

Chapter 23

Summary of PIM Configuration Statements

The following sections explain each of the Protocol Independent Multicast (PIM) configuration statements. The statements are organized alphabetically.

address

See the following sections:

address (Local RPs) on page 239

address (Static RPs) on page 240

address (Local RPs)

Syntax	address <i>address</i> ;
Hierarchy Level	[edit protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local family]
Description	Configure the local RP address. You cannot configure a local RP in a logical router.
Options	<i>address</i> —Local RP address.
Usage Guidelines	See “Configuring the Local RP Address” on page 201.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

address (Static RPs)

Syntax `address address {
 version version;
 group-ranges {
 destination-mask;
 }
 }`

Hierarchy Level [edit logical-routers *logical-router-name* protocols pim static],
 [edit logical-routers *logical-router-name* routing-instances *routing-instance-name*
 protocols pim static],
 [edit protocols pim static],
 [edit routing-instances *routing-instance-name* protocols pim static]

Description Configure static rendezvous-point (RP) addresses. You can configure a static RP in a logical router only if the logical router is not directly connected to a source.

For each static RP address, you can optionally specify the PIM version and the groups for which this address can be the RP. The default PIM version is version 1.

Options *address*—Static RP address.
Default: 224.0.0.0/4

The remaining statements are explained separately.

Usage Guidelines See “Configuring Static RPs” on page 203.

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

assert-timeout

Syntax	assert-timeout <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim], [edit protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
Description	Multicast routers running PIM sparse mode often forward the same stream of multicast packets onto the same LAN through the rendezvous-point tree (RPT) and shortest-path tree (SPT). PIM assert messages help routers determine which router forwards the traffic and prunes the RPT for this group. By default, routers enter an assert cycle every 210 seconds. You can configure this assert timeout between 5 and 210 seconds.
Options	<i>seconds</i> —Time for router to wait before another assert message cycle. Range: 5 through 210 seconds Default: 210 seconds
Usage Guidelines	See “Configuring the Assert Timeout” on page 209.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

auto-rp

Syntax	auto-rp (announce discovery mapping);
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]
Description	Configure automatic RP announcement and discovery. You cannot configure auto-rp announce in a logical router.
Options	announce—Configures the router to listen only for mapping packets and also to advertise itself if it is an RP. You cannot configure an RP to announce in a logical router. discovery—Configures the router to listen only for mapping packets. mapping—Configures the router to announce, listens for and generates mapping packets, and announces that the router is eligible to be an RP.
Usage Guidelines	See “Configuring Auto-RP Announcement, Mapping, and Discovery” on page 204.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

bootstrap-export

Syntax	bootstrap-export [<i>policy-names</i>] ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]
Description	Apply one or more export policies to control outgoing PIM bootstrap messages.
Options	<i>policy-names</i> —Name of one or more import policies.
Usage Guidelines	See “Filtering PIM Bootstrap Messages” on page 204.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

bootstrap-import

Syntax	bootstrap-import [<i>policy-names</i>] ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]
Description	Apply one or more import policies to control incoming PIM bootstrap messages.
Options	<i>policy-names</i> —Name of one or more import policies.
Usage Guidelines	See “Filtering PIM Bootstrap Messages” on page 204.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

bootstrap-priority

Syntax	bootstrap-priority <i>number</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]
Description	Configure whether this router is eligible to be a bootstrap router. In the case of a tie, the router with the highest IP address is elected to be the bootstrap router.
Options	<i>number</i> —Priority for becoming the bootstrap router. A value of 0 means that the router is not eligible to be the bootstrap router. Range: 0 through 255 Default: 0
Usage Guidelines	See “Configuring PIM Sparse Mode Properties” on page 196.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

dense-groups

Syntax	dense-groups { <i>addresses</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim], [edit protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
Description	Configure which groups are operating in dense mode.
Options	<i>addresses</i> —Operate in dense mode.
Usage Guidelines	See “Configuring Sparse-Dense Mode Properties” on page 210.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

disable

See the following sections:

disable (PIM Interfaces) on page 244

disable (PIM Graceful Restart) on page 244

disable (PIM Interfaces)

