

Chapter 22

Summary of GMPLS Configuration Statements

This chapter provides a reference for each Generalized Multiprotocol Label Switching (GMPLS) configuration statement. The statements are organized alphabetically.

address

Syntax	address <i>ip-address</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i>], [edit protocols link-management peer <i>peer-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the ID of the peer.
Default	The loopback address is advertised.
Options	<i>ip-address</i> —IP address of the peer.
Usage Guidelines	See “Configuring the LMP Peer ID” on page 463.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

control-channel

Syntax	control-channel <i>control-channel-interface</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i>], [edit protocols link-management peer <i>peer-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the control channel interface for the peer.
Options	<i>control-channel-interface</i> —Name of the control channel interface.
Usage Guidelines	See “Configuring LMP Peers” on page 463.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

dead-interval

Syntax	dead-interval <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>], [edit protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify how long Open Shortest Path First (OSPF) and OSPF version 3 (OSPFv3) wait before declaring that a neighboring router is unavailable. This is an interval during which the router receives no hello packets from the neighbor.
Options	<i>seconds</i> —Interval to wait. Range: 1 through 65,535 Default: 40 seconds (four times the hello interval)
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	hello-interval on page 486

disable

See the following sections:

- disable (for GMPLS) on page 485
- disable (for OSPF) on page 485

disable (for GMPLS)

Syntax	disable;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Disable a traffic engineering link.
Default	The configured object is enabled (operational) unless explicitly disabled.
Usage Guidelines	See “Disabling the Traffic Engineering Link for the LMP Peer” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

disable (for OSPF)

Syntax	disable;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>], [edit protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Disable an OSPF peer interface.
Default	The configured object is enabled (operational) unless explicitly disabled.
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

hello-dead-interval

Syntax	hello-dead-interval <i>milliseconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> lmp-protocol], [edit protocols link-management peer <i>peer-name</i> lmp-protocol]
Release Information	Statement introduced in JUNOS Release 8.0.
Description	Specify how long the Link Management Protocol (LMP) waits before declaring the control channel to be dead. This is an interval during which the router receives no LMP hello packets from the neighbor on a control that is active or up.
Options	<i>seconds</i> —Interval to wait before declaring the control channel to be dead. Range: 500 through 300,000 Default: 500 milliseconds (three times the hello interval)
Usage Guidelines	See “Configuring the Hello Message Attributes for the LMP Control Channel” on page 465.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	hello-interval on page 486

hello-interval

See the following sections:

- hello-interval (for LMP) on page 487
- hello-interval (for OSPF) on page 487

hello-interval (for LMP)

Syntax	hello-interval <i>milliseconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> Imp-protocol], [edit protocols link-management peer <i>peer-name</i> Imp-protocol]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify how often the router sends Link Management Protocol (LMP) hello packets.
Options	<i>seconds</i> —Length of time between hello packets. Range: 150 through 300,000 Default: 150 milliseconds
Usage Guidelines	See “Configuring the Hello Message Attributes for the LMP Control Channel” on page 465.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	hello-dead-interval on page 486.

hello-interval (for OSPF)

Syntax	hello-interval <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>], [edit protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify how often the router sends hello packets out the peer interface. The hello interval must be the same for all routers on a shared logical IP network.
Options	<i>seconds</i> —Length of time between hello packets. Range: 1 through 255 Default: 10 seconds; 120 seconds (nonbroadcast networks)
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	dead-interval on page 484.

interface

Syntax	interface <i>interface-name</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the egress router interface.
Options	<i>interface-name</i> —Name of the interface to the egress router.
Usage Guidelines	See “Configuring LMP” on page 460.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

label-switched-path

Syntax	label-switched-path <i>label-switched-path-name</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i>]
Release Information	Statement introduced in JUNOS Release 7.4.
Description	Specify the LSP to be used by the forwarding adjacency.
Options	<i>label-switched-path-name</i> —Name of the LSP.
Usage Guidelines	See “Configuring a Forwarding Adjacency” on page 479.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

link-management

Syntax	link-management { ... }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols], [edit protocols]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Enable Link Management Protocol (LMP) on the router.
Usage Guidelines	See “Configuring LMP” on page 460.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

Imp-control-channel

Syntax	Imp-control-channel <i>control-channel-interface</i> { remote-address <i>ip-address</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i>], [edit protocols link-management peer <i>peer-name</i>]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify the Link Management Protocol (LMP) control channel interface for the peer.
Options	<i>control-channel-interface</i> —Name of the control channel interface. The remaining statement is described separately in this chapter.
Usage Guidelines	See “Configuring the LMP Control Channel Interface for the Peer” on page 464.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

