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# **ZebOS-XP®**

## **Network Platform**

**Version 1.4**

**Extended Performance**

Intermediate System to Intermediate System  
Command Reference  
December 2015

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# Preface

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This document describes the ZebOS-XP commands for Intermediate System to Intermediate System (IS-IS).

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## Audience

This document is intended for network administrators and other engineering professionals who configure and manage IS-IS.

---

## Conventions

Table P-1 shows the conventions used in this guide.

**Table P-1: Conventions**

Convention	Description
<i>Italics</i>	Emphasized terms; titles of books
Note:	Special instructions, suggestions, or warnings
<code>monospaced type</code>	Code elements such as commands, functions, parameters, files, and directories

---

## Contents

This document contains these chapters and appendices:

- [Chapter 1, Command Line Interface](#)
- [Chapter 2, IS-IS Commands](#)
- [Chapter 3, IS-IS Show Commands](#)

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## Related Documents

The following guides are related to this document:

- *Intermediate System to Intermediate System Developer Guide*
- *Unicast Configuration Guide*
- *Installation Guide*

Note: All ZebOS-XP technical manuals are available to licensed customers at [http://www.ipinfusion.com/support/document\\_list](http://www.ipinfusion.com/support/document_list).

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# CHAPTER 1 Command Line Interface

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This chapter introduces the ZebOS-XP Command Line Interface (CLI) and how to use its features.

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## Overview

You use the CLI to configure, monitor, and maintain ZebOS-XP devices. The CLI is text-based and each command is usually associated with a specific task.

You can give the commands described in this manual locally from the console of a device running ZebOS-XP or remotely from a terminal emulator such as `putty` or `xterm`. You can also use the commands in scripts to automate configuration tasks.

---

## Starting the Command Line Interface

You must start daemons as described in this section before you can use the CLI. The general steps are listed below. For details about the ZebOS-XP daemons, see the *Installation Guide*.

1. Start your terminal emulator and connect to the device or go to the console of the device running ZebOS-XP.
2. Connect to the directory where you installed the ZebOS-XP executables.
3. Start the Network Services Module (NSM).

```
# ./nsm -d
```

4. Start the protocol module daemons that your organization uses, such as `mstpd`, `ospf6d`, or `ripd`.

```
# ./mstpd -d
```

5. Start the Integrated Management Interface (IMI) daemon.

```
# ./imi -d
```

6. Start the IMI shell.

```
# ./imish
```

**Note:** Your organization may use a ZebOS-XP build that does not include `imish`. If that is the case, you must connect to a port on which a protocol daemon is listening. For details, see the *Installation Guide*.

You can now begin using the CLI.

---

## Command Line Interface Help

You access the CLI help by entering a full or partial command string and a question mark “?”. The CLI displays the command keywords or parameters along with a short description. For example, at the CLI command prompt, type:

```
> show ?
```

The CLI displays this keyword list with short descriptions for each keyword:

```
show ?
  application-priority      Application Priority
```

arp	Internet Protocol (IP)
bfd	Bidirectional Forwarding Detection (BFD)
bgp	Border Gateway Protocol (BGP)
bi-lsp	Bi-directional lsp status and configuration
bridge	Bridge group commands
ce-vlan	COS Preservation for Customer Edge VLAN
class-map	Class map entry
cli	Show CLI tree of current mode
clns	Connectionless-Mode Network Service (CLNS)
control-adjacency	Control Adjacency status and configuration
control-channel	Control Channel status and configuration
cspf	CSPF Information
customer	Display Customer spanning-tree
cvlan	Display CVLAN information
debugging	Debugging functions (see also 'undebug')
dot1x	IEEE 802.1X Port-Based Access Control
etherchannel	LACP etherchannel
ethernet	Layer-2
...	

If you type the ? in the middle of a keyword, the CLI displays help for that keyword only.

```
> show de?
debugging  Debugging functions (see also 'undebug')
```

If you type the ? in the middle of a keyword, but the incomplete keyword matches several other keywords, ZebOS-XP displays help for all matching keywords.

```
> show i? (CLI does not display the question mark).
interface  Interface status and configuration
ip          IP information
isis       ISIS information
```

---

## Command Completion

The CLI can complete the spelling of a command or a parameter. Begin typing the command or parameter and then press the tab key. For example, at the CLI command prompt type `sh`:

```
> sh
```

Press the tab key. The CLI displays:

```
> show
```

If the spelling of a command or parameter is ambiguous, the CLI displays the choices that match the abbreviation. Type `show i` and press the tab key. The CLI displays:

```
> show i
interface  ip          ipv6      isis
> show i
```

The CLI displays the `interface` and `ip` keywords. Type `n` to select `interface` and press the tab key. The CLI displays:

```
> show in
> show interface
```

Type `?` and the CLI displays the list of parameters for the `show interface` command.

```
> show interface
IFNAME  Interface name
|       Output modifiers
```

```
>          Output redirection
<cr>
```

The CLI displays the only parameter associated with this command, the `IFNAME` parameter.

---

## Command Abbreviations

The CLI accepts abbreviations that uniquely identify a keyword in commands. For example:

```
> sh in eth0
```

is an abbreviation for:

```
> show interface eth0
```

---

## Command Line Errors

Any unknown spelling causes the CLI to display the error `Unrecognized command` in response to the `?`. The CLI displays the command again as last entered.

```
> show dd?
% Unrecognized command
> show dd
```

When you press the Enter key after typing an invalid command, the CLI displays:

```
(config)#router ospf here
                        ^
% Invalid input detected at '^' marker.
```

where the `^` points to the first character in error in the command.

If a command is incomplete, the CLI displays the following message:

```
> show
% Incomplete command.
```

Some commands are too long for the display line and can wrap mid-parameter or mid-keyword, as shown below. This does *not* cause an error and the command performs as expected:

```
area 10.10.0.18 virtual-link 10.10.0.19 authent
ication-key 57393
```

---

## Command Negation

Many commands have a `no` form that resets a feature to its default value or disables the feature. For example:

- The `ip address` command assigns an IPv4 address to an interface
- The `no ip address` command removes an IPv4 address from an interface

## Syntax Conventions

Table 1-1 describes the conventions used to represent command syntax in this reference.

**Table 1-1: Syntax conventions**

Convention	Description	Example
monospaced font	Command strings entered on a command line	<code>show ip ospf</code>
lowercase	Keywords that you enter exactly as shown in the command syntax.	<code>show ip ospf</code>
UPPERCASE	See <a href="#">Variable Placeholders</a>	<code>IFNAME</code>
( )	Optional parameters, from which you must select one. Vertical bars delimit the selections. Do not enter the parentheses or vertical bars as part of the command.	<code>(A.B.C.D &lt;0-4294967295&gt;)</code>
( )	Optional parameters, from which you select one or none. Vertical bars delimit the selections. Do not enter the parentheses or vertical bars as part of the command.	<code>(A.B.C.D &lt;0-4294967295&gt; )</code>
( )	Optional parameter which you can specify or omit. Do not enter the parentheses or vertical bar as part of the command.	<code>(IFNAME )</code>
{ }	Optional parameters, from which you must select one or more. Vertical bars delimit the selections. Do not enter the braces or vertical bars as part of the command.	<code>{intra-area &lt;1-255&gt; inter-area &lt;1-255&gt; external &lt;1-255&gt;}</code>
[ ]	Optional parameters, from which you select zero or more. Vertical bars delimit the selections. Do not enter the brackets or vertical bars as part of the command. A '?' before a parameter in square brackets limits that parameter to one occurrence in a command string.	<code>[&lt;1-65535&gt; AA:NN internet local-AS no-advertise no-export]</code>
.	Repeatable parameter. The parameter that follows a period can be repeated more than once. Do not enter the period as part of the command.	<code>set as-path prepend .&lt;1-65535&gt;</code>

## Variable Placeholders

Table 1-2 shows the tokens used in command syntax use to represent variables for which you supply a value.

**Table 1-2: Variable placeholders**

Token	Description
WORD	A contiguous text string (excluding spaces)
LINE	A text string, including spaces; no other parameters can follow this parameter
IFNAME	Interface name whose format varies depending on the platform; examples are: <code>eth0</code> , <code>Ethernet0</code> , <code>ethernet0</code> , <code>xe0</code>
A.B.C.D	IPv4 address
A.B.C.D/M	IPv4 address and mask/prefix
X:X::X:X	IPv6 address
X:X::X:X/M	IPv6 address and mask/prefix
HH:MM:SS	Time format
AA:NN	BGP community value
XX:XX:XX:XX:XX:XX	MAC address
<1-5> <1-65535> <0-2147483647> <0-4294967295>	Numeric range

---

## Command Description Format

[Table 1-3](#) explains the sections used to describe each command in this reference.

**Table 1-3: Command descriptions**

Section	Description
<b>Command Name</b>	The name of the command, followed by what the command does and when should it be used
<b>Command Syntax</b>	The syntax of the command
<b>Parameters</b>	Parameters and options for the command
<b>Default</b>	The state before the command is executed
<b>Command Mode</b>	The mode in which the command runs; see <a href="#">Command Modes</a>
<b>Example</b>	An example of the command being executed

---

## Keyboard Operations

[Table 1-4](#) lists the operations you can perform from the keyboard.

**Table 1-4: Keyboard operations**

Key combination	Operation
Left arrow or Ctrl+b	Moves one character to the left. When a command extends beyond a single line, you can press left arrow or Ctrl+b repeatedly to scroll toward the beginning of the line, or you can press Ctrl+a to go directly to the beginning of the line.
Right arrow or Ctrl-f	Moves one character to the right. When a command extends beyond a single line, you can press right arrow or Ctrl+f repeatedly to scroll toward the end of the line, or you can press Ctrl+e to go directly to the end of the line.
Esc, b	Moves back one word
Esc, f	Moves forward one word
Ctrl+e	Moves to end of the line
Ctrl+a	Moves to the beginning of the line
Ctrl+u	Deletes the line
Ctrl+w	Deletes from the cursor to the previous whitespace
Alt+d	Deletes the current word
Ctrl+k	Deletes from the cursor to the end of line
Ctrl+y	Pastes text previously deleted with Ctrl+k, Alt+d, Ctrl+w, or Ctrl+u at the cursor

**Table 1-4: Keyboard operations (Continued)**

Key combination	Operation
Ctrl+t	Transposes the current character with the previous character
Ctrl+c	Ignores the current line and redisplay the command prompt
Ctrl+z	Ends configuration mode and returns to exec mode
Ctrl+l	Clears the screen
Up Arrow or Ctrl+p	Scroll backward through command history
Down Arrow or Ctrl+n	Scroll forward through command history

---

## Show Command Modifiers

You can use two tokens to modify the output of a `show` command. Enter a question mark to display these tokens:

```
# show users ?
  | Output modifiers
  > Output redirection
```

You can type the | (vertical bar character) to use output modifiers. For example:

```
> show rsvp | ?
begin      Begin with the line that matches
exclude    Exclude lines that match
include    Include lines that match
redirect   Redirect output
```

---

## Begin Modifier

The `begin` modifier displays the output beginning with the first line that contains the input string (everything typed after the `begin` keyword). For example:

```
# show run | begin eth1
...skipping
interface eth1
  ipv6 address fe80::204:75ff:fee6:5393/64
!
interface eth2
  ipv6 address fe80::20d:56ff:fe96:725a/64
!
line con 0
  login
!
end
```

You can specify a regular expression after the `begin` keyword. This example begins the output at a line with either “eth3” or “eth4”:

```
# show run | begin eth[3-4]

...skipping
interface eth3
```

```
shutdown
!
interface eth4
shutdown
!
interface svlan0.1
no shutdown
!
route-map myroute permit 3
!
route-map mymap1 permit 10
!
route-map rmap1 permit 3
!
line con 0
login
line vty 0 4
login
!
end
```

---

### Include Modifier

The `include` modifier includes only those lines of output that contain the input string. In the output below, all lines containing the word “input” are included:

```
# show interface eth1 | include input
input packets 80434552, bytes 2147483647, dropped 0, multicast packets 0
input errors 0, length 0, overrun 0, CRC 0, frame 0, fifo 1, missed 0
```

You can specify a regular expression after the `include` keyword. This examples includes all lines with “input” or “output”:

```
#show int eth0 | include (in|out)put
input packets 597058, bytes 338081476, dropped 0, multicast packets 0
input errors 0, length 0, overrun 0, CRC 0, frame 0, fifo 0, missed 0
output packets 613147, bytes 126055987, dropped 0
output errors 0, aborted 0, carrier 0, fifo 0, heartbeat 0, window 0
```

---

### Exclude Modifier

The `exclude` modifier excludes all lines of output that contain the input string. In the following output example, all lines containing the word “input” are excluded:

```
# show interface eth1 | exclude input
Interface eth1
Scope: both
Hardware is Ethernet, address is 0004.75e6.5393
index 3 metric 1 mtu 1500 <UP,BROADCAST,RUNNING,MULTICAST>
VRF Binding: Not bound
Administrative Group(s): None
DSTE Bandwidth Constraint Mode is MAM
inet6 fe80::204:75ff:fee6:5393/64
output packets 4438, bytes 394940, dropped 0
output errors 0, aborted 0, carrier 0, fifo 0, heartbeat 0, window 0
collisions 0
```

You can specify a regular expression after the `exclude` keyword. This example excludes lines with “output” or “input”:



```
# show interface eth0 | exclude (in|out)put
Interface eth0
  Scope: both
  Hardware is Ethernet Current HW addr: 001b.2139.6c4a
  Physical:001b.2139.6c4a Logical:(not set)
  index 2 metric 1 mtu 1500 duplex-full arp ageing timeout 3000
  <UP,BROADCAST,RUNNING,MULTICAST>
  VRF Binding: Not bound
  Bandwidth 100m
  DHCP client is disabled.
  inet 10.1.2.173/24 broadcast 10.1.2.255
  VRRP Master of : VRRP is not configured on this interface.
  inet6 fe80::21b:21ff:fe39:6c4a/64
  collisions 0
```

---

## Redirect Modifier

The `redirect` modifier writes the output into a file. The output is not displayed.

```
# show history | redirect /var/frame.txt
```

The output redirection token (`>`) does the same thing:

```
# show history >/var/frame.txt
```

---

## Command Modes

Commands are grouped into modes arranged in a hierarchy. Each mode has its own set of commands. [Table 1-5](#) lists the command modes common to all protocols.

