Example: Configuring PoE Interfaces with Different Priorities on an EX-series Switch

Power over Ethernet (PoE) ports supply electric power over the same ports that are used to connect network devices. These ports allow you to plug in devices that need both network connectivity and electric power, such as VoIP phones, wireless access points, and some IP cameras. You can configure a particular PoE interface to have a high priority setting. If a port is set as high priority and a situation arises where there is not sufficient power for all the PoE ports, the available power is directed to the higher priority ports. If the switch needs to shut down powered devices because a power supply fails and there is insufficient power, low priority devices are shut down before high priority powered devices. Thus, you should set security cameras and emergency phones and other high priority phones to high priority.

This example describes how to configure a few high priority PoE interfaces for an EX-series switch that supports PoE ports (by default, interfaces are set to low priority):

Requirements

This example uses the following software and hardware components:

- JUNOS Release 9.0 or later for EX-series switches
- One EX4200 switch

Before you configure PoE, be sure you have:

- Performed the initial switch configuration. See Connecting and Configuring an EX Series Switch (CLI Procedure) or Connecting and Configuring an EX Series Switch (J-Web Procedure) for details.

Overview and Topology

The topology used in this example consists of one EX4200-24T switch, which has a total of 24 ports. Eight of the ports support PoE, which means they provide both network connectivity and electric power for devices such as VoIP telephones, wireless access points, and some IP security cameras. The remaining 16 ports provide only network connectivity. You use the standard ports to connect devices that have their own power sources, such as desktop and laptop computers, printers, and servers. Table 1 details the topology used in this configuration example.

Table 1: Components of the PoE Configuration Topology

Property	Settings
Switch hardware	EX4200–24T switch, with 24 Gigabit Ethernet ports: 8 PoE interfaces (ge-0/0/0 through ge-0/0/7) and 16 non-PoE interfaces (ge-0/0/8 through ge-0/0/23)
VLAN name	default
Connection to a wireless access point (requires PoE)	ge-0/0/0
Security IP Cameras (require PoE)	ge-0/0/1 and ge-0/0/2 high
Emergency VoIP phone (requires PoE)	ge-0/0/3 high
VoIP phone in Executive Office (requires PoE)	ge-0/0/4 high
Other VoIP phones (require PoE)	ge-0/0/5 through ge-0/0/7
Direct connections to desktop PCs, file servers, integrated printer/fax/copier machines (no PoE required)	ge-0/0/8 through ge-0/0/20
Unused ports (for future expansion)	ge-0/0/21 through ge-0/0/23

Configuration

To configure PoE interfaces:

CLI Quick Configuration

By default, PoE interfaces are created for all PoE ports and PoE is enabled. The default priority for PoE interfaces is low.

To quickly configure PoE with some interfaces set to high priority and others to the default low priority and to include a description of the interfaces, copy the following commands and paste them into the switch terminal window:

```
[edit]
set poe interface ge-0/0/1 priority high telemetries
set poe interface ge-0/0/2 priority high telemetries
set poe interface ge-0/0/3 priority high telemetries
set poe interface ge-0/0/4 priority high telemetries
set poe interface all
set interfaces ge-0/0/0 description "wireless access point"
set interfaces ge-0/0/1 description "security camera front door"
set interfaces ge-0/0/2 description "security camera back door"
set interfaces ge-0/0/3 description "emergency phone"
set interfaces ge-0/0/4 description "Executive Office VoIP phone"
set interfaces ge-0/0/5 description "staff VoIP phone"
set interfaces ge-0/0/6 description "staff VoIP phone"
set interfaces ge-0/0/7 description "staff VoIP phone"
```

Step-by-Step Procedure To configure PoE interfaces with different priorities:

1. Configure the PoE interfaces at the [edit poe] hierarchy level with some interfaces set to high priority and others to the default low priority, thus enabling the logging of per-port power consumption for the high priority ports:

```
[edit poe]
user@switch# set interface ge-0/0/1 priority high telemetries
user@switch# set interface ge-0/0/2 priority high telemetries
user@switch# set interface ge-0/0/3 priority high telemetries
user@switch# set interface ge-0/0/4 priority high telemetries
user@switch# set interface all
```

