

# Chapter 21

## Summary of Interface Configuration Statements

The following sections explain each of the interface configuration statements.

### address

**Syntax**     `address address {  
                arp ip-address mac mac-address <publish>;  
                destination address;  
                broadcast address;  
                multipoint-destination destination-address dci dci-identifier;  
                multipoint-destination destination-address {  
                    oam-liveness {  
                        up-count cells;  
                        down-count cells;  
                    }  
                    oam-period seconds;  
                    shaping {  
                        vbr peak rate sustained rate burst length;  
                        queue-length number;  
                    }  
                    vci vpi-identifier.vci-identifier;  
                }  
                primary;  
                preferred;  
                vrrp-group group-number {  
                    virtual-address [addresses];  
                    priority number;  
                    advertise-interval seconds;  
                    authentication-type authentication;  
                    authentication-key key;  
                    (preempt | no-preempt);  
                    track {  
                        interface interface-name priority-cost cost;  
                    }  
                }  
            }`

**Hierarchy Level**     `[edit interfaces interface-name unit logical-unit-number family family]`

**Description**         Configure the interface address.

**Options**             `address`—Address of the interface.

The remaining statements are explained separately.

**Usage Guidelines** See “Configure the Protocol Family” on page 80.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## advertise-interval

### **advertise-interval (APS)**

**Syntax** advertise-interval *milliseconds*;

**Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

**Description** Modify the APS interval at which the protect and working routers send packets to their neighbors to advertise that they are operational. A router considers its neighbor to be operational for a period, called the hold time, that is, by default, three times the advertisement interval.

**Options** *milliseconds*—Interval between advertisement packets.  
**Range:** 1 through 65,535 milliseconds  
**Default:** 1000 milliseconds

**Usage Guidelines** See “Configure APS Timers” on page 61 or page 169.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** hold-time on page 222

### **advertise-interval (VRRP)**

**Syntax** advertise-interval *seconds*;

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address* vrrp-group *group-number*]

**Description** On Fast Ethernet and Gigabit Ethernet interfaces only, configure the interval between VRRP advertisement packets.

All routers in the VRRP group must use the same advertisement interval.

**Options** *seconds*—Interval between advertisement packets.  
**Range:** 1 through 255 seconds  
**Default:** 1 second

**Usage Guidelines** See “Configure the Advertisement Interval for the VRRP Master Router” on page 95 or page 145.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## aps

<b>Syntax</b>	aps { advertise-interval <i>milliseconds</i> ; authentication-key <i>key</i> ; force; hold-time <i>milliseconds</i> ; lockout; neighbor <i>address</i> ; paired-group <i>group-name</i> ; protect-circuit <i>group-name</i> ; request; revert-time <i>seconds</i> ; working-circuit <i>group-name</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options]
<b>Description</b>	Configure Automatic Protection Switching (APS) on the router.  For DS-3 channels on a Channelized OC-12 interface, you can configure APS on channel 0 only. If you configure APS on channels 1 through 11, it is ignored.
<b>Options</b>	The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configure APS” on page 57 or page 165.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## arp

<b>Syntax</b>	arp <i>ip-address</i> mac <i>mac-address</i> <publish>;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> ]
<b>Description</b>	For Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces only, configure ARP table entries, mapping IP addresses to MAC addresses.
<b>Options</b>	<i>ip-address</i> —IP address to map to the MAC address. The IP address specified must be part of the subnet defined in the enclosing address statement.  <i>mac-address</i> —MAC address to map to the IP address. Specify the MAC address as six hexadecimal bytes in one of the following formats: <i>nnnn.nnnn.nnnn</i> or <i>nn:nn:nn:nn:nn:nn</i> . For example, 0011.2233.4455 or 00:11:22:33:44:55.  publish—(Optional) Have the router reply to ARP requests for the specified IP address. If you omit this option, the router uses the entry to reach the destination but does not reply to ARP requests.
<b>Usage Guidelines</b>	See “Configure Static ARP Table Entries” on page 91 or page 141.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## atm-options

**Syntax** atm-options {  
     vpi *vpi-identifier* max-vcs *maximum-vcs*;  
 }

**Hierarchy** [edit interfaces *interface-name*]

**Description** Configure ATM-specific physical interface properties.

**Options** The remaining statement is explained separately.

**Usage Guidelines** See “Configure ATM Physical Interface Properties” on page 38 or page 110.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**See Also** multipoint-destination on page 231, shaping on page 242, vci on page 258

## authentication-key

### ***authentication-key (APS)***

**Syntax** authentication-key *key*;

**Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

**Description** Configure the APS authentication key (password).

**Options** *key*—Authentication password. It can be 1 through 8 characters long. Configure the same key for both the working and protect routers.

**Usage Guidelines** See “Configure Basic APS Support” on page 59 or page 167.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**authentication-key (VRRP)**

<b>Syntax</b>	authentication-key <i>key</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i> ]
<b>Description</b>	On Fast or Gigabit Ethernet interfaces, configure a VRRP authentication key (password). For the key to work, you also must specify a VRRP authentication scheme by including the authentication-type statement in the vrrp-group statement.  All routers in the VRRP group must use the same authentication scheme and password.
<b>Options</b>	<i>key</i> —Authentication password. For simple authentication, it can be 1 through 8 characters long. For MD-5 authentication, it can be 1 through 16 characters long. If you include spaces, enclose all characters in quotation marks (“ ”).
<b>Usage Guidelines</b>	See “Configure VRRP Authentication” on page 94 or page 144.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	authentication-type on page 202

## authentication-type

**Syntax** authentication-type *authentication*;

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address* vrrp-group *group-number*]

**Description** On Fast or Gigabit Ethernet interfaces only, enable VRRP authentication and specify the authentication scheme for the VRRP group. If you enable authentication, you must specify a password by including the authentication-key statement in the vrrp-group statement.

All routers in the VRRP group must use the same authentication scheme and password.

**Options** *authentication*—Authentication scheme:

none—Disable authentication.

simple—Use a simple password. The password is included in the transmitted packet, making this method of authentication relatively insecure.

md5—Use the MD5 algorithm to create an encoded checksum of the packet. The encoded checksum is included in the transmitted packet. The receiving router uses the authentication key to verify the packet, discarding it if the digest does not match. This algorithm provides a more secure authentication scheme.

**Default:** none (No authentication is performed.)

**Usage Guidelines** See “Configure VRRP Authentication” on page 94 or page 144.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** authentication-key on page 200

## bert-algorithm

<b>Syntax</b>	bert-algorithm <i>algorithm</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e3-options] [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For E3 or T3 interfaces, configure the pattern to send in the bit stream during a BERT test.
<b>Options</b>	<p><i>algorithm</i>—Pattern to send in the bit stream. There are two categories of test patterns: pseudorandom and repetitive. Both patterns conform to CCITT/ITU O.151, O.152, O.153, and O.161 standards. The algorithm can be one of the following patterns:</p> <p>all-ones-repeating—Pattern is all ones.  all-zeros-repeating—Pattern is all zeros.  alternating-double-ones-zeros—Pattern is alternating pairs of ones and zeros.  alternating-ones-zeros—Pattern is alternating ones and zeros.  pseudo-2e10—Pattern is <math>2^{10} - 1</math>.  pseudo-2e11-o152—Pattern is <math>2^{11} - 1</math>, as defined in the O152 standard.  pseudo-2e15-o151—Pattern is <math>2^{15} - 1</math>, as defined in the O151 standard.  pseudo-2e17—Pattern is <math>2^{17} - 1</math>.  pseudo-2e18—Pattern is <math>2^{18} - 1</math>.  pseudo-2e20-o151—Pattern is <math>2^{20} - 1</math>, as defined in the O151 standard.  pseudo-2e20-o153—Pattern is <math>2^{20} - 1</math>, as defined in the O153 standard.  pseudo-2e21—Pattern is <math>2^{21} - 1</math>.  pseudo-2e22—Pattern is <math>2^{22} - 1</math>.  pseudo-2e23-o151—Pattern is <math>2^9 - 1</math>, as defined in the O151 standard.  pseudo-2e25—Pattern is <math>2^{25} - 1</math>.  pseudo-2e28—Pattern is <math>2^{28} - 1</math>.  pseudo-2e29—Pattern is <math>2^{29} - 1</math>.  pseudo-2e3—Pattern is <math>2^3 - 1</math>.  pseudo-2e31—Pattern is <math>2^{31} - 1</math>.  pseudo-2e32—Pattern is <math>2^{32} - 1</math>.  pseudo-2e4—Pattern is <math>2^4 - 1</math>.  pseudo-2e5—Pattern is <math>2^5 - 1</math>.  pseudo-2e6—Pattern is <math>2^6 - 1</math>.  pseudo-2e7—Pattern is <math>2^7 - 1</math>.  pseudo-2e9-o153—Pattern is <math>2^9 - 1</math>, as defined in the O153 standard.  repeating-1-in-4—One bit in four is set to 1; the others are set to 0.  repeating-1-in-8—One bit in eight is set to 1; the others are set to 0.  repeating-3-in-24—Three bits in twenty-four are set to 1; the others are set to 0.</p> <p><b>Default:</b> pseudo-2e3</p>
<b>Usage Guidelines</b>	See “Configure E3 and T3 BERT Properties” on page 50, page 136, or page 189.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	bert-error-rate on page 204, bert-period on page 204

## bert-error-rate

<b>Syntax</b>	bert-error-rate <i>rate</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e3-options] [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For E3 or T3 interfaces, configure the bit error rate to use in a BERT test.
<b>Options</b>	<i>rate</i> —Bit error rate. <b>Range:</b> 0 through 7, which corresponds to $10^{-0}$ (that is, 0, which means that no errors are inserted) to $10^{-7}$ (that is, 1 error per 10 million bits) <b>Default:</b> 0
<b>Usage Guidelines</b>	See “Configure E3 and T3 BERT Properties” on page 50, page 136, or page 189.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	bert-algorithm on page 203, bert-period on page 204

