EVROPSKÁ UNIE
Evropské strukturální a investiční fondy
Operační program Výzkum, vývoj a vzdělávání

Příloha č. 3 – Technická specifikace

Název a registrační číslo projektu	Název veřejné zakázky	Pořadové číslo a název položky		Max. cena bez DPH
Modernizace výukové infrastruktury FAI (MoVI-FAI) CZ.02.2.67/0.0/0.0/16_016/0002325	**MoVI-FAI – dodávky výukové infrastruktury**	30	Bundle pro výuku CCNA	720 000 Kč

	Parametr		Jednotka	Hodnota požadovaná zadavatelem	Závažnost	Hodnota nabízená účastníkem
Směrovač (12 ks)						
1	WAN porty	integrované 10/100/1000 Ethernet RJ-45 směrované porty	ks	min. 2	PODMÍNKA	2 porty / router
2	Rozšiřující sloty	sloty pro instalaci rozšiřujících modulů	ks	min. 2	PODMÍNKA	2 porty / router
3	Operační paměť	512 MB rozšiřitelná na 2 GB	*	ano	PODMÍNKA	ano
4	Flash paměť	256 MB rozšiřitelná na 4 GB	*	ano	PODMÍNKA	ano
5	Konzolový port	USB + RJ-45	*	ano	PODMÍNKA	ano
6	Protokoly	IPv4, IPv6, OSPF, EIGRP, BGP, IS-IS, GRE, MPLS	*	ano	PODMÍNKA	ano
7	Bezpečnostní funkce	SW integrovaná podpora bezpečnostních funkcí (např. IPS, VPN, firewall)	*	ano	PODMÍNKA	ano
8	Montáž	zařízení pro umístění do 19" racku	*	ano	PODMÍNKA	ano
9	Rozšíření	zásuvní moduly se dvěma SYNC/ASYNC seriovými porty (115,2 kb/s asynchronní, 8 Mb/s synchronní), 12 ks	ks	min. 12	PODMÍNKA	12 ks
10	Připojení konzoly	USB konzolový kabel (délka min. 1,8 m)	ks	min. 12	PODMÍNKA	12 ks
11	Seriový kabel	V.35 DTE (délka min. 3 m)	ks	min. 12	PODMÍNKA	12 ks
12	Seriový kabel	V.35 DCE (délka min. 3 m)	ks	min. 12	PODMÍNKA	12 ks
Přepínač L2 (12 ks)						
1	Fast Ethernet	integrované 10/100 Ethernet RJ-45 porty	ks	min. 24	PODMÍNKA	24 ks
2	Gigabit Ethernet	integrované 10/100/1000 Ethernet porty (RJ-45 nebo SFP)	ks	min. 2	PODMÍNKA	2 ks
3	Operační paměť		MB	min. 128	PODMÍNKA	128 MB
4	Flash paměť		MB	min. 64	PODMÍNKA	64 MB
5	Konzolový port	RJ-45	*	ano	PODMÍNKA	ano
6	Přepínací rychlost		Gb/s	min. 16	PODMÍNKA	16 Gbps
7	VLAN	podpora aktivních VLAN	ks	max. 255	PODMÍNKA	255
8	Standardy	802.1D, 802.1p, 802.1Q, 802.1s, 802.1w, 802.1X, 802.1ab, 802.3ad, 802.3af, 802.3ah, 802.3x, 802.3, 802.3u, 802.3ab	*	ano	PODMÍNKA	ano
9	Montáž	zařízení pro umístění do 19" racku	*	ano	PODMÍNKA	ano
10	Připojení konzoly	RJ-45 konzolový kabel (DB9/RJ-45) (délka min. 1,8 m)	ks	min. 12	PODMÍNKA	12 ks

Pověření

TECHNISERV, spol. s r.o., se sídlem : Baarova 231/36, Praha 4, PSČ 140 00
IČO : 442 64 020, zapsaná v obchodním rejstříku u Městského soudu v Praze, spisová značka C 5239,

za níž jedná jednatel Ing. Karel Kovář (dále jen „zaměstnavatel" anebo „společnost")

pověřuje tímto svého zaměstnance

pana Petra Krále

dat. nar. [redacted],

který je u společnosti zaměstnán ve funkci výkonný ředitel divize 1, aby za společnost TECHNISERV, spol. s r.o., se sídlem Baarova 231/36, 140 00 Praha 4 činil právní jednání a úkony v rámci její obchodní činnosti a jejího předmětu podnikání, včetně uzavírání obchodních smluv v rozsahu dále uvedeném.

Toto pověření se vztahuje pouze na jednání, z něhož společnosti vznikne závazek ve výši maximálně 20 mil Kč.
Toto pověření se nevztahuje na podepisování směnek za společnost, sjednávání úvěru nebo zápůjček, uzavírání smluv o úvěru nebo zápůjčce, poskytování finanční pomoci, právní jednání týkající se nemovitostí, přebírání závazků třetí osoby nebo přistoupení k nim, ručení, ani na jiné formy zajištění závazku třetí osoby.

Toto pověření je uděleno na dobu trvání pracovního poměru ve funkci výkonný ředitel divize 1 u společnosti.

V Praze, dne 1.11.2016

TECHNISERV
spol. s r.o.

[redacted]

TECHNISERV, spol. s r.o.,
Ing. Karel Kovář
jednatel

Zmocnění přijímám

[redacted]

Král Petr

Data Sheet

Cisco 1941 Series Integrated Services Routers

Product Names: CISCO1941/K9, CISCO1941W-A/K9, CISCO1941W-P/K9, CISCO1941W-N/K9, CISCO1941W-C/K9, CISCO1941W-I/K9, and CISCO 1941W-T/K9

Cisco® 1900 Series Integrated Services Routers build on 25 years of Cisco innovation and product leadership. The new platforms are architected to enable the next phase of branch-office evolution, providing rich media collaboration and virtualization to the branch while maximizing operational cost savings The Integrated Services Routers Generation 2 platforms are future-enabled with multi-core CPUs, Gigabit Ethernet switching with enhanced POE, and new energy monitoring and control capabilities while enhancing overall system performance. Additionally, a new Cisco IOS® Software Universal image and Services Ready Engine module enable you to decouple the deployment of hardware and software, providing a stable technology foundation which can quickly adapt to evolving network requirements. Overall, the Cisco 1900 Series offer unparalleled total cost of ownership savings and network agility through the intelligent integration of market leading security, unified communications, wireless, and application services.

Product Overview

Cisco® 1941 builds on the best-in-class offering of the existing Cisco 1841 Integrated Services Routers by offering 2 models - Cisco 1941 and Cisco 1941W. In addition to the support of a wide range of wireless and wired connectivity options supported on Cisco 1941 Series, Cisco 1941W offers integration of IEEE 802.11n access point which is backwards compatible with IEEE 802.11a/b/g access points.

All Cisco 1900 Series Integrated Services Routers offer embedded hardware encryption acceleration, optional firewall, intrusion prevention, and application services. In addition, the platforms support the industries widest range of wired and wireless connectivity options such as T1/E1, xDSL, 3G, 4G LTE, and GE.

Figure 1. Cisco 1941 Integrated Services Router

Key Business Benefits

The Integrated Services Routers Generation 2 (ISR G2) routers provide superior services integration and agility. Designed for scalability, the modular architecture of these platforms enables you to grow and adapt with your business needs.

Table 1 lists the business benefits of the Cisco 1900.

Table 1. Key Features and Benefits of the Cisco 1941 Integrated Services Router Series

Benefits	Description
Service Integration	• The Cisco 1941 Series offer increased levels of services integration with data, security, wireless, and mobility services enabling greater efficiencies cost savings.
Services on Demand	• A single Cisco IOS® Software Universal image is installed on each ISR G2. The Universal image contains all of the Cisco IOS technology sets which can be activated with a software license. This allows your business to quickly deploy advanced features without downloading a new IOS image. Additionally, larger default memory is included to support the new capabilities. • The Cisco Services Ready Engine (SRE) enables a new operational model which allows you to reduce capital expenditures (CapEx) and deploy a variety of application services as needed on a single integrated compute services module.
High Performance with Integrated Services	• The Cisco 1900 Series enables deployment in high speed WAN environments with concurrent services enabled up to 25 Mbps. • Multi-Gigabit Fabric enables high bandwidth module to module communication without compromising routing performance.
Network Agility	• Designed to address customer business requirements, Cisco 1941 Series with the modular architecture, offers performance range of modular interfaces and services as your network needs grow. • Modular interfaces offer increased bandwidth, a diversity of connection options, and network resiliency.
Energy Efficiency	• The Cisco 1941 Series architecture provides energy savings features that include the following: ◦ The Cisco 1900 Series offers intelligent power management and allows the customer to control power to the modules based on the time of day. Cisco EnergyWise technology will be supported in the future. ◦ Services integration and modularity on a single platform performing multiple functions, optimizes raw materials consumption and energy usage. ◦ Platform flexibility and ongoing development of both hardware and software capabilities lead to a longer product lifecycle, lowering all aspects of the total cost of ownership, including materials and energy use. ◦ High efficiency power supplies are provided with each platform.
Investment Protection	• The Cisco 1941 Series maximizes investment protection by supporting: ◦ Reuse of a broad array of existing modules supported on the original Integrated Services Routers provides a lower cost of ownership. ◦ Rich set of Cisco IOS Software features carried forward from the original Integrated Services Routers and delivered in the universal image. ◦ Flexibility to grow as your business needs evolve.

