

Cisco ISR1100 and ISR1100X Series Routers



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Part of the Cisco® 1000 Series Integrated Services Routers (ISR), the ISR 1100 Series and ISR 1100X Series are powered by Viptela® operating system or IOS XE SD-WAN operating system. These devices combine WAN and comprehensive security in a wired high-performance platform. The ISR 1100 Series and ISR 1100X Series combine an enterprise grade platform with best-in-class SD-WAN. The ISR 1100 Series come with 4GB DRAM, whereas the ISR 1100X Series offer 8GB DRAM.

Series	SKUs	Memory
ISR 1100 Series	ISR 1100-4G	4GB DRAM
	ISR 1100-6G	
	ISR 1100-4GLTENA	
	ISR 1100-4GLTEGB	
ISR 1100X Series	ISR 1100X-4G	8GB DRAM
	ISR 1100X-6G	

Cisco Software-Defined WAN (SD-WAN) is a cloud-first architecture that provides unparalleled visibility across your WAN, optimal connectivity for end users, and the most comprehensive security platform to protect your network. Cisco SD-WAN provides transport independence, rich network, and security services as well as endpoint flexibility.

The ISR 1100 Series and ISR 1100X Series routers are delivered as platforms that sit at the perimeter of a site, such as a remote office, branch office, campus, or data center. They participate in establishing a secure virtual overlay network over a mix of any WAN transports, working in controller mode.



Figure 1.
ISR 1100-4G, front and back view



Figure 2.
ISR 1100-6G, front view; back view same as ISR 1100-4G above



Figure 3.
ISR 1100-4GLTE, front view; back view same as ISR 1100-4G above



Figure 4.
ISR 1100X-4G, front view; back view same as ISR 1100-4G



Figure 5.
ISR 1100X-6G, front view; back view same as ISR 1100-4G above

Primary features and benefits

Table 1. Business benefits

Business need	Features/description
Lightweight, compact size with low power consumption	Can be deployed in many different environments where space, heat dissipation, and low power consumption are critical factors
High performance to run concurrent services	High performance allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, video, and wireless services.
High availability and business continuity	- Redundant WAN connections for failover protection and load balancing - Dynamic failover protocols such as Virtual Router Redundancy Protocol (VRRP; RFC 2338)
Consistent, high application performance levels	- The router can run multiple services simultaneously with minimal performance degradation. - Cisco SD-WAN delivers the best user experience over any connection. - Performance depends on the actual features that have been enabled
Risk mitigation with multilevel security	- Data privacy through high-speed IP Security (IPsec) and Advanced Encryption Standard (AES) encryption - Trustworthy systems and hardware anchor
Remote configuration and management to keep local IT staff lean	- Zero-touch provisioning with Cisco vManage Network Management System (NMS) - Supports separate console port
Lower WAN expenditures	Cisco SD-WAN powered by Viptela operating system with Overlay Management Protocol (OMP) support for optimized WAN connection as well as easy-to-use management solution with Cisco vManage
Pay as you grow: IPsec	Router IPsec capacity can be increased with a remote-performance, on-demand license

Business need	Features/description
performance upgrade model	upgrade (no hardware upgrade) for better CapEx budget management.
IT consolidation, space savings, and improved TCO	Single converged branch platform integrates routing, security, and performance management capabilities.
Security services	- XE SD-WAN Operating System: - ISR1100-4G/6G/4GLTE: Enterprise Firewall, DNS Web Layer Security - ISR1100X-4G/6G: Enterprise Firewall with Application Awareness, Intrusion Prevention System, URL Filtering, Advanced Malware Protection, Cisco Umbrella Integration - Viptela Operating System: Enterprise Firewall, DNS Web Layer Security

Platform architecture and capabilities

Table 2. Architectural highlights

Architectural feature	Benefits/description
Multicore architecture	Dedicated control plane for service reliability; multicore data plane for higher performance.
Integrated Gigabit Ethernet ports	- ISR1100-4G, ISR1100-4G LTEGB/NA, ISR1100X-4G Provides up to four built-in 10/100/1000 Ethernet ports for WAN or LAN - ISR1100-6G, ISR1100X-6G platform has four built-in 10/100/1000 Ethernet ports for WAN or LAN and additional two Ethernet ports that can support Small Form-Factor Pluggable (SFP)-based connectivity in addition to RJ-45 connections, enabling fiber or copper connectivity.
Console access	RJ45 console port supports management connectivity.
USB 3.0	- USB devices supported: - USB flash memory Note: Supported USB 3.0 devices to be connected externally. View the USB Device Support Data Sheet.
Flash memory support	- The ISR1100 and ISR1100X Series routers ship with a fixed dual 16 MB serial flash memory. - Bulk flash: 8 GB eMMC pSLC (usable storage: 5.8 GB) for ISR1100 Series and ISR1100X-4G routers, 16GB eMMC pSLC (usable storage: 13.1 GB) for ISR 1100X-6G routers. - USB type A 3.0 ports (4.5 W) provide capabilities for convenient storage.
DRAM	- The ISR1100 Series comes with 4 GB fixed DDR4 ECC DRAM. - The ISR1100X Series comes with 8GB fixed DDR4 ECC DRAM
Embedded device security	- Cisco anticounterfeit functionality - UEFI secure boot

