

O-P-Q-R Commands

operations-per-hop

- Description:** Configures the number of operations sent to a designated hop before the TTL value is increased. This option applies only to the pathEcho type. The **no** version restores the default value, 3.
- Syntax:** operations-per-hop *operationsHopValue*
no operations-per-hop
- *operationsHopValue* – number of operations per hop; the default is 3
- Mode(s):** RTR Configuration

ospf auto-cost reference-bandwidth

- Description:** Controls how OSPF calculates default metrics for the interface. The **no** version assigns cost based only on the interface type.
- Syntax:** [no] ospf auto-cost reference-bandwidth *refBw*
- *refBw* – bandwidth in megabits per second in the range 1–4294967; default is 100
- Mode(s):** Router Configuration

ospf enable

- Description:** Enables OSPF on the router. The **no** version disables OSPF on the router.
- Syntax:** [no] ospf enable
- Mode(s):** Router Configuration

ospf log-adjacency-changes

- Description:** Configures the router to send a syslog message when the state of an OSPF neighbor changes. The **no** version turns off this feature.
- Syntax:** [no] ospf log-adjacency-changes
[severity { *severityValue* | *severityNumber* }] [verbosity *verbosityLevel*]
- *severity* – minimum severity of the log messages displayed for the selected category; described either by a descriptive term—*severityValue*—or by a corresponding number—*severityNumber*—in the range 0–7; the lower the number, the higher the priority:
 - › emergency *or* 0 – system unusable
 - › alert *or* 1 – immediate action needed
 - › critical *or* 2 – critical condition exists
 - › error *or* 3 – error condition
 - › warning *or* 4 – warning condition
 - › notice *or* 5 – normal but significant condition
 - › info *or* 6 – informational message
 - › debug *or* 7 – debug message
 - *verbosityLevel* – specifies the verbosity of the log category’s messages; can be any of the following:
 - › low – terse
 - › medium – moderate detail
 - › high – verbose
- Mode(s):** Router Configuration

ospf shutdown

- Description:** Administratively disables OSPF on the router. The **no** version reenables OSPF on the router.
- Syntax:** [no] ospf shutdown
- Mode(s):** Router Configuration

overload shutdown

- Description:** Causes BGP to shut down when it runs out of resources. The **no** version restores the default behavior, which is to continue running.
- Syntax:** [no] overload shutdown
- Mode(s):** Router Configuration

override-user

- Description:** Specifies a single username and single password for all users from a domain. The **no** version removes the username and reverts to the original username.
- Syntax:** `override-user [name newName] password newPassword`
`no override-user`
- *newName* – identifier that replaces the username
 - *newPassword* – password that replaces the user's password
- Mode(s):** Domain Map Configuration

owner

- Description:** Configures the owner of the RTR operation. The **no** version restores the default value.
- Syntax:** `owner ownerValue`
`no owner`
- *ownerValue* – specifies the owner's identifier: 0–255 ASCII characters; by default, no owner is configured
- Mode(s):** RTR Configuration

padn

- Description:** Configures PADN parameters for a domain name. The **no** version deletes the PADN parameters from the domain name.
- Syntax:** `padn ipAddress ipmask distance`
`no padn ipAddress ipmask`
- *ipAddress* – destination IP address
 - *ipmask* – IP mask for the destination
 - *distance* – administrative distance metric for this route in the range 0–255
- Mode(s):** Domain Map Configuration

passive-interface

- Description:** Modifies the transmission of routing updates for IS-IS, OSPF, and RIP.
- For IS-IS, configures an IS-IS interface to only advertise its IP address in the link state PDUs; the interface does not send or receive IS-IS packets. Issue the complementary **interface** command to enable the interface to send and receive IS-IS packets. The **no** version disables the advertising of the IP address.
- For OSPF, halts the transmission of routing updates on an OSPF interface. OSPF neither sends nor receives routing information through the specified interface, which appears as a stub network in the OSPF network. The **no** version reenables the transmission of routing updates.
- For RIP, halts the transmission of multicast RIP messages. RIP messages are unicast to the interface (if it is the best path to a configured neighbor). The **no** version reenables the transmission of multicast messages on the interface.
- Syntax:** [no] passive-interface *interfaceType interfaceSpecifier*
- *interfaceType* – interface type; see *Interface Types and Specifiers* in *About This Guide*
 - *interfaceSpecifier* – particular interface; format varies according to interface type; see *Interface Types and Specifiers* in *About This Guide*
- Mode(s):** Router Configuration

password

Description: Configures a password to be used at login on the console, a line or a range of lines; or specifies the password for an L2TP or L2F tunnel. The **no** version removes the password.

Syntax: Login Password:

`password [encryptionType] passwordValue`

`no password`

- *encryptionType* – one of the following types:
 - › 0 – unencrypted (the default)
 - › 5 – secret
 - › 7 – hidden
- *passwordValue* – character string that specifies the line password. The first character cannot be a number. The string can contain any alphanumeric characters, including spaces, up to 50 characters. The password checking is case sensitive. For example, the password *Secret* is different from the password *secret*.

L2TP or L2F Tunnel Password:

`password tunnelPassword`

`no password`

- *tunnelPassword* – up to 32-character password

Mode(s): Line Configuration for a login password; Domain Map Tunnel Configuration for a tunnel password

path

Description: Configures paths over channelized SONET and SDH interfaces. The **no** version deletes a path.

Syntax: path *pathChannel* [*pathSpeed* [*pathHierarchy*]]

no path *pathChannel*

- *pathChannel* – number in the range 1–2147483648 that identifies the STS-1 or STM-0 line
- *pathSpeed* – speed of the path
 - › oc1, oc3, or oc12 for SONET – only oc1 or oc3 is available for cOC3/STM1 interfaces
 - › stm0, stm1, or stm4 for SDH – only stm0 or stm1 is available for cOC3/STM1 interfaces



Note: Although the path speed appears to be optional in the software, you must specify a value.

- *pathHierarchy* – identifier that defines the structure of the path
 - › If you specify a path speed that matches the speed of the module (for example, a path speed of oc3 for a cOC3/STM1 interface), do not specify an identifier.
 - › If you specify a speed of oc1 or stm0 for a cOC3/STM1 interface, the identifier is a number in the range 1–3 that represents either the STS-3 within the STS-3 or the STM-0 within the STM-1.
 - › If you specify a speed of oc3 or stm1 for a cOC12/STM4 interface, the identifier is a number in the range 1–4 that represents either the STS-3 within the STS-12 or the STM-1 within the STM-4.
 - › If you specify a speed of oc1 or stm0 for a cOC12/STM4 interface, the identifier is of the form X/Y. X is a number in the range 1–4 that represents either the STS-3 within the STS-12 or the STM-1 within the STM-4; Y is a number in the range 1–3 that represents either the STS-1 within the STS-3 or the STM-0 within the STM-1.

Mode(s): Controller Configuration

path ds1|e1

- Description:** Creates and configures SONET and SDH tributaries. The **no** version deletes a tributary.
- Syntax:** path *pathChannel* { ds1 | e1 } *tributaryIdentifier* [tributary-type]
 [no] *pathChannel* { ds1 | e1 } path *tributaryIdentifier*
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – specifier for the tributary in the format *pathChannel* { ds1 | e1 } *pathPayload/tributaryGroup/tributaryNumber*
 - › *pathPayload* – payload number for the path; value is 1 for SONET and in the range 1–3 for SDH
 - › *tributaryGroup* – number in the range 1–7 that identifies the group within the path
 - › *tributaryNumber* – number of the tributary within the tributary group; the value is in the range 1–4 if the tributary type is vt15 or tu11 and in the range 1–3 if the tributary type is tu12
 - *tributaryType* – virtual tributary type
 - › vt15 – default for SONET DS1 tributaries
 - › tu11 – default for SDH DS1 tributaries
 - › tu12 – default for SDH E1 tributaries
- Mode(s):** Controller Configuration

path ds1|e1 bert

- Description:** Enables bit error rate tests using the specified pattern at the T1/E1 over SONET/SDH VT layer on channelized SONET and SDH interfaces. The **no** version stops the test that is running.
- Syntax:** path *pathChannel* { ds1 | e1 } *tributaryIdentifier* bert pattern *pattern* interval *time* [unframed]
- no path *pathChannel* { ds1 | e1 } *tributaryIdentifier* bert
- › *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - *pattern* – one of the following test patterns:
 - › 2¹¹ – pseudorandom test pattern, 2048 bits in length
 - › 2¹⁵ – pseudorandom 0.151 test pattern, 32768 bits in length
 - › 2²⁰-O153 – pseudorandom 0.153 test pattern, 1048575 bits in length
 - *time* – interval between test patterns, ranging from 1–14400 minutes
 - unframed – test bit pattern occupies all bits on the link, overwriting the framing bits. If you do not specify the **unframed** keyword, then the test bit pattern occupies only T1/E1 payload bits.
- Mode(s):** Controller Configuration

path ds1|e1 channel-group shutdown

- Description:** Disables a DS1 or an E1 channel group for channelized SONET and SDH interfaces. DS1 and E1 channel groups are enabled by default. The **no** version restarts a disabled interface.
- Syntax:** [no] path *pathChannel* { ds1 | e1 } *tributaryIdentifier* channel-group *channelGroupNumber* shutdown
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

path ds1|e1 channel-group snmp trap link-status

Description: Enables SNMP link status processing for a DS1 or an E1 channel group of channelized SONET and SDH interfaces. The **no** version disables SNMP link status processing for a DS1 or E1 channel group.

Syntax: [no] path *pathChannel* { ds1 | e1 } *tributaryIdentifier* channel-group *channelGroupNumber* snmp trap link-status

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- *channelGroupNumber* – either a fractional T1 interface in the range 1–24 or a fractional E1 interface in the range 1–31

Mode(s): Controller Configuration

path ds1|e1 channel-group timeslots

Description: Configures T1 or E1 line parameters for channelized SONET and SDH interfaces. To configure a line, you specify a DS1 or an E1 channel group number and assign a range of timeslots. To configure a whole T1 or E1 line, assign all the timeslots to the channel group. You can specify a line speed that applies to all DS0 timeslots assigned to a channel group. The **no** version removes the timeslots from the channel group.

Syntax: path *pathChannel* { ds1 | e1 } *tributaryIdentifier* channel-group *channelGroupNumber* timeslots *range* [speed { 56 | 64 }]

no *pathChannel* { ds1 | e1 } *tributaryIdentifier* channel-group *channelGroupNumber*

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- *channelGroupNumber* – either a fractional T1 interface in the range 1–24 or a fractional E1 interface in the range 1–31
- *range* – specifies the timeslot assigned to the T1 or E1 channel in the range 1–31. A dash represents a range of timeslots, and a comma separates timeslots. For example, 1-10, 15-18 assigns timeslots 1–10 and 15–18.
- *speed* – specifies the data rate for the T1 or E1 channel. Values are 56 Kbps or 64 Kbps. The default is 64 Kbps.

Mode(s): Controller Configuration

path ds1|e1 clock source

- Description:** Configures the transmit clock source for channelized SONET and SDH interfaces. The **no** version restores the default value.
- Syntax:** path *pathChannel* { ds1 | e1 } *tributaryIdentifier* clock source { line | internal { module | chassis } }
- no path *pathChannel* { ds1 | e1 } *tributaryIdentifier* clock source
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - line – interface transmits data from a clock recovered from the line's receive data stream
 - internal – interface transmits data using its internal clock. You must specify one of the following for internal clocking:
 - › module – internal clock is from the line module itself
 - › chassis – internal clock is from the configured system clock
- Mode(s):** Controller Configuration

path ds1|e1 framing

- Description:** Configures the framing format for T1 or E1 over channelized SONET and SDH interfaces. The **no** version restores the default value.
- Syntax:** path *pathChannel* { ds1 | e1 } *tributaryIdentifier* framing *framingType*
- no path *pathChannel* { ds1 | e1 } *tributaryIdentifier* framing
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - *framingType* – one of the following types:
 - › crc4 – cyclic redundancy check (default for E1); not available for T1
 - › no-crc4 – no cyclic redundancy check; not available for T1
 - › esf – extended superframe (T1 default); not available for E1
 - › sf – superframe; not available for E1
- Mode(s):** Controller Configuration

path ds1|e1 loopback

Description: Configures a loopback at the T1/E1 over SONET/SDH VT layer on channelized SONET and SDH interfaces. The **no** version turns off the loopback.

