

Chapter 18

Voice Services Configuration Guidelines

The Adaptive Services Physical Interface Card (AS PIC) supports the compressed real-time transport protocol (RTP) on the interface type *vsp-fpc/pic/port*. This enables voice over IP traffic to use low-speed links more effectively, by compressing the 40-byte IP/UDP/RTP header down to 2 to 4 bytes in most cases.

The voice services feature uses a bundle configuration similar to link services interfaces. For more information, see “Configuring Multilink and Link Services Logical Interface Properties” on page 416. To configure voice services interface properties, include the following statements at the [edit interfaces] or [edit logical-routers] hierarchy level:

```
[edit interfaces]
interface-name {
  encapsulation ppp;
  unit logical-unit-number {
    family mlppp {
      bundle vsp-fpc/pic/port;
    }
  }
}
vsp-fpc/pic/port {
  unit logical-unit-number {
    encapsulation mlppp;
    family inet {
      address address;
    }
    compression {
      rtp {
        f-max-period number;
        port {
          minimum port-number;
          maximum port-number;
        }
        queues [ queue-numbers ];
      }
    }
    fragment-threshold bytes;
  }
}
```

Voice services do not require a separate service rules configuration.

This chapter contains the following sections:

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Example: Configuring Voice Services on page 235

Configuring Voice Services Properties

You define voice service properties such as compression by configuring statements and values for a voice services interface, specified by the physical interface type `vsp`. You can configure the following statements:

```
[edit interfaces]
vsp-fpc/pic/port {
  unit logical-unit-number {
    encapsulation mlppp;
    family inet {
      address address;
    }
    compression {
      rtp {
        f-max-period number;
        port {
          minimum port-number;
          maximum port-number;
        }
        queues [ queue-numbers ];
      }
    }
    fragment-threshold bytes;
  }
}
```

This section describes the following tasks for configuring voice services properties:

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Configuring the Interface Address on page 233

Configuring Compression on page 233

Configuring Link Fragmentation and Interleaving Support on page 234

Configuring Logical Interface Encapsulation

Voice services interfaces support only one logical interface encapsulation type, Multilink Point-to-Point Protocol (MLPPP), which is the default encapsulation.

For general information on encapsulation, see the *JUNOS Network Interfaces and Class of Service Configuration Guide*. You can also configure physical interface encapsulation on voice services interfaces.

To configure voice services encapsulation, include the encapsulation statement:

```
encapsulation type;
```

You can configure this statement at the following hierarchy levels:

```
[edit interfaces interface-name unit logical-unit-number]
```

```
[edit logical-routers logical-router-name interfaces interface-name unit
logical-unit-number]
```

You must also configure the T1, E1, or DS3 physical interface with the same encapsulation type.

Configuring the Interface Address

To configure the logical address for the MLPPP bundle, include the address statement:

```
address address {
...
}
```

You can configure this statement at the following hierarchy levels:

```
[edit interfaces interface-name unit logical-unit-number family inet]
```

```
[edit logical-routers logical-router-name interfaces interface-name unit
logical-unit-number family inet]
```

Assign an IP address to the interface by configuring the *address* value. The AS PIC supports only Internet Protocol version 4 (IPv4) addresses configured using the family inet statement.

For information on other addressing properties you can configure that are not specific to service interfaces, see the *JUNOS Network Interfaces and Class of Service Configuration Guide*.

Configuring Compression

You can configure several properties that specify how the interface handles voice traffic compression:

```
compression {
  rtp {
    f-max-period number;
    port {
      minimum port-number;
      maximum port-number;
    }
    queues [ queue-numbers ];
  }
}
```

You can configure the compression statement at the following hierarchy levels:

```
[edit interfaces interface-name unit logical-unit-number]
```

```
[edit logical-routers logical-router-name interfaces interface-name unit
logical-unit-number]
```

You can configure the following properties at the [edit interfaces *interface-name* unit *logical-unit-number* compression rtp] hierarchy level:

The `f-max-period` statement specifies the maximum number of compressed packets inserted between the transmission of full headers:

```
[edit interfaces interface-name unit logical-unit-number compression rtp]
f-max-period number;
```

By default, the `f-max` period value is 256 packets.

The `port` statement specifies the lower and upper boundaries for a range of User Datagram Protocol (UDP) destination port values:

```
[edit interfaces interface-name unit logical-unit-number compression rtp]
port {
  minimum port-number;
  maximum port-number;
}
```

Values for *port-number* can range from 0 through 65,535. Within the specified range, the router software applies RTP compression to the traffic.

The `queues` statement allows you to assign one or more of the following queues: `q0`, `q1`, `q2`, and `q3`:

```
[edit interfaces interface-name unit logical-unit-number compression rtp]
queues [ queue-numbers ];
```

The router applies RTP compression on the traffic in the specified queues.



NOTE: If you specify both a port range and one or more queues, compression takes place if either condition is met.

Configuring Link Fragmentation and Interleaving Support

Voice services on the AS PIC also support link fragmentation and interleaving (LFI) on M-series routers, except the M320 router. LFI enables voice packets (without Multilink Protocol [MP] headers) to be interleaved with non-voice packets (with MP headers) to reduce latency in transmitting delay-sensitive traffic across the bundle. It is desirable to fragment all packets larger than 160 bytes to achieve low latencies for voice traffic. It is also important that the voice traffic be interleaved with non-delay-sensitive traffic.

By default, LFI is activated. You can control it indirectly by configuring the `fragment-threshold` statement:

```
fragment-threshold bytes;
```

You can configure the fragment-threshold statement at the following hierarchy levels:

```
[edit interfaces vsp-fpc/pic/port unit logical-unit-number]
```

```
[edit logical-routers logical-router-name interfaces vsp-fpc/pic/port unit
logical-unit-number]
```

Compressed RTP packets that are smaller than the maximum received reconstructed unit (MRRU) value are not MP-encapsulated. For more information on the Multilink Protocol and MRRU, see “Link and Multilink Services Interfaces Configuration Guidelines” on page 413.

For example, the following configuration causes fragmentation of all IP packets larger than 128 bytes:

```
[edit interfaces]
vsp-1/1/0 {
  unit 1 {
    fragment-threshold 128;
  }
}
```

Configuring the Bundle Interface

To complete a voice services interface configuration, you need to configure both the physical interface and the voice services bundle. For voice services interfaces, you configure the link bundle as a channel. The physical interface is usually connected to networks capable of supporting MLPPP; the interface types supported for voice traffic are T1, E1, and T3.

To configure a physical interface link for MLPPP, include the following statements at the [edit interfaces *interface-name*] hierarchy level:

```
[edit interfaces interface-name]
unit 0 {
  family mlppp {
    bundle vsp-fpc/pic/port;
  }
}
```

When you configure family mlppp, no other protocol configuration is allowed. For more information on link bundles, see “Configuring Bundles” on page 428.

Example: Configuring Voice Services

The following is a complete example of a voice services configuration using a T1 physical interface:

```
[edit interfaces]
t1-0/2/0:1 {
  encapsulation ppp;
  unit 0 {
    family mlppp {
```

```
        bundle vsp-1/3/0.1;
    }
}
vsp-1/3/0 {
    unit 1 {
        encapsulation multilink-ppp;
        family inet {
            address 1.5.5.2/30;
        }
        compression {
            rtp {
                f-max-period 100;
                queues [ q1 q2 ];
                port {
                    minimum 16384;
                    maximum 32767;
                }
            }
        }
        fragment-threshold 128;
    }
}
```