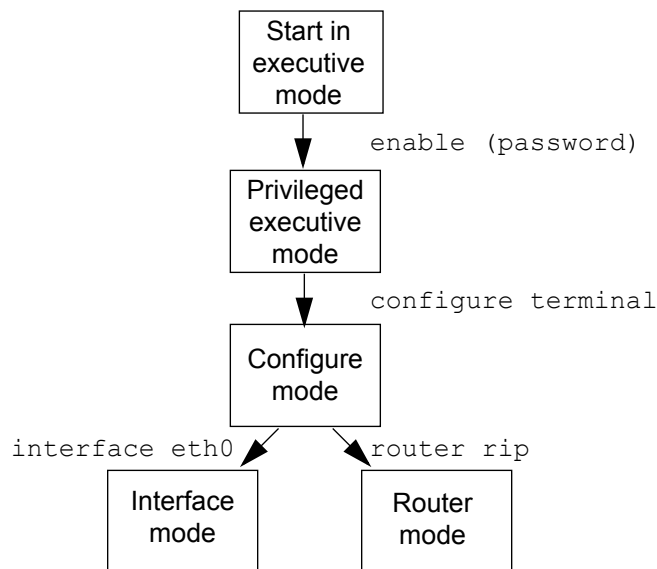
**Table 1-5: Common command modes**

Name	Description
Executive mode	Also called <i>view</i> mode, this is the first mode to appear after you start the CLI. It is a base mode from where you can perform basic commands such as <code>show</code> , <code>exit</code> , <code>quit</code> , <code>help</code> , <code>list</code> , and <code>enable</code> .
Privileged executive mode	Also called <i>enable</i> mode, in this mode you can run additional basic commands such as <code>debug</code> , <code>write</code> , and <code>show</code> .
Configure mode	Also called <i>configure terminal</i> mode, in this mode you can run configuration commands and go into other modes such as <code>interface</code> , <code>router</code> , <code>route map</code> , <code>key chain</code> , and <code>address family</code> .
Interface mode	In this mode you can configure protocol-specific settings for a particular interface. Any setting you configure in this mode overrides a setting configured in router mode.
Router mode	This mode is used to configure router-specific settings for a protocol such as RIP or OSPF.

---

## Command Mode Tree

The diagram below shows the common command mode hierarchy.



**Figure 1-1: Common command modes**

To change modes:

1. Enter privileged executive mode by entering `enable` in Executive mode.
2. Enter configure mode by entering `configure terminal` in Privileged Executive mode.

The example below shows starting `imish` and then moving from executive mode to privileged executive mode to configure mode and finally to router mode:

```
# ./imish
> enable mypassword
# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
(config)# router rip
(config-router)#
```

**Note:** Each protocol can have modes in addition to the common command modes. See the command reference for the respective protocol for details.

---

## Debug Command

Whether the settings you make for a `debug` command persist between sessions depends on the mode where you make the settings:

- When you make settings for a `debug` command in executive mode, the configuration is valid for the current session only and is not saved in the `ZebOS.conf` file.
- When you make settings for a `debug` command in configuration mode, the configuration is retained and saved in `ZebOS.conf` and used even after the session restarts.

## CHAPTER 2 IS-IS Commands

---

This chapter provides a description, syntax, and examples for the IS-IS CLI commands. It includes the following commands:

- [accept-lifetime](#) on page 22
- [address-family ipv6](#) on page 23
- [adjacency-check](#) on page 24
- [area-password](#) on page 25
- [authentication key-chain](#) on page 26
- [authentication mode](#) on page 27
- [authentication send-only](#) on page 28
- [bfd all-interfaces](#) on page 29
- [capability cspf](#) on page 30
- [clear clns neighbors](#) on page 31
- [clear clns is-neighbors](#) on page 32
- [clear isis counter](#) on page 35
- [clear isis interface counter](#) on page 36
- [clear isis process](#) on page 37
- [clear ip isis route](#) on page 33
- [debug isis](#) on page 38
- [default-information originate](#) on page 40
- [disable-ldp](#) on page 41
- [distance \(IPv4\)](#) on page 42
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- [isis authentication key-chain](#) on page 52
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- [key-string](#) on page 78
- [lsp-gen-interval](#) on page 79
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---

## accept-lifetime

Use this command to specify the time period during which the authentication on a key chain is received as valid.

Use the `no` parameter with this command to negate this command.

### Command Syntax

```
accept-lifetime HH:MM:SS <1-31> MONTH <1993-2035> HH:MM:SS <1-31> MONTH <1993-2035>
accept-lifetime HH:MM:SS <1-31> MONTH <1993-2035> HH:MM:SS MONTH <1-31> <1993-2035>
accept-lifetime HH:MM:SS MONTH <1-31> <1993-2035> HH:MM:SS <1-31> MONTH <1993-2035>
accept-lifetime HH:MM:SS MONTH <1-31> <1993-2035> HH:MM:SS MONTH <1-31> <1993-2035>
accept-lifetime HH:MM:SS <1-31> MONTH <1993-2035> infinite
accept-lifetime HH:MM:SS MONTH <1-31> <1993-2035> infinite
accept-lifetime HH:MM:SS <1-31> MONTH <1993-2035> duration <1-2147483646>
accept-lifetime HH:MM:SS MONTH <1-31> <1993-2035> duration <1-2147483646>
no accept-lifetime
```

### Parameters

HH:MM:SS	Specify the start time of accept-lifetime in hours, minutes and seconds.
<1-31>	Specify the day of the month to start.
MONTH	Specify the month of the year to start as the first three letters of the month, for example, Jan.
<1993-2035>	Specify the year to start.
HH:MM:SS	Specify the end time of accept-lifetime in hours, minutes and seconds.
<1-31>	Specify the day of the month to end.
MONTH	Specify the month of the year to end as the first three letters of the month, for example, Jan.
<1993-2035>	Specify the year to end.
duration	Indicate the duration parameter.
<1-2147483646>	Specify the actual end time duration of a key in seconds.
infinite	Specify the end time to never expire.

### Command Mode

Keychain-key mode

### Examples

The following example shows the setting of accept-lifetime for key1 on the key chain named mychain.

```
#configure terminal
(config)#key chain mychain
(config-keychain)#key 1
(config-keychain-key)#accept-lifetime 03:03:01 Dec 3 2004 04:04:02 Oct 6 2006
```

---

## address-family ipv6

Use this command to enter 'address-family ipv6' mode, where users can configure IPv6 routing specific configuration.

Use the `no` parameter with this command to remove all configuration under 'address-family ipv6'.

### Command Syntax

```
address-family ipv6 (unicast|)
no address-family ipv6 (unicast|)
```

### Parameters

<code>unicast</code>	Specify unicast routing for IPv6.
----------------------	-----------------------------------

### Default

Unicast routing is not configured.

### Command Mode

Router mode

### Example

```
#configure terminal
(config)#router isis bb
(config-router)#address-family ipv6 unicast
(config-router-af)#
```

---

## adjacency-check

Use this command to configure the policy of adjacency based on the protocol related TLVs in the ISIS Hello packet. ISIS checks adjacency with protocol related TLVs including Protocols Supported TLV or IP Interface Address TLV by default. The command with no parameter disables this check.

Use the no parameter with this command to disable the adjacency check.

### Command Syntax

```
adjacency-check
no adjacency-check
```

### Parameters

None

### Default

ISIS provides adjacency check with protocol-related TLVs.

### Command Mode

Router mode, Address-family IPv6

### Example

```
#configure terminal
(config)#router isis bb
(config-router)#address-family ipv6 unicast
(config-router-af)#adjacency-check
```



## area-password

Use this command to set the authentication password for the Level-1 area and to set authentication on Level-1 SNP PDUs. This command enables authentication when receiving and sending LSP and SNP PDU in Level-1 areas. Area password must be the same for all the ISIS routers in the same area.

Use the `no` parameter with this command to clear the area password.

### Command Syntax

```
area-password WORD
area-password WORD authenticate snp (send-only|validate)
no area-password
```

### Parameters

WORD	Specify the password string.
authenticate	Specify to insert the password into Level-1 SNP PDUs.
snp	Specify the sequence number PDU (SNP).
send-only	Specify to only insert the password into the Level-1 SNP PDUs, but not check the password in SNP PDUs that it receives. Use this keyword during a software upgrade to ease the transition.
validate	Specify to insert the password into the Level-1 SNP PDUs and check the password in SNPs that it receives.

### Default

By default, the area password is not configured.

### Command Mode

Router mode

### Examples

```
(config)#router isis bb
(config-router)#area-password ipi
(config-router)#area-password mypasswd

(config)#router isis bb
(config-router)#area-password ipi authenticate snp send-only

(config)#router isis bb
(config-router)#no area-password
```

---

## authentication key-chain

Use this command to set the key chain to be used for authentication at the instance level. Authentication mode must be set to `md5` to configure the key chain. If no key chain is configured with the `key-chain` command, no key-chain authentication is performed.

Only one authentication key-chain is applied to an ISIS interface at a time. That is, issuing a second `isis authentication key-chain` command overrides the first `isis authentication key-chain` command. If neither the `level-1` nor the `level-2` keyword is configured, the chain applies to both levels. Authentication can be specified for an individual ISIS interface using the `isis authentication key-chain` command.

Use the `no` parameter with this command to unset the key chain used for authentication.

### Command Syntax

```
authentication key-chain WORD (level-1|level-2|)
no authentication key-chain WORD (level-1|level-2|)
no authentication key-chain (level-1|level-2|)
```

### Parameters

WORD	Specify the chain name (valid authentication keys).
level-1	Specify an authentication key-chain for level-1 PDUs.
level-2	Specify an authentication key-chain for level-2 PDUs.

### Default

The key chain applies to the level(s) on which authentication mode is configured as MD5 if no level is specified.

### Command Mode

Router mode

### Example

```
#configure terminal
(config)#router isis 1
(config-router)#authentication key-chain ipi level-1
```

---

## authentication mode

Use this command to set the authentication mode at the instance level.

If clear-text authentication was configured using the `area-password` or `domain-password` commands, the `authentication mode` command overrides both of those commands (based on the level at which MD5 is configured). If the `authentication mode` command was used first, and subsequently an attempt is made to use the `area-password` or `domain-password` commands, the attempt fails. To configure clear-text authentication using the `area-password` or `domain-password` commands, first use the `no authentication mode` command.

The type of authentication and the level to which it applies can be specified for a single ISIS interface, rather than per ISIS instance, using the `isis authentication mode` command.

Use the `no` parameter with this command to unset the authentication mode.

### Command Syntax

```
authentication mode {md5|text} (level-1|level-2|)
no authentication mode {md5|text} (level-1|level-2|)
```

### Parameters

<code>md5</code>	Keyed message digest
<code>text</code>	Text mode
<code>level-1</code>	Specify an authentication key-chain for level-1 PDUs.
<code>level-2</code>	Specify an authentication key-chain for level-2 PDUs.

### Default

The authentication mode is set to MD5 for both levels if no level is specified.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis 1
(config-router)#authentication mode md5 level-1

(config-router)#no authentication mode md5 level-1
```

---

## authentication send-only

Use this command to set the send-only option at the instance level.

Use this command before configuring the authentication mode and authentication key-chain, so that the implementation of authentication goes smoothly. That is, the routers will have more time for the keys to be configured on each router if authentication is inserted only on the packets being sent, not checked on packets being received. After all routers that must communicate are configured with this command, enable the authentication mode and key chain on each router. Then, specify the `no authentication send-only` command to disable the send-only feature.

If neither the `level-1` nor `level-2` keyword is configured, the send-only feature applies to both levels. The send-only option applies to both levels if no level is specified.

Use the `no` parameter with this command to unset the send-only option.

### Command Syntax

```
authentication send-only (level-1|level-2|)
no authentication send-only (level-1|level-2|)
```

### Parameters

<code>level-1</code>	Specify an authentication key-chain for level-1 PDUs.
<code>level-2</code>	Specify an authentication key-chain for level-2 PDUs.

### Default

This option is disabled by default.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis 1
(config-router)#authentication send-only level-1

(config-router)#no authentication send-only level-1
```

---

## bfd all-interfaces

Use this command to enable the Bidirectional Forwarding Detection (BFD) feature on the interfaces enabled with this ISIS instance.

