Configuring PPPoE

To configure PPPoE on a J-series Services Router, perform the following tasks:

1. Configure PPPoE encapsulation for an Ethernet interface or Ethernet over ATM encapsulation for an ATM-over-ADSL interface.
2. If you are configuring ATM over ADSL, configure LLC encapsulation on the logical interface.
3. Specify the logical Ethernet interface or the logical ATM interface as the underlying interface for the PPPoE session.
4. Configure the operational mode as client.
5. Identify the access concentrator by a unique name.
6. Optionally, specify how many seconds to wait before attempting to reconnect.
7. Provide a name for the type of service provided by the access concentrator.
8. Optionally, configure the maximum transmission unit (MTU) of the interface.
9. Configure the PPPoE interface address.
10. Configure the destination PPPoE interface address.
11. Optionally, configure the MTU size for the protocol family.
12. Optionally, disable the sending of keepalive messages on the logical interface.

To configure PPPoE on an M120 or M320 Internet Router operating as an access concentrator, perform the following tasks:

1. Configure PPPoE encapsulation for an Ethernet interface.
2. Specify the logical Ethernet interface as the underlying interface for the PPPoE session.
3. Optionally, configure the maximum transmission unit (MTU) of the interface.
4. Configure the operational mode as server.
5. Configure the PPPoE interface address.
6. Configure the destination PPPoE interface address.
7. Optionally, configure the MTU size for the protocol family.

Setting the Appropriate Encapsulation on the PPPoE Interface

For PPPoE on an Ethernet interface, you must configure encapsulation on the logical interface and use PPP over Ethernet encapsulation.

For PPPoE on an ATM-over-ADSL interface, you must configure encapsulation on both the physical and logical interfaces. To configure encapsulation on an ATM-over-ADSL physical interface, use Ethernet over ATM encapsulation. To configure encapsulation on an ATM-over-ADSL logical interface, use PPPoE over AAL5 LLC

encapsulation. LLC encapsulation allows a single ATM virtual connection to transport multiple protocols.

NOTE: PPPoE encapsulation is not supported on an M120 or M320 router on an ATM2 IQ interface.

When you configure a point-to-point encapsulation such as PPP on a physical interface, the physical interface can have only one logical interface (only one unit statement) associated with it.

To configure physical interface properties, include the encapsulation statement at the [edit interfaces *interface-name*] hierarchy level:

```
[edit interfaces interface-name]
[Unresolved xref] ethernet-over-atm;
```

To configure logical interface encapsulation properties, include the encapsulation statement:

```
[Unresolved xref] ppp-over-ether;
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number*]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number*]

Perform the task appropriate for the interface on which you are using PPPoE:

- Configuring PPPoE Encapsulation on an Ethernet Interface on page 2
- Configuring PPPoE Encapsulation on an ATM-over-ADSL Interface on page 2

Configuring PPPoE Encapsulation on an Ethernet Interface

Both the client and the server must be configured to support PPPoE. To configure PPPoE encapsulation on an Ethernet interface, include the encapsulation statement:

```
[Unresolved xref] ppp-over-ether;
```

You can include this statement at the following hierarchy levels:

- [edit interfaces pp0 unit *logical-unit-number*]
- [edit logical-systems *logical-system-name* interfaces pp0 unit *logical-unit-number*]

Configuring PPPoE Encapsulation on an ATM-over-ADSL Interface

To configure the PPPoE encapsulation on a ATM-over-ADSL interface, perform the following steps:

1. Include the encapsulation statement at the [edit interfaces *interface-name*] hierarchy level, and specify ethernet-over-atm:

   ```
   [edit interfaces pp0]
   [Unresolved xref] ethernet-over-atm;
   ```

2. Configure LLC encapsulation on the logical interface by including the encapsulation statement and specifying ppp-over-ether-over-atm-llc:

   ```
   [Unresolved xref] ppp-over-ether-over-atm-llc;
   ```

You can include this statement at the following hierarchy levels:

- [edit interfaces pp0 unit *logical-unit-number*]
- [edit logical-systems *logical-system-name* interfaces pp0 unit *logical-unit-number*]

Configuring a PPPoE Interface

The following sections describe how to configure a PPPoE interface:

Configuring the PPPoE Underlying Interface

To configure the underlying Fast Ethernet, Gigabit Ethernet, 10-Gigabit Ethernet, or ATM interface, include the underlying-interface statement at the [edit interfaces pp0 unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number {
    pppoe-options {
        underlying-interface interface-name;
    }
}
```

You can include this statement at the following hierarchy levels:

- [edit interfaces pp0 unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces pp0 unit *logical-unit-number* pppoe-options]

Specify the logical Ethernet, Fast Ethernet, Gigabit Ethernet, 10-Gigabit Ethernet, or ATM interface as the underlying interface—for example, at-0/0/1.0 (ATM VC), fe-1/0/1.0 (Fast Ethernet interface), or ge-2/0/0 (Gigabit Ethernet interface).

