



Configuring Cisco IOS IP SLAs FTP Operations

First Published: August 14, 2006
Last Updated: January 6, 2011

This module describes how to configure a Cisco IOS IP Service Level Agreements (SLAs) File Transfer Protocol (FTP) operation to measure the response time between a Cisco device and a FTP server to retrieve a file. The IP SLAs FTP operation supports an FTP GET request only. This module also demonstrates how the results of the FTP operation can be displayed and analyzed to determine the capacity of your network. The FTP operation can be used also for troubleshooting FTP server performance.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the [“Feature Information for IP SLAs FTP Operations”](#) section on page 11.

Use Cisco Feature Navigator to find information about platform support and Cisco 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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Restrictions for IP SLAs FTP Operations

The IP SLAs FTP operation only supports FTP GET (download) requests.

Information About IP SLAs FTP Operations

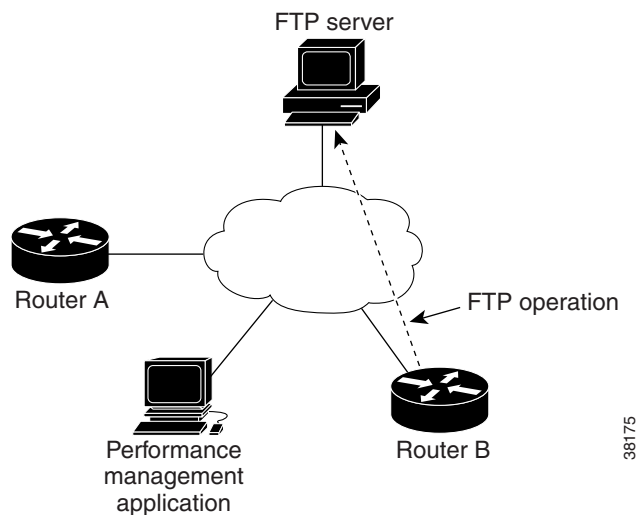
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FTP Operation

The FTP operation measures the round-trip time (RTT) between a Cisco device and an FTP server to retrieve a file. FTP is an application protocol, part of the Transmission Control Protocol (TCP)/IP protocol stack, used for transferring files between network nodes.

In [Figure 1](#) Router B is configured as the source IP SLAs device and an FTP operation is configured with the FTP server as the destination device.

Figure 1 FTP Operation



Connection response time is computed by measuring the time taken to download a file to Router B from the remote FTP server using FTP over TCP. This operation does not use the IP SLAs Responder.



Note

To test the response time to connect to an FTP port (Port 21), use the IP SLAs TCP Connect operation.

Both active and passive FTP transfer modes are supported. The passive mode is enabled by default. Only the FTP GET (download) operation type is supported. The URL specified for the FTP GET operation must be in one of the following formats:

- ftp://username:password@host/filename
- ftp://host/filename

If the username and password are not specified, the defaults are anonymous and test, respectively.

FTP carries a significant amount of data traffic and can affect the performance of your network. The results of an IP SLAs FTP operation to retrieve a large file can be used to determine the capacity of the network but retrieve large files with caution because the FTP operation will consume more bandwidth. The FTP operation also measures your FTP server performance levels by determining the RTT taken to retrieve a file.

How to Configure IP SLAs FTP Operations

- [Configuring an FTP Operation on a Source Device, page 3](#) (required)
- [Scheduling IP SLAs Operations, page 6](#) (required)

Configuring an FTP Operation on a Source Device



Note

There is no need to configure an IP SLAs responder on the destination device.

Perform one of the following tasks:

- [Configuring a Basic FTP Operation on the Source Device, page 3](#)
- [Configuring an FTP Operation with Optional Parameters on the Source Device, page 4](#)

Configuring a Basic FTP Operation on the Source Device

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip sla *operation-number***
4. **ftp get url [source-ip {ip-address | hostname}] [mode {passive | active}]**
5. **frequency *seconds***
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
Step 3	ip sla <i>operation-number</i> Example: Router(config)# ip sla 10	Begins configuration for an IP SLAs operation and enters IP SLA configuration mode.
Step 4	ftp get url [source-ip { <i>ip-address</i> <i>hostname</i> }] [mode { passive active }] Example: Router(config-ip-sla)# ftp get ftp://username:password@hostip/test.cap	Defines an FTP operation and enters IP SLA FTP configuration mode.
Step 5	frequency <i>seconds</i> Example: Router(config-ip-sla-ftp)# frequency 30	(Optional) Sets the rate at which a specified IP SLAs operation repeats.
Step 6	end Example: Router(config-ip-sla-ftp)# exit	Exits to privileged EXEC mode.

