

# A Commands

## aaa accounting acct-stop on-aaa-failure

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**Description** Configures AAA to send an Acct-Stop message if a user fails AAA, but RADIUS grants access. The **no** version returns the parameter to the default of enable.

**Syntax** aaa accounting acct-stop on-aaa-failure { enable | disable }  
no aaa accounting acct-stop on-aaa-failure

- enable—Specifies the feature; this is the default setting
- disable—Disables the feature

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting acct-stop on-access-deny

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**Description** Issues an Acct-Stop message if RADIUS denies access. The **no** version returns the parameter to the default of disable.

**Syntax** aaa accounting acct-stop on-access-deny { enable | disable }  
no aaa accounting acct-stop on-access-deny

- enable—Specifies the feature
- disable—Disables the feature; this is the default setting

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting broadcast

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**Description** Broadcasts accounting records for a virtual router to accounting servers of the virtual routers in the specified virtual router group. The **no** version disables the feature.

**Syntax** `aaa accounting broadcast vrGroupName`  
`no aaa accounting broadcast`

- *vrGroupName*—Name of the virtual router group; a string of up to 32 characters

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting commands

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**Description** Enables AAA accounting for TACACS+ to be captured for a specific user privilege level and creates accounting method lists. The **no** version deletes the accounting method list.

**Syntax** `aaa accounting commands level { default | listName } stop-only tacacs+`  
`no aaa accounting commands level listName`

- *level*—Privilege level of user commands for which accounting information is captured; in the range 0–15
- *default*—Specifies that the default method list is used to specify how accounting is performed
- *listName*—Named method list used to specify how accounting is performed
- *stop-only*—Sends a stop accounting notice at the end of a process

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting default

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<b>Description</b>	Specifies the accounting method used for a particular type of subscriber. The <b>no</b> version produces the same result as specifying the <b>radius</b> value.
<b>Syntax</b>	<pre>aaa accounting { <i>subscriberType</i> } default <i>accountor</i> [ <i>accountor</i> ]* no aaa accounting { <i>subscriberType</i> } default</pre> <ul style="list-style-type: none"><li>■ <i>subscriberType</i>—Type of subscriber:<ul style="list-style-type: none"><li>■ atm1483—Specifies ATM 1483 subscribers; not supported</li><li>■ ip—Specifies IP subscriber management interfaces</li><li>■ ipsec—Specifies IPSec subscribers</li><li>■ ppp—Specifies PPP subscribers</li><li>■ radius-relay—Specifies RADIUS relay server subscribers</li><li>■ tunnel—Specifies tunnel subscribers</li></ul></li><li>■ <i>accountor</i>—Accounting method:<ul style="list-style-type: none"><li>■ none—Disables accounting</li><li>■ radius—Enables RADIUS accounting</li><li>■ *—Indicates that one or more parameters can be repeated multiple times in a list in the command line</li></ul></li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa accounting duplication

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<b>Description</b>	Sends duplicate accounting records to the accounting server of a different virtual router. The <b>no</b> version disables the feature.
<b>Syntax</b>	<pre>aaa accounting duplication <i>routerName</i> no aaa accounting duplication</pre> <ul style="list-style-type: none"><li>■ <i>routerName</i>—Virtual router name</li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa accounting exec

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- Description** Enables AAA accounting for TACACS+ to be captured for User Exec terminal sessions, and creates accounting method lists. The **no** version deletes the accounting method list.
- Syntax** `aaa accounting exec { default | listName } start-stop tacacs+`  
`no aaa accounting exec listName`
- *exec*—Specifies that accounting information is captured for User Exec terminal sessions
  - *default*—Specifies that the default method list is used to specify how accounting is performed
  - *listName*—Named method list used to specify how accounting is performed
  - *start-stop*—Sends a start accounting notice at the beginning of a process and a stop accounting notice at the end of a successful process
- Mode** Global Configuration
- Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting immediate-update

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- Description** Configures the router to send an Acct-Update message to the accounting server on receipt of a response (ACK or timeout) for the Acct-Start message. The **no** version restores the default condition, disabling immediate updates.
- Syntax** `aaa accounting immediate-update { enable | disable }`  
`no aaa accounting immediate-update`
- *enable*—Specifies the feature
  - *disable*—Disables the feature; this is the default setting
- Mode** Global Configuration
- Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting interval

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**Description** Specifies the default accounting interval used for all users and services. The **no** version sets the value to 0, which turns off interim accounting.



**NOTE:** This command is deprecated and might be removed completely in a future release. Use the **aaa service accounting interval** and **aaa user accounting interval** commands to configure default accounting intervals for services and users.

**Syntax** `aaa accounting interval period`  
`no aaa accounting interval`

- *period*—Accounting interval in minutes in the range 10–1440, which sets the time period between accounting updates

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting statistics

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**Description** Configures the router to collect either a full set of statistics or only uptime status for the sessions AAA is managing. Collecting only the uptime status is a more efficient use of system resources. The **no** version restores the default setting in which the router collects full statistics.

**Syntax** `aaa accounting statistics { volume-time | time }`  
`no aaa accounting statistics`

- *volume-time*—Collects a full complement of statistics from each connection; the default setting
- *time*—Collects only uptime status for each connection

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.2.0.

## aaa accounting suppress null-username

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**Description** Specifies that accounting records are not generated for users whose username string is null; accounting records will be generated only for users with explicit usernames. The **no** version enables accounting records to be generated for all users, including those who do not have usernames.

**Syntax** `[ no ] aaa accounting suppress null-username`

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa accounting vr-group

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**Description** Creates an accounting virtual router group and enters VR Group Configuration mode. A virtual router group can have up to four virtual routers, whose accounting servers can receive broadcast accounting records. A group must contain at least one virtual router. The **no** version deletes the accounting virtual router group.

**Syntax** [ no ] `aaa accounting vr-group vrGroupName`

- *vrGroupName*—Name of the virtual router group; a string of up to 32 characters

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa authentication default

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**Description** Specifies the authentication method used for a particular type of subscriber. The **no** version produces the same result as specifying the **radius** value.

**Syntax** `aaa authentication subscriberType default authenticator [ authenticator ]*`  
`no aaa authentication subscriberType default`

- *subscriberType*—Type of subscriber:
  - atm1483—Specifies ATM 1483 subscribers
  - ip—Specifies IP subscriber management interfaces
  - ipsec—Specifies IPSec subscribers
  - ppp—Specifies PPP subscribers
  - radius-relay—Specifies RADIUS relay server subscribers
  - tunnel—Specifies tunnel subscribers
- *authenticator*—Authentication method:
  - none—Disables authentication, allowing all users access
  - local—Enables local authentication; supported for PPP subscribers only
  - radius—Enables RADIUS for authentication
  - \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa authentication enable default

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**Description** Allows privilege determination to be authenticated through the authenticator(s) you specify. This authentication is applied to vty users. The **no** version removes the authentication settings.

**Syntax** aaa authentication enable default *authenticator* [ *authenticator* ]\*  
no aaa authentication enable default

- *authenticator*—Authentication method:
  - enable—Use the enable password
  - line—Use the line password
  - none—Use no authentication
  - radius—Use RADIUS authentication
  - tacacs + —Use TACACS + authentication
  - \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa authentication login

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**Description** Creates an authentication list and the criteria for login. This authentication is applied to vty users. The **no** version disables AAA authentication.

**Syntax** aaa authentication login { default | *authListName* } *authenticator* [ *authenticator* ]\*  
no aaa authentication login *authListName*

- default—Specifies the use of the default login for authentication
- *authListName*—Existing authentication list name (created using the **login authentication** command); a string of 1–32 characters
- *authenticator*—Authentication method:
  - line—Use the line password for authentication
  - none—Use no authentication
  - radius—Use RADIUS authentication
  - tacacs + —Use TACACS + authentication
- \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.


## aaa authorization

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<b>Description</b>	Sets parameters that restrict a user's access to a network. The <b>no</b> version disables authorization for a function.
<b>Syntax</b>	<pre>aaa authorization { exec   commands <i>level</i> } <i>authorListName</i> <i>authMethod</i> [ <i>authMethod</i> ]*</pre> <pre>no aaa authorization { exec   commands <i>level</i> } <i>authorListName</i></pre> <ul style="list-style-type: none"> <li>■ <i>exec</i>—Runs authorization to determine if the user is allowed to run Exec mode commands</li> <li>■ <i>level</i>—Privilege level of commands for which authorization is run; in the range 0–15</li> <li>■ <i>authorListName</i>—Name of the authorization methods list of up to 32 characters</li> <li>■ <i>authMethod</i>—Authorization method: <ul style="list-style-type: none"> <li>■ <i>if-authenticated</i>—Allows the user to access the requested function if the user is authenticated</li> <li>■ <i>none</i>—NAS does not request authorization information; authorization is not performed over this line</li> <li>■ <i>tacacs +</i> —NAS exchanges authorization information with the TACACS + security daemon</li> </ul> </li> <li>■ <i>*</i>—Indicates that one or more parameters can be repeated multiple times in a list in the command line</li> </ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa authorization config-commands

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<b>Description</b>	Reauthorizes the use of Global Configuration commands. This command is enabled by default when the <b>aaa authorization commands</b> command is executed. The <b>no</b> version disables AAA configuration command authorization.
	<b>NOTE:</b> Using the <b>no</b> version can potentially reduce the amount of administrative control on configuration commands.
<b>Syntax</b>	<pre>[ no ] aaa authorization config-commands</pre>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.



## aaa delimiter

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<b>Description</b>	Specifies delimiters for the domain and realm names. You can specify up to eight delimiters each for domain and realm names. The <b>no</b> version restores the default value.
<b>Syntax</b>	<pre>aaa delimiter { domainName   realmName } <i>delimiters</i> no aaa delimiter { domainName   realmName }</pre> <ul style="list-style-type: none"><li>■ <i>domainName</i>—Allows you to set delimiters for the domain name</li><li>■ <i>realmName</i>—Allows you to set delimiters for the realm name</li><li>■ <i>delimiters</i>—Either the domain or realm delimiter(s). You can specify up to eight characters.<ul style="list-style-type: none"><li>■ The default domain name delimiter is @.</li><li>■ The default realm name delimiter is NULL (no character). In this case, realm parsing is disabled (having no delimiter disables realm parsing).</li></ul></li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa dns

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<b>Description</b>	Specifies the IP address of the primary DNS name server. The <b>no</b> version sets the corresponding address to 0.
<b>Syntax</b>	<pre>aaa dns { primary   secondary } <i>ipAddress</i> no aaa dns { primary   secondary }</pre> <ul style="list-style-type: none"><li>■ <i>primary</i>—Specifies the primary DNS name server</li><li>■ <i>secondary</i>—Specifies the secondary DNS name server</li><li>■ <i>ipAddress</i>—IP address of the name server</li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa domain-map

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**Description** Maps a user domain name to a virtual router. When you specify only the domain name, the command sets the mode to Domain Map Configuration. The **no** version deletes the map entry.

**Syntax** `aaa domain-map domainName`  
`[ routerName [ loopback interfaceNumber | ipAddress ipMask ] ]`  
`no aaa domain-map domainName`

- *domainName*—User domain name; specify the domain name *none* to assign users without domains to a specific virtual router.
- *routerName*—Router name associated with the domain name
- *loopback*—Specifies the loopback interface
- *interfaceNumber*—Interface number in the range 0–32000
- *ipAddress*—IP address of the local interface
- *ipMask*—IPv4 address mask of the local interface

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
*ipAddress* and *ipMask* variables added in JUNOS Release 9.0.0.

## aaa duplicate-address-check

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**Description** Allows you to enable or disable routing table address lookup or duplicate address check. There is no **no** version.



**NOTE:** To use this command, you must have a B-RAS license. Run the **license b-ras** command and enter your password.

**Syntax** `aaa duplicate-address-check { enable | disable }`

- *enable*—Specifies the feature
- *disable*—Disables the feature

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa intf-desc-format include

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<b>Description</b>	Specifies whether the subinterface or adapter is included in or omitted from the interface description that the router passes to RADIUS for inclusion in the NAS-Port-Id attribute. Also affects the Interface field displayed by the <b>show subscribers</b> command. The <b>no</b> version restores the default, in which the subinterface and adapter are included.
<b>Syntax</b>	<pre>aaa intf-desc-format include { sub-intf   adapter } { enable   disable } no aaa intf-desc-format include { sub-intf   adapter }</pre> <ul style="list-style-type: none"><li>■ <b>sub-intf</b>—Specifies that the subinterface is included in or omitted from the interface description</li><li>■ <b>adapter</b>—Specifies that the adapter is included in or omitted from the interface description</li><li>■ <b>enable</b>—Includes the subinterface or adapter in the interface description; this is the default</li><li>■ <b>disable</b>—Omits the subinterface or adapter from the interface description</li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa ipv6-dns

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<b>Description</b>	Specifies the IPv6 address of the primary DNS name server. The <b>no</b> version sets the corresponding address to 0 (or ::).
<b>Syntax</b>	<pre>aaa ipv6-dns { primary   secondary } ipv6Address no aaa ipv6-dns { primary   secondary }</pre> <ul style="list-style-type: none"><li>■ <b>primary</b>—Specifies the primary DNS name server</li><li>■ <b>secondary</b>—Specifies the secondary DNS name server</li><li>■ <b>ipv6Address</b>—IPv6 address of the name server</li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.

## aaa local database

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**Description** Creates a local user database for use by a local authentication server. The **no** version deletes the local user database and all entries in the database.

**Syntax** [ no ] aaa local database *databaseName*

- *databaseName*—Name of the user database; up to 32 characters; the name **default** is recognized as the default user database

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa local select database

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**Description** Assigns the local user database that the virtual router uses for local authentication. The **no** version restores the default setting, which uses the default local user database for local authentication.

**Syntax** aaa local select database *databaseName*  
no aaa local select

- *databaseName*—Name of the local user database

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa local username

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**Description** Configures a user entry in the specified local user database and enters Local User Configuration mode. The **no** version deletes the user entry from the specified local user database.

**Syntax** [ no ] aaa local username *userName* database *databaseName*

- *userName*—User name of the subscriber
- *databaseName*—Name of the local user database; database name **default** configures the username in the default local user database

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa new-model

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**Description** Specifies AAA authentication for Telnet sessions. The **no** version restores simple authentication (login and password).

**Syntax** [ no ] aaa new-model

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa parse-direction

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**Description** Specifies the direction the router uses for domain and realm parsing. The router either searches from right-to-left, or from left-to-right. If searching for the realm, the router uses the realm delimiter valued in its search. If searching for the domain, it uses the domain delimiter values in its search. The **no** version returns the parse direction to the default setting.

