IP SLAs FTP Operation

Feature History for IP SLAs - FTP Operation

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	IP SLAs - FTP Operation: This operation measures the response time between a Cisco device and an FTP server when retrieving a file.	Cisco C9350 Series Smart Switches Cisco C9610 Series Smart Switches

IP SLAs FTP

The IP SLAs FTP operation is designed to measure the response time between a Cisco device and an File Transfer Protocol (FTP) server when retrieving a file. This operation supports only FTP GET requests, allowing administrators to assess the performance of FTP file transfers across the network. By displaying and analyzing the results of the FTP operation, network capacity and FTP server performance can be evaluated, making it a valuable tool for both ongoing monitoring and troubleshooting of FTP-related issues.

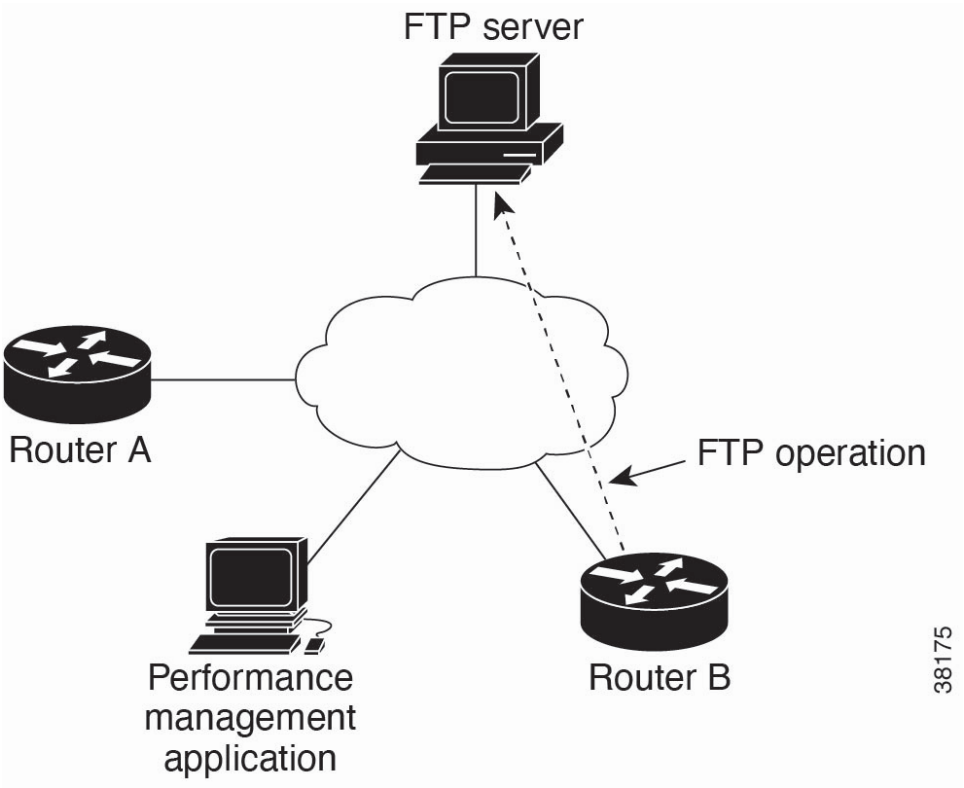
The FTP operation also measures your FTP server performance levels by determining the RTT taken to retrieve a file.

How IP SLAs FTP works

The IP SLAs FTP operation measures the round-trip time (RTT) between a Cisco device and an FTP server when retrieving a file. As an application protocol within the TCP/IP protocol stack, FTP is commonly used for transferring files between devices on a network. By performing an FTP GET request, the operation provides insight into the performance and responsiveness of file transfers, enabling network administrators to monitor and troubleshoot FTP connectivity and server performance effectively.

In the figure below Device 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 Device 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.

FTP transfer modes

Both active and passive FTP transfer modes are supported. The passive mode is enabled by default.

FTP operation type

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 and network performance

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.