Syntax: path pathChannel ds1|e1 tributaryIdentifier loopback { local | network { payload | line } | remote { line fdl { ansi | bellcore } | payload [fdl] [ansi] } }

no path pathChannel ds1 tributaryIdentifier loopback [remote]

- pathChannel – a number in the range 1–2147483648 that identifies the path
- tributaryIdentifier – identifier for the tributary. See description for the **path ds1|e1** command.
- local – loops the router output data back toward the router at the T1/E1 framer and sends an alarm indication signal out toward the network
- network { line | payload } – specify the **line** keyword to loop the data back toward the network before the T1/E1 framer and automatically set a local loopback at the HDLC controllers. Specify the **payload** keyword to loop the payload data back toward the network at the T1/E1 framer and automatically set a local loopback at the HDLC controllers.
- remote line fdl ansi (T1 line only) – sends a repeating 16-bit ESF data link code word (00001110 11111111) to the remote end requesting that it enter into a network line loopback. Specify the **ansi** keyword to enable the remote line FDL ANSI bit loopback on the T1 channel, per the ANSI T1.403 specification.
- remote line fdl bellcore (T1 line only) – sends a repeating 16-bit ESF data link code word (00010010 11111111) to the remote end requesting that it enter into a network line loopback. Specify the **bellcore** keyword to enable the remote line FDL Bellcore bit loopback on the T1 channel, per the Bellcore TR-TSY-000312 specification.
- remote payload [fdl] [ansi] (T1 line only) – sends a repeating 16-bit ESF data link code word (00010100 11111111) to the remote end requesting that it enter into a network payload loopback. Enables the remote payload FDL ANSI bit loopback on the T1 channel. You can optionally specify **fdl** and **ansi**, but it is not necessary.



Note: You cannot send an inband pattern to the remote end requesting that it enter into a network line loopback.

Mode(s): Controller Configuration

path ds1|e1 shutdown

- Description:** Disables DS1 or E1 over channelized SONET and SDH interfaces. DS1 and E1 interfaces are enabled by default. The **no** version restarts a disabled interface.
- Syntax:** [no] path *pathChannel* { ds1 | e1 } *tributaryIdentifier* shutdown
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

path ds1|e1 snmp trap link-status

- Description:** Enables SNMP link status processing for DS1 or E1 over channelized SONET and SDH interfaces. The **no** version disables SNMP link status processing.
- Syntax:** [no] path *pathChannel* { ds1 | e1 } *tributaryIdentifier* snmp trap link-status
- *pathChannel* – a number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – the identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

path ds1 fdl

- Description:** Specifies the facility data link standard for a T1 over channelized SONET or SDH interface. The **no** version restores the default, none.
- Syntax:** path *pathChannel* ds1 *tributaryIdentifier* fdl { ansi | att | all | none }
no path *pathChannel* ds1 *tributaryIdentifier* fdl [ansi | att | all]
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - ansi – specifies ANSI T1.403 Standard for extended superframe FDL exchange support
 - att – specifies AT&T Technical Reference 54016 for extended superframe FDL exchange support
 - all – specifies both the AT&T and ANSI mode for extended superframe FDL exchange support
 - none – removes the current FDL mode settings
- Mode(s):** Controller Configuration

path ds1 fdl carrier

- Description:** Specifies that a T1 over channelized SONET or SDH interface is used in the carrier environment. The **no** version restores the default situation, in which an interface does not operate in the carrier environment.
- Syntax:** [no] path *pathChannel* ds1 *tributaryIdentifier* fdl carrier
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

path ds1 fdl string

- Description:** Defines an FDL message for a T1 over channelized SONET or SDH interface as defined in the ANSI T1.403 specification. Currently, FDL strings can only be configured locally. The **no** version restores the default value to the specified FDL message or to all FDL messages.
- Syntax:** path *pathChannel* ds1 *tributaryIdentifier* fdl string { eic *eicValue* | fic *ficValue* | lic *licValue* | unit *unitValue* | pfi *pfiValue* | port *portValue* | generator *generatorValue* }
- no path *pathChannel* ds1 *tributaryIdentifier* fdl string { eic | fic | lic | unit | pfi | port | generator }
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - *eicValue* – equipment identification code; 1–10 characters; default is the null value
 - *licValue* – line identification code; 1–10 characters; default is the null value
 - *ficValue* – frame identification code; 1–10 characters; default is the null value
 - *unitValue* – unit identification code; 1–6 characters; default is the null value.
 - *pfiValue* – facility identification code to send in the FDL path message; 1–38 characters; default is the null value
 - *portValue* – equipment port number to send in the FDL idle signal message; 1–38 characters; default is the null value
 - *generatorValue* – generator number to send in the FDL test signal message; 1–38 characters; default is the null value
- Mode(s):** Controller Configuration

path ds1 fdl transmit

- Description:** Configures the system to send the specified FDL message on a T1 over channelized SONET or SDH interface. The **no** version stops the system from sending the specified FDL message or all FDL messages.
- Syntax:** [no] path *pathChannel* ds1 *tributaryIdentifier* fdl transmit { path-id | idle-signal | test-signal }
no path *pathChannel* ds1 *tributaryIdentifier* fdl transmit
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
 - path-id – transmits a path identification message every second
 - idle-signal – transmits an idle signal every 10 seconds
 - test-signal – transmits a test signal every 10 seconds
- Mode(s):** Controller Configuration

path ds1 remote-loopback

- Description:** Enables acceptance of remote loopback requests at the T1/E1 over SONET/SDH VT layer on channelized SONET and SDH interfaces. The **no** version restores the factory default value, which is to reject remote loopback requests.
- Syntax:** [no] path *pathChannel* ds1 *tributaryIdentifier* remote-loopback
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

path ds3

- Description:** Creates and configures a T3 over channelized SONET interface. If you do not specify whether or not the path should be channelized, the system creates a channelized path by default. The **no** version deletes a path.
- Syntax:** path *pathChannel* ds3 *ds3Channel* { [channelized] | unchannelized }
no path *pathChannel* ds3 *ds3Channel*
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *ds3Channel* – number in the range 1–3 that identifies the path
- Mode(s):** Controller Configuration

path ds3 clock source

- Description:** Configures the transmit clock source for a T3 over channelized SONET interface. The **no** version restores the default value.
- Syntax:** path *pathChannel* ds3 *ds3Channel* clock source { line | internal { module | chassis } }
- no path *pathChannel* ds3 *ds3Channel* clock source
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *ds3Channel* – number in the range 1–3 that identifies the path
 - line – interface transmits data from a clock recovered from the line's receive data stream
 - internal – interface transmits data using its internal clock. You must specify one of the following for internal clocking:
 - › module – internal clock is from the line module itself
 - › chassis – internal clock is from the configured system clock
- Mode(s):** Controller Configuration

path ds3 framing

- Description:** Configures the framing format for a T3 over channelized SONET interface. The **no** version restores the default value.
- Syntax:** path *pathChannel* ds3 *ds3Channel* framing *framingType*
- no path *pathChannel* ds3 *ds3Channel* framing
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *ds3Channel* – number in the range 1–3 that identifies the path
 - *framingType* – choose one of the following:
 - › c-bit – default; specifies c-bit parity framing
 - › m23 – specifies M23 multiplexer framing
- Mode(s):** Controller Configuration

path ds3 loopback

- Description:** Configures a loopback at the DS3 layer for a T3 over channelized SONET interface. The **no** version turns off the loopback.
- Syntax:** path *pathChannel* ds3 *ds3Channel* loopback
{ local | network { payload | line } }
- no path *pathChannel* ds3 *ds3Channel* loopback
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *ds3Channel* – number in the range 1–3 that identifies the path
 - local – loops the data back toward the router and sends an alarm indication signal out toward the network
 - network payload – loops the data toward the network after the framer has processed the data
 - network line – loops the data toward the network before the data reaches the framer
- Mode(s):** Controller Configuration

path ds3 mdl carrier

- Description:** Specifies that a T3 over channelized SONET interface is used in the carrier environment. The **no** version restores the default situation, in which an interface does not operate in the carrier environment.
- Syntax:** [no] path *pathChannel* ds3 *ds3Channel* mdl carrier
- *pathChannel* – number in the range 1–2147483648 that identifies the path
 - *ds3Channel* – number in the range 1–3 that identifies the path
- Mode(s):** Controller Configuration

path ds3 mdl string

- Description:** Allows you to configure an MDL message on a T3 over channelized SONET interface as defined in the ANSI T1.107a-1990 specification. The **no** version restores the default value to the specified MDL message or to all MDL messages.
- Syntax:**
- ```
path pathChannel ds3 ds3Channel mdl string { eic eicValue | fic ficValue |
generator genValue | lic licValue | pfi pfiCode | port portValue | unit unitValue }
no path pathChannel ds3 ds3Channel mdl string { eic | fic | generator | lic | pfi |
port | unit }
```
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the path
  - *eicValue* – equipment identification code; 1–10 characters; default is the null value
  - *ficValue* – frame identification code; 1–10 characters; default is the null value
  - *genValue* – generator number to send in the MDL test signal message; 1–38 characters; default is the null value
  - *licValue* – line identification code; 1–11 characters; default is the null value
  - *pfiCode* – facility identification code to send in the MDL path message; 1–38 characters; default is the null value
  - *portValue* – equipment port number to send in the MDL idle signal message; 1–38 characters; default is the null value
  - *unitValue* – unit identification code; 1–6 characters; default is the null value
- Mode(s):** Controller Configuration

## path ds3 mdl transmit

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- Description:** Enables you to transmit an MDL message on a T3 over channelized SONET interface. The **no** version disables transmission of the specified message or all messages.
- Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* mdl transmit { path-id | idle-signal | test signal }  
no path ds3 mdl transmit
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the path
  - path-id – MDL path message; factory default is disabled
  - idle-signal – MDL idle signal message; factory default is disabled
  - test-signal – MDL test signal message; factory default is disabled
- Mode(s):** Controller Configuration

## path ds3 shutdown

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- Description:** Disables a T3 over channelized SONET interface. DS3 interfaces are enabled by default. The **no** version restarts a disabled interface.
- Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* shutdown
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the path
- Mode(s):** Controller Configuration

## path ds3 snmp trap link-status

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- Description:** Enables SNMP link status processing for a T3 over channelized SONET interface. The **no** version disables SNMP link status processing on an interface.
- Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* snmp trap link-status
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the path
- Mode(s):** Controller Configuration

## path ds3 t1

- Description:** Creates and configures a T1 channel on a T3 over channelized SONET interface. The **no** version deletes a path.
- Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel*
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
- Mode(s):** Controller Configuration

## path ds3 t1 bert

- Description:** Enables bit error rate tests using the specified pattern for a T1 channel on a T3 over channelized SONET interface. The **no** version stops the test that is running.
- Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* bert pattern *pattern* interval *time* [ unframed ]
- no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* bert
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
  - *pattern* – one of the following test patterns:
    - › 2<sup>11</sup> – pseudorandom test pattern, 2,048 bits in length
    - › 2<sup>15</sup> – pseudorandom 0.151 test pattern, 32,768 bits in length
    - › 2<sup>20</sup>-O153 – pseudorandom 0.153 test pattern, 1,048,575 bits in length
  - *time* – interval between test patterns, ranging from 1–14400 minutes
  - unframed – test bit pattern occupies all bits on the link, overwriting the framing bits. If you do not specify the unframed keyword, then the test bit pattern occupies only T1/E1 payload bits.
- Mode(s):** Controller Configuration

