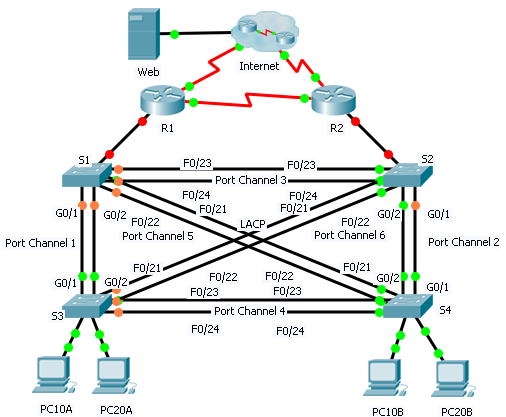
Packet Tracer – Skills Integration Challenge (Instructor Version)

**Instructor Note**: Red font color or Gray highlights indicate text that appears in the instructor copy only.

1. Topology



1. Addressing Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Device | Interface | IP Address | Subnet Mask | Default Gateway | VLAN Association |
| R1 | G0/0.1 | 192.168.99.1 | 255.255.255.0 | N/A | VLAN 99 |
| G0/0.10 | 192.168.10.1 | 255.255.255.0 | N/A | VLAN 10 |
| G0/0.20 | 192.168.20.1 | 255.255.255.0 | N/A | VLAN 20 |
| S0/0/0 | 209.165.22.222 | 255.255.255.224 | N/A | N/A |
| S0/0/1 | 192.168.1.1 | 255.255.255.0 | N/A | N/A |
| R2 | G0/0.1 | 192.168.99.2 | 255.255.255.0 | N/A | VLAN 99 |
| G0/0.10 | 192.168.10.2 | 255.255.255.0 | N/A | VLAN 10 |
| G0/0.20 | 192.168.20.2 | 255.255.255.0 | N/A | VLAN 20 |
| S0/0/0 | 192.168.1.2 | 255.255.255.0 | N/A | N/A |
| S0/0/1 | 209.165.22.190 | 255.255.255.224 | N/A | N/A |
| ISP | S0/0/0 | 209.165.22.193 | 255.255.255.224 | N/A | N/A |
| S0/0/1 | 209.165.22.161 | 255.255.255.224 | N/A | N/A |
| Web | NIC | 64.104.13.130 | 255.255.255.252 | 64.104.13.129 | N/A |
| PC10A | NIC | 192.168.10.101 | 255.255.255.0 | 192.168.10.1 | VLAN 10 |
| PC10B | NIC | 192.168.10.102 | 255.255.255.0 | 192.168.10.1 | VLAN 10 |
| PC20A | NIC | 192.168.20.101 | 255.255.255.0 | 192.168.20.1 | VLAN 20 |
| PC20B | NIC | 192.168.20.102 | 255.255.255.0 | 192.168.20.1 | VLAN 20 |

1. Scenario

In this activity, two routers are configured to communicate with each other. You are responsible for configuring subinterfaces to communicate with the switches. You will configure VLANs, trunking, and EtherChannel with PVST. The Internet devices are all preconfigured.

1. Requirements

You are responsible for configuring routers **R1** and **R2** and switches **S1**, **S2**, **S3**, and **S4**.

**Note:** Packet Tracer does not allow assigning point values less than 1. Since this activity is checking 154 items, not all configurations are assigned a point value. Click **Check Results** > **Assessment Items** to verify you correctly configured all 154 items.

Inter-VLAN Routing

On **R1** and **R2**, enable and configure the subinterfaces with the following requirement:

* 1. Configure the appropriate dot1Q encapsulation.
  2. Configure VLAN 99 as the native VLAN.
  3. Configure the IP address for the subinterface according to the Addressing Table.

Routing

Configure OSPFv2 using the following requirements:

* 1. User process ID 1.
  2. Advertise the network for each subinterface.
  3. Disable OSPF updates for each subinterface.

VLANs

* For all switches, create VLAN 10, 20, and 99.
* Configure the following static ports for **S1** and **S2**:
  1. F0/1 – 9 as access ports in VLAN 10.
  2. F0/10 – 19 as access ports in VLAN 20.
  3. F0/20 – F24 and G0/1 – 0/2 as the native trunk for VLAN 99.
* Configure the following static ports for **S3** and **S4**:
  1. F0/1 – 9 as access ports in VLAN 10.
  2. F0/10 – 20 as access ports in VLAN 20.
  3. F0/21 – F24 and G0/1 – 0/2 as the native trunk for VLAN 99.

EtherChannels

* All EtherChannels are configured as LACP.
* All EtherChannels are statically configured as the native trunk for VLAN 99.
* Use the following table to configure the appropriate switch ports to form EtherChannels:

|  |  |  |
| --- | --- | --- |
| Port Channel | Device: Ports | Device: Ports |
| 1 | S1: G0/1 – 2 | S3: G0/1 – 2 |
| 2 | S2: G0/1 – 2 | S4: G0/1 – 2 |
| 3 | S1: F0/23 – 24 | S2: F0/23 – 24 |
| 4 | S3: F0/23 – 24 | S4: F0/23 – 24 |
| 5 | S1: F0/21 – 22 | S4: F0/21 – 22 |
| 6 | S2: F0/21 – 22 | S3: F0/21 - 22 |

Spanning Tree

* Configure per-VLAN rapid spanning tree mode for all switches.
* Configure spanning tree priorities according to the table below:

|  |  |  |
| --- | --- | --- |
| Device | VLAN 10 Priority | VLAN 20 Priority |
| S1 | 4096 | 8192 |
| S2 | 8192 | 4096 |
| S3 | 32768 | 32768 |
| S4 | 32768 | 32768 |

**Instructor Note**: Packet Tracer 6.0.1 does not grade the **switchport mode trunk** command or the switchport trunk native vlan command in port-channel interfaces.