This command sets BFD fall-over check for all the neighbors under specified process. To disable BFD checking on particular interface use `isis bfd disable` command at interface mode.

Use the `no` parameter with this command to disable BFD functionality for an ISIS instance.

### Command Syntax

```
bfd all-interfaces
no bfd all-interfaces
```

### Parameters

None

### Default

By default, the BFD feature is disabled.

### Command Mode

Router mode

### Examples

```
(config)#router isis
(config-router)#bfd all-interfaces

(config-router)#no bfd all-interfaces
```

---

## capability cspf

Use this command to enable the constrained shortest path first (CSPF) feature in the ISIS module. CSPF calculates optimum explicit route (ER), using Traffic Engineering Database and (TED) and pre-existing Label Switched Path (LSP). The resulting ER is used by a signaling protocol (RSVP-TE) to set up LSPs.

Use the `no` parameter with this command to disable CSPF functionality for an ISIS instance.

Note: This command is not supported for ZebIC releases.

### Command Syntax

```
capability cspf
no capability cspf
```

### Parameters

None

### Default

If this command is not used, the CSPF feature is disabled.

### Command Mode

Router mode

### Example

```
(config)#router isis
(config-router)#capability cspf
```

---

## clear clns neighbors

Use this command to clear CLNS neighbor adjacencies.

### Command Syntax

```
clear clns neighbors
```

### Parameters

None

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
>ena  
#clear clns neighbors
```

---

## clear clns is-neighbors

Use this command to clear IS neighbor adjacencies.

### Command Syntax

```
clear clns is-neighbors System-ID
```

### Parameters

System-ID            Neighbor system ID in XXXX.XXXX.XXXX format.

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
>ena  
#clear clns is-neighbors
```



---

## clear ip isis route

Use this command to clear IPv4 routes.

### Command Syntax

```
clear ip isis (WORD|) route (redistribution|all)
```

### Parameters

WORD	Routing area tag.
redistribution	Clear ISIS local redistribution routes.
all	Clear all of the ISIS routing table.s

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
>ena  
#clear ip isis route redistribution
```

---

## clear ipv6 isis route

Use this command to clear IPv6 routes.

### Command Syntax

```
clear ipv6 isis (WORD|) route (redistribution|all)
```

### Parameters

WORD	Routing area tag.
redistribution	Clear ISIS local redistribution routes.
all	Clear all of the ISIS routing table.s

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
>ena  
#clear ip isis route redistribution
```

---

## clear isis counter

Use this command to clear system-wide IS-IS counters (IshSystemCounterEntry in RFC 4444).

### Command Syntax

```
clear isis counter
```

### Parameters

None

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
#clear isis counter
```

---

## clear isis interface counter

Use this command to clear interface counters. If you do not specify a parameter, then counters for all interfaces are cleared.

### Command Syntax

```
clear isis interface counter (IFNAME|)
```

### Parameters

IFNAME                      Interface name.

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
#clear isis interface counter
```

---

## clear isis process

Use this command to restart ISIS processes. If you do not specify a parameter, then all ISIS processes are restarted.

### Command Syntax

```
clear isis (WORD|) process
```

### Parameters

WORD                      Routing area tag.

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
#clear isis process
```

## debug isis

Use this command to turn on debugging for specified criteria. Debug commands enable to show some debugging information about specified criteria into file or terminal.

Use the `no` parameter to turn off debugging for specified criteria.

### Command syntax

```
debug isis (all|)
debug isis (authentication|bfd|checksum|events|hello (interface IFNAME | System-
ID|)|ifsm|local-updates|lsp|mpls|nfsm|nsm|pdu|protocol-errors|rib|spf)
no debug isis (all|)
no debug all
no debug all isis
undebug all
undebug isis (all|)
undebug all isis
no debug isis (authentication|bfd|checksum|events|hello (interface IFNAME | System-
ID|)|ifsm|local-updates|lsp|mpls|nfsm|nsm|pdu|protocol-errors|rib|spf)
undebug isis (authentication|bfd|checksum|events|hello (interface IFNAME | System-
ID|)|ifsm|local-updates|lsp|mpls|nfsm|nsm|pdu|protocol-errors|rib|spf)
```

### Parameters

<code>all</code>	Enables all debugging.
<code>authentication</code>	Debugging for authentication.
<code>checksum</code>	Debugging for checksums.
<code>bfd</code>	Debugging for bidirectional forwarding detection.
<code>events</code>	Debugging for internal events.
<code>hello</code>	Debugging for hello processing.
<code>interface</code>	Interface.
<code>IFNAME</code>	Interface name.
<code>System-ID</code>	System identifier.
<code>ifsm</code>	Debugging for interface finite state machine.
<code>local-updates</code>	Debugging for local updates.
<code>lsp</code>	Debugging for label switched path.
<code>mpls</code>	Debugging for multiprotocol label switching.
<code>nfsm</code>	Debugging for neighbor finite state machine.
<code>nsm</code>	Debugging for NSM messages.
<code>pdu</code>	Debugging for protocol data unit.
<code>protocol-errors</code>	Debugging for protocol errors.

<code>rib</code>	Debugging for RIB information.
<code>spf</code>	Debugging for shortest path first route calculation.

**Default**

By default, all options are turned off.

**Command Mode**

Privileged Exec mode and Configure mode

**Examples**

```
#configure terminal
(config)#debug isis pdu

#configure terminal
(config)#debug isis nsm
```

---

## default-information originate

Use this command to originate reachability information to Default destination into LSP.

There is no default information in Level-2 domain by default, while Level-1 router calculates default to L1L2 route during SPF calculation. This command enables to originate default route into Level-2 domain.

Use the `no` parameter with this command to withdraw reachability information to default destination from LSP.

### Command Syntax

```
default-information originate
no default-information originate
```

### Parameters

<code>originate</code>	Specify to distribute a default route
------------------------	---------------------------------------

### Command Mode

Address-family ipv6 mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#address-family ipv6
(config-router-af)#default-information originate
```



## disable-ldp

Use this command to disable ISIS IPv4 or ISIS IPv6 on a specified interface.

This command disables the transmission of Hello packets through the current interface, and clears all created sessions and adjacencies for this interface. Use `disable-ldp` alone to disable only ISIS IPv4 on the interface.

Use the `enable-ldp` to enable LDP on an interface (see [enable-ldp](#) on page 46 for more information).

### Command Syntax

```
disable-ldp (ipv4|)  
disable-ldp (ipv4|ipv6|)
```

### Parameters

ipv4	Disables IPv4 on the interface.
ipv6	Disables IPv6 on the interface.

### Command Mode

#### Interface mode

### Examples

The following example disables ISIS IPv4 on interface eth0.

```
#configure terminal  
(config)#interface eth0  
(config-if)#disable-ldp
```

The following example disables ISIS IPv4 on interface eth0.

```
#configure terminal  
(config)#interface eth0  
(config-if)#disable-ldp ipv4
```

The following example disables ISIS IPv6 on interface eth0.

```
#configure terminal  
(config)#interface eth0  
(config-if)#disable-ldp ipv6
```

---

## distance (IPv4)

Use this command in router mode to set the administrative distance for all IPv4 routes.

Use the `no` parameter with this command to remove an administrative distance.

### Command Syntax

```
distance <1-255> (System-ID (WORD|)|)
no distance ((System-ID | System-ID WORD)|)
```

### Parameters

<1-255>	Distance range.
System-ID	Source ID in XXXX.XXXX.XXXX format.
WORD	Access-list name.

### Default

By default, all options are turned off.

### Command Mode

Router mode

### Examples

The following example shows setting the administrative distance for all routes.

```
#configure terminal
(config)#router isis
(config-router)#distance 10
```

The following example shows setting the administrative distance for a specific route source.

```
#configure terminal
(config)#router isis
(config-router)#distance 40 0000.0000.0001
```

---

## distance

Use this command in router mode to set the administrative distance for all IPv6 routes.

Use the `no` parameter with this command to remove an administrative distance.

### Command Syntax

```
distance <1-255>
no distance
```

### Parameters

`<1-255>` Distance range.

### Default

By default, all options are turned off.

### Command Mode

Address-family ipv6 mode

### Examples

The following example shows setting the administrative distance for all routes for the IPv6 address family.

```
>enable
#con term
Enter configuration commands, one per line. End with CNTL/Z.
(config)#router isis
(config-router)#address-family ipv6
(config-router-af)#distance 20
```

---

## domain-password

Use this command to set the authentication password for the Level-2 domain, and optionally, the authentication password on Level-2 SNP PDUs.

Configuring this command to enable authentication when receiving and sending LSP and SNP PDU in Level-2 domain. Domain password must be the same in Level-2 domain.

Use the `no` parameter with this command to clear the domain password.

### Command Syntax

```
domain-password WORD
domain-password WORD authenticate snp (send-only|validate)
no domain-password
```

### Parameters

WORD	The password string.
authenticate	Inserts the password into Level-1 SNP PDUs.
snp	SNP PDUs.
send-only	Only inserts the password into the Level-1 SNP PDUs, but does not check the password in SNP PDUs that it receives. Use this keyword during a software upgrade to ease the transition.
validate	Inserts the password into the Level-1 SNP PDUs, and checks the password in SNP PDUs that it receives.

### Default

By default, there is no domain password.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#domain-password mypasswd

(config)#router isis bb
(config-router)#domain-password ipi authenticate snp send-only

(config)#router isis bb
(config-router)#no domain-password
```

---

## dynamic-hostname

Use this command to configure the hostname to be advertised for an ISIS instance using the dynamic hostname exchange mechanism (RFC 2763) and system-ID-to-hostname translation.

This command configures a hostname to be used for the Dynamic Hostname Exchange Mechanism and System-ID to hostname translation. This is required to get accurate results when using the `show isis database` and a few other commands

Use the `no` parameter to disable the Hostname configured.

### Command Syntax

```
dynamic-hostname
hostname dynamic
dynamic-hostname area-tag
no dynamic-hostname
no hostname dynamic
```

### Parameters

<code>area-tag</code>	Use the routing area tag as the hostname, not the router's global hostname.
-----------------------	---

### Default

By default, the Dynamic Hostname Exchange Mechanism is disabled.

### Command Mode

Router mode

### Example

```
#configure terminal
(config)#router isis bb
(config-router)#dynamic-hostname area-tag
```

---

## enable-ldp

Use this command to enable ISIS IPv4 or ISIS IPv6, or ISIS IPv4 and IPv6, on a specified interface. This command enables the transmission of Hello packets through the current interface, so that ISIS adjacencies and ISIS sessions can be created. Use the both parameter to enable both ISIS IPv4 and ISIS IPv6 on the interface. Both adjacencies come up, and a session will be formed with either one of the address families.

**Note:** The corresponding interface in the NSM must be enabled for label-switching using the `label-switching` command in the NSM for the interface. Refer to the *Network Services Module Command Reference* for details about the `label-switching` command.

Use the `disable-ldp` to disable LDP on an interface (see [disable-ldp](#) on page 41 for more information).

### Command Syntax

```
enable-ldp ipv6 (igp-sync|no-igp-sync|)
enable-ldp (ipv4|ipv6|both) (igp-sync|no-igp-sync|)
```

### Parameters

<code>igp-sync</code>	Enable LDP-IGP synchronization.
<code>no-igp-sync</code>	Disable LDP-IGP synchronization.
<code>both</code>	Enable both IPv4 and IPv6 on the interface.
<code>ipv4</code>	Enable IPv4 on the interface.
<code>ipv6</code>	Enable IPv6 on the interface.

### Command Mode

#### Interface mode

#### Examples

The following example enables ISIS IPv4 on interface eth0.

```
#configure terminal
(config)#interface eth0
(config-if)#enable-ldp ipv4
```

The following example enables ISIS IPv6 on interface eth0.

```
#configure terminal
(config)#interface eth0
(config-if)#enable-ldp ipv6
```

The following example enables ISIS IPv4 and ISIS IPv6 on interface eth0.

```
#configure terminal
(config)#interface eth0
(config-if)#enable-ldp both
```

---

## exit-address-family

Use this command to exit the `address family` mode. See [address-family ipv6](#) on page 23 for steps on how to enter the address family mode.

### Command Syntax

```
exit-address-family
```

### Parameters

None

### Command Mode

Address Family mode

### Examples

The following example shows the use of `exit-address-family` command and the change in the prompt after using this command.

```
#configure terminal
(config)#router isis 100
(config-router)#address-family ipv6
(config-router-af)#exit-address-family
(config-router)#
```

---

## ignore-lsp-errors

Use this command to ignore LSPs with checksum errors. By default, ISIS validates checksum for LSP whenever it receives LSPs and if the checksum has an error, the LSP will be dropped. Configuring this command to ignore the LSP checksum error and treat it as if checksum is passed.

Use the `no` parameter to turn off this function.

### Command Syntax

```
ignore-lsp-errors
no ignore-lsp-errors
```

### Parameters

None

### Default

By default, the LSP checksum is checked on receipt.

### Command Mode

Router mode

### Example

In this sample, `rtr1` does not drop LSP packets with bad checksum.

