Cisco IOS IP SLAs Features Roadmap

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This feature roadmap lists the Cisco IOS features documented in the Cisco IOS IP SLAs Configuration Guide and maps them to the documents in which they appear. The roadmap is organized so that you can select your release train and see the features in that release. Find the feature name you are searching for and click on the URL in the "Where Documented" column to access the document containing that feature.

Feature and Release Support

Table 1 lists IP SLAs feature support for the following Cisco IOS software release trains:

- Cisco IOS XE 3SG
- Cisco IOS Release 15.0S
- Cisco IOS Release 15.1T
- Cisco IOS Release 12.4T
- Cisco IOS Release 12.2SX
- Cisco IOS Release 12.2SR

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.

Table 1 lists the features in alphabetical order within the release.

Table 1 Supported Cisco IOS IP SLAs Features

Release	Feature Name	Feature Description	Where Documented
Cisco IOS Release 12.2SR			
12.2SR	Overview	Overview of the Cisco IOS IP SLAs technology.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2SR	DHCP Operation	The Cisco IOS IP SLAs Dynamic Host Control Protocol (DHCP) operation allows you to schedule and measure the network response time between a Cisco device and a DHCP server to obtain an IP address.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dhcp.html
12.2SR	DNS Operation	The Cisco IOS IP SLAs Domain Name System (DNS) operation allows you to measure the difference between the time taken to send a DNS request and receive a reply.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dns.html
12.2SR	Ethernet Operation	The Cisco IOS IP SLAs for Metro-Ethernet feature provides the capability to gather Ethernet-layer network performance metrics. Available statistical measurements for the IP SLAs Ethernet operation include round-trip time, jitter (interpacket delay variance), and packet loss.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
12.2SR	FTP Operation	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.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_ftp.html
12.2SR	HTTP Operation	The Cisco IOS IP SLAs Hypertext Transfer Protocol (HTTP) operation allows you to measure the network response time between a Cisco device and an HTTP server to retrieve a web page.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_http.html
12.2SR	ICMP Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html
12.2SR	ICMP Path Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path echo operation allows you to measure end-to-end and hop-by-hop network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathecho.html
12.2SR	ICMP Path Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path jitter operation allows you to measure hop-by-hop jitter (inter-packet delay variance).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathjitter.html
12.2SR	IP SLAs for IPv6	The Cisco IOS IP SLAs UDP jitter, UDP echo, ICMP echo, and TCP connect operations are supported for IPv6.	http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-mng_apps.html
12.2SR	LSP Health Monitor	The Cisco IOS IP SLAs label switched path (LSP) Health Monitor feature provides the capability to proactively monitor Layer 3 Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2SR	LSP Health Monitor with LSP Discovery	This enhancement to the IP SLAs - LSP Health Monitor feature provides automated end-to-end verification in the control plane and data plane for all LSPs between the participating Provider Edge (PE) routers.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
12.2SR	Multioperation Scheduler	The IP SLAs Multioperation Scheduler feature provides a highly scalable infrastructure for Cisco IOS IP SLAs by allowing you to schedule multiple IP SLAs operations using a single command.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html
12.2SR	Proactive Threshold Monitoring	Cisco IOS IP SLAs proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
12.2SR	TCP Connect Operation	The Cisco IOS IP SLAs Transmission Control Protocol (TCP) connect operation allows you to measure the network response time taken to perform a TCP Connect operation between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html
12.2SR	UDP Echo Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html
12.2SR	UDP Jitter Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) jitter operation allows you to measure round-trip delay, one-way delay, one-way jitter, one-way packet loss, and connectivity in networks that carry UDP traffic.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html
12.2SR	UDP VoIP Operation	The Cisco IOS IP SLAs Voice over IP (VoIP) User Datagram Protocol (UDP)UDP jitter operation allows you to proactively monitor VoIP quality levels in your network, allowing you to guarantee VoIP quality levels to your users.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter_voip.html
12.2SR	VCCV Operation	The Cisco IOS IP SLAs VCCV operation supports Virtual Circuit Connectivity Verification (VCCV) for Pseudo-Wire Emulation Edge-to-Edge (PWE3) services across MPLS networks.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