Table 3. Performance and scale – IOS XE SD-WAN 17.12.1

Performance parameter	ISR 1100X-6G	ISR 1100-6G	ISR 1100X-4G	ISR 1100-4G
SD-WAN IPsec throughput (1400 Bytes)	1889 Mbps	1889 Mbps	477 Mbps	477 Mbps
SD-WAN IPsec throughput (IMIX)	972 Mbps	972 Mbps	411 Mbps	411 Mbps
SD-WAN overlay tunnels	3000	1500	500	250

Network management solutions

Operational phase	Application	Description
Networkwide deployment, configuration, monitoring, and troubleshooting	Cisco vManage	• Cisco SD-WAN automates application flexibility over multiple connections, such as the Internet and MPLS. • Rich networking and security services are delivered with a few simple clicks. Deploy WAN optimization, cloud security, firewalling, IPS, and URL filtering across the SD-WAN fabric from a single location. • Extend and manage SD-WAN fabric across physical or virtual platforms for branch, campus, data center, and cloud.

Table 4. Embedded management capabilities

Feature	Description
Cisco IP Service-Level Agreements(IP SLAs)	• App-aware routing based on SLAs and performance parameter polling
Simple Network Management Protocol (SNMP), Remote Monitoring (RMON), syslog , CFlowd , IP Flow Information Export (IPFix)	• SNMP • Netconf over SSH, CLI, REST (vManage) • Apply ACL to SNMP • CPE WAN Management protocol (XE SD-WAN only) • Device Access Policy on SNMP and SSH

Table 5. Software features and protocols – Viptela Operating System

Feature	Description
Protocols	Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), eBGP, iBGP, BGP Router Reflector, static, connected, OMP, 802.1Q, native VLAN, bridge domains, IRB, host-mode bridging, zero-trust, whitelisting, tamper-proof module, DTLS/TLS, IPSec, DDOS protection, control plane protection, classification, prioritization, low latency queuing, remarking, shaping, scheduling, policing, mirroring, IGMP v1/v2, PIM, Auto-RP, scale-out traffic replication, service advertisement and insertion policy, IPv4, SNMP, NTP, DNS client, Dynamic Host Configuration Protocol (DHCP), DHCP client, DHCP server, DHCP relay, config archival, syslog, SSH, SCP, Cflowd v10 IPFIX export, IPv6 for transport-side, VRRP, MPLS, symmetric NAT, static NAT, NAT pools, NAT64, NAT/PAT, NAT traversal, split DNS, TCP optimization, Access Control Lists (ACL), AppQoE: Packet Duplication
Encapsulations	Generic Routing Encapsulation (GRE), IPSec, Ethernet, 802.1q VLAN, CHAP/PAP for PPP over Ethernet (PPPoE)
Traffic management	Quality of Service (QoS), COS marking, Per Tunnel QOS, app-aware routing, Weighted Random Early Detection (WRED), loss/latency and jitter monitoring, route policies, app-aware routing, control policy, data policy, ACL policy, VPN membership policy, multi-VRF support, Performance Routing (PfR), Layer 7 Health Check to Zscaler, Tunnel support to Secure Internet Gateway (SIG), SSH Authentication using RSA keys, Packet Duplication for Noisy Channels, Pairwise IPsec Keys, ACL matching SSH,VTY, Multiple VRRP groups tied to same LAN interface/sub-interface, Dynamic On Demand Tunnel, Umbrella EDNS & Local Domain Bypass, Umbrella Auto-Tunnel Support, Route Leaking between VPN0 & Service Side VPN, Service Insertion Tracker Netconf over SSH, CLI, REST (vManage), Linux shell, ZBFs (Zone-Based Firewalls)
Cryptographic algorithms	Encryption: AES-256 (in CBC and GCM modes), Internet Key Exchange (IKE), Cisco PKI Authentication: Authentication, Authorization, and Accounting (AAA), RSA (2048 bit), Integrated QAT, ESP-256-CBC, Authentication Header, HMAC-SHA1, ECDSA (256/384 bit); Integrity: HMAC-MD5, SHA-1, SHA-2, HMAC_SHA256, HMAC_SHA384, HMAC_SHA512, SHA256 support for standard IPSEC Tunnel