Configuring an FTP Operation with Optional Parameters on the Source Device

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip sla** *operation-number*
4. **ftp get url** [**source-ip** {*ip-address* | *hostname*}] [**mode** {**passive** | **active**}]
5. **history buckets-kept** *size*
6. **history distributions-of-statistics-kept** *size*
7. **history enhanced** [**interval** *seconds*] [**buckets** *number-of-buckets*]
8. **history filter** {**none** | **all** | **overThreshold** | **failures**}
9. **frequency** *seconds*
10. **history hours-of-statistics-kept** *hours*
11. **history lives-kept** *lives*
12. **owner** *owner-id*
13. **history statistics-distribution-interval** *milliseconds*
14. **tag** *text*
15. **threshold** *milliseconds*
16. **timeout** *milliseconds*
17. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	ip sla operation-number Example: Router(config)# ip sla 10	Begins configuration for an IP SLAs operation and enters IP SLA configuration mode.
Step 4	ftp get url [source-ip {ip-address hostname}] [mode {passive active}] Example: Router(config-ip-sla)# ftp get ftp://username:password@hostip/filename	Defines an FTP operation and enters IP SLA FTP configuration mode.
Step 5	history buckets-kept size Example: Router(config-ip-sla-ftp)# history buckets-kept 25	(Optional) Sets the number of history buckets that are kept during the lifetime of an IP SLAs operation.
Step 6	history distributions-of-statistics-kept size Example: Router(config-ip-sla-ftp)# history distributions-of-statistics-kept 5	(Optional) Sets the number of statistics distributions kept per hop during an IP SLAs operation.
Step 7	history enhanced [interval seconds] [buckets number-of-buckets] Example: Router(config-ip-sla-ftp)# history enhanced interval 900 buckets 100	(Optional) Enables enhanced history gathering for an IP SLAs operation.
Step 8	history filter {none all overThreshold failures} Example: Router(config-ip-sla-ftp)# history filter failures	(Optional) Defines the type of information kept in the history table for an IP SLAs operation.
Step 9	frequency seconds Example: Router(config-ip-sla-ftp)# frequency 30	(Optional) Sets the rate at which a specified IP SLAs operation repeats.

	Command or Action	Purpose
Step 10	history hours-of-statistics-kept <i>hours</i> Example: Router(config-ip-sla-ftp)# history hours-of-statistics-kept 4	(Optional) Sets the number of hours for which statistics are maintained for an IP SLAs operation.
Step 11	history lives-kept <i>lives</i> Example: Router(config-ip-sla-ftp)# history lives-kept 5	(Optional) Sets the number of lives maintained in the history table for an IP SLAs operation.
Step 12	owner <i>owner-id</i> Example: Router(config-ip-sla-ftp)# owner admin	(Optional) Configures the Simple Network Management Protocol (SNMP) owner of an IP SLAs operation.
Step 13	history statistics-distribution-interval <i>milliseconds</i> Example: Router(config-ip-sla-ftp)# history statistics-distribution-interval 10	(Optional) Sets the time interval for each statistics distribution kept for an IP SLAs operation.
Step 14	tag <i>text</i> Example: Router(config-ip-sla-ftp)# tag TelnetPollServer1	(Optional) Creates a user-specified identifier for an IP SLAs operation.
Step 15	threshold <i>milliseconds</i> Example: Router(config-ip-sla-ftp)# threshold 10000	(Optional) Sets the upper threshold value for calculating network monitoring statistics created by an IP SLAs operation.
Step 16	timeout <i>milliseconds</i> Example: Router(config-ip-sla-ftp)# timeout 10000	(Optional) Sets the amount of time an IP SLAs operation waits for a response from its request packet.
Step 17	end Example: Router(config-ip-sla-ftp)# end	Exits to privileged EXEC mode.

Scheduling IP SLAs Operations

Restrictions

- The frequency of all operations scheduled in a multioperation group must be the same.
- Operation ID numbers are limited to a maximum of 125 characters. Do not give large integer values as operation ID numbers.

SUMMARY STEPS

1. **enable**
2. **configure terminal**

For individual IP SLAs operations only:

3. **ip sla schedule** *operation-number* [**life** {**forever** | *seconds*}] [**start-time** {*hh:mm[:ss]* [*month day* | *day month*] | **pending** | **now** | **after** *hh:mm:ss*}] [**ageout** *seconds*] [**recurring**]

For multioperation scheduler only:

