



OLT Port Configuration, Cisco Catalyst PON Series Switches

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CHAPTER 1

Port Basic Configuration

- [Overview of Basic Port Settings, on page 1](#)
- [How to Configure Basic Port Settings, on page 1](#)
- [Configuration Example: Basic Port Settings, on page 4](#)

Overview of Basic Port Settings

You can perform the following basic settings on a port:

- **Entering interface configuration mode:** Interface configuration mode is supported only on Ethernet ports.
- **Enabling a port:** By default, all device ports are enabled or in link-up state when a device is online. However, for security reasons, certain ports are disabled or in link-down state even when a device is online.
- **Configuring port description:** You can configure a port's description to identify the port.
- **Configuring port speed:** You can configure a port's speed to configure the rate of data flow.
- **Configuring speed control:** For every 2-Gigabits ports that are connected, and speeds configured in force mode, you need to configure one port in primary mode and the other in secondary mode to enable them to dock successfully.

How to Configure Basic Port Settings

The following sections provide configuration information for basic port settings.

Enter Interface Configuration Mode

To enter interface configuration mode, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|-------------------|-------------------------------|
| Step 1 | enable | Enables privileged EXEC mode. |

| | Command or Action | Purpose |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| | Example: Device> enable | Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode |
| Step 4 | interface range ethernet <i>port-number</i> to ethernet <i>port-number</i> Example: Device(config-if-ethernet-1/1)# interface range ethernet 1/1 to ethernet 1/4 | Enters bulk port mode. |

Enable a Port

To enable a port, perform this procedure.

Procedure

| | Command or Action | Purpose |
|---------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode. |
| Step 4 | no shutdown Example: Device(config-if-ethernet-1/1)# no shutdown | Enables the port. Use the shutdown command to disable the port. |

Configure an Interface Description

To configure an interface description, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode <i>port-number</i> : The port ID. |
| Step 4 | [no] description <i>string</i> Example: Device(config-if-ethernet-1/1)# description cisco | Configures an interface description. <i>string</i> : The port description. The format is string. Range is from 1 to 128. Use the no description command to delete the interface description. |

Configure Interface Speed

To configure interface speed, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode. |
| Step 4 | [no] speed {1000 10000 auto} Example: Device(config-if-ethernet-1/1)# speed 1000 | Configures the interface speed. <ul style="list-style-type: none"> • 1000: Port speed is 1000, in Mbps • 10000: Port speed is 10000, in Mbps • auto: Port speed is automatic. |

| | Command or Action | Purpose |
|--|-------------------|-------------------------------------------------------------------------------------|
| | | Use the no speed command to restore the default speed. The default is 10000. |

Monitor Interfaces

Use the following commands to monitor interfaces.

Table 1: Commands to Monitor Interfaces

| Command | Purpose |
|---------------------------------------------------------------|--------------------------------------------------|
| show interface ethernet <i>port-number</i> | Display the interface's detailed configurations. |
| show interface brief ethernet <i>port-number</i> | Display the interface's brief configurations. |
| show description interface ethernet <i>port-number</i> | Displays the interface description. |
| show port-control mode | Displays the configured port-control mode. |

Configuration Example: Basic Port Settings

The following example shows how to configure the description.

```
Device> enable
Device# configure terminal
Device(config)# interface ethernet 1/1
Device(config-if-ethernet-1/1)# description test
Device(config-if-ethernet-1/1)# exit
```

The following example shows how to modify the priority:

```
Device(config)# interface ethernet 1/1
Device(config-if-ethernet-1/1)# priority 7
Device(config-if-ethernet-1/1)# exit
```

The following example shows how to configure the interface-only accept tag frame:

```
Device(config)# interface ethernet 1/1
Device(config-if-ethernet-1/1)# ingress acceptable-frame tagged
Device(config-if-ethernet-1/1)# exit
```

The following example shows how to disable ingress filtering:


```
Device(config)# interface ethernet 1/1
Device(config-if-ethernet-1/1)# no ingress filtering
Device(config-if-ethernet-1/1)# exit
```

The following example shows how to create VLAN 100, and only include interface 2 with interface 2 adopting trunk mode:

```
Device(config)# vlan 100
Device(config-if-vlan)# switchport ethernet 1/2
Device(config-if-vlan)# interface ethernet 1/2
Device(config-if-ethernet-1/2)# switchport mode trunk
Device(config-if-ethernet-1/2)# exit
```




CHAPTER 2

Port Aggregation Configurations

- [Overview of Port Aggregation, on page 7](#)
- [How to Configure Port Aggregation, on page 9](#)
- [Configuration Examples: Port Aggregation , on page 12](#)

Overview of Port Aggregation

The following sections provide information about port aggregation, aggregation group, load balance, system priority and port priority.