Guidelines to configure IP SLAs FTP

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

Configure an IP SLAs FTP operation on the source device

Follow the steps in each of these tasks to configure an IP SLAs FTP operation on the source device.

Before you begin

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

Procedure

Step 1 Perform any one of these tasks:

- Configure a Basic FTP operation on a source device
- Configure an FTP operation with optional parameters on the source device

Step 2 Schedule IP SLAs operations

Configure a Basic FTP operation on a source device

Perform this task to configure a basic FTP operation on a source device.

Procedure

Step 1 **enable**

Example:

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal**

Example:

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **ip sla** *operation-number*

Example:

```
Device(config)# ip sla 10
```

Starts configuring an IP SLAs operation and enters IP SLA configuration mode.

Step 4 **ftp get** *url* [**source-ip** {*ip-address* | *hostname*}] [**mode** {**passive** | **active**}

Example:

```
Device(config-ip-sla)# ftp get ftp://username:password@hostip/test.cap
```

Defines an FTP operation and enters IP SLA FTP configuration mode.

- *url*: The FTP URL of the file to retrieve. Acceptable formats are:
  - ftp://username:password@host/filename
  - ftp://host/filename
- **source-ip** {*ip-address* | *hostname*}: (Optional) Specifies the source IP address or hostname to use for the FTP request.
- **mode** {**passive** | **active**}: (Optional) Sets the FTP transfer mode. By default, passive mode is enabled.

Step 5 **frequency** *seconds*

Example:

```
Device(config-ip-sla-ftp)# frequency 90
```

(Optional) Sets the rate at which a specified IP SLAs operation repeats.

Step 6 **end**

Example:

```
Device(config-ip-sla-ftp)# end
```

Exits to privileged EXEC mode.

Configure an FTP operation with optional parameters on the source device

Perform this task to configure an FTP operation with optional parameters on the source device.

Procedure

Step 1 **enable**

Example:

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal**

Example:

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **ip sla** *operation-number*

Example:

```
Device(config)# ip sla 10
```

Starts configuring an IP SLAs operation and enters IP SLA configuration mode.

Step 4 **ftp get** *url* [**source-ip** {*ip-address* | *hostname*}] [**mode** {**passive** | **active**}

Example:

```
Device(config-ip-sla)# ftp get ftp://username:password@hostip/test.cap
```

Defines an FTP operation and enters IP SLA FTP configuration mode.

- *url*: The FTP URL of the file to retrieve. Acceptable formats are:
  - ftp://username:password@host/filename
  - ftp://host/filename
- **source-ip** {*ip-address* | *hostname*}: (Optional) Specifies the source IP address or hostname to use for the FTP request.
- **mode** {**passive** | **active**}: (Optional) Sets the FTP transfer mode. By default, passive mode is enabled.

Step 5 **history buckets-kept** *size*

Example:

```
Device(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:

```
Device(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:

```
Device(config-ip-sla-ftp)# history enhanced interval 900 buckets 100
```

(Optional) Enables enhanced history gathering for an IP SLAs operation.

- **interval** *seconds*: (Optional) The time interval, in seconds, between each statistics recording.
- **buckets** *number-of-buckets*: (Optional) The number of history data buckets (records) to store for the operation.

Step 8 **history filter** {**none** | **all** | **overThreshold** | **failures**}

Example:

```
Device(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:

```
Device(config-ip-sla-ftp)# frequency 30
```

(Optional) Sets the rate at which a specified IP SLAs operation repeats.

Step 10 **history hours-of-statistics-kept** *hours*

Example:

```
Device(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** *lives*

Example:

```
Device(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** *owner-id*

Example:

```
Device(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** *milliseconds*

Example:

```
Device(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** *text*

Example:

```
Device(config-ip-sla-ftp)# tag TelnetPollServer1
```

(Optional) Creates a user-specified identifier for an IP SLAs operation.

Step 15 **threshold** *milliseconds*

Example:

```
Device(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** *milliseconds*