```
#configure terminal
(config)#router isis bb
(config-router)#ignore-lsp-errors
```



---

## ip route high-priority tag

Use this command to set a high priority tag value.

Use the `no` parameter to turn off this function.

### Command Syntax

```
ip route high-priority tag <1-4294967295>
no ip route high-priority tag
```

### Parameters

<1-4294967295> Tag value

### Command Mode

Router mode

### Example

```
>ena
#con term
Enter configuration commands, one per line. End with CNTL/Z.
(config)#router isis A
(config-router)#ip route high-priority tag 500
```

---

## ip router isis

Use this command to enable ISIS IPv4 routing on the interface. This command is mandatory to ISIS configuration. Match the ISIS instance tag to one of existing instance's tags, or a new instance with the tag name should be initiated, otherwise routing will not run on this interface.

Configuring this command, the router sends ISIS Hello with IP address TLV on this interface, and IP reachability information TLV in the LSP will be updated.

Use the `no` parameter with this command to disable ISIS IPv4 routing on the interface. This action does not clear the ISIS database. To clear the database, unconfigure the ISIS routing instance.

### Command Syntax

```
ip router isis (WORD|)  
no ip router isis (WORD|)
```

### Parameters

WORD	ISIS instance name.
------	---------------------

### Default

By default, IPv4 routing is disabled on the router.

### Command Mode

Interface mode

### Example

```
#configure terminal  
(config)#interface eth0  
(config-if)#ip router isis bb
```

---

## ipv6 router isis

Use this command to enable ISIS IPv6 routing on the interface. This command is mandatory to IPv6 ISIS configuration. Match the ISIS instance tag to one of existing instance's tags, or a new instance with the tag name should be initiated, otherwise routing will not run on this interface.

Configuring this command, the router sends ISIS Hello with IPv6 address TLV on this interface, and IPv6 reachability information TLV in the LSP will be updated.

Use the `no` parameter with this command to disable ISIS IPv6 routing on the interface.

### Command Syntax

```
ipv6 router isis (WORD|)  
no ipv6 router isis (WORD|)
```

### Parameters

WORD	ISIS instance name.
------	---------------------

### Default

By default, IPv6 routing is disabled on the router.

### Command Mode

Interface mode

### Example

```
#configure terminal  
(config)#interface eth0  
(config-if)#ipv6 router isis bb
```

---

## isis authentication key-chain

Use this command to set the key chain to be used for authentication on the interface-related packets.

Authentication mode must be set to `md5` to configure the key chain. If no key chain is configured with the `key-chain` command, no key-chain authentication is performed. Only one authentication key-chain is applied to an ISIS interface at a time. That is, issuing a second `isis authentication key-chain` command overrides the first `isis authentication key-chain` command.

If neither the `level-1` nor `level-2` keyword is configured, the key chain applies to the level(s) on which the authentication mode is configured as `md5`. Authentication can be specified for an entire instance of ISIS, instead of at the interface level, by using the `authentication key-chain` command.

Use the `no` parameter with this command to unset the key chain used for authentication on the interface-related packets.

### Command Syntax

```
isis authentication key-chain WORD (level-1|level-2|)
no isis authentication key-chain (level-1|level-2|)
no isis authentication key-chain WORD (level-1|level-2|)
```

### Parameters

<code>WORD</code>	Chain name - valid authentication keys.
<code>level-1</code>	Specify an authentication key-chain for level-1 PDUs.
<code>level-2</code>	Specify an authentication key-chain for level-2 PDUs.

### Default

By default, this option is disabled. The key chain applies to the level(s) on which authentication mode is configured as MD5 if no level is specified.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth1
(config-if)#isis authentication key-chain ipi level-1
```

---

## isis authentication mode md5

Use this command to set the MD5 authentication mode. If clear text authentication was configured using the `isis password` command, the `isis authentication mode` command overrides the `isis password` command. If the `isis authentication mode` command was used, then subsequently an attempt is made to use the `isis password` command, the attempt fails.

To configure clear text authentication using the `isis password` command, first use the `no isis authentication mode` command. The type of authentication and the level to which it applies can be specified for the entire ISIS instance, rather than per interface, using the `authentication mode` command.

Use the `no` parameter with this command to unset the MD5 authentication mode.

### Command Syntax

```
isis authentication mode {md5|text} (level-1|level-2|)
no isis authentication mode {md5|text} (level-1|level-2|)
```

### Parameters

<code>md5</code>	Keyed message digest
<code>text</code>	Text mode
<code>level-1</code>	Specify an authentication key-chain for level-1 PDUs.
<code>level-2</code>	Specify an authentication key-chain for level-2 PDUs.

### Default

By default, this option is disabled. The authentication mode will be set to MD5 for both levels if no level is specified.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth1
(config-if)#isis authentication mode md5 level-1
```

---

## isis authentication send-only

Use this command to set the send-only option to the interface-related packets.

Use this command before configuring the ISIS authentication mode and ISIS authentication key-chain, so that the implementation of authentication goes smoothly. That is, the routers will have more time for the keys to be configured on each router if authentication is inserted only on the packets being sent, not checked on packets being received. After all routers that must communicate are configured with this command, enable the authentication mode and key chain on each router.

Use the `no` parameter with this command to unset the send-only option to the interface-related packets.

### Command Syntax

```
isis authentication send-only (level-1|level-2|)
no isis authentication send-only (level-1|level-2|)
```

### Parameters

<code>level-1</code>	Specify an authentication key-chain for level-1 PDUs.
<code>level-2</code>	Specify an authentication key-chain for level-2 PDUs.

### Default

By default, this option is disabled. The send-only option applies to both levels if no level is specified.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth1
(config-if)#isis authentication send-only level-1
```

---

## isis bfd

Use this command to enable/disable the BFD check on interface.

The `isis bfd` command allows a user to enable BFD on an interface. The `isis bfd disable` command disables BFD checking on an interface. However, the `no isis bfd` and `no isis bfd disable` commands both remove the enable/disable configuration, but do not disable/enable BFD.

The `bfd all-interfaces` command enables BFD on all interfaces attached to an instance then configuring. This command disables BFD configuration on a particular interface.

### Command Syntax

```
isis bfd (disable|)
no isis bfd (disable|)
```

### Parameters

<code>disable</code>	Specify to disable BFD.
----------------------	-------------------------

### Default

By default, bfd feature enable/disable is not configured.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis bfd disable
```

---

## isis circuit-type

Use this command to set the circuit type for the interface.

If level-1 or level-2-only is specified in this command, ISIS sends only the specified level of PDUs. On the point-to-point interface, there is only one type of Hello packet, so in this case ISIS Hello will be sent regardless of circuit-type. If is-type is configured as level-1 or level-2 only, routing for this instance is performed for only the specified level. In this manner, only the particular level of PDU is sent on the interface.

Use the `no` parameter to reset circuit type to the default.

### Command Syntax

```
isis circuit-type (level-1|level-1-2|level-2-only)
no isis circuit-type
```

### Parameters

<code>level-1</code>	Specify that only Level-1 adjacencies are formed.
<code>level-1-2</code>	Specify that Level-1-2 adjacencies are formed.
<code>level-2-only</code>	Specify that only Level-2 adjacencies are formed.

### Default

By default, the default circuit-type is level-1-2.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis circuit-type level-2-only
```



---

## isis csnp-interval

Use this command to set CSNP (Complete sequence number PDU) interval in seconds.

Configuring this command changes the interval between two consecutive CSNP transmission. By default, CSNP is sent every 10 seconds only by LAN DIS. This parameter is only valid on broadcast interface, since periodic CSNP is only sent on broadcast interface, while CSNP on Point-to-Point interface is sent only when adjacency is initiated.

Use the `no` parameter with this command to reset CSNP interval to the default value.

### Command Syntax

```
isis csnp-interval <1-65535> (level-1|level-2|)
no isis csnp-interval (level-1|level-2|)
no isis csnp-interval <1-65535> (level-1|level-2|)
```

### Parameters

<1-65535>	Specify the CSNP interval in seconds.
level-1	Specify Level-1 CSNP.
level-2	Specify Level-2 CSNP.

### Default

By default, ISIS uses 10 seconds for the interval and the interval is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis csnp-interval 20
```

---

## isis hello

Use this command to configure the padding of the ISIS Hello packet. ISIS pads the Hello packet by default to notify neighbors of the supported MTU size.

Use the no parameter with this command to disable the padding.

### Command Syntax

```
isis hello padding
no isis hello padding
```

### Parameters

padding	Specify pad hello packets
---------	---------------------------

### Default

By default, ISIS pads the ISIS Hello packet.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis hello padding
```

---

## isis hello-interval

Use this command to set the Hello interval in seconds. The Hello-interval is set with the hello-multiplier (see `isis hello-multiplier` command).

Configuring this command changes the time interval between two consecutive Hello transmissions. If a device receives its own LSP with a maximum sequence number, then it suspends ISIS for the hold interval. DIS sends Hello transmissions at three times the rate than non-DIS. If ISIS is elected as DIS on this interface, ISIS sends Hello every 3.3 seconds.

If `minimal` keyword is specified, Holding timer in Hello PDU is set to 1 second and Hello interval is calculated by dividing by the hello-multiplier. For example, if the hello-multiplier is configured as 4 and `hello-interval minimal` is the command used, an Hello PDU is sent every 250 milliseconds.

Use the `no` parameter to set the Hello interval to the default.

### Command Syntax

```
isis hello-interval <1-65535> (level-1|level-2|)
isis hello-interval minimal (level-1|level-2|)
no isis hello-interval (level-1|level-2|)
no isis hello-interval <1-65535> (level-1|level-2|)
no isis hello-interval minimal (level-1|level-2|)
```

### Parameters

<code>&lt;1-65535&gt;</code>	Specify the hello interval in seconds.
<code>minimal</code>	Specify the holding-time as 1 second.
<code>level-1</code>	Specify Level-1 CSNP.
<code>level-2</code>	Specify Level-2 CSNP.

### Default

By default, ISIS uses 10 seconds for the interval and the interval is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Examples

```
#configure terminal
(config)#interface eth0
(config-if)#isis hello-interval 5 level-1

(config)#interface eth0
(config-if)#isis hello-interval minimal
```

---

## isis hello-multiplier

Use this command to set multiplier for Hello holding time.

Changes Holding Timer in Hello PDU. Holding timer is calculated by “Hello-Interval” multiplied by this value. If `minimal` keyword is specified with the Hello-Interval, the holding timer is set to 1 second and the hello-interval is calculated by dividing 1 by this value.

Use the `no` parameter with this command to set multiplier to the default.

### Command Syntax

```
isis hello-multiplier <2-100> (level-1|level-2|)
no isis hello-multiplier (level-1|level-2|)
no isis hello-multiplier <2-100> (level-1|level-2|)
```

### Parameters

<2-100>	Specify a hello multiplier value.
level-1	Specify Level-1 hello.
level-2	Specify Level-2 hello.

### Default

By default, ISIS uses 3 seconds for the multiplier value and the multiplier is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis hello-multiplier 4
```

---

## isis lsp-interval

Use this command to set the Link State Packet (LSP) transmission interval.

Configuring this command changes the minimum interval between two consecutive LSP transmission. When flooding or some other event triggers LSP to transmit, the LSP is put on the interface queue and scheduled to transmit according to this interval. Two consecutive LSP transmissions are scheduled to have at least this interval.

Use the `no` parameter with this command to set LSP transmission interval to the default.

### Command Syntax

```
isis lsp-interval <1-4294967295>
no isis lsp-interval
```

### Parameters

`<1-4294967295>` Specify an LSP transmission interval in milliseconds.

### Default

By default, ISIS uses 33 milliseconds for the interval.

### Command Mode

Interface mode

### Examples

```
#configure terminal
(config)#interface eth0
(config-if)#isis lsp-interval 100

(config-if)#no isis lsp-interval
```

---

## isis mesh-group

Use this command to set Mesh Group ID on the current interface.

Use the `no` parameter to unset mesh group on the current interface.

### Command Syntax

```
isis mesh-group <1-4294967295>
isis mesh-group blocked
no isis mesh-group
```

### Parameters

<code>&lt;1-4294967295&gt;</code>	Specify a mesh group number
<code>blocked</code>	Specify to block LSPs on the current interface. If an interface is configured as “mesh group blocked,” the standard LSP database synchronization process is applied if the interface receives CSNP or PSNP.

### Default

By default, mesh groups are not enabled on this interface.

### Command Mode

Interface mode

### Examples

```
(config)#interface eth0
(config-if)#isis mesh-group 20

(config)#interface eth2
(config-if)#isis mesh-group blocked

(config)#interface eth2
(config-if)#no isis mesh-group
```

## isis metric

Use this command to set default metric for the interface. The interface default metric is put into IP reachability information TLVs, IS reachability information TLVs and IPv6 reachability TLVs in LSPs. The value is used for SPF calculation, and is applied when the metric-style is configured as “narrow”.

Use the `no` parameter with this command to set default metric to the default.

### Command Syntax

```
isis metric <1-63> (level-1|level-2|)
no isis metric (level-1|level-2|)
no isis metric <1-63> (level-1|level-2|)
```

### Parameters

<1-63>	Specify a default metric.
level-1	Specify default metric for level-1 circuit.
level-2	Specify default metric for level-2 circuit.

### Default

By default, ISIS uses 10 for the metric value and the value is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis metric 20
```

---

## isis network

Use this command to change a broadcast interface network type to a point-to-point network type.