**Syntax** aaa parse-direction { domainName | realmName } { left-to-right | right-to-left }  
no aaa parse-direction { domainName | realmName }

- domainName—Specifies that the domain name is parsed. The router performs domain searches from right-to-left by default.
- realmName—Specifies that the realm name is parsed. The router performs realm searches from left-to-right by default.
- left-to-right—Causes the router to search from the left-most character. When the router reaches a realm delimiter, it uses anything to the left of the delimiter as the domain. When the router reaches a domain delimiter, it uses anything to the right of the delimiter as the domain.
- right-to-left—Causes the router to search from the right-most character. When the router reaches a realm delimiter, it uses anything to the left of the delimiter as the domain. When the router reaches a domain delimiter, it uses anything to the right of the delimiter as the domain.

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa parse-order

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**Description** Specifies the order in which the router searches for a domain name. It either searches for realm and then domain, or it searches for domain and then realm. The **no** version returns the parse order to the default of searching for realm first.

**Syntax** `aaa parse-order { domain-first | realm-first }`  
`no aaa parse-order`

- **domain-first**—Causes the router to search for a domain name first. When the router reaches a domain delimiter, it uses anything to the right of the delimiter as the domain name.
- **realm-first**—Causes the router to search for a realm name first. When the router reaches a realm delimiter, it uses anything to the left of the delimiter as the domain name.

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa profile

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**Description** Creates a new AAA profile to allow mapping to AAA services. The **no** version removes the profile.

**Syntax** `[ no ] aaa profile profileName`

- *profileName*—Profile name of up to 32 characters

**Mode** AAA Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa qos downstream-rate

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**Description** Enables the QoS downstream rate application to shape VLANs or ATM VCs based on downstream rates obtained from the Actual-Data-Rate-Downstream [26-130] DSL Forum VSA. The **no** version returns the parameter to the default of disabled.

**Syntax** `[ no ] aaa qos downstream-rate`

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 8.1.0.

## aaa route-download

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<b>Description</b>	Enables the RADIUS route-download server and configures parameters for the server. The <b>no</b> version disables the route-download server.
<b>Syntax</b>	<pre>aaa route-download [ downloadInterval ] [ retry-interval retryInterval ] [ cost cost ] [ tag tagValue ] [ base-user-name name ] [ password password ] [ synchronization time ] no aaa route-download</pre> <ul style="list-style-type: none"><li>■ <i>downloadInterval</i>—Interval between download operations, in the range 1–1440 minutes; default is 720 minutes</li><li>■ <i>retryInterval</i>—Interval between retries after a failed download, in the range 1–60 minutes; default is 10 minutes</li><li>■ <i>cost</i>—Default cost of a downloaded route, in the range 1–254; default is 2</li><li>■ <i>tagValue</i>—Default tag of a downloaded route, in the range 1–4294967295; default is 0</li><li>■ <i>name</i>—Name of router used for route-download requests; default is the router hostname</li><li>■ <i>password</i>—Password used for route-download requests</li><li>■ <i>time</i>—Time the download operation is restarted each day, in 24-hour format (hh:mm:ss)</li></ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced in JUNOS Release 8.1.0.

## aaa route-download now

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<b>Description</b>	Specifies that the RADIUS route-download server immediately perform the route download operation. If a download is currently in progress when you issue this command without the <b>force</b> keyword, the in-progress download continues until complete and no additional download is started. There is no <b>no</b> version.
<b>Syntax</b>	<pre>aaa route-download now [ force ] [ adjust-scheduler ]</pre> <ul style="list-style-type: none"><li>■ <i>force</i>—Interrupts any in-progress route-download operation and immediately starts a new download.</li><li>■ <i>adjust-scheduler</i>—Resets the download scheduler to use this download as the start time for synchronizing download counts</li></ul>
<b>Mode</b>	Privileged Exec
<b>Release Information</b>	Command introduced in JUNOS Release 8.1.0.

## aaa route-download suspend

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<b>Description</b>	Temporarily suspends the RADIUS route-download server operation. The <b>no</b> version stops the suspend specification and restores the route download operation.
<b>Syntax</b>	[ no ] aaa route-download suspend
<b>Mode</b>	Privileged Exec
<b>Release Information</b>	Command introduced in JUNOS Release 8.1.0.

## aaa service accounting interval

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<b>Description</b>	Specifies the default accounting interval used for services on the virtual router—the Service Manager application uses this setting for RADIUS-initiated services when no value is specified in the Service-Interim-Acct-Interval VSA (Juniper VSA 26-140). The <b>no</b> version restores the default setting of 0, which turns off interim accounting for services associated with users attached to this virtual router.
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**NOTE:** This command and the **aaa user accounting interval** command replace the deprecated **aaa accounting interval** command, which may be removed completely in a future release.

<b>Syntax</b>	aaa service accounting interval <i>period</i> no aaa service accounting interval <ul style="list-style-type: none"> <li>▪ <i>period</i>—Accounting interval in minutes in the range 10–1440, which sets the time period between accounting updates for services associated with users on this virtual router; 0 is the default</li> </ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced in JUNOS Release 9.0.0.

## aaa subscriber limit per-port

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<b>Description</b>	Sets the maximum number of active subscribers permitted on the specified port. The <b>no</b> version returns the limit to the default, 0 (zero).
<b>Syntax</b>	aaa subscriber limit per-port <i>interfaceSpecifier</i> <i>limitValue</i> no aaa subscriber limit per-port <i>interfaceSpecifier</i> <ul style="list-style-type: none"> <li>▪ <i>interfaceSpecifier</i>—Particular interface; format varies according to interface type; see <i>Interface Types and Specifiers</i> in <i>About This Guide</i></li> <li>▪ <i>limitValue</i>—Maximum number of subscribers; default value is 0 (zero), which means there is no limit on the number of subscribers</li> </ul>
<b>Mode</b>	Global Configuration
<b>Release Information</b>	Command introduced before JUNOS Release 7.1.0.



## aaa subscriber limit per-vr

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**Description** Sets the maximum number of active subscribers permitted on the virtual router. The **no** version returns the limit to the default, 0 (zero).

**Syntax** aaa subscriber limit per-vr *limitValue*  
no aaa subscriber limit per-vr

- *limitValue*—Maximum number of subscribers; default value is 0 (zero), which means there is no limit on the number of subscribers

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa timeout

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**Description** Sets the default idle or session timeout for B-RAS PPP users. The **no** version restores the idle or session timeout to its default value, 0 seconds.

**Syntax** aaa timeout { idle *idleTimeout* | session *sessionTimeout* }  
no aaa timeout { idle | session }

- *idleTimeout*—In seconds, 300–86400
- *sessionTimeout*—Time in the range 60–31622400 seconds (that is, a minimum of 1 minute to a maximum of 366 days); the router terminates the user session once the maximum session timeout is reached, which means that the duration of a PPP or an L2TP user session cannot exceed 366 days

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel assignment-id-format

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**Description** Sets the format for the tunnel assignment ID. The **no** version sets the tunnel assignment ID to the default, assignmentID.

**Syntax** aaa tunnel assignment-id-format { assignmentId | client-server-id }  
no aaa tunnel assignment-id-format

- assignmentId—Configures the format to be assignmentId only
- client-server-id—Configures the format to be a combination of clientAuthId + serverAuthId + assignmentId

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel calling-number-format

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**Description** Configures the format used by the E-series LAC to generate the L2TP Calling Number attribute value pair (AVP) 22 that it passes to the LNS. Available formats include a fixed format and several formats that include either or both of the agent-circuit-id (suboption 1) and agent-remote-id (suboption 2) suboptions of the PPPoE intermediate agent tags. The **no** version restores the default calling number format, descriptive.

**Syntax** `aaa tunnel calling-number-format`  
`{ descriptive [ include-agent-circuit-id ] [ include-agent-remote-id ]`  
`| fixed | include-agent-circuit-id [ include-agent-remote-id ] | include-agent-remote-id }`  
`no aaa tunnel calling-number-format`

- `descriptive`—Formats calling number AVP in descriptive format that includes only interface information
- `descriptive include-agent-circuit-id`—Formats calling number AVP in descriptive format to include interface information and the agent-circuit-id suboption
- `descriptive include-agent-circuit-id include-agent-remote-id`—Formats calling number AVP in descriptive format to include interface information and both the agent-circuit-id and agent-remote-id suboptions
- `descriptive include-agent-remote-id`—Formats calling number AVP in descriptive format to include interface information and the agent-remote-id
- `fixed`—Formats calling number AVP to a fixed format similar to the fixed format of RADIUS attribute 31 (Calling-Station-Id)
- `include-agent-circuit-id`—Formats calling number AVP to include only the agent-circuit-id suboption
- `include-agent-circuit-id include-agent-remote-id`—Formats calling number AVP to include both the agent-circuit-id and agent-remote-id suboptions
- `include-agent-remote-id`—Formats calling number AVP to include only the agent-remote-id suboption

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
**include-agent-circuit-id** and **include-agent-remote-id** keywords added in JUNOS Release 8.1.0.

## aaa tunnel calling-number-format-fallback

---

**Description** Configures the fallback format for the tunnel calling number to be passed in the L2TP Calling Number attribute value pair (AVP) 22 when the PPPoE agent circuit ID is null or unavailable. The fallback format is used only when the configured calling number format includes either or both of the agent-circuit-id and agent-remote-id suboptions. The **no** version restores the default format value, descriptive.

**Syntax** aaa tunnel calling-number-format-fallback { descriptive | fixed }  
no aaa tunnel calling-number-format-fallback

- descriptive—Specifies that the fallback format for the number is descriptive
- fixed—Specifies that the fallback format for the number is RADIUS style

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 8.1.0.

## aaa tunnel client-name

---

**Description** Specifies the default tunnel client name. If the tunnel client name is not included in the tunnel attributes that are returned from the domain map or authentication server, the router uses the default name. The **no** version deletes the client name.

**Syntax** aaa tunnel client-name *name*  
no aaa tunnel client-name

- *name*—Default tunnel client name; a string of up to 32 characters

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel-group

---

**Description** Specifies an AAA tunnel group and changes the mode to Tunnel Group Configuration mode. In Tunnel Group Configuration mode, you can add up to 31 tunnel definitions. The **no** version deletes the AAA group tunnel configuration from the router.

**Syntax** [ no ] aaa tunnel-group *groupName*

- *groupName*—String of up to 64 characters (no spaces)

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel ignore

---

**Description** Specifies whether to use the tunnel peer's NAS-Port [5] and NAS-Port-Type [61] attributes. The **no** version negates the command or restores the default of enable.

**Syntax** `aaa tunnel ignore { nas-port | nas-port-type } { enable | disable }`  
`no aaa tunnel ignore { nas-port | nas-port-type }`

- `nas-port`—Configures the tunnel peer's supplied nas-port value
- `nas-port-type`—Configures the tunnel peer's supplied nas-port-type value
- `enable`—Implements the feature; this is the default setting
- `disable`—Disables the feature

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel nas-port-method

---

**Description** Configures the tunnel's default NAS port type to provide limited support for a Cisco proprietary vendor-specific method when configuring the LAC to LNS NAS port identification transfer mechanism. The **no** version disables the command.



**NOTE:** Use of this feature is not recommended and continued compatibility cannot be guaranteed.

**Syntax** `aaa tunnel nas-port-method cisco-avp`  
`no aaa tunnel nas-port-method`

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel password

---

**Description** Specifies the default tunnel password. If the tunnel password is not included in the tunnel attributes that are returned from the domain map or authentication server, the router uses the default password. The **no** version deletes the password.

**Syntax** `aaa tunnel password name`  
`no aaa tunnel password`

- `name`—Default tunnel password; a string of up to 32 characters

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa tunnel switch-profile

---

**Description** Applies a default L2TP tunnel switch profile to a virtual router. The default tunnel switch profile defines the L2TP tunnel switching behavior for the interfaces to which this profile is assigned. The router uses the default tunnel switch profile if the tunnel attributes returned from an AAA domain map or tunnel group or from a RADIUS authentication server do not include a named tunnel switch profile. The **no** version removes the default tunnel switch profile assignment from the virtual router.

**Syntax** `aaa tunnel switch-profile profileName`

`no aaa tunnel switch-profile`

- *profileName*—Name of the default tunnel switch profile; a string of up to 64 alphanumeric characters

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.2.0.

## aaa tunnel tx-connect-speed-method

---

**Description** Configures the method used to calculate the transmit connect speed of the subscriber's access interface for establishing a tunneled L2TP session associated with a virtual router. This speed is reported in L2TP Transmit (TX) Speed AVP 24. The router uses the calculation method specified with the **aaa tunnel tx-connect-speed-method** command if the tunnel attributes returned from an AAA domain map, an AAA tunnel group, or a RADIUS authentication server do not include the transmit connect speed calculation method. The **no** version removes configuration of the transmit connect speed calculation method from the tunneled L2TP sessions associated with the virtual router.

**Syntax** `aaa tunnel tx-connect-speed-method { static-layer2 | dynamic-layer2 | qos | actual }`

`no aaa tunnel tx-connect-speed-method`

- *static-layer2*—Calculates the transmit connect speed of the subscriber's access interface based on statically configured settings for the underlying layer 2 interface
- *dynamic-layer2*—Calculates the transmit connect speed of the subscriber's access interface based on dynamically configured settings for the underlying layer 2 interface
- *qos*—Calculates the transmit connect speed of the subscriber's access interface based on settings determined by QoS
- *actual*—Calculates the transmit connect speed of the subscriber's access interface as the lesser of the **dynamic-layer2** value or the **qos** value

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 8.0.0.

## aaa user accounting interval

---

**Description** Specifies the default user accounting interval used on the virtual router. This router uses this value for users when no value is specified in the RADIUS Acct-Interim-Interval attribute (RADIUS attribute 85). The **no** version restores the default setting of 0, which turns off interim accounting for users attached to this virtual router.



**NOTE:** This command and the **aaa service accounting interval** command replace the deprecated **aaa accounting interval** command, which may be removed completely in a future release.

**Syntax** `aaa user accounting interval period`  
`no aaa user accounting interval`

- *period*—Accounting interval in minutes in the range 10–1440, which sets the time period between accounting updates for users on this virtual router; 0 is the default

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 9.0.0.

## aaa virtual-router

---

**Description** For AAA broadcast accounting, adds a virtual router to a virtual router group. The **no** version with the *indexInteger* parameter removes a specific virtual router from the virtual router group.

**Syntax** `aaa virtual-router indexInteger vrName`  
`no aaa virtual-router indexInteger`

- *indexInteger*—Number in the range 1–4 that indicates the virtual router's listing in the virtual router group; the *indexInteger* is used in the **no** version of the command to delete a particular virtual router from the group
- *vrName*—Name of virtual router that can receive AAA broadcast accounting packets.

**Mode** VR Group Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aaa wins

---

**Description** Specifies the IP address of the WINS name server. The **no** version sets the corresponding address to 0.

**Syntax** `aaa wins { primary | secondary } ipAddress`  
`no aaa wins { primary | secondary }`

- `primary`—Specifies the primary WINS name server
- `secondary`—Specifies the secondary WINS name server
- `ipAddress`—IP address of the name server

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## access-class in

---

**Description** Restricts incoming connections between a particular virtual terminal line and the addresses in an access list. The **no** version removes access restrictions.