## path ds3 t1 clock source

---

- Description:** Configures the transmit clock source for a T1 channel on a T3 over channelized SONET interface. The **no** version restores the default value, line.
- Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* clock source  
{ line | internal { module | chassis } }
- no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* clock source
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
  - line – interface transmits data from a clock recovered from the line's receive data stream
  - internal – interface transmits data using its internal clock. You must specify one of the following for internal clocking:
    - › module – internal clock is from the line module itself
    - › chassis – internal clock is from the configured system clock
- Mode(s):** Controller Configuration

## path ds3 t1 framing

---

- Description:** Configures the framing format for a T1 channel on a T3 over channelized SONET interface. The **no** version restores the default value.
- Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* framing *framingType*
- no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* framing
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
  - *framingType* – one of the following types:
    - › esf – default; specifies extended superframe
    - › sf – specifies superframe
- Mode(s):** Controller Configuration

## path ds3 t1 fdl

---

- Description:** Specifies the facility data link standard for a T1 channel on a T3 over channelized SONET interface. The **no** version restores the default, none.
- Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl { ansi | att | all | none }  
 no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl [ ansi | att | all ]
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
  - ansi – specifies ANSI T1.403 Standard for extended superframe FDL exchange support
  - att – specifies AT&T Technical Reference 54016 for extended superframe FDL exchange support
  - all – specifies both the AT&T and ANSI mode for extended superframe FDL exchange support
  - none – removes the current FDL mode settings
- Mode(s):** Controller Configuration

## path ds3 t1 fdl carrier

---

- Description:** Specifies that a T1 channel on a T3 over channelized SONET interface is used in the carrier environment. The **no** version restores the default situation, in which an interface does not operate in the carrier environment.
- Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl carrier
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
- Mode(s):** Controller Configuration

## path ds3 t1 fdl string

---

**Description:** Defines an FDL message for a T1 channel on a T3 over channelized SONET interface, as defined in the ANSI T1.403 specification. Currently, FDL strings can only be configured locally. The **no** version restores the default value to the specified FDL message or to all FDL messages.

**Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl string { eic *eicValue* | fic *ficValue* | lic *licValue* | unit *unitValue* | pfi *pfiValue* | port *portValue* | generator *generatorValue* }

no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl string { eic | fic | lic | unit | *pfi* | *port* | *generator* }

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
- *t1Channel* – number in the range 1–28 that identifies the T1 channel
- *eicValue* – equipment identification code; 1–10 characters; default is the null value
- *licValue* – line identification code; 1–10 characters; default is the null value
- *ficValue* – frame identification code; 1–10 characters; default is the null value
- *unitValue* – unit identification code; 1–6 characters; default is the null value
- *pfiValue* – facility identification code to send in the FDL path message; 1–38 characters; default is the null value
- *portValue* – equipment port number to send in the FDL idle signal message; 1–38 characters; default is the null value
- *generatorValue* – generator number to send in the FDL test signal message; 1–38 characters; default is the null value

**Mode(s):** Controller Configuration

## path ds3 t1 fdl transmit

---

**Description:** Configures the system to send the specified type of FDL message for a T1 channel on a T3 over channelized SONET interface. The **no** version stops the system from sending the specified type of FDL message or all FDL messages.

**Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl transmit { path-id | idle-signal | test-signal }

no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* fdl transmit

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
- *t1Channel* – number in the range 1–28 that identifies the T1 channel
- path-id – transmits a path identification FDL message every 10 seconds
- idle-signal – transmits an idle signal FDL message every second
- test-signal – transmits a test signal FDL message every second

**Mode(s):** Controller Configuration

## path ds3 t1 loopback

---

- Description:** Configures a loopback for a T1 channel on a T3 over channelized SONET interface. The **no** version turns off the loopback.
- Syntax:**
- ```
path pathChannel ds3 ds3Channel t1 t1Channel loopback { local | network  
{ payload | line } | remote { line fdl { ansi | bellcore } | payload [fdl] [ansi] } }
```
- ```
no path pathChannel ds3 ds3Channel t1 t1Channel loopback [remote]
```
- *pathChannel* – a number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – a number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – a number in the range 1–28 that identifies the T1 channel
  - **local** – loops the router output data back toward the router at the T1 framer and sends an alarm indication signal out toward the network
  - **network { line | payload }** – Specify the **line** keyword to loop the data back toward the network before the T1 framer and automatically set a local loopback at the HDLC controllers. Specify the **payload** keyword to loop the payload data back toward the network at the T1 framer and automatically set a local loopback at the HDLC controllers.
  - **remote line fdl ansi** – sends a repeating 16-bit ESF data link code word (00001110 11111111) to the remote end requesting that it enter into a network line loopback. Specify the **ansi** keyword to enable the remote line FDL ANSI bit loopback on the T1 channel, according to the ANSI T1.403 specification.
  - **remote line fdl bellcore** – sends a repeating 16-bit ESF data link code word (00010010 11111111) to the remote end requesting that it enter into a network line loopback. Specify the **bellcore** keyword to enable the remote line FDL Bellcore bit loopback on the T1 channel, according to the Bellcore TR-TSY-000312 specification.
  - **remote payload [fdl] [ansi]** – sends a repeating 16-bit ESF data link code word (00010100 11111111) to the remote end requesting that it enter into a network payload loopback. Enables the remote payload FDL ANSI bit loopback on the T1 channel. You can optionally specify **fdl** and **ansi**, but it is not necessary.
- Mode(s):** Controller Configuration

## path ds3 t1 remote-loopback

---

**Description:** Enables acceptance of remote loopback requests by a T1 channel on a T3 over channelized SONET interface. The **no** version restores the default value, which is to reject remote loopback requests.

**Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel* remote-loopback

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
- *t1Channel* – number in the range 1–28 that identifies the T1 channel

**Mode(s):** Controller Configuration

## path ds3 t1 shutdown

---

**Description:** Disables a T1 channel or subchannel on a T3 over channelized SONET interface. T1 channels are enabled by default. The **no** version restarts a disabled interface.

**Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel*[/*subchannel*] shutdown

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
- *t1Channel* – number in the range 1–28 that identifies the T1 channel
- *subchannel* – fractional T1 interface in the range 1–24

**Mode(s):** Controller Configuration

## path ds3 t1 snmp trap link-status

---

**Description:** Enables SNMP link status processing for a T1 channel group or subchannel for a T3 over channelized SONET interface. The **no** version disables SNMP link status processing for a T1 channel.

**Syntax:** [ no ] path *pathChannel* ds3 *ds3Channel* t1 *t1Channel*[ /*subchannel* ] snmp trap link-status

- *pathChannel* – number in the range 1–2147483648 that identifies the path
- *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
- *t1Channel* – number in the range 1–28 that identifies the T1 channel
- *subchannel* – fractional T1 interface in the range 1–24

**Mode(s):** Controller Configuration

## path ds3 t1 timeslots

---

- Description:** Assigns a range of DS0 timeslots to a subchannel as a single data stream for a T1 channel on a T3 over channelized SONET interface. You can optionally specify a line speed that applies to all DS0 timeslots assigned to a subchannel. The **no** version deletes the fractional T1 circuit.
- Syntax:** path *pathChannel* ds3 *ds3Channel* t1 *t1Channel/subchannel* timeslots *range* [ speed { 56 | 64 } ]
- no path *pathChannel* ds3 *ds3Channel* t1 *t1Channel/subchannel*
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *ds3Channel* – number in the range 1–3 that identifies the DS3 channel
  - *t1Channel* – number in the range 1–28 that identifies the T1 channel
  - *subchannel* – fractional T1 interface in the range 1–24
  - *range* – timeslots assigned to the T1 channel in the range 1–24; a dash represents a range of timeslots, and a comma separates timeslots. For example, 1-10, 15-18 assigns timeslots 1–10 and 15–18.
  - *speed* – specifies the data rate for the T1 channel. Values are 56 Kbps or 64 Kbps. The default is 64 Kbps.
- Mode(s):** Controller Configuration

## path e1 unframed

---

- Description:** Configures unframed E1 for channelized SONET and SDH interfaces. The **no** version deletes an unframed E1 interface from the path.
- Syntax:** [ no ] path *pathChannel* e1 *tributaryIdentifier* unframed
- *pathChannel* – number in the range 1–2147483648 that identifies the path
  - *tributaryIdentifier* – identifier for the tributary. See description for the **path ds1|e1** command.
- Mode(s):** Controller Configuration

## path overhead j1

---

- Description:** Specifies trace messages to check for connectivity between the system and the SONET/SDH device at the other end of the line. The **no** version restores the default situation, in which all characters of the trace message are zeros.
- Syntax:** [ no ] path *pathChannel* overhead j1 { msg | exp-msg } [ message ]
- *pathChannel* – identifier for the path
    - › For OC3 (dual port) or OCx/STMx interfaces, there is no identifier
    - › For cOCx/STMx interfaces, a number in the range 1–2147483648 that identifies the path
  - msg – send the specified transmit message
  - exp-msg – expect the specified trace message
  - message – text of the message. The maximum is 15 characters for SDH mode and 62 characters for SONET mode.
- Mode(s):** Controller Configuration

## path snmp trap link-status

---

- Description:** Enables SNMP link status processing for the path layer of SONET and SDH interfaces. The **no** version disables SNMP link status processing.
- Syntax:** [ no ] path [ *pathChannel* ] snmp trap link-status
- *pathChannel* – number in the range 1–2147483648 that identifies the path on a channelized interface
- Mode(s):** Controller Configuration

## peak-burst

---

- Description:** Sets the peak burst for a rate limit profile. The **no** version restores the default value, 8192.
- Syntax:** [ no ] peak-burst *size*
- *size* – size in bytes in the range 8192–4294967295
- Mode(s):** Rate Limit Profile Configuration

## peak-rate

---

- Description:** Sets the peak rate for a rate limit profile. The **no** version restores the default value, 0.
- Syntax:** [ no ] peak-rate *rate*
- *rate* – rate in bits per second in the range 0–4294967295
- Mode(s):** Rate Limit Profile Configuration

## pim disable

---

- Description:** Disables PIM on a virtual router. The **no** version reenables PIM on a virtual router.
- Syntax:** [ no ] pim disable
- Mode(s):** Router Configuration

## ping

**Description:** Sends an ICMP echo request packet to the IP address that you specify. There is no **no** version.

**Syntax:** ping [ vrf *vrfName* ] [ ip ] *destination* [ *packetCount* ] [ timeout *timeOutVal* ] [ transmit-delay *delayVal* ] [ ttl *tvlValue* ] [ data-size *dataSize* ] [ data-pattern { ones | zeros | random | hex-data *hexData* } ] [ source { interface *interfaceType interfaceSpecifier* | address *sourceAddr* } ] [ sweep-sizes *sweepMin sweepMax* [ sweep-interval *sweepInt* ] ] [ extended [ tos *tosVal* ] [ set-dont-fragment-bit ] [ set-router-alert ] [ { loose-source-route | strict-source-route } [ *srtAddrs*\* ] ] [ record-route *numRoutes* ] [ timestamp *numTstamps* ] [ interface *interfaceType InterfaceSpecifier* ] ]

- *vrfName* – name of the VRF context
- *ip* – optional keyword for compatibility with non-ERX implementations
- *destination* – IP address or domain name of the host to ping
- *packetCount* – number of packets to send to the destination IP address in the range 0–4294967295; the default is 5; 0 means ping forever
- *timeOutVal* – number of seconds in the range 1–20 to wait for an ICMP echo reply packet before the connection attempt times out
- *delayVal* – number of milliseconds in the range 1–50 between transmission of each ICMP request; default is 10 ms
- *tvlValue* – specifies a hop count by setting the time-to-live field in the IP header in the range 1–255; default is 32
- *dataSize* – number of bytes comprising the IP packet and reflected in the IP header in the range 0–64000; the default is 100 bytes
- *data-pattern* – type of bits contained in the packet. You can set the bits to all ones, all zeros, a random mixture of ones and zeros, or a specific hexadecimal data pattern that can range from 0x0 – 0xFFFFFFFF. The default data pattern is all zeros.
- *source interface* – specifies an interface as the source of the packets
  - › *interfaceType* – interface type; see *Interface Types and Specifiers in About This Guide*
  - › *interfaceSpecifier* – particular interface; format varies according to interface type; see *Interface Types and Specifiers in About This Guide*
- *source address* – specifies an IP address as the source of the packets
  - › *sourceAddr* – IP address or domain name used as the source address
- *sweep-sizes* – configures payload sizes, enabling you to vary the sizes of the echo packets being sent. This capability is useful for determining the minimum sizes of the MTUs configured on the nodes along the path to the

destination address. This reduces packet fragmentation which contributes to performance problems. The default is not to sweep (all packets are the same size).