Use the `no` parameter with this command to revert to the default setting of a broadcast interface network type.

### Command Syntax

```
isis network (broadcast|point-to-point)
no isis network (broadcast|point-to-point|)
```

### Parameters

<code>broadcast</code>	Specify ISIS a broadcast multi-access network.
<code>point-to-point</code>	Specify ISIS a point-to-point network.

### Default

By default, the network is set to a broadcast multi-access network type.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis network point-to-point
```



---

## isis password

Use this command to set the authentication password of Hello PDU on the interface.

Use the `no` parameter to clear the password.

### Command Syntax

```
isis password WORD (level-1|level-2|)  
no isis password (level-1|level-2|)  
no isis password WORD (level-1|level-2|)
```

### Parameters

WORD	Specify a password string.
level-1	Specify a password for Level-1 hello PDUs.
level-2	Specify a password for Level-2 hello PDUs.

### Default

By default, no password is configured; this applies to both level-1 and level-2.

### Command Mode

Interface mode

### Example

```
#configure terminal  
(config)#interface eth0  
(config-if)#isis password mypassword level-1
```

---

## isis priority

Use this command to set the priority for LAN DIS election. This command changes the priority value in LAN ISIS Hello PDUs. A lower priority value is less preferred in DIS election, and a higher priority value is more preferred.

**Note:** This command is not valid for Point-to-Point interface.

Use the `no` parameter to set priority to the default.

### Command Syntax

```
isis priority <0-127> (level-1|level-2|)
no isis priority (level-1|level-2|)
no isis priority <0-127> (level-1|level-2|)
```

### Parameters

<0-127>	Priority value
level-1	Specify a password for Level-1 hello PDUs.
level-2	Specify a password for Level-2 hello PDUs.

### Default

By default, ISIS uses 64 for the priority value, and the priority is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Example

```
#configure terminal
(config)#interface eth0
(config-if)#isis priority 127
```

---

## isis restart grace-period

Use this command to configure the T3 timer, the time the restarting router retains the forwarding table.

Use the `no` parameter to use the default value.

### Command Syntax

```
isis restart grace-period <1-65535>
no isis restart grace-period (<1-65535>|)
```

### Parameters

`<1-65535>` Specify the number of seconds in the grace period.

### Default

By default, ISIS uses 65535 for the period value, and the value is applied to both level-1 and level-2.

### Command Mode

Configure mode

### Examples

The following example enables and then disables a restart grace period at one second.

```
#configure terminal
(config)#isis restart grace-period 1

(config)#no isis restart grace-period 1
```

---

## isis restart-hello-interval

Use this command to configure the T1 timer, interval of ISIS Hello packet with restart TLV.

Use the `no` parameter to use the default value.

### Command Syntax

```
isis restart-hello-interval <1-65535> (level-1|level-2|)
no isis restart-hello-interval <1-65535> (level-1|level-2|)
no isis restart-hello-interval (level-1|level-2|)
```

### Parameters

<1-65535>	Specify the number of seconds in the interval.
level-1	Specify the hello-interval for level-1 IIs.
level-2	Specify the hello-interval for level-2 IIs.

### Default

By default, ISIS uses 3 seconds for the hello value, and the interval is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Example

The following example enables and then disables a restart hello interval at 123 seconds for a level 1 interface.

```
#configure terminal
(config)#interface eth0
(config-if)#isis restart-hello-interval 123 level-1

(config-if)#no isis restart-hello-interval 123 level-1
```

---

## isis restart helper

Use this command to configure the router's helper mode capability.

Use the `no` parameter to disable the helper mode for this router.

### Command Syntax

```
isis restart helper
no isis restart helper
```

### Parameters

None

### Default

By default, most routers are not a restart helper router.

### Command Mode

Configure mode

### Example

The following example enables and then disables ISIS restart helper.

```
#configure terminal
(config)#isis restart helper

(config)#no isis restart helper
```

---

## isis restart suppress-adjacency

Use this command to enable ISIS to request that its adjacency be suppressed after the ISIS daemon process starts or restarts until the Link State Packet Database (LSPDB) synchronizes.

Use the `no` parameter to disable suppress-adjacency.

### Command Syntax

```
isis restart suppress-adjacency
no isis restart suppress-adjacency
```

### Parameters

None

### Default

By default, ISIS does not request that its adjacency be suppressed after the ISIS daemon process starts or restarts.

### Command Mode

Configure mode

### Example

The following example enables and then disables ISIS restart suppress adjacency.

```
#configure terminal
(config)#isis restart suppress-adjacency

(config)#no isis restart suppress-adjacency
```

---

## isis retransmit-interval

Use this command to set LSP retransmission interval.

Use the `no` parameter to set the interval to the default.

### Command Syntax

```
isis retransmit-interval <0-65535>
no isis retransmit-interval
```

### Parameters

`<0-65535>` Specify an interval for retransmission of the same LSP in seconds.

### Default

By default, ISIS uses an interval of 5 seconds.

### Command Mode

Interface mode

### Examples

```
#configure terminal
(config)#interface eth0
(config-if)#isis retransmit-interval 10

(config-if)#no isis retransmit-interval
```

---

## isis tag

Use this command to sets the tag for link-state packets (LSPs) sent out advertising routes for networks directly connected to an interface.

If you do not specify a parameter, then the tag value is set for level-1-2 boundary.

Use the `no` parameter to unset the tag.

### Command Syntax

```
isis tag <1-4294967295> (level-1|level-2|)
no isis tag
```

### Parameters

<1-4294967295>	Tag value.
level-1	Specify the tag value for the level-1 boundary.
level-2	Specify the tag value for the level-2 boundary.

### Command Mode

Interface mode

### Examples

```
>ena
#con term
Enter configuration commands, one per line.  End with CNTL/Z.
(config)#interface eth0
(config-if)#isis tag 500 level-1
```



---

## isis wide-metric

Use this command to set wide metric for the interface.

Interface wide-metric is put into Extended IP reachability TLVs, Extended IS reachability TLVs and IPv6 reachability TLVs in LSPs. The value is used for SPF calculation. This value is applied when metric-style is configured as 'wide'.

Use the `no` parameter to set wide metric to the default.

### Command Syntax

```
isis wide-metric <1-16777214> (level-1|level-2|)
no isis wide-metric <1-16777214> (level-1|level-2|)
no isis wide-metric (level-1|level-2|)
```

### Parameters

<code>&lt;1-16777214&gt;</code>	Specify a wide metric.
<code>level-1</code>	Specify the wide metric for level-1 circuit.
<code>level-2</code>	Specify the wide metric for level-2 circuit.

### Default

By default, ISIS uses 10 for the metric value and the metric is applied to both level-1 and level-2.

### Command Mode

Interface mode

### Examples

```
#configure terminal
(config)#interface eth0
(config-if)#isis wide-metric 100

(config)#interface eth0
(config-if)#no isis wide-metric 100
```

---

## ispf

Use this command to enable incremental SPF for a routing process.

Use the `no` parameter to disable incremental SPF from a routing process.

### Command Syntax

```
ispf
ispf (level-1|level-1-2|level-2-only)
no ispf
```

### Parameters

<code>level-1</code>	Act as level-1 only IS.
<code>level-1-2</code>	Act as level-1-2 IS.
<code>level-2-only</code>	Act as level-2 only IS.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#ispf level-1

(config)#router isis bb
(config-router)#no ispf
```

---

## is-type

Use this command to set the IS to the specified level of routing.

Changing `is-type` brings down, then brings up a particular level of routing. There is a limitation: Only one ISIS instance can run Level-2 routing (either Level-2 only IS, or Level-1-2 IS).

Use the `no` parameter to set the IS to the default.

### Command Syntax

```
is-type (level-1|level-1-2|level-2-only)
no is-type
```

### Parameters

<code>level-1</code>	Act as level-1 only IS.
<code>level-1-2</code>	Act as level-1-2 IS.
<code>level-2-only</code>	Act as level-2 only IS.

### Default

By default, ISIS uses level-1-2 if there is no Level-2 instance nor a Level-1-2 instance. Otherwise, it uses level-1.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#is-type level-1

(config)#router isis bb
(config-router)#no is-type
```

---

## key chain

Use this command to enter the key chain management mode and to configure a key chain with a key chain name. This command allows you to enter the keychain mode to specify keys on this key chain.

### Command Syntax

```
key chain WORD
no key chain WORD
```

### Parameters

WORD	Specify the name of the key chain to manage.
------	--

### Command Mode

Configure mode

### Examples

The following example shows the creation of a key chain named `mychain` and the change to keychain mode:

```
#configure terminal
(config)#key chain mychain
(config-keychain)#
```

---

## key

Use this command to manage, add or delete authentication keys in a key-chain. This command allows you to enter the keychain-key mode to set a password for the key.

### Command Syntax

```
key <0-2147483647>
no key <0-2147483647>
```

### Parameters

<0-2147483647> Specify a key identifier.

### Default

By default, ISIS uses level-1-2 if there is no Level-2 instance nor a Level-1-2 instance. Otherwise, it uses level-1.

### Command Mode

Keychain mode

### Examples

The following example configures a key number 1 and shows the change to keychain-key command mode.

```
#configure terminal
(config)#key chain mychain
(config-keychain)#key 1
(config-keychain-key)#
```

## key-string

Use this command to define a password to be used by a key.

Use the `no` parameter with this command to disable this feature.

### Command Syntax

```
key-string LINE
no key-string
```

### Parameters

LINE	Specify a string of characters to be used as a password by the key.
------	---

### Command Mode

Keychain-key mode

### Examples

In the following example, the password for `key 1` in the key chain named `mychain` is set to `prime`:

```
#configure terminal
(config)#key chain mychain
(config-keychain)#key 1
(config-keychain-key)#key-string prime

(config-keychain)#key 1
(config-keychain-key)#no key-string
```

---

## **lsp-gen-interval**

Use this command to set minimum interval before regenerating the same LSP. The smaller the interval, the faster the convergence. However, this setting might cause more frequent flooding.

Use the `no` parameter with this command to set the interval to the default.

### **Command Syntax**

```
lsp-gen-interval <1-120>
lsp-gen-interval (level-1|level-2) <1-120>
no lsp-gen-interval
```

### **Parameters**

<code>&lt;1-120&gt;</code>	Specify an LSP generation interval in seconds.
<code>level-1</code>	Specify an interval for Level-1 IS.
<code>level-2</code>	Specify an interval for Level-2 IS.
<code>&lt;1-120&gt;</code>	Specify a minimum interval in seconds.

### **Default**

By default, ISIS uses 30 seconds for the interval and the interval is applied to both level-1 and level-2.

### **Command Mode**

Router mode

### **Example**

```
#configure terminal
(config)#router isis bb
(config-router)#lsp-gen-interval 5
```

---

## **lsp-mtu**

Use this command to set minimum interval before regenerating the same LSP.

Use the `no` parameter with this command to set the interval to the default.

### **Command Syntax**

```
lsp-mtu (level-1|level-2|) <512-1492>
no lsp-mtu (level-1|level-2|)
```

### **Parameters**

<512-1492>	Specify an MTU size
level-1	Specify an interval for Level-1 IS.
level-2	Specify an interval for Level-2 IS.

### **Command Mode**

Router mode

### **Example**

```
#configure terminal
(config)#router isis bb
(config-router)#lsp-mtu 555
```



---

## **lsp-refresh-interval**

Use this command to set the LSP refresh interval.

IP Infusion Inc. recommends making the `lsp-refresh-interval` smaller than `max-lsp-lifetime` value.

Use the `no` parameter to set the interval to the default value.

### **Command Syntax**

```
lsp-refresh-interval <1-65535>
no lsp-refresh-interval
```

### **Parameters**

`<1-65535>` Specify an LSP refresh interval in seconds.

### **Default**

By default, the interval is 900 seconds.

### **Command Mode**

Router mode

### **Examples**

```
#configure terminal
(config)#router isis bb
(config-router)#lsp-refresh-interval 600

(config)#router isis bb
(config-router)#no lsp-refresh-interval
```

---

## max-area-address

Use this command to set the maximum number of ISIS areas that can be configured on this router with the `net` command. By default, ISIS permits a maximum of three areas that can be defined on a router.

Use the `no` parameter with this command to set the maximum number of ISIS areas to its default (3).

### Command Syntax

```
max-area-address <3-254>
no max-area-address
```

### Parameters

<3-254>                    The maximum number of areas in the network.

### Default

By default, the maximum number of areas is 3.

### Command Mode

Router mode

### Examples