**Syntax** `access-class listName in`  
`no access-class [ listName ] in`

- `listName`—Name of the access list

**Mode** Line Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## access-list

---

**Description** Defines a standard or extended IP access list. The extended access list enables you to specify a destination address or host, precedence, and type of service. This command imposes an implicit last rule of “deny ip any any” to deny all routes that do not match previous rules in the access list. The **no** version removes the IP access list, the specified entry in an access list, or the log for a specified entry.

**Syntax** Standard IP access list:

```
access-list accessListName { permit | deny }
{ srcIP srcWildIp | [ host ] srcIPHost | any } [ log ]
```

```
no access-list accessListName [ { permit | deny }
{ srcIP srcWildIp | [ host ] srcIPHost | any } [ log ] ]
```

Extended IP access list:

```
access-list accessListName { permit | deny } ip { srcIP srcWildIp |
host srcIPHost | any } { dstIP dstWildIp | host dstIPHost | any } [ log ]
```

```
no access-list accessListName [ { permit | deny } ip { srcIP srcWildIp |
host srcIPHost | any } { dstIP dstWildIp | host dstIPHost | any } [ log ] ]
```

- *accessListName*—String of up to 32 alphanumeric characters
- permit—Permits access if the conditions are matched
- deny—Denies access if the conditions are matched
- *srcIP*—Source IP address from which the packet is being sent
- *srcWildIp*—Wildcard mask IP address
- host—Identifies the address as a host
- *srcIPHost*—Source host IP address; assumes a wildcard mask of 0
- any—Creates an address of 0.0.0.0 with a wildcard mask of 255.255.255.255
- *dstIP*—Destination IP address
- *dstWildIp*—Wildcard mask IP address for destination
- *dstIPHost*—Destination host IP address to which the packet is being sent
- log—Logs an Info event into the ipAccessList log whenever the access-list rule is matched

**Mode** Global Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.



## accounting

---

**Description** Enables AAA accounting services on a console line, a virtual terminal line, or a group of lines and applies the specified accounting method list. The **no** version restores the default method list.



**NOTE:** To disable accounting for a console line or virtual terminal line, specify a nonexistent accounting method list name (for example, noAccounting).

---

**Syntax** `accounting { exec | commands level } listName`  
`no accounting { exec | commands level }`

- *exec*—Specifies that accounting information is captured for User Exec terminal sessions on the line
- *level*—Privilege level of User Exec mode commands for which accounting information is captured; in the range 0–15
- *listName*—Named method list used to specify how accounting is performed

**Mode** Line Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## adapter accept

---

**Description** Erases from NVS the type and configuration of the previous I/O adapter (IOA) in the specified IOA bay, and allows you to configure a new IOA. Issue this command after you have installed a different type of IOA in an IOA bay. You can use this command only when the state of the IOA is not present or disabled (mismatch). There is no **no** version.



**NOTE:** Issuing this command reboots the line module associated with the IOA, but it does not accept its configuration.

To accept the configuration of the line module and its associated IOAs, issue the **slot accept** command.

---

**Syntax** `adapter accept adapterSpecifier`

- *adapterSpecifier*—Particular IOA in the format *slot/adapter*:
  - *slot*—Number of the chassis slot; for E120 routers, in the range 0–5; for E320 routers, in the range 0–5 or 11–16
  - *adapter*—Identifier for the IOA within the chassis slot, either 0 or 1, where:
    - 0 indicates that the IOA is installed in the right IOA bay (E120 router) or the upper IOA bay (E320 router).
    - 1 indicates that the IOA is installed in the left IOA bay (E120 router) or the lower IOA bay (E320 router).

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

## adapter disable

---

**Description** Disables the IOA installed in the specified IOA bay. There is no **no** version.



**NOTE:** For IOAs that support hot-swapping, issuing this command does not reboot the line module. For IOAs that do not support hot-swapping, issuing this command reboots the line module associated with the IOA, but it does not disable it.

To disable the line module and its associated IOAs, issue the **slot disable** command.

---

**Syntax** `adapter disable adapterSpecifier`

- *adapterSpecifier*—Particular IOA in the format *slot/adapter*:
  - *slot*—Number of the chassis slot; for E120 routers, in the range 0–5; for E320 routers, in the range 0–5 or 11–16
  - *adapter*—Identifier for the IOA within the chassis slot, either 0 or 1, where:
    - 0 indicates that the IOA is installed in the right IOA bay (E120 router) or the upper IOA bay (E320 router).
    - 1 indicates that the IOA is installed in the left IOA bay (E120 router) or the lower IOA bay (E320 router).

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

## adapter enable

---

**Description** Enables the IOA installed in the specified IOA bay. There is no **no** version.



**NOTE:** For IOAs that support hot-swapping, issuing this command does not reboot the line module. For IOAs that do not support hot-swapping, issuing this command reboots the line module associated with the IOA, but it does not enable it.

To enable the line module and its associated IOAs, issue the **slot enable** command.

---

**Syntax** `adapter enable adapterSpecifier`

- *adapterSpecifier*—Particular IOA in the format *slot/adapter*:
  - *slot*—Number of the chassis slot; for E120 routers, in the range 0–5; for E320 routers, in the range 0–5 or 11–16
  - *adapter*—Identifier for the IOA within the chassis slot, either 0 or 1, where:
    - 0 indicates that the IOA is installed in the right IOA bay (E120 router) or the upper IOA bay (E320 router).
    - 1 indicates that the IOA is installed in the left IOA bay (E120 router) or the lower IOA bay (E320 router).

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

## adapter erase

---

**Description** Erases from NVS the type and configuration of the previous IOA in the specified IOA bay, and allows you to configure a new IOA. Issue this command before you install a different type of IOA in an IOA bay. There is no **no** version.



**NOTE:** Issuing this command reboots the line module associated with the IOA, but it does not erase its configuration.

To erase the configuration of the line module and its associated IOAs, issue the **slot erase** command.

---

**Syntax** `adapter erase adapterSpecifier`

- *adapterSpecifier*—Particular IOA in the format *slot/adapter*:
  - *slot*—Number of the chassis slot; for E120 routers, in the range 0–5; for E320 routers, in the range 0–5 or 11–16
  - *adapter*—Identifier for the IOA within the chassis slot, either 0 or 1, where:
    - 0 indicates that the IOA is installed in the right IOA bay (E120 router) or the upper IOA bay (E320 router).
    - 1 indicates that the IOA is installed in the left IOA bay (E120 router) or the lower IOA bay (E320 router).

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

## address

---

**Description** From Domain Map Tunnel Configuration mode, sets the tunnel endpoint address of an L2TP tunnel. The **no** version removes the address of the tunnel.

From Tunnel Group Tunnel Configuration mode, sets the tunnel endpoint address of an L2TP tunnel. The **no** version removes the address of the tunnel.

From Interface Configuration or Subinterface Configuration mode, configures RIP to run on the interface specified by the IP address or on an unnumbered interface. Uses the default values: send version is RIP version 1, receive version is RIP version 1 and version 2, authentication is not enabled. The **no** version deletes the RIP interface. Use the **address** commands to configure RIP attributes on the network.

From IP NAT Pool Configuration mode, configures NAT IP address pool ranges. The **no** version removes the range from the current NAT address pool.

**Syntax** To set the tunnel endpoint address:

`address serverAddress`

`no address`

To configure RIP:

`[ no ] address { ipAddress | unnumbered interfaceType interfaceSpecifier }`

- *serverAddress*—IP address of the LNS endpoint
- *ipAddress*—Address of IP interface where RIP will be run
- *unnumbered*—Specifies that RIP will be run on an unnumbered interface
  - *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*

To configure NAT address pool ranges:

`[ no ] address startIpAddress endIpAddress`

- *startIpAddress*—Starting IP address (inclusive) of the NAT pool range you are creating
- *endIpAddress*—Ending IP address (inclusive) of the NAT pool range you are creating

**Mode** Address Family Configuration (RIP), Domain Map Tunnel Configuration, IP NAT Pool Configuration, Router Configuration (RIP), Tunnel Group Tunnel Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address area

---

**Description** Creates an interface on which OSPF runs in the specified area, on top of the IP interface at the specified IP address. Uses the default values. The **no** version deletes OSPF interfaces. If the OSPF network was previously specified with the **network area** command, the OSPF interface already exists, and you do not need to use this command, unless you want to change the area of the OSPF interface to an area different from the one specified by the **network area** command.



**NOTE:** Before you issue this command, you must first configure an interface with the IP address specified by `ipAddress` or an interface configured as unnumbered.

**NOTE:** You must issue this command before issuing any other OSPF **address** command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
area { *areaId* | *areaIdInt* }

- *ipAddress*—IP address of the interface on which OSPF will be run
- unnumbered—Configures OSPF on an unnumbered interface
  - *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*
- *areaId*—OSPF area ID in IP address format
- *areaIdInt*—OSPF area ID as a decimal value in the range 1–4294967295

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address authentication key

---

**Description** Specifies the password for text authentication and the key for MD5 authentication. The **no** version clears the key for the interface. Supported only in RIP version 2. Authentication is disabled by default.

**Syntax** address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
 authentication key [ 0 | 8 ] *authkey*  
 no address [ *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* ]  
 authentication key

- *ipAddress*—Address of IP interface where RIP will be run
- unnumbered—Specifies that RIP will be run on an unnumbered interface
  - *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*
- 0—Indicates the *authKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *authKey* is entered in encrypted form (ciphertext)
- *authkey*—Password sent with RIP messages or the key used to encrypt/decrypt RIP messages, depending on the authentication mode set for this interface

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.



## address authentication-key

---

**Description** Assigns a password used by neighboring routers that are using OSPF simple password authentication. The **no** version deletes the password.

---



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
authentication-key [ 0 | 8 ] *authKey*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- 0—Indicates the *authKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *authKey* is entered in encrypted form (ciphertext)
- *authKey*—Password, string of up to 8 characters

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address authentication message-digest

---

**Description** Specifies that MD5 authentication is used for the OSPF interface. The **no** version sets authentication for the interface to none, but leaves any configured MD5 key intact.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
authentication message-digest

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address authentication mode

---

**Description** Specifies the type of authentication used on this interface. The **no** version removes authentication from the interface. Supported only in RIP version 2. Authentication is disabled by default.

**Syntax** address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
authentication mode { text | md5 *keyID* }  
  
no address [ *ipAddress* | unnumbered *interfaceType interfaceSpecifier* ]  
authentication mode

- *ipAddress*—Address of IP interface where RIP will be run
- unnumbered—Specifies RIP will be run on an unnumbered interface
  - *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*
- text—Simple text password is sent with each RIP message. If the password is not possessed by neighbors, the message is rejected.
- md5—MD5 message-digest algorithms are used to encrypt and compress the RIP message.
- *keyID*—Number identifying the MD5 key. Neighbors must share the MD5 key to decrypt the message and encrypt the response.

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address authentication-none

---

**Description** Specifies that no authentication is to be used for the OSPF interface. The **no** version has no effect.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* } authentication-none

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address bfd-liveness-detection

---

**Description** Enables BFD (bidirectional forwarding detection) on an interface running RIP and defines BFD values to be negotiated between peers for detection of IP data path failures. The **no** version disables BFD on the RIP interface.

**Syntax** address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
bfd-liveness-detection [ minimum-interval *minInterval* |  
[ minimum-receive-interval *minRecInterval* ]  
[ minimum-transmit-interval *minTransInterval* ] ] [ multiplier *multValue* ]  
no address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
bfd-liveness-detection

- *ipAddress*—Address of IP interface where RIP will be run
- unnumbered—Specifies that RIP will be run on an unnumbered interface
  - *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*
- *minInterval*—Minimum proposed transmit interval and required receive interval for BFD control packets; number in the range 100–65535 milliseconds; default value is 300 milliseconds
- *minRecInterval*—Minimum interval at which the local peer must receive BFD control packets sent by the remote peer; number in the range 100–65535 milliseconds; default value is 300 milliseconds
- *minTransInterval*—Minimum proposed interval between BFD control packets sent by the local peer; number in the range 100–65535 milliseconds; default value is 300 milliseconds
- *multValue*—Detection multiplier value that the remote peer router multiplies by the local peer's negotiated transmit interval to determine the remote peer's BFD liveness detection interval; equal to the number of BFD packets that can be missed before the BFD session is declared down; number in the range 1–255; default value is 3

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced in JUNOS Release 8.0.0.

## address cost

---

**Description** Specifies a cost metric for an OSPF interface. Used in the calculation of the SPF routing table. The **no** version resets the path cost to the default.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* } cost *intfCost*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *intfCost*—Link-state metric cost; a number in the range 0–65535; default value is 10

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address dead-interval

---

**Description** Sets the time period that the router's neighbors should wait without seeing hello packets from the router before they declare the router to be down. The **no** version resets the dead interval to its default.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
dead-interval *deadInterval*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *deadInterval*—Number in the range 0–2147483647 seconds; default value is 40 seconds

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address-family

---

- Description** For BGP, configures the router to exchange addresses for the specified address family. This command takes effect immediately.
- For the IPv4 address family, configures the router or a specific VRF to exchange IPv4 addresses in unicast, multicast, or VPN mode.
  - For the IPv6 address family, configures the router or a specific VRF to exchange IPv6 addresses in unicast, multicast, or VPN mode.
  - For the L2VPN address family, configures a router to exchange layer 2 NLRI for all VPLS instances and all L2VPN (VPWS) instances.
  - For the VPLS address family, configures the router to exchange layer 2 NLRI for the VPLS address family for a specified VPLS instance.
  - For the VPWS address family, configures the router to exchange layer 2 NLRI for the VPWS address family for a specified L2VPN (VPWS) instance.
  - For the route-target address family, configures the router to exchange route-target membership NLRI (RT-MEM-NLRI) that includes information about membership in VPN route-target extended communities.

For IS-IS, configures IS-IS to exchange IPv6 addresses.

For RIP, configures RIP in a specific VRF to exchange IPv4 addresses.

For all routing protocols, the **no** version removes the address family.