## bert-period

<b>Syntax</b>	bert-period <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e3-options] [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For E3 or T3 interfaces, configure the duration of a BERT test.
<b>Options</b>	<i>seconds</i> —Test duration. <b>Range:</b> 1 through 240 seconds <b>Default:</b> 10 seconds
<b>Usage Guidelines</b>	See “Configure E3 and T3 BERT Properties” on page 50, page 136, or page 189.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	bert-algorithm on page 203, bert-error-rate on page 204

## broadcast

<b>Syntax</b>	<code>broadcast <i>address</i>;</code>
<b>Hierarchy Level</b>	<code>[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i>]</code>
<b>Description</b>	Set the broadcast address on the network or subnet. On a subnet you cannot specify a host address of 0, nor can you specify a broadcast address.
<b>Default</b>	The default broadcast address has a host portion of all ones.
<b>Options</b>	<i>address</i> —Broadcast address. The address must have a host portion of either all ones or all zeros. You cannot specify the addresses 0.0.0.0 or 255.255.255.255.
<b>Usage Guidelines</b>	See “Configure the Interface Address” on page 81.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## buildout

<b>Syntax</b>	<code>buildout (0-133   133-266   266-399   399-532   532-655);</code>
<b>Hierarchy Level</b>	<code>[edit interfaces <i>interface-name</i> t1-options]</code>
<b>Description</b>	Set the buildout value (in feet) for a T1 interface.
<b>Default</b>	The default buildout value is 0-133 feet.
<b>Options</b>	0-133 133-266 266-399 399-532 532-655
<b>Usage Guidelines</b>	See “Configure T1 Buildout” on page 41 or page 178.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

• byte-encoding

• **Syntax** byte-encoding (nx64 | nx56);

• **Hierarchy Level** [edit interfaces *interface-name* t1-options]

• **Description** Set the byte encoding on the T1 interface to use 7 bits per byte or 8 bits per byte.

• **Default** The default byte encoding is to use 8 bits per byte.

• **Options** nx56—Use 7 bits per byte.

• nx64—Use 8 bits per byte.

• **Usage Guidelines** See “Configure T1 Byte Encoding” on page 41 or page 178.

• **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## bytes

<b>Syntax</b>	<pre> bytes {   e1-quiet <i>value</i>;   f1 <i>value</i>;   f2 <i>value</i>;   s0 <i>value</i>;   s1 <i>value</i>;   z3 <i>value</i>;   z4 <i>value</i>; } </pre>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options]
<b>Description</b>	<p>Set values in some SONET header bytes.</p> <p>On SONET OC-48 interfaces that are configured for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.</p> <p>For DS-3 channels on a Channelized OC-12 interface, the bytes e1-quiet, bytes f1, bytes f2, bytes z3, and bytes z4 options have no effect. The bytes s1 option is supported only for channel 0; it is ignored if configured on channels 1 through 11. The bytes s1 value configured on channel 0 applies to all channels on the interface.</p>
<b>Options</b>	<p>e1-quiet <i>value</i>—Default idle byte sent on the orderwire SONET overhead bytes. The router does not support the orderwire channel, and hence sends this byte continuously.  <b>Range:</b> 0 through 255  <b>Default:</b> 0x7F</p> <p>f1 <i>value</i>, f2 <i>value</i>, z3 <i>value</i>, z4 <i>value</i>—SONET overhead bytes.  <b>Range:</b> 0 through 255  <b>Default:</b> 0x00</p> <p>s0 <i>value</i>—Set the hardware transmit s0 as an incrementing value rather than 0xCC. This value is used for compatibility between old and new ADMs, should only be used in SDH mode, and is ignored in SONET mode.  <b>Range:</b> 0 through 55</p> <p>s1 <i>value</i>—Synchronization message SONET overhead byte. This byte is normally controlled as a side effect of the system reference clock configuration and the state of the external clock coming from an interface if the system reference clocks have been configured to use an external reference.  <b>Range:</b> 0 through 255  <b>Default:</b> 0xCC</p>
<b>Usage Guidelines</b>	See “Configure SONET/SDH Physical Interface Properties” on page 53 or page 160.
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
<b>See Also</b>	no-concatenate on page 370

## cbit-parity

<b>Syntax</b>	(cbit-parity   no-cbit-parity);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For T3 interfaces only, enable or disable C-bit parity mode, which controls the type of framing that is present on the transmitted T3 signal. When C-bit parity mode is enabled, the C-bit positions are used for the FEBE, FEAC, terminal data link, path parity, and mode indicator bits, as defined in ANSI T1.107a-1989. When C-bit parity mode is disabled, the basic T3 framing mode is used.
<b>Default</b>	C-bit parity mode is enabled.
<b>Usage Guidelines</b>	See “Disable T3 C-Bit Parity Mode” on page 47 or page 184.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## cbr

<b>Syntax</b>	cbr <i>rate</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>address</i> shaping]
<b>Description</b>	For ATM encapsulation only, define a constant bit rate bandwidth utilization in the traffic-shaping profile. Each individual VC has its own independent shaping parameters.
<b>Default</b>	Unspecified bit rate (UBR); that is, bandwidth utilization is unlimited.
<b>Options</b>	<i>rate</i> —Peak rate, in bps or cps. You can specify a value in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). You can also specify a value in cells per second by entering a decimal number followed by the abbreviation c; values expressed in cells per second are converted to bits per second using the formula 1 cps = 384 bps. For OC-3 interfaces, the maximum available rate is 100 percent of <i>line-rate</i> , or 135,631,698 bps. For OC-12 interfaces, the maximum available rate is 50 percent of <i>line-rate</i> , or 271,263,396 bps.
<b>Usage Guidelines</b>	See “Define the ATM Traffic-Shaping Profile” on page 70 or page 113.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration interface-control—To add this statement to the configuration

## clocking

<b>Syntax</b>	clocking (external   internal);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	<p>Clock source for the interface. You specify this statement for interfaces that can use various clock sources.</p> <p>For DS-3 channels on a Channelized OC-12 interface, the clocking statement is supported only for channel 0. It is ignored if you include it in the configuration of channels 1 through 11. The clock source configured for channel 0 applies to all channels on the Channelized OC-12 interface. The individual DS-3 channels use a gapped 45-MHz clock as the transmit clock.</p>
<b>Options</b>	<p>external—The clock source is provided by the DCE.</p> <p>internal—Use the internal stratum 3 clock as the reference clock.</p> <p><b>Default:</b> internal</p>
<b>Usage Guidelines</b>	See “Configure the Clock Source” on page 35 or page 172.
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

## compatibility-mode

<b>Syntax</b>	compatibility-mode (digital-link   kentrox   larscom) <subrate <i>value</i> >;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e3-options] [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	Configure the E3 or T3 interface so that it is compatible with the CSU at the remote end of the line.
<b>Options</b>	<p>digital-link—Configure compatibility with Digital Link CSUs. If you include this option on an E3 interface, you must also disable payload scrambling.</p> <p>kentrox—Configure compatibility with Kentrox CSUs.</p> <p>larscom—Configure compatibility with Larscom CSUs (valid for T3 only, no Larscom E3 CSU).</p> <p>subrate <i>value</i>—(Optional; for Digital Link and Larscom T3 CSUs only) Subrate of the T3 line. The subrate of a T3 interface must exactly match that of the remote CSU. For Digital Link CSUs, specify the subrate <i>value</i> as the data rate you configured on the CSU in the format <i>xKb</i> or <i>x.Mb</i>. For a list of specific rate values, use the command completion feature in the CLI. For Larscom CSUs, <i>value</i> can be a number from 1 through 14 that exactly matches the value configured on the CSU.  <b>Default:</b> If you omit this option, the full T3 rate is used.  <b>Range:</b> For Digital Link CSUs, 301 Kbps through 44.2 Mbps</p>
<b>Usage Guidelines</b>	See “Configure E3 and T3 CSU Compatibility Mode” on page 46, page 134, or page 184.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	payload-scrambler on page 236

## connections

<b>Syntax</b>	<pre>connections {   interface-switch <i>connection-name</i> {     interface <i>interface-name.unit-number</i>;     interface <i>interface-name.unit-number</i>;   } }</pre>
<b>Hierarchy Level</b>	[edit protocols]
<b>Description</b>	Define the connection between two circuits in a circuit cross-connect (CCC) connection.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configure Layer 2 Switching Cross-Connects” on page 102 and “Configure Circuit Cross-Connect” on page 101.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## dce

<b>Syntax</b>	dce;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	For Frame Relay only, respond to status enquiry messages.  When you configure the router to be a DCE, keepalives are disabled by default.
<b>Default</b>	The router operates in DTE mode.
<b>Usage Guidelines</b>	See Configure the Router as a DCE on page 35 or page 154.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## description

<b>Syntax</b>	description <i>text</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Provide a textual description of the interface. Any descriptive text you include is displayed in the output of the show interfaces commands. It has no effect on the operation of the interface or the router.
<b>Options</b>	<i>text</i> —Text to describe the interface. If the text includes spaces, enclose the entire text in quotation marks.
<b>Usage Guidelines</b>	See “Add an Interface Description to the Configuration” on page 29.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## destination

<b>Syntax</b>	destination <i>destination-address</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> ] [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> tunnel]
<b>Description</b>	For point-to-point interfaces only, specify the address of the interface at the remote end of the connection.  For tunnel interfaces, specify the remote address of the tunnel.
<b>Options</b>	<i>destination-address</i> —Address of the remote side of the connection.
<b>Usage Guidelines</b>	See “Configure the Interface Address” on page 81 and “Configure Unicast Tunnels” on page 193.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	point-to-point on page 236