Architecture and Modularity

The Cisco 1941 Series is architected to meet the application demands of today's branch offices with design flexibility for future applications. The modular architecture is designed to support expanding customer requirements, increased bandwidth, and fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE (ePoE). Table 2 lists the architectural features and benefits of the Cisco 1941 Series.

Table 2. Architectural Features and Benefits

Architectural Feature	Benefits
Modular Platform	• The Cisco 1941 Series ISR are highly modular platforms with multiple module slots to provide connectivity and services for varied branch network requirements. • The ISRs offer an industry-leading breadth of LAN and WAN connectivity options through modules to accommodate field upgrades to future technologies without requiring replacement of the platform.
Processors	• The Cisco 1941 Series is powered by high-performance multi-core processors that support growing demands of branch office networks by supporting high throughput WAN requirements.
MultiGigabit Fabric	• The Cisco 1941 introduces an innovative MultiGigabit Fabric (MGF) which allows for efficient module to module communication, enabling direct services interactions across modules while reducing the overhead on the router processor.

Architectural Feature	Benefits
Embedded IPSec VPN Hardware Acceleration	• Embedded hardware encryption acceleration is enhanced to provide higher scalability, which, combined with an optional Cisco IOS Security license, enables WAN link security and VPN services (IPSec acceleration). • The onboard encryption hardware out-performs the Advanced Integration Modules of previous generations.
Integrated Gigabit Ethernet Ports	• All onboard WAN ports are 10/100/1000 Gigabit Ethernet WAN routed ports.
Innovative universal-serial-bus (USB)-based console access	• A new, innovative, mini-B USB console port supports management connectivity when traditional serial ports are not available. • The traditional console and auxiliary ports are also available. Either the USB-based console or the RJ-45-based console port can be used to configure the router.
Optional Integrated Power Supply for Distribution of Power Over Ethernet (PoE)	• An optional upgrade to the internal power supply provides in-line power (802.3af-compliant Power-over-Ethernet [PoE] and Cisco standard inline power) to optional integrated switch modules.
Integrated Wireless LAN	• The Cisco 1941 offers a secure integrated access point in a single device. • Integrated access point is based on the IEEE 802.11n draft 2.0 standard that uses MIMO (Multi-Input, Multiple-output) to improve coverage for existing 802.11a/b/g clients and new 802.11n clients. • The Cisco 1941 supports dual radios - 802.11 b/g/n and 802.11a/n and is capable of operating in both autonomous and unified modes.

Modularity Features and Benefits

The Cisco 1941 provides significantly enhanced modular capabilities (refer to Table 2) offering investment protection for customers. Most of the modules available on previous generations of Cisco routers, such as the Cisco 1841 ISR, are supported on the Cisco 1941. Additionally, modules used on the Cisco 1941 can easily be interchanged with other Cisco routers to provide maximum investment protection. Taking advantage of common interface cards across a network greatly reduces the complexity of managing inventory requirements, implementing large network rollouts, and maintaining configurations across a variety of branch-office sizes.

A complete list of supported modules is available at https://www.cisco.com/go/1941.

Table 3. Modularity - Features and Benefits

Feature	Benefits
Cisco Enhanced High Speed WAN Interface Card (EHWIC) 	• The EHWIC slot replaces the high-speed WAN interface card (HWIC) slot and can natively support HWICs, WAN interface cards (WICs), wireless WAN 3G/4G LTE, voice interface cards (VICs), and voice/WAN interface cards (VWICs). • Two integrated EHWIC slots are available on the Cisco 1941 for flexible configurations for support of two modules: One double wide HWIC-D or single wide EHWIC/HWIC module and a second single wide E-HIC/HWIC module are supported. • Each HWIC Slot offers high data throughput capability. ◦ Up to 1.6 Gbps aggregate towards the router processor. ◦ Up to 2 Gbps aggregate to other module slots over MultiGigabit Fabric (MGF).
Cisco Internal Services Module (ISM) 	• A single ISM Slot provides flexibility to integrate intelligent services modules that do not require interface ports. • ISM replaces the Advanced Integration Module (AIM) slot; existing AIM modules are not supported in the ISM slot. • Each ISM Slot offers high data throughput capability. ◦ Up to 4 Gbps aggregate towards the router processor. ◦ Up to 2 Gbps aggregate to other module slots over MultiGigabit Fabric (MGF). • Power to ISM slots can be managed by extensions similar to the Cisco EnergyWise framework, allowing organizations to reduce energy consumption in their network infrastructure. Full EnergyWise support will be available in future software releases. **Note:** The Cisco 1941 cannot have ISM and WLAN on the same chassis. Please refer to ordering information for WLAN SKUs.
Compact Flash Slots	• Two external Compact Flash slots are available on the Cisco 1941. Each slot can support high-speed storage densities upgradeable to 4GB in density.
USB 2.0 Ports	• Two high-speed USB 2.0 ports are supported. The USB ports enable another mechanism secure token capabilities and storage.

Cisco IOS Software

The Cisco 1941 Series Integrated Services Routers deliver innovative technologies running on industry-leading Cisco IOS Software. Developed for wide deployment in the world's most demanding enterprise, access, and service provider networks, Cisco IOS Software Release 15 M & T provides support for a comprehensive portfolio of Cisco technologies, including new functionality and features delivered in Releases 12.4 and 12.4T, and new innovations that span multiple technology areas, including security, voice, high availability, IP Routing and Multicast, Quality of Service (QoS), IP Mobility, Multiprotocol Label Switching (MPLS), VPNs, and embedded management.

Cisco IOS Software Licensing and Packaging

A single Cisco IOS Universal image encompassing all functions is delivered with the platforms. You can enable advanced features by activating a software license on the Universal image. In previous generations of access routers, these feature sets required you to download a new software image. Technology packages and feature licenses, enabled through the Cisco software licensing infrastructure, simplify software delivery and decrease the operational costs of deploying new features.

Four major technology licenses are available on the Cisco 1941 Series Integrated Services Routers; you can activate the licenses through the Cisco software activation process identified at https://www.cisco.com/go/sa.

- IP Base: This technology package is available as default
- Security (SEC) or Security with No Payload Encryption (SEC-NPE)
- AppX: This license includes the DATA license feature set, Application Visibility and Control (AVC), and Cisco Wide Area Application Services (WAAS).

For additional information and details about Cisco IOS Software licensing and packaging on Cisco 1941 Series Integrated Services Routers, please visit https://www.cisco.com/go/g2licensing.

Cisco ONE Software

Cisco ONE™ Software offers a valuable and flexible way to buy software for the WAN, access, and data center domains. At each stage in the product lifecycle, Cisco ONE Software helps make buying, managing, and upgrading your network and infrastructure software easier. Cisco ONE Software provides:

- Flexible licensing models to smoothly distribute customers' software spending over time
- Investment protection for software purchases through software services–enabled license portability
- Access to updates, upgrades, and new technology from Cisco through Cisco® Software Support Services (SWSS)

Cisco ONE for WAN gives organizations broad capabilities for branch offices and the enterprise edge. Cisco ONE Foundation for WAN connects and secures your branch office while optimizing for cost. Cisco ONE WAN Collaboration integrates voice and video into your branch office and network edge.

Key Branch Office Services

The Cisco Integrated Services Routers are industry-leading routers that offer unprecedented levels of services integration. Designed to meet the requirements of the branch office, these platforms provide a complete solution with voice, security, mobility, and data services. Businesses enjoy the benefit by deploying a single device that meets all their needs and save on capital and operational expenses.

Integrated Network Security for Data and Mobility

Security is essential to protect a business' intellectual property while also ensuring business continuity and providing the ability to extend the corporate workplace to employees who need anytime, anywhere access to company resources. As part of the Cisco' SAFE architectural framework that allows organizations to identify, prevent, and adapt to network security threats - the Cisco 1900 Series Integrated Services Routers facilitate secure business transactions and collaboration.

The Cisco IOS Software Security technology package license for the Cisco 1900 Series offers a wide array of common security features such as advanced application inspection and control, threat protection, and encryption architectures for enabling more scalable and manageable VPN networks in one solution set. The Cisco 1941 Series offers native hardware-based encryption acceleration to provide greater IPSec throughput with less overhead for the router processor when compared with software-based encryption solutions.

Cisco Integrated Services Routers offer a comprehensive and adaptable security solution for branch-office routers that include features such as:

- **Secure connectivity:** Secure collaborative communications with Group Encrypted Transport VPN (GETVPN), Dynamic Multipoint VPN (DMVPN), or Enhanced Easy VPN.
- **Integrated threat control:** Respond to sophisticated network attacks and threats using Cisco IOS Firewall, Cisco IOS Zone-Based Firewall, IOS IPS, IOS Content Filtering and Flexible Packet Matching (FPM).
- **Identity Management:** Intelligently protecting endpoints using technologies such as authentication, authorization, and accounting (AAA) and public key infrastructure (PKI).

Detailed information on the security features and solutions supported on the Cisco 1900 Series routers can be found at https://www.cisco.com/go/routersecurity.

Wireless and Mobility Services

Wireless LAN

The Cisco Integrated Services Routers supporting the Cisco Unified Wireless Network enable deployment of secure, manageable WLANs optimized for remote sites and branch offices, including fast secure mobility, survivable authentication, and simplified management. The Cisco Unified Wireless Network addresses critical points of potential failure and helps enable resiliency and survivability for WLANs at remote locations and branch offices. This solution protects the WLAN by providing fast recovery from a variety of faults that may occur. With Cisco's high availability for remote WLANs, hardware and software work together to enable rapid recovery from disruptions and help ensure fault transparency to users and network applications.