- Syntax** For BGP:
- ```
[ no ] address-family { { ipv4 | ipv6 } [ unicast | multicast | [ unicast ] vrf vrfName ] |
{ vpnv4 | vpnv6 } [ unicast ] | l2vpn [ signaling ] | route-target [ signaling ] |
vpls vplsName | vpws vpwsName }
```
- For IS-IS:
- ```
[ no ] address-family ipv6 [ unicast | multicast | unicast multicast ]
```
- For RIP:
- ```
[ no ] address-family ipv4 [ unicast ] vrf vrfName
```
- *ipv4*—Specifies sessions that carry standard IPv4 address prefixes (default)
  - *ipv6*—Specifies sessions that carry IPv6 address prefixes
  - *multicast*—Specifies multicast prefixes
  - *unicast*—Specifies unicast prefixes (default)
  - *vrfName*—Name of the VRF; string of 1–32 alphanumeric characters
  - *vpnv4*—Specifies sessions that carry customer VPN-IPv4 prefixes, each of which has been made globally unique by adding an 8-byte route distinguisher



- **vpn6**—Specifies sessions that carry customer VPN-IPv6 prefixes, each of which has been made globally unique by adding an 8-byte route distinguisher
- **l2vpn**—Specifies sessions that carry L2VPN reachability information
- **l2vpn signaling**—Specifies BGP signaling of L2VPN reachability information; currently, you can omit the **signaling** keyword with no adverse effects
- **route-target**—Specifies sessions that carry route-target membership information
- **route-target signaling**—Specifies BGP signaling of route-target membership information; currently, this can be omitted with no adverse effects
- **vpplsName**—Name of a VPLS instance for which you are specifying the L2VPN address family; must be issued for each separate VPLS instance
- **vpwsName**—Name of a layer 2 VPN (VPWS) instance for which you are specifying the L2VPN address family; must be issued for each separate L2VPN instance

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
**l2vpn** and **signaling** keywords added in JUNOS Release 7.1.0.  
**vppls** keyword and **vpplsName** variable added in JUNOS Release 7.1.0.  
**vpws** keyword and **vpwsName** variable added in JUNOS Release 8.1.0.  
**route-target signaling** keywords and IS-IS IPv6 version added in JUNOS Release 8.2.0.

#### Related Topics

- Configuring BGP Signaling for L2VPNs
- Configuring BGP Signaling for VPLS

## address hello-interval

---

**Description** Specifies the interval between hello packets that the router sends on the interface. The **no** version resets the hello interval to its default.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
hello-interval *helloInterval*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *helloInterval*—Number in the range 1–65535 seconds; default value is 10 seconds

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address message-digest-key md5

---

**Description** Enables OSPF MD5 authentication and configures the MD5 key. The **no** version deletes an MD5 key.



**NOTE:** If all the MD5 keys have been deleted, the authentication type is still MD5, but you need to configure MD5 keys.

**NOTE:** To disable MD5 authentication for the interface, use the **address authentication-none** command.

**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
message-digest-key *keyID* md5 [ 0 | 8 ] *msgDigestKey*  
  
no address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
message-digest-key *keyID*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *keyID*—Key identifier in the range 1–255
- md5—Specifies use of the MD5 algorithm
- 0—Indicates the *msgDigestKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *msgDigestKey* is entered in encrypted form (ciphertext)
- *msgDigestKey*—OSPF password; string of up to 16 alphanumeric characters

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address network

---

**Description** Configures the OSPF network type for the specified interface to something other than the default for the network medium. The **no** version restores the default value for the medium.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
 network { broadcast | non-broadcast | point-to-point }  
 no address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* } network

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- broadcast—Sets network type to broadcast
- non-broadcast—Sets network type to NBMA
- point-to-point—Sets network type to point-to-point

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address passive-interface

---

**Description** Disables the transmission of routing updates on an interface. OSPF routing information is neither sent nor received through the specified router interface. The specified interface address appears as a stub network in the OSPF domain. The **no** version reenables the transmission of routing updates.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
passive-interface

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address-pool-name

---

**Description** Specifies an address pool name to associate with the domain name being configured. The **no** version removes the pool name.

**Syntax** address-pool-name *poolName*  
no address-pool-name

- *poolName*—Name of the pool to associate with the domain name

**Mode** Domain Map Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address priority

---

**Description** Sets the router priority. Used in determining the designated router for the particular network. This designation only applies to multi-access networks. Every broadcast and nonbroadcast multiaccess network has a designated router. The **no** version restores the default value.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
priority *intfPriority*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *intfPriority*—Priority value, an 8-bit number in the range 1–255; default value is 1

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address receive version

---

**Description** Restricts the RIP version that the router can receive on an interface. The **no** version sets the interface back to the default value, receiving both RIP version 1 and version 2.

**Syntax** address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
receive version { 1 | 2 | 1 2 | 2 1 | off }  
no address [ *ipAddress* | unnumbered *interfaceType interfaceSpecifier* ] receive version

- *ipAddress*—Address of IP interface where RIP will be run
- unnumbered—Specifies that RIP will be run on an unnumbered interface
  - *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*
- 1—Specifies RIP version 1 only
- 2—Specifies RIP version 2 only
- 1 2—Specifies RIP version 1 and version 2; the default value
- 2 1—Specifies RIP version 2 and version 1
- off—Turns reception off

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address retransmit-interval

---

**Description** Specifies the time between LSA retransmissions for the interface when an acknowledgment for the LSA is not received. The **no** version restores the default value.



**NOTE:** You must issue the **address area** command before issuing this command.

---

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
 retransmit-interval *retransInterval*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *retransInterval*—Number in the range 0–3600 seconds; default value is 5 seconds

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.



## address send version

---

**Description** Restricts the RIP version that the router can send on an interface. The **no** version sets the interface back to the default value, sending only RIP version 1.

**Syntax** address { *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* }  
send version { 1 | 2 | 1 2 | 2 1 | off }  
no address [ *ipAddress* | unnumbered *interfaceType* *interfaceSpecifier* ] send version

- *ipAddress*—Address of IP interface where RIP will be run
- unnumbered—Specifies that RIP will be run on an unnumbered interface
  - *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*
- 1—Specifies RIP version 1 only
- 2—Specifies RIP version 2 only
- 1 2—Specifies RIP version 1 and version 2
- 2 1—Specifies RIP version 2 and version 1
- off—Turns reception off

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## address transmit-delay

**Description** Sets the estimated time it takes to transmit a link-state update packet on the interface. The **no** version restores the default value.



**NOTE:** You must issue the **address area** command before issuing this command.

**Syntax** [ no ] address { *ipAddress* | unnumbered *interfaceType interfaceSpecifier* }  
transmit-delay *transmDelay*

- *ipAddress*—OSPF interface address previously specified with the **address** command
- unnumbered—Indicates that OSPF is running on an unnumbered interface previously specified with the **address** command
  - *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*
- *transmDelay*—Link-state transmit delay, a number in the range 0–3600 seconds; default value is 1 second

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## adjustment-factor

**Description** Configures an adjustment factor that is applied globally to the ANCP-reported downstream and upstream data rate for all subscribers of a particular DSL line type. The adjusted data rate results in an accurate QoS shaping rate. The **no** version restores the default, wherein the rate is not adjusted.

**Syntax** adjustment-factor *dslType value*  
no adjustment-factor *dslType*

- *dslType*—Type of DSL subscriber line for which the data rate is adjusted by the specified QoS adjustment factor: **adsl1**, **adsl2**, **adsl2 +**, **vdsl**, **vdsl2**, or **sds**
- *value*—QoS adjustment factor applied to upstream or down stream data rates for the DSL type; a percentage in the range 1–100

**Mode** L2C Configuration

**Release Information** Command introduced in JUNOS Release 9.1.0.

## agent context-name

---

**Description** Specifies the virtual router SNMP agent on which you want to poll MIB objects. The **no** version returns the context name to the default context (virtual router).

**Syntax** agent context-name *contextName* [ wildcard ] [ limit *contextNameLimit* ]  
no agent

- *contextName*—Context name of the agent



**NOTE:** The *contextName* value is the virtual router number in the order the virtual router was created (for example, router1, router2, and so on). Use the **show snmp agent** command to obtain the context name for the virtual router.

---

- wildcard—Specifies that the context name is a wildcard value
- *contextNameLimit*—Maximum number of agents to be polled

**Mode** SNMP Trigger Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aggregate-address

---

**Description** Creates an aggregate entry in a BGP routing table. The **no** version removes the aggregate.

**Syntax** [ no ] aggregate-address { *address mask* | *ipv6Prefix* }  
 [ as-set | summary-only | attribute-map *attributeMapTag* |  
 advertise-map *advertiseMapTag* | suppress-map *suppressMapName* ]\*

- *address*—Aggregate IPv4 address
- *mask*—Aggregate IPv4 mask
- *ipv6Prefix*—Aggregate IPv6 prefix
- **as-set**—If the **as-set** option is not specified, the path attributes of the aggregate route are set in the same way as locally originated routes, except that the **atomic\_aggregate** and **agggregator** attributes are added. If the **as-set** option is used, the path attributes of the aggregate route are determined by combining the path attributes of the aggregated routes as described in RFC 1771. If the **as-set** option is used, the path attributes of the aggregate route may change whenever one of the aggregated routes changes, causing the aggregate route to be readvertised.
- **summary-only**—Filters all more specific routes from updates. **summary-only** not only creates the aggregate route but also suppresses advertisements of more-specific routes to all neighbors. If you only want to suppress advertisements to certain neighbors, you may use the **neighbor distribute-list** command, with caution. If a more-specific route leaks out, all BGP speakers will prefer that route over the less-specific aggregate you are generating (using longest-match routing). Alternatively, you can use the **suppress-map** keyword to suppress specific routes.
- *attributeMapTag*—String of up to 32 characters that identifies the route map used to set the attributes of the aggregate route
- *advertiseMapTag*—String of up to 32 characters that identifies the route map used to set the routes to create AS-SET origin communities in the range
- *suppressMapName*—String of up to 32 characters that identifies a route map that filters routes to be suppressed
- \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aggregation-node

---

**Description** Configures the aggregation node value. The **no** version restores the default value, where the forwarding interface becomes the aggregation node.

**Syntax** aggregation-node { *nodeValue* | atm | atm-vc | atm-vp *vpValue* | ethernet | fr-vc | forwarding | svlan *svlanValue* | vlan }  
no aggregation-node

- *nodeValue*— Aggregation node number in the range 1–65535
- *vpValue*—ATM VPI number in the range 0–255
- *svlanValue*—SVLAN ID number in the range 0–4095

**Mode** Policy Parameter Configuration

**Release Information** Command introduced in JUNOS Release 8.0.0.

**Related Topics**

- Creating a Classifier Group for a Policy List

## aggressive-mode

---

**Description** Enables aggressive mode negotiation for the tunnel. The **no** version restores the default, no aggressive mode.

**Syntax** aggressive-mode { accepted | requested | required }  
no aggressive-mode

- **accepted**—Accepts aggressive mode when proposed by peers
- **requested**—Requests aggressive mode when negotiating with peers
- **required**—Only requests and accepts aggressive mode when negotiating with peers

**Mode** IKE Policy Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
**accepted**, **requested**, and **required** keywords added in JUNOS Release 7.3.0.

## allow

---

**Description** Specifies the domain names that are to be allowed access to AAA authentication. The **no** version negates the command.

**Syntax** [ no ] allow *domainName*

- *domainName*—Name of the domain; maximum of 64 characters

**Mode** AAA Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## append-after

---

**Description** Adds a next hop after a particular index in the MPLS explicit path. The sequence numbers for existing hops after the index adjust automatically. There is no **no** version.

**Syntax** `append-after indexNumber next-address ipAddress [ [ mask ] ipMask ] [ loose ]`

- *indexNumber*—Number of a node in an ordered set of abstract nodes
- *ipAddress*—Address of the next hop
- *ipMask*—[ not currently used ] mask for the next adjacent address
- *loose*—Indicates the node is not necessarily directly connected (adjacent) to the previous node in the path. If *loose* is not configured, the configuration defaults to *strict*. *Strict* indicates that the node is directly connected to the previous node.

**Mode** Explicit Path Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## application

---

**Description** Specifies the type of application that is secured by connections created with this IPSec transport profile. You can specify multiple application types. The **no** version restores the default application, L2TP.

**Syntax** `application applicationType1 [ applicationType2 [ applicationType3 ] ]`  
`no application`

- *applicationType*—One of the following application types:
  - *dvmrp*—Secures DVMRP traffic.
  - *gre*—Secures GRE traffic.
  - *l2tp*—Secures L2TP traffic; this is the default application
  - *l2tp-nat-passthrough*—Secures L2TP traffic and also allows clients to connect from behind NAT devices that support IPSec passthrough

**Mode** IPSec Transport Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aps events

---

**Description** Enables line modules to deliver APS events to the necessary SNMP traps. You can configure notification for specific events. The **no** version disables the delivery of APS events from line modules to SNMP traps.

**Syntax** `aps events list [ list ]*`  
`no aps events`

- *list*—One of the following APS events:
  - *all*—Configures notification of all APS events
  - *channel-mismatch*—Configures notification of APS channel mismatches
  - *feplf*—Configures notification of APS far-end protection line failures
  - *mode-mismatch*—Configures notification of APS mode mismatches
  - *psbf*—Configures notification of APS protection signal byte failures
  - *switchover*—Configures notification of APS switchovers
  - *\**—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.2.0.

## aps force

---

**Description** Forces the specified interface to be replaced by the inactive interface in an APS/MSP group. The **no** version allows the specified interface to resume operation.

**Syntax** `aps force channelNumber`  
`no aps force`

- *channelNumber*—One of the following channel numbers:
  - *0*—Switches from the protect interface back to the working interface
  - *1*—Switches from the working interface to the protect interface

**Mode** Controller Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aps group

---

**Description** Assigns an interface to an APS/MSP group. The **no** version removes a group of APS/MSP interfaces.

**Syntax** `aps group groupName`  
`no aps group`

- *groupName*—Name of the APS/MSP group to which the active and standby interfaces belong; string of up to 32 characters

**Mode** Controller Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aps lockdown

---

**Description** Prevents the working interface from switching to the protect interface. The **no** version restores the default situation, in which the working interface can switch to the protect interface.

**Syntax** `aps lockdown [ 0 ]`  
`no aps lockdown`

- 0—Specifies the channel number that identifies the protect interface; because the protect interface is always assigned channel number 0, this is the only valid option

**Mode** Controller Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## aps manual

---

**Description** Forces the working interface to switch to the protect interface, unless a request of equal or higher priority exists. The **no** version allows the specified working interface to resume the active role.