## • disable

•	
•	
•	<b>Syntax</b> disable;
•	
•	<b>Hierarchy Level</b> [edit interfaces <i>interface-name</i> ] [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
•	
•	<b>Description</b> Disable an interface or a logical unit, effectively unconfiguring it.
•	
•	<b>Usage Guidelines</b> See “Disable a Physical Interface” on page 37 and “Disable a Logical Interface” on page 77.
•	
•	<b>Required Privilege Level</b> interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## • dlcI

•	
•	
•	<b>Syntax</b> dlcI <i>dlci-identifier</i> remote-address <i>address</i> ;
•	
•	<b>Hierarchy Level</b> [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
•	
•	<b>Description</b> For Frame Relay encapsulation only, and for point-to-point interfaces only, configure the data-link connection identifier (DLCI) for a PVC or an SVC.
•	
•	To configure a DLCI for a point-to-multipoint interface, specify the DLCI in the multipoint-destination statement.
•	
•	<b>Options</b> <i>address</i> —IP address of the remote side of the connection. This IP address is mapped to the DLCI.
•	
•	<i>dlci-identifier</i> —Data-link connection identifier. <b>Range:</b> 1 through 1022
•	
•	<b>Usage Guidelines</b> See “Configure Frame Relay DLCIs” on page 67 or page 154.
•	
•	<b>Required Privilege Level</b> interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
•	
•	<b>See Also</b> encapsulation on page 214, multipoint-destination on page 231

## e1-options

<b>Syntax</b>	e1-options { fcs (32   16); framing (g704   unframed); idle-cycle-flag (flags   ones); loopback (local   remote); start-end-flag (shared   filler); timeslots <i>slot-number</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Configure E1-specific physical interface properties.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configure E1 and T1 Physical Interface Properties” on page 40 or “Configure E1 Interfaces” on page 129.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## e3-options

<b>Syntax</b>	e3-options { bert-algorithm <i>algorithm</i> ; bert-error-rate <i>rate</i> ; bert-period <i>seconds</i> ; compatibility-mode (digital-link   kentrox); fcs (32   16); idle-cycle-flag <i>value</i> ; loopback (local   remote); start-end-flag <i>value</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Configure E3-specific physical interface properties.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configure E3 and T3 Physical Interface Properties” on page 45 or “Configure E3 Interfaces” on page 133.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

- encapsulation

- **encapsulation (physical interface)**

- **Syntax** encapsulation (atm-pvc | cisco-hdlc | cisco-hdlc-ccc | frame-relay | frame-relay-ccc | ppp | ppp-ccc | vlan-ccc);

- **Hierarchy Level** [edit interfaces *interface-name*]

- **Description** Physical link-layer encapsulation type.

- **Options** atm-pvc—Use ATM PVC encapsulation.

- cisco-hdlc—Use Cisco-compatible HDLC framing.

- cisco-hdlc-ccc—Use Cisco-compatible HDLC framing on circuit cross-connect (CCC) circuits. When you use this encapsulation, you cannot configure a family on the logical interface.

- frame-relay—Use Frame Relay encapsulation.

- frame-relay-ccc—Use plain Frame Relay encapsulation or Frame Relay encapsulation on circuit cross-connect (CCC) circuits.

- ppp—Use serial PPP encapsulation.

- ppp-ccc—Use serial PPP encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you cannot configure a family on the logical interface.

- vlan-ccc—Use Ethernet Virtual Local Area Network encapsulation on circuit cross-connect (CCC) circuits.

- **Usage Guidelines** See “Configure Interface Encapsulation” on page 76 or “Configure VLAN-CCC Encapsulation” on page 140.

- **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**encapsulation (logical interface)**

<b>Syntax</b>	encapsulation (atm-nlpid   atm-cisco-nlpid   atm-snap   atm-vc-mux   atm-ccc-vc-mux   frame-relay-ccc   vlan-ccc);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
<b>Description</b>	Logical link-layer encapsulation type.
<b>Options</b>	<p>atm-cisco-nlpid—Use Cisco ATM NLPID encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>atm-ccc-vc-mux—Use ATM VC mux encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you cannot configure a family on the logical interface.</p> <p>atm-nlpid—Use ATM NLPID encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>atm-snap—Use ATM SNAP encapsulation.</p> <p>atm-vc-mux—Use ATM VC mux encapsulation. When you use this encapsulation, you can configure the family inet only.</p> <p>frame-relay-ccc—Use Frame Relay encapsulation on circuit cross-connect (CCC) circuits. When you use this encapsulation, you cannot configure a family on the logical interface.</p> <p>vlan-ccc—Use Ethernet Virtual Local Area Network encapsulation on circuit cross-connect (CCC) circuits.</p>
<b>Usage Guidelines</b>	See “Configure Interface Encapsulation” on page 76, “Configure Circuit Cross-Connect” on page 101, or “Configure VLAN-CCC Encapsulation” on page 140.
<b>Required Privilege Level</b>	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>

- family

```

Syntax family family {
    filter {
        input filter-name;
        output filter-name;
        group filter-group-number;
    }
    mtu bytes;
    multicasts-only;
    no-redirects;
    primary;
    address address {
        arp ip-address mac mac-address <publish>;
        destination destination-address;
        broadcast address;
        multipoint-destination destination-address dlcidlcid dlci-identifier;
        multipoint-destination destination-address {
            inverse-arp;
            oam-liveness {
                up-count cells;
                down-count cells;
            }
            oam-period seconds;
            shaping {
                (cbr rate | vbr peak rate sustained rate burst length);
                queue-length number;
            }
            vci vpi-identifier.vci-identifier;
        }
        primary;
        preferred;
        vrrp-group group-number {
            virtual-address [addresses];
            priority number;
            advertise-interval seconds;
            authentication-type authentication;
            authentication-key key;
            (preempt | no-preempt);
            track {
                interface interface-name priority-cost cost;
            }
        }
    }
}

```

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*]

**Description** Configure protocol family information for the logical interface.

**Options** *family*—Protocol family:

inet—Internet Protocol version 4 suite

iso—OSI ISO protocol suite

mpls—Multiprotocol label switching

tnp—Trivial Network Protocol

The remaining statements are explained separately.

**Usage Guidelines** See “Configure the Protocol Family” on page 80.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## fastether-options

**Syntax**

```
fastether-options {
    flow-control;
    (loopback | no-loopback);
    source-address-filter {
        mac-address;
    }
    (source-filtering | no-source-filtering);
}
```

**Hierarchy Level** [edit interfaces *interface-name*]

**Description** Configure Fast Ethernet-specific interface properties.

**Options** The statements are explained separately.

**Usage Guidelines** See “Configure Fast Ethernet and Gigabit Ethernet Physical Interface Properties” on page 51 or page 138.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## fcs

**Syntax** fcs (32 | 16);

**Hierarchy Level** [edit interfaces *interface-name* e1-options],  
[edit interfaces *interface-name* e3-options],  
[edit interfaces *interface-name* sonet-options],  
[edit interfaces *interface-name* t1-options],  
[edit interfaces *interface-name* t3-options]

**Description** For E1/E3, SONET/SDH, and T1/T3 interfaces, configure the frame checksum on the interface. The checksum must be the same on both ends of the interface.

On a Channelized OC-12 interface, the SONET fcs statement is not supported. To configure FCS on each DS-3 channel, you must include the t3-options fcs statement in the configuration for each channel. For SONET, the Channelized OC-12 interface supports DS-3 to STS-1 to OC-12. For SDH, the Channelized OC-12 interface supports *nxDS-3* to *nxVC3* to AU3 to STM-*n*.

**Default** 16-bit frame checksum

**Options** 16—Use a 16-bit frame checksum on the interface.

32—Use a 32-bit frame checksum on the interface. Using a 32-bit checksum provides more reliable packet verification, but some older equipment may not support 32-bit checksums.

**Default:** 16

**Usage Guidelines** See “Configure the E3 and T3 Frame Checksum” on page 47, page 136, page 163, or page 185; “Configure the E1 and T1 Frame Checksum” on page 42, page 130, or page 179; “Configure the SONET Frame Checksum” on page 55 or page 163.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## feac-loop-respond

<b>Syntax</b>	(feac-loop-respond   no-feac-loop-respond);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For T3 interfaces only, configure the router so that a remote CSU can place the local router into loopback.  If you have configured remote or local loopback with the T3 loopback statement, the router will not respond to FEAC requests from the CSU even if you have included the feac-loop-respond statement in the configuration. To have the router respond, you must delete the loopback statement from the configuration.
<b>Default</b>	The router does not respond to FEAC requests.
<b>Usage Guidelines</b>	See “Configure T3 FEAC Response” on page 48 and page 186.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	loopback on page 227

## filter

<b>Syntax</b>	filter { input <i>filter-name</i> ; output <i>filter-name</i> ; group <i>filter-group-number</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet]
<b>Description</b>	Apply a firewall filter to an interface.
<b>Options</b>	group <i>filter-group-number</i> —Define an interface to be part of a filter group.  input <i>filter-name</i> —Name of one filter to evaluate when packets are received on the interface.  output <i>filter-name</i> —Name of one filter to evaluate when packets are transmitted on the interface.
<b>Usage Guidelines</b>	See “Apply Firewall Filters” on page 99 and “Firewall Filter Configuration Guidelines” on page 267.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	firewall on page 293

flow-control

**Syntax** flow-control;

**Hierarchy Level** [edit interfaces *interface-name* fastether-options],  
[edit interfaces *interface-name* gigheter-options]

**Description** For Fast Ethernet and Gigabit Ethernet interfaces only, enable flow control, which regulates the flow of packets from the router to the remote side of the connection. Enabling flow control is useful when the remote device is a Gigabit Ethernet switch.

