

# Cisco 4451-X Integrated Services Router

## Ordering Guide

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## 1. Cisco 4451-X Integrated Services Router

Cisco® Integrated Services Routers (ISRs) are built on 30 years of our innovation and product leadership.

The Cisco 4451-X Integrated Services Router revolutionizes the delivery of application-aware services in a branch-office environment. This new member of the Cisco ISR Family provides extensive Layer 7 services hosted internally to the branch office while maximizing operating expenses (OpEx) savings.

You can order the platform as a base system or as a bundled system for security, unified communications, or application services. This ordering guide focuses on base system configurations and options, but most of the elements are applicable to bundle ordering as well. For a detailed list of advanced technology bundles, please refer to section 4 of this ordering guide.

### 1.1 Ordering the Cisco 4451-X Integrated Services Router

The Cisco 4451-X offers the highest performance among the ISR portfolio.

Table 1 lists the part number for the Cisco 4451-X platform.

**Table 1.** Cisco 4451-X Platform

Ordering SKU	Description	Technical Service SKU (Cisco SMARTnet 8x5xNBD)
ISR4451-X/K9	Cisco ISR4451 (4GE,3NIM,2SM,8G FLASH,4G DRAM)	CON-SNT-ISR45XK9

You can order each Cisco 4451-X platform with dual power supplies that you can configure for power-supply redundancy.

You can order the power supplies listed in Table 2 with the system or as spares.

**Table 2.** Cisco 4451-X Power Supply Options (Offered with the System and as Spares)

Ordering SKU	Description
PWR-4450-AC	450W AC Power Supply for Cisco ISR 4451-X. Ships default with the system. Spare SKU should be ordered for a Secondary PS of a system already deployed
PWR-4450-AC/2	450W AC Power Supply (Secondary PS) for Cisco ISR 4451-X
PWR-COVER-4450=	Cover for empty 2 <sup>nd</sup> Power Supply slot on Cisco ISR4450

The Cisco 4451-X ships with a default memory of 2-GB DRAM for data plane and 4-GB DRAM for the control plane in addition to 8GB of flash memory. The 4-GB DRAM configuration for the control plane is derived by the installation of two symmetrical dual in-line memory modules (DIMMs) of 2 GB in each of the memory slots of the Cisco 4451-X platform. When upgrading memory to higher densities, both memory slots must be populated with DIMMs of symmetrical type and density for high system performance. The Cisco 4451-X does not support the use of different DRAM densities in the 2 available DIMM slots or the use of only 1 slot. The memory type and part numbers are as listed in Table 3.

**Table 3.** Cisco 4451-X Router DRAM (Factory Upgrades and Spares)

Ordering SKU	Description
MEM-4400-2G=	2G DRAM (1 DIMM) for Cisco ISR4400, Spare
MEM-4400-DP-2G=	2G DRAM (1 DIMM) for Cisco ISR4400 Data Plane, Spare
MEM-4400-4G=	4G DRAM (1 DIMM) for Cisco ISR4400, Spare
MEM-4400-8G=	8G DRAM (1 DIMM) for Cisco ISR4400, Spare
MEM-4400-DP-2G	2G DRAM (1 DIMM) for Cisco ISR4400 Data Plane (Default)

Ordering SKU	Description
<b>MEM-4400-4G</b>	4G DRAM (2G+2G) for Cisco ISR4400 (Default)
<b>MEM-4400-4GU8G</b>	4G to 8G DRAM Upgrade (4G+4G) for Cisco ISR4400
<b>MEM-4400-4GU16G</b>	4G to 16G DRAM Upgrade (8G+8G) for Cisco ISR4400
<b>MEM-4400-8GU16G</b>	8G to 16G DRAM Upgrade (8G+8G) for Cisco ISR4400

The Cisco 4451-X ships with a default of 8GB of flash memory. The part numbers are listed in Table 4.

