



Setting Best Practice Parameters for IS-IS Fast Convergence

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This module describes how to configure an IS-IS router with parameters that are recommended as a basic step to improve network convergence.

Finding Feature Information in This Module

Your Cisco IOS software release may not support all of the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To reach links to specific feature documentation in this module and to see a list of the releases in which each feature is supported, use the “[Feature Information for Setting Best Practice Parameters for IS-IS Fast Convergence](#)” section on page 7.

Finding Support Information for Platforms and Cisco IOS and Catalyst OS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.

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Prerequisites for Setting Best Practice Parameters for IS-IS Fast Convergence

- It is assumed you already have IS-IS running on your network.
- Before performing the tasks in this module, you should be familiar with the concepts described in the [“Overview of IS-IS Fast Convergence”](#) module.

Information About Setting Best Practice Parameters for IS-IS Fast Convergence

Before you configure the features in this module, you should understand the following concept:

[General Steps for Improving Convergence Time in the IS-IS Network, page 2](#)

General Steps for Improving Convergence Time in the IS-IS Network

The process described in this module consists of configuration commands that are recommended as general first steps for improving convergence time in any IS-IS network. Performing the steps in the following process can help you save network resources and speed up network convergence.

How to Set Best Practice Parameters for IS-IS Fast Convergence

You can set best practice parameters to improve the convergence time in your IS-IS network. This section contains the following task:

- [Setting Best Practice Parameters for IS-IS Fast Convergence, page 2](#)

Setting Best Practice Parameters for IS-IS Fast Convergence

Follow these steps for each router in your IS-IS network. To minimize the number of adjacencies, LSDBs, and related SPF and PRC computations that are performed, it is recommended that you have configured all Level 1 routers as Level 1 by using the **is-type** command. We recommend that you use the **metric-style wide** command because some features, such as setting prefix tags and MPLS traffic engineering, require that routers that are running IS-IS generate the new-style TLVs that have wider metric fields. If you use the default narrow metric style for IS-IS, the router generates and accepts old-style type, length, and value objects (TLVs). For more information on setting prefix tags, see the [“Reducing Alternate-Path Calculation Times in IS-IS Networks”](#) module.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router isis [area-tag]**
4. **is-type [level-1 | level-1-2 | level-2-only]**

5. `metric-style wide [transition] [level-1 | level-2 | level-1-2]`
6. `set-overload-bit [on-startup {seconds | wait-for-bgp}] [suppress {interlevel | external}]`
7. `no hello padding`
8. `end`
9. `show clns [domain | area-tag] protocol`

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>enable</code></p> <p>Example: Router> enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
Step 2	<p><code>configure terminal</code></p> <p>Example: Router# configure terminal</p>	<p>Enters global configuration mode.</p>
Step 3	<p><code>router isis [area-tag]</code></p> <p>Example: Router(config)# router isis</p>	<p>Enables IS-IS as an IP routing protocol and assigns a tag to a process, if required.</p> <ul style="list-style-type: none"> Enters router configuration mode.
Step 4	<p><code>is-type [level-1 level-1-2 level-2-only]</code></p> <p>Example: Router(config-router)# is-type level-1</p>	<p>Configures the routing level for an instance of the IS-IS routing process.</p> <ul style="list-style-type: none"> It is recommended that IS-IS nodes that operate at a single level be configured as Level 1 to minimize the number of adjacencies, LDSBs, and related SPF and PRC calculations. <p>Note You can also set the IS-IS level type on the interface by entering the <code>isis circuit-type</code> command.</p>
Step 5	<p><code>metric-style wide [transition] [level-1 level-2 level-1-2]</code></p> <p>Example: Router(config-router)# metric-style wide</p>	<p>Globally changes the metric value for all IS-IS interfaces.</p> <ul style="list-style-type: none"> Wide style metrics are required for prefix tagging.
Step 6	<p><code>set-overload-bit [on-startup {seconds wait-for-bgp}] [suppress {interlevel external}]</code></p> <p>Example: Router(config-router)# set-overload-bit on-startup 360</p>	<p>Configures the router to signal other routers not to use it as an intermediate hop in their shortest path first (SPF) calculations.</p> <ul style="list-style-type: none"> Setting the overload bit gives the router enough time to build its BGP and CEF tables prior to the router being used as a transit node.