```
(config)#router isis net2
(config-router)#max-area-address 5
(config-router)#net 71.0001.0000.0000.0001.00
(config-router)#net 72.0001.0000.0000.0001.00
(config-router)#net 73.0001.0000.0000.0001.00
(config-router)#net 74.0001.0000.0000.0001.00
(config-router)#net 75.0001.0000.0000.0001.00
```

---

## mpls ldp-igp sync isis

Use this command to enable LDP-ISIS synchronization. If you do not specify a parameter, then synchronization is enabled for level-1-2.

Use the `no` form of this command to disable LDP-ISIS synchronization.

### Command Syntax

```
mpls ldp-igp sync isis (level-1|level-2|level-1-2) (holddown-timer <1-2147483>|)
no mpls ldp-igp sync isis
```

### Parameters

<code>level-1</code>	Enable LDP-ISIS synchronization for level-1 only.
<code>level-1-2</code>	Enable LDP-ISIS synchronization for level-1-2.
<code>level-2</code>	Enable LDP-ISIS synchronization for level-2 only.
<code>&lt;1-2147483&gt;</code>	Set hold down timer for ISIS synchronization in seconds.

### Command Mode

Interface mode

### Examples

```
(config)#interface eth0
(config-if)#mpls ldp-igp sync isis level-2

(config)#interface eth0
(config-if)#no mpls ldp-igp sync isis
```

---

## max-lsp-lifetime

Use this command to set the maximum LSP lifetime. You must set `max-lsp-lifetime` greater than `lsp-refresh-interval`.

Use the `no` parameter to set the lifetime to the default.

### Command Syntax

```
max-lsp-lifetime <350-65535>
no max-lsp-lifetime
```

### Parameters

`<350-65535>` Specify an maximum LSP lifetime in seconds.

### Default

By default, `max-lsp-lifetime` is set to 1200 seconds.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#max-lsp-lifetime 1500

(config)#router isis bb
(config-router)#no max-lsp-lifetime
```

## metric-style

Use this command to configure the ISIS metric style. Use the following table when changing the method of how TLV encodes and SPF calculates a decision:

Metric-style Command	Wide SPF	Wide TLV	Narrow SPF	Narrow TLV
narrow (default)	OFF	OFF	ON	OFF
narrow transition	ON	OFF	ON	ON
wide	ON	ON	OFF	OFF
wide transition	ON	ON	ON	OFF
transition	ON	ON	ON	ON

Where:

- Wide SPF: Uses wide TLVs for SPF calculation.
- Wide TLV: Encodes wide TLVs in the LSP.
- Narrow SPF: Uses narrow TLVs for SPF calculation.
- Narrow TLV: Encodes narrow TLVs in the LSP.

Use the `no` parameter to set the style to the default style, narrow.

### Command Syntax

```
metric-style (narrow|wide|transition) (level-1|level-1-2|level-2|)
metric-style (narrow|wide) transition (level-1|level-1-2|level-2|)
no metric-style (narrow|wide|transition) (level-1|level-1-2|level-2|)
```

### Parameters

narrow	Specify the old style of TLVs with narrow metric.
wide	Specify the new style of TLVs to carry wider metric.
transition	Specify to send and accept both styles of TLVs during transition.
level-1	Specify the level-1 metric style.
level-2	Specify the level-2 metric style.
level-1-2	Specify the level-1-2 metric style.
transition	Accept both styles of TLVs during transition

### Default

By default, ISIS uses narrow metric style for level 1 and 2.

### Command Mode

Router mode

### Examples

```
(config)#router isis bb  
(config-router)#metric-style narrow transition
```

---

## mpls traffic-eng

Use this command to configure MPLS Traffic Engineering feature for ISIS.

Use the `no` parameter to turn off the feature.

### Command Syntax

```
mpls traffic-eng (level-1|level-2)
no mpls traffic-eng (level-1|level-2)
```

### Parameters

<code>level-1</code>	Specify the level-1 MPLS Traffic Engineering feature.
<code>level-2</code>	Specify the level-2 MPLS Traffic Engineering feature.

### Default

If this command is not used, ISIS does not encode traffic engineering TLVs and Sub-TLVs.

### Command Mode

Router mode

### Examples

```
(config)#router isis bb
(config-router)#metric-style wide
(config-router)#mpls traffic-eng level-1

(config-router)#metric-style wide
(config-router)#no mpls traffic-eng level-1
```

---

## mpls traffic-eng router-id

Use this command to configure the traffic engineering stable IP address for a system.

Use the `no` parameter to turn off the feature.

### Command Syntax

```
mpls traffic-eng router-id A.B.C.D
no mpls traffic-eng router-id
```

### Parameters

A.B.C.D                      Specify the ISIS router-ID in an IP address format.

### Default

If this command is not used, ISIS does not encode traffic engineering TLVs and Sub-TLVs.

### Command Mode

Router mode

### Examples

```
(config)#router isis bb
(config-router)#mpls traffic-eng router-id 10.10.0.23
(config-router)#metric-style wide

(config)#router isis bb
(config-router)#no mpls traffic-eng router-id
```



## multi-topology

Use this command to configure the ISIS topology type. Use the no parameter with this command to set the topology type back to the default type, which is single. Use the following table when changing the method of how TLV encodes and SPF calculates a decision:

Metric-style Command	Wide SPF	Wide TLV	Narrow SPF	Narrow TLV
narrow (default)	OFF	OFF	ON	OFF
narrow transition	ON	OFF	ON	ON
wide	ON	ON	OFF	OFF
wide transition	ON	ON	ON	OFF
transition	ON	ON	ON	ON

Where:

- Wide SPF: Use wide TLVs for SPF calculation.
- Wide TLV: Encode wide TLVs in the LSP.
- Narrow SPF: Use narrow TLVs for SPF calculation.
- Narrow TLV: Encode narrow TLVs in the LSP.

### Command Syntax

```
multi-topology (transition|)
multi-topology (level-1|level-1-2|level-2) (transition|)
no multi-topology (transition|)
no multi-topology (level-1|level-1-2|level-2) (transition|)
```

### Parameters

level-1	Specify to enable multi-topology for level 1.
level-2	Specify to enable multi-topology for level 2.
level-1-2	Specify to enable multi-topology for levels 1 and 2.
transition	Specify to accept and generate both IS-IS IPv6 and multi-topology IPv6 TLVs.

### Default

ISIS topology type applies to levels 1 and 2.

### Command Mode

Address-family IPv6 mode

### Examples

The following example configures the ISIS multi-topology type as transition for levels 1 and 2.

```
(config)#router isis bb
(config-router)#address-family ipv6 unicast
```

```
(config-router-af)#multi-topology transition
```

---

## net

Use this command to add a Network Entity Title (NET) for the instance.

On a router running ISIS, a NET can be 8 to 20 bytes in length. The last byte is always the n-selector, and must be zero. The n-selector indicates no transport entity, and means that the packet is for the routing software of the system. The six bytes directly preceding the n-selector are the system ID. The system ID length is a fixed size and cannot be changed. The system ID must be unique throughout each area (Level 1) and throughout the backbone (Level 2).

The bytes preceding the system ID are the area ID, which can be from 1 - 13 bytes in length. By default, a maximum of three NETs per router are allowed with a different area ID but the system ID should be the same for all NETs. You can increase the number of area IDs per system ID with the `max-area-address` command.

Use the `no` parameter to remove the NET.

### Command Syntax

```
net NET
no net NET
```

### Parameters

NET	Specify a network entity title (NET) in 1 to 13 octets (that is, XX.XXXX. ... .XXXX.XX).
-----	--

### Default

By default, ISIS does not configure a NET and routing is not enabled for the interface.

### Command Mode

Router mode

### Example

```
#configure terminal
(config)#router isis bb
(config-router)#net 49.0000.0001.0002.0003.00
```

---

## passive-interface

Use this command to suppress routing updates on all interfaces or on a specified interface, which puts the interfaces into passive mode. To advertise passive prefixes in LSP, there is no need to have at an interface configured with ip router isis. Enabling passive interface on an ISIS enabled interface disables ISIS on the interface and makes the interface passive.

Use the `no` parameter with this command to remove interfaces from passive mode

### Command Syntax

```
passive-interface (IFNAME |)
no passive-interface (IFNAME |)
```

### Parameters

IFNAME	Indicates an interface name.
--------	------------------------------

### Command Mode

Router mode

### Examples

The following suppresses routing updates on a specified interface.

```
#configure terminal
(config)#router isis 100
(config-router)#passive-interface eth0

(config)#router isis 100
(config-router)#no passive-interface eth0
```

---

## prc-interval-exp

Use this command to configure exponential back-off delay between PRC calculations.

Use the `no` parameter to disable any set exponential back-off delay between PRC calculations.

### Command Syntax

```
prc-interval-exp  
prc-interval-exp <0-2147483647> <0-2147483647>  
no prc-interval-exp
```

### Parameters

<0-2147483647> Set the minimum delay between receiving a change to PRC calculation in milliseconds.

<0-2147483647> Set the maximum delay between receiving a change to PRC calculation in milliseconds.

### Command Mode

Router mode

### Examples

```
(config)#router isis  
(config-router)#prc-interval-exp 100 10000  
  
(config)#router isis  
(config-router)#no prc-interval-exp
```

---

## protocol-topology

Use this command to configure ISIS Protocol Topology Support.

Use the `no` parameter to enable standard ISIS support.

### Command Syntax

```
protocol-topology
no protocol-topology
```

### Parameters

None

### Default

By default, standard ISIS support (according to ISO 10589 and RFC 1195) is used.

### Command Mode

Router mode

### Examples

```
(config)#router isis bb
(config-router)#metric-style wide
(config-router)#protocol-topology

(config)#router isis bb
(config-router)#no protocol-topology
```

---

## redistribute

Use this command to redistribute routes from another protocol into the ISIS routing table.

Use the `no` parameter to disable this function.

### Command Syntax

```
redistribute
redistribute (kernel|connected|static|rip|ospf|bgp) {metric <0-4261412864>|metric-
  type (internal|external)|level-1|level-2|level-1-2|?route-map WORD}
no redistribute (kernel|connected|static|rip|ospf|bgp)
```

### Parameters

<code>kernel</code>	Redistribute kernel routes.
<code>connected</code>	Redistribute connected routes.
<code>static</code>	Redistribute static routes.
<code>rip</code>	Redistribute RIP routes.
<code>ospf</code>	Redistribute OSPF routes.
<code>bgp</code>	Redistribute BGP routes.
<code>metric</code>	Specify the metric for redistributed routes.
<code>&lt;0-4261412864&gt;</code>	Specify the IS-IS default metric.
<code>metric-type</code>	Specify the IS-IS exterior metric type for redistributed routes:
<code>internal</code>	Set IS-IS internal metric type.
<code>external</code>	Set IS-IS external metric type.
<code>level-1</code>	IS-IS Level-1 routes.
<code>level-2</code>	IS-IS Level-2 routes.
<code>level-1-2</code>	IS-IS Level-1 and Level-2 routes.
<code>route-map</code>	Specify a Route map reference.
<code>WORD</code>	Specify name of the route-map.

### Command Mode

Router mode

### Examples

```
>ena
#con term
Enter configuration commands, one per line. End with CNTL/Z.
(config)#router isis A
(config-router)#redistribute bgp metric 12
```

---

## redistribute isis

Use this command to redistribute reachability information from one level to the other level. If an distribute-list name is given with this command for an access list that does not exist, the routes are still redistributed.

Use the `no` parameter with this command to stop redistribution.

### Command Syntax

```
redistribute isis level-1 into level-2
redistribute isis level-2 into level-1
redistribute isis level-1 into level-2 distribute-list WORD
redistribute isis level-2 into level-1 distribute-list WORD
no redistribute isis level-1 into level-2
no redistribute isis level-2 into level-1
```

### Parameters

level-1	Specify an inter-area route from level-1.
level-2	Specify an inter-area routes from level-2.
into	Specify a from level-n level into level-m.
level-1	Specify an inter-area route into level-1.
level-2	Specify an inter-area routes into level-2.
distribute-list	
	Indicate the distributed-list parameter.
WORD	Specify the actual selected route.

### Default

By default, ISIS redistributes selected L1 routes into L2.-2.

### Command Mode

Router mode, Address-family IPv6

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#redistribute isis level-2 into level-1

(config)#router isis bb
(config-router)#redistribute isis level-2 into level-1 distribute-list new

(config)#router isis bb
(config-router)#no redistribute isis level-2 into level-1
```



---

## restart isis graceful

Use this command to force to restart the ISIS router.

### Command Syntax

```
restart isis graceful (grace-period <1-65535>|)
```

### Parameters

`grace-period` Specify a grace period in seconds <1-65535>.

### Default

By default, the ISIS router is not restarted gracefully.

### Command Mode

Privileged Exec mode

### Example

```
#restart isis graceful grace-period 60
```

---

## restart-timer

Use this command to restart the ISIS timer.

Use the `no` parameter with this command to negate this command.

### Command Syntax

```
restart-timer <5-65535> (level-1|level-1-2|level-2|)
no restart-timer (level-1|level-1-2|level-2|)
no restart-timer <5-65535> (level-1|level-1-2|level-2|)
```

### Parameters

<5-65535>	Specify the restart timer in seconds
level-1	Specify that restart is only for Level-1.
level-1-2	Specify that restart is for both Level-1 and Level-2.
level-2	Specify that restart is only for Level-2.

### Command Mode

Router mode

### Example

The following example enables and then disables the restart timer at 555 seconds for a level 2 interface.