Table 6. Software features and protocols –IOS XE SD-WAN Operating System

Feature	Description
Protocols	IPv4, IPv6, static routes, Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol (BGP), BGP Router Reflector, Intermediate System-to-Intermediate System (IS-IS), Multicast Internet Group Management Protocol Version 3 (IGMPv3), Protocol Independent Multicast Sparse Mode (PIM SM), PIM Source-Specific Multicast (SSM), Cisco Discovery Protocol, Internet Key Exchange (IKE), Access Control Lists (ACL), Dynamic Host Configuration Protocol (DHCP), DNS, VRRP, RADIUS, Authentication, Authorization, and Accounting (AAA), IPSec, Bidirectional Forwarding Detection (BFD), AppQoE, SNMP, Software defined Application Visibility and Control (SD-AVC), Layer 3 VPN, IPv6 for transport-side, symmetric NAT, NAT pools, NAT/PAT, split DNS, TCP optimization(BBR), 802.1Q, OMP, native VLAN, DTLS/TLS, DDOS protection, control plane protection, classification, prioritization, low latency queuing, remarking, shaping, scheduling, policing, IGMP v1/v2, PIM, service advertisement and insertion policy, SNMP, NTP, DNS client, Dynamic Host Configuration Protocol (DHCP), DHCP client, DHCP relay, syslog, SSH, SCP, Cflowd
Encapsulations	Generic Routing Encapsulation (GRE), IPSec, Ethernet, 802.1q VLAN
Traffic management	Quality of Service (QoS), Weighted Random Early Detection (WRED), Hierarchical QoS, Policy-Based Routing (PBR) and Network-Based Application Recognition

Feature	Description
	(NBAR),loss/latency and jitter monitoring, route policies, app-aware routing, control policy, data policy, ACL policy, VPN membership policy, multi-VRF support, Layer 7 Health Check to Zscaler, Tunnel support to Secure Internet Gateway (SIG), SSH Authentication using RSA keys, Packet Duplication for Noisy Channels, Pairwise IPsec Keys, ACL matching SSH,VTY, Dynamic On Demand Tunnel, Umbrella EDNS, Route Leaking between VPN0 & Service Side VPN, Service Insertion Tracker
Cryptographic algorithms	Encryption: AES-256 (in CBC and GCM modes) Authentication: HMAC-SHA1, ECDSA (256/384 bit) Integrity: HMAC-MD5, SHA-1, SHA-2

Table 7. SD-WAN Security features (XE SD-WAN OS)

Feature	Description
Enterprise Firewall with Application Awareness	A stateful firewall with NBAR2 application detection engine to provide application visibility and granular control, capable of detecting 1400+ applications. Supported on Viptela OS also.
Intrusion Prevention System	This system is backed by Cisco Talos signatures and are updated automatically. The Intrusion Prevention System is deployed using a security virtual image.
URL Filtering	Enforces acceptable use controls to block or allow URLs based on 82 different categories and a web reputation score. The URL Filtering system is deployed using a security virtual image.
Advanced Malware Protection	Global threat intelligence, advanced sandboxing, and real-time malware blocking to prevent breaches. It also continuously analyses file activity across your extended network, so you can quickly detect, contain, and remove advanced malware. The Advanced Malware Protection system is deployed using a security virtual image.
Cisco Umbrella Integration	Cloud-delivered enterprise network security which provides users with a first line of defence against cyber security threats.