**Default** If you omit this statement, traffic flows unregulated from the router to the remote side of the connection.

**Usage Guidelines** See “Configure Flow Control” on page 52 or page 139.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

force

**Syntax** force (protect | working);

**Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

**Description** Perform a forced switch between the protect and working circuits. This statement is honored only if there are no higher-priority reasons to switch. It can be overridden by a signal failure on the protect circuit, thus causing a switch to the working circuit.

**Options** protect—Request the circuit to become the protect circuit.  
working—Request the circuit to become the working circuit.

**Usage Guidelines** See “Configure Switching between the Working and Protect Circuits” on page 60 or page 168.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** request on page 241

## framing

<b>Syntax</b>	framing (g704   unframed   sf   esf);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> t1-options]
<b>Description</b>	Configure the framing mode.
<b>Default</b>	ESF for T1 interfaces; G704 for E1 interfaces.
<b>Options</b>	esf—ESF (extended super frame) mode for T1 interfaces.  g704—G704 framing mode for E1 interfaces.  sf—SF (super frame) mode for T1 interfaces.  unframed—Unframed mode for E1 interfaces.
<b>Usage Guidelines</b>	See “Configure E1 Framing” on page 42 or page 130; “Configure T1 Framing” on page 43 or page 179.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## gigether-options

<b>Syntax</b>	gigether-options { (flow-control   no-flow-control); (loopback   no-loopback); source-address-filter { <i>mac-address</i> ; } (source-filtering   no-source-filtering); }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Configure Gigabit Ethernet-specific interface properties.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configure Fast Ethernet and Gigabit Ethernet Physical Interface Properties” on page 51 or page 138.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

- hold-time

- **hold-time (physical interface)**

- **Syntax** hold-time up *milliseconds* down *milliseconds*;

- **Hierarchy Level** [edit interfaces *interface-name*]

- **Description** Hold-time value to use to damp interface transitions. When an interface goes from up to down, it is not advertised to the rest of the system as being down until it has remained down for the hold-time period. Similarly, an interface is not advertised as being up until it has remained up for the hold-time period.

- To minimize the loss of signal, so that the network has time to recover from a transition without causing the router interfaces to go down, configure the down and up options to values of 1000.

- **Default** Interface transitions are not damped.

- **Options** down *milliseconds*—Hold time to use when an interface transitions from up to down. The time value that you specify is rounded up to the nearest whole second.  
**Range:** 0 through 65,535  
**Default:** 0 milliseconds (interface transitions are not damped)

- up *milliseconds*—Hold time to use when an interface transitions from down to up. The time value that you specify is rounded up to the nearest whole second.  
**Range:** 0 through 65,535  
**Default:** 0 milliseconds (interface transitions are not damped)

- **Usage Guidelines** See “Damp Interface Transitions” on page 37.

- **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

- **See Also** advertise-interval on page 198

- **hold-time (APS)**

- **Syntax** hold-time *milliseconds*;

- **Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

- **Description** Hold-time value to use to determine whether a neighbor APS router is operational.

- **Options** *milliseconds*—Hold-time value.  
**Range:** 1 through 65,535 milliseconds  
**Default:** 3000 milliseconds (3 times the advertisement interval)

- **Usage Guidelines** See “Configure APS Timers” on page 61 or page 169.

- **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

- **See Also** advertise-interval on page 198

## idle-cycle-flag

<b>Syntax</b>	idle-cycle-flag <i>value</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	Configure the value that the E1/E3 or T1/T3 interface transmits during idle cycles.
<b>Options</b>	<i>value</i> —Value to transmit in the idle cycles:  <i>flags</i> —Transmit the value 0x7E.  <i>ones</i> —Transmit the value 0xff (all ones).  <b>Default:</b> <i>flags</i>
<b>Usage Guidelines</b>	See “Configure the E3 and T3 Idle Cycle Flag” on page 49, page 135, or page 187; “Configure the E1 and T1 Idle Cycle Flag” on page 43, page 131, or page 180.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## ilmi

<b>Syntax</b>	ilmi;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> atm-options]
<b>Description</b>	Enable the router to communicate with directly attached ATM switches. The router uses the VC 0.16 to communicate with the ATM switch. Once configured, you can display the IP address and port number of an ATM switch using the show interfaces <i>interface-name</i> switch-id command.
<b>Usage Guidelines</b>	See “Configure Communication with Directly Attached ATM Switches” on page 39 or page 111.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	show interfaces switch-id command in the <i>JUNOS Internet Software Command Reference</i> .

## interfaces

<b>Syntax</b>	interfaces { ... }
<b>Hierarchy Level</b>	[edit]
<b>Description</b>	Configure interfaces on the router.
<b>Default</b>	The management and internal Ethernet interfaces are automatically configured. You must configure all other interfaces.
<b>Usage Guidelines</b>	See “Interfaces Configuration Statements” on page 23.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## interface-switch

<b>Syntax</b>	interface-switch <i>connection-name</i> { interface <i>interface-name.unit-number</i> ; interface <i>interface-name.unit-number</i> ; }
<b>Hierarchy Level</b>	[edit protocols connections]
<b>Description</b>	Configure Layer 2 switching cross-connects. The cross-connect is bidirectional, so packets received on the first interface are transmitted out the second interface, and those received on the second interface are transmitted out the first.  For Layer 2 switching cross-connects to work, you must also configure MPLS.
<b>Options</b>	interface <i>interface-name.unit-number</i> —Interface name. Include the logical portion of the name, which corresponds to the logical unit number.
<b>Usage Guidelines</b>	See “Configure Layer 2 Switching Cross-Connects” on page 102.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration

## inverse-arp

<b>Syntax</b>	inverse-arp;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> multipoint-destination <i>destination</i> ]
<b>Description</b>	For ATM encapsulation, enable responses to received inverse ATM ARP requests.
<b>Usage Guidelines</b>	See “Configure ATM Inverse ARP” on page 70 or page 112.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## invert-data

<b>Syntax</b>	invert-data;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> t1-options]
<b>Description</b>	Invert the transmission of unused data bits on the T1 interface.
<b>Usage Guidelines</b>	See “Configure T1 Data Inversion” on page 42 or page 178.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## keepalives

<b>Syntax</b>	keepalives <interval <i>seconds</i> > <down-count <i>number</i> > <up-count <i>number</i> >;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Enable the sending of keepalives on a physical interface configured with PPP, Frame Relay, ATM, or Cisco HDLC encapsulation.
<b>Default</b>	Sending of keepalives is enabled by default. The default keepalive interval is 10 seconds for PPP, Frame Relay, or Cisco HDLC. The default down-count is 3 and the default up-count is 1 for PPP or Cisco HDLC.
<b>Options</b>	<p>down-count <i>number</i>—The number of keepalive packets a destination must fail to receive before the network takes down a link.  <b>Range:</b> 1 through 255  <b>Default:</b> 3</p> <p>interval <i>seconds</i>—The time in seconds between successive keepalive requests.  <b>Range:</b> 10 through 32767 seconds  <b>Default:</b> 10 seconds</p> <p>up-count <i>number</i>—The number of keepalive packets a destination must receive to change a link’s status from down to up.  <b>Range:</b> 1 through 255  <b>Default:</b> 1</p>
<b>Usage Guidelines</b>	See “Configure Keepalives” on page 34 or page 153.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## line-encoding

<b>Syntax</b>	line-encoding (ami   b8zs);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> t1-options]
<b>Description</b>	Set the line encoding format on the T1 interface.
<b>Default</b>	The default line encoding is to use B8ZS.
<b>Options</b>	AMI—Use AMI line encoding. B8ZS—Use B8ZS line encoding.
<b>Usage Guidelines</b>	See “Configure T1 Line Encoding” on page 43 or page 179.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## link-mode

<b>Syntax</b>	link-mode (full-duplex   half-duplex);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Set the device’s link connection characteristic.
<b>Default</b>	Fast Ethernet interfaces and the router’s management Ethernet interface, fxp0, autonegotiate whether to operate in full-duplex or half-duplex mode. All other interfaces can operate only in full-duplex mode.
<b>Options</b>	full-duplex—Connection is full duplex. half-duplex—Connection is half duplex.
<b>Usage Guidelines</b>	See “Configure the Link Characteristics” on page 30 or page 140.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## lockout

<b>Syntax</b>	lockout;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options aps]
<b>Description</b>	Configure a lockout of protection, forcing the use of the working circuit and locking out the protect circuit regardless of anything else.
<b>Usage Guidelines</b>	See “Configure Switching between the Working and Protect Circuits” on page 60 or page 168.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## long-buildout

<b>Syntax</b>	(long-buildout   no-long-buildout);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	Configure the T3 line buildout. A T3 interface has two settings for the T3 line buildout: a short setting, which is less than 225 feet (about 68 meters), and a long setting, which is greater than 225 feet.  This statement applies to copper-cable-based T3 interfaces only. You cannot configure a line buildout for a DS-3 channel on a Channelized OC-12 interface, which runs over fiber-optic cable.
<b>Default</b>	A T3 interface uses the short line buildout setting for wires shorter than 225 feet (about 68 meters).
<b>Usage Guidelines</b>	See “Configure the T3 Line Buildout” on page 49 or page 187.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration interface-control—To add this statement to the configuration

## loopback

***loopback (Fast Ethernet and Gigabit Ethernet)***

<b>Syntax</b>	(loopback   no-loopback);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> fastether-options] [edit interfaces <i>interface-name</i> gigheter-options]
<b>Description</b>	Enable or disable loopback mode.
<b>Usage Guidelines</b>	See “Configure Loopback Mode” on page 52 or page 139.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## **loopback (E1/E3, SONET, and T1/T3)**