Imp-protocol

Syntax	Imp-protocol { hello-interval <i>milliseconds</i> ; hello-dead-interval <i>milliseconds</i> ; retransmission-interval <i>milliseconds</i> ; retry-limit <i>number</i> ; passive; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i>], [edit protocols link-management peer <i>peer-name</i>]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Configure attributes of Link Management Protocol (LMP) to establish and maintain the LMP control channel for the peer.
Options	The statements are described separately in this chapter.
Usage Guidelines	See “Configuring LMP Peers” on page 463.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

local-address

Syntax	local-address <i>ip-address</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>], [edit protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the local IP address associated with the traffic engineering link.
Options	<i>local-address</i> —Local IP address of the traffic engineering link.
Usage Guidelines	See “Configuring the Local IP Address for the Traffic Engineering Link” on page 461 and “Configuring the Local IP Address for the Forwarding Adjacency” on page 480.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

passive

Syntax	passive;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> lmp-protocol], [edit protocols link-management peer <i>peer-name</i> lmp-protocol]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify the router to not configure the Link Management Protocol (LMP) control channels, but to wait for the remote peer to configure the LMP control channels.
Usage Guidelines	See “Configuring the Local Peer to Wait for the Remote Peer” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

peer

Syntax `peer peer-name {
 address ip-address;
 control-channel control-channel-interface;
 lmp-control-channel control-channel-interface;
 lmp-protocol {
 hello-interval milliseconds;
 hello-dead-interval milliseconds;
 retransmission-interval milliseconds;
 retry-limit number;
 passive;
 }
 te-link te-link-name;
}`

Hierarchy Level [edit logical-routers *logical-router-name* protocols link-management],
 [edit protocols link-management]

Release Information Statement introduced before JUNOS 7.4. For JUNOS 8.1, the `lmp-protocol` statement and sub-statements were added.

Description Configure a network peer.

Options `peer-name`—Name of the network peer.

The remaining statements are described separately in this chapter.

Usage Guidelines See “Configuring LMP Peers” on page 463.

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

peer-interface

See the following sections:

- `peer-interface` (for OSPF) on page 492
- `peer-interface` (for RSVP) on page 492

peer-interface (for OSPF)

Syntax	peer-interface <i>peer-interface-name</i> { dead-interval <i>seconds</i> ; disable; hello-interval <i>seconds</i> ; retransmit-interval <i>seconds</i> ; transit-delay <i>seconds</i> ; }
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-name</i>], [edit protocols ospf area <i>area-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Configure the control channel. The peer interface name is the same as the peer interface name configured under LMP.
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467 and “Advertising a Forwarding Adjacency Using OSPF” on page 481.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	<i>JUNOS Routing Protocols Configuration Guide</i>

peer-interface (for RSVP)

See peer-interface on page 338.

remote-address**remote-address (for LMP control channel)**

Syntax	remote-address <i>ip-address</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> lmp-control-channel <i>control-channel-interface</i>], [edit protocols link-management peer <i>peer-name</i> lmp-control-channel <i>control-channel-interface</i>]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify the remote IP address for the Link Management Protocol (LMP) control channel interface.
Options	<i>ip-address</i> —Remote IP address mapped to the LMP control channel interface.
Usage Guidelines	See “Configuring the Remote IP Address for the LMP Control Channel” on page 465.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

remote-address (for LMP traffic engineering)

Syntax	remote-address <i>ip-address</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>], [edit protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the remote IP address for the traffic engineering link.
Options	<i>ip-address</i> —Remote IP address mapped to the traffic engineering link.
Usage Guidelines	See “Configuring the Remote IP Address for the Traffic Engineering Link” on page 462 and “Configuring the Remote IP Address for the Forwarding Adjacency” on page 480
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

remote-id

Syntax	remote-id <i>id-number</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i>], [edit logical-routers <i>logical-router-name</i> protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>], [edit protocols link-management te-link <i>te-link-name</i>], [edit protocols link-management te-link <i>te-link-name</i> interface <i>interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify the ID assigned to a traffic engineering link or an interface (resource) on the peer node.
Options	<i>id-number</i> —ID number for the remote device.
Usage Guidelines	See “Configuring the Remote ID for the Traffic Engineering Link” on page 462.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

retransmission-interval

Syntax	retransmission-interval <i>milliseconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> lmp-protocol], [edit protocols link-management peer <i>peer-name</i> lmp-protocol]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify how often Link Management Protocol (LMP) sends Config and LinkSummary messages on the LMP control channel.
Options	<i>seconds</i> —Length of time between Config messages. Range: 500 through 300,000 Default: 500 milliseconds
Usage Guidelines	See “Configuring Message Attributes for the LMP Control Channel” on page 466.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	retry-limit on page 495.