Syntax	disable;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit logical-routers <i>logical-router-name</i> protocols pim rp local family], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim interface <i>interface-name</i>], [edit protocols pim], [edit protocols pim interface <i>interface-name</i>], [edit protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local family]
Description	Explicitly disable PIM.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

disable (PIM Graceful Restart)

Syntax	disable;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> protocols pim graceful-restart]
Description	Explicitly disable PIM sparse mode graceful restart.
Usage Guidelines	See “Configuring PIM Sparse Mode Graceful Restart” on page 198.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

embedded-rp

Statement	<pre> embedded-rp { maximum-rps <i>limit</i>; group-ranges { <i>destination-mask</i>; } } </pre>
Hierarchy Level	<p>[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]</p>
Description	<p>Configure properties for embedded IP version 6 (IPv6) RPs.</p> <p>The statements are explained separately.</p>
Usage Guidelines	See “Configuring Embedded RP for IPv6” on page 208.
Required Privilege Level	<p>routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.</p>

family

Syntax	<pre> family (inet inet6) { address <i>address</i>; disable; group-ranges { <i>destination-mask</i>; } hold-time <i>seconds</i>; priority <i>number</i>; } </pre>
Hierarchy Level	<p>[edit protocols pim rp local], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local]</p>
Description	Configure which IP protocol type local RP properties to apply. You cannot configure a local RP in a logical router.
Options	<p>inet—Apply IP version 4 (IPv4) local RP properties.</p> <p>inet6—Apply IPv6 local RP properties.</p> <p>The remaining statements are explained separately.</p>
Usage Guidelines	See “Configuring PIM Sparse Mode Properties” on page 196.
Required Privilege Level	<p>routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.</p>

graceful-restart

Syntax	graceful-restart { disable; restart-duration <i>seconds</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> protocols pim graceful-restart]
Description	Configure PIM sparse mode graceful restart.
Options	The statements are explained separately.
Usage Guidelines	See “Configuring PIM Sparse Mode Graceful Restart” on page 198.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

group-ranges

Syntax	group-ranges { <i>destination-mask</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp embedded-rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp embedded-rp], [edit protocols pim rp embedded-rp], [edit protocols pim rp local family], [edit protocols pim rp static address <i>address</i>], [edit routing-instances <i>routing-instance-name</i> protocols pim rp embedded-rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> protocols pim rp static address <i>address</i>]
Description	Configure the address ranges of the multicast groups for which this router can be an RP.
Default	The router is eligible to be the RP for all IPv4 or IPv6 groups (224.0.0.0/4 or FF70::/12 to FFF0::/12).
Options	<i>destination-mask</i> —Addresses or address ranges for which this router can be an RP.
Usage Guidelines	See “Configuring the Groups for Which the Router Is the RP” on page 202 and “Configuring Embedded RP for IPv6” on page 208.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

hello-interval

Syntax	hello-interval <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols pim interface <i>interface-name</i>]
Description	How often the router sends PIM hello packets out of an interface.
Options	<i>seconds</i> —Length of time between PIM hello packets. Range: 0 through 255 Default: 30 seconds
Usage Guidelines	See “Modifying the Hello Interval” on page 191.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	hold-time on page 247

hold-time

Syntax	hold-time <i>seconds</i> ;
Hierarchy Level	[edit protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local family]
Description	How long a neighbor should consider the sending router (this router) to be operative (up). You cannot configure a local RP in a logical router.
Options	<i>seconds</i> —Hold time. Range: 0 through 255 Default: 0 seconds
Usage Guidelines	See “Configuring the Router’s Local RP Properties” on page 200.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

import

Syntax	import [<i>policy-names</i>];
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit protocols pim], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
Description	Apply one or more policies to routes being imported into the routing table from PIM. Use the import statement to filter PIM join messages from entering the network.
Options	<i>policy-names</i> —Name of one or more policies.
Usage Guidelines	See “Filtering PIM Join Messages” on page 193.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