- › *sweepMin* – minimum payload size in the range 0–64000
- › *sweepMax* – maximum payload size in the range 0–64000
- › *sweepInt* – number of bytes to add to the size of the packet; the change in the size of subsequent ping packets while sweeping across a range of sizes. For example, you can configure the sweep interval to sweep across the range of packets from 100 bytes to 1000 bytes in increments of *sweepInt*. By default, send 100, 101, 102, 103...1000. If *sweepInt* is 5, send 100, 105, 110, 115...1000). When “sweeping,” the default interval is 1.
- extended – enables you to configure extended header attributes
  - › *tosVal* – specifies the value set in the ToS byte in the range 0–255 to support QoS offerings
  - › set-dont-fragment-bit – sets the don't-fragment bit in the IP header to prevent IP from fragmenting the packet if it is too long for the MTU of a link; if the nonfragmented packet cannot be delivered, it is discarded
  - › loose-source-route – specifies a set of hops through which the packet must traverse; the hops do not have to be adjacent
  - › strict-source-route – specifies every hop through which the packet must traverse and generates an ICMP error if the exact path cannot be followed
  - › *srtAdrs* – IP addresses or domain name of the intermediate hops on the way to the destination that will be used in the loose-source or strict-source route
  - › \* – indicates that one or more parameters can be repeated multiple times in a list in the command line
  - › *numRoutes* – specifies how many routes are to be recorded as the packet travels; ranges from 1 to 9
  - › *numTstamps* – specifies how many timestamps from routers are to be recorded as the packet travels; ranges from 1 to 9
  - › *interfaceType* – interface type of a destination address on the system that is configured for external loopback; see *Interface Types and Specifiers* in *About This Guide*
  - › *interfaceSpecifier* – particular interface of a destination address on the system that is configured for external loopback; format varies according to interface type; see *Interface Types and Specifiers* in *About This Guide*

**Mode(s):** User Exec, Privileged Exec

## ping atm interface atm

- Description:** Sets up the ATM interface or circuit to send loopback cells. There is no **no** version.
- Syntax:** ping atm interface atm *interfaceSpecifier* *vpi* *vci*  
 [ end-loopback [ *destination* ] | seg-loopback [ *destination* ] ]  
 [ count *cellCount* ] [ timeout *#OfSeconds* ]
- *interfaceSpecifier* – see *Interface Types and Specifiers* in *About This Guide*.
  - *vpi* – virtual path identifier
  - *vci* – virtual circuit identifier. By default F5 end-to-end loopback OAM cells are used for the ping operation.
    - › To send F4 segment loopback cells, set the VCI to 3.
    - › To send F5 end-to-end loopback cells, set the VCI to 4.
  - end-loopback – sends the ping to the connection endpoint
  - seg-loopback – sends the ping to the first segment endpoint
  - *destination* – value of the location ID included the loopback cell. The location ID is a 16-octet field, and the destination portion is 4 octets. You can set the destination to a specific location ID or to 0s (zeros) or 1s (ones). If the destination is set to:
    - › 0s – loopback location ID in the loopback cell is initialized to all 0s, and each segment endpoint in the network responds to the ping.
    - › 1s – loopback location ID in the loopback cell is initialized to all 1s, and only the connection endpoint responds to the ping.

The default value is 0xFFFFFFFF, which causes the loopback location ID in the loopback cell to be initialized to all 1s.
  - *cellCount* – number of OAM echo cells to send to the destination. The default value is 5. The range is 1–32.
  - timeout – amount of time to wait for a response to the sent OAM cell. If no response is received when this time expires, the system sends the next cell. This process is repeated for the number of cells specified in the *cellCount* parameter.
  - *#OfSeconds* – number of seconds in the timeout period. The default value is 5 seconds. The range is 1–5 seconds.
- Mode(s):** Privileged Exec

## policy-list

---

- Description:** Creates or modifies a policy list. If you execute a **policy-list** command and type **exit**, the system creates a policy list with no rules, the default. When no rules are found in a policy list, the system automatically inserts a default filter rule. Attaching this policy list to an interface will filter all packets on that interface. The **no** version removes a policy list.
- Syntax:** [ no ] policy-list *policyName*
- *policyName* – name associated with the policy list
- Mode(s):** Global Configuration

## pos framing

---

- Description:** Sets the type of framing for a POS interface. There is no **no** version.
- Syntax:** pos framing { sdh | sonet }
- sdh – uses SDH framing format
  - sonet – uses SONET framing format (the default)
- Mode(s):** Interface Configuration

## pos scramble-atm

---

- Description:** Enables payload scrambling on a POS interface. When enabled, both sides of the connection must be using the scrambling algorithm. The system uses a 43rd-order synchronous scrambler to scramble the output data. The **no** version disables scrambling on the POS interface.
- Syntax:** [ no ] pos scramble-atm
- Mode(s):** Interface Configuration

## ppp aaa-profile

---

- Description:** Maps an AAA profile to static and dynamic, multilink and nonmultilink PPP interfaces. The **no** version removes the AAA profile assignment to the PPP interface.
- Syntax:** ppp aaa-profile *profileName*  
no ppp aaa-profile
- *profileName* – name of the AAA profile; 32 characters maximum
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp authentication

---

- Description:** Requests authentication from a PPP peer system. The **no** version removes the authentication requirement.
- Syntax:** ppp authentication [ virtual-router *vrName* ] chap [ pap ] | pap [ chap ]  
no ppp authentication
- *vrName* – name of a virtual router to be used as the authentication virtual router
  - chap – specifies CHAP authentication protocol. If the peer system refuses to use CHAP and you additionally specified PAP on the command line, the system requests the PAP protocol. If the peer system refuses to negotiate authentication, the system terminates the session.
  - pap – specifies PAP authentication protocol. If the peer system refuses to use PAP and you additionally specified CHAP on the command line, the system requests the PAP protocol.
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp chap-challenge-length

---

**Description:** Modifies the length of the CHAP challenge by specifying the minimum and maximum allowable length. The **no** version restores the defaults.



**Caution:** We recommend that you do **NOT** use the **ppp chap-challenge-length** command; increasing the *minimum length* (from the default 16 bytes) or decreasing the *maximum length* (from the default 32 bytes) reduces the security of your system.

**Syntax:** ppp chap-challenge-length *minLength maxLength*

no ppp chap-challenge-length

- *minLength* – minimum length of the CHAP challenge in bytes in the range 8–63; default value is 16 bytes
- *maxLength* – maximum length of the CHAP challenge in bytes in the range 8–63; value must be equal to or greater than the minimum length; default value is 32 bytes

**Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp description

---

**Description:** Assigns a text description or alias to a static PPP interface. The **no** version removes the text description or alias.

**Syntax:** ppp description *name*

no ppp description

- *name* – text description or alias for the ppp interface; up to 64 characters

**Mode(s):** Interface Configuration, Subinterface Configuration

## ppp ipcp netmask

---

**Description:** Explicitly enables the IPCP option 0x90 on a per-PPP interface basis, either in a profile or on a static interface. By default, the IPCP option 0x90 is disabled on the interface. The **no** version disables the IPCP option 0x90.

**Syntax:** [ no ] ppp ipcp netmask

**Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp keepalive

---

- Description:** Specifies a keepalive value. The keepalive mechanism tracks the status of the connection. The **no** version disables **keepalive**. High-density mode is automatically selected when PPP is layered over ATM, Tunnel, or PPPoE. Low-density mode is selected when PPP is layered over HDLC.
- Syntax:** ppp keepalive [ *seconds* ]  
no ppp keepalive
- *seconds* – keepalive timeout period in the range 30–300 seconds for high-density mode or 10–300 seconds for low-density mode. The default is 30.
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp log

---

- Description:** Enables PPP packet or state machine logging on any dynamic interface that uses the profile being configured. The **no** version disables the logging.
- Syntax:** [ no ] ppp log *logCategory*
- *logCategory* – one of the following categories
    - › pppPacket – enables PPP packet logging
    - › pppStateMachine – enables PPP state machine logging
- Mode(s):** Profile Configuration

## ppp magic-number disable

---

- Description:** Disables negotiation of the local magic number. Issuing this command prevents the system from detecting loopback configurations. The **no** version enables negotiation.
- Syntax:** [ no ] ppp magic-number disable
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp max-bad-auth

---

- Description:** Specifies the maximum number of authentication retries the system accepts before terminating a PPP session. The **no** version returns the value to the default.
- Syntax:** ppp max-bad-auth *maxBadAuth*  
no ppp max-bad-auth
- *maxBadAuth* – number of authentication retries after which the interface resets itself in the range: 0–7. The default is 0, which indicates that no retries are allowed.
- Mode(s):** Interface Configuration, Subinterface Configuration

## ppp mru

---

- Description:** Sets the maximum allowable size in bytes of the maximum receive unit for PPP or MLPPP serial interfaces. If the command is executed from an encapsulated PPP or MLPPP serial interface, it affects only that interface. If executed from an MLPPP bundle, it affects all serial member links within that bundle. The **no** version restores the default value, which varies according to module type.
- Syntax:** ppp mru *mruSize*  
no ppp mru
- *mruSize* – the maximum allowable size of the MRU; the range is from 64–65535
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp multilink enable

---

- Description:** Enables creation of dynamic MLPPP interfaces when used in a profile. The **no** version causes the LNS to reject any incoming requests to establish dynamic MLPPP interfaces.
- Syntax:** [ no ] ppp multilink enable
- Mode(s):** Profile Configuration

## ppp passive-mode

---

- Description:** Forces dynamic and static PPP interfaces into passive mode before LCP negotiation begins for a period of one second, enabling slow clients time to start up and to initiate LCP negotiation. The **no** version disables passive mode.
- Syntax:** [ no ] ppp passive-mode
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp peer

---

- Description:** Resolves conflicts when the system and the PPP peer system have the primary and secondary DNS and WINS name server addresses configured with different values. If the PPP peer system has the address and the system does not, the peer always supplies the address regardless of how you have configured the PPP peer. The **no** version configures the system to take precedence during setup negotiations between the system and the remote personal computer client.
- Syntax:** [ no ] ppp peer { dns | wins }
- dns – sets the peer to take precedence over the system for resolving conflicts in the DNS primary and secondary addresses
  - wins – sets the peer to take precedence over the system for resolving conflicts in the WINS primary and secondary addresses
- Mode(s):** Interface Configuration, Subinterface Configuration, Profile Configuration

