

# Redes de Computadores - RECOMP

## Configure EtherChannel

### Lab Topology:

The lab network topology is illustrated below:

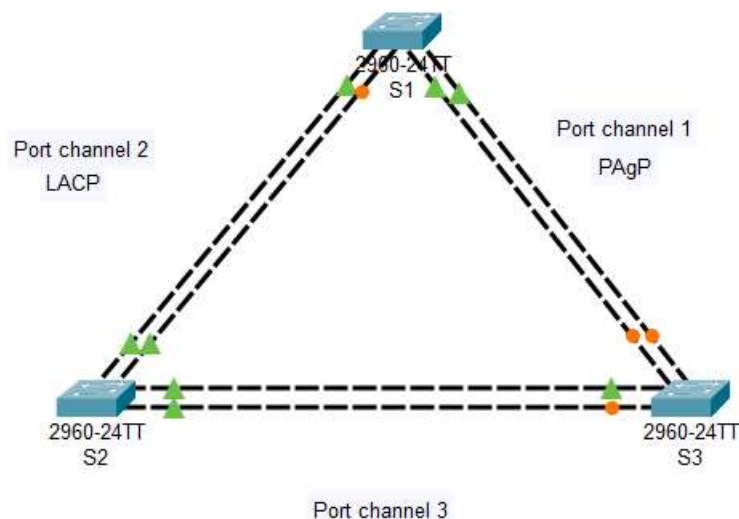


Figure 1: Topology diagram

### Objectives

**Part 1: Configure Basic Switch Settings**

**Part 2: Configure an EtherChannel with Cisco PAgP**

**Part 3: Configure an 802.3ad LACP EtherChannel**

**Part 4: Configure Manual "ON" EtherChannel mode**

### Background

Three switches have just been installed. There are redundant uplinks between the switches. As configured, only one of these links can be used.

Nonetheless, using only one link utilizes only half of the available bandwidth. EtherChannel helps to resolve this problem by allowing to bundle together several links into one logical link.

This lab objective is to configure a Cisco EtherChannel protocol, Port Aggregation Protocol (PAgP), and Link Aggregation Control Protocol (LACP),

- All Ethernet interfaces support EtherChannel up to a maximum of eight interfaces with no requirement that the interfaces be on the same interface module.
- All interfaces within an EtherChannel must operate at the same speed and duplex.
- All interfaces in a Layer 2 EtherChannel must be members of the same VLAN or be configured as trunks.
- After configuring the EtherChannel, verify that all interfaces are in the up/up state.

## Port Channel Table

Channel Group	Ports	Protocol
1	S1 F0/1, F0/2 S3 F0/1, F0/2	PAgP
2	S1 G0/1, G0/2 S2 G0/1, G0/2	LACP
3	S2 F0/3, F0/4 S3 F0/3, F0/4	-

## Instructions

### Part 1: Configure Basic Switch Settings

- Assign each switch a hostname according to the topology diagram (Figure 1).
- Before beginning the link aggregation between switches, verify the existing configuration of the ports that connect the switches to ensure that the ports will successfully join the EtherChannels. Commands that provide information about the state of the switch ports include:

```
S1# show interfaces
S1# show interface status
S1# show interfaces trunk
```

### Part 2: Configure an EtherChannel with Cisco PAgP

#### Step 1: Configure Port Channel 1.

- The first EtherChannel that is created for this activity aggregates ports F0/1 and F0/2 between **S1** and **S3**. Configure the ports on both switches as static trunk ports.
- Use the **show interfaces trunk** command to ensure that you have an active trunk link for those two links, and the native VLAN on both links is the same.

```
S1# show interfaces trunk

Port Mode Encapsulation Status Native vlan
F0/1 on 802.1q trunking 1
F0/2 on 802.1q trunking 1
G0/1 on 802.1q trunking 1
G0/2 on 802.1q trunking 1
<output omitted>
```

- On S1 and S3, add ports F0/1 and F0/2 to Port Channel 1 with the **channel-group 1 mode desirable** command. The **mode desirable** option enables the switch to actively negotiate to form a PAgP link.

**Note:** Interfaces must be **shutdown** before adding them to the channel group.

```
S1(config)# interface range f0/1-2
S1(config-if-range)# shutdown
S1(config-if-range)# channel-group 1 mode desirable
S1(config-if-range)# no shutdown
```

```
S3(config)# interface range f0/1-2
S3(config-if-range)# shutdown
S3(config-if-range)# channel-group 1 mode desirable
S3(config-if-range)# no shutdown
```

The message “Creating a port-channel interface Port-channel 1” should appear on both switches when the channel group is configured. This interface designation will appear as Po1 in the command output.

- d. Configure the logical interface to become a trunk by first entering the **interface port-channel number** command and then the **switchport mode trunk** command. Add this configuration to both switches.

```
S1(config)# interface port-channel 1
S1(config-if)# switchport mode trunk
```

```
S3(config)# interface port-channel 1
S3(config-if)# switchport mode trunk
```

## Step 2: Verify Port Channel 1 status.

- a. Issue the **show etherchannel summary** command on S1 and S3 to verify that EtherChannel is working on both switches. This command displays the type of EtherChannel, the ports utilized, and the port states. Command output is shown for S1.

```
S1# show etherchannel summary
Flags: D - down P - in port-channel
I - stand-alone s - suspended
H - Hot-standby (LACP only)
R - Layer3 S - Layer2
U - in use f - failed to allocate aggregator
u - unsuitable for bundling
w - waiting to be aggregated
d - default port

Number of channel-groups in use: 1
Number of aggregators: 1

Group Port-channel Protocol Ports
-----+-----+-----+-----
1 Po1(SU) PAgP F0/1(P) F0/2(P)
```

## Part 3: Configure an 802.3ad LACP EtherChannel

### Step 1: Configure Port Channel 2.

- a. Using the previous commands, configure the link between **S1** and **S2**, using ports G0/1 and G0/2, as an LACP EtherChannel. You must use a different port channel number on **S1** than 1, because you already used that in the previous step.

```
S1(config)# interface range g0/1-2
S1(config-if-range)# shutdown
S1(config-if-range)# channel-group 2 mode active
S1(config-if-range)# no shutdown
S1(config-if-range)# interface port-channel 2
S1(config-if)# switchport mode trunk
```

### Step 2: Verify Port Channel 2 status.

Use the **show** commands from Part 2 Step 2 to verify the status of Port Channel 2. Look for the protocol used by each port.

## Part 4: Configure Manual “ON” EtherChannel mode.

### Step 1: Configure Port Channel 3.

Configure manual mode “on” in the links between S2 and S3.

```
S2(config)# interface range f0/3-4
S2(config-if-range)# shutdown
S2(config-if-range)# channel-group 3 mode on
S2(config-if-range)# no shutdown
S2(config-if-range)# interface port-channel 3
S2(config-if)# switchport mode trunk
```

### Step 2: Verify Port Channel 3 status.

Use the **show** commands from Part 2 Step 2 to verify the status of Port Channel 3. Look for the protocol used by each port.