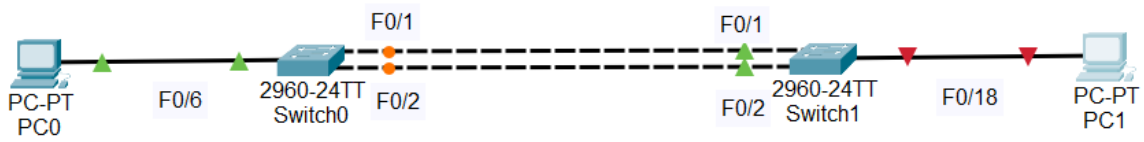
Practical 03

Implement Ethernet Channel



Addressing Table

Device	Interface	IP Address	Subnet Mask
S1	VLAN 10	192.168.10.11	255.255.255.0
S2	VLAN 10	192.168.10.12	255.255.255.0
PC-A	NIC	192.168.20.3	255.255.255.0
PC-B	NIC	192.168.20.4	255.255.255.0

VLAN Table

VLAN	Name	Interface Assigned
10	Management	VLAN 10
20	Clients	S1: F0/6 S2: F0/18
999	Parking_Lot	S1: F0/3-5, F0/7-24, G0/1-2 S2: F0/3-17, F0/19-24, G0/1-2
1000	Native	N/A

Step 1: Cable the network as shown in the topology.

Attach the devices as shown in the topology diagram, and cable as necessary.

Step 2: Configure basic settings for each switch.

a. Assign a device name to the switch.

```
switch(config)# hostname S1
```

b. Disable DNS lookup to prevent the router from attempting to translate incorrectly entered commands as though they were host names.

```
S1(config)# no ip domain-lookup
```

c. Assign **class** as the privileged EXEC encrypted password.

```
S1(config)# enable secret class
```

d. Assign **cisco** as the console password and enable login.

```
S1(config)# line console 0
S1(config-line)# password cisco
S1(config-line)# login
```

e. Assign **cisco** as the VTY password and enable login.

```
S1(config)# line vty 0 15
S1(config-line)# password cisco
S1(config-line)# login
```

f. Encrypt the plaintext passwords.

```
S1(config)# service password-encryption
```

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```
S1(config)# service password-encryption
```

g. Create a banner that warns anyone accessing the device that unauthorized access is prohibited.

```
S1(config)# banner motd $ Authorized Users Only! $
```

h. Save the running configuration to the startup configuration file.

```
S1# copy running-config startup-config
```

i. Set the clock on the switch to today's time and date.

```
S1# clock set 15:30:00 27 Aug 2019
```

Note: Use the question mark (?) to help with the correct sequence of parameters needed to execute this command.

Step 3: Configure PC hosts.

Refer to the Addressing Table for PC host address information.

Part 2: Create VLANs and Assign Switch Ports

In Part 2, you will create VLANs as specified in the table above on both switches. You will then assign the VLANs to the appropriate interface and verify your configuration settings. Complete the following tasks on each switch.

Step 1: Create VLANs on the switches.

a. On both switches create and name the required VLANs from the VLAN Table above.

```
S1(config)# vlan 10
S1(config-vlan)# name Management
S1(config-vlan)# vlan 20
S1(config-vlan)# name Clients
S1(config-vlan)# vlan 999
S1(config-vlan)# name Parking_Lot
S1(config-vlan)# vlan 1000
S1(config-vlan)# name Native
S1(config-vlan)# exit
```

```
S2(config)# vlan 10
S2(config-vlan)# name Management
S2(config-vlan)# vlan 20
S2(config-vlan)# name Clients
S2(config-vlan)# vlan 999
S2(config-vlan)# name Parking_Lot
S2(config-vlan)# vlan 1000
S2(config-vlan)# name Native
S2(config-vlan)# exit
```

b. Configure and activate the management interface on each switch using the IP address information in the Addressing Table.

```
S1(config)# interface vlan 10
S1(config-if)# ip address 192.168.10.11 255.255.255.0
S1(config-if)# no shutdown
S1(config-if)# exit

S2(config)# interface vlan 10
S2(config-if)# ip address 192.168.10.12 255.255.255.0
S2(config-if)# no shutdown
S2(config-if)# exit
```

c. Assign all unused ports on the switch to the Parking_Lot VLAN, configure them for static access mode, and administratively deactivate them.