Cisco IOS Release 12.2SX			
12.2SX	DHCP Operation	The Cisco IOS IP SLAs Dynamic Host Control Protocol (DHCP) operation allows you to schedule and measure the network response time between a Cisco device and a DHCP server to obtain an IP address.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dhcp.html
12.2SX	DNS Operation	The Cisco IOS IP SLAs Domain Name System (DNS) operation allows you to measure the difference between the time taken to send a DNS request and receive a reply.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dns.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2SX	FTP Operation	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.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_ftp.html
12.2SX	HTTP Operation	The Cisco IOS IP SLAs Hypertext Transfer Protocol (HTTP) operation allows you to measure the network response time between a Cisco device and an HTTP server to retrieve a web page.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_http.html
12.2SX	ICMP Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html
12.2SX	ICMP Path Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path echo operation allows you to measure end-to-end and hop-by-hop network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathecho.html
12.2SX	ICMP Path Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path jitter operation allows you to measure hop-by-hop jitter (inter-packet delay variance).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathjitter.html
12.2SX	LSP Health Monitor	The Cisco IOS IP SLAs label switched path (LSP) Health Monitor feature provides the capability to proactively monitor Layer 3 Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
12.2SX	Multioperation Scheduler	The IP SLAs Multioperation Scheduler feature provides a highly scalable infrastructure for Cisco IOS IP SLAs by allowing you to schedule multiple IP SLAs operations using a single command.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html
12.2SX	Proactive Threshold Monitoring	Cisco IOS IP SLAs proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
12.2SX	TCP Connect Operation	The Cisco IOS IP SLAs Transmission Control Protocol (TCP) connect operation allows you to measure the network response time taken to perform a TCP Connect operation between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html
12.2SX	UDP Echo Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.2SX	UDP Jitter Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) jitter operation allows you to measure round-trip delay, one-way delay, one-way jitter, one-way packet loss, and connectivity in networks that carry UDP traffic.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html
12.2SX	UDP VoIP Operation	The Cisco IOS IP SLAs Voice over IP (VoIP) User Datagram Protocol (UDP)UDP jitter operation allows you to proactively monitor VoIP quality levels in your network, allowing you to guarantee VoIP quality levels to your users.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter_voip.html
Cisco IOS Release 12.4T			
12.4T	DHCP Operation	The Cisco IOS IP SLAs Dynamic Host Control Protocol (DHCP) operation allows you to schedule and measure the network response time between a Cisco device and a DHCP server to obtain an IP address.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dhcp.html
12.4T	DLSw+ Operation	The Cisco IOS IP SLAs Data Link Switching Plus (DLSw+) operation allows you to schedule and measure the DLSw+ protocol stack and network response time between DLSw+ peers.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dlsw.html
12.4T	DNS Operation	The Cisco IOS IP SLAs Domain Name System (DNS) operation allows you to measure the difference between the time taken to send a DNS request and receive a reply.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dns.html
12.4T	Ethernet Operation	The Cisco IOS IP SLAs for Metro-Ethernet feature provides the capability to gather Ethernet-layer network performance metrics. Available statistical measurements for the IP SLAs Ethernet operation include round-trip time, jitter (interpacket delay variance), and packet loss.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
12.4T	FTP Operation	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.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_ftp.html
12.4T	HTTP Operation	The Cisco IOS IP SLAs Hypertext Transfer Protocol (HTTP) operation allows you to measure the network response time between a Cisco device and an HTTP server to retrieve a web page.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_http.html
12.4T	ICMP Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.4T	ICMP Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) Jitter operation allows you to generate a stream of ICMP packets between a Cisco IOS device (source) and any other IP device (destination) to gather network performance-related statistics.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_jitter.html
12.4T	ICMP Path Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path echo operation allows you to measure end-to-end and hop-by-hop network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathecho.html