Port Aggregation

Port aggregation allows you to group multiple physical ports into one unit. Port aggregation is useful for implementing load balancing and provides a redundant link backup.

To allow port aggregation, the basic configuration on all the ports must be consistent. The following list details the basic configuration parameters that should be consistent on all the ports:

- STP configurations, including STP enable or disable, STP priority, and STP cost.
- VLAN configurations, including permitted VLANs on a port and port VLAN ID (PVID).
- Port attribute configurations, including port speed, duplex mode, and link type.



Note Only full duplex mode is supported.
Trunk, hybrid, or access link types are supported.

If the attributes of a port in an aggregation group on the same device is modified, then all the remaining ports in the group are automatically synchronized.

Aggregation Group

Port aggregation groups can be configured in the following modes:

- ON mode: Adds a port to a static aggregation group. Link Aggregation Control Protocol (LACP) is not required in this mode to negotiate with the device at the end. A static aggregation group can have up to eight ports.
- Active mode: Adds a port to a dynamic aggregation group. LACP is required in this mode to communicate with a device on the other side. In this mode, the port automatically initiates LACP negotiation.
- Passive mode: Adds a port to a dynamic aggregation group. LACP is required in this mode to communicate with a device on the other side. In this mode, a port responds only to LACP negotiation.

**Note**

A dynamic aggregation group can contain up to 12 ports. Out of the 12 ports, eight ports will be in the band 1 state and the remaining four will be in the backup state. Only ports with band 1 state will be allowed to forward normal traffic. If a port in the band 1 state faces a link down, a backup port with the highest port priority becomes the band 1 state.

The following is a list of the methods used to dock the devices configured in various modes:

- A device that is configured in static mode can dock with another device that is configured in static mode.
- A device that is configured in dynamic active mode can dock with another device that is configured either in dynamic active mode or dynamic passive mode.
- A device that is configured with dynamic passive mode can dock with another device that is configured in dynamic active mode.

Aggregation Group ID

You can either create an aggregation ID under global configuration mode or you can add a port to an aggregation group to automatically create an aggregation ID.

Load Balance

The default mode to configure load balancing is using the source MAC address.

You can view the configuration information with the **show lacp internal [ch-id]** command.

System Priority

In dynamic mode, the primary and secondary devices are selected based on the system ID, which is generated based on the configured system priority and the local MAC address. The system priority of both the devices are compared, and the device with the highest priority (lower value) is selected as the primary device. The device with the lowest priority (higher value) is selected as the secondary device. If the priority of both the devices are the same, the local MAC address is compared. The device with the lower MAC address is selected as the primary device and the device with the higher MAC address is selected as the secondary device.

The default system priority is 32768.

Port Priority

In dynamic mode, the primary device uses the logical port to forward protocol packets, such as STP, to the secondary device. The logical port is selected based on the port ID, which is a combination of port priority and port number. The port priority of both the ports are compared, and the port with the highest priority (lower value) is selected as the logical port. If the priority of both the ports are the same, the port number is compared. The port with the lower port number is selected as the logical port.

By default, all port priorities are the same, with a value of 128. You can configure the port priorities, as required. All port priority values are configured as integer multiples of 16. For example, if the port priority value is set as 17, the actual success is issued $17 / 16 = 1$.

How to Configure Port Aggregation

The following sections provide configuration information on port aggregation.

Configure Port Aggregation

To configure port aggregation, perform these procedures.

Configure an Aggregation Group ID

To configure the aggregation group ID, perform this procedure.

Before you begin

- A port cannot be configured to multiple aggregation group IDs.
- An aggregation group cannot be deleted until all the ports are removed from the aggregation group.