## ppp shutdown

---

- Description:** Stops a PPP session. For MLPPP, issue only in the context of a network interface; the command disables the service for the MLPPP network interface (MLPPP bundle). The **no** version restarts a PPP session.
- Syntax:** [ no ] ppp shutdown [ ip | mpls | osi ]
- ip – disables the IPCP service
  - mpls – disables MPLS service
  - osi – disables the OSINLCP service
- Mode(s):** Interface Configuration, Subinterface Configuration

## pppoe

---

- Description:** Creates a PPPoE major interface. The **no** version removes the interface.
- Syntax:** [ no ] pppoe
- Mode(s):** Interface Configuration, Subinterface Configuration

## pppoe acName

---

- Description:** Allows you to configure an access concentrator name for a PPPoE interface or profile. If no AC name is configured, the system name is used. The **no** version removes the access concentrator name.
- Syntax:** pppoe acName *string*  
no pppoe acName
- *string* – AC name; 64 characters maximum
- Mode(s):** Interface Configuration, Profile Configuration

## pppoe auto-configure

---

- Description:** Sets up the system to dynamically create PPPoE subinterfaces on the PPPoE major interfaces. The **no** version removes this configuration.
- Syntax:** [ no ] pppoe auto-configure
- Mode(s):** Subinterface Configuration

## pppoe always-offer

---

- Description:** Sets up the system to offer to set up a session, even if the system has insufficient resources to establish a session. The **no** version disables this feature, and is the default setting.
- Syntax:** [ no ] pppoe always-offer
- Mode(s):** Subinterface Configuration, Profile Configuration

## pppoe duplicate-protection

---

- Description:** Sets up the system to prevent a client from establishing more than one session using the same MAC address. The **no** version disables this feature, and is the default setting.
- Syntax:** [ no ] pppoe duplicate-protection
- Mode(s):** Subinterface Configuration, Profile Configuration

## pppoe log pppoeControlPacket

---

- Description:** Enables packet trace logging on PPPoE dynamic interfaces created using the profile being configured. Packet trace information is logged to the pppoeControlPacket log. The **no** version disables the logging.
- Syntax:** [ no ] pppoe log pppoeControlPacket
- Mode(s):** Profile Configuration

## pppoe motm

---

- Description:** Causes the PPPoE application to send a PADM message of the minute message. The **no** version disables the message.
- The recipient of the message is determined by the mode from which the command is issued. From Privileged Exec mode the message is sent to all PPPoE clients connected to the system; from Interface Configuration mode the PADM message is sent to the client as it is configured (if connected); and from Profile Configuration mode the message is sent to the new client created when the profile is dynamically attached to an IP interface. The MOTM string is passed with no changes.
- Syntax:** pppoe motm *string*
- no pppoe motm
- *string* – message sent
- Mode(s):** Privileged Exec, Interface Configuration, Profile Configuration

## pppoe sessions

---

- Description:** Specifies the number of subinterfaces permitted on a PPPoE interface. The command affects only subinterfaces that are created *after* the command is entered. *Previously* created interfaces remain, even if their number exceeds the new value of the *sessions* parameter. The **no** version restores the default value, 4094.
- Syntax:** pppoe sessions *sessions*
- no pppoe sessions
- *sessions* – number of subinterfaces permitted on the interface in the range 1–4094; the default is 4094
- Mode(s):** Interface Configuration, Subinterface Configuration

## pppoe subinterface

---

- Description:** Creates a PPPoE subinterface on an FE, GE, or ATM interface.
- Syntax:** [ no ] pppoe subinterface *interfaceType interfaceSpecifier*
- *interfaceType* – interface type; see *Interface Types and Specifiers* in *About This Guide*
  - *interfaceSpecifier* – particular interface; format varies according to interface type; see *Interface Types and Specifiers* in *About This Guide*
- Mode(s):** Global Configuration

## pppoe url

---

- Description:** Causes the PPPoE application to send string to the new client. The **no** version disables the message.
- The recipient of the message is determined by the mode from which the command is issued. From Interface Configuration mode the PADM message is sent to the client as it is configured (if connected). From Profile Configuration mode the message is sent to the new client created when the profile is dynamically attached to an IP interface.
- Syntax:** pppoe url *url*  
no pppoe url
- *url* – URL string sent
- Mode(s):** Interface Configuration, Profile Configuration

## preference

---

- Description:** Specifies the preference value for an L2TP or L2F tunnel in Domain Map Configuration mode. The **no** version restores the default value, 0.
- Syntax:** preference *tunnelPreference*  
no preference
- *tunnelPreference* – tunnel preference in the range 0–2000; 0 is the highest preference
- Mode(s):** Domain Map Tunnel Configuration

## profile

---

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description:</b> | <p>When used from Global Configuration mode, the command creates a profile. Use profiles to configure interfaces dynamically, allowing you to manage a large number of interfaces effectively. The <b>no</b> version removes the profile.</p> <p>When used from Subinterface Configuration mode, the command assigns a profile to an interface. Use profiles to configure interfaces dynamically, allowing you to manage a large number of interfaces effectively. The <b>no</b> version removes the profile assigned to the interface.</p> <p>When used from L2TP Destination Profile Host Configuration mode, sets an attribute of the current remote host. The <b>no</b> version removes the attribute from the remote host.</p>                                                                                                                                                                                                                                                   |
| <b>Syntax:</b>      | <p>To assign a profile name for a remote host:</p> <pre>[ no ] profile <i>profileName</i></pre> <p>To create a profile or assign a profile to a subinterface:</p> <pre>profile [ bridgedEthernet   ip   ppp   pppoe   any ] <i>profileName</i> no profile [ bridgedEthernet   ip   ppp   pppoe   any ]</pre> <ul style="list-style-type: none"> <li>• <code>bridgedEthernet</code> – specifies a bridged Ethernet encapsulation type to which the profile applies</li> <li>• <code>ip</code> – specifies an IP encapsulation type to which the profile applies</li> <li>• <code>ppp</code> – specifies a PPP encapsulation type to which the profile applies</li> <li>• <code>pppoe</code> – specifies a PPPoE encapsulation type to which the profile applies</li> <li>• <code>any</code> – specifies any auto-configured encapsulation that does not have a specific profile assignment</li> <li>• <code><i>profileName</i></code> – profile name of up to 80 characters</li> </ul> |
| <b>Mode(s):</b>     | Global Configuration, Subinterface Configuration, L2TP Destination Profile Host Configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## qos-mode-port

---

|                     |                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Description:</b> | Configures an ATM port for per-port queuing. The <b>no</b> version removes per-port queuing on the ATM port. |
| <b>Syntax:</b>      | <code>[ no ] qos-mode-port</code>                                                                            |
| <b>Mode(s):</b>     | Interface Configuration                                                                                      |

## qos-port-type-profile

---

- Description:** Associates a QoS profile with all the ports of a given interface type. There is no **no** version for this command.
- Syntax:** [ no ] qos-port-type-profile *interfaceType* qos-profile *qosProfileName*
- *interfaceType* – one of the following interface types to be associated with the QoS port-type profile: **atm**, **ethernet**, **serial**, **server-port**
  - *qosProfileName* – name of the QoS profile
- Mode(s):** Global Configuration

## qos-profile

---

- Description:** In Global Configuration mode, creates a QoS profile on your system. The **no** version deletes the QoS profile in Global Configuration mode.
- In Interface Configuration mode, attaches a QoS profile to a given interface. The **no** version detaches the QoS profile from the interface in Interface Configuration mode.
- Syntax:** [ no ] qos-profile *qosProfileName*
- *qosProfileName* – name of the QoS profile
- Mode(s):** Global Configuration, Interface Configuration

## query-interval

---

- Description:** Specifies how often the system sends PIM router query messages to remote neighbors. The **no** version specifies the default time interval, 30 seconds.
- Syntax:** query-interval *queryTime*  
no query-interval
- *queryTime* – interval in the range 0–210 seconds at which the system sends PIM router query messages from this interface
- Mode(s):** Interface Configuration

## queue

---

**Description:** Specifies that a queue traffic class be configured for the selected interface type. The **no** version removes this rule from the QoS profile.

**Syntax:** [ no ] *interfaceType* queue traffic-class *trafficClassName*  
 [ queue-profile *queueProfileName* ] [ scheduler-profile *schedProfileName* ] |  
 [ scheduler-profile *schedProfileName* ] [ queue-profile *queueProfileName* ]

- *interfaceType* – one of the following interface types for which queue traffic classes should be configured: **atm**, **atm-vc**, **cbf**, **ethernet**, **fr-vc**, **ip**, **ip-tunnel**, **l2tp-tunnel**, **serial**, **server-port**, **vlan**
- *trafficClassName* – name of the traffic class
- *queueProfileName* – name of the queue profile
- *schedProfileName* – name of the scheduler profile

**Mode(s):** QoS Profile Configuration

## queue-profile

---

**Description:** Configures a queue profile. The **no** version removes the named queue profile.

**Syntax:** [ no ] queue-profile *queueProfileName*

- *queueProfileName* – name of the queue profile

**Mode(s):** Global Configuration

## radius acct-session-id-format

---

**Description:** Configures the RADIUS client's use of a specific format for RADIUS attribute 44, Acct-Session-Id. The **no** version negates the Acct-Session-Id format.

**Syntax:** radius acct-session-id-format { decimal | description }  
 no radius acct-session-id-format

**Mode(s):** Global Configuration

## radius algorithm

---

- Description:** Specifies the algorithm that the RADIUS client uses to contact the RADIUS server. The **no** version restores the default value, `direct`.
- Syntax:** `radius algorithm direct | round-robin`  
`no radius algorithm`
- `direct` – contacts the first AAA server on the list for each user, and the second if the first one fails, and so on.
  - `round-robin` – contacts the first AAA server for the first user, and the second for the second user, and so on.
- Mode(s):** Global Configuration

## radius calling-station-delimiter

---

- Description:** Specifies the delimiter for DSL PPP users for RADIUS attribute, `Calling-Station-Id`. The **no** version removes the delimiter.
- Syntax:** `radius calling-station-delimiter delimiter`  
`no radius calling-station-delimiter`
- *delimiter* – special character to set off items in the `Calling-Station-Id`'s definition (for example, `#` or `%`)
- Mode(s):** Global Configuration

## radius calling-station-format

---

- Description:** On a virtual router, specifies the format of RADIUS attribute 31, Calling-Station-Id, when the PPP user is terminated at the non-LNS ERX system. The **no** version returns the Calling-Station-Id format to **delimited**.
- Syntax:** radius calling-station-format delimited | fixed-format  
no radius calling-station-format
- delimited – specifies that the RADIUS client uses the delimited format:  
*delimiter systemName delimiter interfaceDescription delimiter vpi delimiter vci*  
In the case of Ethernet *vpi delimiter vci* is replaced with *vlan*.
  - fixed-format – specifies that the RADIUS client uses the fixed format:  
*systemName* (up to four bytes) *slot* (two bytes) *port* (one byte)  
*VPI* (three bytes) *VCI* (five bytes)
    - › All fields are in ASCII, making the format up to 15 characters in length.
    - › In the case of Ethernet, the VPI and VCI bytes are replaced by an 8-byte VLAN.
    - › In the case of PPP terminated from LNS, the Calling-Station-Id attribute is the value passed as the calling-station AVP.
- Mode(s):** Global Configuration

## radius client

---

- Description:** This command has only a **no** version. See the **no radius client** command for a complete description and syntax.

## radius dsl-port-type

---

**Description:** Sets RADIUS attribute 61, NAS-Port-Type, in RADIUS access request packets and accounting start and stop packets for ATM interfaces. The **no** version restores the default setting of xdsl.