<b>Syntax</b>	loopback (local   remote);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> sonet-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	Configure a loopback connection. To turn off loopback, remove the loopback statement from the configuration.  For DS-3 channels on a Channelized OC-12 interface, the sonet-options loopback statement is supported only for channel 0. It is ignored if you include it in the configuration for channels 1 through 11. The SONET loopback configured for channel 0 applies to all 12 channels equally. To configure loopbacks on the DS-3 channels, you must include the t3-options loopback statement in the configuration for each channel. Each DS-3 channel can be put in loopback mode independently.
<b>Options</b>	local—Loop packets back on the local router's PIC.  remote—Loop packets back on the remote router's interface card.
<b>Usage Guidelines</b>	See "Configure E3 and T3 Loopback Capability" on page 48, page 134, page 164, or page 186; "Configure E1 and T1 Loopback Capability" on page 44, page 131, or page 180; "Configure SONET Loopback Capability" on page 56 or page 164.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	feac-loop-respond on page 219

## mac

<b>Syntax</b>	mac <i>mac-address</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Set the MAC address of the interface. You can configure the MAC address on the management Ethernet interface (fxp0) only.
<b>Options</b>	<i>mac-address</i> —MAC address. Specify the MAC address as six hexadecimal bytes in one of the following formats: <i>nnnn.nnnn.nnnn</i> or <i>nn:nn:nn:nn:nn:nn</i> . For example, 0011.2233.4455 or 00:11:22:33:44:55.
<b>Usage Guidelines</b>	See "Configure the MAC Address on the Management Ethernet Interface" on page 34.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## mtu

<b>Syntax</b>	mtu <i>bytes</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> ]
<b>Description</b>	Maximum transmission unit (MTU) size for the media or protocol. The default MTU size depends on the device type. Not all devices allow you to set an MTU value, and some devices have restrictions on the range of allowable MTU values.
<b>Options</b>	<i>bytes</i> —MTU size. <b>Range:</b> 0 through 5012 bytes
<b>Usage Guidelines</b>	See “Configure the Media MTU” on page 30 and “Set the Protocol MTU” on page 82.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## multicast-dlci

<b>Syntax</b>	multicast-dlci <i>dlci-identifier</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
<b>Description</b>	For point-to-multipoint Frame Relay interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the Frame Relay switch performs multicast replication.
<b>Options</b>	<i>dlci-identifier</i> —DLCI identifier, which is a number from 1 through 1022 that defines the Frame Relay DLCI over which the switch is expecting to receive multicast packets for replication.
<b>Usage Guidelines</b>	See “Configure a Multicast-Capable Frame Relay Connection” on page 68 or page 155.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	dlci on page 212, multipoint-destination on page 231

## multicast-vci

- Syntax** `multicast-vci vpi-identifier.vci-identifier;`
- Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*]
- Description** For ATM encapsulation only, and for point-to-multipoint ATM logical interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the ATM switch performs multicast replication.
- Options**
  - vci-identifier*—ATM virtual circuit identifier.  
**Range:** 0 through 16384
  - vpi-identifier*—ATM virtual path identifier.  
**Range:** 0 through 255  
**Default:** 0
- Usage Guidelines** See “Configure a Multicast-Capable ATM Connection” on page 70 or page 112.
- Required Privilege Level**
  - interface—To view this statement in the configuration.
  - interface-control—To add this statement to the configuration.
- See Also** multipoint-destination on page 231, vci on page 258

## multicasts-only

- Syntax** `multicasts-only;`
- Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family inet]
- Description** Configure the unit and family so that it can transmit and receive multicast traffic only. You can configure this property on the IP family only.
- Usage Guidelines** See “Configure Tunnel Interfaces” on page 193.
- Required Privilege Level**
  - interface—To view this statement in the configuration.
  - interface-control—To add this statement to the configuration.
- See Also** tunnel on page 254

## multipoint

- Syntax** `multipoint;`
- Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*]
- Description** Configure the interface unit as a multipoint connection.
- Default** If you omit this statement, the interface unit is configured as a point-to-point connection.
- Usage Guidelines** See “Configure a Multipoint Connection” on page 67.
- Required Privilege Level**
  - interface—To view this statement in the configuration.
  - interface-control—To add this statement to the configuration.
- See Also** point-to-point on page 236

## multipoint-destination

```

Syntax  multipoint-destination destination-address dcli dcli-identifier;
           multipoint-destination destination-address vci vci-identifier;
           multipoint-destination destination-address {
             oam-liveness {
               up-count cells;
               down-count cells;
             }
             oam-period seconds;
             shaping {
               vbr peak rate sustained rate burst length;
               queue-length number;
             }
             vci vpi-identifier.vci-identifier;
           }

```

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family *family* address *address*]

**Description** For point-to-multipoint Frame Relay or ATM interfaces only, enable the support of multicast on the interface. You can configure multicast support on the interface if the Frame Relay or ATM switch performs multicast replication.

**Options** *destination-address*—Address of the remote side of the point-to-multipoint connection.

*dcli-identifier*—For Frame Relay interfaces, the data-link connection identifier.  
**Range:** 0 through 0xFFFFFFFF (24 bits)

*vci-identifier*—For ATM interfaces, the virtual circuit identifier.  
**Range:** 0 through 16384

*vpi-identifier*—For ATM interfaces, the virtual path identifier.  
**Range:** 0 through 255  
**Default:** 0

The remaining options are explained separately.

**Usage Guidelines** See “Configure a Point-to-Multipoint ATM Connection” on page 85 or page 112, and “Configure a Point-to-Multipoint Frame Relay Connection” on page 91 or page 155.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**See Also** encapsulation on page 214

## neighbor

**Syntax** neighbor *address*;

**Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

**Description** If you are configuring one router to be the working router and a second to be the protect router, configure the address of the remote interface. You configure this on one or both of the interfaces.

The address you specify for the neighbor must never be routed through the interface on which APS is configured, or instability will result. We strongly recommend that you directly connect the working and protect routers and that you configure the interface address of this shared network as the neighbor address.

**Options** *address*—Neighbor's address.

**Usage Guidelines** See "Configure Basic APS Support" on page 59 or page 167.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## no-flow-control

**See** flow-control on page 220

## no-keepalives

**Syntax** no-keepalives;

**Hierarchy Level** [edit interfaces *interface-name*]

**Description** Disable the sending of keepalives on a physical interface configured with PPP, Frame Relay, ATM, or Cisco HDLC encapsulation. The default keepalive interval is 10 seconds for PPP, Frame Relay, or Cisco HDLC.

**Usage Guidelines** See "Configure Keepalives" on page 34 or page 153.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## no-preempt

**See** preempt on page 237

## no-redirects

<b>Syntax</b>	no-redirects;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>number</i> family <i>family</i> ]
<b>Description</b>	Do not send protocol redirect messages on the interface.  To disable the sending of protocol redirect messages for the entire router, include the no-redirects statement at the [edit system] hierarchy level.
<b>Default</b>	Interfaces send protocol redirect messages.
<b>Usage Guidelines</b>	See “Disable the Sending of Redirect Messages on an Interface” on page 83.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## no-traps

<b>Syntax</b>	no-traps;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
<b>Description</b>	Disable the sending of SNMP notifications when the state of the connection changes.
<b>Usage Guidelines</b>	See “Disable SNMP Notifications on Physical Devices” on page 37 and “Disable SNMP Notifications on Logical Interfaces” on page 75.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## no-z0-increment

See z0-increment on page 262

## oam-liveness

**Syntax** oam-liveness {  
     up-count *cells*;  
     down-count *cells*;  
 }

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*],  
 [edit interfaces *interface-name* unit *logical-unit-number* family *family* address *address*  
 multipoint-destination *address*]

**Description** For ATM encapsulation only, configure OAM F5 loopback cell count thresholds.

**Options** down-count *cells*—Minimum number of consecutive OAM F5 loopback cells lost before declaring that a VC is down.  
**Range:** 1 through 255  
**Default:** 5 cells

up-count *cells*—Minimum number of consecutive OAM F5 loopback cells received before declaring that a VC is up.  
**Range:** 1 through 255  
**Default:** 5 cells

**Usage Guidelines** See “Configure the ATM OAM F5 Loopback Cell Threshold” on page 74 or page 116.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## oam-period

**Syntax** oam-period *seconds*;

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*],  
 [edit interfaces *interface-name* unit *logical-unit-number* family *family* address *address*  
 multipoint-destination *address*]

**Description** For ATM encapsulation only, configure the OAM F5 loopback cell period.

**Default** If you omit this statement, OAM F5 loopback cells are not originated, but the interface still responds if it receives OAM F5 loopback cells.