System specifications

Table 8. ISR 1100 and 1100X Series system specifications

Feature	Specification
Authentication and security	• TACACS+ • RADIUS • Local, role-based access control
External power supply	• Product power specifications: • External Adapter: 30W 341-100891-01 • AC input voltage: Universal 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 30W • Output voltage: +12VDC for system power
LEDs	• System status: off = no power, green steady on = normal operation, amber steady on = system going down/fault, amber blink = boot up phase • OMP Status: Green steady on = Connection is up, Off = Connection is down • 1x green per Ethernet; off = no link, steady on = link connected, blink = traffic flowing • SIM: green; off = no SIM, steady on = SIM present, blink: traffic flowing (Applicable only to the ISR1100-4GLTENA and ISR1100-4GLTEGB) • 1x green per SFP
Physical dimensions (W x D x H)	• ISR 1100 and ISR1100X Series - 10.2 x 7 x 1.1 in (259 x 178 x 28 mm)
Weight	• ISR 1100X-4G,ISR1100X-6G,ISR1100-4G,ISR1100-6G – 2.67 lbs (1.21 kg) • ISR 1100-4GLTENA, ISR1100-4GLTEGB – 2.69 lbs (1.22 kg)
Standard safety certifications	• UL 60950-1, second edition • CAN/CSA C22.2 No. 60950-1, second edition • EN 60950-1, second edition • CB to IEC 60950-1, second edition with all group differences and national deviations • AS/NZS 60950.1:2011 • IEC-62368 (CB and UL/CSA) • NOM-019-SCFI-1998 • GB4943
EMC emissions	• EN55022/CISPR22, CFR 47 Part 15, ICES003, VCCI-V-3, AS/NZS CISPR22, CNS13438, EN300-386, EN61000-3-2, EN61000-3-3, KN22, TCVN 7189, and EN61000-6-1
EMC immunity	• EN55024/CISPR24, (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11), EN61000-6-1, KN24, TCVN 7317, and EN300-386
Environmental operating range	• Operating temperature: 0 to 40°C (32 to 104°F) at sea level (temperature derating of 1.5°C per 1000 feet of altitude applicable up to max of 10,000 feet or 3000 m) • Operating altitude: Maximum 10,000 ft (3000 m) with 1°C derating per 1000 ft • Operating humidity: 0 to 95% relative humidity noncondensing

Table 9. ISR 1100 Series, ISR 1100X Series and LTE SKUs

Model	WAN			LAN	Integrated USB 3.0 AUX/console
	GE (Copper)	SFP	LTE (CAT4)	GE (Copper)	
ISR1100-4G	4	-	-	4	Yes
ISR1100-6G	4	2	-	4	Yes
ISR1100-4GLTENA	4	-	Yes	4	Yes
ISR1100-4GLTEGB	4	-	Yes	4	Yes
ISR1100X-4G	4	-	-	4	Yes
ISR1100X-6G	4	2	-	4	Yes

Table 10. LTE Bands Supported

Region or theater	ISR1100-4GLTENA	ISR1100-4GLTEGB
Bands	LTE: B2, B4, B5, B12, B13, B14, B17, B66 FDD LTE 1900 MHz (band 2), 1700 MHz (band 4), 850 MHz (band 5), 700 MHz (band 12, 13, 14, 17), 1700MHz (band 66) UMTS: B2, B4, B5	LTE: B1, B3, B7, B8, B20, B28 FDD LTE 2100 MHz (band 1), 1800 MHz (band 3), 2600 MHz (band 7), 900 MHz (band 8), 800 MHz (band 20), 700 MHz (band 28) UMTS: B1, B8 GSM/GPRS/EDGE: E-GSM 900, DCS 1800
Theoretical download/upload speeds	150 Mbps/50 Mbps – LTE (CAT4)	150 Mbps/50 Mbps – LTE (CAT4)
United States		
Europe		
Canada		
Middle East with specific LTE bands/frequencies		
Southeast Asia		
Latin America	Dependent upon specific operators supporting the LTE bands listed above.	

Table 11. Cisco LTE Specifications

Item	Specification
Modem information	• WP7607 - ISR1100-4GLTEGB • WP7610 - ISR 1100-4GLTENA
Important LTE features	• 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz and 20 MHz RF bandwidth • WCDMA fallback • Last resort circuit • SIM based carrier firmware selection (Verizon, AT&T, Generic)
SIM support	• Single Micro (3FF) SIM card socket
Wireless technologies supported	Cisco LTE Advanced 3.0 LTE (Refer to Table 9: LTE Bands Supported) Backward compatibility: • UMTS and HSPA+.
Antennae	• Two multiband swivel-mount dipole antennas (LTE-ANTM-SMA-D). One antenna included with the device. • For -N antenna and cable installation guidance, view the Connected Grid Antennas Installation Guide.

Table 12. Supported Releases

Series	Releases supported
ISR 1100 Series	• Viptela Operating system release version 19.2 and above. Last supported release: 20.9 • IOS XE SD-WAN Operating system release version 17.4.1 and above in controller mode only
ISR 1100X Series	• Viptela Operating system release version 20.4 and above. Last supported release: 20.9 • IOS XE SD-WAN Operating system release version 17.4.1 and above in controller mode only

Cisco IOS software licensing and packaging

Cisco SD-WAN software image

A single Cisco SD-WAN operating system encompassing all functions is delivered with the platform. Advanced features can be enabled simply by activating a software license on the image. Licensing simplifies software delivery and decreases the operational costs of deploying new features.