**Syntax:** radius dsl-port-type { sdsl | adsl-cap | adsl-dmt | idsl | xdsl | virtual }  
no radius dsl-port-type

- sdsl – symmetric DSL
- adsl-cap – asymmetric DSL, carrierless amplitude phase modulation
- adsl-dmt – asymmetric DSL, discrete multitone
- idsl – ISDN DSL
- xdsl – DSL of unspecified type (default)
- virtual – virtual

**Mode(s):** Global Configuration

## radius ethernet-port-type

---

**Description:** Indicates to RADIUS which Ethernet port type to use in RADIUS attribute 61, NAS-Port-Type, for all Ethernet users on the ERX.

**Syntax:** radius ethernet-port-type [ virtual | ethernet ]  
no radius ethernet-port type

- virtual – sets RADIUS NAS-Port-Type to virtual
- ethernet – sets RADIUS NAS-Port-Type to Ethernet

**Mode(s):** Global Configuration

## radius ignore framed-ip-netmask

---

**Description:** Ignores the Framed-Ip-Netmask attribute 9, returned by RADIUS in the access-accept packet. The default is enable. The **no** version restores the default.

**Syntax:** radius ignore framed-ip-netmask enable | disable  
no radius ignore framed-ip-netmask

**Mode(s):** Global Configuration

## radius include

**Description:** Configures the inclusion of RADIUS attributes in RADIUS messages. Not all attributes are available in all message types. All attributes are included by default except for **tunnel-server-attributes**. The **no** version restores the default.

**Syntax:** radius include *attributeName* { access-request | acct-start | acct-stop } { enable | disable }

no radius include *attributeName* { access-request | acct-start | acct-stop }

- *attributeName* – one of the following RADIUS attributes; not all attributes are available in all message types:

Attributes available for Access-Request, Acct-Start, and Acct-Stop messages:

- › acct-tunnel-connection – includes RADIUS attribute 68, Acct-Tunnel-Connection
- › called-station-id – includes RADIUS attribute 30, Called-Station-Id
- › calling-station-id – includes RADIUS attribute 31, Calling-Station-Id
- › connect-info – includes RADIUS attribute 77, Connect-Info
- › nas-identifier – includes RADIUS attribute 32, NAS-Identifier
- › nas-port – includes RADIUS attribute 5, NAS-Port,
- › nas-port-id – includes RADIUS attribute 87, NAS-Port-Id
- › nas-port-type – includes RADIUS attribute 61, NAS-Port-Type
- › pppoe-description – includes RADIUS attribute 26-24, Pppoe-Description
- › tunnel-client-auth-id – includes RADIUS attribute 90, Tunnel-Client-Auth-Id
- › tunnel-client-endpoint – includes RADIUS attribute 66, Tunnel-Client-Endpoint
- › tunnel-medium-type – includes RADIUS attribute 65, Tunnel-Medium-Type
- › tunnel-server-attributes – includes all supported tunnel server attributes, that is, the attributes of the tunnel client when PPP is terminated at the LNS on the system
- › tunnel-server-auth-id – includes RADIUS attribute 91, Tunnel-Server-Auth-Id
- › tunnel-server-endpoint – includes RADIUS attribute 67, Tunnel-Server-Endpoint
- › tunnel-type – includes RADIUS attribute 64, Tunnel-Type

Attributes available for Access-Request messages only:

- › acct-session-id – includes RADIUS attribute 44, Acct-Session-Id

Attributes available for Acct-Start messages only:

- › framed-ip-addr – includes RADIUS attribute 8, Framed-IP-Address

Attributes available for Acct-Start and Acct-Stop messages only:

- › acct-link-count – includes RADIUS attribute 51, Acct-Link-Count
- › acct-multi-session-id – includes RADIUS attribute 50, Acct-Multi-Session-ID
- › class – includes RADIUS attribute 25, Class
- › egress-policy-name – includes RADIUS attribute 26-11, Egress-Policy-Name
- › event-timestamp – includes RADIUS attribute 55, Event-Timestamp
- › framed-compression – includes RADIUS attribute 13, Framed-Compression
- › framed-ip-netmask – includes RADIUS attribute 9, Framed-IP-Netmask
- › ingress-policy-name – includes RADIUS attribute 26-10, Ingress-Policy-Name
- › tunnel-assignment-id – includes RADIUS attribute 82, Tunnel-Assignment-Id
- › tunnel-preference – includes RADIUS attribute 83, Tunnel-Preference

Attributes available for Acct-Stop messages only:

- › input-gigapkts – includes RADIUS attribute 26-35, Acct-Input-Gigapackets
- › input-gigawords – includes RADIUS attribute 52, Acct-Input-Gigawords
- › output-gigapkts – includes RADIUS attribute 26-36, Acct-Output-Gigapackets
- › output-gigawords – includes RADIUS attribute 53, Acct-Output-Gigawords

- access-request – specifies RADIUS Access-Request messages
- acct-start – specifies RADIUS Acct-Start messages
- acct-stop – specifies RADIUS Acct-Stop messages
- enable – enables attribute inclusion
- disables – disables attribute inclusion; the attribute is excluded

**Mode(s):** Global Configuration

## radius nas-identifier

---

- Description:** Configures the RADIUS client's value for RADIUS attribute 32, NAS-Identifier. The **no** version deletes the NAS-Identifier.
- Syntax:** radius nas-identifier *identifierValue*  
no radius nas-identifier
- *identifierValue* – value in the range is 1– 64 characters; this value is used in the NAS-Identifier attribute for authentication and accounting requests
- Mode(s):** Global Configuration

## radius nas-port-format

---

- Description:** Configures the RADIUS client's use of a specific format for RADIUS attribute 5, NAS-Port. The **no** version removes the format.
- Syntax:** radius nas-port-format { 0ssssppp | ssss0ppp }  
no radius nas-port-format
- 0ssssppp – sets the RADIUS client to use the 0ssssppp format where “s” is slot and “p” is port
  - ssss0ppp – sets the RADIUS client to use the ssss0ppp format where “s” is slot and “p” is port
- Mode(s):** Global Configuration

## radius override nas-ip-addr tunnel-client-endpoint

---

- Description:** Configures the RADIUS client (LNS) to use the tunnel-client-endpoint (LAC) IP address for RADIUS attribute 4, NAS-IP-Address. The **no** version restores the default address.
- Syntax:** radius override nas-ip-addr tunnel-client-endpoint  
no radius override nas-ip-addr
- radius – configures the RADIUS server
  - override – configures the RADIUS client to override the standard use for an attribute
  - nas-ip-addr – configures the RADIUS client value for the nas-ip-addr attribute
  - tunnel-client-endpoint – configures the RADIUS client to use the tunnel-client-endpoint in an attribute
- Mode(s):** Global Configuration

## radius rollover-on-reject

---

- Description:** On a virtual router, specifies whether the system should roll over to the next RADIUS server when the system receives an access-reject message for the user it is authenticating. The **no** version restores the default value, disable.
- Syntax:** radius rollover-on-reject { enable | disable }  
no radius rollover-on-reject
- Mode(s):** Global Configuration

## radius server

---

- Description:** Specifies the IP address of a RADIUS authentication and accounting servers. The **no** version deletes the instance of the RADIUS server.
- Syntax:** radius { authentication | accounting } server *ipAddress*  
no radius { authentication | accounting } server *ipAddress*
- authentication – configure the RADIUS authentication server
  - accounting – configure the RADIUS accounting server
  - *ipAddress* – IP address of the server
- Mode(s):** Global Configuration

## radius trap acct-server-not-responding

---

- Description:** Enables or disables SNMP traps when a particular RADIUS accounting server fails to respond to a RADIUS accounting request. The **no** version restores the default value, disable.
- Syntax:** [ no ] radius trap acct-server-not-responding { enable | disable }
- Mode(s):** Global Configuration

## radius trap auth-server-not-responding

---

- Description:** Enables or disables SNMP traps when a particular RADIUS authentication server fails to respond to a RADIUS Access-Request message. The **no** version restores the default value, disable.
- Syntax:** [ no ] radius trap auth-server-not-responding { enable | disable }
- Mode(s):** Global Configuration

## radius trap no-acct-server-responding

---

- Description:** Enables or disables SNMP traps when all of the configured RADIUS accounting servers per VR fail to respond to a RADIUS accounting request. The **no** version restores the default value, disable.
- Syntax:** [ no ] radius trap no-acct-server-responding { enable | disable }
- Mode(s):** Global Configuration

## radius trap no-auth-server-responding

---

- Description:** Enables or disables SNMP traps when all of the configured RADIUS authentication servers per VR fail to respond to a RADIUS Access-Request message. The **no** version restores the default value, disable.
- Syntax:** [ no ] radius trap no-auth-server-responding { enable | disable }
- Mode(s):** Global Configuration

## radius tunnel-accounting

---

- Description:** Enables or disables tunnel accounting. The **no** version restores the default value, disable.
- Syntax:** radius tunnel-accounting { enable | disable }  
no radius tunnel-accounting
- Mode(s):** Global Configuration

## radius udp-checksum

---

- Description:** Enables or disables UDP checksum for RADIUS packets on virtual routers you configure for B-RAS. The **no** version restores the default value, enable.
- Syntax:** radius udp-checksum { enable | disable }  
no radius udp-checksum
- Mode(s):** Global Configuration

---

## radius update-source-addr

---

- Description:** Specifies an alternate source IP address for the system to use rather than the default router ID. The **no** version deletes the alternate address, and the system uses the router ID.
- Syntax:** radius update-source-addr *sourceAddr*  
no radius update-source-addr
- *sourceAddr* – source address of the RADIUS client
- Mode(s):** Global Configuration

---

## rate-limit-profile

---

- Description:** From Global Configuration mode, creates a rate limit profile and accesses Rate Limit Profile Configuration mode. The **no** version removes the rate limit profile.
- From Policy Configuration mode, specifies a rate limit profile as a rule in a policy list. The **no** version removes a rate limit profile from a policy list. The **suspend** version suspends the rule temporarily.
- Syntax:** To create a rate limit profile:  
[ no ] rate-limit-profile *profileName* [ *rateLimitProfileType* ]
- *profileName* – name of the rate limit profile
  - *rateLimitProfileType* – **one-rate** or **two-rate**
- To specify a rate limit profile in a policy:  
[ no ] [ suspend ] rate-limit-profile *profileName* [ classifier-group *clacName* ] [ precedence *precValue* ]
- *profileName* – name of the rate limit profile to be created or to be used in a policy
  - *clacName* – classifier control list used to classify packets for this rate limit profile
  - *precValue* – precedence of this rule in relation to other rules within this set
- Mode(s):** Global Configuration, Policy Configuration

rd

---

- Description:** Specifies the unique two-part route distinguisher for a VRF. There is no **no** version.
- Syntax:** `rd distinguisher`
- *distinguisher* – unique two-part identifier of the format *number1:number2* where:
    - › *number1* – AS number or an IP address
    - › *number2* – unique integer; 32 bits if *number1* is an AS number; 16 bits if *number1* is an IP address
- Mode(s):** VRF Configuration

receive version

---

- Description:** Restricts the RIP version that the system can receive on a RIP remote-neighbor interface. The **no** version sets the remote-neighbor interface back to the default value, receiving both RIP version 1 and version 2.
- Syntax:** `receive version [ 1 ] [ 2 ] [ off ]`
- `no address receive version`
- 1 – specifies RIP version 1 only
  - 2 – specifies RIP version 2 only
  - off – turns reception off
- Mode(s):** Remote Neighbor Configuration

## redistribute

**Description:** Redistributes routes from one routing domain into another routing domain. For DVMRP, only routes that appear in the RPF table can be redistributed. The **no** version ends redistribution of information.

**Syntax:** The options available vary depending on your routing protocol context; that is, on whether you are configuring BGP, DVMRP, IS-IS, OSPF, or RIP.