Identifying the Access Concentrator

When configuring a PPPoE client, identify the access concentrator by a unique name by including the access-concentrator statement at the [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number{
    pppoe-options {
        access-concentrator name;
    }
}
```

Specify the access concentrator name.

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* pppoe-options]

Configuring the PPPoE Automatic Reconnect Wait Timer

By default, after a PPPoE session is terminated, the session attempts to reconnect immediately. When configuring a PPPoE client, you can specify how many seconds to wait before attempting to reconnect, by including the auto-reconnect statement at the [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number {
    pppoe-options {
        auto-reconnect seconds;
    }
}
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* pppoe-options]

You can configure the reconnection attempt to occur in 0 through 4,294,967,295 seconds after the session terminates.

Configuring the PPPoE Service Name

When configuring a PPPoE client, identify the type of service provided by the access concentrator—such as the name of the Internet service provider (ISP), class, or quality of service—by including the service-name statement at the [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number {
    pppoe-options {
        service-name name;
    }
}
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* pppoe-options]

Configuring the PPPoE Server Mode

When configuring a PPPoE server, identify the mode by including the server statement at the [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number {
    pppoe-options {
        server;
    }
}
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* pppoe-options]

Configuring the PPPoE Client Mode

When configuring a PPPoE client, identify the mode by including the client statement at the [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options] hierarchy level:

```
[edit interfaces pp0]
unit logical-unit-number {
    pppoe-options {
        client;
    }
}
```

You can include this statement at the following hierarchy levels:

- [edit interfaces *interface-name* unit *logical-unit-number* pppoe-options]
- [edit logical-systems *logical-system-name* interfaces *interface-name* unit *logical-unit-number* pppoe-options]

Configuring the PPPoE Source and Destination Addresses

When configuring a PPPoE client or server, assign source and destination addresses—for example, 192.168.1.1/32 and 192.168.1.2. To assign the source and destination address, include the address and destination statements:

```
address address {
    [Unresolved xref] address;
}
```

You can include these statements at the following hierarchy levels:

- [edit interfaces pp0.0 family inet]
- [edit logical-systems *logical-system-name* interfaces pp0.0 family inet]

Deriving the PPPoE Source Address From a Specified Interface

For a router supporting PPPoE, you can derive the source address from a specified interface—for example, the loopback interface, lo0.0—and assign a destination address—for example, 192.168.1.2. The specified interface must include a logical unit number and have a configured IP address. To derive the source address and assign the destination address, include the unnumbered-address and destination statements:

```
[Unresolved xref] interface-name [Unresolved xref] address;
}
```

You can include these statements at the following hierarchy levels:

- [edit interfaces pp0.0 family inet]
- [edit logical-systems *logical-system-name* interfaces pp0.0 family inet]

Configuring the PPPoE IP Address by Negotiation

You can have the PPPoE client router obtain an IP address by negotiation with the remote end. This method might require the access concentrator to use a RADIUS authentication server. To obtain an IP address from the remote end by negotiation, include the **negotiate-address** statement:

```
negotiate-address;
```

You can include this statement at the following hierarchy levels:

- [edit interfaces pp0.0 family (inet | inet6 | mpls)]
- [edit logical-systems *logical-system-name* interfaces pp0.0 family (inet | inet6 | mpls)]

Configuring the Protocol MTU PPPoE

You can configure the maximum transmission unit (MTU) size for the protocol family. Specify a range from 0 through 5012 bytes. Ensure that the size of the media MTU is equal to or greater than the sum of the protocol MTU and the encapsulation overhead. To set the MTU, include the **mtu** statement:

```
mtu bytes;
```

You can include this statement at the following hierarchy levels:

- [edit interfaces pp0.0 family (inet | inet6 | mpls)]
- [edit logical-systems *logical-system-name* interfaces pp0.0 family (inet | inet6 | mpls)]

Example: Configuring a PPPoE Client Interface on a J-Series Services Router

Configure a PPPoE over ATM-over-ADSL interface:

```
[edit interfaces]
at-2/0/0 {
    encapsulation ethernet-over-atm;
    atm-options {
        vpi 0;
    }
    dsl-options {
        operating-mode auto;
    }
    unit 0 {
        encapsulation ppp-over-ether-over-atm-llc;
        vci 0.120;
    }
}
pp0 {
    mtu 1492;
    unit 0 {
        ppp-options {
```

```
            chap {
                access-profile A-ppp-client;
                local-name A-at-2/0/0.0;
            }
        }
        pppoe-options {
            underlying-interface at-2/0/0;
            client;
            access-concentrator ispl.com;
            service-name "video@ispl.com";
            auto-reconnect 100;
        }
        no-keepalives;
        family inet {
            negotiate-address;
            mtu 100;
        }
        family inet6 {
            negotiate-address;
            mtu 200;
        }
        family mpls {
            negotiate-address;
            mtu 300;
        }
    }
}
```

Example: Configuring a PPPoE Server Interface on an M120 or M320 Router

Configure a PPPoE server over a Gigabit Ethernet interface:

```
[edit interfaces]
ge-1/0/0 {
    vlan-tagging;
    unit 1 {
        encapsulation ppp-over-ether;
        vlan-id 10;
    }
}
pp0 {
    unit 0 {
        pppoe-options {
            underlying-interface ge-1/0/0.0;
            server;
        }
        ppp-options {
        }
        family inet {
            address 22.2.2.1/32 {
                destination 22.2.2.2;
            }
        }
    }
```

```
}
```