12.4T	ICMP Path Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path jitter operation allows you to measure hop-by-hop jitter (inter-packet delay variance).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathjitter.html
12.4T	IP SLAs for IPv6	The Cisco IOS IP SLAs UDP jitter, UDP echo, ICMP echo, and TCP connect operations are supported for IPv6.	http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-mng_apps.html
12.4T	LSP Health Monitor	The Cisco IOS IP SLAs label switched path (LSP) Health Monitor feature provides the capability to proactively monitor Layer 3 Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
12.4T	Multioperation Scheduler	The IP SLAs Multioperation Scheduler feature provides a highly scalable infrastructure for Cisco IOS IP SLAs by allowing you to schedule multiple IP SLAs operations using a single command.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html
12.4T	Proactive Threshold Monitoring	Cisco IOS IP SLAs proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
12.4T	RTP Based VoIP Operation	The IP SLAs Real-Time Transport Protocol (RTP)-based Voice over IP (VoIP) operation allows you to set up and schedule a test call and use Voice gateway digital signal processors (DSPs) to gather network performance-related statistics for the call.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_rtp_voip.html
12.4T	TCP Connect Operation	The Cisco IOS IP SLAs Transmission Control Protocol (TCP) connect operation allows you to measure the network response time taken to perform a TCP Connect operation between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html
12.4T	UDP Echo Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
12.4T	UDP Jitter Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) jitter operation allows you to measure round-trip delay, one-way delay, one-way jitter, one-way packet loss, and connectivity in networks that carry UDP traffic.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html
12.4T	UDP VoIP Operation	The Cisco IOS IP SLAs Voice over IP (VoIP) User Datagram Protocol (UDP)UDP jitter operation allows you to proactively monitor VoIP quality levels in your network, allowing you to guarantee VoIP quality levels to your users.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter_voip.html
12.4T	VoIP Call Setup (Post Dial Delay) Monitoring	The Cisco IOS IP SLAs Voice over IP (VoIP) call setup operation allows you to measure network response time for setting up a VoIP call.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_call_setup.html
12.4T	VoIP Gatekeeper Delay Monitoring	The Cisco IOS IP SLAs Voice over IP (VoIP) gatekeeper registration delay operation allows you to measure the average, median, or aggregated network response time of registration attempts from a VoIP gateway to a VoIP gatekeeper device.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_gatekpr_voip.html
Cisco IOS Release 15.1T			
15.1(1)T	Cisco IP SLAs Engine 3.0	The auto IP Service Level Agreements (SLAs) function in Cisco IOS IP SLAs Engine 3.0 includes auto-measure groups, automatic registration, and support for active measurement of QoS for auto IP SLAs operations.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_auto_ipslas.html
15.1(1)T	IEEE 802.1ag - D8.1 standard Compliant CFM, IP SLA for Ethernet	Support for CFM d8.1 replaces support for CFM d1.0. IP SLAs integration with CFM d1.0 continues to be supported in Cisco IOS Release 15.0M and Cisco IOS Release 12.4(20)T.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
Cisco IOS Release 15.0S			
15.0(1)S	DHCP Operation	The Cisco IOS IP SLAs Dynamic Host Control Protocol (DHCP) operation allows you to schedule and measure the network response time between a Cisco device and a DHCP server to obtain an IP address.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dhcp.html
15.0(1)S	Distribution of Statistics	The IP SLAs Distribution of Statistics feature can group distributions of data that have similar metrics and store them in the Cisco IOS device	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	DLSw+ Operation	The Cisco IOS IP SLAs Data Link Switching Plus (DLSw+) operation allows you to schedule and measure the DLSw+ protocol stack and network response time between DLSw+ peers.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dlsw.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
15.0(1)S	DNS Operation	The Cisco IOS IP SLAs Domain Name System (DNS) operation allows you to measure the difference between the time taken to send a DNS request and receive a reply.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dns.html
15.0(1)S	FTP Operation	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.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_ftp.html
15.0(1)S	History Statistics	Cisco IOS IP SLAs maintains the following three types of history statistics: • Aggregated statistics • Operation snapshot history • Distribution statistics	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	HTTP Operation	The Cisco IOS IP SLAs Hypertext Transfer Protocol (HTTP) operation allows you to measure the network response time between a Cisco device and an HTTP server to retrieve a web page.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_http.html