Table 13. Product part numbers and software images

Product part number	Description
Router software images	
VIPTELA-OS-192	Viptela OS version 19.2.0 (ISR1100 Series only)
VIPTELA-OS-204	Viptela OS versions 20.4 (ISR 1100 and ISR 1100X Series)
SISR11BEUK9-174	Software image for IOS XE SD-WAN Operating System 17.4 (ISR 1100 and ISR 1100X Series)
Network Licenses	
NETWORK-PNP-LIC	Network Plug-n-Play License for zero-touch device deployment
Accessories	
CAB-CONAUX	Auxiliary console cable
CAB-CONSOLE-RJ45	RJ45 Console cable
CAB-ETH-S-RJ45	Ethernet cable, RJ45
LTE-ADPT-SM-TF	Cisco LTE SMA Antenna
LTE-AE-MAG-SMA	Magnetic Antenna Extension Base
LTE-ANTM-SMA-D	LTE SMA dipole antenna
D-LTE-GB	CAT4 LTE Dongle for EMEAR (supported on Viptela OS 20.4 and above)
D-LTE-AS	CAT4 LTE Dongle for ASEAN (supported on Viptela OS 20.4 and above)
D-LTE-NA	CAT4 LTE Dongle for North America (supported on Viptela OS 20.4 and above)

Table 14. Small Form-Factor Pluggables supported

Small Form-Factor Pluggable	ISR 1100-6G, ISR1100X-6G	Description	Supported Releases
VIP-SFP-1GE-BASET	Yes	Pluggable transceiver - 1GE BaseT 10/100/1000	Viptela OS 19.2 onwards (ISR 1100-6G only) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)
VIP-SFP-1GE-LX	Yes	Small form-factor pluggable transceiver - 1GE LX	Viptela OS 19.2 onwards (ISR 1100-6G only) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)
VIP-SFP-1GE-SX	Yes	Small form-factor pluggable transceiver - 1GE SX	Viptela OS 19.2 onwards (ISR 1100-6G only) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)
GLC-TE	Yes	Pluggable transceiver - 1GE BaseT 10/100/1000	Viptela OS 20.4 onwards (ISR 1100-6G and ISR 1100X-6G) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)
GLC-SX-MMD	Yes	Small form-factor pluggable transceiver - 1GE SX	Viptela OS 20.4 onwards (ISR 1100-6G and ISR 1100X-6G) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)
GLC-LH-SMD	Yes	Small form-factor pluggable transceiver - 1GE LX/LH	Viptela OS 20.4 onwards (ISR 1100-6G and ISR 1100X-6G) XE SD-WAN 17.4 onwards (ISR 1100-6G and ISR 1100X-6G)

For additional information and details about Cisco IOS software licensing and packaging on the Cisco ISR1100 and ISR1100X Series Routers, please visit

<https://www.cisco.com/c/en/us/td/docs/routers/access/1100/software/configuration/guide/isr1100swcfg.pdf>.

For the Cisco ISR1100 and ISR1100X Series Routers Hardware and Software Configuration Guide, go to:

- <https://www.cisco.com/c/en/us/td/docs/routers/sdwan/hardware/isr1100-4g-6g/cisco-isr-1100-4g-6g-hig.html>.
- <https://www.cisco.com/c/en/us/support/routers/sd-wan/products-installation-and-configuration-guides-list.html>.

Cisco and Partner Services

Services from Cisco and our certified partners can help you reduce the cost and complexity of branch-office deployments. Cisco Smart Net Total Care® technical support for the Cisco ISR 1000 Series is available on a one-time or annual contract basis. Support options range from help-desk assistance to proactive, onsite consultation.

For more information, visit <https://www.cisco.com/go/services>.

Ordering information

To place an order, visit the [Cisco Ordering Home Page](#). To download software, visit the Cisco Software Center.

Cisco environmental sustainability

Information about Cisco’s environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the “Environment Sustainability” section of Cisco’s [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the “Environment Sustainability” section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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For more information

For more information about ISR 1000 Series routers, visit <https://www.cisco.com/go/ISR1000> or contact your local Cisco account representative.

Document history

New or Revised Topic	Described In	Date
Added performance information for IOS XE SD-WAN Operating Systems Added last supported release for Viptela OS	Tables 3 Table 12	January 09, 2024
Added additional modem specifications for: ISR 1100-4GLTENA ISR1100-4GLTEGB	Table 12. Cisco LTE Specifications	April 28, 2022

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