interface

Syntax	interface [all <i>interface-name</i>] { disable; hello-interval <i>seconds</i> ; mode (dense sparse sparse-dense); priority <i>number</i> ; version <i>version</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit protocols pim], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
Description	Enable PIM on an interface and configure interface-specific properties.
Options	<i>interface-name</i> —Name of the interface. Specify the full interface name, including the physical and logical address components. To configure all interfaces, you can specify all. For details about specifying interfaces, see the <i>JUNOS Network Interfaces and Class of Service Configuration Guide</i> .
	The remaining statements are explained separately.
Usage Guidelines	See “Configuring PIM Mode-Independent Interface Properties” on page 190.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

local

Syntax	<pre> local { family (inet inet6) { address <i>address</i>; disable; group-ranges { <i>destination-mask</i>; } hold-time <i>seconds</i>; priority <i>number</i>; } } </pre>
Hierarchy Level	[edit protocols pim rp local], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local]
Description	Configure the router's RP properties. You cannot configure a local RP in a logical router.
Options	The statements are explained separately.
Usage Guidelines	See "Configuring the Router's Local RP Properties" on page 200.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

maximum-rps

Statement	maximum-rps <i>limit</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim rp embedded-rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp embedded-rp], [edit protocols pim rp embedded-rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp embedded-rp]
Description	Limit the number of RPs that the routing platform acknowledges.
Options	<i>limit</i> —Number of RPs. Range: 1 through 500 Default: 100
Usage Guidelines	See "Configuring Embedded RP for IPv6" on page 208.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

mode

Syntax	mode (dense sparse sparse-dense);
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols pim interface <i>interface-name</i>]
Description	Configure PIM to operate in sparse, dense, or sparse-dense mode.
Options	<p>dense—Operate in dense mode.</p> <p>sparse—Operate in sparse mode.</p> <p>sparse-dense—Operate in sparse-dense mode.</p> <p>Default: sparse</p>
Usage Guidelines	See “Configuring PIM Dense Mode Properties” on page 195, “Configuring PIM Sparse Mode Properties” on page 196, and “Configuring Sparse-Dense Mode Properties” on page 210.
Required Privilege Level	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

pim

```

Syntax  pim {
    assert-timeout seconds;
    dense-groups {
        addresses;
    }
    disable;
    import [ policy-names ];
    interface interface-name {
        disable;
        hello-interval seconds;
        mode (dense | sparse | sparse-dense);
        priority number;
        version version;
    }
    rib-group group-name;
    rp {
        auto-rp (announce | discovery | mapping);
        bootstrap-import [ policy-names ];
        bootstrap-export [ policy-names ];
        bootstrap-priority number;
        embedded-rp {
            maximum-rps limit;
            group-ranges {
                destination-mask;
            }
        }
    }
}

```

```

local {
  family (inet | inet6) {
    disable;
    address address;
    group-ranges {
      destination-mask;
    }
    hold-time seconds;
    priority number;
  }
}
static {
  address address {
    version version;
    group-ranges {
      destination-mask;
    }
  }
}
}
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
  <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
}

```

Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols], [edit protocols], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols], [edit routing-instances <i>routing-instance-name</i> protocols]
Description	Enable PIM on the router.
Default	PIM is disabled on the router.
Options	The statements are explained separately.
Usage Guidelines	See “PIM Configuration Guidelines” on page 189.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

priority

See the following sections:

priority (PIM Interfaces) on page 252

priority (PIM RPs) on page 252

priority (PIM Interfaces)

Syntax	<code>priority number;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim interface <i>interface-name</i>], [edit routing-instances <i>routing-instance-name</i> protocols pim interface <i>interface-name</i>]
Description	Configure the router's likelihood to be elected as the designated router. A logical router running PIM cannot not be a designated router.
Options	<i>number</i> —Router's priority for becoming the designated router. A higher value corresponds to a higher priority. Range: 1 through a 32-bit number Default: 1 (The router has the least likelihood of becoming the designated router.)
Usage Guidelines	See "Configuring the Designated Router Priority" on page 191.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

priority (PIM RPs)