```
S1(config)# interface range f0/3 - 4, f0/7 - 24, g0/1 - 2
S1(config-if-range)# switchport mode access
S1(config-if-range)# switchport access vlan 999
S1(config-if-range)# shutdown

S2(config)# interface range f0/3 - 17, f0/19 - 24, g0/1 - 2
S2(config-if-range)# switchport mode access
S2(config-if-range)# switchport access vlan 999
S2(config-if-range)# shutdown
```

Step 2: Assign VLANs to the correct switch interfaces.

a. Assign used ports to the appropriate VLAN (specified in the VLAN table above) and configure them for static access mode.

```
S1(config)# interface f0/6
S1(config-if)# switchport mode access
S1(config-if)# switchport access vlan 20

S2(config)# interface f0/18
S2(config-if)# switchport mode access
S2(config-if)# switchport access vlan 20
```

b. Issue the **show vlan brief** command and verify that the VLANs are assigned to the correct ports.

```
S1# show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------
1    default                           active    Fa0/1, Fa0/2
10   Management                        active
20   Sales                             active    Fa0/6
999  Parking_Lot                       active    Fa0/3, Fa0/4, Fa0/5, F
                                                 Fa0/8, Fa0/9, Fa0/10,
                                                 Fa0/12, Fa0/13, Fa0/14
                                                 Fa0/16, Fa0/17, Fa0/18
                                                 Fa0/20, Fa0/21, Fa0/22
                                                 Fa0/24, Gi0/1, Gi0/2
1000 Native                            active
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup
```

```
S2# show vlan brief


VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------
1    default                           active    Fa0/1, Fa0/2
10   Management                        active
20   Clients                           active    Fa0/18
999  Parking_Lot                       active    Fa0/3, Fa0/4, Fa0/5, F
                                                 Fa0/7, Fa0/8, Fa0/9, F
                                                 Fa0/11, Fa0/12, Fa0/13
                                                 Fa0/15, Fa0/16, Fa0/17
                                                 Fa0/20, Fa0/21, Fa0/22
                                                 Fa0/24, Gi0/1, Gi0/2
1000 Native                            active
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup
```

Part 3: Configure 802.1Q trunks between the switches.

In Part 3, you will manually configure interfaces F0/1 and F0/2 as 802.1Q trunks.

a. Change the switchport mode on the interfaces to force trunking. Use the **interface range** command to reduce the number of commands required. Make sure to do this on both switches.

```
S1(config)# interface range f0/1-2
S1(config-if-range)# switchport mode trunk

S2(config)# interface range f0/1-2
S2(config-if-range)# switchport mode trunk
```

b. As a part of the trunk configuration, set the native VLAN to 1000 on both switches. You may see error messages temporarily while the two interfaces are configured for different native VLANs.

```
S1(config-if-range)# switchport trunk native vlan 1000

S2(config-if-range)# switchport trunk native vlan 1000
```

c. As another part of trunk configuration, specify that VLANs 10, 20, and 1000 are allowed to cross the trunk.

```
S1(config-if-range)# switchport trunk allowed vlan 10,20,1000

S2(config-if-range)# switchport trunk allowed vlan 10,20,1000
```

d. Issue the **show interfaces trunk** command to verify the trunking ports, Native VLAN and allowed VLANs across the trunk.

```
S1# show interfaces trunk
```

```
S2# show interfaces trunk
```

Part 4: Implement and Verify an EtherChannel between the switches.

a. Create a LACP-based EtherChannel using F0/1 and F0/2 using group number 1, with both switches actively negotiating the EtherChannel protocol. Use the **interface range** command to reduce the number of commands required.

```
S1(config)# interface range f0/1-2
S1(config-if-range)# channel-group 1 mode active
S1(config-if-range)# exit

S2(config)# interface range f0/1-2
S2(config-if-range)# channel-group 1 mode active
S2(config-if-range)# exit
```

b. After the EtherChannel is configured, a virtual Port-Channel interface is automatically created. Now interface Port-Channel 1 represents the logical interface of the bundled physical ports F0/1 and F0/2. Additionally, the Port-Channel will inherit the configuration of the first physical port added to the EtherChannel.

c. Issue the **show interfaces trunk** command to verify trunking is still in place

```
S1# show interfaces trunk
```

```
S2# show interfaces trunk
```

d. Use the **show etherchannel summary** command to verify the EtherChannel configuration.

```
S1# show etherchannel summary
```

```
S2# show etherchannel summary
```

Device Configs – Final

Switch S1

```
S1# show run
```

Switch S2

```
S2# show run
```