The new Cisco 1941W with IEEE 802.11n integrated access point support both unified and autonomous deployments. This integrated Wi-Fi access point offers IEEE 802.11n draft 2.0 standard support for mobile access to high-bandwidth data, voice, and video applications through the use of multiple-input, multiple-output (MIMO) technology that provides increased throughput, reliability, and predictability. IEEE 802.11n wireless networks create a cohesive working environment by combining the mobility of wireless with the performance of wired networks. Cisco has innovative, next-generation wireless solutions that offer greater performance and extended reach for pervasive wireless connectivity. IEEE 802.11n technology delivers outstanding reliability and up to nine times the throughput of current IEEE 802.11 a/b/g networks. It makes wireless networks an integral part of every type of organization by offering the following benefits:

- Data rates of up to 600 Mbps support more users, devices, and mission-critical, bandwidth-intensive applications.
- New MIMO technology provides predictable WLAN coverage and reliable connectivity.
- Next-generation wireless technology provides superior investment protection to support emerging mobile applications.

These routers help extend corporate networks to secure remote sites while giving users access to the same applications found in corporate offices for both data and voice applications. When users require WLAN access, visibility and control of network security are even more critical at the remote site. The new fixed Cisco Integrated Services Routers meet this need with a single device that combines integrated IEEE 802.11a/b/g/n capabilities with security features such as Wi-Fi Protected Access (WPA), including authentication with IEEE 802.1X with the Cisco Light Extensible Authentication Protocol (LEAP) and Protected EAP (PEAP) and encryption with the WPA Temporal Key Integrity Protocol (TKIP).

Wireless WAN

Cisco third- and fourth-generation (3G and 4G, respectively) LTE wireless WAN (WWAN) modules combine traditional enterprise router functions, such as remote management, advanced IP services such as voice over IP (VoIP), and security, with mobility capabilities of 3G and 4G LTE WAN access. Using high-speed 3G or 4G LTE wireless networks, routers can replace or complement existing landline infrastructure, such as dialup, Frame Relay, and ISDN. Cisco 3G and 4G LTE solutions support 3G and 4G LTE standards High-Speed Packet Access (HSPA), Evolution Data Only/Evolution Data Optimized (EVDO), and 4G LTE, providing you with a true multipath WAN backup and the ability to rapidly deploy primary WAN connectivity. For more information about 3G solutions on Cisco Integrated Services Routers, please refer to https://www.cisco.com/go/3g or https://www.cisco.com/go/4g.

Integrated LAN Switching

The Cisco 1941 Integrated Services Router Series will support the EHWIC LAN modules when they become available in future. The Cisco 1941 Series support the existing single wide EtherSwitch HWIC and the double wide HWIC-D modules, which greatly expand the router's capabilities by integrating industry leading Layer 2 or Layer 3 switching.

Application Services

As organizations continue to centralize and consolidate their branch IT infrastructure in an effort to reduce cost and complexity in the branch office, they are challenged to provide adequate user experience, ensure continuous service availability, and deliver business-relevant applications when and where they are needed. To address these challenges, the Cisco 1941 Series provides the ability to host Cisco, 3rd party, and custom applications on Cisco Services Ready Engine (SRE) module that seamlessly integrate into the router. The module has its own processor, network interface, and memory that operate independently of the host router resources, helping to ensure maximum concurrent routing and application performance while reducing physical space requirements, lowering power consumption, and consolidating management.

Cisco Services Ready Engine

The Cisco Services Ready Engine solution is available in a Internal Service Module (ISM) form-factor. The Internal Service Module hardware offers up to a seven times performance improvement over the previous-generation Advanced Integration Modules and provides a x86 processor. The Cisco SRE module enables on-demand provisioning of branch-office applications on the Cisco 1900 Series platforms so that you can deploy the right application, at the right time, in the right place. The hardware and software decoupling provided by the service-ready deployment model enables applications to be provisioned on the module at the time of its installation or remotely anytime thereafter. Supported solutions include Cisco Application Extension Platform (AXP), Cisco Wireless LAN Controller (WLC), and other applications under development. The Service Ready Engine enables organizations of various sizes to future-proof their network by allowing them to quickly deploy new branch-office applications without deploying new hardware, reducing the cost of rolling out branch-office services.

WAAS Express

Organizations today face several unique wide area network (WAN) challenges: the need to provide employees with constant access to centrally located information, the requirement to continuously back up and replicate mission-critical data to centrally managed data centers, the desire to provide satisfactory experience for IP phone and video communication, and the mandate to control bandwidth costs without sacrificing application availability and performance.

Cisco WAAS Express is designed to help organizations address these challenges. Cisco WAAS Express extends the Cisco WAAS product portfolio, with a small-footprint, cost-effective Cisco IOS Software-based software solution integrated into the ISR G2 to offer bandwidth optimization and application acceleration capabilities. Cisco WAAS Express increases remote user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure. Cisco WAAS Express is unique in providing network transparency, improving deployment flexibility with on-demand service enablement, and integrating with native Cisco IOS Software-based services such as security, Netflow, and QoS.

Cisco WAAS Express is fully interoperable with WAAS on SM-SRE modules, WAAS appliances and can be managed by a common WAAS Central Manager.

Cisco WAAS Express is available in Cisco IOS Software from Release 15.1(2)T1.

Further information on Cisco WAAS Express can be found at https://wwwin.cisco.com/artg/products/waas/.

Managing Your Integrated Services Routers

Network Management applications are instrumental in lowering Operating Expenditures (OPEX) while improving network availability by simplifying and automating many of the day-to-day tasks associated with managing an end-to-end network. "Day-one-device-support" provides immediate manageability support for the Integrated Services Router enabling quick and easy deployment, monitoring and troubleshooting from Cisco and third party applications.

Organizations rely on Cisco, third-party and in-house developed network management applications to achieve their Opex and productivity goals. Underpinning those applications are the embedded management features available in every ISR. The new ISRs continue a tradition of broad and deep manageability features within the devices. Features such as IPSLA, EEM, Netflow, allow you to know what's going on in your network at all times. These features along with SNMP and SYSLOG support enable your organization's management applications.

Refer to Tables 4, 5 and 6 for details on IOS, Network Management and Manageability support on Cisco 1941 Series Integrated Services Routers.

Table 4. Cisco 1941 with Cisco IOS Software Feature and Protocol High-Level Support

Protocols	IPv4, IPv6, static routes, Open Shortest Path First (OSPF), Enhanced IGRP (EIGRP), Border Gateway Protocol (BGP), BGP Router Reflector, Intermediate System-to-Intermediate System (IS-IS), Multicast Internet Group Management Protocol (IGMPv3) Protocol Independent Multicast sparse mode (PIM SM), PIM Source Specific Multicast (SSM), Distance Vector Multicast Routing Protocol (DVMRP), IPSec, Generic Routing Encapsulation (GRE), Bi-Directional Forwarding Detection (BVD), IPv4-to-IPv6 Multicast, MPLS, L2TPv3, 802.1ag, 802.3ah, L2 and L3 VPN.
Encapsulations	Ethernet, 802.1q VLAN, Point-to-Point Protocol (PPP), Multilink Point-to-Point Protocol (MLPPP), Frame Relay, Multilink Frame Relay (MLFR) (FR.15 and FR.16), High-Level Data Link Control (HDLC), Serial (RS-232, RS-449, X.21, V.35, and EIA-530), Point-to-Point Protocol over Ethernet (PPPoE), and ATM.
Traffic management	QoS, Class-Based Weighted Fair Queuing (CBWFQ), Weighted Random Early Detection (WRED), Hierarchical QoS, Policy-Based Routing (PBR), Performance Routing (PfR), and Network-Based Advanced Routing (NBAR).

Note: For a more comprehensive list of features supported in Cisco IOS software refer to the Feature Navigator tool at: https://www.cisco.com/go/fn.

Table 5 highlights several integrated services router management capabilities that are available within Cisco IOS Software.

Table 5. Cisco IOS Software Management Capabilities

Feature	Description of Feature Supported by Cisco Integrated Services Routers
WSMA	The Web Services Management Agent (WSMA) defines a mechanism through which you can manage a network device, retrieve configuration data information, and upload and manipulate new configuration data. WSMA uses XML-based data encoding that is transported by the Simple Object Access Protocol (SOAP) for the configuration data and protocol messages.
EEM	Cisco IOS Embedded Event Manager (EEM) is a distributed and customized approach to event detection and recovery offered directly in a Cisco IOS Software device. It offers the ability to monitor events and take informational, corrective, or any desired EEM action when the monitored events occur or when a threshold is reached.
IPSLA	Cisco IOS IP Service-Level Agreements (SLAs) enable you to assure new business-critical IP applications, as well as IP services that use data, voice, and video, in an IP network.
SNMP, RMON, Syslog, NetFlow, TR-069	Cisco 1900 Series Integrated Services Routers also support SNMP, Remote Monitoring (RMON), syslog, NetFlow, and TR-069 in addition to the embedded management features previously mentioned.

Cisco Network Management Applications

The applications listed in Table 6 are standalone products that you can purchase or download to manage your Cisco network devices. The applications are built for the different operational phases; you can select the ones that best fit your needs.