Connectivity

* All PCs should be able to ping the **Web** and other PCs.

1. Scripts
2. Router R1

!R1

enable

configure t

interface GigabitEthernet0/0

no shut

!

interface GigabitEthernet0/0.1

encapsulation dot1Q 99 native

ip address 192.168.99.1 255.255.255.0

!

interface GigabitEthernet0/0.10

encapsulation dot1Q 10

ip address 192.168.10.1 255.255.255.0

!

interface GigabitEthernet0/0.20

encapsulation dot1Q 20

ip address 192.168.20.1 255.255.255.0

!

router ospf 1

passive-interface GigabitEthernet0/0.1

passive-interface GigabitEthernet0/0.10

passive-interface GigabitEthernet0/0.20

network 192.168.99.0 0.0.0.255 area 0

network 192.168.10.0 0.0.0.255 area 0

network 192.168.20.0 0.0.0.255 area 0

end

copy run start

1. Router R2

!R2

enable

configure t

!

interface GigabitEthernet0/0

no shut

!

interface GigabitEthernet0/0.1

encapsulation dot1Q 99 native

ip address 192.168.99.2 255.255.255.0

!

interface GigabitEthernet0/0.10

encapsulation dot1Q 10

ip address 192.168.10.2 255.255.255.0

!

interface GigabitEthernet0/0.20

encapsulation dot1Q 20

ip address 192.168.20.2 255.255.255.0

!

router ospf 1

passive-interface GigabitEthernet0/0.1

passive-interface GigabitEthernet0/0.10

passive-interface GigabitEthernet0/0.20

network 192.168.99.0 0.0.0.255 area 0

network 192.168.10.0 0.0.0.255 area 0

network 192.168.20.0 0.0.0.255 area 0

end

copy run start

1. Switch S1

!S1

enable

configure t

vlan 10

vlan 20

vlan 99

interface range f0/1 - 9

switchport mode access

switchport access vlan 10

inte range f0/10 - 19

switchport mode access

switchport access vlan 20

interface range f0/20 - 24, g0/1-2

switchport mode trunk

switchport trunk native vlan 99

!

interface range g0/1 - 2

channel-group 1 mode active

interface range f0/21 - 22

channel-group 5 mode active

interface range f0/23 - 24

channel-group 3 mode active

!

interface po 1

switchport mode trunk

switchport trunk native vlan 99

interface po 3

switchport mode trunk

switchport trunk native vlan 99

interface po 5

switchport mode trunk

switchport trunk native vlan 99

!

spanning-tree mode rapid-pvst

spanning-tree vlan 10 priority 4096

spanning-tree vlan 20 priority 8192

end

copy run start

1. Switch S2

!S2

enable

configure t

vlan 10

vlan 20

vlan 99

interface range f0/1 - 9

switchport mode access

switchport access vlan 10

inte range f0/10 - 19

switchport mode access

switchport access vlan 20

inte range f0/20 - 24, g0/1-2

switchport mode trunk

switchport trunk native vlan 99

!

interface range g0/1 - 2

channel-group 2 mode active

interface range f0/21 - 22

channel-group 6 mode active

interface range f0/23 - 24

channel-group 3 mode active

!

interface po 2

switchport mode trunk

switchport trunk native vlan 99

interface po 3

switchport mode trunk

switchport trunk native vlan 99

interface po 6

switchport mode trunk

switchport trunk native vlan 99

!

spanning-tree mode rapid-pvst

spanning-tree vlan 10 priority 8192

spanning-tree vlan 20 priority 4096

end

copy run start

1. Switch S3

!S3

enable

configure t

vlan 10

vlan 20

vlan 99

interface range f0/1 - 9

switchport mode access

switchport access vlan 10

inte range f0/10 - 20

switchport mode access

switchport access vlan 20

inte range f0/21 - 24, g0/1-2

switchport mode trunk

switchport trunk native vlan 99

!

interface range g0/1 - 2

channel-group 1 mode active

interface range f0/21 - 22

channel-group 6 mode active

interface range f0/23 - 24

channel-group 4 mode active

!

interface po 1

switchport mode trunk

switchport trunk native vlan 99

interface po 4

switchport mode trunk

switchport trunk native vlan 99

interface po 6

switchport mode trunk

switchport trunk native vlan 99

!

spanning-tree mode rapid-pvst

spanning-tree vlan 10 priority 32768

spanning-tree vlan 20 priority 32768

end

copy run start

1. Switch S4

!S4

enable

configure t

vlan 10

vlan 20

vlan 99

interface range f0/1 - 9

switchport mode access

switchport access vlan 10

inte range f0/10 - 20

switchport mode access

switchport access vlan 20

inte range f0/21 - 24, g0/1-2

switchport mode trunk

switchport trunk native vlan 99

!

interface range g0/1 - 2

channel-group 2 mode active

interface range f0/21 - 22

channel-group 5 mode active

interface range f0/23 - 24

channel-group 4 mode active

interface po 2

switchport mode trunk

switchport trunk native vlan 99

interface po 4

switchport mode trunk

switchport trunk native vlan 99

interface po 5

switchport mode trunk

switchport trunk native vlan 99

!

spanning-tree mode rapid-pvst

spanning-tree vlan 10 priority 32768

spanning-tree vlan 20 priority 32768

end

copy run start