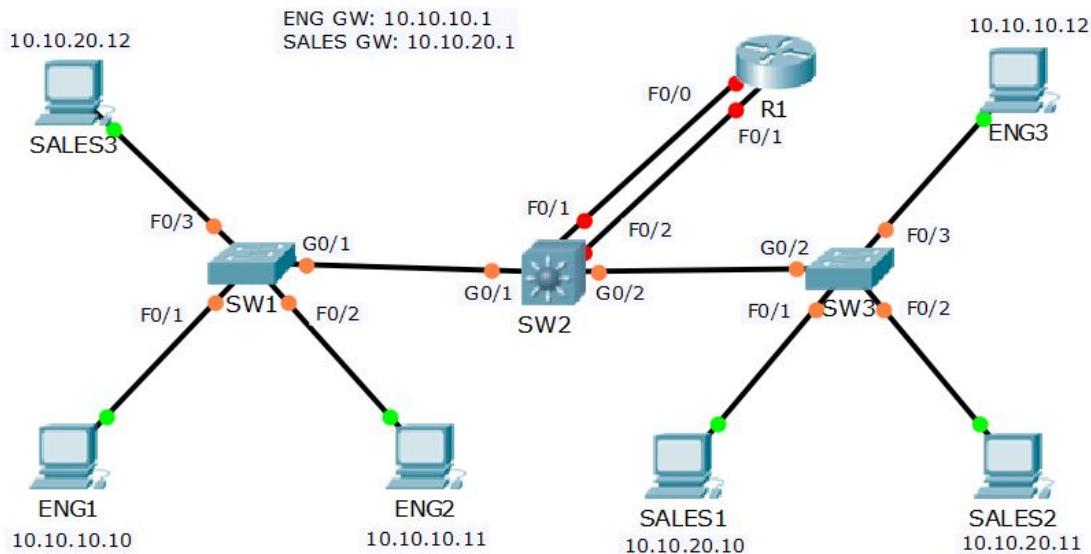# 22-1 VLAN and Inter-VLAN Routing Configuration – Lab Exercise

In this lab you will perform a VLAN configuration for a campus network, including Virtual Trunking Protocol, Access and Trunk ports, and inter-VLAN routing.

## Lab Topology



## Load the Startup Configurations

Open the '22-1 VLAN and Inter-VLAN Routing Configuration.pkt' file in Packet Tracer to load the lab.

# VTP, Access and Trunk Ports

1) All routers and switches are in a factory default state. View the VLAN database on SW1 to verify no VLANs have been added.

2) View the default switchport status on the link from SW1 to SW2.

3) Configure the links between switches as trunks.

4) Configure SW1 as a VTP Server in the VTP domain Flackbox.

5) SW2 must not synchronise its VLAN database with SW1.

6) SW3 must learn VLAN information from SW1. VLANs should not be edited on SW3.

7) Add the Eng, Sales and Native VLANs on all switches.

8) Verify the VLANs are in the database on each switch.

9) Configure the trunk links to use VLAN 199 as the native VLAN for better security.

10) Configure the switchports connected to the PCs with the correct VLAN configuration.

11) Verify the Eng1 PC has connectivity to Eng3.

12) Verify Sales1 has connectivity to Sales3.

# Inter-VLAN Routing – Option 1
# Separate Interfaces on Router

13) Configure interface FastEthernet0/0 on R1 as the default gateway for the Eng PCs.

14) Configure interface FastEthernet0/1 on R1 as the default gateway for the Sales PCs.

15) Configure SW2 to support inter-VLAN routing using R1 as the default gateway.

16) Verify the Eng1 PC has connectivity to the VLAN 20 interface on R1.

17) Verify the Eng1 PC has connectivity to Sales1.

18) Clean-up: Shut down interface FastEthernet0/1 on R1.


# Inter-VLAN Routing – Option 2
# Router on a Stick

19) Configure sub-interfaces on FastEthernet0/0 on R1 as the default gateway for the Eng and Sales PCs.

20) Configure SW2 to support inter-VLAN routing using R1 as the default gateway.

21) Verify the Eng1 PC has connectivity to the VLAN 20 interface on R1.

22) Verify the Eng1 PC has connectivity to Sales1.

23) Clean-up: Shut down interface FastEthernet0/0 on R1.

# Inter-VLAN Routing – Option 3
## Layer 3 Switch

24) Enable layer 3 routing on SW2.

25) Configure SVIs on SW2 to support inter-VLAN routing between the Eng and Sales VLANs.

26) Verify the Eng1 PC has connectivity to the VLAN 20 interface on SW2.

27) Verify the Eng1 PC has connectivity to Sales1.