

Integrated IS-IS Commands

This chapter describes the function and displays the syntax for IS-IS commands. For more information about defaults and usage guidelines, see the corresponding chapter of the *Network Protocols Command Reference, Part 1*.

area-password

To configure the IS-IS area authentication password, use the **area-password** router configuration command. To disable the password, use the **no** form of this command.

```
area-password password  
no area-password [password]
```

password Password you assign.

default-information originate (IS-IS)

To generate a default route into an IS-IS routing domain, use the **default-information originate** router configuration command. To disable this feature, use the **no** form of this command.

```
default-information originate [route-map map-name]  
no default-information originate [route-map map-name]
```

route-map *map-name* (Optional) Routing process will generate the default route if the route map is satisfied.

domain-password

To configure the IS-IS routing domain authentication password, use the **domain-password** router configuration command. To disable a password, use the **no** form of this command.

```
domain-password password  
no domain-password [password]
```

password Password you assign.

ip router isis

To configure an IS-IS routing process for IP on an interface, use the **ip router isis** interface configuration command. To disable IS-IS for IP, use the **no** form of this command.

```
ip router isis [tag]  
no ip router isis [tag]
```

tag (Optional) Defines a meaningful name for a routing process. If not specified, a null tag is assumed. It must be unique among all IP router processes for a given router. Use the same text for the argument *tag* as specified in the **router isis** global configuration command.

isis circuit-type

To configure the type of adjacency, use the **isis circuit-type** interface configuration command. To reset the circuit type to Level 1 and Level 2, use the **no** form of this command.

```
isis circuit-type {level-1 | level-1-2 | level-2-only}  
no isis circuit-type
```

level-1 A Level 1 adjacency may be established if there is at least one area address in common between this system and its neighbors. Level 2 adjacencies will never be established over this interface.

level-1-2 A Level 1 and Level 2 adjacency is established if the neighbor is also configured as **level-1-2** and there is at least one area in common. If there is no area in common, a Level 2 adjacency is established. This is the default.

level-2-only Level 2 adjacencies are established if the other routers are L2 or L1L2 routers and their interfaces are configured for L1L2 or L2. Level 1 adjacencies will never be established over this interface.

isis csnp-interval

To configure the IS-IS complete sequence number PDUs (CSNP) interval, use the **isis csnp-interval** interface configuration command. To restore the default value, use the **no** form of this command.

```
isis csnp-interval seconds {level-1 | level-2}  
no isis csnp-interval {level-1 | level-2}
```

seconds Interval of time between transmission of CSNPs on multiaccess networks. This interval only applies for the designated router. The default is 10 seconds.

level-1 Configures the interval of time between transmission of CSNPs for Level 1 independently.

level-2 Configures the interval of time between transmission of CSNPs for Level 2 independently.

isis hello-interval

To specify the length of time between hello packets that the Cisco IOS software sends, use the **isis hello-interval** interface configuration command. To restore the default value, use the **no** form of this command.

isis hello-interval *seconds* {**level-1** | **level-2**}

no isis hello-interval {**level-1** | **level-2**}

seconds An integer value. By default, a value three times the hello interval *seconds* is advertised as the *holdtime* in the hello packets transmitted. (That multiplier of 3 can be changed by specifying the **isis hello-multiplier** command.) With smaller hello intervals, topological changes are detected faster, but there is more routing traffic. The default is 10 seconds.

level-1 Configures the hello interval for Level 1 independently. Use this on X.25, SMDS, and Frame Relay multiaccess networks.

level-2 Configures the hello interval for Level 2 independently. Use this on X.25, SMDS, and Frame Relay multiaccess networks.

isis hello-multiplier

To specify the number of IS-IS hello packets a neighbor must miss before the router should declare the adjacency as down, use the **isis hello-multiplier** interface configuration command. To restore the default value, use the **no** form of this command.

isis hello-multiplier *multiplier* {**level-1** | **level-2**}

no isis hello-multiplier {**level-1** | **level-2**}

multiplier Integer value. The advertised holdtime in IS-IS hellos will be set to the hello-multiplier times the hello-interval. Neighbors will declare an adjacency to this router down after not having received any IS-IS hellos during the advertised holdtime. The holdtime (and thus the hello-multiplier and the hello-interval) can be set on a per interface basis, and can be different between different routers in one area.

Using a smaller hello-multiplier will give fast convergence, but can result in more routing instability. Increment the hello-multiplier to a larger value to help network stability when needed. Never configure a hello-multiplier lower than the default value of 3.

level-1 Configures the hello multiplier independently for Level 1 adjacencies.

level-2 Configures the hello multiplier independently for Level 2 adjacencies.

isis lsp-interval

To configure the time delay between successive IS-IS link state packet transmissions, use the **isis lsp-interval** interface configuration command. To restore the default value, use the **no** form of this command.

```
isis lsp-interval milliseconds  
no isis lsp-interval
```

milliseconds Interval between successive link state packets, in milliseconds.

isis metric

To configure the metric for an interface, use the **isis metric** interface configuration command. To restore the default metric value, use the **no** form of this command.

```
isis metric default-metric {level-1 | level-2}  
no isis metric {level-1 | level-2}
```

default-metric Metric assigned to the link and used to calculate the cost from each other router via the links in the network to other destinations. You can configure this metric for Level 1 or Level 2 routing. The range is from 0 to 63. The default value is 10.

level-1 This metric should be used only in the SPF calculation for L1 (intra-area) routing.

level-2 This metric should be used only in the SPF calculation for L2 (inter-area) routing.