**Syntax** `aps manual channelNumber`  
`no aps manual`

- *channelNumber*—One of the following channel numbers:
  - 0—Switches from the protect interface back to the working interface
  - 1—Switches from the working interface to the protect interface

**Mode** Controller Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.



## aps protect

---

|                            |                                                                                                                                                                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Configures an interface as a protect interface. The <b>no</b> version removes the relationship between the protect interface and the active interface.                                                                                                                          |
| <b>Syntax</b>              | <pre>aps protect [ 0 ]</pre> <pre>no aps protect</pre> <ul style="list-style-type: none"><li>■ 0—Specifies the channel number that identifies the protect interface; because the protect interface is always assigned channel number 0, this is the only valid option</li></ul> |
| <b>Mode</b>                | Controller Configuration                                                                                                                                                                                                                                                        |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                  |

## aps revert

---

|                            |                                                                                                                                                                                                                                                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Configures the APS/MSP group to operate in revertive mode. The <b>no</b> version restores the default setting, nonrevertive mode.                                                                                                                        |
| <b>Syntax</b>              | <pre>aps revert <i>minutes</i></pre> <pre>no aps revert</pre> <ul style="list-style-type: none"><li>■ <i>minutes</i>—Number of minutes in the range 5–12 at which the interface resumes the active role after that interface becomes available</li></ul> |
| <b>Mode</b>                | Controller Configuration                                                                                                                                                                                                                                 |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                           |

## aps unidirectional

---

|                            |                                                                                                                                                                           |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Configures the APS/MSP group to operate in unidirectional mode, the default setting. The <b>no</b> version configures the APS/MSP group to operate in bidirectional mode. |
| <b>Syntax</b>              | <pre>[ no ] aps unidirectional</pre>                                                                                                                                      |
| <b>Mode</b>                | Controller Configuration                                                                                                                                                  |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                            |

## aps working

---

|                            |                                                                                                                                                                                                                                                   |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Configures an interface as a working interface. The <b>no</b> version removes the configuration.                                                                                                                                                  |
| <b>Syntax</b>              | aps working [ 1 ]<br>no aps working <ul style="list-style-type: none"> <li>■ 1 —Channel number that identifies the working interface; because the working interface is always assigned channel number 1, this is the only valid option</li> </ul> |
| <b>Mode</b>                | Controller Configuration                                                                                                                                                                                                                          |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                    |

## area

---

|                    |                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Description</b> | This command has only a <b>no</b> version. See the <b>no area</b> command for a complete description and syntax. |
|--------------------|------------------------------------------------------------------------------------------------------------------|

## area-authentication

---

|                            |                                                                                                                                                                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Enables or disables (suppresses) simple text authentication or HMAC MD5 authentication of IS-IS level 1 CSNP packets or PSNP packets. The <b>no</b> version restores the default behavior, in which authentication of IS-IS level 1 CSNPs and PSNPs is disabled.               |
| <b>Syntax</b>              | [ no ] area-authentication { csnp   psnp } <ul style="list-style-type: none"> <li>■ csnp—Enables authentication of IS-IS level 1 complete sequence number PDUs (CSNPs)</li> <li>■ psnp—Enables authentication of IS-IS level 1 partial sequence number PDUs (PSNPs)</li> </ul> |
| <b>Mode</b>                | Router Configuration                                                                                                                                                                                                                                                           |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                 |

## area-authentication-key

---

**Description** Assigns a password used by neighboring routers for authentication of IS-IS level 1 LSPs, CSNPs, and PSNPs. The **no** version deletes the password.



**NOTE:** Issuing this command enables simple authentication of level 1 LSPs only. To enable authentication of level 1 CSNPs or PSNPs, use the **area-authentication** command.

---

**Syntax** `area-authentication-key [ 0 | 8 ] authKey`  
`no area-authentication-key`

- 0—Indicates the *authKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *authKey* is entered in encrypted form (ciphertext)
- *authKey*—Password, string of up to 8 characters

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area default-cost

---

**Description** Specifies a cost for the default summary route sent into a stub area. A stub area is an OSPF area that carries a default route, intra-area routes, and interarea routes, but does not carry external routes. You cannot configure virtual links across a stub area. Stub areas cannot contain an AS boundary router. The **no** version removes the configured default route cost.

**Syntax** `area { areald | arealdInt } default-cost defaultCost`  
`no area { areald | arealdInt } default-cost`

- *areald*—OSPF area ID in IP address format
- *arealdInt*—OSPF area ID as a decimal value 0–4294967295
- *defaultCost*—Stub area's advertised external route cost (cost metric); an integer in the range 0–16777215

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area-message-digest-key

**Description** Specifies an HMAC MD5 key that the router uses to create a secure, encrypted message digest of each IS-IS level 1 packet (LSPs, CSNPs, and PSNPs). The digest is inserted into the packet from which it is created. Using this algorithm for area routers protects against unauthorized routers injecting false routing information into your network.

You can specify when the router will start (default is the current time) and stop (default is never) accepting packets that include a digest made with this key. You can specify when the router will start (default is the current time plus 2 minutes) and stop (default is never) generating packets that include a digest made with this key. The **no** version deletes the key specified by the *keyId*.



**NOTE:** Issuing this command enables MD5 authentication of level 1 LSPs only. To enable authentication of level 1 CSNPs or PSNPs, use the **area-authentication** command.

**Syntax** `area-message-digest-key keyId hmac-md5 [ 0 | 8 ] key`  
`[ start-accept startAcceptTime [ { startAcceptMonth startAcceptDay | startAcceptDay startAcceptMonth } startAcceptYear ] ]`  
`[ start-generate startGenTime [ { startGenMonth startGenDay | startGenDay startGenMonth } startGenYear ] ]`  
`[ stop-accept { never | stopAcceptTime [ { stopAcceptMonth stopAcceptDay | stopAcceptDay stopAcceptMonth } stopAcceptYear ] ] ]`  
`[ stop-generate { never | stopGenTime [ { stopGenMonth stopGenDay | stopGenDay stopGenMonth } stopGenYear ] ] ]`  
`no area-message-digest-key keyId`

- *keyId*—Integer from 1 to 255 that is a unique identifier for the secret key, sent with the message digest in the packet.
- 0—Indicates the *key* is entered in unencrypted form (plaintext); default option
- 8—Indicates the *key* is entered in encrypted form (ciphertext)
- *key*—String of up to 20 alphanumeric characters; secret key used by the HMAC MD5 algorithm to generate the message digest
- *startAcceptTime*, *startAcceptMonth*, *startAcceptDay*, *startAcceptYear*—Time, month, day, year that the router will start accepting packets created with this password. Use military time format *HH:MM[:SS]*.
- *startGenTime*, *startGenMonth*, *startGenDay*, *startGenYear*—Time, month, day, year that the router will start inserting this password into packets. Use military time format *HH:MM[:SS]*.
- *never*—Indicates the router never stops accepting or generating packets; overrides previously specified stop times and keeps using the authentication key in sending and receiving PDUs with the corresponding authentication indefinitely

- *stopAcceptTime*, *stopAcceptMonth*, *stopAcceptDay*, *stopAcceptYear*—Time, month, day, year that the router will stop accepting packets created with this password. Use military time format *HH:MM[:SS]*.
- *stopGenTime*, *stopGenMonth*, *stopGenDay*, *stopGenYear*—Time, month, day, year that the router will stop inserting this password into packets. Use military time format *HH:MM[:SS]*.

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area nssa

---

**Description** Configures an area as an NSSA and controls generation of type 7 default LSAs. NSSAs are similar to stub areas but have the additional capability of importing AS external routes in a limited fashion. The **no** version removes the specified option for default-information-originate, removes default-information-originate, or removes the NSSA designation from the area.

**Syntax** [ no ] area { *areaId* | *areaIdInt* } nssa [ default-information-originate [ always | metric *absoluteValue* | metric-type 1 | metric-type 2 | route-map *mapTag* ]\* ] [ no-summary ]

- *areaId*—OSPF area ID in IP address format
- *areaIdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- default-information-originate—Causes the generation of a type 7 default LSA if a default route exists in the routing table.
- always—Creates the default route if it does not exist
- *absoluteValue*—Metric applied to the generated type 7 default LSAs; ranges from 0–4294967295
- 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
- *mapTag*—String of up to 32 alphanumeric characters that specifies a route map applied to the generated type 7 default LSAs
- \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line
- no-summary—Restricts T3 summary LSAs from flowing into the NSSA area (T7 external LSAs and T3 default route LSAs are still injected into the area)

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
**no-summary** keyword added in JUNOS Release 7.2.0.

## area range

---

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Aggregates routes at an area boundary. By default, the range of configured networks is advertised in type 3 (summary) LSAs. The <b>no</b> version disables this function.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Syntax</b>              | <p>For OSPFv2:</p> <pre>[ no ] area { <i>areald</i>   <i>arealdInt</i> } range <i>ipAddress</i> <i>mask</i> [ do-not-advertise ] [ cost <i>costValue</i> ]</pre> <p>For OSPFv3:</p> <pre>[ no ] area { <i>areald</i>   <i>arealdInt</i> } range <i>ipv6Prefix/ipv6PrefixLength</i> [ do-not-advertise   advertise   cost <i>costValue</i> ]</pre> <ul style="list-style-type: none"> <li>■ <i>areald</i>—OSPF area ID in IP address format</li> <li>■ <i>arealdInt</i>—OSPF area ID as a decimal value in the range 0–4294967295</li> <li>■ <i>ipAddress</i>—IP address to match</li> <li>■ <i>mask</i>—IP address mask</li> <li>■ <i>ipv6Prefix</i>—IPv6 network number to match</li> <li>■ <i>ipv6PrefixLength</i>—Length of the IPv6 prefix; a decimal value that indicates how many of the higher-order contiguous bits of the IPv6 address make up the prefix (the network portion of the IPv6 address). A slash (/) must precede this value.</li> <li>■ do-not-advertise—Specifies that the range of configured networks is not advertised</li> <li>■ advertise—Specifies that the range of configured networks is advertised (IPv6 only)</li> <li>■ <i>costValue</i>—Cost value for the specified range of networks in the range 0–65535</li> </ul> |
| <b>Mode</b>                | Router Configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Release Information</b> | <p>Command introduced before JUNOS Release 7.1.0.</p> <p><b>cost</b> keyword and <i>costValue</i> variable for OSPFv2 added in JUNOS Release 8.1.0.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## area stub

---

|                            |                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Defines an area as a stub area. A stub area is an OSPF area that carries a default route, intra-area routes, and interarea routes, but does not carry AS external routes. This reduces the size of the area's OSPF database and decreases memory usage for external routers in the stub area. The <b>no</b> version disables this function.                   |
| <b>Syntax</b>              | <pre>[ no ] area { <i>areald</i>   <i>arealdInt</i> } stub [ no-summary ]</pre> <ul style="list-style-type: none"> <li>■ <i>areald</i>—OSPF area ID in IP address format</li> <li>■ <i>arealdInt</i>—OSPF area ID as a decimal value in the range 0–4294967295</li> <li>■ no-summary—Specifies that the summary LSA not be sent into the stub area</li> </ul> |
| <b>Mode</b>                | Router Configuration                                                                                                                                                                                                                                                                                                                                          |
| <b>Release Information</b> | <p>Command introduced before JUNOS Release 7.1.0.</p> <p><b>no-summary</b> keyword for OSPFv2 added in JUNOS Release 7.2.0.</p>                                                                                                                                                                                                                               |

## area virtual-link

---

**Description** Defines an OSPF virtual link. The **no** version removes the virtual link.

**Syntax** [ no ] area { *areald* | *arealdInt* } virtual-link *ipAddress*

- *areald*—OSPF area ID in IP address format
- *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address associated with the virtual link neighbor

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link authentication-key

---

**Description** Configures simple password (type 1) authentication for OSPF virtual links. The **no** version removes the password.

**Syntax** [ no ] area { *areald* | *arealdInt* } virtual-link *ipAddress* authentication-key [ 0 | 8 ] *key*

- *areald*—OSPF area ID in IP address format
- *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address of the virtual link neighbor
- 0—Indicates the *key* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *key* is entered in encrypted form (ciphertext)
- *key*—Password to be used by neighbors; string of up to 16 alphanumeric characters. All neighboring routers on the same network must have the same password.

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link authentication message-digest

---

**Description** Specifies that MD5 authentication is used for the virtual link. The **no** version sets the authentication for the virtual link to none, but leaves any configured MD5 key intact.

**Syntax** [ no ] area { *areaId* | *areaIdInt* } virtual-link *ipAddress* authentication message-digest

- *areaId*—OSPF area ID in IP address format
- *areaIdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address of the virtual link neighbor

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link authentication-none

---

**Description** Specifies that no authentication is to be used for the virtual link. The **no** version has no effect.

**Syntax** [ no ] area { *areaId* | *areaIdInt* } virtual-link *ipAddress* authentication-none

- *areaId*—OSPF area ID in IP address format
- *areaIdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address of the virtual link neighbor

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link dead-interval

---

**Description** Defines an OSPF virtual link and the time interval allowed for detecting a dead router. The **no** version removes the virtual link's dead interval.

**Syntax** [ no ] area { *areaId* | *areaIdInt* } virtual-link *ipAddress* dead-interval *deadInterval*

- *areaId*—OSPF area ID in IP address format
- *areaIdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address of the virtual link neighbor
- *deadInterval*—Integer in the range 0–2147483647 seconds; default value is 40 seconds

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.



## area virtual-link hello-interval

---

**Description** Defines an OSPF virtual link and the time between the hello packets. The hello interval value must be the same for both ends of the virtual link. The **no** version removes the virtual link's hello interval.

**Syntax** [ no ] area { *areald* | *arealdInt* } virtual-link *ipAddress* hello-interval *helloInterval*

- *areald*—OSPF area ID in IP address format.
- *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address associated with the virtual link neighbor
- *helloInterval*—Integer in the range 1–65535 seconds; default value is 10 seconds

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link message-digest-key md5

---

**Description** Enables MD5 authentication and configures MD5 keys for virtual links. The **no** version deletes MD5 keys.



**NOTE:** If you delete all the MD5 keys, the authentication type for the virtual link is still MD5, but you need to configure MD5 keys.

**NOTE:** To disable MD5 authentication for the virtual link, use the **area virtual-link authentication-none** command.

**Syntax** area { *areald* | *arealdInt* } virtual-link *ipAddress*  
message-digest-key *md5KeyId* md5 [ 0 | 8 ] *msgDigestKey*  
no area { *areald* | *arealdInt* } virtual-link *ipAddress* message-digest-key *md5KeyId*

- *areald*—OSPF area ID in IP address format
- *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
- *ipAddress*—IP address of the virtual link neighbor
- *md5KeyId*—Key identifier in the range 1–255
- 0—Indicates the *msgDigestKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *msgDigestKey* is entered in encrypted form (ciphertext)
- *msgDigestKey*—Password to be used by neighbors; string of up to 16 alphanumeric characters. All neighboring routers on the same network must have the same password.

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link retransmit-interval

---

- Description** Defines an OSPF virtual link and the time between link-state advertisement retransmissions for the adjacency belonging to the virtual link. The **no** version removes the virtual link's retransmit interval.
- Syntax** [ no ] area { *areald* | *arealdInt* } virtual-link *ipAddress* retransmit-interval *retransmInterval*
- *areald*—OSPF area ID in IP address format.
  - *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
  - *ipAddress*—IP address of the virtual link neighbor
  - *retransmInterval*—LSA retransmit interval; an integer in the range 0–3600 seconds; default value is 5 seconds
- Mode** Router Configuration
- Release Information** Command introduced before JUNOS Release 7.1.0.