BGP:

```
redistribute { fromProtocol | [ospf match internal [external [1 | 2]]
| ospf match external [1 | 2] [internal]] } [metric absoluteValue | route-map
mapTag | weight wtValue]*
```

```
no redistribute { fromProtocol | [ospf match internal [external [1 | 2]]
| ospf match external [1 | 2] [internal]] } [metric [absoluteValue] |
route-map [mapTag] | weight [wtValue]]*
```

DVMRP:

```
[no] redistribute fromProtocol [route-map mapTag]
```

IS-IS:

```
redistribute { fromProtocol | static [ip] |
[ospf match internal [external [1 | 2]] |
ospf match external [1 | 2] [internal]] } [level-1 | level-1-2 | level-2 |
metric absoluteValue | metric-type { external | internal } | route-map mapTag]*
```

```
no redistribute { fromProtocol | static [ip] |
[ospf match internal [external [1 | 2]] |
ospf match external [1 | 2] [internal]] } [level-1 | level-1-2 | level-2 |
metric [absoluteValue] | metric-type { external | internal } | route-map [mapTag]]*
```

OSPF:

```
redistribute { fromProtocol | ospf match internal } [metric-type [1 | 2] |
metric absoluteValue | tag tagValue | route-map mapTag]*
```

```
no redistribute { fromProtocol | ospf match internal } [metric-type [1 | 2] |
metric [absoluteValue] | tag [tagValue] | route-map [mapTag]]*
```

```
redistribute { ospf match internal external [1 | 2]
| ospf match external [1 | 2] [internal] }
[metric absoluteValue | route-map mapTag | tag tagValue]*
```

```
no redistribute { ospf match internal external [1 | 2]
| ospf match external [1 | 2] [internal] }
[metric [absoluteValue] | route-map [mapTag] | tag [tagValue]]*
```

RIP:

```
redistribute { fromProtocol | ospf match internal [external [1 | 2]]
| ospf match external [1 | 2] [internal] } [metric absoluteValue | route-map
mapTag]*
```

```
no redistribute { fromProtocol | ospf match internal } [external [1 | 2]]
| ospf match external [1 | 2] [internal] } [metric [absoluteValue] | route-map
[mapTag]*
```

- *fromProtocol* – source protocol from which routes are being redistributed; the default is no source protocol defined
  - › access – redistributes access-server routes (BGP)
  - › access-internal – redistributes internal routes to directly connected clients (BGP)
  - › bgp – routes sourced from BGP protocol
  - › connected – routes that are established automatically when IP is enabled on an interface (non-multicast routing protocols). For routing protocols such as OSPF and IS-IS, these routes are redistributed as external to the AS. When redistributing from connected, only those connected networks that are configured on an interface that is *not* configured to run IS-IS will be redistributed. For DVMRP, this keyword redistributes routes that are established automatically in the RPF table because another multicast routing protocol, such as PIM, is enabled on an interface.
  - › dvmrp – routes sourced from DVMRP
  - › isis – routes sourced from IS-IS
  - › ospf – routes sourced from OSPF
  - › rip – routes sourced from RIP
  - › static – redistributes static routes; for IS-IS, you can specify **static** or **static ip**
- ospf match – determines what type(s) of routes to redistribute from OSPF; all OSPF routes are redistributed if you do not specify a type
  - › internal – redistributes OSPF internal routes
  - › external 1 – redistributes OSPF external routes of metric-type 1
  - › external 2 – redistributes OSPF external routes of metric-type 2
- *absoluteValue* – a metric that is applied to all routes from the source protocol; ranges from 0–429496729; in BGP this value is the MED, which defaults to the IGP metric of the redistributed route
- *mapTag* – a string of up to 32 alphanumeric characters that specifies a route map applied to all routes from the source protocol; all routes are redistributed if you do not specify a route map
- *wtValue* – administrative weight (relative importance) for routes redistributed into the protocol; a number in the range 0–65535

- level-1 – specifies the redistribution of only IS-IS level 1 routes
- level-1-2 – specifies the redistribution of both IS-IS level 1 and level 2 routes
- level-2 – specifies the redistribution of only IS-IS level 2 routes
- metric-type – specifies the OSPF or IS-IS metric type for all routes from the source protocol

For routes redistributed into IS-IS:

- › metric-type external – only the metric of the route itself is considered for comparison
- › metric-type internal – both the metric of the route and the cost to the router that advertised the route are considered for comparison; this is the IS-IS default

For routes redistributed into OSPF:

- › metric-type 1 – cost of the external routes is equal to the sum of all internal costs and the external cost
- › metric-type 2 – cost of the external routes is equal to the external cost alone; this is the OSPF default
- *tagValue* – a tag that is applied to all routes from the source protocol; ranges from 0–429496729
- \* – indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode(s):** Address Family Configuration, Router Configuration

## redistribute isis ip

---

**Description:** Redistributes routes from one IS-IS routing level into the other. The **no** version ends the redistribution.

**Syntax:** [ no ] redistribute isis ip { level-1 into level-2 | level-2 into level-1 }  
distribute-list *accessListName*

- level-1 – specifies the redistribution of routes from or into IS-IS level 1
- level-2 – specifies the redistribution of routes from or into IS-IS level 2
- *accessListName* – string of up to 32 alphanumeric characters specifying the IP access list used to filter routes between levels

**Mode(s):** Router Configuration

## redundancy force-failover

---

- Description:** Forces the system to switch from the primary line module in the specified slot or the primary SRP module to the spare line module or SRP module. This command overrides the **redundancy lockout** command. With the **srp** option, the command is equivalent to the **srp switch** command. There is no **no** version.
- Syntax:** `redundancy force-failover { slotNumber | srp }`
- *slotNumber* – number of the slot in which the primary line module resides
  - *srp* – indicates that the system should switch from the active to the standby SRP module
- Mode(s):** Privileged Exec

## redundancy lockout

---

- Description:** Prevents the system from switching automatically to a spare line module if the primary module fails on a slot. The **no** version reverts to the default situation, in which the system switches automatically to a spare line module if the primary module fails on a slot. The **redundancy force-failover** command overrides this command. There is no **no** version.
- Syntax:** `[ no ] redundancy lockout slotNumber`
- *slotNumber* – number of the slot in which the primary line module resides
- Mode(s):** Global Configuration

## redundancy revert

---

- Description:** Forces the system to revert to the primary line module in the specified slot. If you specify a time or time and date, reversion occurs when the primary line module becomes available after that time. Otherwise, reversion occurs immediately. Issuing this command causes reversion once; after reboot, the system returns to the settings configured in the software. The **no** version has no effect.
- Syntax:** [ no ] redundancy revert *slotNumber* [ *startTime* [ [ *startMonth startDay* | *startDay startMonth* ] *startYear* ] ]
- *slotNumber* – number of the slot in which the primary line module resides
  - *startTime* – time, in 24-hour format (00:00:00), at which the system reverts to this line module
  - *startMonth* – name of the month in which the system reverts to this line module
  - *startDay* – day of the month on which the system reverts to this line module
  - *startYear* – four-digit year in which the system reverts to this line module
- Mode(s):** Privileged Exec

## redundancy revertive

---

- Description:** Enables the system to revert from spare line modules to available primary line modules automatically. The **no** version reverts to the default situation, in which there is no automatic reversion from spare to primary line modules.
- Syntax:** [ no ] redundancy revertive [ *timeOfDay* ]
- *timeOfDay* – time, in 24-hour format (00:00:00), at which the system reverts to the available primary line modules every day
- Mode(s):** Global Configuration

## refresh-period

---

- Description:** Specifies the timeout period in milliseconds between generation of RSVP refresh messages. The **no** version restores the default value of 30000 milliseconds.
- Syntax:** refresh-period *period*  
 no refresh-period
- *period* – interval from 0–4294967295
- Mode(s):** RSVP Profile Configuration

## reload

---

**Description:** Reloads the operating system in the designated interval or at the designated time. There is no **no** version.

**Syntax:** reload [ force [ *reason* ] | in *inTime* [ *reason* ] |  
at *atTime* [ *month day* | *day month* ] [ *reason* ] | cancel ]

- *force* – prompts for confirmation to reboot if the system is in certain states, such as during the synchronization of SRP modules, that could lead to a loss of configuration data or an NVS corruption.
- *reason* – reason for the reload (1–255 characters long)
- *inTime* – schedules a reload of the software to take place in the specified minutes or hours and minutes ([ *hh*: ] *mm*). If the system is in a state that could lead to a loss of configuration data or an NVS corruption, it will delay the reboot for one minute, up to five times. If the system cannot reboot on its sixth attempt, the scheduled reboot fails.
- *atTime* – schedules a reload of the software to take place at the specified time (*hh:mm*) (using a 24-hour clock). If you specify the month and day, the reload takes place at the specified time and date. If you do not specify the month and day, the reload takes place at the specified time on the current day (if the specified time is later than the current time) or on the next day (if the specified time is earlier than the current time). Specifying 00:00 schedules the reload for midnight. If the system is in a state that could lead to a loss of configuration data or an NVS corruption, it will delay the reboot for one minute, up to five times. If the system cannot reboot on its sixth attempt, the scheduled reboot fails.
- *month* – name of the month (any number of characters in a unique string)
- *day* – number of the day of the month, in the range 1–31
- *cancel* – cancels a scheduled reload

**Mode(s):** Privileged Exec

## reload slot

---

**Description:** Reboots the module in the selected slot. There is no **no** version.

**Syntax:** reload slot *slotNumber* [ force ]

- *reason* – reason for the reload (1–255 characters long)
- *slotNumber* – number of a selected slot in the router
- *force* – prompts for confirmation to reboot if the system is in certain states, such as during the synchronization of SRP modules, that could lead to a loss of configuration data or an NVS corruption.

**Mode(s):** Privileged Exec

## remote host

---

- Description:** Defines an L2TP host profile. Accesses the L2TP Destination Profile Host Configuration mode. The **no** version removes an L2TP host profile.
- Syntax:** remote host { *hostname* | default }  
no remote host { *hostname* | default }
- *hostname* – name the LAC must supply in the hostname AVP of the receive SCCRQ; can be up to 64 characters in length (no spaces)
  - default – allows the LAC to use any hostname in the hostname AVP
- Mode(s):** L2TP Destination Profile Configuration

## remote-loopback

---

- Description:** Enables the acceptance of remote loopback requests on a T1 line on a CT1 line module. The **no** version restores the default value, which is to reject remote loopback requests.
- Syntax:** [ no ] remote-loopback
- Mode(s):** Controller Configuration

## remote-neighbor

---

- Description:** Configures an OSPF, PIM, or RIP remote neighbor. The **no** version removes the remote neighbor and any attributes configured for the neighbor.
- Syntax:** For OSPF:  
[ no ] remote-neighbor *ipAddress* area { *areald* | *arealdInt* }  
For PIM  
[ no ] remote-neighbor *ipAddress* sparse-mode  
For RIP:  
[ no ] remote-neighbor *ipAddress*
- *ipAddress* – IP address identifying the remote neighbor
  - *areald* – OSPF area ID in IP address format
  - *arealdInt* – OSPF area ID as a decimal value 0–4294967295
- Mode(s):** Router Configuration

## rename

---

**Description:** Renames a local file. There is no **no** version.



**Note:** You cannot change the extension of a file, for example, *.scr*.

**Syntax:** `rename oldFileName newFileName`

- *oldFileName* – file to rename
- *newFileName* – new filename

**Mode(s):** Privileged Exec

## request-data-size

---

**Description:** Sets the request payload data size. The **no** version restores the default value.

**Syntax:** `request-data-size requestSizeValue`

`no request-data-size`

- *requestSizeValue* – size of the data in bytes in the request packet's payload; the default is 1 byte

**Mode(s):** RTR Configuration

## reserve

---

**Description:** For DHCP local server clients, reserves an IP address for a specific MAC address. The **no** version removes the reservation.

**Syntax:** `reserve ipAddress macAddress`

`no reserve ipAddress`

*ipAddress* – IP address to reserve

*macAddress* – MAC address for which the IP address is reserved.