```
#configure terminal
(config)#router isis bb
(config-router)#restart-timer 555 level-2

(config)#router isis bb
(config-router)#no restart-timer 555 level-2
```

---

## router isis

Use this command to initiate an ISIS routing instance. Initiates ISIS routing instance and enters router configuration mode. Configure at least one NET to start routing. Also, enable particular interface with ip router isis command or ipv6 router isis command.

Use the `no` parameter with this command to remove an ISIS routing instance.

### Command Syntax

```
router isis (WORD|)  
no router isis (WORD|)
```

### Parameters

WORD	Specify an ISO routing instance tag.
------	--------------------------------------

### Command Mode

Configure mode

### Example

```
#configure terminal  
(config)#router isis New  
(config-router)#
```

---

## router isis vrf

Use this command to specify a VRF instance in ISIS. To use this command, you must first create a VRF name in the NSM using the ip vrf command. Associate the same name with the ISIS instance using this command.

### Command Syntax

```
router isis WORD WORD
```

### Parameters

WORD	Specify an ISO routing area instance.
WORD	Specify a VRF name to associate with this instance.

### Command Mode

Configure mode

### Examples

```
#configure terminal
(config)#router isis 1 vrf1
(config-router)#exit
```

## send-lifetime

Use this command to specify the time period during which the authentication key on a key chain can be sent.

Use the `no` parameter with this command to negate this command.

### Command Syntax

```
send-lifetime HH:MM:SS <1-31> MONTH <1993-2035> HH:MM:SS <1-31> MONTH <1993-2035>
send-lifetime HH:MM:SS <1-31> MONTH <1993-2035> HH:MM:SS MONTH <1-31> <1993-2035>
send-lifetime HH:MM:SS MONTH <1-31> <1993-2035> HH:MM:SS <1-31> MONTH <1993-2035>
send-lifetime HH:MM:SS MONTH <1-31> <1993-2035> HH:MM:SS MONTH <1-31> <1993-2035>
send-lifetime HH:MM:SS <1-31> MONTH <1993-2035> infinite
send-lifetime HH:MM:SS MONTH <1-31> <1993-2035> infinite
send-lifetime HH:MM:SS <1-31> MONTH <1993-2035> duration <1-2147483646>
send-lifetime HH:MM:SS MONTH <1-31> <1993-2035> duration <1-2147483646>
no send-lifetime
```

### Parameters

HH:MM:SS	Specify the start time of accept-lifetime in hours, minutes and seconds.
<1-31>	Specify the day of the month to start.
MONTH	Specify the month of the year to start as the first three letters of the month, for example, Jan.
<1993-2035>	Specify the year to start.
HH:MM:SS	Specify the end time of accept-lifetime in hours, minutes and seconds.
<1-31>	Specify the day of the month to end.
MONTH	Specify the month of the year to end as the first three letters of the month, for example, Jan.
<1993-2035>	Specify the year to end.
duration	Indicate the duration parameter.
<1-2147483646>	Specify the actual end time duration of a key in seconds.
infinite	Specify the end time to never expire.

### Command Mode

Keychain-key mode

### Examples

The following example shows the setting of `send-lifetime` for key 1 on the key chain named `mychain`:

```
#configure terminal
(config)#key chain mychain
(config-keychain)#key 1
(config-keychain-key)#send-lifetime 03:03:01 Jan 3 2004 04:04:02 Dec 6 2006
```

---

## set-overload-bit

Use this command to set the overload-bit in self-LSPs. If the overload-bit is set in LSPs, the router is not used as a transit router during SPF calculation. This command causes a router to update its own LSP with the overload bit set and causes the other routers not to use this router as a transit or forwarding router. The router continues to receive LSPs when the overload bit is set. If the `on-startup` option is specified, the router sets the overload bit only at startup, then clears the bit after the specified interval has elapsed. If the `on-startup` option is specified using the `wait-for-bgp` option, the overload bit is setup at startup, then the bit is cleared after the BGP router signals it has finished converging or if the router does not signal it has finished converging in 10 minutes. If there is no BGP process running, the overload bit clears immediately.

If the BGP process is started later than the overload bit is set, the bit clears after the BGP router signals it has finished converging or if the BGP router does not signal it has finished converging in 10 minutes. If the `suppress` option is specified, the router suppresses the redistribution of specified types of reachability data during overload state. The `suppress` option can be used with the `external` or `interlevel` parameters, or both parameters.

Use the `no` parameter to clear the overload-bit from self-LSPs.

### Command Syntax

```
set-overload-bit ({suppress (external|interlevel|external interlevel|interlevel
  external)|on-startup (<5-86400>|wait-for-bgp)})
no set-overload-bit
```

### Parameters

<code>suppress</code>	Specify to suppress specific types of IP prefixes.
<code>external</code>	Specify to redistribute external reachability (to prevent the IP prefixes learned from other protocols from being advertised).
<code>interlevel</code>	Specify to redistribute interlevel reachability.
<code>on-startup</code>	Specify an interval in seconds after which the overload state is exited.
<code>&lt;5-86400&gt;</code>	Specify the time in seconds to advertise one self as overloaded after reboot.
<code>wait-for-bgp</code>	Specify that BGP determines when to unset the overload bit.

### Default

By default, no overload-bit is set.

### Command Mode

Router mode

### Example

This example sets overload bit at startup, does not unset the overload bit until BGP converges, suppresses redistribution between levels, and suppresses redistribution from external routing protocols while the overload bit is set.

```
(config)#router isis bb
(config-router)#set-overload-bit on-startup wait-for-bgp suppress interlevel
external
```

---

## snmp restart isis

Use this command to restart SNMP in Intermediate System to Intermediate System (IS-IS)

### Command Syntax

```
snmp restart isis
```

### Parameters

None

### Command Mode

Configure mode

### Examples

```
#snmp restart isis
```

## spf-interval-exp

Use this command to set the minimum and maximum hold intervals between Shortest Path First (SPF) calculations.

The `spf-interval-exp` command configures the minimum and maximum interval time between the receipt of a topology change and the calculation of the SPF.

Use the `no` parameter with this command to set the minimum and maximum hold intervals to the default.

### Command Syntax

```
spf-interval-exp <0-2147483647> <0-2147483647>
spf-interval-exp (level-1|level-2) <0-2147483647> <0-2147483647>
no spf-interval-exp
```

### Parameters

- |                |  |
|----------------|--|
| <0-2147483647> | Specify the minimum delay between receiving a change to the SPF calculation in milliseconds. The default SPF minimum hold-time interval value is 500 milliseconds. |
| <0-2147483647> | Specify the maximum delay between receiving a change to the SPF calculation in milliseconds. The default SPF maximum hold-time interval value is 50 seconds.       |
| level-1        | Specify an interval for Level-1 IS.  |
| level-2        | Specify an interval for Level-2 IS.  |

### Default

By default, ISIS uses 500 milliseconds and 50,000 milliseconds for the minimum and maximum hold intervals, respectively. The values are applied to both level-1 and level-2 if the `level` parameter is omitted.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#spf-interval-exp level-1 600 60000

(config)#router isis bb
(config-router)#no spf-interval-exp
```



---

## summary-address

Use this command to configure Summary Address to summarize IPv4 reachability information.

Use the `no` parameter with this command to unconfigure the summary.

### Command Syntax

```
summary-address A.B.C.D/M (level-1|level-1-2|level-2|) (metric) (<1-63>|)  
no summary-address A.B.C.D/M
```

### Parameters

A.B.C.D/M	Specify the IPv4 prefix to be announced.
level-1	Specify the reachability information only for Level-1.
level-1-2	Specify the reachability information for both Level-1 and Level-2.
level-2	Specify the reachability information only for Level-2.
metric	Specify the metric for the summarized address.
<1-63>	Specify the metric. The default is 0.

### Default

By default, ISIS does not configure the summary-address. Summary-address is applied to Level-2 IS if level parameter is omitted.

### Command Mode

Router mode

### Examples

```
#configure terminal  
(config)#router isis bb  
(config-router)#summary-address 10.10.0.0/16 level-1-2  
  
(config)#router isis bb  
(config-router)#no summary-address 10.10.0.0/16
```

---

## summary-prefix

Use this command to configure the summary prefix to summarize IPv6 reachability information.

Use the `no` parameter to unconfigure the summary.

### Command Syntax

```
summary-prefix X:X::X:X/M (level-1|level-1-2|level-2|) (metric) (<1-63>|)
no summary-prefix X:X::X:X/M
```

### Parameters

<code>X:X::X:X/M</code>	Specify the IPv6 prefix to be announced.
<code>level-1</code>	Specify the reachability information only for Level-1.
<code>level-1-2</code>	Specify the reachability information for both Level-1 and Level-2.
<code>level-2</code>	Specify the reachability information only for Level-2.
<code>metric</code>	Specify the metric for the summarized address.
<code>&lt;1-63&gt;</code>	Specify the metric. The default is 0.

### Default

By default, ISIS does not configure the summary-prefix. Summary-prefix is applied to Level-2 IS if `level` parameter is omitted.

### Command Mode

Router mode

### Examples

```
#configure terminal
(config)#router isis bb
(config-router)#address-family ipv6
(config-router-af)#summary-prefix 3ffe:1234::/32 level-1-2

(config-router)#address-family ipv6
(config-router-af)#no summary-prefix 3ffe:1234::/32
```

## CHAPTER 3 IS-IS Show Commands

---

This chapter provides a description, syntax, and examples of the IS-IS show commands. It includes the following commands:

- [show clns is-neighbors](#) on page 108
- [show clns neighbors](#) on page 109
- [show cspf lsp](#) on page 110
- [show debugging isis](#) on page 111
- [show ip isis igp-shortcut-lsp](#) on page 112
- [show ip isis route](#) on page 113
- [show ip isis route igp-shortcut](#) on page 114
- [show ip protocols](#) on page 115
- [show ipv6 isis route](#) on page 116
- [show ipv6 isis topology](#) on page 117
- [show isis counter](#) on page 119
- [show isis database](#) on page 120
- [show isis interface](#) on page 122
- [show isis tag database](#) on page 123
- [show isis topology](#) on page 125
- [show running-config interface isis](#) on page 126
- [show running-config router isis](#) on page 127

## show clns is-neighbors

Use this command to display all IS neighbor adjacencies.

### Command Syntax

```
show clns is-neighbors (detail|)
show clns WORD is-neighbors (detail|)
show clns is-neighbors IFNAME (detail|)
show clns WORD is-neighbors IFNAME (detail|)
```

### Parameters

WORD	Display information for specified instance.
IFNAME	Display information about a single interface.
detail	Display detailed information for all interfaces.

### Command Mode

Exec mode and Privileged Exec mode

### Example

```
#show clns is-neighbors detail
Area ipi:
System Id      Interface  State  Type  Priority  Circuit Id
0000.0000.0001 eth1       Up     L1    64        0000.0000.0002.01
               Up     L2    64        0000.0000.0001.01

  L1 Adjacency ID: 1
  L2 Adjacency ID: 2
  Uptime: 13:52:00
  Area Address(es): 49
  IP Address(es): 40.40.0.3
  Level-1 Protocols Supported: IPv4
  Level-2 Protocols Supported: IPv4
  Adjacency advertisement: Advertise
#
```

---

## show clns neighbors

Use this command to display IS neighbor adjacencies.

### Command Syntax

```
show clns neighbors (detail|)
show clns WORD neighbors (detail|)
show clns neighbors IFNAME (detail|)
show clns WORD neighbors IFNAME (detail|)
```

### Parameters

WORD	Show information for specified instance.
IFNAME	Show information about a single interface.
detail	Show detailed information for all interfaces.

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show clns neighbors detail
```

```
Area bb:
System Id      Interface  SNPA                State  Holdtime  Type  Protocol
0000.0000.0001 eth2        0000.0CFA.F002      Up     22        L2    IS-IS
  Area Address(es): 49.0000
  IP Address(es):  10.10.12.50
  Uptime: 00:10:17
0000.0000.0099 eth2        0003.4797.5E4C      Up     6         L2    IS-IS
  Area Address(es): 00.0001 4900.00
  IP Address(es):  10.10.12.99
  Uptime: 00:10:16
000F.0000.0002 eth2        0006.5B0E.D27D      Up     27        L1    IS-IS
                                Up     27        L2    IS-IS
  Area Address(es): 49.000f
  IP Address(es):  10.10.12.94
  Uptime: 00:06:15
#
```

---

## show cspf lsp

Use this command to display CSPF link-state packet (LSP) information.

### Command Syntax

```
show cspf lsp
```

### Parameters

None

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show cspf lsp
```

---

## show debugging isis

Use this command to display the status of the debugging of the ISIS system.

### Command Syntax

```
show debugging isis
```

### Parameters

None

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show debugging isis
Area (null):
System Id      Interface  SNPA          State  Holdtime  Type Protocol
TSUP40#show debugging isis
IS-IS debugging status:
#
```

---

## show ip isis igp-shortcut-lsp

Use this command to display the IS-IS IGP shortcut LSP entries.

### Command Syntax

```
show ip isis (WORD|) igp-shortcut-lsp
```

### Parameters

WORD                      Display information for specified instance.

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show ip isis igp-shortcut-lsp  
#
```



---

## show ip isis route

Use this command to display IS-IS routing table for IPv4.

