

# Chapter 18

## Summary of Neighbor Discovery Router Advertisement Configuration Statements

The following sections explain each of the neighbor discovery router advertisement configuration statements. The statements are organized alphabetically.

### autonomous

<b>Syntax</b>	(autonomous   no-autonomous);
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> prefix <i>prefix</i> ]
<b>Description</b>	Specify whether prefixes in the router advertisement messages are used for stateless address autoconfiguration:  autonomous—Use prefixes for address autoconfiguration.  no-autonomous—Do not use prefixes for address autoconfiguration.
<b>Default</b>	autonomous
<b>Usage Guidelines</b>	See “Set the Prefix for Stateless Address Autoconfiguration” on page 192.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

### current-hop-limit

<b>Syntax</b>	current-hop-limit <i>number</i> ;
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> ]
<b>Description</b>	Default value placed in the hop count field of the IP header for outgoing packets.
<b>Options</b>	<i>number</i> —Hop limit. A value of 0 means the limit is unspecified by this router. <b>Range:</b> 0 through 255 <b>Default:</b> 64
<b>Usage Guidelines</b>	See “Configure the Hop Limit” on page 189.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

- default-lifetime

- **Syntax** default-lifetime *seconds*;

- **Hierarchy Level** [edit protocols router-advertisement interface *interface-name*]

- **Description** Lifetime associated with a default router.

- **Options** *seconds*—Default lifetime, in seconds. A value of 0 means this router is not the default router.

- **Range:** Maximum advertisement interval value through 9000 seconds

- **Default:** Three times the maximum advertisement interval value

- **Usage Guidelines** See “Modify the Default Router Lifetime” on page 189.

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

- **See Also** max-advertisement-interval on page 200

## interface

<b>Syntax</b>	<pre> interface <i>interface-name</i> {     current-hop-limit <i>number</i>;     default-lifetime <i>seconds</i>;     (managed-configuration   no-managed-configuration);     max-advertisement-interval <i>seconds</i>;     min-advertisement-interval <i>seconds</i>;     (other-stateful-configuration   no-other-stateful-configuration);     prefix <i>prefix</i> {         (autonomous   no-autonomous);         (on-link   no-on-link);         preferred-lifetime <i>seconds</i>;         valid-lifetime <i>seconds</i>;     }     reachable-time <i>milliseconds</i>;     retransmit-timer <i>milliseconds</i>;     traceoptions {         file <i>name</i> &lt;replace&gt; &lt;size <i>size</i>&gt; &lt;files <i>number</i>&gt; &lt;no-stamp&gt;             &lt;(world-readable   no-world-readable)&gt;;         flag <i>flag</i> &lt;detail&gt; &lt;disable&gt;;     } } </pre>
<b>Hierarchy Level</b>	[edit protocols router-advertisement]
<b>Description</b>	Configure router advertisement properties on an interface. To configure more than one interface, include the interface statement multiple times.
<b>Options</b>	<p><i>interface-name</i>—Name of an interface. Specify the full interface name, including the physical and logical address components.</p> <p>The remaining statements are explained separately.</p>
<b>Usage Guidelines</b>	See “Configure Router Advertisement on an Interface” on page 188.
<b>Required Privilege Level</b>	<p>routing—To view this statement in the configuration.</p> <p>routing-control—To add this statement to the configuration.</p>

## managed-configuration

- Syntax** (managed-configuration | no-managed-configuration);
- Hierarchy Level** [edit protocols router-advertisement interface *interface-name*]
- Description** Specify whether to enable the host to use a stateful autoconfiguration protocol for address autoconfiguration, along with any stateless autoconfiguration already configured:
  - managed-configuration—Enable host to use stateful autoconfiguration.
  - no-managed-configuration—Disable host from using stateful autoconfiguration.
- Default** The configured object is disabled unless explicitly enabled.
- Usage Guidelines** See “Enable Stateful Autoconfiguration” on page 189.
- Required Privilege Level** routing—To view this statement in the configuration.  
routing-control—To add this statement to the configuration.