Table 6. Network Management Solutions

Operational Phase	Application	Description
Device staging and configuration	Cisco Configuration Professional	• Cisco Configuration Professional is a GUI device-management tool for Cisco IOS Software-based access routers. This tool simplifies routing, firewall, IPS, VPN, unified communications, and WAN and LAN configuration through GUI-based easy-to-use wizards.
Networkwide deployment, configuration, monitoring, and troubleshooting	CiscoWorks LMS	• CiscoWorks LAN Management Solution (LMS) is a suite of integrated applications for simplifying day-to-day management of a Cisco end-to-end network, lowering OpEx while increasing network availability. CiscoWorks LMS offers network managers an easy-to-use web-based interface for configuring, administering, and troubleshooting the Cisco integrated services routers, using new instrumentation such as Cisco IOS EEM. • In addition to supporting basic platform services of the integrated services router, CiscoWorks also provides added-value support for the Cisco Service Ready Engine, enabling the management and distribution of software images to the SRE, thereby reducing the time and complexities associated with image management.

Operational Phase	Application	Description
Networkwide staging, configuration, and compliance	CiscoWorks NCM	• CiscoWorks Network Compliance Manager (NCM) tracks and regulates configuration and software changes throughout a multivendor network infrastructure. It provides superior visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology requirements.
Security staging, configuration, and monitoring	Cisco Security Manager	• Cisco Security Manager is a leading enterprise-class application for managing security. It delivers provisioning of firewall, VPN, and intrusion-prevention-system (IPS) services across Cisco routers, security appliances, and switch service modules. The suite also includes the Cisco Security Monitoring, Analysis and Response System (Cisco Security MARS) for monitoring and mitigation.
Configuration and provisioning	Cisco Unified Provisioning Manager	• Cisco Unified Provisioning Manager provides a reliable and scalable web-based solution for managing a company's crucial next-generation communications services. It manages unified communications services in an integrated IP telephony, voicemail, and messaging environment.
Staging, deployment, and changes of licenses	Cisco License Manager	• Easily manage Cisco IOS Software activation and license management for a wide range of Cisco platforms running Cisco IOS Software as well as other operating systems with the secure client-server application Cisco License Manager.
Staging, deployment, and changes to configuration and image files	Cisco Configuration Engine	• Cisco Configuration Engine is a secure network management product that provides zero-touch image and configuration distribution through centralized, template-based management.

Summary and Conclusion

As businesses strive to lower the total cost of ownership in running their network and increase their overall employee productivity with more centralize and collaborative network applications, more intelligent branch office solutions are required. The Cisco 1941 Series offers these solutions by providing enhanced performance and increased modular density to support multiple services. The Cisco 1941 Series is designed to consolidate the functions of separate devices into a single, compact system that can be remotely managed.

Product Specifications

Table 7. Product Specifications of Cisco 1941 Integrated Services Router

	Cisco1941, Cisco1941W
Services and Slot Density	
Embedded hardware-based crypto acceleration (IPSec)	Yes
Total Onboard Gigabit Ethernet 10/100/1000 WAN ports	2
RJ-45-Based Ports	2
SFP-Based Ports	0
SM Slots	0
Double-Wide SM Slots	0
EHWIC Slots	2
Double-wide EHWIC slots (use of a double-wide EHWIC slot will consume two EHWIC slots)	1
ISM Slots	1 (0 on the Cisco 1941W)
Memory (DDR2 Error Correction Code [ECC] ECC DRAM) - Default	512 MB
Memory (DDR2 ECC DRAM) - Maximum	2.0 GB
Compact Flash (external) - Default	slot 0: 256 MB slot 1: none
Compact Flash (external) - Maximum	slot 0: 4 GB slot 1: 4 GB
External USB flash memory slots (Type A)	2
USB Console Port (Type B) (up to 115.2 kbps)	1
Serial Console Port (up to 115.2 kbps)	1

	Cisco1941, Cisco1941W
Serial Auxiliary Port (up to 115.2 kbps	1
Power Supply Options	AC, POE
Redundant Power Supply Support	No
Power Specifications	
AC Input Voltage	100-240 V ~
AC Input Frequency	47-63 Hz
AC Input Current range AC Power Supply (Max) (Amps)	1.5-0.6
AC Input Surge Current	<50 A
Typical Power (No Modules)	35 W
Maximum Power capacity with AC power supply	110 W
Maximum Power capacity with PoE power supply (platform only)	110 W
Maximum PoE device power capacity with PoE power supply	80 W
Physical Specifications	
Dimensions (H x W x D)	3.5 in x 13.5 in x 11.5 in
Rack Height	2 RU
Rack-mount 19in. (48.3 cm) EIA	Included
Wall-mount (refer to installation guide for approved orientation)	Yes
Weight - with AC power supply (no modules)	12 lbs
Weight - with POE power supply (no modules)	12.8 lbs
Maximum Weight - Fully Configured	14 lbs
Airflow	Front to Side
Environmental Specifications	
Operating Condition	
Temperature - 5906 feet (1800 m) max. altitude	0-40°C (32-104°F)
Temperature - 9843 feet (3000 m) max. altitude	0-25°C (32-77°F)
Altitude	3000 m (10000 ft)
Humidity	10 to 85% RH
Acoustic: Sound Pressure (Typ/Max)	26/46 dBA
Acoustic: Sound Power (Typ/Max)	36/55 dBA
Transporation/Storage Condition	
Temperature	-40-70°C (-40-158°F)
Humidity	5 to 95%RH
Altitude	4570m (15000 ft)
Regulatory Compliance	
Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1 EN 60950-1 AS/NZS 60950-1 IEC 60950-1
EMC	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A

	Cisco1941, Cisco1941W
Telecom	VCCI V-3 CNS 13438 EN 300-386 EN 61000 (Immunity) EN 55024, CISPR 24 EN50082-1 TIA/EIA/IS-968 CS-03 ANSI T1.101 ITU-T G.823, G.824 IEEE 802.3 RTTE Directive

WLAN Specifications

Table 8. WLAN Specifications of the Cisco 1941W

Feature	Description
WLAN hardware	• IEEE 802.11n draft 2.0 standards-based access point with 802.11a/b/g compatibility • Automatic rate selection for 802.11g/n • Dual Radios for 802.11b/g/n and 802.11a/n modes • RP-TNC connectors for field-replaceable external antennas • 2-dBi default antenna gain • 2 x 3 multiple input, multiple output (MIMO) radio operation • Wi-Fi 802.11n Draft v2.0 certified
WLAN software features	• Autonomous or unified access point • Cisco WCS support for monitoring of autonomous-mode access points • Option to maximize throughput or maximize range • Software-configurable transmit power • Radio roles, including access point, root bridge, non-root bridge, and workgroup bridge • Wi-Fi Multimedia (WMM) certification • Traffic specifications (TSPEC) Call Admission Control (CAC) to ensure voice quality is maintained • Unscheduled Automatic Power Save Delivery (UPSD) to reduce latency
Unified WLAN management	• Unified access point features • Supported by wireless LAN controller and Cisco WCS • Configurable local or central switching for HREAP mode • Radio management through Cisco WCS • Transparent roaming with mobility groups
WLAN security features	• Standard 802.11i • Wi-Fi Protected Access (WPA) and AES (WPA2) • EAP authentication: Cisco LEAP, PEAP, Extensible Authentication Protocol Transport Layer Security (EAP TLS), Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), Extensible Authentication Protocol-Subscriber Information Module (EAP-SIM), Extensible Authentication Protocol-Message Digest Algorithm 5 (EAP-MD5), and Extensible Authentication Protocol-Tunneled TLS (EAP-TTLS) • Static and dynamic Wired Equivalent Privacy (WEP) • Temporal Key Integrity Protocol/Simple Security Network (TKIP/SSN) encryption • MAC authentication and filter • User database for survivable local authentication using LEAP and EAP-FAST • Configurable limit to the number of wireless clients • Configurable RADIUS accounting for wireless clients • Pre-Shared Keys (PSKs) (WPA-small office or home office [WPA-SOHO])
Certifications	a b g WiFi n DRAFT CERTIFIED®

Feature	Description
Service Set Identifiers (SSIDs)	16
Wireless VLANs	16
Encrypted wireless VLANs	16
Multiple Broadcast Service Set Identifiers (MBSSIDs)	16

Supported Modules

Cisco 1941 Series support a wide range of modules that span industry leading breadth of services at the branch. Please refer to the link below for the list of modules supported on the Cisco 1900. https://www.cisco.com/en/US/products/ps10538/products_relevant_interfaces_and_modules.html.

Ordering Information

The Cisco 1941 is orderable at the Cisco Ordering Home Page.

For more information about the Cisco 1900 Series, visit https://www.cisco.com/go/1900.

Table 9 gives ordering information for the Cisco 1941 Router. For information about how to order the Cisco 1900 Series, please visit the Cisco 1900 Series Ordering Guide. To place an order, visit the Cisco Ordering Home Page and refer to Table 9, which provides basic ordering information. For additional product numbers, including the Cisco 1900 Series bundle offerings, please check the Cisco 1900 Series Integrated Services Router Price List or contact your local Cisco account representative.