## area virtual-link transmit-delay

---

- Description** Defines an OSPF virtual link and the estimated time it takes to transmit a link-state update packet on the virtual link. The **no** version removes the virtual link's transmit delay.
- Syntax** [ no ] area { *areald* | *arealdInt* } virtual-link *ipAddress* transmit-delay *transmDelay*
- *areald*—OSPF area ID in IP address format
  - *arealdInt*—OSPF area ID as a decimal value in the range 0–4294967295
  - *ipAddress*—IP address associated with the virtual link neighbor
  - *transmDelay*—LSA transmit delay; an integer in the range 0–3600 seconds; default value is 1 second
- Mode** Router Configuration
- Release Information** Command introduced before JUNOS Release 7.1.0.

## arp

---

**Description** In Global Configuration mode, adds a permanent entry in the ARP cache. This command applies only to Fast Ethernet, Gigabit Ethernet, 10-Gigabit Ethernet interfaces, and bridged Ethernet interfaces configured over ATM 1483. The **no** version removes an entry from the ARP cache.

In Subscriber Policy Configuration mode, modifies the subscriber policy for ARP to define whether the subscriber (client) interfaces belonging to a bridge group or VPLS instance forward (permit) or filter (deny) ARP packets. The **no** version restores the default value, permit ARP packets.

In Subscriber Policy Configuration mode, you cannot change the default subscriber policy values for trunk (server) interfaces belonging to a bridge group or VPLS interface. You also cannot change the default subscriber policy values for a VPLS virtual core interface, which acts as a trunk interface. The VPLS virtual core interface represents all of the MPLS tunnels from the router to the remote VPLS edge (VE) device.

**Syntax** To add a permanent ARP cache entry in Global Configuration mode:

```
[ no ] arp [ vrf vrfName ] ipAddress interfaceType interfaceSpecifier  
[ macAddress [ validate ] ]
```

- *vrfName*—Name of the VRF to which the command applies; string of 1–32 alphanumeric characters
- *ipAddress*—IP address in 32-bit dotted-decimal format corresponding to the local data link address
- *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*
- *macAddress*—MAC address of the interface
- *validate*—Allows the inclusion of MAC validation entries

To modify the subscriber policy for ARP packets in Subscriber Policy Configuration mode:

```
arp { permit | deny }
```

```
no arp
```

- *permit*—Specifies that the subscriber interface associated with the bridge group or VPLS instance forwards ARP packets
- *deny*—Specifies that the subscriber interface associated with the bridge group or VPLS instance filters ARP packets

**Mode** Global Configuration, Subscriber Policy Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## arp timeout

---

**Description** Specifies how long an entry remains in the ARP cache. You can set the ARP timeout on Fast Ethernet, Gigabit Ethernet, and 10-Gigabit Ethernet interfaces, and bridged Ethernet interfaces configured over ATM 1483. The default value is 21600 seconds (6 hours). Use the **show configuration** command to display the current value. The **no** version restores the default value.

**Syntax** `arp timeout timeoutVal`  
`no arp timeout`

- *timeoutVal*—Time in seconds that an entry remains in the ARP cache

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## assured-rate

---

**Description** Sets the assured rate for the scheduler profile. The assured rate overrides the HRR weight of the scheduler node or queue. The **no** version deletes the assured rate.

**Syntax** `assured-rate { assuredRate | hierarchical | [ operator operandValue ]* }`  
`no assured-rate`

- *assuredRate*—Constant assured rate in bits per second; in the range 25000–1000000000 (25 Kbps to 1 Gbps)
- *hierarchical*—Specifies that the node use the hierarchical assured rate (HAR) feature, in which the scheduler node's assured rate is dynamically adjusted based on the sum of the assured rates of all its child nodes and queues
- *operator*—Mathematical function
- *operandValue*—Input for the operator; can be a QoS parameter definition name or an integer
- \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Scheduler Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.  
*operator* and *operandValue* variables added in JUNOS Release 7.1.0.

### Related Topics

- Configuring an Assured Rate for a Scheduler Node or Queue
- Configuring a Basic Parameter Definition for QoS Administrators

## atm

---

**Description** Configures traffic-shaping parameters for PPPoA via domain-based parameters. The **no** version removes the ATM traffic-shaping configuration.

**Syntax** atm { ubr | ubrpcr *pcr* | nrtvbr *pcr scr mbs* | rtvbr *pcr scr mbs* | cbr *pcr* }  
no atm

- ubr—Sets the traffic category to unspecified bit rate
- ubrpcr—Sets the traffic category to unspecified bit rate with peak cell rate
- nrtvbr—Sets the traffic category to non-real time variable bit rate
- rtvbr—Set the traffic category to real time variable bit rate
- cbr—Sets the traffic category to constant bit rate
- *pcr*—Peak cell rate in the range 0–4294967295 Kbps
- *scr*—Sustained cell rate in the range 0–4294967295 Kbps
- *mbs*—Maximum burst size in the range 0–4294967295 Kbps

**Mode** Domain Map Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm aal5 description

---

**Description** Assigns a text description or alias to an ATM AAL5 interface. The **no** version removes the text description or alias. Use the **show atm aal5 interface** command to display the text description.

**Syntax** atm aal5 description *name*  
no atm aal5 description

- *name*—Alias for the AAL5 interface; up to 32 characters

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm aal5 shutdown

---

**Description** Sets the administrative state of an ATM AAL5 interface to disabled. The **no** version enables a disabled interface.

**Syntax** [ no ] atm aal5 shutdown

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm aal5 snmp trap link-status

---

**Description** Enables SNMP link status traps on the AAL5 layer on a per-interface basis. The **no** version disables the traps.

**Syntax** [ no ] atm aal5 snmp trap link-status

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 advisory-rx-speed

---

**Description** Sets an advisory receive (RX) speed that the LAC sends in the RX Connect-Speed AVP [38] to the LNS. The **no** version restores the default behavior, in which the RX speed is not sent to the LNS.

**Syntax** atm atm1483 advisory-rx-speed *speed*

no atm atm1483 advisory-rx-speed

- *speed*—Speed in the range 0–2147483647 kbps

**Mode** Profile Configuration, Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 auto-configure

---

**Description** Specifies one or more types of dynamic upper interface encapsulations that are accepted or detected by a dynamic ATM 1483 subinterface. Optionally, specifies the lockout time range for the encapsulation type. You can issue this command repeatedly in Profile Configuration mode to include autodetection of multiple upper interface encapsulation types within the base profile for a dynamic ATM 1483 subinterface. The **no** version terminates detection of the specified encapsulation type.



**NOTE:** Encapsulation type lockout is available for bridged Ethernet, IP, PPP, and PPPoE encapsulation types.

**Syntax** atm atm1483 auto-configure *upperInterfaceType*  
[ lockout-time { *minValue* *maxValue* | none } ]  
no atm atm1483 auto-configure *upperInterfaceType* [ lockout-time ]

- *upperInterfaceType*—One of the following dynamic encapsulation types:
  - bridgedEthernet
  - ip
  - ppp
  - pppoe
- *minValue*—Minimum lockout time in the range 1–86400 seconds (24 hours); default value is 1 second
- *maxValue*—Maximum lockout time in the range 1–86400 seconds (24 hours); default value is 300 seconds (5 minutes)
- none—Disables lockout for the specified dynamic encapsulation type

**Mode** Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 description

---

**Description** Assigns a text description or alias to an ATM 1483 interface. The **no** version removes the text description or alias. Use the **show atm subinterface** command to display the text description.

**Syntax** atm atm1483 description *name*  
no atm atm1483 description

- *name*—Text string or alias for the ATM 1483 interface; up to 255 characters

**Mode** Profile Configuration, Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 export-subinterface-description

---

|                            |                                                                                                                                                                                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Exports ATM 1483 subinterface descriptions to the line module. The <b>no</b> version restores the default behavior, where ATM 1483 subinterface descriptions are not sent to the line module. |
| <b>Syntax</b>              | [ no ] atm atm1483 export-subinterface-description                                                                                                                                            |
| <b>Mode</b>                | Global Configuration                                                                                                                                                                          |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                |

## atm atm1483 mtu

---

|                            |                                                                                                                                                                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Sets the MTU size for an ATM 1483 subinterface. The <b>no</b> version restores the default MTU size of 9180.                                                                                                                                 |
| <b>Syntax</b>              | atm atm1483 mtu <i>size</i><br>no atm atm1483 mtu <ul style="list-style-type: none"> <li>■ <i>size</i>—Maximum number of packet transmissions permitted on an ATM 1483 subinterface; in the range 256–9180; default value is 9180</li> </ul> |
| <b>Mode</b>                | Subinterface Configuration                                                                                                                                                                                                                   |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                               |

## atm atm1483 profile

---

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Adds a nested profile assignment to a base profile for a dynamic ATM 1483 subinterface. A nested profile assignment references another profile that dynamically configures upper interface encapsulation types over the ATM 1483 subinterface. The <b>no</b> version removes the profile assignment for the upper interface type.                                                                                                                       |
| <b>Syntax</b>              | atm atm1483 profile <i>upperInterfaceType</i> <i>profileName</i><br>no atm atm1483 profile <i>upperInterfaceType</i> <ul style="list-style-type: none"> <li>■ <i>upperInterfaceType</i>—One of the following dynamic encapsulation types:               <ul style="list-style-type: none"> <li>■ bridgedEthernet</li> <li>■ ip</li> <li>■ ppp</li> <li>■ pppoe</li> </ul> </li> <li>■ <i>profileName</i>—Profile name of up to 80 characters</li> </ul> |
| <b>Mode</b>                | Profile Configuration                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                                                                                                                                                                                          |



## atm atm1483 shutdown

---

**Description** Sets the administrative state of an ATM 1483 subinterface to disabled. The **no** version enables a disabled subinterface.

**Syntax** [ no ] atm atm1483 shutdown

**Mode** Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 snmp trap link-status

---

**Description** Enables SNMP link status traps on the ATM1483 layer. The **no** version disables the traps.

**Syntax** [ no ] atm atm1483 snmp trap link-status

**Mode** Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm atm1483 subscriber

---

**Description** Configures a local subscriber (when one cannot be obtained externally, as in PPP) for a dynamic upper interface encapsulation type configured over a dynamic ATM 1483 subinterface. A subscriber supports authentication and configuration from the RADIUS server. The **no** version removes the subscriber.

**Syntax** `atm atm1483 subscriber upperInterfaceType { user | user-prefix } userName domain domainName [ { password | password-prefix } password ] [ no-authenticate ]`  
`no atm atm1483 subscriber upperInterfaceType`

- *upperInterfaceType*—One of the following dynamic encapsulation types:
  - bridgedEthernet
  - ip
- user—Employs the username as specified
- user-prefix—Appends the interface physical location to the username
- *userName*—RADIUS username
- *domainName*—Domain name
- password—Employs the password as specified
- password-prefix—Appends the interface physical location to the password
- *password*—RADIUS password
- no-authenticate—Disables authentication

**Mode** Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm auto-configuration

---

**Description** Enables autoconfiguration of ILMI. Autoconfiguration is enabled by default. This command overrides any previous configuration of the **atm uni-version** command. The **no** version disables auto configuration and sets the ILMI parameters to the UNI version configured using the **atm uni-version** command, which has a default value of UNI 4.0.

**Syntax** `[ no ] atm auto-configuration`

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm bulk-config

---

**Description** Configures a range of ATM PVCs for use by a dynamic ATM 1483 subinterface, and assigns a name to the virtual circuit (VC) range. Each VC range consists of one or more nonoverlapping VC subranges. A VC subrange is a group of VCs that resides within the specified VPI and VCI ranges. You can configure multiple VC ranges on an ATM AAL5 interface. The **no** version removes the specified VC range (including all subranges in the range) from the ATM AAL5 interface or the specified subrange from the VC range. The **no** version also removes any overriding profile assignments for ATM PVCs within the deleted VC range or VC subrange.



**NOTE:** The total number of VCs configured with the **atm bulk-config** command cannot exceed the maximum ATM VC capacity of the line module you are using. For details about the ATM VC capacity of supported line modules, see *JUNOS Release Notes, Appendix A, System Maximums*.

---

**Syntax** `atm bulk-config bulkConfigName [ vc-range vpiStart vpiEnd vciStart vciEnd ]*`  
`no atm bulk-config bulkConfigName [ vc-range vpiStart vpiEnd vciStart vciEnd ]`

- *bulkConfigName*—Name of the VC range; string of up to 80 characters
- *vpiStart*—Starting virtual path identifier (inclusive) of the VC subrange you are configuring
- *vpiEnd*—Ending virtual path identifier (inclusive) of the VC subrange you are configuring
- *vciStart*—Starting virtual circuit identifier (inclusive) of the VC subrange you are configuring
- *vciEnd*—Ending virtual circuit identifier (inclusive) of the VC subrange you are configuring
- \*—Indicates that one or more parameters can be repeated multiple times in a list in the command line

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm bulk-config modify

---

**Description** Modifies the VC subrange values for the specified bulk configuration VC range. If the new subrange encompasses previously configured subranges within that range, those subranges are merged into the new one, freeing subrange resources. There is no **no** version.

**Syntax** atm bulk-config *bulkConfigName* modify vc-range *vpiStart vpiEnd vciStart vciEnd*

- *bulkConfigName*—Name of the VC range; string of up to 80 characters
- *vpiStart*—Starting virtual path identifier (inclusive) of the VC subrange you are configuring
- *vpiEnd*—Ending virtual path identifier (inclusive) of the VC subrange you are configuring
- *vciStart*—Starting virtual circuit identifier (inclusive) of the VC subrange you are configuring
- *vciEnd*—Ending virtual circuit identifier (inclusive) of the VC subrange you are configuring

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm bulk-config shutdown

---

**Description** Administratively disables (shuts down) the specified VC range or subrange. The **no** version reenables the specified VC range or the specified subranges; this is the default condition.

**Syntax** [ no ] atm bulk-config *bulkConfigName* shutdown  
[ vc-range *vpiStart vpiEnd vciStart vciEnd* ]

- *bulkConfigName*—Name of the VC range; string of up to 80 characters
- *vpiStart*—Starting virtual path identifier (inclusive) of the VC subrange you are configuring
- *vpiEnd*—Ending virtual path identifier (inclusive) of the VC subrange you are configuring
- *vciStart*—Starting virtual circuit identifier (inclusive) of the VC subrange you are configuring
- *vciEnd*—Ending virtual circuit identifier (inclusive) of the VC subrange you are configuring

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm cac

---

**Description** Enables CAC on the ATM interface. If the subscription limit or UBR weight parameters are set to zero, the router uses the effective port bandwidth as the subscription bandwidth. The effective bandwidth varies according to line module. The **no** version disables CAC on the interface.



**NOTE:** If you modify one of these parameters after CAC is enabled, you must modify both parameters. Otherwise, the parameter not specified reverts to its default value.