**Table 4.** Cisco 4451-X Flash Memory (Factory Upgrades and Spares)

Ordering SKU	Description
<b>MEM-FLASH-8G=</b>	8G Flash Memory for Cisco ISR4400, Spare
<b>MEM-FLASH-16G=</b>	16G Flash Memory for Cisco ISR4400, Spare
<b>MEM-FLASH-32G=</b>	32G Flash Memory for Cisco ISR4400, Spare
<b>MEM-FLASH-8U16G</b>	8G to 16G Flash Memory Upgrade for Cisco ISR4400
<b>MEM-FLASH-8U32G</b>	8G to 32G Flash Memory Upgrade for Cisco ISR4400
<b>MEM-FLASH-16U32G</b>	16G to 32G Flash Memory Upgrade for Cisco ISR4400
<b>MEM-FLASH-8G</b>	8G Flash Memory for Cisco ISR4400

The Cisco 4451-X ships with a default fan assembly that drives "business-to-bezel" airflow in the router chassis. Additionally, the cover for the redundant power supply (RPS) on the Cisco 4451-X is orderable as a spare. Table 5 lists the part numbers for Cisco 4451-X fan-related products.

**Table 5.** Cisco 4451-X Fan-Related Products

Ordering SKU	Description
<b>ACS-4450-FANASSY=</b>	Cisco ISR4450 Fan Assembly, Spare

## 1.2 Ordering Optional Items for Cisco 4451-X Router

Each Cisco 4451-X ships with a default accessory kit consisting of:

- 19-inch rack-mount brackets
- Regulatory & Compliance Safety Information (RCSI) guide

The default accessory kit does not include any Category 5 RJ-45 Ethernet cables or cables for the router console or auxiliary port. You can order the console and auxiliary cables as an option during router configuration or as spares.

You can order the 23-inch rack-mount brackets, the blank faceplates for module slots, and slot dividers as spares (Table 6).

Opacity shields are not required for the Cisco 4451-X because the router ships with a solid cover and the router interior is not exposed. Table 6 lists the part numbers for cables, rack-mount brackets, blank faceplates, and storage drives.

**Table 6.** Cables, Rack-Mount Brackets, and Blank Faceplates for Cisco 4451-X

Ordering SKU	Description
<b>CAB-CONSOLE-RJ45</b>	Console Cable 6ft with RJ45 and DB9F (Both system and spare)
<b>CAB-AUX-RJ45</b>	Auxiliary Cable 8ft with RJ45 and DB25M (Both system and spare)
<b>CAB-CONSOLE-USB</b>	Console Cable 6 ft with USB Type A and mini-B connectors (Both system and spare)

Ordering SKU	Description
ACS-4450-RM-19=	19 inch rack mount kit for Cisco ISR4450
ACS-4450-RM-23=	23 inch rack mount kit for Cisco ISR4450
SM-S-BLANK=	Removable faceplate for SM slot on Cisco ISR 2900, 3900, 4451-X (only as spare)
SM-BLANK-KIT=	Blank faceplate for SM slot with divider on Cisco 2951,3925,4451-X (only as spare)
NIM-BLANK=	Blank faceplate for NIM slot on Cisco ISR4400
NIM-SLOT-DIVIDER=	NIM Slot Divider (Guide) for Cisco ISR4400
SM-SLOT-DIVIDER=	SM Slot Divider (Guide) for Cisco ISR 2900, 3900, 4451-X (only as spare)
NIM-SSD	NIM Carrier Card for SSD drives
NIM-SSD=	NIM Carrier Card for SSD drives,Spare
SSD-SATA-200G	200 GB, SATA Solid State Disk
SSD-SATA-200G=	200 GB, SATA Solid State Disk

## 2. Ordering Cisco IOS Software Images and Licenses

Cisco ISRs deliver innovative technologies running on the industry-leading Cisco IOS® Software.

The Cisco 4451-X ships with a universal Cisco IOS Software image that contains all the features available for use on the router. A specific feature set is activated by using technology package licenses such as Security, Unified Communications, and Application Experience.

The Cisco 4451-X supports two types of universal images:

- Universal images with **universalk9** in the image name: This universal image offers all the Cisco IOS Software features, including strong payload cryptography features such as IP Security VPN (IPsec VPN) and Secure Unified Communications.
- Universal images with **universalk9\_npe** in the image name: The strong control of encryption capabilities by Cisco Software Activation helps meet U.S. export control requirements for cryptography. However, some countries have import requirements that require that the platform **not** support any strong payload cryptography. To satisfy the import requirements of those countries, Cisco allows you to order the router with an "npe" universal image that does not support any strong payload encryption. The npe image does support security features such as zone-based firewall and intrusion prevention through the SECNPE-K9 license.