15.0(1)S	ICMP Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html
15.0(1)S	ICMP Path Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path echo operation allows you to measure end-to-end and hop-by-hop network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathecho.html
15.0(1)S	IP SLAs for Metro Ethernet	The IP Service Level Agreements (SLAs) for Metro-Ethernet feature provides the capability to gather Ethernet-layer network performance metrics. Available statistical measurements for the IP SLAs Ethernet operation include round-trip time, jitter (interpacket delay variance), and packet loss.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
15.0(1)S	IP SLAs Metro-Ethernet 2.0 (EVC)	Support for Ethernet Virtual Circuits (EVCs) was added to Metro-Ethernet operations.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
15.0(1)S	IP SLAs Metro-Ethernet 3.0 (CFM d8.1)	Support for port level statistical measurements was added to Metro-Ethernet operations.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_metro_ethernet.html
15.0(1)S	IP SLAs for MPLS Pseudo Wire (PWE3) via VCCV	The IP SLAs VCCV operation was added to support Virtual Circuit Connectivity Verification (VCCV) for Pseudo-Wire Emulation Edge-to-Edge (PWE3) services across MPLS networks.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
15.0(1)S	LSP Health Monitor	The Cisco IOS IP SLAs label switched path (LSP) Health Monitor feature provides the capability to proactively monitor Layer 3 Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
15.0(1)S	LSP Health Monitor with LSP Discovery	This enhancement to the IP SLAs - LSP Health Monitor feature provides automated end-to-end verification in the control plane and data plane for all LSPs between the participating Provider Edge (PE) routers.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
15.0(1)S	MPLS VPN Awareness	Provides the capability to monitor IP service levels within Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	Multioperation Scheduler	The IP SLAs Multioperation Scheduler feature provides a highly scalable infrastructure for Cisco IOS IP SLAs by allowing you to schedule multiple IP SLAs operations using a single command.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html
15.0(1)S	One Way Measurement	Cisco IOS IP SLAs uses active traffic monitoring—the generation of traffic in a continuous, reliable, and predictable manner—for measuring network performance.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	Path Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path jitter operation allows you to measure hop-by-hop jitter (inter-packet delay variance).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathjitter.html
15.0(1)S	Reaction Threshold Monitoring	Cisco IOS IP SLAs proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
15.0(1)S	Scheduler	Cisco IP SLAs supports a variety of scheduling options, such as scheduling a single Cisco IOS IP SLAs operation or a group of operations at one time.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	SNMP Support	Cisco IOS IP SLAs can send SNMP traps that are triggered by specified events.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
15.0(1)S	TCP Connect Operation	The Cisco IOS IP SLAs Transmission Control Protocol (TCP) connect operation allows you to measure the network response time taken to perform a TCP Connect operation between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html
15.0(1)S	UDP Based VoIP Operation	The Cisco IOS IP SLAs Voice over IP (VoIP) User Datagram Protocol (UDP)UDP jitter operation allows you to proactively monitor VoIP quality levels in your network, allowing you to guarantee VoIP quality levels to your users.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter_voip.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
15.0(1)S	UDP Echo Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html
15.0(1)S	UDP Jitter Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) jitter operation allows you to measure round-trip delay, one-way delay, one-way jitter, one-way packet loss, and connectivity in networks that carry UDP traffic.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html
15.0(1)S	VoIP Threshold Traps	Cisco IOS IP SLAs VoIP proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
Cisco IOS XE 3SG			
Cisco IOS XE 3.0.1SG	DHCP Operation	The Cisco IOS IP SLAs Dynamic Host Control Protocol (DHCP) operation allows you to schedule and measure the network response time between a Cisco device and a DHCP server to obtain an IP address.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dhcp.html
	Distribution of Statistics	The IP SLAs Distribution of Statistics feature can group distributions of data that have similar metrics and store them in the Cisco IOS device	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