2. Specify a description for the PoE interfaces:

```
[edit interfaces]
user@switch# set ge-0/0/0 description "wireless access point"
user@switch# set ge-0/0/1 description "security camera front door"
user@switch# set ge-0/0/2 description "security camera back door"
user@switch# set ge-0/0/3 description "emergency phone"
user@switch# set ge-0/0/4 description "Executive Office VoIP phone"
user@switch# set ge-0/0/5 description "staff VoIP phone"
user@switch# set ge-0/0/6 description "staff VoIP phone"
user@switch# set ge-0/0/7 description "staff VoIP phone"
```

3. Connect the wireless access point to switch interface ge-0/0/0. This interface is PoE-enabled for the default settings based on the factory configuration. Telemetries are not enabled.
4. Connect the two security cameras to switch interfaces ge-0/0/1 and ge-0/0/2. These interfaces are set to high priority with telemetries enabled.
5. Connect the emergency VoIP phone to switch interface ge-0/0/3. This interface is set to high priority with telemetries enabled.
6. Connect the Executive Office VoIP phone to switch interface ge-0/0/4. This interface is set to high priority with telemetries enabled.

Results Check the results of the configuration:

```
[edit]
user@switch# show
interfaces {
   ge-0/0/0 {
      description "wireless access point";
   }
}
ge-0/0/1 {
   description "security camera front door";
}
}
ge-0/0/2 {
   description "security camera back door";
}
}
ge-0/0/3 {
```

```
    description "emergency phone";
  }
  }
  ge-0/0/4 {
    description "Executive Office VoIP phone";
  }
  }
  ge-0/0/5 {
    description "staff VoIP phone";
  }
  }
  ge-0/0/6 {
    description "staff VoIP phone";
  }
  }
  ge-0/0/7 {
    description "staff VoIP phone";
  }
  }
  poe {
    interface all;
    interface ge-0/0/0 {
      priority high;
      maximum-power 15.4;
    }
    interface ge-0/0/1 {
      priority high;
      telemetries;
    }
    interface ge-0/0/2 {
      priority high;
      telemetries;
    }
    interface ge-0/0/3 {
      priority high;
      telemetries;
    }
    interface ge-0/0/4 {
      priority high;
      telemetries;
    }
  }
```

Verification

To verify that PoE interfaces have been created and are operational, perform the following tasks:

- Verifying That the PoE Interfaces Have Been Created with Desired Priorities on page 4

Verifying That the PoE Interfaces Have Been Created with Desired Priorities

Purpose Verify that the PoE interfaces on the switch are now set to the desired priority settings.

Action List all the PoE interfaces configured on the switch:

```
user@switch> show poe interface

Interface  Enabled  Status  Max-Power Priority  Power-Consumption Class
ge-0/0/0   Enabled   ON     15.4W     Low        12.95W            0
ge-0/0/1   Enabled   ON     15.4W     High       12.95W            0
ge-0/0/2   Enabled   ON     15.4W     High       12.95W            0
ge-0/0/3   Enabled   ON     15.4W     High       12.95W            0
ge-0/0/4   Enabled   ON     15.4W     Low        12.95W            0
ge-0/0/5   Enabled   ON     15.4W     Low        12.95W            0
ge-0/0/6   Enabled   ON     15.4W     Low        12.95W            0
ge-0/0/7   Enabled   OFF    15.4W     Low        0 W               0
```

Meaning The show poe interface command lists PoE interfaces configured on the switch, with their status, priority, power consumption, and class. This output shows that eight PoE interfaces are enabled. Interfaces ge-0/0/1 through ge-0/0/3 are configured as priority high. The remaining interfaces are configured with the default values.

Troubleshooting

Troubleshooting PoE Interfaces

Problem The PoE port is not supplying power to the port.

Solution Check for the following:

Items to Check	Explanation
Is the switch a full PoE model or partial PoE model?	If you are using a partial PoE model, only interfaces ge-0/0/0 through ge-0/0/7 can function as PoE ports.
Has the PoE interface been disabled for that port?	Use the show poe interface command to check PoE interface status.
Is the cable properly seated in the port socket?	Check the hardware.
Enable telemetries for the interface.	Check the history of power consumption on the interface by using the show poe telemetries interface command.

Related Topics

- Example: Configuring PoE Interfaces on an EX Series Switch
- Configuring PoE (CLI Procedure)
- Configuring PoE (J-Web Procedure)

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