Table 7 lists part numbers for universal Cisco IOS Software images for the Cisco 4451-X.

**Table 7.** Part Numbers for Universal Cisco IOS Software Images for Cisco 4451-X(for Cisco IOS XE Software Release 3.9)

Ordering SKU	Description
SISR4451XUK9-39S	Cisco IOS universal Image for 4451-X
SISR4451XNPEK9-39S	Cisco IOS univ. Image (No Payload Encryption) for 4451-X

By default, you need to select an IP Base license. You can order the routers from the factory with technology licenses preinstalled using the paper license part numbers (start with the keyword "SL"). Alternately, if you plan to deploy the advanced technology features later, you can order the required licenses as spares. You can order spares for technology licenses as paper licenses or e-delivery licenses (start with keyword "SL").

The part numbers are listed in Table 8.

**Table 8.** IP Base Licenses for Cisco 4451-X (Maps to Both Types of Universal Images)

Ordering SKU	Description
SL-44-IPB-K9	IP Base License (Paper) for Cisco 4451-X

You can use the security licenses in Table 9 to activate the advanced security features offered on the Cisco 4451-X platform. You can order these part numbers only for the universal image that supports payload cryptography.

**Table 9.** Security Licenses for Cisco 4451-X (Maps to universalk9 Image)

Ordering SKU	Description
SL-44-SEC-K9	Security License (Paper) for Cisco 4451-X (System)
SL-44-SEC-K9=	Security PAK (E-Delivery/Paper) for Cisco 4451-X (only as Spare)

For activating security features on the universal image with no payload encryption, the security license part numbers are unique, as listed in Table 10.

**Table 10.** Security Licenses (No Payload Encryption) for Cisco 4451-X (Maps to universalk9\_npe Image)

Ordering SKU	Description
SL-44-SECNPE-K9	Security No Payload Encryption License (Paper) for Cisco 4451-X (System)
SL-44-SECNPE-K9=	Security No Payload Encryption (E-Delivery/Paper) License for Cisco 4451-X (only as Spare)

The Unified Communications license is used to activate unified communications features on the Cisco 4451-X platform; Table 11 lists the part numbers.

**Table 11.** Unified Communications License for Cisco 4451-X (Maps to Both Images)

Ordering SKU	Description
SL-44-UC-K9	Unified Commn. License (Paper) for Cisco 4451-X (System)
SL-44-UC-K9=	Unified Commn. License (E-Delivery/Paper) for Cisco 4451-X (Spare)

You can use the Application Experience license in Table 12 to activate the application experience features offered on the Cisco 4451-X.

**Table 12.** AppX Licenses for Cisco 4451-X (Maps to Both Universal Images)

Ordering SKU	Description
SL-44-AX-K9	AppX License (Paper) for Cisco 4451-X (System)
SL-44-AX-K9=	AppX License (Paper) for Cisco 4451-X (Spare)

The Cisco 4451-X also offers a wide variety of feature licenses for unified communications functions such as Cisco Unified Communications Manager Express (Unified CME), Survivable Remote Site Telephony (SRST), and Cisco Unified Border Element. You need these licenses in addition to the technology license for a given solution deployment.

### 3. Ordering Modules for Cisco 4451-X

For a complete list of supported and unsupported modules, please refer to the Cisco Relevant Modules and Interfaces document for each product family.

For the Cisco 4451-X Relevant Modules and Interfaces, refer to:

[http://www.cisco.com/en/US/products/ps10536/products\\_relevant\\_interfaces\\_and\\_modules.html](http://www.cisco.com/en/US/products/ps10536/products_relevant_interfaces_and_modules.html).

## 4. Bundled Systems for Cisco 4451-X

You can also order the Cisco 4451-X as prepackaged bundled systems for deploying advanced technologies such as security, unified communications, and application services in the branch office.

### 4.1 Security Bundles

Cisco router security bundles deliver security features such as Cisco IOS Software-based firewall, VPN, and infrastructure security services over numerous WAN access technologies, offering high levels of performance, scalability, and availability to meet today's growing business requirements. Table 13 lists the security bundle for the Cisco 4451-X Router that comes with the Security technology license activated and the advanced security features available for use. By default, this bundle ships with the universal Cisco IOS Software image that supports payload cryptography.