---

**Syntax** [ no ] atm cac [ *subscriptionBandwidth* ] [ *ubr ubrWeight* ]

- *subscriptionBandwidth*—Maximum allowable bandwidth on this port in the range 0–2147482647 Kbps; default value is 0
- *ubrWeight*—Bandwidth associated with UBR and UBR-PCR connections in the range 0–2147482647 Kbps; default value is 0

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm cell-packing

**Description** Configures cell concatenation parameters for an ATM 1483 subinterface that provides ATM layer 2 services over MPLS with virtual channel connection (VCC) cell relay encapsulation. The **no** version restores the default cell concatenation parameters for the subinterface.



**NOTE:** See the **atm mcpt-timers** command for information about configuring systemwide values for the three ATM Martini cell packing timers to define the cell collection time threshold.

**Syntax** atm cell-packing *maxCellsPerPacket* mcpt-timer *timerIdentifier*  
no atm cell-packing

- *maxCellsPerPacket*—Maximum number of ATM cells in the range 1–190 that the router can concatenate in a single VCC cell relay–encapsulated packet and transmit on an MPLS pseudowire connection; default value is 1 cell per packet
- *timerIdentifier*—Integer in the range 1–3 that identifies which of the three ATM Martini cell packing timers (timer 1, timer 2, or timer 3) you want to use to detect timeout of the cell collection time threshold; default value is 1. When the timer expires, the router forwards the packet even if the number of concatenated ATM cells in the packet is fewer than the specified maximum number of cells per packet.

**Mode** Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

### Related Topics

- Configuring an MPLS Pseudowire with VCC Cell Relay Encapsulation

## atm-cell-mode

**Description** Accounts for the ATM cell tax in rate calculations for interface types that support rate-limiting and are stackable over ATM. The **no** version restores the default, which uses the frame size with the layer 2 header included.

**Syntax** [ no ] atm-cell-mode

**Mode** Policy List Configuration

**Release Information** Command introduced in JUNOS Release 7.2.0.

### Related Topics

- Enabling ATM Cell Mode

## atm classifier-list

---

**Description** Creates a classifier control list that can only be used in ATM policy lists. The **no** version removes the ATM classifier control list. ATM packets are classified on CLP. The CLP bit is not available on frame-based interfaces on E-series router line modules.

**Syntax** `atm classifier-list classifierName [ traffic-class trafficClassName ]`  
`[ color { green | yellow | red } ] [ user-packet-class userPacketClassValue ]`  
`[ clp clpValue ]`  
`no atm classifier-list classifierName [ classifierNumber ]`

- *classifierName*—Name of the classifier control list entry
- *trafficClassName*—Name of the traffic class to match
- *green*—Matches packet color to green, indicating a low drop preference
- *yellow*—Matches packet color to yellow, indicating a medium drop preference
- *red*—Matches packet color to red, indicating a high drop preference
- *userPacketClassValue*—User packet value to match in the range 0–15
- *clpValue*—Value of the CLP, 0 or 1
- *classifierNumber*—Index of the classifier control list entry to be deleted

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

**Related Topics**

- Creating or Modifying Classifier Control Lists for ATM Policy Lists

## atm class-vc

---

**Description** Assigns a previously configured VC class to a base profile for a dynamic ATM 1483 subinterface. Issuing this command applies the set of attributes in the specified VC class to all bulk-configured VC ranges that are dynamically created from this profile. The **no** version removes the VC class association with the base profile.

**Syntax** `atm class-vc vcClassName`  
`no atm class-vc [ vcClassName ]`

- *vcClassName*—Name of the VC class configured with the **vc-class atm** command

**Mode** Profile Configuration

**Release Information** Command introduced in JUNOS Release 7.3.0.

## atm clock internal

---

**Description** Causes the ATM interface to generate the transmit clock internally. The **no** version causes ATM interfaces to recover the clock from the received signal. If the internal clock is chosen and no internal source is specified, then the internal clock source is taken from the line module.

**Syntax** [ no ] atm clock internal [ *internalSource* ]

- *internalSource*—One of the following:
  - module—Specifies that the internal clock is from the line module
  - chassis—Specifies that the internal clock is from the configured router clock

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm description

---

**Description** Assigns a text description or alias to the ATM interface. The first 32 characters of the description are pushed out to RADIUS during authentication and accounting. The **show atm interface** command displays the text description. The **no** version removes the text description or alias.

**Syntax** atm description *name*  
no atm description

- *name*—Text string or alias of up to 255 characters; can include the # (pound sign) character

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm dos-protection-group

---

**Description** Attaches an ATM denial of service (DoS) protection group to an interface. The **no** version removes the DoS protection group.

**Syntax** atm dos-protection-group *groupName*  
no atm dos-protection-group

- *groupName*—Name of the DoS protection group; string of up to 31 alphanumeric characters

**Mode** Interface Configuration

**Release Information** Command introduced in JUNOS Release 8.1.0.



## atm framing

---

**Description** Configures T3 or E3 framing on an ATM interface. The **no** version returns framing to the default. For a T3 interface, the default value is cbitplcp. For an E3 interface, the default value is g751plcp.

**Syntax** atm framing *framingType*  
no atm framing

- *framingType*—One of the following:
  - cbitadm—c-bit with ATM direct mapping for a DS3 (T3) interface
  - cbitplcp—c-bit with PLCP framing for a DS3 (T3) interface (default for T3)
  - g832adm—G.832 ATM direct mapping for an E3 interface
  - g751adm—G.751 ATM direct mapping for an E3 interface
  - g751plcp—G.751 PLCP mapping for an E3 interface (default for E3)
  - m23adm—M23 ATM direct mapping for a DS3 (T3) interface
  - m23plcp—M23 with PLCP framing for a DS3 (T3)

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm ilmi-enable

---

**Description** Enables ILMI on the interface. The **no** version removes the ILMI PVC.

**Syntax** [ no ] atm ilmi-enable

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm ilmi-keepalive

---

**Description** Enables generation of ILMI keepalive messages on the router, affecting the operational state of the ATM interface. The **no** version disables the generation of keepalive messages.

**Syntax** [ no ] atm ilmi-keepalive [ *seconds* ]

- *seconds*—Number in the range 0–4294967295; the interval in seconds between two consecutive ILMI keepalive requests

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm lbo

---

|                            |                                                                                                                                                                                                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Specifies the cable length (line build-out) for the ATM T3 or E3 interface. The length of cable determines power requirements. The <b>no</b> version restores the default value.                                                                                |
| <b>Syntax</b>              | <pre>atm lbo { long   short }</pre> <pre>no atm lbo</pre> <ul style="list-style-type: none"> <li>■ <b>long</b>—Specifies cable length in the range 226–450 feet</li> <li>■ <b>short</b>—Specifies cable length in the range 0–225 feet (the default)</li> </ul> |
| <b>Mode</b>                | Interface Configuration                                                                                                                                                                                                                                         |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                  |

## atm mcpt-timers

---

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b> | Configures systemwide values for the three ATM Martini cell packing timers. These timers define the time threshold that the router uses to collect and concatenate ATM cells in a single VCC cell relay–encapsulated packet and transmit the packet on an MPLS pseudowire connection. When the timer expires, the router forwards the packet even if the number of concatenated ATM cells in the packet is fewer than the specified maximum number of cells per packet. The <b>no</b> version restores the default values for all three timers. |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**NOTE:** See the **atm cell-packing** command for information about specifying the maximum number of concatenated cells per packet and identifying which of the three ATM Martini cell packing timers you want to use to detect timeout of the cell collection threshold.

|                            |                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>              | <pre>atm mcpt-timers timer1 timer2 timer3</pre> <pre>no atm mcpt-timers</pre> <ul style="list-style-type: none"> <li>■ <b>timer1</b>—Number of microseconds in the range 100–4095; default value is 100</li> <li>■ <b>timer2</b>—Number of microseconds in the range 100–4095; default value is 500</li> <li>■ <b>timer3</b>—Number of microseconds in the range 100–4095; default value is 1000</li> </ul> |
| <b>Mode</b>                | Global Configuration                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                                                                                                                                              |
| <b>Related Topics</b>      | <ul style="list-style-type: none"> <li>■ Configuring an MPLS Pseudowire with VCC Cell Relay Encapsulation</li> </ul>                                                                                                                                                                                                                                                                                        |

## atm oam

---

**Description** Configures F4 OAM on an interface or circuit. The **no** version deletes F4 OAM circuits.



**NOTE:** If you do not specify any options, both F4 end-to-end OAM and F4 segment OAM are enabled on all VPIs on the interface.

**Syntax** atm oam [ *vpi* ] [ [ seg-loopback | end-loopback [ loopback-timer *time* ] ]  
[ cc { source | sink | both } ] ]  
no atm oam [ *vpi* ] [ [ seg-loopback | end-loopback [ loopback-timer *time* ] ] ]

- *vpi*—VPI on which you want to enable F4 OAM. If you do not specify a VPI, F4 OAM flow is enabled on all VPIs on the interface.
- seg-loopback—Enables F4 segment OAM
- end-loopback—Enables F4 end-to-end OAM
- loopback-timer—To generate F4 loopback cells on the VPI, you must configure the loopback timer; you can set the loopback timer only for end-to-end loopback
- *time*—Time interval in the range 1–600 seconds between transmissions of F4 loopback cells.
- cc—Enables CC cells on the PVC; you can enable CC cells only on data circuits, not on control circuits, such as ILMI or signaling circuits
- sink—Enables this VC as a sink point (cell receiver)
- source—Enables this VC as the source point (cell generator)
- both—Enables this VC as both a sink point and a source point

**Mode** Interface Configuration, Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm oam flush

---

**Description** Configures the router to ignore all OAM cells received on an ATM interface, and to stop sending OAM cells on this interface. OAM performs fault management and performance management functions on an ATM interface. The **no** version disables OAM flush on the interface.

**Syntax** [ no ] atm oam flush [ alarm-cells ]

- alarm-cells—Causes the router to ignore only AIS and RDI cells and to accept all other OAM cells

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm oam loopback-location

---

**Description** Sets the location ID of the ATM interface. The **no** version returns the loopback location to the default setting of all 1s (ones).

**Syntax** atm oam loopback-location *locationID*  
 [ no ] atm oam loopback-location

- *locationID*—Value of the four-octet long location ID of the ATM interface

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm policy

---

**Description** Assigns a policy list to the ingress or egress of an ATM interface. If you enter this command when the policy list does not exist, the router creates a policy list with a filter rule as the default. You must specify the **input** or **output** keyword to assign the policy list to the ingress or egress of the interface. The **no** version removes the association between a policy list and an interface.

**Syntax** atm policy { input | output } *policyName*  
 [ statistics { enabled [ preserve | merge ] | disabled [ merge ] } | merge ]  
 no atm policy { input | output } [ *policyName* ]

- input—Applies policy to data arriving at this interface
- output—Applies policy to data leaving this interface
- *policyName*—Name of the policy; a maximum of 40 characters
- statistics—Enables or disables collection of policy routing statistics
  - enabled—Enables collection of policy routing statistics
  - preserve—Preserves existing statistics for any classifier-list that is the same for both the new and old policy attachments when you attach a new policy to an interface
  - disabled—Disables collection of policy routing statistics
- merge—Enables merging of multiple policies to form a single policy

**Mode** Interface Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.  
**merge** keyword added in JUNOS Release 7.2.0.

### Related Topics

- Setting a Statistics Baseline for Policies

## atm policy-list

---

**Description** Creates an ATM policy list and accesses Policy List Configuration mode. If you execute an **atm policy-list** command and type **exit**, the router creates a policy list with a filter rule as the default. Attaching this policy list to an interface filters all packets on that interface. The **no** version removes a policy list.

**Syntax** [ no ] atm policy-list *policyName*

- *policyName*—Name of the policy list; a maximum of 40 characters

**Mode** Global Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

**Related Topics**

- Creating Policy Lists for ATM

## atm pvc

---

**Description** From Interface Configuration or Subinterface Configuration mode, creates a PVC on an ATM interface. The **no** version removes the specified PVC.

From Profile Configuration mode, applies encapsulation, traffic-shaping, and OAM parameters to the range of PVCs configured on a static ATM AAL5 interface for use by a dynamic ATM 1483 subinterface. The **no** version restores the default service type, UBR, on the VC range.



**NOTE:** The optional *peak*, *average*, and *burst* parameters configure traffic-shaping parameters for the circuit. The allowable traffic-shaping features and range specifications depend on the line module capabilities.

**Syntax** To create a PVC on an ATM interface when using the **aal5snap**, **aal5autoconfig**, or **aal5mux ip** encapsulation type:

```
atm pvc vcd vpi vci encapsulation [ cbr cbr | peak [ average burst [ rt ] ] ]  
[ oam [ seconds | cc [ segment | end-to-end ] { source | sink | both } ] ]  
[ inArp [ minutes ] ]
```

```
no atm pvc vcd
```

To create a PVC on an ATM interface when using the **aal5all**, **aal0**, or **ilmi** encapsulation type:

```
atm pvc vcd vpi vci encapsulation [ cbr cbr | peak [ average burst [ rt ] ] ]
```

```
no atm pvc vcd
```

To use a profile to apply encapsulation and traffic-shaping parameters to a bulk range of PVCs configured for a dynamic ATM 1483 subinterface:

```
atm pvc encapsulation [ cbr cbr | peak [ average burst [ rt ] ] ] [oam seconds ]
```

```
no atm pvc
```

- *vcd*—Virtual circuit descriptor that is an identifier for the VC in other commands; in the range 1–2147483647

- *vpi*—Virtual path identifier of this PVC. The allowable numeric range depends on the line module capabilities and current configuration. The VPI and VCI cannot both be set to 0; if one is 0, the other cannot be 0.
- *vci*—Virtual circuit identifier of this PVC. The allowable numeric range depends on the line module capabilities and current configuration. The VPI and VCI cannot both be set to 0; if one is 0, the other cannot be 0.
- *encapsulation*—Available options differ for ATM interfaces and dynamic ATM 1483 subinterfaces, as follows:
  - For PVCs created on ATM interfaces:
    - *aal5all*—Causes the router to pass through all ATM AAL5 traffic without interpreting it; supported for ATM layer 2 services over MPLS
    - *aal0*—Causes the router to receive raw ATM cells on this circuit and forward the cells without performing AAL5 packet reassembly; supported for ATM layer 2 services over MPLS
    - *aal5snap*—LLC encapsulated circuit; LLC/SNAP header precedes the protocol datagram
    - *aal5mux ip*—VC-based multiplexed circuit used for IP only
    - *aal5autoconfig*—Enables autodetection of the 1483 encapsulation (LLC/SNAP or VC multiplexed)
    - *ilmi*—Integrated local management interface encapsulation
  - For PVCs created on dynamic ATM 1483 subinterfaces:
    - *aal5snap*—LLC encapsulated circuit; LLC/SNAP header precedes the protocol datagram
    - *aal5mux ip*—VC-based multiplexed circuit used for IP only
    - *aal5autoconfig*—Enables autodetection of the 1483 encapsulation (LLC/SNAP or VC multiplexed)
- *cbr*—Constant bit rate in Kbps
- *peak*—PCR in Kbps
- *average*—Average rate in Kbps; also referred to as SCR
- *burst*—Length in cells of the burst; also referred to as MBS
- *rt*—Selects VBR-RT as the service type; the default type is VBR-NRT. You can select **rt** only if you set the *peak*, *average*, and *burst* parameters.
- *oam*—Enables generation of OAM F5 loopback cells on this circuit. This option enables VC integrity features that affect the operational state of the ATM PVC. You can use the **oam** keyword only if you specify the **aal5snap**, **aal5autoconfig**, or **aal5mux ip** encapsulation type.
- *seconds*—Time interval in the range 1–600 seconds between transmissions of OAM F5 end-to-end loopback cells for VC connectivity verification.
- *inArp*—Enables Inverse ARP. You can use the **inArp** keyword only if you specify the **aal5snap** encapsulation type.