**Options** *seconds*—OAM F5 loopback cell period.  
**Range:** 1 through 900 seconds

**Usage Guidelines** See “Define the ATM OAM F5 Loopback Cell Period” on page 74 or page 116.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## paired-group

<b>Syntax</b>	<code>paired-group <i>group-name</i>;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options aps]
<b>Description</b>	Configure load sharing between two working-protect circuit pairs.
<b>Options</b>	<i>group-name</i> —Circuit's group name, as configured with the protect-circuit or working-circuit statement.
<b>Usage Guidelines</b>	See "Configure APS Load Sharing between Circuit Pairs" on page 62 or page 170.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	paired-group on page 235, working-circuit on page 261

## path-trace

<b>Syntax</b>	<code>path-trace <i>trace-string</i>;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options]
<b>Description</b>	For SONET interfaces only, configure a path trace identifier, which is a text string that identifies the circuit.  On SONET OC-48 interfaces that are configured for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc <i>slot-number</i> pic <i>pic-number</i> ] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.  For DS-3 channels on a Channelized OC-12 interface, you can configure a unique path trace for each of the 12 channels. Each path trace can be up to 16 bytes.
<b>Options</b>	<i>trace-string</i> —Text string that identifies the circuit. If the string contains spaces, enclose it in quotation marks. A common convention is to use the circuit identifier as the path trace identifier. If you do not configure an identifier, the JUNOS software uses the system and interface names.
<b>Usage Guidelines</b>	See "Configure the SONET Path Trace Identifier" on page 56 or page 164.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	sonet-options on page 243

## payload-scrambler

<b>Syntax</b>	(payload-scrambler   no-payload-scrambler);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> sonet-options], [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	Enable or disable HDLC scrambling on an E3, a SONET, or a T3 interface. This type of scrambling provides better link stability. Both sides of a connection must either use or not use scrambling.  Disable payload scrambling on an E3 interface if Digital Link compatibility mode is used.  On a Channelized OC-12 interface, the SONET payload-scrambler statement is ignored. To configure scrambling on the DS-3 channels on the interface, you can include the t3-options payload-scrambler statement in the configuration for each DS-3 channel.
<b>Default</b>	Payload scrambling is disabled on all E3, SONET, and T3 interfaces.
<b>Usage Guidelines</b>	See “Configure E3 and T3 HDLC Payload Scrambling” on page 50, “Configure SONET HDLC Payload Scrambling” on page 57, “Configure E3 HDLC Payload Scrambling” on page 135, “Configure SONET HDLC Payload Scrambling” on page 164, and “Configure HDLC Payload Scrambling” on page 188.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## point-to-point

<b>Syntax</b>	point-to-point;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
<b>Description</b>	Configure the interface unit as a point-to-point connection. This is the default connection type.
<b>Default</b>	If you omit this statement, the interface unit is configured as a point-to-point connection.
<b>Usage Guidelines</b>	See “Configure a Point-to-Point Connection” on page 66.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	multipoint on page 230

## preempt

<b>Syntax</b>	(preempt   no-preempt);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i> ]
<b>Description</b>	When configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces, configure whether a backup router can preempt a master router: <p style="margin-left: 40px;">preempt—Allow the master router to be preempted.</p> <p style="margin-left: 40px;">no-preempt—Prohibit the preemption of the master router.</p>
<b>Default</b>	If you omit this statement, the backup router can preempt a master router.
<b>Usage Guidelines</b>	See “Configure a Backup Router to Preempt the Master Router” on page 95 or page 145.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## preferred

<b>Syntax</b>	preferred;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> ]
<b>Description</b>	Configure this address to be the preferred address on the interface. If you configure more than one address on the same subnet, the preferred source address is chosen by default as the source address when you originate packets to destinations on the subnet.
<b>Default</b>	The lowest numbered address on the subnet is the preferred address.
<b>Usage Guidelines</b>	See “Configure the Interface Address” on page 81.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## primary

<b>Syntax</b>	primary;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family <i>family</i> address <i>address</i> ]
<b>Description</b>	Configure this address to be the primary address of the protocol on the interface. If the logical unit has more than one address, the primary address is used by default as the source address when packets originate from the interface and the destination does not indicate the subnet.
<b>Default</b>	For unicast traffic, the primary address is the lowest non-127 preferred address on the unit.
<b>Usage Guidelines</b>	See “Configure the Interface Address” on page 81.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## priority

<b>Syntax</b>	<code>priority priority;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> family inet address <i>address</i> vrrp-group <i>group-number</i> ]
<b>Description</b>	When configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces, configure a VRRP router's priority for becoming the master default router. The router with the highest priority within the group becomes the master.
<b>Options</b>	<i>priority</i> —Router's priority for being elected to be the master router in the VRRP group. A larger value indicates a higher priority for being elected. <b>Range:</b> 1 through 255 <b>Default:</b> 100 (for backup routers)
<b>Usage Guidelines</b>	See "Configure Basic APS Support" on page 59 or page 143.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## protect-circuit

<b>Syntax</b>	<code>protect-circuit group-name;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options aps]
<b>Description</b>	Configure the protect router in an APS circuit pair. When the working interface fails, APS brings up the protection circuit and the traffic is moved to the protection circuit.
<b>Options</b>	<i>group-name</i> —Circuit's group name.
<b>Usage Guidelines</b>	See "Configure Basic APS Support" on page 59 or page 143.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	working-circuit on page 261

## queue-length

<b>Syntax</b>	queue-length <i>number</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>address</i> shaping]
<b>Description</b>	For ATM encapsulation only, define the maximum queue length in the traffic-shaping profile. Each individual VC has its own independent shaping parameters.
<b>Default</b>	Buffer usage is unregulated.
<b>Options</b>	<i>number</i> —Maximum number of packets the queue can contain. <b>Range:</b> 1 through 16383 packets <b>Default:</b> 16383 packets
<b>Usage Guidelines</b>	See “Define the ATM Traffic-Shaping Profile” on page 70 or page 113.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

- receive-bucket

- **Syntax** receive-bucket {
  - overflow (tag | discard);
  - rate *percentage*;
  - threshold *number*;

- **Hierarchy Level** [edit interfaces *interface-name*]

- **Description** Set parameters for the receive leaky bucket, which specifies what percentage of the interface's total capacity can be used to receive packets.

- For each DS-3 channel on a Channelized OC-12 interface, you can configure a unique receive bucket.

- **Options** overflow (tag | discard)—How to handle packets that exceed the threshold. It can be one of the following:

- discard—Discard received packets that exceed the threshold. No counting is done.

- tag—Tag, count, and process received packets that exceed the threshold.

- rate *percentage*—Percentage of the interface line rate that is available to receive or transmit packets.

- **Range:** 0 through 100

- threshold *number*—Bucket threshold, which controls the burstiness of the leaky bucket mechanism. The larger the value, the more bursty the traffic, which means that over a very short amount of time, the interface can receive or transmit close to line rate, but the average over a longer time is at the configured bucket rate.

- **Range:** 0 through 16777215 bytes

- **Usage Guidelines** See “Configure Receive and Transmit Leaky Bucket Properties” on page 36 or page 173.

- **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

- **See Also** transmit-bucket on page 253

## request

<b>Syntax</b>	request (protect   working);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options aps]
<b>Description</b>	Perform a manual switch between the protect and working circuits. This statement is honored only if there are no higher-priority reasons to switch.
<b>Options</b>	protect—Request the circuit to become the protect circuit. working—Request the circuit to become the working circuit.
<b>Usage Guidelines</b>	See “Configure Switching between the Working and Protect Circuits” on page 60 or page 168.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	force on page 220

## revert-time

<b>Syntax</b>	revert-time <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options aps]
<b>Description</b>	Configure APS revertive mode.
<b>Default</b>	APS operates in nonrevertive mode.
<b>Options</b>	<i>seconds</i> —Amount of time to wait after the working circuit has again become functional before making the working circuit active again. <b>Range:</b> 1 through 65,535 seconds <b>Default:</b> none (APS operates in nonrevertive mode)
<b>Usage Guidelines</b>	See “Configure Revertive Mode” on page 61 or page 169.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## rfc-2615

<b>Syntax</b>	rfc-2615;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> sonet-options]
<b>Description</b>	Include this statement to enable RFC 2615 features.
<b>Default</b>	Settings required by RFC 1619.
<b>Usage Guidelines</b>	See “Configure SONET RFC 2615 Support” on page 57 or page 165.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

- shaping

- **Syntax**

```
shaping {
    (cbr rate | vbr peak rate sustained rate burst length);
    queue-length number;
}
```

- **Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*],  
[edit interfaces *interface-name* unit *logical-unit-number* address *address*],  
[edit interfaces *interface-name* unit *logical-unit-number* address *address* family *family*  
multipoint-destination *address*]

- **Description** For ATM encapsulation only, define the traffic-shaping profile.

- **Options** The statements are explained separately.

- **Usage Guidelines** See “Define the ATM Traffic-Shaping Profile” on page 70 or page 113.

- **Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## sonet-options

```

Syntax sonet-options {
    aps {
        advertise-interval milliseconds;
        authentication-key key;
        force;
        hold-time milliseconds;
        lockout;
        neighbor address;
        paired-group group-name;
        protect-circuit group-name;
        request;
        revert-time seconds;
        working-circuit group-name;
    }
    bytes {
        e1-quiet value;
        f1 value;
        f2 value;
        s1 value;
        z3 value;
        z4 value;
    }
    fcs (32 | 16);
    loopback (local | remote);
    path-trace trace-string;
    (payload-scrambler | no-payload-scrambler);
    rfc-2615;
    (z0-increment | no-z0-increment);
}

```

**Hierarchy Level** [edit interfaces *interface-name*]

**Description** Configure SONET-specific interface properties.

On SONET OC-48 interfaces that are configured for channelized (multiplexed) mode (by including the no-concatenate statement at the [edit chassis fpc *slot-number* pic *pic-number*] hierarchy level), the bytes e1-quiet and bytes f1 options have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0 and work in the transmit direction only on channels 1, 2, and 3.

On a Channelized OC-12 interface, the bytes e1-quiet, bytes f1, bytes f2, bytes z3, and bytes z4 options are not supported. The fcs and payload-scrambler statements are also not supported; you must configure these for each DS-3 channel using the t3-options fcs and t3-options payload-scrambler statements. The aps and loopback statements are supported only on channel 0 and are ignored if included in the configurations for channels 1 through 11. You can configure loopbacks for each DS-3 channel with the t3-options loopback statement. The path-trace statement can be included in the configuration for each DS-3 channel, thereby configuring a unique path trace for each channel.

If you are running IS-IS over SONET interfaces, use PPP if you are running release 12.0 or later. If you need to run HDLC, configure an ISO family MTU of 4469 on the router.

**Options** The statements are explained separately.

**Usage Guidelines** See “Configure SONET/SDH Physical Interface Properties” on page 53 or page 160.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** no-concatenate on page 370

## SOURCE

**Syntax** `source source-address;`

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* tunnel *destination-address*]

**Description** Specify the source address of the tunnel.

**Default** If you do not specify a source address, the tunnel uses the unit’s primary address as the source address of the tunnel.