**Table 13.** Security Bundle for Cisco 4451-X (Includes universalk9 Image and SEC License)

Ordering SKU	Description	Technical Service SKU (SMARTnet 8x5xNBD)
<b>ISR4451-X-SEC/K9</b>	Cisco ISR 4451-X Security Bundle w/SEC license PAK	CON-SNT-ISX451-X

### 4.2 Unified Communications Bundles

The Cisco 4451-X Voice and Voice Security bundle enables unified communications through a rich signaling and media-processing infrastructure, including a variety of protocols, media interworking, signal and media security, transcoding, conferencing, and quality of service (QoS). You can order these bundles with optional licenses for SRST.

All the Unified Communications bundles include the new Cisco Packet Voice DSP Module 4 (PVDM4), which has been optimized for concurrent voice support. The PVDM4 modules support all voice-gateway functions of earlier generations of PVDMs.

Table 14 lists the voice bundle for the Cisco 4451-X Router that comes with PVDM4, UC technology license, and the unified communications features available for use. By default, this bundle ships with the universal Cisco IOS Software image that supports payload cryptography.

**Table 14.** Voice and Video Bundle for Cisco 4451-X Router (Includes universalk9 Image, UC License, and PVDM4)

Ordering SKU	Description	Technical Service SKU (SMARTnet 8x5xNBD)
<b>ISR4451-X-V/K9</b>	Cisco ISR 4451-X Voice Bundle, PVDM4-64 w/ UC License PAK	CON-SNT-ISR4451-X

Table 15 lists the secure voice bundle for the Cisco 4451-X Router that comes with PVDM4, UC and SEC technology license, and the unified communications features available for use. By default, this bundle ships with the universal Cisco IOS Software image that supports payload cryptography.

**Table 15.** VSEC Bundle for Cisco 4451-X Router (Includes universalk9 Image, UC and SEC License, and PVDM4)

Ordering SKU	Description	Technical Service SKU (SMARTnet 8x5xNBD)
<b>ISR4451-X-VSEC/K9</b>	Cisco ISR 4451-X Voice Sec. Bundle, PVDM4-64 w/ UC and SEC License PAK	CON-SNT-ISR41-X

Information on the Cisco 4451-X Application Experience Bundle is captured in the AX Ordering guide.

## 5. Cisco and Partner Services for the Branch Office

Transform the branch-office experience and accelerate business innovation and growth in the Borderless Network using intelligent, personalized services from Cisco and our partners. We have the depth and breadth of expertise to create a clear, replicable, optimized branch-office 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.

### 5.1 Technical Services Available for Cisco 4451-X

- Cisco SMARTnet<sup>®</sup> Services provides comprehensive technical support services for the Cisco 4451-X (both base systems and bundled systems), OS software and feature licenses, and modules, including the Cisco Unified Computing System<sup>™</sup> (Cisco UCS<sup>®</sup>) E-Series Module. Cisco SMARTnet Services includes advance hardware replacement, OS updates, online tools and resources, and Cisco Technical Assistance Center (TAC) support.
- Cisco Application Support plus Upgrades (SASU) provides technical support services including updates and upgrades for any Cisco software application running on the Cisco UCS E-Series Module.

Table 16 gives part numbers for Cisco technical services use cases.

**Table 16.** Technical Services Use Cases

If You Buy a Cisco4451-XBase or Bundled System with:	You Need:
Any Cisco IOS Software, including technology or feature licenses for Cisco IOS Software	Cisco SMARTnet Service
Any modules, including Cisco UCSE-Series Modules	Cisco SMARTnet Service
An application running on a Cisco UCSE-Series Module	Cisco SMARTnet Service + SASU
A security feature set and you do not require intrusion-prevention-system (IPS) signature updates	Cisco SMARTnet Service

## 6. Additional Information and Marketing Contacts

To obtain current information about prices for products in the Cisco 4451-X portfolio, please refer to the Cisco price list at: <http://www.cisco.com/en/US/ordering/index.shtml>.

For more information about the Cisco 4451-X, visit <http://www.cisco.com/go/ISR4451>.

For more information about Cisco Technical Services, visit <http://www.cisco.com/go/ts>.



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