



New Features in Cisco IOS XE Release 2.2

The following features were introduced in Cisco IOS XE Release 2.2. Links to feature documentation are also included.

Feature guides may contain information about more than one feature. To find information about a specific feature within a feature guide, see the Feature Information table at the end of the guide.

Feature guides document features that are supported on many different software releases and platforms. Your Cisco IOS XE software release or platform may not support all the features documented in a feature guide. See the Feature Information table at the end of the feature guide for information about which features in that guide are supported in your software release. 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.

For the latest feature information and caveats, see the release notes for your platform and software release at the following URL:

http://www.cisco.com/en/US/docs/ios/ios_xe/2/release/notes/rnasr21.html

See the following sections for a list of features:

- [New Hardware Features in Cisco IOS XE Release 2.2, page 1](#)
- [New Software Features in Cisco IOS XE Release 2.2, page 2](#)

New Hardware Features in Cisco IOS XE Release 2.2

Cisco ASR 1000 Embedded Services Processors

- Cisco ASR 1000 Embedded Services Processor 10G Non Crypto Capable
- 20-Gbps Cisco ASR 1000 Series ESP

<http://www.cisco.com/en/US/docs/routers/asr1000/install/guide/asr1routers/asr1higV8.html>

Shared Port Adaptors

Channelized SPA

- 1-Port CHOC-3/CHSTM-1 SPA (SPA-1xCHSTM1/OC3)



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

POS SPAs

- 2-Port OC-48 POS/RPR SPA with SFP Optics (SPA-2XOC48POS/RPR)
- 4-Port OC-48 POS/RPR SPA with SFP Optics (SPA-4XOC48POS/RPR)

http://www.cisco.com/en/US/docs/interfaces_modules/shared_port_adapters/install_upgrade/ASR1000/asr_sip_spa_hw.html

http://www.cisco.com/en/US/docs/interfaces_modules/shared_port_adapters/configuration/ASR1000/ASRspasw.html

New Software Features in Cisco IOS XE Release 2.2**AAA Broadcast Accounting**

http://www.cisco.com/en/US/docs/ios/security/configuration/guide/sec_cfg_accountg.html

Bidirectional PIM

http://www.cisco.com/en/US/docs/ios/ipmulti/configuration/guide/imc_basic_cfg.html

Cisco Firewall and WAAS Inter-Operability

http://www.cisco.com/en/US/docs/ios/ios_xe/2/release/notes/rnasr21.html#wp1057123

Class-Based Marking

http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/mrkg_netwk_traffic.html

Class Based Weighted Fair Queuing (CBWFQ)

http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/config_wfq.html

Control Plane Policing (CoPP)

http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/ctrl_plane_policng.html

Diffie-Hellman Group Support in IPsec

For more information, see the **group (IKE policy)** and **set pfs** commands in the following document:

http://www.cisco.com/en/US/docs/ios/security/command/reference/sec_book.html

FPM—Flexible Packet Matching

http://www.cisco.com/en/US/docs/ios/security/configuration/guide/sec_flex_pack_match.html

GRE Tunnel IP Source and Destination VRF Membership

http://www.cisco.com/en/US/docs/ios/interface/configuration/guide/ir_impl_tun.html

HSRP for IPV6

<http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-fhrp.html>

Integrated Session Border Controller

- Full Support for Wildcard Response
- H.248 Protocol—Acknowledgment Support for Three-Way Handshake
- H.248 ServiceChange Handoff
- Improved Media Timeout Detection
- Interim Authentication Header Full Support
- IPSec Pinhole Support—Twice NAT for IPv4 and No NAT for IPv6

http://www.cisco.com/en/US/docs/routers/asr1000/configuration/guide/sbc/2_xe/sbc_2_xe_book.html

IP SLAs—LSP Health Monitor

http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html

IP SLAs—LSP Health Monitor with LSP Discovery

http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_lsp_mon_autodisc.html

IP SLAs—MPLS VPN Awareness

http://www.cisco.com/en/US/docs/ios/ipsla/configuration/guide/sla_overview.html

IPv6 QoS: MQC Packet Classification

http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-qos_ps6441_TSD_Products_Configuration_Guide_Chapter.html

IPv6 Routing—EIGRP Support

<http://www.cisco.com/en/US/docs/ios/ipv6/configuration/guide/ip6-eigrp.html>

ISG: Accounting: Per Session, Service and Flow

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Accounting: Postpaid

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Accounting: Tariff Switching

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Authentication: DHCP Option 82 Line ID - AAA Authorization Support

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG:Flow Control: Flow Redirect (L4, Captive Portal)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Flow Control: QoS Control: Dynamic Rate Limiting (QU;QD)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Flow Control: QoS Control: MQC Support for IP Sessions

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Instrumentation: Advanced Conditional Debugging

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Instrumentation: Session and Flow Monitoring (Local and External)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Network Interface: IP Routed, VRF Aware MPLS

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Network Interface: Tunneled (L2TP)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Cisco Policy Language

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: DHCP Proxy

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: ISG-SCE Control Bus

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Multidimensional Identity per Session