retransmit-interval

Syntax	retransmit-interval <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>], [edit protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Specify how long the router waits to receive a link-state acknowledgment packet before retransmitting link-state advertisements to a peer interface’s neighbors.
Options	<i>seconds</i> —Interval to wait for a link-state acknowledgment packet. Range: 1 through 65,535 Default: 5 seconds
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

retry-limit

Syntax	<code>retry-limit <i>number</i>;</code>
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols link-management peer <i>peer-name</i> lmp-protocol], [edit protocols link-management peer <i>peer-name</i> lmp-protocol]
Release Information	Statement introduced in JUNOS Release 8.1.
Description	Specify how many times the Link Management Protocol (LMP) sends Config and LinkSummary messages on the LMP control channel without receiving an appropriate acknowledgment before it logs a message and restarts the LMP control channel configuration process.
Options	<i>number</i> —Maximum number of times messages are sent without receiving an acknowledgment. Range: 3 through 1000 Default: 3
Usage Guidelines	See “Configuring Message Attributes for the LMP Control Channel” on page 466.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
See Also	retransmission-interval on page 494.

te-link

Syntax `te-link te-link-name {
 disable;
 interface interface-name {
 disable;
 local-address ip-address;
 remote-address ip-address;
 remote-id id-number;
 }
 local-address ip-address;
 remote-address ip-address;
 remote-id id-number;
 }`

Hierarchy Level [edit logical-routers *logical-router-name* protocols link-management],
 [edit logical-routers *logical-router-name* protocols link-management peer *peer-name*],
 [edit protocols link-management],
 [edit protocols link-management peer *peer-name*]

Release Information Statement introduced before JUNOS Release 7.4.

Description Represent a collection of physical ports or time slots. Assign a traffic engineering link to the specified network peer.

Options *te-link-name*—Name of the collection of physical ports or the name of the time slots.

disable—Disable the traffic engineering link or an interface to a traffic engineering link.

The other statements are described separately in this chapter.

Usage Guidelines See “Configuring LMP Traffic Engineering Links” on page 461.

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

traceoptions

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

Hierarchy Level [edit logical-routers *logical-router-name* protocols link-management],
 [edit protocols link-management]

Release Information Statement introduced before JUNOS Release 7.4. For JUNOS 8.1, the hello-packets, packets, and state flags were added.

Description Trace options for the LMP protocol.

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.

filename—Name of the file to receive the output of the tracing operation. Enclose the name within quotation marks. All files are placed in the directory `/var/log`.

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

Range: 2 through 1000

Default: 2 files

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

- all—Trace all available operations
- hello-packets—Trace hello packets on any LMP control channel
- init—Output from the initialization messages
- packets—Trace all packets other than hello packets on any LMP control channel
- parse—Operation of the parser
- process—Operation of the general configuration
- route-socket—Operation of route socket events
- routing—Operation of the routing protocols
- server—Server processing operations

- **show**—show command servicing operations
- **state**—Trace state transitions of the LMP control channels and traffic engineering links

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

- **detail**—Provide 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 tracing output.

no-world-readable—(Optional) Prevents all users from reading 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 the *trace-file* again reaches its maximum size, *trace-file.0* is renamed *trace-file.1* and *trace-file* is renamed *trace-file.0*. This renaming scheme continues until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

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

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

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

Default: 1 MB

world-readable—(Optional) Enables log file access for all users.

Usage Guidelines See “Tracing LMP Traffic” on page 470 and the *JUNOS Network Management Configuration Guide*.

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.

transit-delay

Syntax	transit-delay <i>seconds</i> ;
Hierarchy Level	[edit logical-routers <i>logical-router-name</i> protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>], [edit protocols ospf area <i>area-number</i> peer-interface <i>peer-interface-name</i>]
Release Information	Statement introduced before JUNOS Release 7.4.
Description	Set the estimated time required to transmit a link-state update on the peer interface. When calculating this time, you should account for transmission and propagation delays.
Options	<i>seconds</i> —Estimated time. Range: 1 through 65,535 Default: 1 second
Usage Guidelines	See “Configuring Peer Interfaces in RSVP and OSPF” on page 467.
Required Privilege Level	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