Procedure

| | Command or Action | Purpose |
|--------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | [no] channel-group <i>channel_group_id</i> Example: Device(config)# channel-group 2 | Configures the aggregation group ID. <i>channel_group_id</i> : Channel group ID. The range is from 0 to 5. Use the no channel-group <i>channel_group_id</i> command to disable the aggregation group ID. |

Configure an Aggregation Group

To configure an aggregation group, perform this procedure.

Procedure

| | Command or Action | Purpose |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode. <i>port-number</i> : The port ID. |
| Step 4 | [no] channel-group <i>channel_group_id</i> mode { on active passive } Example: Device(config-if-ethernet-1/1)# channel-group 2 mode active | Adds a port to an aggregation group. <ul style="list-style-type: none"> • <i>channel_group_id</i>: Channel group ID. The range is from 0 to 5. • on: LACP static mode. • active: LACP active mode. • passive: LACP passive mode. <p>Use the no channel-group <i>channel_group_id</i> to remove the port from the aggregation group.</p> |

Configure a Load Balance Policy

To configure a load balance policy, perform this procedure.

Procedure

| | Command or Action | Purpose |
|---------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |

| | Command or Action | Purpose |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 3 | <p>[no]channel-group load-balance {src-mac dst-mac src-dst-mac src-dst-ip src-ip dst-ip}</p> <p>Example:</p> <pre>Device(config)# channel-group load-balance src-mac</pre> | <p>Configures the load balance policy (all groups).</p> <ul style="list-style-type: none"> • src-mac: The source MAC address. The default load balance uses the source MAC address. • dst-mac: The destination MAC address. • src-dst-mac: The source and destination MAC address. • src-dst-ip: The source and destination IP address. • src-ip: The source IP address. • dst-ip: The destination IP address. <p>Use the no channel-group load-balance command to restore the default load policy</p> |

Configure System Priority

To configure system priority, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <p>enable</p> <p>Example:</p> <pre>Device> enable</pre> | <p>Enables privileged EXEC mode.</p> <p>Enter your password, if prompted.</p> |
| Step 2 | <p>configure terminal</p> <p>Example:</p> <pre>Device# configure terminal</pre> | <p>Enters global configuration mode.</p> |
| Step 3 | <p>[no] lacp system-priority <i>value</i></p> <p>Example:</p> <pre>Device(config)# lacp system-priority</pre> | <p>(Optional) Configures the priority of the system.</p> <p><i>value:</i> The priority value.</p> <p>Use the no lacp system-priority command to restore the default configurations.</p> |

Configure Port Priority

To configure port priority, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|-------------------|--------------------------------------|
| Step 1 | <p>enable</p> | <p>Enables privileged EXEC mode.</p> |

| | Command or Action | Purpose |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| | Example: Device> enable | Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface ethernet <i>port-number</i> Example: Device(config)# interface ethernet 1/1 | Enters interface configuration mode. <i>port-number</i> : The port ID. |
| Step 4 | [no] lacp port-priority <i>value</i> Example: Device(config-if-ethernet-1/1)# lacp port-priority 8 | Configures port priority. Use the no lacp port-priority command to restore the default priority. |

Monitor Port Aggregation Configurations

Use the following commands to monitor port aggregation configurations.

Table 2: Commands to Monitor Port Aggregation Configuration Commands

| Command | Purpose |
|------------------------------------------|-------------------------------------------------------------|
| show lacp internal [<i>ch-id</i>] | Displays the information of the aggregation group. |
| show lacp neighbor [<i>ch-id</i>] | Displays the neighbor information of the aggregation group. |
| show lacp sys-id | Displays the system priority configurations. |

Configuration Examples: Port Aggregation

The following examples are that of a network topology where ports 1 to 12 of device 1 and device 2 are configured with dynamic LACP.