**Options** *source-address*—Address of the local side of the tunnel. This is the address that is placed in the outer IP header’s source field.

**Usage Guidelines** See “Configure Tunnel Interfaces” on page 193.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** multicasts-only on page 230, primary on page 237

## source-address-filter

<b>Syntax</b>	source-address-filter { <i>mac-address</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> fastether-options], [edit interfaces <i>interface-name</i> gigether-options]
<b>Description</b>	For Fast Ethernet and Gigabit Ethernet interfaces only, specify the MAC addresses from which the interface can receive packets. For this statement to have any effect, you must include the source-filtering statement in the configuration to enable source address filtering.
<b>Options</b>	<i>mac-address</i> —MAC address filter. You can specify the MAC address as <i>nn:nn:nn:nn:nn:nn</i> or <i>nnnn.nnnn.nnnn</i> , where n is a decimal digit. To specify more than one address, include multiple <i>mac-address</i> options in the source-address-filter statement.  If you enable VRRP on a Fast or Gigabit Ethernet interface, as described in “Configure VRRP” on page 142, and if you enable MAC source address filtering on the interface, you must include the virtual MAC address in the list of source MAC addresses that you specify in the source-address-filter statement. MAC addresses ranging from 00:00:5e:00:01:00 through 00:00:5e:00:01:ff are reserved for VRRP, as defined in RFC 2338. When you configure the VRRP group, the group number must be the decimal equivalent of the last hexadecimal byte of the virtual MAC address.
<b>Usage Guidelines</b>	See “Configure MAC Address Filtering” on page 51 or page 138.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	source-filtering on page 245

## source-filtering

<b>Syntax</b>	(source-filtering   no-source-filtering);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> fastether-options], [edit interfaces <i>interface-name</i> gigether-options]
<b>Description</b>	For Fast Ethernet and Gigabit Ethernet interfaces only, enable the filtering of MAC source addresses, which blocks all incoming packets to that interface. To allow the interface to receive packets from specific MAC addresses, include the source-address-filter statement.  If the remote Ethernet card is changed, the interface will no longer be able to receive packets from the new card because it will have a different MAC address.
<b>Default</b>	Source address filtering is disabled.
<b>Usage Guidelines</b>	See “Configure MAC Address Filtering” on page 51 or page 138.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	source-address-filter on page 245

## speed

<b>Syntax</b>	speed (10m   100m);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Configure the interface's speed. This statement applies only to the management Ethernet interface (fxp0).
<b>Options</b>	You can specify the speed as either 10m or 100m (values in Mbps).
<b>Usage Guidelines</b>	See "Configure the Interface's Speed" on page 33.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## start-end-flag

<b>Syntax</b>	start-end-flag (shared   filler);
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> e1-options], [edit interfaces <i>interface-name</i> e3-options], [edit interfaces <i>interface-name</i> t1-options], [edit interfaces <i>interface-name</i> t3-options]
<b>Description</b>	For E1/E3 or T1/T3 interfaces, configure the interface to share the transmission of start and end flags.
<b>Options</b>	<i>value</i> —Start-end flag:  filler—Wait two idle cycles between the start and end flags.  shared—Share the transmission of the start and end flags.
<b>Usage Guidelines</b>	See "Configure the E3 and T3 Start-End Flag" on page 50, page 135, or page 188; "Configure the E1 and T1 Start-End Flag" on page 44, page 132, or page 181.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## t1-options

<b>Syntax</b>	t1-options { buildout (0-133   133-266   266-399   399-532   532-655); byte-encoding (nx64   nx56); fcs (32   16); framing (sf   esf); idle-cycle-flag (flags   ones); invert-data; line-encoding (ami   b8zs); loopback (local   remote); start-end-flag (shared   filler); timeslots <i>slot-number</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Configure T1-specific physical interface properties.
<b>Options</b>	The statements are explained separately.
<b>Usage Guidelines</b>	See “Configure E1 and T1 Physical Interface Properties” on page 40 or “Configure T1 Interfaces” on page 177.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## t3-options

**Syntax** t3-options {  
 bert-algorithm *algorithm*;  
 bert-error-rate *rate*;  
 bert-period *seconds*;  
 (cbit-parity | no-cbit-parity);  
 compatibility-mode (digital-link | kentrox | larscom) <subrate *value*>;  
 fcs (32 | 16);  
 (feac-loop-respond | no-feac-loop-respond);  
 idle-cycle-flag *value*;  
 (long-buildout | no-long-buildout);  
 loopback (local | remote);  
 start-end-flag *value*;  
 }

**Hierarchy Level** [edit interfaces *interface-name*]

**Description** Configure T3-specific physical interface properties, including the properties of DS-3 channels on a Channelized OC-12 interface. The long-buildout statement is not supported for DS-3 channels on a Channelized OC-12 interface.

On T3 interfaces, the default encapsulation is PPP.

**Options** The statements are explained separately.

**Usage Guidelines** See “Configure E3 and T3 Physical Interface Properties” on page 45 or “Configure T3 Physical Interface Properties” on page 183.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## timeslots

**Syntax** timeslots *slot-number*;

**Hierarchy Level** [edit interfaces *interface-name* e1-options],  
 [edit interfaces *interface-name* t1-options]

**Description** For E1 or T1 interfaces, allocate the specific timeslots by number.

**Options** *slot-number*—Actual timeslot number(s) allocated:  
**Range:** 1 through 24 for T1 interfaces, and 1 through 32 for E1 interfaces

**Usage Guidelines** See “Configure the E1 and T1 Timeslots” on page 45, page 132, or page 181.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## traceoptions

**traceoptions (individual interfaces)**

<b>Syntax</b>	<pre>traceoptions {     flag <i>flag</i> &lt;<i>flag-modifier</i>&gt; &lt;disable&gt;; }</pre>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	<p>Define tracing operations for individual interfaces.</p> <p>To specify more than one tracing operation, include multiple flag statements.</p> <p>The interfaces traceoptions statement does not support a trace file. The logging is done by the kernel, so the tracing information is placed in the system syslog file in the directory /var/log.</p>
<b>Default</b>	If you do not include this statement, no interface-specific tracing operations are performed.
<b>Options</b>	<p>disable—(Optional) Disable the tracing operation. One use of this option is to disable a single operation when you have defined a broad group of tracing operations, such as all.</p> <p><i>flag</i>—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. The following are the interface-specific tracing options.</p> <ul style="list-style-type: none"> <li>all—All interface tracing operations</li> <li>event—Interface events</li> <li>ipc—Interface IPC messages</li> <li>media— Interface media changes</li> </ul> <p><i>flag-modifier</i>—(Optional) Modifier for the tracing flag. You can specify one or both of these modifiers:</p> <ul style="list-style-type: none"> <li>receive—Packets being received</li> <li>send—Packets being transmitted</li> </ul>
<b>Usage Guidelines</b>	See “Trace Operations of an Individual Router Interface” on page 107.
<b>Required Privilege Level</b>	<p>interface and trace—To view this statement in the configuration.</p> <p>interface-control and trace-control—To add this statement to the configuration.</p>

## **traceoptions (interface process)**

**Syntax** traceoptions {  
           file *filename* <size *size*> <files *number*>;  
           }

**Hierarchy Level** [edit interfaces]

**Description** Define tracing operations for the interface process (dcd).

**Default** If you do not include this statement, no interface-specific tracing operations are performed.

**Options** *filename*—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory `/var/log`. By default, interface process tracing output is placed in the file `dcd`.

*files number*—(Optional) Maximum number of trace files. When a trace file named *trace-file* reaches its maximum size, it is renamed *trace-file.0*, then *trace-file.1*, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum number of files, you also must specify a maximum file size with the *size* option.

**Range:** 2 through 1,000

**Default:** 3 files

*size size*—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named *trace-file* reaches this size, it is renamed *trace-file.0*. When the *trace-file* again reaches its maximum size, *trace-file.0* is renamed *trace-file.1* and *trace-file* is renamed *trace-file.0*. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum file size, you also must specify a maximum number of trace files with the *files* option.

**Syntax:** *xk* to specify KB, *xm* to specify MB, or *xg* to specify GB

**Range:** 10 KB through the maximum file size supported on your router

**Default:** 1 MB

**Usage Guidelines** See “Trace Operations of the Interface Process” on page 108.

**Required Privilege Level** interface and trace—To view this statement in the configuration.  
 interface-control and trace-control—To add this statement to the configuration.

**traceoptions (VRRP)**

<b>Syntax</b>	traceoptions { flag <i>flag</i> ; }
<b>Hierarchy Level</b>	[edit protocols vrrp]
<b>Description</b>	Define tracing operations for VRRP.  To specify more than one tracing operation, include multiple flag statements.  By default, VRRP logs the error, DCD configuration and routing socket events to the file /var/log/vrrpd.
<b>Default</b>	If you do not include this statement, no VRRP-specific tracing operations are performed.
<b>Options</b>	<i>flag</i> —Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. These are the VRRP-specific tracing options.  all—All VRRP tracing operations  database—Database changes  general—General events  interfaces—Interface changes  normal—Normal events  packets—Packets sent and received  state—State transitions  timer—Timer events
<b>Usage Guidelines</b>	See “Trace Operations on Interfaces on which VRRP is Enabled” on page 96 or page 146.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.