Table 9. Cisco 1941 Series Basic Ordering Information

Product Number	Product Description
CISCO1941/K9	Cisco 1941 with 2 onboard GE, 2 EHWIC slots, 1 ISM slot, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-A/K9	Cisco 1941 Router w/802.11 a/b/g/n FCC Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-P/K9	Cisco 1941 Router w/802.11 a/b/g/n Japan Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-N/K9	Cisco 1941 Router w/802.11 a/b/g/n Australia, New Zealand & Singapore Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-C/K9	Cisco 1941 Router w/802.11 a/b/g/n China Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-I/K9	Cisco 1941 Router w/802.11 a/b/g/n Israel Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.
CISCO1941W-T/K9	Cisco 1941 Router w/802.11 a/b/g/n Brazil & Taiwan Compliant, 2 onboard GE, 2 EHWIC slots, 256MB CF default, 512MB DRAM default, IP Base.

To download the Cisco ISR 1941 Cisco IOS Software release go to Download Software, click "Router Software," and go to Cisco ISR 1941 Integrated Services Router.

Cisco ONE Software for WAN is available for the ISR 1941.

Cisco ONE Software offers a complete solution that delivers an optimal experience over any connection while helping you get the most from your WAN investment with secure, fault-tolerant connectivity.

Benefits:

- Connect branch offices and your campus securely at an optimal cost by improving application performance through application protocol acceleration and optimization techniques that offload the WAN.
- Integrate voice and video across branch offices and your campus to increase productivity.

For ordering information for Cisco ONE Software for the ISR 1941, go to https://www.cisco.com/c/en/us/products/software/one-wan/wan-part-numbers.html.

ISR Migration Options

Cisco ISR 1900 Series Routers are included in the standard Cisco Technology Migration Program (TMP). Refer to https://www.cisco.com/go/tmp and contact your local Cisco account representative for program details.

Warranty Information

The Cisco 1900 Series Integrated Services Routers have a 1-year limited liability warranty.

For More Information

For more information about the Cisco ISR 1900 Series, visit https://www.cisco.com/go/1900 or contact your local Cisco account representative.

Cisco and Partner Services for the Branch Office

Services from Cisco and our certified partners can help you transform the branch-office experience and accelerate business innovation and growth in the Borderless Network. We have the depth and breadth of expertise to create a clear, replicable, optimized branch footprint across technologies. Planning and design services align technology with business goals and can increase the accuracy, speed, and efficiency of deployment. Technical services help improve operational efficiency, save money, and mitigate risk. Optimization services are designed to continuously improve performance and help your team succeed with new technologies. For more information, please visit https://www.cisco.com/go/services.

Cisco SMARTnet® technical support for the Cisco 1900 Series is available on a one-time or annual contract basis. Support options range from help-desk assistance to proactive, onsite consultation. All support contracts include:

- Major Cisco IOS Software updates in protocol, security, bandwidth, and feature improvements
- Full access rights to Cisco.com technical libraries for technical assistance, electronic commerce, and product information
- 24-hour access to the industry's largest dedicated technical support staff

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. Learn more.

For More Information

For more information about the Cisco 1900 Series, visit https://www.cisco.com/go/1900 or contact your local Cisco account representative.

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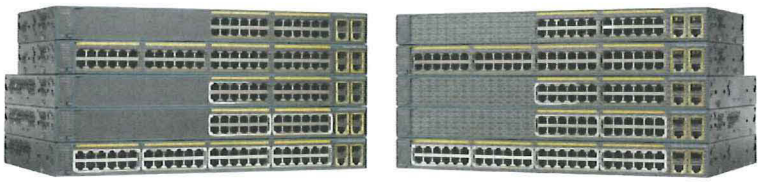
Data Sheet

Cisco Catalyst 2960-Plus Series Switches

The Cisco® Catalyst® 2960-Plus Series Switches are fixed-configuration Fast Ethernet switches (Figure 1) that provide enterprise-class Layer 2 switching for branch offices, conventional workspaces, and infrastructure applications. They enable reliable and secure operations with lower total cost of ownership through a range of Cisco IOS® software features, including Cisco Catalyst SmartOperations.

Figure 1. Cisco Catalyst 2960-Plus Series Switches



Product Highlights

Cisco Catalyst 2960-Plus switches feature:

- 24 or 48 Fast Ethernet ports
- Small Form-Factor Pluggable (SFP) and 1000BASE-T Gigabit Ethernet uplinks
- IEEE 802.3af-compliant Power over Ethernet (PoE)
- LAN Base or LAN Lite Cisco IOS® Software feature set
- SmartOperations tools that simplify deployment and reduce the cost of network administration
- Cisco EnergyWise technology to manage energy consumed by connected devices
- An enhanced limited lifetime hardware warranty (E-LLW), providing next-business-day replacement

Applications and Benefits

The Cisco Catalyst 2960-Plus Series provides cost-effective, enterprise class Ethernet switching for:

- Branch offices, remote sites, and retail locations
- Conventional desktop workspaces
- Building infrastructure, physical security, and other nontraditional access applications

Benefits of the 2960-Plus include:

- Robust quality of service (QoS) that prioritizes voice and critical business applications
- Flexible security features that can limit access to the network and mitigate threats
- Tools that reduce total cost of ownership through simplified operations and automation

Switch Configurations

Table 1 shows Cisco Catalyst 2960-Plus Series configurations.

Table 1. Cisco Catalyst 2960-Plus Series Configurations

Model	10/100 Ethernet Interfaces	Uplink Interfaces	Cisco IOS Software Feature Set	Available PoE Power
Cisco Catalyst 2960-Plus 48PST-L	48	2 SFP and 2 1000BASE-T	LAN Base	370W
Cisco Catalyst 2960-Plus 24PC-L	24	2 (SFP or 1000BASE-T)	LAN Base	370W
Cisco Catalyst 2960-Plus 24LC-L	24	2 (SFP or 1000BASE-T)	LAN Base	123W
Cisco Catalyst 2960-Plus 48TC-L	48	2 (SFP or 1000BASE-T)	LAN Base	-
Cisco Catalyst 2960-Plus 24TC-L	24	2 (SFP or 1000BASE-T)	LAN Base	-
Cisco Catalyst 2960-Plus 48PST-S	48	2 SFP and 2 1000BASE-T	LAN Lite	370W
Cisco Catalyst 2960-Plus 24PC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	370W
Cisco Catalyst 2960-Plus 24LC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	123W
Cisco Catalyst 2960-Plus 48TC-S	48	2 (SFP or 1000BASE-T)	LAN Lite	-
Cisco Catalyst 2960-Plus 24TC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	-

Robust Security

The Cisco Catalyst 2960-Plus Series Switches provide a range of security features to limit access to the network and mitigate threats, including:

- Features to control access to the network, including Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization
- Threat defense features including Port Security, Dynamic ARP Inspection, and IP Source Guard
- Private VLAN Edge to provide isolation between switch ports

For more information about Cisco security solutions, visit cisco.com/go/trustsec.

Enterprise-Class Quality of Service

The Cisco 2960-Plus Series Switches offer intelligent traffic management that keeps everything flowing smoothly. Flexible mechanisms for marking, classification, and scheduling deliver superior performance for data, voice, and video traffic, all at wire speed. Primary QoS features include:

- Four egress queues per port and strict priority queuing so that the highest priority packets are serviced ahead of all other traffic
- Shaped Round Robin (SRR) scheduling and Weighted Tail Drop (WTD) congestion avoidance
- Flow-based rate limiting and up to 64 aggregate or individual policers per port
- 802.1p class of service (CoS) and differentiated services code point (DSCP) field classification, with marking and reclassification on a per-packet basis by source and destination IP address, MAC address, or Layer 4 TCP/UDP port number

Cisco Catalyst SmartOperations

Cisco Catalyst SmartOperations is a comprehensive set of capabilities that simplify LAN planning, deployment, monitoring, and troubleshooting. Deploying SmartOperations tools reduces the time and effort required to operate the network and lowers total cost of ownership (TCO).

- **Cisco Smart Install** enables zero-touch deployment by providing automated Cisco IOS Software image installation and configuration when new switches are connected to the network.
- **Cisco Auto Smartports** enables automatic configuration of switch ports as devices connect to the switch, with settings optimized for the device type.
- **Cisco Smart Troubleshooting** is an extensive array of diagnostic commands and system health checks within the switch, including Smart Call Home.

For more information about Cisco Catalyst SmartOperations, visit cisco.com/go/smartoperations.

Cisco EnergyWise

Cisco EnergyWise™ empowers IT teams to measure and manage the power consumed by devices connected to the network, providing measurable energy savings and reduced greenhouse gas emissions. EnergyWise policies can be used to control the power consumed by PoE-powered endpoints, desktop and data-center IT equipment, and a wide range of building infrastructure. EnergyWise technology is included on all Cisco Catalyst 2960-Plus Series Switches.

For more information about Cisco EnergyWise, visit cisco.com/go/energywise.

Power over Ethernet

Cisco Catalyst 2960-Plus switches support IEEE 802.3af Power over Ethernet (PoE) to deliver lower total cost of ownership for deployments that incorporate Cisco IP phones, Cisco Aironet® wireless access points, or other standards-compliant PoE end devices. PoE removes the need to supply wall power to PoE-enabled devices and eliminates the cost of adding electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments. Table 2 shows the total PoE power available with each 2960-Plus model.