### Command Syntax

```
show ip isis (WORD|) route
```

### Parameters

WORD                      Display information for specified instance.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ip isis route
Codes: C - connected, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, D - discard, E - external metric
Area ipi:
  Destination      Metric      Next-Hop      Interface
C    10.10.0.0/24   10          --           eth0
L1   10.10.11.0/24  20          10.10.0.43    eth0
L1   10.10.12.0/24  40          10.10.0.32    eth1
L1   172.16.10.0/24 35          10.10.0.99    eth1
L2   172.16.15.1/32 30          10.10.0.25    eth2
L2   172.16.12.2/32 10          10.10.0.101   eth3
#
```

---

## show ip isis route igp-shortcut

Use this command to display the IS-IS IGP shortcut routing table.

### Command Syntax

```
show ip isis (WORD|) route igp-shortcut
```

### Parameters

WORD                      Display information for specified instance.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ip isis new_isis route igp-shortcut  
#
```

---

## show ip protocols

Use this command to display IP process parameters and statistics.

### Command Syntax

```
show ip protocols
show ip protocols isis
```

### Parameters

None

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ip protocols
#
```

---

## show ipv6 isis route

Use this command to display the IS-IS routing table for IPv6.

### Command Syntax

```
show ipv6 isis (WORD|) route
```

### Parameters

WORD                      Display information for specified instance.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ipv6 isis route
Codes: C - connected, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, D - discard, E - external metric
Area ipi:
C      3ffe:1234:1::/48 [10]
       via ::, eth0
C      3ffe:1234:2::/48 [10]
       via ::, eth0
C      3ffe:1234:3::/48 [10]
       via ::, eth0
L1     3ffe:5678:3::/48 [20]
       via fe80::203:47ff:fe4c:776e, eth0
L1     3ffe:5678:101::/48 [20]
       via fe80::203:47ff:fe4c:776e, eth0
```

## show ipv6 isis topology

Use this command to display the IS-IS topology for IPv6.

### Command Syntax

```
show ipv6 isis topology (l1|l2|level-1|level-2|)
show ipv6 isis WORD topology (l1|l2|level-1|level-2|)
```

### Parameters

WORD	Display information for specified instance.
l1	IS-IS level-1 SPF topology.
l2	IS-IS level-2 SPF topology.
level-1	IS-IS level-1 SPF topology.
level-2	IS-IS level-2 SPF topology.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ipv6 isis topology
```

```
Area bb:
```

```
IS-IS paths to level-1 routers
```

System Id	Metric	Next-Hop	Interface	SNPA
000F.0000.0001	--			
000F.0000.0002	10	000F.0000.0002	eth2	
0006.5B0E.D27D				

```
IS-IS paths to level-2 routers
```

System Id	Metric	Next-Hop	Interface	SNPA
0000.0000.0001	10	0000.0000.0001	eth2	
0000.0CFA.F002				
0000.0000.0099	10	0000.0000.0099	eth2	
0003.4797.5E4C				
0001.0002.0003	20	0000.0000.0099	eth2	
0003.4797.5E4C				
000F.0000.0001	--			
000F.0000.0002	10	000F.0000.0002	eth2	
0006.5B0E.D27D				

```
#
```

---

## show ipv6 protocols isis

Use this command to display IPv6 process parameters and statistics.

### Command Syntax

```
show ipv6 protocols isis
```

### Parameters

None

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show ipv6 protocols isis
Routing Protocol is "isis 1 "
  Redistributing:
    Area Address(es):
  Distance : (default is 115)

#
```

## show isis counter

Use this command to display the IS-IS system counter entry MIBs.

### Command Syntax

```
show isis counter
```

### Parameters

None

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show isis counterArea new:
IS-IS Level-1 isisSystemCounterEntry:
  isisSysStatCorrLSPs: 0
  isisSysStatAuthTypeFails: 0
  isisSysStatAuthFails: 0
  isisSysStatLSPDbaseOloads: 0
  isisSysStatManAddrDropFromAreas: 0
  isisSysStatAttmptToExMaxSeqNums: 0
  isisSysStatSeqNumSkips: 0
  isisSysStatOwnLSPPurges: 0
  isisSysStatIDFieldLenMismatches: 0
  isisSysStatMaxAreaAddrMismatches: 0
  isisSysStatPartChanges: 0
  isisSysStatSPFRuns: 0
  isisSysStatPRCRuns: 0

IS-IS Level-2 isisSystemCounterEntry:
  isisSysStatCorrLSPs: 0
  isisSysStatAuthTypeFails: 0
  isisSysStatAuthFails: 0
  isisSysStatLSPDbaseOloads: 0
  isisSysStatManAddrDropFromAreas: 0
  isisSysStatAttmptToExMaxSeqNums: 0
  isisSysStatSeqNumSkips: 0
  isisSysStatOwnLSPPurges: 0
  isisSysStatIDFieldLenMismatches: 0
  isisSysStatMaxAreaAddrMismatches: 0
  isisSysStatPartChanges: 0
  isisSysStatSPFRuns: 0
  isisSysStatPRCRuns: 0
#
```

---

## show isis database

Use this command to display detailed link state database information.

### Command Syntax

```
show isis database
show isis database (detail|verbose)
show isis database (detail|verbose) WORD
show isis database (detail|verbose) WORD (l1|l2|level-1|level-2)
show isis database (detail|verbose) (l1|l2|level-1|level-2)
show isis database (detail|verbose) (l1|l2|level-1|level-2) WORD
show isis database WORD
show isis database WORD (l1|l2|level-1|level-2)
show isis database WORD (l1|l2|level-1|level-2) (detail|verbose)
show isis database WORD (detail|verbose)
show isis database WORD (detail|verbose) (l1|l2|level-1|level-2)
show isis database (l1|l2|level-1|level-2)
show isis database (l1|l2|level-1|level-2) (detail|verbose)
show isis database (l1|l2|level-1|level-2) (detail|verbose) WORD
show isis database (l1|l2|level-1|level-2) WORD
show isis database (l1|l2|level-1|level-2) WORD (detail|verbose)
```

### Parameters

detail	IS-IS link state database detailed information.
verbose	IS-IS link state database detailed information.
WORD	LSPID in the form of XXXX.XXXX.XXXX.XX-XX.
l1	IS-IS level-1 link state database.
l2	IS-IS level-2 link state database.
level-1	IS-IS level-1 link state database.
level-2	IS-IS level-2 link state database.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show isis database detail
Area bb:
IS-IS Level-1 Link State Database:
LSPID          LSP Seq Num  LSP Checksum  LSP Holdtime  ATT/P/OL
000F.0000.0001.00-00* 0x00000007    0xE15E       1188          1/0/0
  Area Address: 49.000F
  NLPID:        0xCC
```



---

```
IP Address: 10.10.12.97
Metric: 10      IP 10.10.12.0 255.255.255.0
Metric: 10      IS 000F.0000.0001.02
000F.0000.0001.02-00* 0x00000003 0x3C66      1026      1/0/0
Metric: 0      IS 000F.0000.0001.00
Metric: 0      IS 000F.0000.0002.00
000F.0000.0002.00-00 0x00000003 0x8C4B      1025      1/0/0
Area Address: 49.000F
NLPID: 0xCC
Hostname: isisd@redhat
IP Address: 10.10.12.94
Metric: 10      IP 10.10.12.0 255.255.255.0
Metric: 10      IS 000F.0000.0001.02
```

#

## show isis interface

Use this command to display detailed interface information.

### Command Syntax

```
show isis interface
show isis interface IFNAME
show isis interface counter
```

### Parameters

IFNAME	Display the name of interface.
counter	Display the interface counters.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
>show isis interface
VTYSH-68#show isis interface
lo is up, line protocol is up
  IS-IS not enabled on this interface
sdla0 is down, line protocol is down
  IS-IS not enabled on this interface
eth0 is up, line protocol is up
  IS-IS not enabled on this interface
eth1 is up, line protocol is up
  Routing Protocol: IS-IS (1)
    Circuit Type: level-1-2
    Local circuit ID 0x01
    IP interface address:
      10.10.10.10/24
    IPv6 interface address:
      fe80::204:76ff:fec8:28cc/10
    Level-1 Metric: 10/10, Priority: 64, Circuit ID: 0000.0000.0068.01
    Number of active level-1 adjacencies: 0
    Level-2 Metric: 10/10, Priority: 64, Circuit ID: 0000.0000.0068.01
    Number of active level-2 adjacencies: 0
    Next IS-IS LAN Level-1 Hello in 2 seconds
    Next IS-IS LAN Level-2 Hello in 2 seconds
eth2 is up, line protocol is up
  IS-IS not enabled on this interface
sit0 is down, line protocol is down
  IS-IS not enabled on this interface
>
```

## show isis tag database

Use this command to display detailed link state database information for a routing area.

### Command Syntax

```
show isis WORD database
show isis WORD database (detail|verbose)
show isis WORD database (detail|verbose) WORD
show isis WORD database (detail|verbose) WORD (l1|l2|level-1|level-2)
show isis WORD database (detail|verbose) (l1|l2|level-1|level-2)
show isis WORD database (detail|verbose) (l1|l2|level-1|level-2) WORD
show isis WORD database WORD
show isis WORD database WORD (l1|l2|level-1|level-2)
show isis WORD database WORD (l1|l2|level-1|level-2) (detail|verbose)
show isis WORD database WORD (detail|verbose)
show isis WORD database WORD (detail|verbose) (l1|l2|level-1|level-2)
show isis WORD database (l1|l2|level-1|level-2)
show isis WORD database (l1|l2|level-1|level-2) (detail|verbose)
show isis WORD database (l1|l2|level-1|level-2) (detail|verbose) WORD
show isis WORD database (l1|l2|level-1|level-2) WORD (detail|verbose)
show isis WORD database (l1|l2|level-1|level-2) WORD
```

### Parameters

WORD	Routing area tag.
detail	IS-IS link state database detailed information.
verbose	IS-IS link state database detailed information.
WORD	LSPID in the form of XXXX.XXXX.XXXX.XX-XX.
l1	IS-IS level-1 link state database.
l2	IS-IS level-2 link state database.
level-1	IS-IS level-1 link state database.
level-2	IS-IS level-2 link state database.

### Command Mode

Exec mode, Privileged exec mode

### Example

```
#show isis Area-1 database
Area Area-1:
IS-IS Level-1 Link State Database:
LSPID          LSP Seq Num  LSP Checksum  LSP Holdtime  ATT/P/OL
000F.0000.0001.00-00* 0x00000007   0xE15E       1188          1/0/0
Area Address: 49.000F
```

```
NLPID:          0xCC
IP Address:     10.10.12.97
Metric: 10      IP 10.10.12.0 255.255.255.0
Metric: 10      IS 000F.0000.0001.02
000F.0000.0001.02-00* 0x00000003 0x3C66          1026          1/0/0
Metric: 0       IS 000F.0000.0001.00
Metric: 0       IS 000F.0000.0002.00
000F.0000.0002.00-00 0x00000003 0x8C4B          1025          1/0/0
Area Address: 49.000F
NLPID:          0xCC
Hostname:       isisd@redhat
IP Address:     10.10.12.94
Metric: 10      IP 10.10.12.0 255.255.255.0
Metric: 10      IS 000F.0000.0001.02
#
```

## show isis topology

Use this command to display data about IS-IS topology.

### Command Syntax

```
show isis topology (l1|l2|level-1|level-2|)
show isis WORD topology (l1|l2|level-1|level-2|)
```

### Parameters

WORD	Display information for specified instance.
l1	Display the path to all level-1 routers in the area.
l2	Display the path to all level-2 routers in the domain.
level-1	Display the path to all level-1 routers in the area.
level-2	Display the path to all level-2 routers in the domain.

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show isis topology
```

```
Area bb:
```

```
IS-IS paths to level-1 routers
```

System Id	Metric	Next-Hop	Interface	SNPA
000F.0000.0001	--			
000F.0000.0002	10	000F.0000.0002	eth2	
0006.5B0E.D27D				

```
IS-IS paths to level-2 routers
```

System Id	Metric	Next-Hop	Interface	SNPA
0000.0000.0001	10	0000.0000.0001	eth2	
0000.0CFA.F002				
0000.0000.0099	10	0000.0000.0099	eth2	
0003.4797.5E4C				
0001.0002.0003	20	0000.0000.0099	eth2	
0003.4797.5E4C				
000F.0000.0001	--			
000F.0000.0002	10	000F.0000.0002	eth2	
0006.5B0E.D27D				

```
#
```

---

## show running-config interface isis

Use this command to display the ISIS interface configuration.

### Command Syntax

```
show running-config interface IFNAME isis
```

### Parameters

IFNAME                      Interface name.

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
#show running-config interface eth0 isis
!
interface eth0
  isis tag 500 level-1
!
```

---

## show running-config router isis

Use this command to display the ISIS router configuration.

### Command Syntax

```
show running-config router isis
```

### Parameters

None

### Command Mode

Exec mode, Privileged Exec mode

### Example

```
(config-router)#show running-config router isis
!  
router isis  
!
```





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