- *minutes*—Inverse ARP refresh rate in minutes; 15 minutes is the default
- *cc*—Enables CC cells on the PVC; you can enable CC cells only on data circuits, not on control circuits, such as ILMI or signaling circuits
- *segment*—Opens an OAM CC segment cell flow
- *end-to-end*—Opens an OAM CC end-to-end cell flow
- *sink*—Enables this VC as a sink point (cell receiver)
- *source*—Enables this VC as the source point (cell generator)
- *both*—Enables this VC as both a sink point and a source point

**Mode** Interface Configuration, Profile Configuration, Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

#### Related Topics

- Configuring an MPLS Pseudowire with VCC Cell Relay Encapsulation
- Configuring Local ATM Cross-Connects with AAL5 Encapsulation
- Configuring MPLS LSPs for L2VPNs

## atm shutdown

---

**Description** Administratively disables an ATM interface. The **no** version enables a disabled interface.

**Syntax** [ no ] atm shutdown

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm snmp trap link-status

---

**Description** Enables SNMP link status traps on the ATM layer on a per-interface basis. The **no** version disables the traps.

**Syntax** [ no ] atm snmp trap link-status

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm sonet stm-1

---

|                            |                                                                                                                                              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Sets the mode of operation on the physical interface to SDH STM-1. The <b>no</b> version restores the default value, SONET STS-3c operation. |
| <b>Syntax</b>              | [ no ] atm sonet stm-1                                                                                                                       |
| <b>Mode</b>                | Interface Configuration                                                                                                                      |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                               |

## atm uni-version

---

|                            |                                                                                                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Specifies the UNI version the interface should use. There is no <b>no</b> version.                                                                 |
| <b>Syntax</b>              | atm uni-version <i>versionNumber</i> <ul style="list-style-type: none"> <li>■ <i>versionNumber</i>—UNI version number: 3.0, 3.1, or 4.0</li> </ul> |
| <b>Mode</b>                | Interface Configuration                                                                                                                            |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                     |

## atm vc-per-vp

---

|                    |                                                                                                                                                                                                                                                                                                                                    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b> | Configures the number of virtual circuits per virtual path. This command controls the VPI and VCI range on the ATM interface. The allowable configuration range depends on the line module. The router will not execute the command if any virtual circuits are open on the interface. The <b>no</b> version restores the default. |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**NOTE:** This command is not available for ATM interfaces on the E120 router and the E320 router because they support the entire VPI/VCI range.

**NOTE:** The minimum number of VCs per VP is 4096 for OC3-4 modules and 1024 for T3 ATM modules. If you enter a value that is below the minimum, the router uses the minimum value.

**NOTE:** VCs and VP tunnels must not exist when you issue this command. If they do, you must delete the VC and VP tunnel configuration before you issue this command.

---

|                            |                                                                                                                                                                     |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Syntax</b>              | atm vc-per-vp [ <i>vcCount</i> ]<br>no atm vc-per-vp <ul style="list-style-type: none"> <li>■ <i>vcCount</i>—Number of virtual circuits per virtual path</li> </ul> |
| <b>Mode</b>                | Interface Configuration                                                                                                                                             |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                      |



## atm vp-description

---

**Description** Assigns a text description to an individual virtual path (VP) on an ATM interface. Use the **show atm vp-description** command to display the description. The **no** version restores the default value, a null string.

**Syntax** atm vp-description *vpi* *description*  
no atm vp-description *vpi*

- *vpi*—Virtual path identifier number in the range 0–255
- *description*—Text string or alias for the specified VPI; up to 32 characters

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## atm-vp qos-parameter

---

**Description** Attaches a QoS parameter instance to the specified VP on the ATM major interface. The **no** version detaches the parameter instance from the specified VP.

**Syntax** atm-vp *vpi* qos-parameter *qosParameterInstanceName* *qosParameterInstanceValue*  
no atm-vp *vpi* qos-parameter *qosParameterInstanceName*

- *vpi*—Virtual path identifier of this PVC; number in the range 0–255
- *qosParameterInstanceName*—Name of the parameter instance that you want to attach to the VP
- *qosParameterInstanceValue*—Number of the scheduler rate for the parameter instance; the default value is the minimum value defined in the parameter definition

**Mode** Interface Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

### Related Topics

- Creating Parameter Instances

## atm-vp qos-profile

---

**Description** Attaches a QoS profile to the specified VP on the interface. The **no** version detaches the QoS profile from the VP.

**Syntax** [ no ] atm-vp *vpi* qos-profile *qosProfileName*

- *vpi*—Virtual path identifier of this PVC; number in the range 0–255
- *qosProfileName*—Name of the QoS profile that you want to attach to the VP

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

**Related Topics**

- Attaching a QoS Profile to an Interface

## atm vp-tunnel

---

**Description** Defines a virtual path tunnel and configures the rate of traffic flow within the tunnel. For QoS configurations, use to configure a shapeless VP tunnel. The **no** version removes the restriction.

**Syntax** atm vp-tunnel *vpi* [ *cbr* ] [ *kbps* ]  
no atm vp-tunnel *vpi*

- *vpi*—Number in the range 0–255; virtual path identifier of this PVC
- *cbr*—Specifies the service class as constant bit rate
- *kbps*—Tunnel rate for a virtual path. The aggregate to this traffic from all circuits configured in the tunnel is held to the specified rate. Certain line modules may have minimum rates for VP tunnels. Using a rate of 0 configures a shapeless tunnel (a tunnel with no rate) that is used for VP shaping in the SAR.

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication

---

**Description** Specifies the authentication method to use in the IKE policy. The **no** version restores the default, preshared keys.

**Syntax** authentication { rsa-sig | pre-share }  
no authentication

- rsa-sig—Specifies RSA signature as the authentication method
- pre-share—Specifies preshared keys as the authentication method

**Mode** IKE Policy Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication key

---

**Description** Specifies the password for text authentication and the key for MD5 authentication for RIP remote-neighbor interface. The **no** version clears the key for the interface. Supported only in RIP version 2. Authentication is disabled by default.

**Syntax** authentication key [ 0 | 8 ] *authkey*  
no authentication key

- 0—Indicates the *authKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *authKey* is entered in encrypted form (ciphertext)
- *authkey*—Password sent with RIP messages or the key used to encrypt/decrypt RIP messages, depending on the authentication mode set for this remote-neighbor interface.

**Mode** Remote Neighbor Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication-key

---

**Description** Enables simple password authentication and assigns a password used by OSPF remote neighbors. The **no** version deletes the password.

**Syntax** authentication-key [ 0 | 8 ] *authKey*  
no authentication-key

- 0—Indicates the *authKey* is entered in unencrypted form (plaintext); this is the default option
- 8—Indicates the *authKey* is entered in encrypted form (ciphertext)
- *authKey*—Password; string of up to 8 characters

**Mode** Remote Neighbor Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication message-digest

---

**Description** Specifies that MD5 authentication is used for the OSPF remote-neighbor interface. There is no **no** version.

**Syntax** authentication message-digest

**Mode** Remote Neighbor Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication mode

---

**Description** Specifies the type of authentication used on the RIP remote-neighbor interface. Authentication is disabled by default. The **no** version removes authentication from the interface. Supported only in RIP version 2.

**Syntax** authentication mode { text | md5 *keyID* }  
no authentication mode

- text—Sends a simple text password with each RIP message; if the password is not possessed by remote neighbors, the message is rejected
- md5—Encrypts and compresses the RIP message with MD5 message-digest algorithms
- *keyID*—Number identifying the MD5 key in the range 1–255; remote neighbors must share the MD5 key to decrypt the message and encrypt the response

**Mode** Remote Neighbor Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## authentication-none

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|                            |                                                                                                                       |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Specifies that no authentication is to be used for the OSPF remote-neighbor interface. There is no <b>no</b> version. |
| <b>Syntax</b>              | authentication-none                                                                                                   |
| <b>Mode</b>                | Remote Neighbor Configuration                                                                                         |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                        |

## authorization

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|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Enables AAA authorization for a specified vty line or group of vty lines. Associates the authorization list with the specified line. If the list does not exist or is empty, authorization always succeeds. For a command to be authorized, its level must match exactly with the level of one of the configured lists. The <b>no</b> version disables authorization.                                                                                                                                                                                                              |
| <b>Syntax</b>              | <pre>authorization { exec   commands <i>level</i> } <i>authorListName</i><br/>no authorization {exec   commands <i>level</i> }</pre> <ul style="list-style-type: none"><li>■ <b>exec</b>—Applies this authorization to CLI access in general</li><li>■ <b>commands</b>—Applies this authorization to user commands of the specified privilege level</li><li>■ <b>level</b>—Privilege level; a number in the range 0–15</li><li>■ <b>authorListName</b>—Name of an authorization method list of up to 32 characters; if no methods list is specified, the default is used</li></ul> |
| <b>Mode</b>                | Line Configuration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## authorization change

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|                            |                                                                                                                                                                                                                                                                                                           |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Description</b>         | Enables the router to receive change-of-authorization messages, such as packet mirroring attributes and Service Manager attributes, from the RADIUS server. The <b>no</b> version restores the default, in which support for RADIUS-initiated change-of-authorization messages is disabled on the router. |
| <b>Syntax</b>              | [ no ] authorization change                                                                                                                                                                                                                                                                               |
| <b>Mode</b>                | RADIUS Configuration                                                                                                                                                                                                                                                                                      |
| <b>Release Information</b> | Command introduced before JUNOS Release 7.1.0.                                                                                                                                                                                                                                                            |
| <b>Related Topics</b>      | <ul style="list-style-type: none"><li>■ Configuring RADIUS-Based Mirroring</li></ul>                                                                                                                                                                                                                      |

## auth-router-name

**Description** Assigns an access virtual router. The **no** version restores the default router.



**NOTE:** This command replaces the deprecated **router-name** command, which may be removed completely in a future release.

**Syntax** [ no ] auth-router-name [ *routerName* ]

- *routerName*—Name of the virtual router; string of 1–32 alphanumeric characters

**Mode** Domain Map Configuration

**Release Information** Command introduced in JUNOS Release 9.0.0.

## auto-configure

**Description** Specifies the type(s) of dynamic encapsulations that are accepted or detected by the static ATM 1483 interface. Optionally, specifies the lockout time range for the encapsulation type. You can enter this command repeatedly in Subinterface Configuration mode. The **no** version terminates detection of the specified encapsulation type or, if the **lockout-time** keyword is specified, restores the lockout time range to its default values.



**NOTE:** Encapsulation type lockout is available for bridged Ethernet, IP, PPP, and PPPoE encapsulation types.

**Syntax** auto-configure *upperInterfaceType* [ lockout-time { *minValue* *maxValue* | none } ]  
no auto-configure *upperInterfaceType* [ lockout-time ]

- *upperInterfaceType*—One of the following dynamic encapsulation types:
  - bridgedEthernet
  - ip
  - ppp
  - pppoe
- *minValue*—Minimum lockout time in the range 1–86400 seconds (24 hours); default value is 1 second
- *maxValue*—Maximum lockout time in the range 1–86400 seconds (24 hours); default value is 300 seconds (5 minutes)
- none—Disables lockout for the specified dynamic encapsulation type

**Mode** Interface Configuration, Subinterface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## auto-configure atm1483

---

**Description** Configures the static ATM AAL5 interface to support autodetection of an ATM 1483 dynamic encapsulation type. The **no** version terminates autodetection of the ATM 1483 encapsulation type.

**Syntax** [ no ] auto-configure atm1483

**Mode** Interface Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## auto-configure vlan

---

**Description** Configures the static VLAN major interface to support autodetection of a dynamic VLAN subinterface. The **no** version terminates autodetection of the VLAN subinterface.

**Syntax** [ no ] auto-configure vlan

**Mode** Interface Configuration

**Release Information** Command introduced in JUNOS Release 7.1.0.

## auto-cost reference-bandwidth

---

**Description** Controls how OSPFv3 calculates default metrics for the interface. The **no** version assigns cost based only on the interface type.

**Syntax** [ no ] auto-cost reference-bandwidth *refBw*

- *refBw*—Bandwidth in megabits per second in the range 1–4294967; default value is 100

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## automatic-virtual-link

---

**Description** Enables or disables automatic virtual link configuration. The **no** version disables an automatic virtual link.

**Syntax** [ no ] automatic-virtual-link

**Mode** Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## auto-summary

---

**Description** Reenables the automatic summarization of routes redistributed into BGP to their natural network masks. Automatic summarization is enabled by default. The **no** version disables automatic summarization.

**Syntax** [ no ] auto-summary

**Mode** Address Family Configuration, Router Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

## average-length-exponent

---

**Description** Specifies the exponent used to weight the average queue length over time, controlling WRED responsiveness. The **no** version negates the average-length-exponent.

**Syntax** average-length-exponent *exponent*  
no average-length-exponent

- *exponent*—Total average queue length (TAQL) coefficient

**Mode** Drop Profile Configuration

**Release Information** Command introduced before JUNOS Release 7.1.0.

**Related Topics**

- Configuring RED
- Configuring WRED



## avp

---

**Description** Configures the L2TP tunnel switching behavior for a specified L2TP AVP type. The **no** version restores the default L2TP tunnel switching behavior for AVPs of the specified type.

**Syntax** `avp avpType action`  
`no avp avpType`

- *avpType*—One of the following L2TP AVPs
  - *bearer-type*—L2TP Bearer Type AVP 18; by default, the router regenerates this AVP at the outbound LAC session, based on the local policy that is in effect
  - *calling-number*—L2TP Calling Number AVP 22; by default, the router regenerates this AVP at the outbound LAC session, based on the local policy that is in effect
  - *cisco-nas-port*—Cisco NAS Port Info AVP 100; by default, the router drops this AVP
- *action*—One of the following actions that characterize the tunnel switching behavior; currently, only the **relay** action is supported
  - *relay*—Causes the router to preserve the value of an incoming AVP of the specified type when packets are switched between an inbound LNS session and an outbound LAC session

**Mode** L2TP Tunnel Switch Profile Configuration

**Release Information** Command introduced in JUNOS Release 7.2.0.