	Command or Action	Purpose
Step 7	no hello padding Example: Router(config-router)# no hello padding	Disables IS-IS hello padding at the router level. <ul style="list-style-type: none"> By default the IS-IS Hello PDUs are padded to the full MTU size, possibly having a negative impact on time-sensitive application traffic that travels across low-bandwidth interfaces or on interface buffer resources when frequent hellos are configured. It is recommended to globally disable hello padding.
Step 8	end Example: Router(config-router)# end	Exits router configuration mode and returns to privileged EXEC mode.
Step 9	show clns [domain area-tag] protocol Example: Router(config-if)# show clns protocol	Lists the protocol-specific information for each ISO IGRP or IS-IS routing process in the router.

Configuration Examples for Setting Best Practice Parameters for IS-IS Fast Convergence

This section provides the following configuration example:

- [Enabling IS-IS on a Router and Setting Best Practice Parameters for IS-IS Fast Convergence: Example, page 4](#)

Enabling IS-IS on a Router and Setting Best Practice Parameters for IS-IS Fast Convergence: Example

The following example enables the IS-IS routing protocol on the interfaces for Router A, enables IS-IS on Router A, and configures Router A with the basic commands recommended to optimize IS-IS network convergence.

Router A

```

!
clns routing
process-max-time 50
ip routing protocol purge interface

router isis
passive-interface Loopback0
net 49.1962.XXXX.XXXX.XXXX.00
is-type level-2-only
ispf level-2
log-adjacency-changes
ignore-lsp-errors
metric-style wide level-2
external overload signalling !Configure on Cisco 12000 series Internet routers
set-overload-bit on-startup 180
max-lsp-lifetime 65535

```

```
lsp-refresh-interval 65000
spf-interval 5 1 50
prc-interval 5 1 50
lsp-gen-interval 5 1 50
no hello padding
authentication mode md5 level-2
authentication key-chain ON
mpls traffic-eng router-id Loopback0
mpls traffic-eng level-2
!

interface GigabitEthernet x/x
negotiation auto
ip router isis
mtu 4470
isis network point-to-point
isis metric <metric> level-2
isis circuit-type level-2-only
isis authentication mode md5 level-2
isis authentication key-chain ON
carrier-delay ms 0
dampening

interface POSx/y
carrier-delay msec 0
dampening
ip router isis
no peer neighbor-route
isis metric 1 level-2
isis circuit-type level-2-only
isis authentication mode md5 level-2
isis authentication key-chain ON
pos ais-shut
pos report lais
pos report lrldi
pos report prdi
pos report slod
pos report slodf
!

key chain ON
key 1
key-string mypassword
```

Where to Go Next

To configure features to improve IS-IS network convergence times, complete the optional tasks in one or more of the following modules:

- [“Reducing Failure Detection Times in IS-IS Networks”](#)
- [“Reducing Link Failure and Topology Change Notification Times in IS-IS Networks”](#)
- [“Reducing Alternate-Path Calculation Times in IS-IS Networks”](#)

Additional References

The following sections provide references related to setting best practice parameters for IS-IS fast convergence.

Related Documents

Related Topic	Document Title
IS-IS commands: complete command syntax, command mode, defaults, command history, usage guidelines, and examples	Cisco IOS IP Routing Protocols Command Reference
Roadmap of IS-IS features	“Integrated IS-IS Features Roadmap” module
Overview of Cisco IS-IS conceptual information with links to all the individual IS-IS modules	“Integrated IS-IS Routing Protocol Overview” module

Standards

Standard	Title
No new or modified standards are supported, and support for existing standards has not been modified.	—

MIBs

MIB	MIBs Link
No new or modified MIBs are supported, and support for existing MIBs has not been modified.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported, and support for existing RFCs has not been modified.	—

Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<p>http://www.cisco.com/techsupport</p>

Feature Information for Setting Best Practice Parameters for IS-IS Fast Convergence

Table 1 lists the features in this module and provides links to specific configuration information. Only features that were introduced or modified in Cisco IOS Release 12.2(1), 12.0(3)S, or a later release appear in the table.

For information on a feature in this technology that is not documented here, see the “[Integrated IS-IS Features Roadmap](#)” module.

Not all commands may be available in your Cisco IOS software release. For release information about a specific command, see the command reference documentation.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which Cisco IOS and Catalyst OS software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



Note

Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 1 Feature Information for Setting Best Practice Parameters for IS-IS Fast Convergence

Feature Name	Software Releases	Feature Information
This table is intentionally left blank because no features were introduced or modified in this module since Cisco IOS Release 12.2T. This table will be updated when feature information is added to this module.	—	—

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