## max-advertisement-interval

- Syntax** max-advertisement-interval *seconds*;
- Hierarchy Level** [edit protocols router-advertisement interface *interface-name*]
- Description** Maximum interval between each router advertisement message.
- Options** *seconds*—Maximum interval, in seconds.
  - Range:** 4 through 1800 seconds
  - Default:** 600 seconds
- Usage Guidelines** See “Configure the Frequency of Router Advertisements” on page 190.
- Required Privilege Level** routing—To view this statement in the configuration.  
routing-control—To add this statement to the configuration.
- See Also** min-advertisement-interval on page 201

## min-advertisement-interval

<b>Syntax</b>	min-advertisement-interval <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> ]
<b>Description</b>	Minimum interval between each router advertisement message.
<b>Options</b>	<i>seconds</i> —Minimum interval, in seconds. <b>Range:</b> 3 seconds through three-quarter times times the maximum advertisement interval value <b>Default:</b> One-third the maximum advertisement interval value
<b>Usage Guidelines</b>	See “Configure the Frequency of Router Advertisements” on page 190.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	max-advertisement-interval on page 200

## no-autonomous

See autonomous on page 197

## no-managed-configuration

See managed-configuration on page 200

## no-on-link

See on-link on page 202

## no-other-stateful-configuration

See other-stateful-configuration on page 202

## on-link

- Syntax** (on-link | no-on-link);
- Hierarchy Level** [edit protocols router-advertisement interface *interface-name* prefix *prefix*]
- Description** Specify whether to enable prefixes to be used for onlink determination:
  - no-on-link—Disable prefixes from being used for onlink determination.
  - on-link—Enable prefixes to be used for onlink determination.
- Default** The configured object is enabled unless explicitly disabled.
- Usage Guidelines** See “Configure Prefix Information” on page 191.
- Required Privilege Level** routing—To view this statement in the configuration.  
routing-control—To add this statement to the configuration.

## other-stateful-configuration

- Syntax** (other-stateful-configuration | no-other-stateful-configuration);
- Hierarchy Level** [edit protocols router-advertisement interface *interface-name*]
- Description** Specify whether to enable autoconfiguration of other nonaddress-related information:
  - no-other-stateful-configuration—Disable autoconfiguration of other nonaddress-related information.
  - other-stateful-configuration—Enable autoconfiguration of other nonaddress-related information.
- Default** The configured object is disabled unless explicitly enabled.
- Usage Guidelines** See “Enable Stateful Autoconfiguration” on page 189.
- Required Privilege Level** routing—To view this statement in the configuration.  
routing-control—To add this statement to the configuration.

## preferred-lifetime

<b>Syntax</b>	preferred-lifetime <i>seconds</i> ;
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> prefix <i>prefix</i> ]
<b>Description</b>	Specify how long the prefix generated by stateless autoconfiguration remains preferred.
<b>Options</b>	<i>seconds</i> —Preferred lifetime, in seconds. If you set the preferred lifetime to 0xffffffff, the lifetime is infinite. The preferred lifetime is never greater than the valid lifetime. <b>Default:</b> 604,800
<b>Usage Guidelines</b>	See “Configure the Preferred Lifetime” on page 192.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.
<b>See Also</b>	valid-lifetime on page 207

## prefix

<b>Syntax</b>	prefix <i>prefix</i> { (autonomous   no-autonomous); (on-link   no-on-link); preferred-lifetime <i>seconds</i> ; valid-lifetime <i>seconds</i> ; }
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> ]
<b>Description</b>	Configure prefix properties in router advertisement messages.
<b>Options</b>	<i>prefix</i> —Prefix name.  The remaining statements are explained separately.
<b>Usage Guidelines</b>	See “Configure Prefix Information” on page 191.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## reachable-time

<b>Syntax</b>	reachable-time <i>milliseconds</i> ;
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> ]
<b>Description</b>	A length of time that a node considers a neighbor reachable until another reachability confirmation is received from that neighbor.
<b>Options</b>	<i>milliseconds</i> —Reachability time limit, in milliseconds. <b>Range:</b> 0 through 3,600,000 milliseconds <b>Default:</b> 0 milliseconds
<b>Usage Guidelines</b>	See “Modify the Reachable Time Limit” on page 190.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## retransmit-timer