The following example shows how to configure device 1:

```
Device> enable
Device# configure terminal
Device(config)# channel-group 10
Device(config)# interface range ethernet 1/1 to ethernet 1/4
Device(config-if-range)# channel-group 10 mode active
```

The following example shows how to configure device 2:


```
Device> enable
Device# configure terminal
Device(config)# channel-group 10
Device(config)# interface range ethernet 1/1 to ethernet 1/4
Device(config-if-range)# channel-group 2 mode active
```

The following example shows how to view information after the dynamic LACP negotiation succeeds:

```
Device> enable
Device# configure terminal
Device(config)# show lacp internal
load balance: src-mac
Channel: 10, dynamic channel

Port   State   A-Key   O-Key   Priority   Logic-port   Actor-state
e1/1   bnd1    11      11      128        1             10111100
e1/2   bnd1    11      11      128        1             10111100
e1/3   bnd1    11      11      128        1             10111100
e1/4   bnd1    11      11      128        1             10111100
```




CHAPTER 3

Port Isolation Configuration

- [Overview of Port Isolation, on page 15](#)
- [How to Configure Port Isolation, on page 15](#)
- [Configuration Example: Port Isolation, on page 16](#)

Overview of Port Isolation

You can configure certain ports on a device in isolation mode. Ports that are in isolation mode are allowed to communicate only to upstream ports, and not to downstream ports. This improves the security of the network and provides a flexible network solution.

How to Configure Port Isolation

To configure port isolation, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | [no] port-isolation ethernet <i>port-number</i> Example: Device(config)# port-isolation ethernet 1/1 | Configures port isolation. <i>port-number</i> : The port ID. Use the no port-isolation {all ethernet <i>port-number</i>} command to delete port isolation. |
| Step 4 | show port-isolation Example: | Displays the isolation port. |

| | Command or Action | Purpose |
|--|--------------------------------------------|---------|
| | Device(config)# show port-isolation | |

Configuration Example: Port Isolation

The following examples are that of a network topology where PC1, PC2, and PC3 are connected to ports 2, 3, and 4 of a device. The device is connected to the external network through port 1. PC1, PC2, and PC3 should be isolated between Layer 2 and Layer 3.

The following example shows how to configure ports 2, 3, and 4 as downlink ports, and port 1 as uplink port:

```
Device> enable
Device# configure terminal
Device(config)# port-isolation ethernet 1/2 to e 1/4
```

The following example shows how to view the isolation port configuration:

```
Device> enable
Device# configure terminal
Device(config)# show port-isolation
Port isolation downlink port :
e1/2-e1/4.
```



CHAPTER 4

Digital Diagnostic Monitor

- [Overview of Digital Diagnostic Monitor, on page 17](#)
- [Monitor Digital Diagnostic Monitor, on page 17](#)
- [Configuration Example: Digital Diagnostic Monitor, on page 17](#)

Overview of Digital Diagnostic Monitor

The Digital Diagnostic Monitor (DDM) allows you to perform diagnostic tests on transceiver modules such as small form-factor pluggable (SFP). Run the **show interface sfp ethernet *port-number*** command to view the various parameters of the transceiver module, such as temperature, voltage, transmission power, and so on.

Monitor Digital Diagnostic Monitor

Use the following command to monitor DDM test information.

Table 3: Commands to Monitor DDM Test Information

| Command | Purpose |
|-------------------------------------------------------|------------------------------------|
| show interface sfp ethernet <i>port-number</i> | Displays the DDM test information. |

Configuration Example: Digital Diagnostic Monitor

The following example shows how to display DDM test information on a device:

```
Device> enable
Device# configure terminal
Device(config)# show interface sfp ethernet 1/1
Port e1/1 :
Common information:
Transceiver Type           :SFP
Compliance                 :10G BASE-LR
Connector Type             :LC
WaveLength(nm)             :1310
```

```
Transfer Distance(m)           :10000(9um)
Digital Diagnostic Monitoring  :YES
VendorName                     :WTD
Manufacture information:
Manu. Serial Number           :BP132500260047
Manufacturing Date            :2013-06-19
VendorName                     :WTD
Diagnostic information:
Temperature( )                 :28
Voltage(V)                     :3.3098
Bias Current(mA)              :35.419
Bias High Threshold(mA)       :70.00
Bias Low Threshold(mA)        :15.00
RX Power(dBm)                 :-2.80
RX Power High Threshold(dBm)  :0.00
RX Power Low Threshold(dBm)   :-15.20
TX Power(dBm)                 :-3.10
TX Power High Threshold(dBm)  :0.00
TX Power Low Threshold(dBm)   :-8.20
```