## transmit-bucket

<b>Syntax</b>	transmit-bucket { overflow discard; rate <i>percentage</i> ; threshold <i>number</i> ; }
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	Set parameters for the transmit leaky bucket, which specifies what percentage of the interface's total capacity can be used to transmit packets.  For each DS-3 channel in a Channelized OC-12 interface, you can configure a unique transmit bucket.
<b>Options</b>	overflow discard—How to handle packets that exceed the threshold. These packets are discarded and no counting is done.  rate <i>percentage</i> —Percentage of the interface line rate that is available to receive or transmit packets. <b>Range:</b> 0 through 100  threshold <i>number</i> —Bucket threshold, which controls the burstiness of the leaky bucket mechanism. The larger the value, the more bursty the traffic, which means that over a very short amount of time, the interface can receive or transmit close to line rate, but the average over a longer time is at the configured bucket rate. <b>Range:</b> 0 through 16777215 bytes
<b>Usage Guidelines</b>	See “Configure Receive and Transmit Leaky Bucket Properties” on page 36 or page 173.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	receive-bucket on page 240

## ttl

<b>Syntax</b>	ttl <i>value</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>number</i> tunnel <i>destination-address</i> ]
<b>Description</b>	Set the time-to-live value bit in the header of the outer IP packet.
<b>Options</b>	<i>value</i> —Time-to-live value. <b>Range:</b> 0 through 255 <b>Default:</b> 64
<b>Usage Guidelines</b>	See “Configure Tunnel Interfaces” on page 193.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.



## unit

```

Syntax  unit logical-unit-number {
    disable;
    dlcidlcid-identifier;
    encapsulation type;
    inverse-arp;
    multicast-dlcidlcid-identifier;
    multicast-vcivpi-identifier.vci-identifier;
    multipoint;
    no-traps;
    oam-liveness {
        up-count cells;
        down-count cells;
    }
    oam-period seconds;
    point-to-point;
    shaping {
        (cbr rate | vbr peak rate sustained rate burst length);
        queue-length number;
    }
    tunnel {
        source source-address;
        destination destination-address;
        ttl number;
    }
    vcivpi-identifier.vci-identifier(
    )
    vlan-id number;
    family family {
        filter {
            input filter-name;
            output filter-name;
            group filter-group-number;
        }
        mtu bytes;
        multicasts-only;
        no-redirects;
        primary;
        address address {
            arp ip-address mac mac-address <publish>;
            destination destination-address;
            broadcast address;
            multipoint-destination destination-address dlcidlcid-identifier;
            multipoint-destination destination-address {
                inverse-arp;
                oam-liveness {
                    up-count cells;
                    down-count cells;
                }
                oam-period seconds;
                shaping {
                    (cbr rate | vbr peak rate sustained rate burst length);
                    queue-length number;
                }
            }
            vcivpi-identifier.vci-identifier;
        }
    }
}

```



## vbr

<b>Syntax</b>	vbr peak <i>rate</i> sustained <i>rate</i> burst <i>length</i> ;
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> shaping], [edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> address <i>address</i> family <i>family</i> multipoint-destination <i>destination-address</i> shaping]
<b>Description</b>	For ATM encapsulation only, define the variable bandwidth utilization in the traffic-shaping profile. Each individual VC has its own independent shaping parameters.  When you configure the variable bandwidth utilization, you must specify all three options (burst, peak, and sustained). You can specify <i>rate</i> in bits per second either as a complete decimal number or as a decimal number followed by the abbreviation k (1000), m (1,000,000), or g (1,000,000,000). You can also specify <i>rate</i> in cells per second by entering a decimal number followed by the abbreviation c; values expressed in cells per second are converted to bits per second using the formula 1 cps = 384 bps.
<b>Default</b>	Unspecified bit rate (UBR); that is, bandwidth utilization is unlimited.
<b>Options</b>	burst <i>length</i> —Burst length, in cells. If you set the length to 1, the peak traffic rate is used. <b>Range:</b> 1 through 255 cells  peak <i>rate</i> —Peak rate, in bps or cps. <b>Range:</b> 33 kbps through 138 Mbps (ATM OC-3); 33 kbps through 276 Mbps (ATM OC-12)  sustained <i>rate</i> —Sustained rate, in bps or cps. <b>Range:</b> 33 kbps through 138 Mbps (ATM OC-3); 33 kbps through 276 Mbps (ATM OC-12)
<b>Usage Guidelines</b>	See “Define the ATM Traffic-Shaping Profile” on page 70, page 86, or page 113.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
<b>See Also</b>	cbr on page 208

## vci

**Syntax** `vci vpi-identifier.vci-identifier;`

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number*],  
[edit interfaces *interface-name* unit *logical-unit-number* family *family* address *address*  
multipoint-destination *address*]

**Description** For ATM encapsulation only, and for point-to-point ATM logical interfaces only, configure the ATM virtual circuit identifier (VCI) and virtual path identifier (VPI).

To configure a VPI for a point-to-multipoint interface, specify the VPI in the multipoint-destination statement.

**Options** *vci-identifier*—ATM virtual circuit identifier. This value cannot exceed the largest numbered VC configured for the interface with the max-vcs option of the vpi statement.  
**Range:** 0 through 4089

*vpi-identifier*—ATM virtual path identifier.  
**Range:** 0 through 255  
**Default:** 0

**Usage Guidelines** See “Configure ATM Virtual Circuits” on page 68 or page 111.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** encapsulation on page 214, multipoint-destination on page 231, vpi on page 260

## virtual-address

**Syntax** `virtual-address [addresses];`

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address*  
vrrp-group *group-number*]

**Description** When you are configuring VRRP on Fast Ethernet and Gigabit Ethernet interfaces only, configure the addresses of the virtual routers in a VRRP group.

**Options** *addresses*—Addresses of one or more virtual routers. Do not include a prefix length. If the address is the same as the interface’s physical address, the interface becomes the master virtual router for the group.

**Usage Guidelines** See “Configure Basic VRRP Support” on page 93 or page 143.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

## vlan-id

<b>Syntax</b>	<code>vlan-id number;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> unit <i>logical-unit-number</i> ]
<b>Description</b>	For Fast Ethernet and Gigabit Ethernet interfaces only, binds a 802.1Q VLAN tag ID to a logical interface.
<b>Options</b>	<i>number</i> —A valid VLAN identifier. <b>Range:</b> 0 through 1023
<b>Usage Guidelines</b>	See “Configure 802.1Q VLAN IDs” on page 75 and “Configure 802.1Q VLANs” on page 140.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## vlan-tagging

<b>Syntax</b>	<code>vlan-tagging;</code>
<b>Hierarchy Level</b>	[edit interfaces <i>interface-name</i> ]
<b>Description</b>	For Fast or Gigabit Ethernet interfaces only, enables the reception and transmission of 802.1Q VLAN-tagged frames on the interface.
<b>Usage Guidelines</b>	See “Configure 802.1Q VLAN Tagging” on page 63 and “Configure 802.1Q VLANs” on page 140.
<b>Required Privilege Level</b>	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.

## vpi

**Syntax** `vpi vpi-identifier max-vcs maximum-vcs;`

**Hierarchy Level** [edit interfaces *interface-name* atm-options]

**Description** For ATM interfaces, configure the maximum number of virtual circuits (VCs) allowed on a virtual path (VP). When configuring ATM interfaces on the router, you must include this statement.

For a configured VPI, valid VCI numbers are in the range 0 through (*max-vcs value* – 1). VCI numbers 0 through 31 are reserved by the ATM Forum. It is recommended that you use a VCI number higher than 31 when connecting to an ATM switch.

**Options** *maximum-vcs*—Maximum number of VCs on the VP. The total number of VCs specified in all the vpi statements for a single interface cannot exceed 4090.  
**Range:** 0 through 4089

*vpi-identifier*—ATM virtual path identifier. This is one of the VPIs that you define in the vci statement.  
**Range:** 0 through 255

**Usage Guidelines** See “Configure ATM Physical Interface Properties” on page 38 or page 110.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** multipoint-destination on page 231, shaping on page 242, vci on page 258

## vrrp-group

**Syntax** vrrp-group *group-number* {  
 virtual-address [*addresses*];  
 priority *number*;  
 advertise-interval *seconds*;  
 authentication-type *authentication*;  
 authentication-key *key*;  
 (preempt | no-preempt);  
 track {  
     interface *interface-name* priority-cost *cost*;  
 }  
 }

**Hierarchy Level** [edit interfaces *interface-name* unit *logical-unit-number* family inet address *address*]

**Description** On Fast Ethernet and Gigabit Ethernet interfaces only, configure a VRRP group.

**Options** *group-number*—VRRP group identifier. If you enable MAC source address filtering on the interface, as described in “Configure MAC Address Filtering” on page 51, you must include the virtual MAC address in the list of source MAC addresses that you specify in the source-address-filter statement. MAC addresses ranging from 00:00:5e:00:01:00 through 00:00:5e:00:01:ff are reserved for VRRP, as defined in RFC 2338. The VRRP group number must be the decimal equivalent of the last hexadecimal byte of the virtual MAC address.

**Range:** 0 through 255

The statements are explained separately.

**Usage Guidelines** See “Configure VRRP” on page 92 or page 142.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

## working-circuit

**Syntax** working-circuit *group-name*;

**Hierarchy Level** [edit interfaces *interface-name* sonet-options aps]

**Description** Configure the working router in an APS circuit pair.

**Options** *group-name*—Circuit’s group name.

**Usage Guidelines** See “Configure Basic APS Support” on page 59 or page 167.

**Required Privilege Level** interface—To view this statement in the configuration.  
 interface-control—To add this statement to the configuration.

**See Also** protect-circuit on page 238

z0-increment

**Syntax** (z0-increment | no-z0-increment);

**Hierarchy Level** [edit interfaces *interface-name* sonet-options]

**Description** Configure an incrementing STM ID rather than a static one.

**Usage Guidelines** See “Configure SONET z0-increment Option” on page 55 or page 162.

**Required Privilege Level** interface—To view this statement in the configuration.  
interface-control—To add this statement to the configuration.

**See Also** sonet-options on page 243