Syntax	<code>priority number;</code>
Hierarchy Level	[edit protocols pim rp local family], [edit routing-instances <i>routing-instance-name</i> protocols pim rp local family]
Description	This router's priority for becoming an RP. The bootstrap router uses this field when selecting the list of candidate RPs to send in the bootstrap message. A larger number increases the likelihood that the router becomes the RP for local multicast groups. A priority value of 0 means that bootstrap router can override the group range being advertised by the candidate RP.
Options	<i>number</i> —Router's priority for becoming an RP. Range: 0 through 255 Default: 1
Usage Guidelines	See "Configuring the Router's Local RP Properties" on page 200.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

restart-duration

Syntax	<code>restart-duration seconds;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim graceful-restart], [edit routing-instances <i>routing-instance-name</i> protocols pim graceful-restart]
Description	Configure the duration of the graceful restart interval.
Options	<i>seconds</i> —Time the routing platform waits to complete PIM sparse mode graceful restart. Range: 30 through 300 Default: 60
Usage Guidelines	See “Configuring PIM Sparse Mode Graceful Restart” on page 198.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

rib-group

Syntax	<code>rib-group group-name;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols pim], [edit protocols pim], [edit routing-instances <i>routing-instance-name</i> logical-routers <i>logical-router-name</i> protocols pim], [edit routing-instances <i>routing-instance-name</i> protocols pim]
Description	Associate a routing table group with PIM.
Options	<i>group-name</i> —Name of the routing table group. The name must be one that you defined with the rib-group statement at the [edit routing-options] hierarchy level.
Usage Guidelines	See “Configuring a PIM RPF Routing Table” on page 192.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

rp

```

Syntax  rp {
    auto-rp (announce | discovery | mapping);
    bootstrap-export [ policy-names ];
    bootstrap-import [ policy-names ];
    bootstrap-priority number;
    embedded-rp {
        maximum-rps limit;
        group-ranges {
            destination-mask;
        }
    }
    local {
        family (inet | inet6) {
            disable;
            address address;
            group-ranges {
                destination-mask;
            }
            hold-time seconds;
            priority number;
        }
    }
    static {
        address address {
            version version;
            group-ranges {
                destination-mask;
            }
        }
    }
}

```

Hierarchy Level [edit logical-routers *logical-router-name* protocols pim],
 [edit logical-routers *logical-router-name* routing-instances *routing-instance-name*
 protocols pim],
 [edit protocols pim],
 [edit routing-instances *routing-instance-name* protocols pim]

Description Configure the router as an actual or potential RP. A router can be an RP for more than one group. You cannot configure a local RP in a logical router. You can configure a static RP in a logical router only if the RP is not directly connected to a source.

Default If you do not include the rp statement, the router can never become the RP.

Options The statements are explained separately.

Usage Guidelines See “Configuring PIM Sparse Mode Properties” on page 196.

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

static

Syntax	<pre>static { address <i>address</i> { version <i>version</i>; group-ranges { <i>destination-mask</i>; } } }</pre>
Hierarchy Level	<p>[edit logical-routers <i>logical-router-name</i> protocols pim rp], [edit logical-routers <i>logical-router-name</i> routing-instances <i>routing-instance-name</i> protocols pim rp], [edit protocols pim rp], [edit routing-instances <i>routing-instance-name</i> protocols pim rp]</p>
Description	<p>Configure static RP addresses. The default static RP address is 224.0.0.0/4. To configure other addresses, include one or more address statements. You can configure a static RP in a logical router only if the logical router is not directly connected to a source.</p> <p>For each static RP address, you can optionally specify the PIM version and the groups for which this address can be the RP. The default PIM version is version 1.</p>
Options	The statements are explained separately.
Usage Guidelines	See “Configuring Static RPs” on page 203.
Required Privilege Level	<p>routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.</p>

traceoptions

Syntax traceoptions {
 file *name* <replace> <size *size*> <files *number*> <no-stamp>
 <(world-readable | no-world-readable)>;
 flag *flag* <*flag-modifier*> <disable>;
 }

Hierarchy Level [edit logical-routers *logical-router-name* protocols pim],
 [edit protocols pim],
 [edit routing-instances *routing-instance-name* logical-routers *logical-router-name*
 protocols pim],
 [edit routing-instances *routing-instance-name* protocols pim]

Description Configure PIM tracing options.