Cisco IOS XE 3.0.1SG	DNS Operation	The Cisco IOS IP SLAs Domain Name System (DNS) operation allows you to measure the difference between the time taken to send a DNS request and receive a reply.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_dns.html
	FTP Operation	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.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_ftp.html
	History Statistics	Cisco IOS IP SLAs maintains the following three types of history statistics: • Aggregated statistics • Operation snapshot history • Distribution statistics	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
	HTTP Operation	The Cisco IOS IP SLAs Hypertext Transfer Protocol (HTTP) operation allows you to measure the network response time between a Cisco device and an HTTP server to retrieve a web page.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_http.html
	ICMP Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html
	ICMP Path Echo Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path echo operation allows you to measure end-to-end and hop-by-hop network response time between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathecho.html
	IPv6 - IP SLAs (UDP Jitter, UDP Echo, ICMP Echo, TCP Connect)	The Cisco IOS IP SLAs UDP jitter, UDP echo, ICMP echo, and TCP connect operations are supported for IPv6.	• http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html • http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html • http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_echo.html • http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
Cisco IOS XE 3.0.1SG	LSP Health Monitor	The Cisco IOS IP SLAs label switched path (LSP) Health Monitor feature provides the capability to proactively monitor Layer 3 Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
	LSP Health Monitor with LSP Discovery	This enhancement to the IP SLAs - LSP Health Monitor feature provides automated end-to-end verification in the control plane and data plane for all LSPs between the participating Provider Edge (PE) routers.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
	MPLS Pseudo Wire (PWE3) via VCCV	The Cisco IOS IP SLAs VCCV operation supports Virtual Circuit Connectivity Verification (VCCV) for Pseudo-Wire Emulation Edge-to-Edge (PWE3) services across MPLS networks.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html
	MPLS VPN Awareness	Provides the capability to monitor IP service levels within Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
	Multioperation Scheduler	The IP SLAs Multioperation Scheduler feature provides a highly scalable infrastructure for Cisco IOS IP SLAs by allowing you to schedule multiple IP SLAs operations using a single command.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html
	One Way Measurement	Cisco IOS IP SLAs uses active traffic monitoring—the generation of traffic in a continuous, reliable, and predictable manner—for measuring network performance.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
	Path Jitter Operation	The Cisco IOS IP SLAs Internet Control Message Protocol (ICMP) path jitter operation allows you to measure hop-by-hop jitter (inter-packet delay variance).	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_icmp_pathjitter.html
	Reaction Threshold Monitoring	Cisco IOS IP SLAs proactive threshold monitoring capability allows you to configure an IP SLAs operation to react to certain measured network conditions.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_threshold_mon.html
	Scheduler	Cisco IP SLAs supports a variety of scheduling options, such as scheduling a single Cisco IOS IP SLAs operation or a group of operations at one time.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
	SNMP Support	Cisco IOS IP SLAs can send SNMP traps that are triggered by specified events.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html
	TCP Connect Operation	The Cisco IOS IP SLAs Transmission Control Protocol (TCP) connect operation allows you to measure the network response time taken to perform a TCP Connect operation between a Cisco device and other devices using IP.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_tcp.html

Table 1 Supported Cisco IOS IP SLAs Features (continued)

Release	Feature Name	Feature Description	Where Documented
Cisco IOS XE 3.0.1SG	UDP Echo Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) echo operation allows you to measure end-to-end network response time between a Cisco device and other devices using IP	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_echo.html
	UDP Jitter Operation	The Cisco IOS IP SLAs User Datagram Protocol (UDP) jitter operation allows you to measure round-trip delay, one-way delay, one-way jitter, one-way packet loss, and connectivity in networks that carry UDP traffic.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_udp_jitter.html
	Random Scheduler	The IP SLAs Random Scheduler feature provides the capability to schedule multiple IP SLAs operations to begin at random intervals uniformly distributed over a specified duration of time and to restart at uniformly distributed random frequencies within a specified frequency range.	http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_multi_scheduler.html