CHAPTER 5

Port Statistics

- [Overview of Port Statistics, on page 19](#)
- [Configure 5-Minute Port Rate Statistics, on page 19](#)
- [Monitor Minute Port Rate Statistics, on page 20](#)
- [Configuration Example: Port Statistics, on page 21](#)

Overview of Port Statistics

Configuring port statistics allows an administrator to detect network failures and analyze the cause. You can configure port statistics to capture the following information:

- The rate at which a port receives and transmits packet.
- The errors occurring while receiving and transmitting a packet.
- Classification by bytes.
- Packet loss occurring for unicast and multicast packets.

Configure 5-Minute Port Rate Statistics

Port rate statistics are used to calculate the average rate of receiving packet and transmitting packets during a specified time. The default statistical cycle and largest statistical period are five minutes.

To configure 5-minute port rate statistics, perform this procedure.

Procedure

| | Command or Action | Purpose |
|--------|-----------------------------------------------------------|--------------------------------------------------------------------|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: | Enters global configuration mode. |

| | Command or Action | Purpose |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Device# <code>configure terminal</code> | |
| Step 3 | <p><code>[no] port-rate-statistics interval value</code></p> <p>Example:</p> <p>Device(config)# <code>port-rate-statistics interval</code></p> | <p>(Optional) Configures the interface statistics interval.</p> <p><i>value</i>: Time interval. The default is 5 minutes.</p> <p>Use the [no] port-rate-statistics interval command to restore the default settings.</p> |

Monitor Minute Port Rate Statistics

Use the following command to monitor port rate statistics.

Table 4: Command to Monitor Minute Port Rate Statistics

| Command | Purpose |
|---------------------------------------------------------------|--------------------------------------------|
| <code>show statistics interface [ethernet port-number]</code> | Displays port rate statistics information. |

Monitor Ordinary Interface Packet Statistics

Use the following commands to monitor ordinary interface packet statistics.

Table 5: Commands to Monitor Ordinary Interface Packet Statistics

| Command | Purpose |
|--------------------------------------------------|------------------------------------------------------|
| <code>show statistics dynamic interface</code> | Displays interface real-time statistics information. |
| <code>show utilization interface</code> | Displays interface utilization. |
| <code>show interface ethernet port-number</code> | Displays interface information. |

Monitor CPU Interface Statistics

Use the following commands to monitor CPU interface statistics.

Table 6: Commands to Monitor CPU Interface Statistics

| Command | Purpose |
|-----------------------------------------------------------------------|-----------------------------------------------------|
| <code>show cpu-statistic ethernet port-number</code> | Displays CPU interface statistics information. |
| <code>clear cpu-statistics</code> | Clears CPU interface statistics. |
| <code>show cpu-classification [interface ethernet port-number]</code> | Displays CPU classification statistics information. |
| <code>clear cpu-statistics</code> | Clears CPU classification statistics information. |

| Command | Purpose |
|-----------------------------------------|---------------------------------|
| <code>show utilization interface</code> | Displays interface utilization. |
| <code>show cpu-utilization</code> | Displays CPU utilization. |

Monitor Port Statistics of an Aggregation Group

Use the following commands to monitor the port statistics of an aggregation group.

Table 7: Commands to Monitor Port Statistics of an Aggregation Group

| Command | Purpose |
|---------------------------------------------------------|----------------------------------------|
| <code>show statistics channel-group [channel-id]</code> | Displays LACP statistical information. |
| <code>clear channel-group [channel-id]</code> | Clears LACP statistical information. |

Configuration Example: Port Statistics

The following example shows how to display interface statistics information:

```
Device> enable
Device# configure terminal
Device(config)# show statistics interface ethernet 1/1
Port number : e1/1
last 5 minutes input rate 6198600 bits/sec, 12106 packets/sec
last 5 minutes output rate 28256 bits/sec, 55 packets/sec
64 byte packets:4267810
65-127 byte packets:0
128-255 byte packets:0
256-511 byte packets:0
512-1023 byte packets:0
1024-1518 byte packets:0
4267707 packets input, 273132992 bytes , 1 discarded packets
4267707 unicasts, 0 multicasts, 0 broadcasts
1 input errors, 0 FCS error, 0 symbol error, 0 false carrier
1 runts, 0 giants
23763 packets output, 1520832 bytes, 0 discarded packets
0 unicasts, 23763 multicasts, 0 broadcasts
0 output errors, 0 deferred, 0 collisions
0 late collisions
Total entries: 1.
```