Table 2. Switch PoE Power Capacity

Switch Model	Maximum Number of PoE (IEEE 802.3af) Ports*	Available PoE Power
Cisco Catalyst 2960-Plus 48PST-L	24 ports up to 15.4W	370W
Cisco Catalyst 2960-Plus 24PC-L	24 ports up to 15.4W	370W
Cisco Catalyst 2960-Plus 24LC-L	8 ports up to 15.4W	123W
Cisco Catalyst 2960-Plus 48PST-S	24 ports up to 15.4W	370W
Cisco Catalyst 2960-Plus 24PC-S	24 ports up to 15.4W	370W
Cisco Catalyst 2960-Plus 24LC-S	8 ports up to 15.4W	123W

* Intelligent power management allows flexible power allocation across all ports.

Network Management

The Cisco Catalyst 2960-Plus Series Switches offer a superior CLI for detailed configuration and administration. 2960-Plus switches are also supported in the full range of Cisco network management solutions.

Cisco Prime Infrastructure

Cisco Prime™ network management solutions provide comprehensive network lifecycle management. Cisco Prime Infrastructure provides an extensive library of easy-to-use features to automate the initial and day-to-day management of your Cisco network. Cisco Prime integrates hardware and software platform expertise and operational experience into a powerful set of workflow-driven configuration, monitoring, troubleshooting, reporting, and administrative tools.

For detailed information about Cisco Prime, visit cisco.com/go/prime.

Cisco Network Assistant

A PC-based network management application designed for small and medium-sized business (SMB) networks with up to 250 users, Cisco Network Assistant offers centralized network management and configuration capabilities. This application also features an intuitive GUI where users can easily apply common services across Cisco switches, routers, and access points.

For detailed information about Cisco Network Assistant, visit cisco.com/go/cna.

Cisco IOS Software

Cisco Catalyst 2960-Plus Series Switches are available with the LAN Base and LAN Lite feature sets. LAN Lite models provide reduced functionality and scalability for small deployments with basic requirements.

Note that each switch model is tied to a specific feature level; LAN Lite models cannot be upgraded to the LAN Base feature set.

For more information about the features included in the LAN Base and LAN Lite feature sets, refer to Cisco Feature Navigator: http://tools.cisco.com/ITDIT/CFN.

Technical Specifications

Tables 3 through 10 list information about hardware, performance, forwarding performance, mechanical and environmental specifications, connectors and interfaces, management and standards support, voltage and power ratings, and power consumption, respectively.

Table 3. Cisco Catalyst 2960-Plus Series Hardware

Hardware Specifications	
Flash memory	64 MB
DRAM	128 MB

Table 4. Cisco Catalyst 2960-Plus Series Performance

Performance and Scalability		
	LAN Base (-L) Models	**LAN Lite (-S) Models**
Forwarding bandwidth	16 Gbps	16 Gbps
Maximum active VLANs	255	64
VLAN IDs available	4K	4K
Maximum transmission unit (MTU) - L3 packet	9000 bytes	9000 bytes
Jumbo frame - Ethernet frame	9018 bytes	9018 bytes

* Switching bandwidth is full-duplex capacity.

Table 5. Cisco Catalyst 2960-Plus Series Forwarding Performance

Forwarding Rate: 64-Byte L3 Packets, Millions of packets per second	
Cisco Catalyst 2960-Plus 48PST-L	13.1
Cisco Catalyst 2960-Plus 24PC-L	6.5
Cisco Catalyst 2960-Plus 24LC-L	6.5
Cisco Catalyst 2960-Plus 48TC-L	10.1
Cisco Catalyst 2960-Plus 24TC-L	6.5
Cisco Catalyst 2960-Plus 48PST-S	13.1
Cisco Catalyst 2960-Plus 24PC-S	6.5
Cisco Catalyst 2960-Plus 24LC-S	6.5
Cisco Catalyst 2960-Plus 48TC-S	10.1
Cisco Catalyst 2960-Plus 24TC-S	6.5

Table 6. Cisco Catalyst 2960-Plus Mechanical and Environmental Specifications

Dimensions (H x W x D)		
Model	**Inches**	**Centimeters**
Cisco Catalyst 2960-Plus 48PST-L	1.73 x 17.70 x 13.07	4.4 x 45.0 x 33.2
Cisco Catalyst 2960-Plus 24PC-L		
Cisco Catalyst 2960-Plus 24LC-L		
Cisco Catalyst 2960-Plus 48TC-L	1.73 x 17.70 x 9.52	4.4 x 45.0 x 24.2
Cisco Catalyst 2960-Plus 24TC-L		
Cisco Catalyst 2960-Plus 48PST-S	1.73 x 17.70 x 13.07	4.4 x 45.0 x 33.2
Cisco Catalyst 2960-Plus 24PC-S		
Cisco Catalyst 2960-Plus 24LC-S		
Cisco Catalyst 2960-Plus 48TC-S	1.73 x 17.70 x 9.52	4.4 x 45.0 x 24.2
Cisco Catalyst 2960-Plus 24TC-S		
Weight		
Model	**Pounds**	**Kilograms**
Cisco Catalyst 2960-Plus 48PST-L	12	5.4
Cisco Catalyst 2960-Plus 24PC-L	12	5.4
Cisco Catalyst 2960-Plus 24LC-L	10	4.5
Cisco Catalyst 2960-Plus 48TC-L	8	3.6
Cisco Catalyst 2960-Plus 24TC-L	8	3.6
Cisco Catalyst 2960-Plus 48PST-S	12	5.4
Cisco Catalyst 2960-Plus 24PC-S	12	5.4
Cisco Catalyst 2960-Plus 24LC-S	10	4.5
Cisco Catalyst 2960-Plus 48TC-S	8	3.6
Cisco Catalyst 2960-Plus 24TC-S	8	3.6
Environmental Ranges		
	Fahrenheit	**Centigrade**
Operating temperature up to 5000 ft (1500 m)	23° to 113°F	-5° to 45°C
Operating temperature up to 10,000 ft (3000 m)	23° to 104°F	-5° to 40°C
Short-term exception at sea level*	23° to 131°F	-5° to 55°C

Short-term exception up to 5000 feet (1500 m)*	23° to 122°F	-5° to 50°C
Short-term exception up to 10,000 feet (3000 m)*	23° to 113°F	-5° to 45°C
Short-term exception up to 13,000 feet (4000 m)*	23° to 104°F	-5° to 40°C
Storage temperature up to 15,000 feet (4573 m)	23° to 158°F	-25° to 70°C
	Feet	**Meters**
Operating altitude	Up to 10,000	Up to 3,000
Storage altitude	Up to 13,000	Up to 4,000
Operating relative humidity	10% to 95% noncondensing	
Storage relative humidity	10% to 95% noncondensing	

Acoustic Noise				
Measured per ISO 7779 and declared per ISO 9296.				
Bystander positions operating mode at 25℃ ambient.				
	Sound Pressure, dBA		**Sound Power, dbA**	
Model	**Typical, LpAm**	**Maximum, LpAD**	**Typical, LwA**	**Maximum, LwAD**
Cisco Catalyst 2960-Plus 48PST-L	41	44	51	54
Cisco Catalyst 2960-Plus 24PC-L	43	46	53	56
Cisco Catalyst 2960-Plus 24LC-L	43	46	53	56
Cisco Catalyst 2960-Plus 48TC-L	33	36	43	46
Cisco Catalyst 2960-Plus 24TC-L	33	36	43	46
Cisco Catalyst 2960-Plus 48PST-S	41	44	51	54
Cisco Catalyst 2960-Plus 24PC-S	43	46	53	56
Cisco Catalyst 2960-Plus 24LC-S	43	46	53	56
Cisco Catalyst 2960-Plus 48TC-S	33	36	43	46
Cisco Catalyst 2960-Plus 24TC-S	33	36	43	46

Predicted Reliability	
Model	**MTBF in thousands of hours****
Cisco Catalyst 2960-Plus 48PST-L	312
Cisco Catalyst 2960-Plus 24PC-L	382
Cisco Catalyst 2960-Plus 24LC-L	498
Cisco Catalyst 2960-Plus 48TC-L	623
Cisco Catalyst 2960-Plus 24TC-L	667
Cisco Catalyst 2960-Plus 48PST-S	312
Cisco Catalyst 2960-Plus 24PC-S	381
Cisco Catalyst 2960-Plus 24LC-S	498
Cisco Catalyst 2960-Plus 48TC-S	623
Cisco Catalyst 2960-Plus 24TC-S	667

*Not more than the following in a 1-year period: 96 consecutive hours, or 360 hours total, or 15 occurrences.
**Based on Telcordia SR-332 Issue 3 methodology.

Table 7. Connectors and Interfaces

Ethernet Interfaces
• 10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling • 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling • 1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling • 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling

SFP and SFP+ Interfaces
For information about supported SFP/SFP+ modules, refer to the Transceiver Compatibility matrix tables at cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.
Indicator LEDs
• Per-port status: Link integrity, disabled, activity, speed, and full duplex • System status, Port Status, RPS, link duplex, PoE, and link speed
Console
Cisco Catalyst console cables: • CAB-CONSOLE-RJ45 Console cable 6 ft. with RJ-45
Power
• The internal power supply is an auto-ranging unit and supports input voltages between 100 and 240V AC. • Use the supplied AC power cord to connect the AC power connector to an AC power outlet. • The Cisco RPS connector offers connection for an optional Cisco RPS 2300 that uses AC input and supplies DC output to the switch. • Only the Cisco RPS 2300 (model PWR-RPS2300) should be attached to the redundant-power-system receptacle.

