Configuring the Protocol Family

For each logical interface, you can configure one or more of the following protocols that run on the interface:

- any—Protocol-independent family used for Layer 2 packet filtering. This option is not supported on J-series Services Routers.
- bridge—(M-series and T-series routing platforms only) Configure only when the physical interface is configured with ethernet-bridge type encapsulation or when the logical interface is configured with vlan-bridge type encapsulation. You can optionally configure this protocol family for the logical interface on which you configure VPLS.
- ccc—Circuit cross-connect (CCC). You can configure this protocol family for the logical interface of CCC physical interfaces. When you use this encapsulation type, you can configure the ccc family only.
- inet—IP. You must configure this protocol family for the logical interface to support IP protocol traffic, including Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), Internet Control Message Protocol (ICMP), and Internet Protocol Control Protocol (IPCP).
- inet6—IP version 6 (IPv6). You must configure this protocol family for the logical interface to support IPv6 protocol traffic, including Routing Information Protocol for IPv6 (RIPng), Intermediate System-to-Intermediate System (IS-IS), BGP, and Virtual Router Redundancy Protocol for IPv6 (VRRP). For more information about IPv6, see “IPv6 Overview” on page 2.
- iso—International Organization for Standardization (ISO). You must configure this protocol family for the logical interface to support IS-IS traffic.
- mlfr-uni-nni—Multilink Frame Relay (MLFR) FRF.16 user-to-network network-to-network (UNI NNI). You must configure this protocol or mlfr-end-to-end for the logical interface to support link services and voice services bundling.
- mlfr-end-to-end—Multilink Frame Relay end-to-end. You must configure this protocol or multilink Point-to-Point Protocol (MLPPP) for the logical interface to support multilink bundling.
- mlppp—MLPPP. You must configure this protocol (or mlfr-end-to-end) for the logical interface to support multilink bundling.
- mpls—Multiprotocol Label Switching (MPLS). You must configure this protocol family for the logical interface to participate in an MPLS path.
- tcc—Translational cross-connect (TCC). You can configure this protocol family for the logical interface of TCC physical interfaces.
- tnp—Trivial Network Protocol. This protocol is used to communicate between the Routing Engine and the routing platform’s packet forwarding components. The JUNOS software automatically configures this protocol family on the routing platform’s internal interfaces only, as discussed in [Unresolved xref].
- vpls—M-series and T-series routing platforms support Virtual Private LAN service (VPLS). You can optionally configure this protocol family for the logical interface on which you configure VPLS. VPLS provides an Ethernet-based

point-to-multipoint Layer 2 VPN to connect customer edge (CE) routing platforms across an MPLS backbone. When you configure a VPLS encapsulation type, the family vpls statement is assumed by default.

MX-series routers support dynamic profiles for VPLS pseudowires, VLAN identifier translation, and automatic bridge domain configuration.

For more information about VPLS, see the *JUNOS VPNs Configuration Guide* and the *JUNOS Feature Guide*.

To configure the logical interface's protocol family, include the family statement, specifying the selected family. To configure more than one protocol family on a logical interface, include multiple family statements. Following is the minimum configuration:

```
family family {
    mtu size;
    multicast-only;
    no-redirects;
    [Unresolved xref];
    address address {
        [Unresolved xref] address;
        broadcast address;
        preferred;
        [Unresolved xref];
    }
}
```

You can include these statements 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*]

IPv6 Overview

IP version 4 (IPv4) has been widely deployed and used to network the Internet today. With the rapid growth of the Internet, enhancements to IPv4 are needed to support the influx of new subscribers, Internet-enabled devices, and applications. IPv6 is designed to enable the global expansion of the Internet.

IPv6 builds upon the functionality of IPv4, providing improvements to addressing, configuration and maintenance, and security.

IPv6 is defined in the following documents:

- RFC 2373, *IP Version 6 Addressing Architecture*
- RFC 2460, *Internet Protocol, Version 6 (IPv6)*

IPv4-to-IPv6 Transition

Implementing IPv6 requires a transition mechanism to allow interoperability between IPv6 nodes (both routing platforms and hosts) and IPv4 nodes. The transition mechanism is the key factor in the successful deployment of IPv6. Because millions of IPv4 nodes already exist, upgrading every node to IPv6 at the same time is not feasible.

As a result, transition from IPv4 to IPv6 happens gradually, allowing nodes to be upgraded independently and without disruption to other nodes. While a gradual upgrade occurs, compatibility between IPv6 and IPv4 nodes becomes a requirement. Otherwise, an IPv6 node would not be able to communicate with an IPv4 node.

Transition mechanisms allow IPv6 and IPv4 nodes to coexist together in the same network, and make gradual upgrading possible. The transition mechanism supported by the JUNOS software is tunneling. Tunnels allow IPv6 packets to be encapsulated into IPv4 headers and sent across an IPv4 infrastructure. For more information about configuring tunnels to support IPv4-to-IPv6 transition, see the *JUNOS Services Interfaces Configuration Guide*.

VRRP Properties

The Virtual Router Redundancy Protocol (VRRP) provides a much faster switchover to a backup router when the default router fails. Using VRRP, a backup router can take over a failed default router within a few seconds. This is done with minimum amount of VRRP traffic and without any interactions with the hosts.

For more information on VRRP properties, see the *JUNOS High Availability Configuration Guide*.