To specify more than one tracing operation, include multiple flag statements.

Default The default PIM trace options are those inherited from the routing protocol's traceoptions statement included at the [edit routing-options] hierarchy level.

Options disable—(Optional) Disable the tracing operation. You can use this option to disable a single operation when you have defined a broad group of tracing operations, such as all.

file *name*—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory /var/log. We recommend that you place tracing output in the pim-log file.

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

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

Range: 2 through 1000 files

Default: 2 files

flag *flag*—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements.

PIM Tracing Flags

assert—Assert messages

bootstrap—Bootstrap messages

cache—Packets in the PIM sparse mode routing cache

graft—Graft and graft acknowledgment messages

hello—Hello packets

join—Join messages

mt—Multicast tunnel messages

packets—All PIM packets

prune—Prune messages

register—Register and register stop messages

rp—Candidate RP advertisements

Global Tracing Flags

all—All tracing operations

general—A combination of the normal and route trace operations

normal—All normal operations

Default: If you do not specify this option, only unusual or abnormal operations are traced.

policy—Policy operations and actions

route—Routing table changes

state—State transitions

task—Interface transactions and processing

timer—Timer usage

flag-modifier—(Optional) Modifier for the tracing flag. You can specify one or more of these modifiers:

detail—Detailed trace information

receive—Packets being received

send—Packets being transmitted

no-stamp—(Optional) Do not place timestamp information at the beginning of each line in the trace file.

Default: If you omit this option, timestamp information is placed at the beginning of each line of the tracing output.

no-world-readable—(Optional) Disallow any user to read the log file.

replace—(Optional) Replace an existing trace file if there is one.

Default: If you do not include this option, tracing output is appended to an existing trace file.

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

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

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

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

Default: 1 MB

world-readable—(Optional) Allow any user to read the log file.

Usage Guidelines See “Tracing IGMP Protocol Traffic” on page 52, “Tracing DVMRP Protocol Traffic” on page 150, “Configuring PIM Trace Options” on page 194, and “Tracing MSDP Protocol Traffic” on page 280.

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

version

Statement `version version;`

Hierarchy Level [edit logical-routers *logical-router-name* protocols pim interface *interface-name*],
 [edit logical-routers *logical-router-name* protocols pim rp static address *address*],
 [edit protocols pim interface *interface-name*],
 [edit protocols pim rp static address *address*],
 [edit routing-instances *routing-instance-name* logical-routers *logical-router-name* protocols pim interface *interface-name*],
 [edit routing-instances *routing-instance-name* logical-routers *logical-router-name* protocols pim rp static address *address*],
 [edit routing-instances *routing-instance-name* protocols pim interface *interface-name*],
 [edit routing-instances *routing-instance-name* protocols pim rp static address *address*]

Description Specify the version of PIM.

Options *version*—PIM version number.

Range: 1 or 2

Default: PIM version 2

Usage Guidelines See “Changing the PIM Version” on page 191.

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

vpn-group-address

Syntax	<code>vpn-group-address address;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> routing-instances <i>instance-name</i> protocols pim], [edit routing-instances <i>instance-name</i> protocols pim]
Description	Specify a group address on which to encapsulate multicast traffic from a virtual private network (VPN) instance.
Options	<i>address</i> —IP address whose high-order four bits are 1110, giving an address range from 224.0.0.0 through 239.255.255.255, or simply 224.0.0.0/4. For more information about addresses, see “Multicast Addresses” on page 30.
Usage Guidelines	See “Configuring Multicast for Layer 3 VPNs” on page 210.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