The following example shows how to display interface statistic information:

```
Device> enable
Device# configure terminal
Device(config)# show interface ethernet 1/1
Fast Ethernet e1/1 current state: enabled, port link is up
Time duration of linkup is 31 second
Hardware address is 00:0a:5a:00:04:1e
SetSpeed is auto, ActualSpeed is 100M, Duplex mode is full
```

```
Current port type: 100BASE-T
Priority is 0
Flow control is disabled
Broadcast storm control target rate is 50000pps
PVID is 1
Port mode: hybrid
Untagged VLAN ID : 1
Input  : 5361414 packets, 343130240 bytes
         0 broadcasts, 0 multicasts, 5361414 unicasts
Output : 23763 packets, 1520832 bytes
         0 broadcasts, 23763 multicasts, 0 unicasts.
```



CHAPTER 6

Protection Switch Group

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Restrictions for Protection Switch Group

- The rule template and unique template must be configured only after configuring the protection switch group.
- The protection switch group configuration fails if the hardware parameters, for example distance detected by ONT, on both primary and secondary ports are not consistent.
- The hardware parameters of both primary and secondary ports must not be configured after the protection switch group is configured.

Overview of Protection Switch Group

The Protection Switch Group feature ensures port reliability in case there is a port failure. Each protection switch group consists of two ports. One port takes the primary role and the other port the secondary role. The primary port is assigned the working state and the secondary port is assigned the standby state. Traffic always flows between ports that are assigned the working state.

After configuring the protection switch group, the rule template and unique template are configured on the primary port. The template configurations are automatically synchronized to the secondary port.

Configure Protection Switch Group

To configure protection switch group, perform this procedure.

SUMMARY STEPS

1. **enable**
2. **configure terminal**

3. `[no] psg group-id type-b primary interface gpon slot-number/port-number secondary interface gpon slot-number/port-number`
4. `psg group-id force-switch`
5. `show psg {group-id | all}`

DETAILED STEPS

| | Command or Action | Purpose |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | enable Example: Device> <code>enable</code> | Enables privileged EXEC mode. Enter your password, if prompted. |
| Step 2 | configure terminal Example: Device# <code>configure terminal</code> | Enters global configuration mode. |
| Step 3 | [no] psg group-id type-b primary interface gpon slot-number/port-number secondary interface gpon slot-number/port-number Example: Device(config)# <code>psg 1 type-b primary interface gpon 0/3 secondary interface gpon 0/4</code> | Configures the protection switch group. <ul style="list-style-type: none"> • <i>group-id</i>: The protection switch group ID. The range is from 0 to 7. • <i>slot-number</i>: The GPON slot number. The value is 0. • <i>port-number</i>: The GPON port number. The range is from 1 to 8. Use the [no] psg group-id command to remove a configured protection switch group. |
| Step 4 | psg group-id force-switch Example: Device(config)# <code>psg 1 force-switch</code> | Forces port changeover. <i>group-id</i> : The protection switch group ID. The range is from 0 to 7. |
| Step 5 | show psg {group-id all} Example: Device(config)# <code>show psg 1 force-switch</code> | Displays the protection switch group members, port roles and port states. <ul style="list-style-type: none"> • <i>group-id</i>: The protection switch group ID. The range is from 0 to 7. • all: All protection switch groups |

Configuration Example: Protection Switch Group

The following example shows how to configure a protection switch group and perform a switch changeover

```
Device> enable
Device# configure terminal
Device(config)# psg 1 type-b primary interface gpon 0/3 secondary interface gpon 0/4
```

```
Config success.  
Device(config)# psg 1 force-switch  
Switch success.
```

The following example shows how to view the protection switch group configuration

```
Device> enable  
Device# configure terminal  
Device(config)# show psg 0  
GroupID  Member  Role      State  
0         0/1    PRIMARY  WORKING  
          0/2    SECONDARY STANDBY  
Total: 1.
```