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Policy: Domain Based (Auto-Domain, Proxy)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Policy Server: CoA ASCII Command Code Support

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Policy Server: CoA (QoS, L4 Redirect, User ACL, TimeOut)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Policy Server: SSG-SESM Protocol

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Policy: Triggers (Time, Volume, Duration)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: RADIUS Proxy Enhancement

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: Service Profiles

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Policy Control: User Profiles

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Auth: Single Sign On

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Authentication (MAC, IP, EAP)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Creation: IP Session: Protocol Event (DHCP, RADIUS)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Creation: IP Session: Subnet and Source IP: L2

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Creation: IP Session: Subnet and Source IP: L3

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Creation: P2P Session (PPPoE, PPPoXoX)

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: LifeCycle: Idle Timeout

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG:Session: LifeCycle: POD

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Multi-Service Creation and Flow Control

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: Protection and Resiliency: Keepalive—ARP, ICMP

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

ISG: Session: VRF Transfer

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

L2TP AAA Accounting Include NAS-PORT (VPI/VCI)

http://www.cisco.com/en/US/docs/ios/ios_xe/2/release/notes/rnasr21.html#wp1040627

L2TP HA Session SSO/ISSU on LAC/LNS

http://www.cisco.com/en/US/docs/ios/vpdn/configuration/guide/l2tp_sso.html

L3 MPLS VPN Over GRE

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_vpn_gre.html#wp1054015

MPLS LDP— VRF Aware Static Labels

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_vrf_aware_static.html

MPLS VPN: VRF Selection Using Policy Based Routing

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_vpn_vrf_select_rt.html

Multihop VPDN

http://www.cisco.com/en/US/docs/ios/vpdn/configuration/guide/config_multihop_vpdn_ps6441_TSD_Products_Configuration_Guide_Chapter.html

Multi-VRF Selection Using Policy Based Routing (PBR)

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_mltvrf_slct_pbr.html

NAT—Routemaps Outside-to-Inside Support

http://www.cisco.com/en/US/docs/ios/ios_xe/ipaddr/configuration/guide/iadnat_addr_consv_xe.html

Packet Classification Based on Layer3 Packet-Length

http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/class_l3_pkt_length.html

PBR Support for Multiple Tracking Options

http://www.cisco.com/en/US/docs/ios/iproute/configuration/guide/irp_prb_mult_track.html

Per Subscriber Firewall on LNS

http://www.cisco.com/en/US/docs/ios/ios_xe/2/release/notes/rnasr21.html#wp1045661

Policy-Based Routing (PBR)

http://www.cisco.com/en/US/docs/ios/ios_xe/iproute/configuration/guide/irp_ip_prot_indep_xe.html

Policy-Based Routing (PBR) Default Next-Hop Route

http://www.cisco.com/en/US/docs/ios/ios_xe/iproute/configuration/guide/irp_ip_prot_indep_xe.html

Policy Based Routing: Recursive Next Hop

http://www.cisco.com/en/US/docs/ios/ios_xe/iproute_pi/configuration/guide/iri_prb_rec_next_hop_xe.html

Policy Routing Infrastructure

http://www.cisco.com/en/US/docs/ios/iproute/configuration/guide/irp_ip_prot_indep.html

PPPoE—QinQ Support

http://www.cisco.com/en/US/docs/ios/bbdsi/configuration/guide/bba_pppoe_qinq.html

QoS—Hierarchical Queuing for Ethernet DSLAMs

http://www.cisco.com/en/US/docs/ios/qos/configuration/guide/hier_que_eth_dslams.html

RADIUS Route Download

http://www.cisco.com/en/US/docs/ios/security/configuration/guide/sec_rad_route_dwnld.html

Remote Access to MPLS VPN

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_ra_mpls_vpns.html

SGI Interface

http://www.cisco.com/en/US/docs/ios/isg/configuration/guide/2_xe/isg_2_xe_book.html

VRF Aware System Message Logging (Syslog)

http://www.cisco.com/en/US/docs/ios/mpls/configuration/guide/mp_vrf_aware_logng.html

VRF-Aware VPDN Tunnels

http://www.cisco.com/en/US/docs/ios/vpdn/configuration/guide/additional_vpdn_feat_ps6441_TSD_Products_Configuration_Guide_Chapter.html#wp1106398

WCCP L2 Return

http://www.cisco.com/en/US/docs/ios/ipapp/configuration/guide/ipapp_wccp.html

WCCP Layer 2 Redirection / Forwarding

http://www.cisco.com/en/US/docs/ios/ipapp/configuration/guide/ipapp_wccp.html

WCCP Mask Assignment

http://www.cisco.com/en/US/docs/ios/ipapp/configuration/guide/ipapp_wccp.html

WCCP Redirection on Inbound Interfaces

http://www.cisco.com/en/US/docs/ios/ipapp/configuration/guide/ipapp_wccp.html

WCCP Version 2

http://www.cisco.com/en/US/docs/ios/ipapp/configuration/guide/ipapp_wccp.html

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