Table 8. Management and Standards Support

Category	Specification	
Management	• BRIDGE-MIB • CISCO-CABLE-DIAG-MIB • CISCO-CDP-MIB • CISCO-CLUSTER-MIB • CISCO-CONFIG-COPY-MIB • CISCO-CONFIG-MAN-MIB • CISCO-DHCP-SNOOPING-MIB • CISCO-ENTITY-VENDORTYPE-OID-MIB • CISCO-ENVMON-MIB • CISCO-ERR-DISABLE-MIB • CISCO-FLASH-MIB • CISCO-FTP-CLIENT-MIB • CISCO-IGMP-FILTER-MIB • CISCO-IMAGE-MIB • CISCO-IP-STAT-MIB • CISCO-LAG-MIB • CISCO-MAC-NOTIFICATION-MIB • CISCO-MEMORY-POOL-MIB • CISCO-PAGP-MIB • CISCO-PING-MIB • CISCO-POE-EXTENSIONS-MIB • CISCO-PORT-QOS-MIB • CISCO-PORT-SECURITY-MIB • CISCO-PORT-STORM-CONTROL-MIB • CISCO-PRODUCTS-MIB • CISCO-PROCESS-MIB • CISCO-RTTMON-MIB • CISCO-SMI-MIB • CISCO-STP-EXTENSIONS-MIB • CISCO-SYSLOG-MIB	• CISCO-TC-MIB • CICSO-TCP-MIB • CISCO-UDLDP-MIB • CISCO-VLAN-IFTABLE • RELATIONSHIP-MIB • CISCO-VLAN-MEMBERSHIP-MIB • CISCO-VTP-MIB • ENTITY-MIB • ETHERLIKE-MIB • IEEE8021-PAE-MIB • IEEE8023-LAG-MIB • IF-MIB • INET-ADDRESS-MIB • OLD-CISCO-CHASSIS-MIB • OLD-CISCO-FLASH-MIB • OLD-CISCO-INTERFACES-MIB • OLD-CISCO-IP-MIB • OLD-CISCO-SYS-MIB • OLD-CISCO-TCP-MIB • OLD-CISCO-TS-MIB • RFC1213-MIB • RMON-MIB • RMON2-MIB • SNMP-FRAMEWORK-MIB • SNMP-MPD-MIB • SNMP-NOTIFICATION-MIB • SNMP-TARGET-MIB • SNMPv2-MIB • TCP-MIB • UDP-MIB • ePM MIB
	For an updated list of supported MIBs, refer to the MIB Locator at cisco.com/go/mibs.	

Category	Specification	
Standards	• IEEE 802.1D Spanning Tree Protocol • IEEE 802.1p CoS Prioritization • IEEE 802.1Q VLAN • IEEE 802.1s • IEEE 802.1w • IEEE 802.1X • IEEE 802.1ab (LLDP) • IEEE 802.3ad • IEEE 802.3af • IEEE 802.3ah (100BASE-X single/multimode fiber only) • IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports	• IEEE 802.3 10BASE-T • IEEE 802.3u 100BASE-TX • IEEE 802.3ab 1000BASE-T • IEEE 802.3z 1000BASE-X • RMON I and II standards • SNMP v1, v2c, and v3
RFC compliance	• RFC 768 - UDP • RFC 783 - TFTP • RFC 791 - IP • RFC 792 - ICMP • RFC 793 - TCP • RFC 826 - ARP • RFC 854 - Telnet • RFC 951 - Bootstrap Protocol (BOOTP) • RFC 959 - FTP • RFC 1112 - IP Multicast and IGMP • RFC 1157 - SNMP v1 • RFC 1166 - IP Addresses • RFC 1256 - Internet Control Message Protocol (ICMP) Router Discovery • RFC 1305 - NTP • RFC 1492 - TACACS+ • RFC 1493 - Bridge MIB • RFC 1542 - BOOTP extensions • RFC 1643 - Ethernet Interface MIB • RFC 1757 - RMON	• RFC 1901 - SNMP v2C • RFC 1902-1907 - SNMP v2 • RFC 1981 - Path MTU Discovery for IPv6 • FRC 2068 - HTTP • RFC 2131 - DHCP • RFC 2138 - RADIUS • RFC 2233 - IF MIB v3 • RFC 2373 - IPv6 Aggregatable Addrs • RFC 2460 - IPv6 • RFC 2461 - IPv6 Neighbor Discovery • RFC 2462 - IPv6 Autoconfiguration • RFC 2463 - ICMP IPv6 • RFC 2474 - Differentiated Services (DiffServ) Precedence • RFC 2597 - Assured Forwarding • RFC 2598 - Expedited Forwarding • RFC 2571 - SNMP Management • RFC 3046 - DHCP Relay Agent Information Option • RFC 3376 - IGMP v3 • RFC 3580 - 802.1X RADIUS

Table 9. Voltage and Power Ratings

Input Voltage and Current			
Model	**Voltage (Autoranging)**	**Current (Amperes)**	**Frequency**
Cisco Catalyst 2960-Plus 48PST-L	100 to 240 VAC	4.0 - 2.0	50 to 60Hz
Cisco Catalyst 2960-Plus 24PC-L		4.0 - 2.0	
Cisco Catalyst 2960-Plus 24LC-L		1.4 - 0.8	
Cisco Catalyst 2960-Plus 48TC-L		0.6 - 0.3	
Cisco Catalyst 2960-Plus 24TC-L		0.4 - 0.2	
Cisco Catalyst 2960-Plus 48PST-S		4.0 - 2.0	
Cisco Catalyst 2960-Plus 24PC-S		4.0 - 2.0	
Cisco Catalyst 2960-Plus 24LC-S		1.4 - 0.8	
Cisco Catalyst 2960-Plus 48TC-S		0.6 - 0.3	
Cisco Catalyst 2960-Plus 24TC-S		0.4 - 0.2	
Power Rating (kVA)			
Cisco Catalyst 2960-Plus 48PST-L	0.46		
Cisco Catalyst 2960-Plus 24PC-L	0.43		
Cisco Catalyst 2960-Plus 24LC-L	0.16		

Cisco Catalyst 2960-Plus 48TC-L	0.04	
Cisco Catalyst 2960-Plus 24TC-L	0.03	
Cisco Catalyst 2960-Plus 48PST-S	0.46	
Cisco Catalyst 2960-Plus 24PC-S	0.43	
Cisco Catalyst 2960-Plus 24LC-S	0.16	
Cisco Catalyst 2960-Plus 48TC-S	0.04	
Cisco Catalyst 2960-Plus 24TC-S	0.02	
DC Input Voltages (RPS Input)		
Cisco Catalyst 2960-Plus 48PST-L	3A at 12V	7A at -52V
Cisco Catalyst 2960-Plus 24PC-L	2A at 12V	7A at -52V
Cisco Catalyst 2960-Plus 24LC-L	2A at 12V	3A at -52V
Cisco Catalyst 2960-Plus 48TC-L	3A at 12V	-
Cisco Catalyst 2960-Plus 24TC-L	2A at 12V	-
Cisco Catalyst 2960-Plus 48PST-S	3A at 12V	7A at -52V
Cisco Catalyst 2960-Plus 24PC-S	2A at 12V	7A at -52V
Cisco Catalyst 2960-Plus 24LC-S	2A at 12V	3A at -52V
Cisco Catalyst 2960-Plus 48TC-S	3A at 12V	-
Cisco Catalyst 2960-Plus 24TC-S	2A at 12V	-

Table 10. Power Consumption

Measured Power Consumption, Watts				
Model	**0% traffic**	**10% traffic**	**100% traffic**	**ATIS weighted average**
Cisco Catalyst 2960-Plus 48PST-L	51.1	50.8	51.4	50.9
Cisco Catalyst 2960-Plus 24PC-L	35.4	35.3	35.6	35.3
Cisco Catalyst 2960-Plus 24LC-L	25.9	25.7	26.1	25.8
Cisco Catalyst 2960-Plus 48TC-L	30.4	30.2	30.6	30.2
Cisco Catalyst 2960-Plus 24TC-L	18.4	18.3	18.6	18.3
Cisco Catalyst 2960-Plus 48PST-S	50.8	50.3	51.1	50.5
Cisco Catalyst 2960-Plus 24PC-S	35.0	34.8	35.2	34.9
Cisco Catalyst 2960-Plus 24LC-S	25.9	25.7	26.1	25.8
Cisco Catalyst 2960-Plus 48TC-S	29.9	29.7	30.2	29.8
Cisco Catalyst 2960-Plus 24TC-S	18.8	18.7	19.1	18.8

* Using ATIS-0600015.03.2009 methodology.

Disclaimer: All power consumption numbers were measured under controlled laboratory conditions and are provided as an estimate.

Note: The wattage rating on the power supply does not represent actual power draw. It indicates the maximum power draw possible by the power supply. This rating can be used for facility capacity planning. For PoE switches, cooling requirements are smaller than total power draw because a significant portion of the load is dissipated in the endpoints.

Table 11 provides safety and compliance information.

