

Chapter 24

ICMP Router Discovery Configuration Guidelines

To configure a router as a server for Internet Control Message Protocol (ICMP) router discovery, you can include the following statements in the configuration:

```
protocols {
  router-discovery {
    disable;
    traceoptions {
      file name <replace> <size size> <files number> <no-stamp>
        <(world-readable | no-world-readable)>;
      flag flag <detail> <disable>;
    }
    interface interface-name {
      min-advertisement-interval seconds;
      max-advertisement-interval seconds;
      lifetime seconds;
    }
    address address {
      (advertise | ignore);
      (broadcast | multicast);
      (priority number | ineligible);
    }
  }
}
```

For a list of hierarchy levels at which you can configure these statements, see the statement summary sections for these statements.

By default, router discovery is disabled.

This chapter describes the following tasks for configuring ICMP router discovery:

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Minimum Router Discovery Server Configuration

To configure the router to be a router discovery server, you must include at least the following statement in the configuration. All other router discovery configuration statements are optional.

```
[edit]
protocols {
  router-discovery;
}
```

For a list of hierarchy levels at which you can configure this statement, see the statement summary section for this statement.



NOTE: When you configure ICMP on an interface, you must also configure family inet at the [edit interfaces *interface-name* unit *logical-unit-number*] hierarchy level. For more information about the family inet statement, see the *JUNOS Network Interfaces and Class of Service Configuration Guide*.

Configuring the Addresses to Include in Router Advertisements

To specify which addresses the router should include in its router advertisements, include the address statement:

```
[edit protocols router-discovery]
address address {
  (advertise | ignore);
  (broadcast | multicast);
  (priority number | ineligible);
}
```

For a list of hierarchy levels at which you can configure these statements, see the statement summary sections for these statements.

Specify the IP address of the router, and optionally specify the following information about the router:

Whether the server should include this address in its router advertisements—By default, the address is advertised. To disable this function, include the `ignore` statement.

Whether the server should broadcast or multicast router advertisements—By default, advertisements are multicast if the router supports IP multicast; otherwise, they are broadcast. To modify the default functionality, include the `broadcast` or `multicast` statement.

Preference of the address to become the default router—In the `priority` statement, a higher value for *number* indicates that the address has a greater preference for becoming the default router. The default value is 0, which means that the address has the least chance of becoming the default router. If the router at this address should never become the default router, include the `ineligible` statement. To modify the preference, include the `preference` statement. *number* can be a value in the range from 0 through 0x80000000. The default is 0.

Configuring the Frequency of Router Advertisements

The router discovery server sends router advertisement messages, which include route information and indicate to network hosts that the router is still operational. The server sends these messages periodically, with a time range defined by minimum and maximum values. By default, the server sends router advertisements every 400 to 600 seconds. To modify these times, include the `min-advertisement-interval` and `max-advertisement-interval` statements:

```
[edit protocols router-discovery interface interface-name]
min-advertisement-interval seconds;
max-advertisement-interval seconds;
```

For a list of hierarchy levels at which you can configure these statements, see the statement summary sections for these statements.

Modifying the Router Advertisement Lifetime

The `lifetime` field in router advertisement messages indicates how long a host should consider the advertised address to be valid. If this amount of time passes and the host has not received a router advertisement from the server, the route marks the advertised addresses as invalid. By default, addresses are considered to be valid for 1800 seconds (30 minutes).

To modify the router lifetime timer, include the `lifetime` statement:

```
[edit protocols router-discovery interface interface-name]
lifetime seconds;
```

For a list of hierarchy levels at which you can configure this statement, see the statement summary section for this statement.

Tracing ICMP Protocol Traffic

To trace ICMP protocol traffic, you can specify options in the global traceoptions statement at the [edit routing-options] hierarchy level, and you can specify ICMP-specific options by including the traceoptions statement:

```
[edit protocols router-discovery]
traceoptions {
  file name <replace> <size size> <files number> <no-stamp>
    <(world-readable | no-world-readable)>;
  flag flag <flag-modifier> <disable>;
}
```

For a list of hierarchy levels at which you can configure these statements, see the statement summary sections for these statements.

You can specify the following ICMP-specific options in the ICMP flag statement:

- error—Trace error packets.
- info—Trace information packets.
- routerdiscovery—Trace all ICMP packets.
- redirect—Trace redirect packets.

You can specify the following global flag options:

- all—Trace everything.
- general—Trace general events.
- normal—Trace normal events.
- policy—Trace policy processing.
- route—Trace routing information.
- state—Trace state transitions.
- task—Trace routing protocol task processing.
- timer—Trace routing protocol timer processing.



NOTE: Use the traceoption flags detail and all with caution. These flags may cause the CPU to become very busy.

For general information about tracing and global tracing options, see “Tracing Global Routing Protocol Operations” on page 99.

Example: Tracing ICMP Protocol Traffic

Trace only unusual or abnormal operations to a file called routing-log, and trace router discovery state transitions to a file called icmp-log:

```
[edit]
routing-options {
  traceoptions {
    file routing-log;
  }
}
protocols {
  router-discovery {
    traceoptions {
      file icmp-log;
      flag state;
    }
  }
}
```