Example:

```
Device(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:

```
Device(config-ip-sla-ftp)# end
```

Exits to privileged EXEC mode.

Schedule IP SLAs operations

Perform this task to schedule IP SLAs operations.

Before you begin

- All IP SLAs operations to be scheduled must be already configured.
- The frequency of all operations scheduled in a multioperation group must be the same.
- The list of one or more operation ID numbers to be added to a multioperation group must be limited to a maximum of 125 characters in length, including commas (,).

Procedure

Step 1 **enable**

Example:

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal**

Example:

```
Device# configure terminal
```

Enters global configuration mode.

Step 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**]

Example:

```
Device(config)# ip sla schedule 10 life forever start-time
OR
Device(config)# ip sla schedule 1 3,4,6-9 schedule-period 50 frequency range 80-100
```

(Optional) Configures the scheduling parameters for an individual IP SLAs operation.

- *operation-number*: The IP SLA operation number to schedule (must match a previously created IP SLA operation).

  The range is from 1 to 2147483647.

- **life** {**forever** | *seconds*}: How long the operation will run.
  - **forever**: Runs the operation continuously until manually stopped.
  - *seconds*: Number of seconds the operation should run.

    The range is from 1 to 2147483647 seconds.

- **start-time** {[*hh:mm:ss*] [*month day* | *day month*] | **pending** | **now** | **after** *hh:mm:ss*}: Specifies when to start the operation.
  - *hh:mm:ss* [*month day* | *day month*]: Specific time and date.
  - **pending**: Waits for a manual start.
  - **now**: Starts immediately.
  - **after** *hh:mm:ss*: Starts after the specified amount of time.

- **ageout** *seconds*: Time (in seconds) after which the operation is automatically deleted.

  The range is from 0 to 2147483647 seconds.

- **recurring**: Makes the operation run repeatedly according to its frequency settin

Step 4 **ip sla group schedule** *group-operation-number operation-id-numbers* {**schedule-period** *schedule-period-range* |**schedule-together**}[**ageout** *seconds*] **frequency** *group-operation-frequency* [**life** {**forever** | *seconds*}] [**start-time** {*hh:mm* [*:ss*] [*month day* | *day month*] | **pending** | **now** | **after** *hh:mm*[*:ss*]}]

Example:

```
Device(config)# ip sla group schedule 10 schedule-period frequency
OR
Device(config)# ip sla group schedule 1 3,4,6-9 life forever start-time now
```

(Optional) Specifies an IP SLAs operation group number and the range of operation numbers for a multioperation scheduler.

- *group-operation-number*: The number assigned to the group operation (must be unique).

  The range is from 1 to 2147483647.

- *operation-id-numbers*: List of individual IP SLA operation numbers to be included in the group.

  The range is from 1 to 2147483647 (can be a series separated by spaces).

- **schedule-period** *schedule-period-range*: Schedules each operation in the group with a specified time period between them.

  The range is from 1 to 604800 (seconds; up to 7 days).

- **schedule-together**: Starts all operations in the group at the same time.

- **frequency** *group-operation-frequency*: How often (in seconds) the group operation runs.

  The range is from 1 to 604800 seconds.

Step 5 **end**

Example:

```
Device(config)# end
```

Exits global configuration mode and returns to privileged EXEC mode.

Configuration example for an FTP operation

The following example shows how to configure an FTP operation from Device B to the FTP server as shown in the "FTP Operation" figure in the "Information About IP SLAs FTP Operation" section. 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.

Device B Configuration

```
Device> enable
Device# configure terminal
Device(config)# ip sla 10
Device(config-ip-sla)# ftp get ftp://user1:abc@test.cisco.com/test.cap mode active
Device(config-ip-sla)# frequency 20
Device(config-ip-sla)# tos 128
Device(config-ip-sla)# timeout 40000
Device(config-ip-sla)# tag FLL-FTP
Device(config-ip-sla)# ip sla schedule 10 start-time 01:30:00 recurring
```