**Mode(s):** Pool Configuration

## retransmit

---

**Description:** Specifies maximum number of times the system retransmits a RADIUS packet to an authentication or accounting server. The **no** version restores the default value.

**Syntax:** `retransmit retries`

`no retransmit`

- *retries* – number of retries in the range 0–10. The default is 3.

**Mode(s):** Radius Configuration

## retransmit-interval

---

- Description:** Specifies the time between LSA retransmissions for the OSPF remote-neighbor interface when an acknowledgment for the LSA is not received. The **no** version restores the default value.
- Syntax:** retransmit-interval *retransInterval*  
no retransmit-interval
- *retransInterval* – a number in the range 0–3600 seconds; default value is 5 seconds
- Mode(s):** Remote Neighbor Configuration

## rib-out disable

---

- Description:** Disables storage of routes to the Adj-RIBs-Out tables (disables rib-out) for all BGP peers. Storage is disabled by default. The **no** version enables the route storage. The **default** version removes the explicit global configuration for all peers and reestablishes inheritance of the feature configuration.



**Note:** If you enable or disable rib-out globally and this action changes the current configuration, all sessions are automatically bounced.

- Syntax:** [ no | default ] rib-out disable
- Mode(s):** Router Configuration

## route interface

---

- Description:** Routes layer 2 traffic on a specified interface over another interface. The **no** version negates this command. See also the **mpls-relay** command.
- Syntax:** route interface *interfaceType interfaceSpecifier* [ *vc-id* ] *vcidValue* [ *groupID groupIDValue* ]  
no route [ *group ID groupIDValue* ]
- *interfaceType* – interface type: serial or pos
  - *interfaceSpecifier* – particular interface; see *Interface Types and Specifiers in About This Guide*
  - *vc-id* – virtual connection ID
  - *vcidValue* – any 32-bit value. The two ends across the MPLS core must match inside each VC type.
  - *groupID* – group of virtual connections ID
  - *groupIDValue* – any 32-bit value
- Mode(s):** Interface Configuration

## route-map

**Description:** Specifies a route map for DVMRP or RIP, or defines the conditions for applying routing policies to filter or modify routes redistributed into or propagated by a routing protocol. The **no** version deletes the route map.

**Syntax:** Specifying for DVMRP or RIP:

```
[no] route-map mapTag [interfaceType interfaceSpecifier]
```

- *mapTag* – a string of up to 32 alphanumeric characters.
- *interfaceType* – interface type; see *Interface Types and Specifiers* in *About This Guide*
- *interfaceSpecifier* – particular interface; format varies according to interface type; see *Interface Types and Specifiers* in *About This Guide*

Defining a route map:

```
[no] route-map mapTag [permit / deny] [sequence]
```

- *mapTag* – string of up to 32 alphanumeric characters. The **redistribute** Router Configuration command uses this string to reference this route map. Multiple route maps may share the same map tag.
- **permit** – if the match criteria are met for this route map and **permit** is specified, the route is redistributed as controlled by the set actions.
- **deny** – if the match criteria are met for the route map and **deny** is specified, the route is not redistributed, and no further route maps sharing the same map tag are examined.
- *sequence* – number in the range 0–65535 that indicates the position a new route map is to have in the list of route maps already configured with the same map tag. If given with the **no** version of this command, it specifies the position of the route map that should be deleted.

**Mode(s):** Global Configuration

## router bgp

**Description:** Configures the BGP routing process. Allows you to set up a distributed routing core that automatically guarantees the loop-free exchange of routing information between ASs. The **no** version removes a routing process.

**Syntax:** [ no ] router bgp *autonomousSystem*

- *autonomousSystem* – number in the range 1–4294967295; the AS number that identifies the router to other BGP routers

**Mode(s):** Global Configuration

---

## router dvmrp

---

- Description:** Creates and enables DVMRP on a virtual router; accesses DVMRP router configuration mode. The **no** version deletes DVMRP from a virtual router.
- Syntax:** [ no ] router dvmrp
- Mode(s):** Global Configuration

---

## router igmp

---

- Description:** Creates and enables IGMP on a virtual router; accesses IGMP router configuration mode. The **no** version disables IGMP on a virtual router.
- Syntax:** [ no ] router igmp
- Description:** Global Configuration

---

## router isis

---

- Description:** Enables the IS-IS routing protocol and specifies an IS-IS process for IP. The **no** version disables IS-IS routing.
- Syntax:** [ no ] router isis [ tag ]
- *tag* – meaningful name for a routing process; name must be unique among all IP router processes for a given router; if not specified, a null tag is assumed, and the process is referenced with a null tag
- Mode(s):** Global Configuration

---

## router ospf

---

- Description:** Configures an OSPF routing process. The **no** version disables an OSPF routing process.
- Syntax:** [ no ] router ospf *processId* [ vrf *vrfName* ]
- *processId* – number in the range 1–65535 that identifies the OSPF process
  - *vrfName* – name of the VRF; string of 1–32 alphanumeric characters; available only in virtual router context, not VRF context
- Mode(s):** Global Configuration

## router pim

---

- Description:** Creates and enables PIM on a virtual router; accesses PIM router configuration mode. The **no** version deletes PIM from a virtual router.
- Syntax:** [ no ] router pim
- Mode(s):** Global Configuration

## router rip

---

- Description:** Enables RIP routing protocol configuration. The **no** version deletes the RIP process and removes the configuration from the system.
- Syntax:** [ no ] router rip
- Mode(s):** Global Configuration

## route-target

---

- Description:** Creates or adds to a list of VPN extended communities used to determine which routes are imported by a VRF. If at least one route target in the route-target export list contained in the update message advertising a route matches a route target in the route-target import list associated with a VRF, that route is installed in the VRF's forwarding table. The **no** version removes a route target from the specified list.
- Syntax:** [ no ] route-target { import | export | both } *extendedCommunity*
- import – adds the route target to the current VRF's import list; the VRF accepts only routes that have at least one route target that matches a route target in the import list
  - export – adds the route target to the current VRF's export list; all routes advertised from this VRF are associated with the export list; at least one route target in the export list must match a route target in the import list of a VRF receiving the route for the route to be installed in the VRF's forwarding table
  - both – adds the route target to both the import list and export list of the current VRF
  - *extendedCommunity* – two-part number of the format *number1:number2* that identifies an extended community of VPNs where:
    - › *number1* – an AS number or an IP address
    - › *number2* – a unique integer; 32 bits if *number1* is an AS number; 16 bits if *number1* is an IP address
- Mode(s):** VRF Configuration

## rtr

---

- Description:** Sets the number of the RTR operation to be configured and accesses the RTR Configuration mode. The **no** version removes all configuration information for a given RTR operation.
- Syntax:** [ no ] rtr *rtrIndex*  
no rtr
- *rtrIndex* – number of the operation to be configured; there is no default
- Mode(s):** Global Configuration

## rtr reaction-configuration

---

- Description:** This command has only a **no** version. The **no** version clears all traps for all the **rtr reaction-configuration** command options.
- Syntax:** no rtr reaction-configuration *rtrIndex*
- *rtrIndex* – number of the operation configured
- Mode(s):** Global Configuration

## rtr reaction-configuration action-type

---

- Description:** Sets certain actions to occur based on events under control of the RTR. The default is that traps of enabled events are taken. See the **rtr reaction-configuration** command. There is no **no** version.
- Syntax:** rtr reaction-configuration *rtrIndex* [ action-type *actionType* ]
- *rtrIndex* – number of the operation to be configured
  - *actionType* – one of the following types:
    - › none – no action; selecting this option clears all traps for the given operation
    - › trapOnly – trap only action; this is the default; enabled events trigger the trap
- Mode(s):** Global Configuration

## rtr reaction-configuration operation-failure

---

- Description:** Enables operation-failure reaction. When the type of RTR entry is echo, you can also configure a value that triggers the operation-failure trap. When the type of RTR entry is pathEcho, you cannot configure the operation-failure trap. See the **rtr reaction-configuration** command. There is no **no** version.
- Syntax:** rtr reaction-configuration *rtrIndex* operation-failure [ *operationFailureValue* ]
- *rtrIndex* – number of the operation to be configured
  - *operationFailureValue* – number in the range 0–15; default is 1
- Mode(s):** Global Configuration

## rtr reaction-configuration path-change

---

- Description:** Enables path change reaction. When the type of RTR entry is echo, you cannot configure the path-change trap. See the **rtr reaction-configuration** command. There is no **no** version.
- Syntax:** rtr reaction-configuration *rtrIndex* path-change
- *rtrIndex* – number of the operation to be configured; no default
- Mode(s):** Global Configuration

## rtr reaction-configuration test-completion

---

- Description:** Enables test completion reaction. See the **rtr reaction-configuration** command. There is no **no** version.
- Syntax:** rtr reaction-configuration *rtrIndex* test-completion
- *rtrIndex* – number of the operation to be configured
- Mode(s):** Global Configuration

## rtr reaction-configuration test-failure

---

- Description:** Enables test failure reaction to occur. When the type of RTR entry is echo, you can also configure a value that triggers the test-failure trap. See the **rtr reaction-configuration** command. There is no **no** version.
- Syntax:** rtr reaction-configuration *rtrIndex* test-failure [ *testFailureValue* ]
- *rtrIndex* – number of the operation to be configured
  - *testFailureValue* – number in the range 0–15; default is 1
- Mode(s):** Global Configuration

## rtr reset

---

- Description:** Shuts down all RTR operations and clears the RTR configuration for the given virtual router. The **no** version negates the reset operation.
- Syntax:** [ no ] rtr reset
- Mode(s):** Global Configuration

## rtr schedule

---

- Description:** Configures the RTR time parameters for an RTR operation. The **no** version stops the operation by putting it in the pending state. The **no** version also resets the restart-time attribute and the life attribute.
- Syntax:** [ no ] rtr schedule *rtrIndex*
- *rtrIndex* – number of the operation to be configured
- Mode(s):** Global Configuration

## rtr schedule life

---

- Description:** Specifies the length of the test. There is no **no** version.
- Syntax:** rtr schedule *rtrIndex* life *lifeValue*
- *rtrIndex* – number of the operation to be configured
  - *life* – value that depends on the type of the RTR entry; not a length of time:
    - › If the type is echo, *life* relates to the number of operations sent until a test finishes. The default is 90. If you use 60 operations \* 60 seconds, the frequency between each operation that a test completes is 3,600 seconds (one hour).
    - › If the type is pathEcho, *life* relates to the maximum number of hops used by the traceRoute trap. The default is 30. If you use 30 (as the maximum hops) \* 3 (operations per hop) \* 60 seconds frequency between each operation, a test is completed within 3,600 seconds. If a destination is reached in fewer than 30 hops, the test is completed earlier.
  - *lifeValue* – number of operations or maximum TTL in the range 1–2147483647
- Mode(s):** Global Configuration

---

## rtr schedule restart-time

---

- Description:** Specifies the test's restart in seconds. There is no **no** version.
- Syntax:** `rtr schedule rtrIndex restart-time restartValue`
- *rtrIndex* – number of the operation to be configured
  - *restartValue* – default is 0; 0 calls for no restart after the test finishes
- Mode(s):** Global Configuration

---

## rtr schedule start-time

---

- Description:** Configures an entry's start. There is no **no** version.
- Syntax:** `rtr schedule rtrIndex start-time { now | pending }`
- *rtrIndex* – number of the operation to be configured
  - *now* – RTR immediately begins to collect information.
  - *pending* – RTR does not begin to collect information. This is the default.
- Mode(s):** Global Configuration

---

## run

---

- Description:** Allows you to issue a command that operates in User Exec mode from any CLI mode. There is no **no** version.
- Syntax:** `run userExecCommand`  
*userExecCommand* – a CLI command that you can issue from User Exec mode
- Mode(s):** All modes