.168.1.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit

```

Step 2: Configure a subinterface for Vlan 10

```

Router(config)#int g0/1.10
Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip address 192.168.10.1 255.255.255.0
Router(config-subif)#exit

```

Step 3: Configure a subinterface for Vlan 20

```

Router(config)#int g0/1.20
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip address 192.168.20.1 255.255.255.0
Router(config-subif)#description default gateway for vlan 20
Router(config-subif)#exit

```

Step 4: Enable the G0/1 interface

```
Router(config)#int g0/1
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/1.1, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/1.10, changed state to up

%LINK-5-CHANGED: Interface GigabitEthernet0/1.20, changed state to up

Router(config-if)#
```

Step 5: Verify connectivity

a. Enter the command to view the routing table on R1. What networks are listed?

Answer: command is: *sh ip route*

The networks that are listed are?

```
Bless_R#sh ip route
Codes: L - local, C - connected, S - static, 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

    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/24 is directly connected, GigabitEthernet0/1.1
L       192.168.1.1/32 is directly connected, GigabitEthernet0/1.1
    192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.10.0/24 is directly connected, GigabitEthernet0/1.10
L       192.168.10.1/32 is directly connected, GigabitEthernet0/1.10
    192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/1.20
L       192.168.20.1/32 is directly connected, GigabitEthernet0/1.20

Bless_R#
```

b. From PC-A, is it possible to ping the default gateway for VLAN 10? _____ **YES**

```
C:\>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:

Reply from 192.168.10.1: bytes=32 time=1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time=1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

c. From PC-A, is it possible to ping PC-B? _____YES

```
C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Reply from 192.168.20.1: bytes=32 time<1ms TTL=255
Reply from 192.168.20.1: bytes=32 time<1ms TTL=255
Reply from 192.168.20.1: bytes=32 time<1ms TTL=255
Reply from 192.168.20.1: bytes=32 time=3ms TTL=255

Ping statistics for 192.168.20.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 0ms
```

d. From PC-A, is it possible to ping Lo0? _____ NO

```
C:\>ping 209.165.200.225

Pinging 209.165.200.225 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.
Request timed out.
Reply from 192.168.10.1: Destination host unreachable.
Request timed out.

Ping statistics for 209.165.200.225:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

e. From PC-A, is it possible to ping S2? _____YES

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```