isis password

To configure the authentication password for an interface, use the **isis password** interface configuration command. To disable authentication for IS-IS, use the **no** form of this command.

```
isis password password {level-1 | level-2}  
no isis password {level-1 | level-2}
```

password Authentication password you assign for an interface.

level-1 Configures the authentication password for Level 1 independently. For Level 1 routing, the router acts as a station router only.

level-2 Configures the authentication password for Level 2 independently. For Level 2 routing, the router acts as an area router only.

isis priority

To configure the priority of designated routers, use the **isis priority** interface configuration command. To reset the default priority, use the **no** form of this command.

```
isis priority value {level-1 | level-2}
no isis priority {level-1 | level-2}
```

| | |
|----------------|---|
| <i>value</i> | Sets the priority of a router and is a number from 0 to 127. The default value is 64. |
| level-1 | Sets the priority for Level 1 independently. |
| level-2 | Sets the priority for Level 2 independently. |

isis retransmit-interval

To configure the time between retransmission of each LSP (IS-IS link-state PDU) over point-to-point links, use the **isis retransmit-interval** interface configuration command. To restore the default value, use the **no** form of this command.

```
isis retransmit-interval seconds
no isis retransmit-interval seconds
```

| | |
|----------------|---|
| <i>seconds</i> | Time in seconds between retransmission of each LSP. It is an integer that should be greater than the expected round-trip delay between any two routers on the attached network. The default is 5 seconds. |
|----------------|---|

isis retransmit-throttle-interval

To configure the amount of time between retransmissions of any IS-IS link-state PDUs (LSPs) on a point-to-point interface, use the **isis retransmit-throttle-interval** interface configuration command. To restore the default value, use the **no** form of this command.

```
isis retransmit-throttle-interval milliseconds
no isis lsp-interval
```

| | |
|---------------------|---|
| <i>milliseconds</i> | Minimum delay (in milliseconds) between LSP retransmissions on the interface. |
|---------------------|---|

is-type

To configure the IS-IS level at which the Cisco IOS software operates, use the **is-type** router configuration command. To reset the default value, use the **no** form of this command.

```
is-type {level-1 | level-1-2 | level-2-only}
no is-type {level-1 | level-1-2 | level-2-only}
```

| | |
|---------------------|--|
| level-1 | Router acts as a station router. This router will only learn about destinations inside its area. For inter-area routing, it depends on the closest L1L2 router. |
| level-1-2 | Router acts as both a station router and an area router. This router will run two instances of the routing algorithm. It will have one linkstate database (LSDB) for destinations inside the area (L1 routing) and run an SPF calculation to discover the area topology. It will also have another LSDB with LSPs of all other backbone (L2) routers and run another SPF calculation to discover the topology of the backbone, and the existence of all other areas. |
| level-2-only | Router acts as an area router only. This router is part of the backbone, and does not talk to L1-only routers in its own area. |

net

To configure an IS-IS network entity title (NET) for the routing process, use the **net** router configuration command. To remove a NET, use the **no** form of this command.

```
net network-entity-title  
no net network-entity-title
```

network-entity-title NET that specifies the area address and the system ID for an IS-IS routing process. This argument can be either an address or a name.

router isis

To enable the IS-IS routing protocol and to specify an IS-IS process for IP, use the **router isis** global configuration command. To disable IS-IS routing, use the **no** form of this command.

```
router isis [tag]  
no router isis [tag]
```

tag (Optional) Meaningful name for a routing process. If it is not specified, a null tag is assumed and the process is referenced with a null tag. This name must be unique among all IP router processes for a given router.

set-overload-bit

To configure the router to signal other routers not to use it as intermediate hop in their SPF calculations, use the **set-overload-bit** router configuration command. To remove the designation, use the **no** form of this command.

```
set-overload-bit  
no set-overload-bit
```

show isis database

To display the IS-IS link state database, use the **show isis database** EXEC command.

```
show isis database [level-1] [level-2] [l1] [l2] [detail] [lspid]
```

| | |
|----------------|---|
| level-1 | (Optional) Displays the IS-IS link state database for Level 1. |
| level-2 | (Optional) Displays the IS-IS link state database for Level 2. |
| l1 | (Optional) Abbreviation for the option level-1 . |
| l2 | (Optional) Abbreviation for the option level-2 . |
| detail | (Optional) When specified, the contents of each LSP are displayed. Otherwise, a summary display is provided. |
| lspid | (Optional) Link-state PDU identifier. When specified, the contents of a single LSP is displayed by its ID number. |

show isis spf-log

To display how often and why the router has run a full SPF calculation, use the **show isis spf-log** EXEC command.

```
show isis spf-log
```

summary-address

Use the **summary-address** router configuration command to create aggregate addresses for IS-IS or OSPF. The **no summary-address** command restores the default.

```
summary-address address mask {level-1 | level-1-2 | level-2} prefix mask  
no summary-address address mask {level-1 | level-1-2 | level-2}
```

| | |
|------------------|--|
| <i>address</i> | Summary address designated for a range of addresses. |
| <i>mask</i> | IP subnet mask used for the summary route. |
| level-1 | Only routes redistributed into Level 1 are summarized with the configured address/mask value. |
| level-1-2 | The summary router will be applied both when redistributing routes into L1 and L2 IS-IS, and when L2 IS-IS advertised L1 routes reachable in its area. |
| level-2 | Routes learned by Level 1 routing will be summarized into the Level 2 backbone with the configured address/mask value, and redistributed routes into L2 IS-IS will be summarized also. |
| <i>prefix</i> | IP route prefix for the destination. |

summary-address

mask

IP subnet mask used for the summary route.