<b>Syntax</b>	retransmit-timer <i>milliseconds</i> ;
<b>Hierarchy Level</b>	[edit protocols router-advertisement interface <i>interface-name</i> ]
<b>Description</b>	Retransmission frequency of neighbor solicitation messages.
<b>Options</b>	<i>milliseconds</i> —Retransmission frequency, in milliseconds. <b>Default:</b> 0 milliseconds
<b>Usage Guidelines</b>	See “Modify the Frequency of Neighbor Solicitation Messages” on page 191.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## router-advertisement

<b>Syntax</b>	router-advertisement {...}
<b>Hierarchy Level</b>	[edit protocols]
<b>Description</b>	Enable router advertisement.
<b>Options</b>	The statements are explained separately.
<b>Required Privilege Level</b>	routing—To view this statement in the configuration. routing-control—To add this statement to the configuration.

## traceoptions

<b>Syntax</b>	<pre> traceoptions {   file <i>name</i> &lt;replace&gt; &lt;size <i>size</i>&gt; &lt;files <i>number</i>&gt; &lt;no-stamp&gt;     &lt;(world-readable   no-world-readable)&gt;;   flag <i>flag</i> &lt;<i>flag-modifier</i>&gt; &lt;disable&gt;; } </pre>
<b>Hierarchy Level</b>	[edit protocols router-advertisement]
<b>Description</b>	Router advertisement protocol-level tracing options.
<b>Default</b>	The default trace options are those inherited from the global traceoptions statement.
<b>Options</b>	<p><b>disable</b>—(Optional) Disable the tracing operation. One use of this option is to disable a single operation when you have defined a broad group of tracing operations, such as all.</p> <p><b>file <i>name</i></b>—Name of the file to receive the output of the tracing operation. Enclose the name in quotation marks. We recommend that you place router advertisement tracing output in the file <code>/var/log/router-advertisement-log</code>.</p> <p><b>files <i>number</i></b>—(Optional) Maximum number of trace files. When a trace file named <i>trace-file</i> reaches its maximum size, it is renamed <i>trace-file.0</i>, then <i>trace-file.1</i>, and so on, until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.</p> <p>If you specify a maximum number of files, you must also specify a maximum file size with the <code>size</code> option.</p> <p><b>Range:</b> 2 through 1000 files  <b>Default:</b> 1 trace file only</p> <p><b>flag <i>flag</i></b>—Tracing operation to perform. To specify more than one tracing operation, include multiple flag statements. The following are the router advertisement–specific tracing options:</p> <ul style="list-style-type: none"> <li><b>error</b>—Router advertisement errors</li> <li><b>expiration</b>—Router advertisement route expiration processing</li> <li><b>holddown</b>—Router advertisement hold-down processing</li> <li><b>packets</b>—All router advertisement packets</li> <li><b>request</b>—Router advertisement information packets such as request, poll, and poll entry packets</li> <li><b>trigger</b>—Router advertisement triggered updates</li> <li><b>update</b>—Router advertisement update packets</li> </ul>

The following are the global tracing options:

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—Provide detailed trace information

receive—Packets being received

receive-detail—Provide detailed trace information for packets being received

send—Packets being transmitted

send-detail—Provide detailed trace information for 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) or megabytes (MB). 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 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 “Trace Router Advertisement Traffic” on page 193.

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

## valid-lifetime

**Syntax** valid-lifetime *seconds*;

**Hierarchy Level** [edit protocols router-advertisement interface *interface-name* prefix *prefix*]

**Description** How long the prefix remains valid for onlink determination.

**Options** *seconds*—Valid lifetime, in seconds. If you set the valid lifetime to 0xffffffff, the lifetime is infinite.  
**Default:** 2,592,000

**Usage Guidelines** See “Configure the Valid Lifetime” on page 192.

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

**See Also** preferred-lifetime on page 203