Table 11. Safety and Compliance

Category	Certifications
Regulatory Compliance	Products should comply with CE Marking per directives 2004/108/EC and 2006/95/EC
Safety	UL 60950-1 Second Edition CAN/CSA-C22.2 No. 60950-1 Second Edition EN 60950-1 Second Edition IEC 60950-1 Second Edition AS/NZS 60950-1
EMC - Emissions	47CFR Part 15 (CFR 47) Class A AS/NZS CISPR22 Class A CISPR22 Class A EN55022 Class A ICES003 Class A VCCI Class A EN61000-3-2 EN61000-3-3 KN22 Class A CNS13438 Class A
EMC - Immunity	EN55024 CISPR24 EN300386 KN24
Environmental	Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU
Telco	

Cisco Enhanced Limited Lifetime Hardware Warranty

Cisco Catalyst 2960-Plus Series Switches come with an enhanced limited lifetime warranty (E-LLW). The E-LLW provides the same terms as Cisco's standard limited lifetime warranty but adds next-business-day delivery of replacement hardware, where available, and 90 days of 8X5 Cisco Technical Assistance Center (TAC) support.

Your formal warranty statement, including the warranty applicable to Cisco software, appears in the Cisco information packet that accompanies your Cisco product. We encourage you to review carefully the warranty statement shipped with your specific product before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy. For further information about warranty terms (Table 12), visit cisco.com/go/warranty.

Table 12. Warranty Terms

Cisco Enhanced Limited Lifetime Hardware Warranty	
Device covered	Applies to all Cisco Catalyst 2960-Plus Series Switches.
Warranty duration	As long as the original end user continues to own or use the product.
End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance.
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a Cisco Catalyst 2960-Plus replacement part for next business day delivery, where available. Otherwise, a replacement will be shipped within ten (10) working days after the receipt of the RMA request. Actual delivery times may vary depending on customer location.
Effective date	Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety [90] days after original shipment by Cisco).

Cisco Enhanced Limited Lifetime Hardware Warranty	
TAC support	Cisco will provide during customer's local business hours, 8 hours per day, 5 days per week basic configuration, diagnosis, and troubleshooting of device-level problems for up to 90 days from the date of shipment of the originally purchased Cisco Catalyst 2960-Plus product. This support does not include solution or network-level support beyond the specific device under consideration.
Cisco.com access	Warranty allows guest access only to Cisco.com.

Software Update Policy

Software updates for the Cisco Catalyst 2960-Plus are available for free to registered customers at cisco.com/go/support.

For more information about the Cisco Catalyst software update policy, visit http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps4324/product_bulletin_c25-696974_ps10745_Products_Bulletin.html.

Technical Support and Services

Table 13 provides information about relevant technical services.

Table 13. Technical Services Available for Cisco Catalyst 2960-Plus Series Switches

Technical Services
Cisco SMARTnet Service • Around-the-clock, global access to the Cisco TAC • Unrestricted access to the extensive Cisco.com knowledge base and tools • Next-business-day, 8x5x4, 24x7x4, or 24x7x2 advance hardware replacement and onsite parts replacement and installation available[1] • Ongoing operating system software updates within the licensed feature set[2] • Proactive diagnostics and real-time alerts on Smart Call Home enabled devices
Cisco Smart Foundation Service • Next-business-day advance hardware replacement as available • Access to SMB TAC during business hours (access levels vary by region) • Access to Cisco.com SMB knowledge base • Online technical resources through Smart Foundation Portal • Operating system software bug fixes and patches
Cisco Smart Care Service • Network-level coverage for the needs of small and medium-sized businesses • Proactive health checks and periodic assessments of Cisco network foundation, voice, and security technologies • Technical support for eligible Cisco hardware and software through Smart Care Portal • Cisco operating system and application software updates and upgrades[2] • Next-business-day advance hardware replacement as available, 24x7x4 option available[1]
Cisco SP Base Service • Around-the-clock, global access to the Cisco TAC • Registered access to Cisco.com • Next-business-day, 8x5x4, 24x7x4, and 24x7x2 advance hardware replacement. Return to factory option available[1] • Ongoing operating system software updates[2]
Cisco Focused Technical Support Services Three levels of premium, high-touch services are available: • Cisco High-Touch Operations Management Service • Cisco High-Touch Technical Support Service • Cisco High-Touch Engineering Service Valid Cisco SMARTnet® or SP Base contracts are required on all network equipment.

[1] Advance hardware replacement is available in various service-level combinations. For example, 8x5xNBD indicates that shipment will be initiated during the standard 8-hour business day, 5 days a week (the generally accepted business days within

the relevant region), with next-business-day (NBD) delivery. Where NBD is not available, same day shipping is provided. Restrictions apply; review the appropriate service descriptions for details.

[2] Cisco operating system updates include the following: maintenance releases, minor updates, and major updates within the licensed feature set.

Ordering Information

Tables 14 through 18 provide information about ordering, accessories, redundant power supplies, SFP modules, and power cords, respectively.

Table 14. Cisco Catalyst 2960-Plus Series Switches Ordering Information

Part Number	10/100 Ethernet Interfaces	Uplink Interfaces	Cisco IOS Software Feature Set	Available PoE Power
WS-C2960+48PST-L	48	2 SFP and 2 1000BASE-T	LAN Base	370W
WS-C2960+24PC-L	24	2 (SFP or 1000BASE-T)	LAN Base	370W
WS-C2960+24LC-L	24	2 (SFP or 1000BASE-T)	LAN Base	123W
WS-C2960+48TC-L	48	2 (SFP or 1000BASE-T)	LAN Base	-
WS-C2960+24TC-L	24	2 (SFP or 1000BASE-T)	LAN Base	-
WS-C2960+48PST-S	48	2 SFP and 2 1000BASE-T	LAN Lite	370W
WS-C2960+24PC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	370W
WS-C2960+24LC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	123W
WS-C2960+48TC-S	48	2 (SFP or 1000BASE-T)	LAN Lite	-
WS-C2960+24TC-S	24	2 (SFP or 1000BASE-T)	LAN Lite	-

Table 15. Cisco Catalyst 2960-Plus Accessories

Part Numbers	Description
CAB-CONSOLE-RJ45	Console cable 6 ft with RJ45
RCKMNT-1RU=	Spare rack-mount kit for Cisco Catalyst 2960 and 2960-Plus Series for 19- and 24-inch racks
RCKMNT-REC-1RU=	1 RU recessed rack-mount kit for Cisco Catalyst 2960 and 2960-Plus Series
PWR-CLP	Power cable restraining clip

Table 16. Cisco Catalyst 2960-Plus Redundant Power Supply Options

Part Numbers	Description
PWR-RPS2300	Cisco Redundant Power System 2300 and blower, no power supply
BLNK-RPS2300=	Spare bay insert for Cisco Redundant Power System 2300
CAB-RPS2300=	Spare RPS2300 cable for Cisco Catalyst 2960 switches
BLWR-RPS2300=	Spare 45 CFM blower for RPS 2300
C3K-PWR-750WAC=	RPS 2300 750W AC power supply spare for Cisco Catalyst 2960 switches
ACC-RPS2300=	Spare accessory kit for Cisco Redundant Power System 2300

For more information about the RPS-2300, visit cisco.com/en/US/products/ps7130.

Table 17. Cisco Catalyst 2960-Plus SFP Modules

SFP and SFP+ Modules
For the list of supported SFP and SFP+ modules, visit cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

Table 18. Power Cords for Cisco Catalyst 2960-Plus Series

Part Numbers	Description
CAB-AC	AC Power Cord (US, Canada), C13, NEMA 5-15P, 2.5m
CAB-ACE	AC Power Cord (Europe), C13, CEE 7, 1.5m
CAB-ACI	AC Power Cord (Italy), C13, CEI 23-16, 2.5m
CAB-ACU	AC Power Cord (UK), C13, BS 1363, 2.5m
CAB-ACA	AC Power Cord (China/Australia), C13, AS 3112, 2.5m
CAB-ACS	AC Power Cord (Switzerland), C13, IEC 60884-1, 2.5m
CAB-ACR	AC Power Cord (Argentina), C13, EL 219 (IRAM 2073), 2.5m
CAB-ACC	AC Power Cord (China), C13, PRC/3 GB2099/GB1002
CAB-JPN	AC Power Cord (Japan), C13, Japan 2-prong, 1.8m
CAB-IND-10A	AC Power Cord (India), C13, IS1293, 2.5m
CAB-ACBZ-10A	AC Power Cord (Brazil), C13,BR-3-20, 10A
CAB-ACSA	AC Power Cord (South Africa), C15, SABS 164-1, 1.8m

Contact Cisco

For more information about Cisco products, contact:

- United States and Canada: (toll free) 800 553-NETS (6387)
- Europe: 32 2 778 4242
- Australia: 612 9935 4107
- Other: 408 526-7209
- URL: cisco.com

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za níž jedná jednatel Ing. Karel Kovář (dále jen „zaměstnavatel" anebo „společnost")

pověřuje tímto svého zaměstnance

pana Petra Krále

dat. nar.

který je u společnosti zaměstnán ve funkci výkonný ředitel divize 1, aby za společnost TECHNISERV, spol. s r.o., se sídlem Baarova 231/36, 140 00 Praha 4 činil právní jednání a úkony v rámci její obchodní činnosti a jejího předmětu podnikání, včetně uzavírání obchodních smluv v rozsahu dále uvedeném.

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Toto pověření je uděleno na dobu trvání pracovního poměru ve funkci výkonný ředitel divize 1 u společnosti.

V Praze, dne 1.6.2017

TECHNISERV, spol. s r.o.,
Ing. Karel Kovář
jednatel

TECHNISERV
spol. s r. o.
PRAHA 7

Zmocnění přijímám.

.....
Král Petr