4. **ip sla group schedule** *group-operation-number* *operation-id-numbers* **schedule-period** *schedule-period-range* [**ageout** *seconds*] [**frequency** *group-operation-frequency*] [**life** {**forever** | *seconds*}] [**start-time** {*hh:mm[:ss]* [*month day* | *day month*] | **pending** | **now** | **after** *hh:mm:ss*}]
5. **exit**
6. **show ip sla group schedule**
7. **show ip sla configuration**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	ip sla schedule <i>operation-number</i> [life { forever <i>seconds</i> }] [start-time { <i>hh:mm[:ss]</i> [<i>month day</i> <i>day month</i>] pending now after <i>hh:mm:ss</i> }] [ageout <i>seconds</i>] [recurring] Example: Router(config)# ip sla schedule 10 start-time now life forever	For individual IP SLAs operations only: Configures the scheduling parameters for an individual IP SLAs operation.
Step 4	ip sla group schedule <i>group-operation-number</i> <i>operation-id-numbers</i> schedule-period <i>schedule-period-range</i> [ageout <i>seconds</i>] [frequency <i>group-operation-frequency</i>] [life { forever <i>seconds</i> }] [start-time { <i>hh:mm[:ss]</i> [<i>month day</i> <i>day month</i>] pending now after <i>hh:mm:ss</i> }] Example: Router(config)# ip sla group schedule 1 3,4,6-9	For multioperation scheduler only: Specifies an IP SLAs operation group number and the range of operation numbers to be scheduled in global configuration mode. <ul style="list-style-type: none"> • The frequency of all operations scheduled in the operation group should be the same. • The operation ID numbers are limited to a maximum of 125 characters. Do not use large integer values as operation ID numbers.

	Command or Action	Purpose
Step 5	<code>exit</code> Example: Router(config)# <code>exit</code>	Exits to privileged EXEC mode.
Step 6	<code>show ip sla group schedule</code> Example: Router# <code>show ip sla group schedule</code>	(Optional) Displays the IP SLAs group schedule details.
Step 7	<code>show ip sla configuration</code> Example: Router# <code>show ip sla configuration</code>	(Optional) Displays the IP SLAs configuration details.

Examples

The following sample output shows the configuration of all the IP SLAs parameters (including defaults) for the FTP operation number 10.

```
Router# show ip sla configuration 10

Complete Configuration Table (includes defaults)
Entry number: 10
Owner: FTP-Test
Tag: FTP-Test
Type of operation to perform: ftp
Source address: 0.0.0.0
FTP URL: ftp://username:password@hostip/filename
Type Of Service parameters: 128
Operation timeout (milliseconds): 30000
Operation frequency (seconds): 30
Next Scheduled Start Time: Start Time already passed
Group Scheduled: FALSE
Life (seconds): Forever
Entry Ageout (seconds): never
Recurring (Starting Everyday): FALSE
Status of entry (SNMP RowStatus): Active
Threshold (milliseconds): 30000
Number of statistic hours kept: 2
Number of statistic distribution buckets kept: 1
Statistic distribution interval (milliseconds): 20
Number of history Lives kept: 0
Number of history Buckets kept: 15
```

Troubleshooting Tips

Use the `debug ip sla trace` and `debug ip sla error` commands to help troubleshoot issues with the FTP operation.

What to Do Next

To add proactive threshold conditions and reactive triggering for generating traps, or for starting another operation, to an IP SLAs operation, see [Configuring Proactive Threshold Monitoring](#).

To view and interpret the results of an IP SLAs operation use the **show ip sla statistics** command. Checking the output for fields that correspond to criteria in your service level agreement will help you determine whether the service metrics are acceptable.

Configuration Examples for IP SLAs FTP Operations

- [Example: Configuring an FTP Operation, page 9](#)

Example: Configuring an FTP Operation

The following example shows how to configure an FTP operation as shown in [Figure 1](#) from Router B to the FTP server. The operation is scheduled to start every day at 1:30 a.m. In this example, the file named test.cap is to be retrieved from the host, cisco.com, with a password of abc using FTP in active mode.

Router B Configuration

```
ip sla 10
  ftp get ftp://user1:abc@test.cisco.com/test.cap mode active
  frequency 20
  tos 128
  timeout 40000
  tag FLL-FTP
ip sla schedule 10 start-time 01:30:00 recurring
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
Cisco IOS IP SLAs commands	Cisco IOS IP SLAs Command Reference
Cisco IOS IP SLAs: general information	“Cisco IOS IP SLAs Overview” chapter of the Cisco IP SLAs Configuration Guide .

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
CISCO-RTTMON-MIB	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

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

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for IP SLAs FTP Operations

Table 1 lists the features in this module and provides links to specific configuration information.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which 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 software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 1 Feature Information for IP SLAs FTP Operations

Feature Name	Releases	Feature Information
IP SLAs FTP Operation	12.2(31)SB2 12.2(33)SRB1 12.2(33)SXH 12.3(14)T 15.0(1)S Cisco IOS XE 3.1.0SG	The Cisco IOS IP SLAs File Transfer Protocol (FTP) operation allows you to measure the network response time between a Cisco device and an FTP server to retrieve a file.

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